PowerFlex 750-Series AC Drives

User Manual

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at **http://www.rockwellautomation.com/literature**) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary we use notes to make you aware of safety considerations.

WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

Important: Identifies information that is critical for successful application and understanding of the product.

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequences.

Shock Hazard labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.

Burn Hazard labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be at dangerous temperatures.

Summary of Changes

This information below summarizes the changes to the PowerFlex 750-Series AC Drives User Manual, publication 750-UM001 since the last release.

Manual Updates

Change	**Page(s)**
Catalog Number Explanation updated	P-6
Lifting instructions for Frame 6 and 7 IP54, NEMA/UL Type 12 enclosures added	1-2, 1-4
Acceptable Surrounding Air Temperature for Frame 6 and 7 IP54, NEMA/UL Type 12 Stand-alone/Wall Mount drives added	1-7
Common Bus Power Wiring section added	1-18…1-20
PowerFlex 753 I/O Terminal Block Specifications added	1-28
PowerFlex 753 Control Module details added	1-31, 1-32, 1-34, 1-35
PowerFlex 753 Main Control Board I/O wiring examples added	1-38
Auxiliary Power Supply installation details for PowerFlex 753 added	1-46
RF Emission Compliance and Installation Requirements table updated	1-53
PowerFlex 753 control block diagrams added	Appendix B

Change	Page(s)
The following parameters were added: 222 [Dig In Fltr Mask] 223 [Dig In Filt] 225 [Dig Out Sts] 226 [Dig Out Invert] 227 [Dig Out Setpoint] 230 [RO0 Sel] 231 [RO0 Level Sel] 232 [RO0 Level] 233 [RO0 Lvl CmpSts] 234 [RO0 On Time] 235 [RO0 Off Time] 240 [TO0 Sel] 241 [TO0 Level Sel] 242 [TO0 Level] 243 [TO0 Level CmpSts] 244 [TO0 On Time] 245 [TO0 Off Time] 250 [PTC Cfg] 251 [PTC Status] 255 [Anlg In Type] 256 [Anlg In Sqrt] 257 [Anlg In Loss Sts] 260 [Anlg In0 Value] 261 [Anlg In0 Hi] 262 [Anlg In0 Lo] 263 [Anlg In0 LssActn] 264 [Anlg In0 Raw Val] 265 [Anlg In0 Filt Gn] 266 [Anlg In0 Filt BW] 270 [Anlg Out Type] 271 [Anlg Out Abs] 275 [Anlg Out0 Sel] 276 [Anlg Out0 Stpt] 277 [Anlg Out0 Data] 278 [Anlg Out0 DataHi] 279 [Anlg Out0 DataLo] 280 [Anlg Out0 Hi] 281 [Anlg Out0 Lo] 282 [Anlg Out0 Val] 285 [RO PredMaint Sts] 286 [RO0 Load Type] 287 [RO0 Load Amps] 288 [RO0 TotalLife] 289 [RO0 ElapsedLife] 290 [RO0 RemainLife] 291 [RO0 LifeEvntLvl] 292 [RO0 LifeEvntActn] 883 [Drive Ref Rslt] 884 [Drive Ramp Rslt] 1120 [Fiber Control] 1121 [Fiber Status] 1122 [Sync Time] 1123 [Traverse Inc] 1124 [Traverse Dec] 1125 [Max Traverse] 1126 [P Jump] 1129 [DI Fiber SyncEna] 1130 [DI Fiber TravDis] 1131 [Adj Vltg Config] 1133 [Adj Vltg Select] 1134 [Adj Vltg Ref Hi] 1135 [Adj Vltg Ref Lo] 1136 [Adj Vltg TrimSel] 1137 [Adj Vltg Trim Hi] 1138 [Adj Vltg Trim Lo] 1139 [Adj Vltg Command] 1140 [Adj Vltg AccTime] 1141 [Adj Vltg DecTime] 1142 [Adj Vltg Preset1] 1143 [Adj Vltg Preset2] 1144 [Adj Vltg Preset3] 1145 [Adj Vltg Preset4] 1146 [Adj Vltg Preset5] 1147 [Adj Vltg Preset6] 1148 [Adj Vltg Preset7] 1149 [Adj Vltg RefMult] 1150 [Adj Vltg Scurve] 1151 [Adj Vltg TrimPct] 1152 [Min Adj Voltage] 1165 [Rod Speed] 1166 [Rod Torque] 1167 [Rod Speed Cmd] 1168 [TorqAlarm Action] 1169 [TorqAlarm Config] 1170 [TorqAlarm Dwell] 1171 [TorqAlarm Level] 1172 [TorqAlm Timeout] 1173 [TorqAlarm TOActn] 1174 [Total Gear Ratio] 1175 [Max Rod Speed] 1176 [Max Rod Torque] 1177 [Min Rod Speed] 1178 [Motor Sheave] 1179 [OilWell Pump Cfg] 1180 [PCP Pump Sheave] 1181 [Gearbox Limit] 1182 [Gearbox Rating] 1183 [Gearbox Ratio] 1184 [Gearbox Sheave] 1187 [Pump Off Config] 1188 [Pump Off Setup] 1189 [Pump Off Action] 1190 [Pump Off Control] 1191 [Pump Off Status] 1192 [Pump Cycle Store] 1193 [Set Top ofStroke] 1194 [Torque Setpoint] 1195 [Pump Off Level] 1196 [Pump Off Speed] 1197 [Pump Off Time] 1198 [Pct Cycle Torque] 1199 [Pct Lift Torque] 1200 [Pct Drop Torque] 1201 [Stroke Pos Count] 1202 [Stroke Per Min] 1203 [Pump Off Count] 1204 [Pump Off SleepCnt] 1205 [Day Stroke Count] 1206 [DI PumpOff Disbl] 1207 [Pump OffSleepLvl]	3-35…3-119
Frame 6 IP54, NEMA/UL Type 12 enclosure dimensions added	A-30
Frame 7 IP54, NEMA/UL Type 12 enclosure dimensions added	A-34

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Overview

The purpose of this manual is to provide you with the basic information needed to install, start-up and troubleshoot PowerFlex® 750-Series Adjustable Frequency AC Drives.

Who Should Use This Manual

This manual is intended for qualified personnel. You must be able to program and operate Adjustable Frequency AC Drive devices. In addition, you must have an understanding of the parameter settings and functions.

What Is Not In This Manual

The PowerFlex 750-Series User Manual is designed to provide only basic start-up information.

Recommended Documentation

All the recommended documentation listed in this section is available online at **www.rockwellautomation.com/literature**.

The following publications provide general drive information.

Title	Publication
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives	DRIVES-IN001
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	SGI-1.1
A Global Reference Guide for Reading Schematic Diagrams	100-2.10
Guarding Against Electrostatic Damage	8000-4.5.2

The following publications provide specific PowerFlex 750-Series drive features information:

Title	Publication
Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual	20HIM-UM001
PowerFlex 750-Series Safe Torque Off User Manual	750-UM002
Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Reference Manual	750-RM001
PowerFlex 7-Class Network Communication Adapter User Manuals	750COM-UM
Dynamic Braking Resistor Calculator	PFLEX-AT001
DeviceLogix User Manual	RA-UM003

The following publications provide necessary information when applying the DriveLogix Controller:

Title	Publication
DriveLogix5730 Controller User Manual	20D-UM003
PowerFlex 755 Drive & DriveLogix Controller	20D-RN007
Logix5000 Controllers Common Procedures	1756-PM001
Logix5000 Controllers General Instructions	1756-RM003
Logix5000 Controllers Process Control and Drives Instructions	1756-RM006
RSLogix 5000 Getting Results	9399-RLD300GR

The following publications provide information that is useful when planning and installing communication networks:

Title	Publication
ContolNet Coax Tap Installation Instructions	1786-5.7
ControlNet Cable System Planning and Installation Manual	1786-6.2.1
ContolNet Fiber Media Planning and Installation Guide	CNET-IN001

Obtaining Manuals

To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

To find your local Rockwell Automation distributor, visit **www.rockwellautomation.com/locations**

Allen-Bradley Drives Technical Support

Online at…	By Email at…	By Telephone at…
www.ab.com/support/abdrives	support@drives.ra.rockwell.com	262-512-8176

For Automation and Control Technical Support:

Title	Online at…
Rockwell Automation Technical Support	http://support.rockwellautomation.com/knowledgebase

Product Certification

Product Certifications and Declarations of Conformity are available on the internet at: **www.rockwellautomation.com/products/certification**

Manual Conventions

- In this manual we refer to PowerFlex 750-Series Adjustable Frequency AC Drives as: drive, PowerFlex 750, PowerFlex 750 drive or PowerFlex 750 AC drive.
- Specific drives within the PowerFlex 750-Series may be referred to as:
  - PowerFlex 753, PowerFlex 753 drive or PowerFlex 753 AC drive
  - PowerFlex 755, PowerFlex 755 drive or PowerFlex 755 AC drive
- To help differentiate parameter names and LCD display text from other text, the following conventions will be used:
  - Parameter Names will appear in [brackets] after the Parameter Number.
    For example: parameter 308 [Direction Mode].
  - Display text will appear in “quotes.” For example: “Enabled.”
- The following words are used throughout the manual to describe an action:

Word	Meaning
Can	Possible, able to do something
Cannot	Not possible, not able to do something
May	Permitted, allowed
Must	Unavoidable, you must do this
Shall	Required and necessary
Should	Recommended
Should Not	Not recommended

Drive Frame Sizes

Similar PowerFlex 750-Series drive sizes are grouped into frame sizes to simplify spare parts ordering, dimensioning, etc. A cross reference of drive catalog numbers and their respective frame size is provided in Appendix A.

General Precautions

Qualified Personnel

ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.

Personal Safety

ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before servicing. Check the DC bus voltage at the Power Terminal Block by measuring between the +DC and -DC terminals (refer to Chapter 1 for location), between the +DC terminal and the chassis, and between the -DC terminal and the chassis. The voltage must be zero for all three measurements.

ATTENTION: Hazard of personal injury or equipment damage exists when using bipolar input sources. Noise and drift in sensitive input circuits can cause unpredictable changes in motor speed and direction. Use speed command parameters to help reduce input source sensitivity.

ATTENTION: Risk of injury or equipment damage exists. DPI or SCANport host products must not be directly connected together via 1202 cables. Unpredictable behavior can result if two or more devices are connected in this manner.

ATTENTION: The drive start/stop/enable control circuitry includes solid state components. If hazards due to accidental contact with moving machinery or unintentional flow of liquid, gas or solids exists, an additional hardwired stop circuit may be required to remove the AC line to the drive. An auxiliary braking method may be required.

ATTENTION: Hazard of personal injury or equipment damage due to unexpected machine operation exists if the drive is configured to automatically issue a Start or Run command. Do not use these functions without considering applicable local, national and international codes, standards, regulations or industry guidelines.

Product Safety

ATTENTION: An incorrectly applied or installed drive can result in component damage or a reduction in product life. Wiring or application errors such as under sizing the motor, incorrect or inadequate AC supply, or excessive surrounding air temperatures may result in malfunction of the system.

ATTENTION: This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Guarding Against Electrostatic Damage, publication 8000-4.5.2 or any other applicable ESD protection handbook.

ATTENTION: Configuring an analog input for 0-20 mA operation and driving it from a voltage source could cause component damage. Verify proper configuration prior to applying input signals.

ATTENTION: A contactor or other device that routinely disconnects and reapplies the AC line to the drive to start and stop the motor can cause drive hardware damage. The drive is designed to use control input signals that will start and stop the motor. If an input device is used, operation must not exceed one cycle per minute or drive damage will occur.

Class 1 LED Product

ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber optic cable connectors.

Catalog Number Explanation

Position

1…3	*4*	*5*	*6*	*7*	*8…10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
20F	1	1	N	D	248	A	A	0	N	N	N	N	N
a	*b*	*c*	*d*	*e*	*f*	*g*	*h*						

a

Drive

Code	Type
20F	PowerFlex 753
20G	PowerFlex 755

b

Future Use

c

Input Type ∗

Code	Description	Frames
1	6 Pulse, w/DC Terminals	2…7
4	DC Common Bus with Precharge	5…7
A	6 Pulse, w/o DC Terminals	6, 7

∗ For Frames 2…4, Code 1 also provides the functionality of DC Common Bus with Precharge. For Frames 5 and larger, Code 4 is required for DC Common Bus with Precharge.

d

Enclosure

Code	Description
F	Flange (NEMA/UL Type 4X back) § ‡
G	IP54, NEMA/UL Type 12 §
N	IP20/IP00, NEMA/UL Type Open ❄

‡ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X back.

§ Frames 2…5 only.

❄ Frames 2…5 are IP20, Frames 6…7 are IP00.

e

Voltage Rating

Code	Voltage
C	400V AC
D	480V AC

f1

ND Rating

400V, 50 Hz Input

Code	Amps	kW	Frame Enclosure Code N	 F	 G
2P1	2.1	0.75	2	2	2
3P5	3.5	1.5			
5P0	5.0	2.2			
8P7	8.7	4			
011	11.5	5.5			
015	15.4	7.5			
022	22	11			
030	30	15	3	3	3
037	37	18.5			
043	43	22			
060	60	30	4	4	4
072	72	37			5
085	85	45	5	5	
104	104	55			6
140	140	75	6	‡	
170	170	90			
205	205	110			
260	260	132			7
302	302	160	7		
367	367	200			
456	456	250			

‡ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X back.

f2

ND Rating

480V, 60 Hz Input

Code	Amps	Hp	Frame Enclosure Code N	 F	 G
2P1	2.1	1	2	2	2
3P4	3.4	2			
5P0	5.0	3			
8P0	8.0	5			
011	11	7.5			
014	14	10			
022	22	15			
027	27	20	3	3	3
034	34	25			
040	40	30			
052	52	40	4	4	4
065	65	50			5
077	77	60	5	5	
096	96	75			6
125	125	100	6	‡	
156	156	125			
186	186	150			
248	248	200			7
302	302	250	7		
361	361	300			
415	415	350			

‡ For Frames 6…7 a User Installed Flange Kit is available to convert a Code N drive that provides a NEMA/UL Type 4X back.

g

Filtering and CM Cap Configuration

Code	Filtering	Default CM Cap Connection
A ➤	Yes	Jumper Removed
J ➤	Yes	Jumper Installed

➤ In all cases, jumpers are included for field reconfiguration as desired.

h

Dynamic Braking

Code	Internal Resistor ⌘	Internal Transistor ✦
A	No	Yes
B	Yes	Yes
N	No	No

⌘ Frame 2 only.

✦ Standard on Frames 2…5, Optional on Frames 6…7.

Chapter 1

Installation/Wiring

Chapter Objectives

This chapter provides the information needed to mount and wire PowerFlex® 750-Series AC drives, frames 2…7.

Most start-up difficulties are the result of incorrect wiring. Every precaution must be taken to assure that the wiring is done as instructed. All items must be read and understood before the actual installation begins.

ATTENTION: The following information is merely a guide for proper installation. Rockwell Automation, Inc. cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.

Lifting the Drive

The dimensions and weights specified must be taken into consideration when mounting the drive. All lifting equipment and lifting components (hooks, bolts, lifts, slings, chains, etc.) must be properly sized and rated to safely lift and hold the weight of the drive while mounting.

ATTENTION: To guard against possible personal injury and/or equipment damage…

- Inspect all lifting hardware for proper attachment before lifting drive.
- Do not allow any part of the drive or lifting mechanism to make contact with electrically charged conductors or components.
- Do not subject the drive to high rates of acceleration or deceleration while transporting to the mounting location or when lifting.
- Do not allow personnel or their limbs directly underneath the drive when it is being lifted and mounted.

Figure 1.1 Frame 6 Open Type and Flange Mount: Weight: 38.6 kg (85.0 lb)

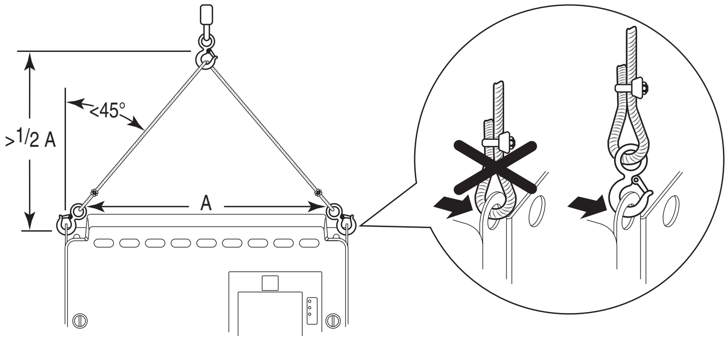
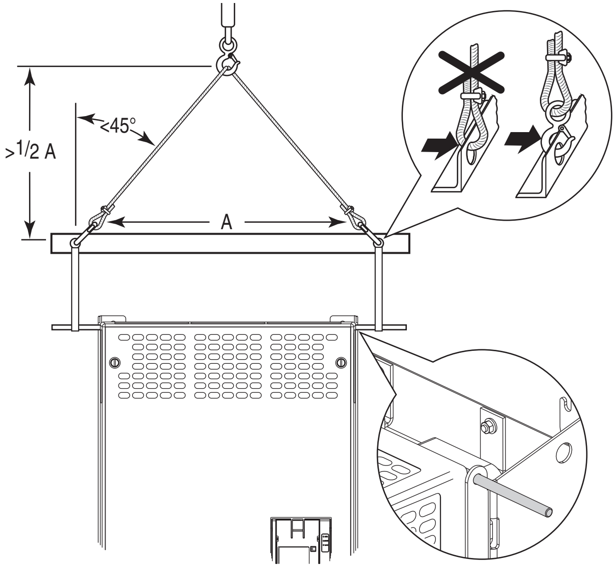
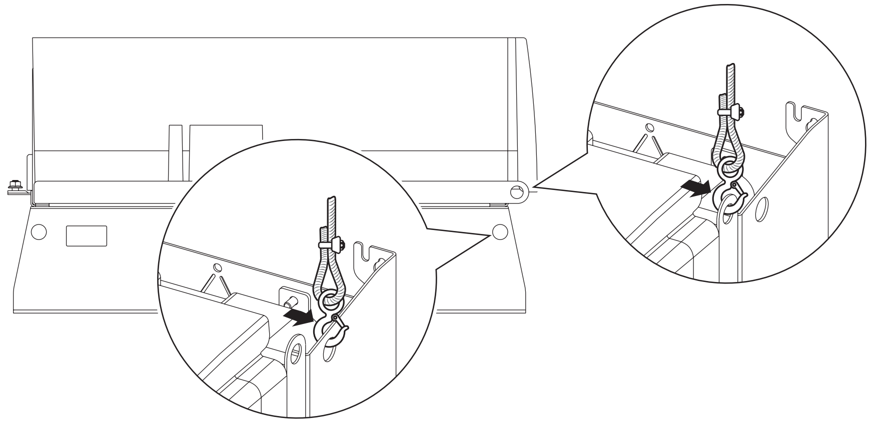


Figure 1.2 Frame 7 Open Type and Flange Mount: Weight: 72.6…108.9 kg (160…240 lb)
Frame 6 NEMA/UL Type 4X/12: Weight: 90.7 kg (200 lb)
Frame 7 NEMA/UL Type 4X/12: Weight: 171 kg (377 lb)

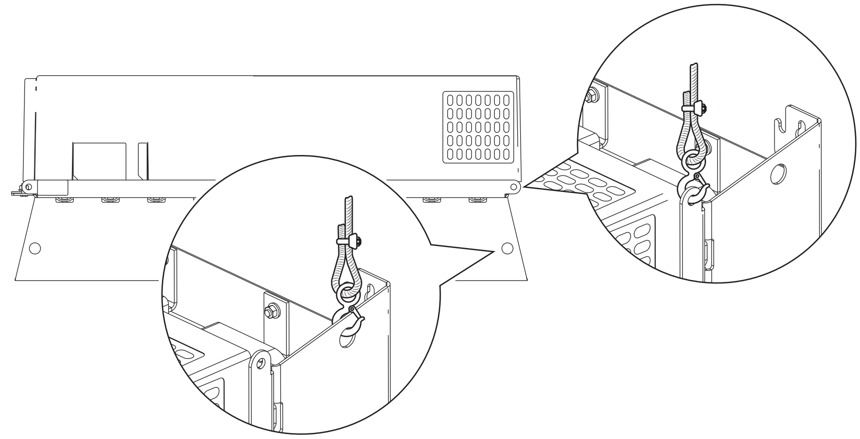


IP00, NEMA/UL Open Type

Frame 6 Lifting Points – 6 Places

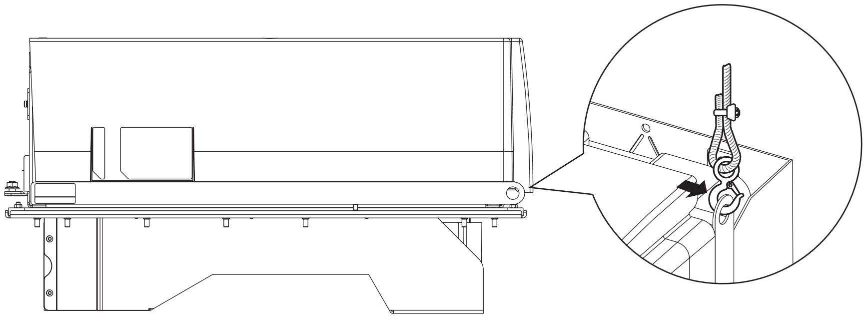


Frame 7 Lifting Points – 8 Places

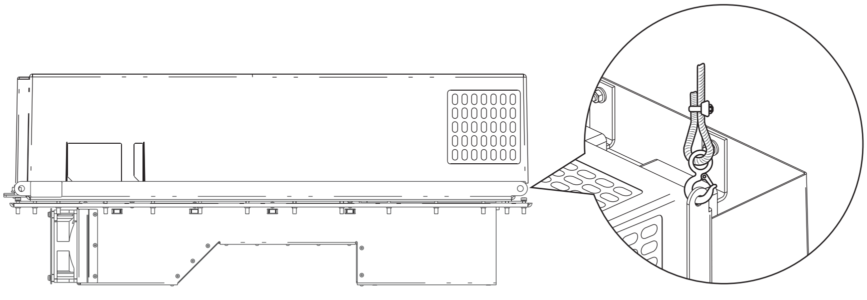


Flange Mount (Back/Heatsink: IP66, NEMA/UL Type 4X/12)

Frame 6 Lifting Points – 2 Places

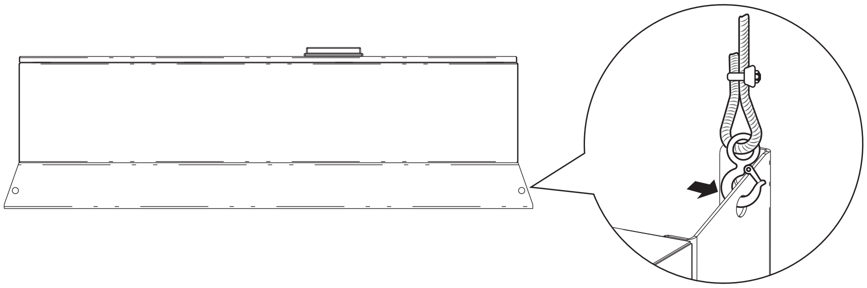


Frame 7 Lifting Points – 4 Places



IP54, NEMA/UL Type 12

Frame 6 and 7 Lifting Points – 4 Places



Opening the Cover

Figure 1.3 IP20, NEMA/UL Open Type, Frames 2…5

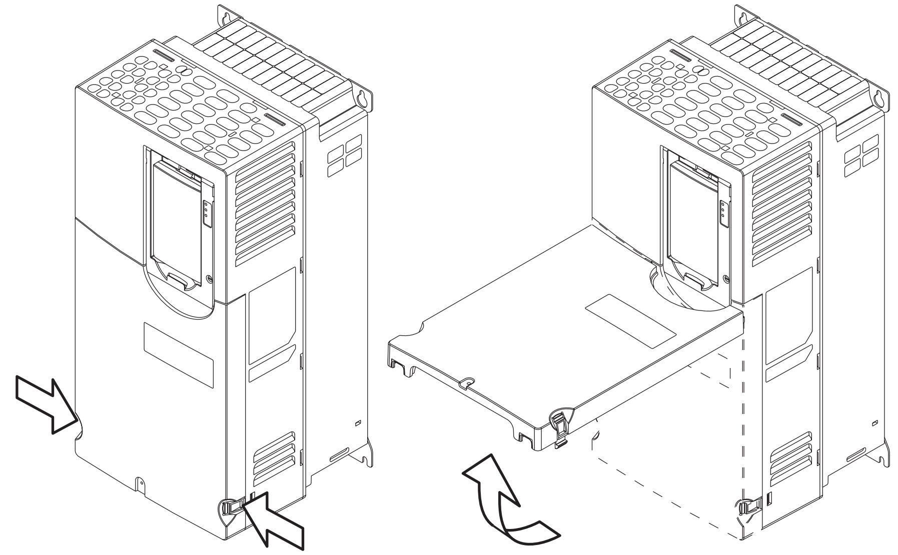
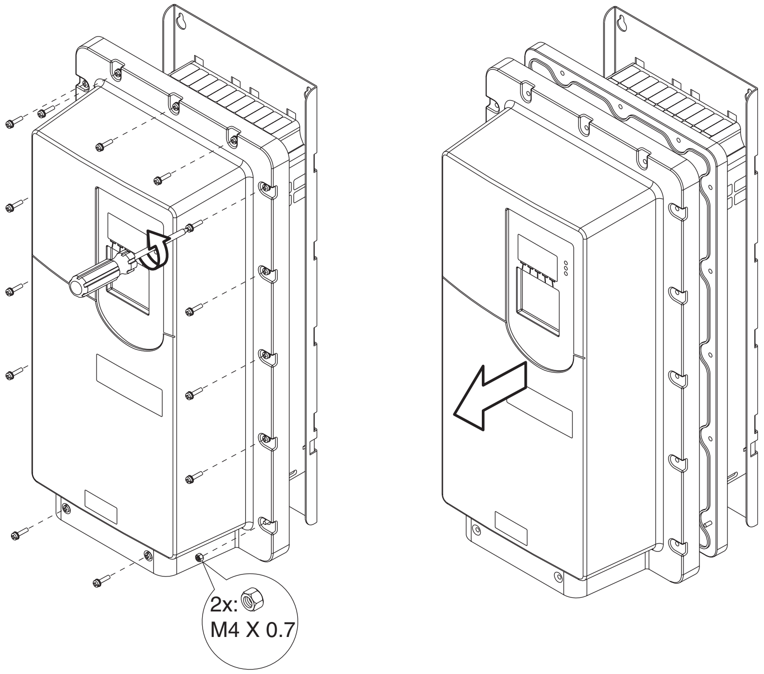


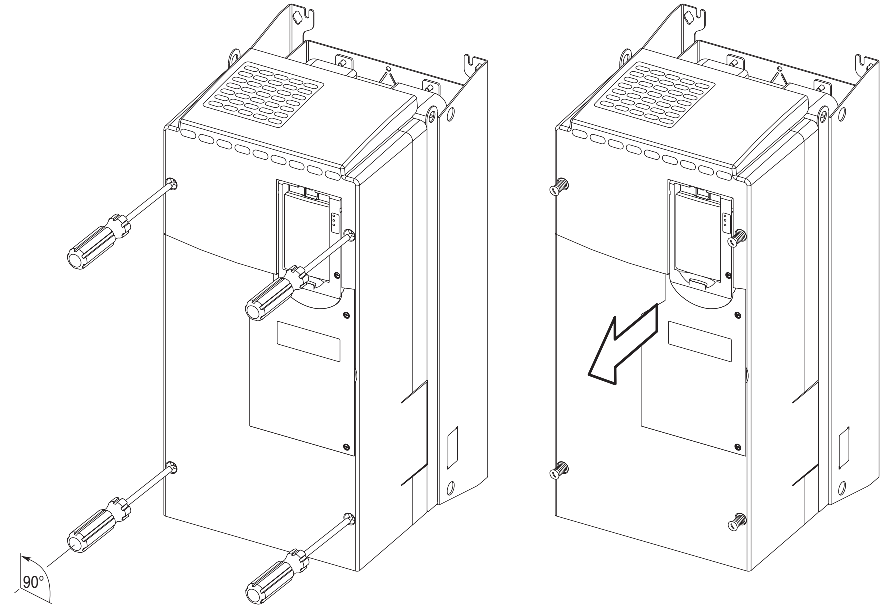
Figure 1.4 IP54, NEMA/UL Type 12, Frames 2…5



When cover is replaced:

- Recommended torque (screws and nuts) = 0.68 N•m (6.0 lb•in)
- Recommended screwdriver = 6.4 mm (0.25 in.) flat or T20 Hexalobular
- Recommended hex socket = 7 mm

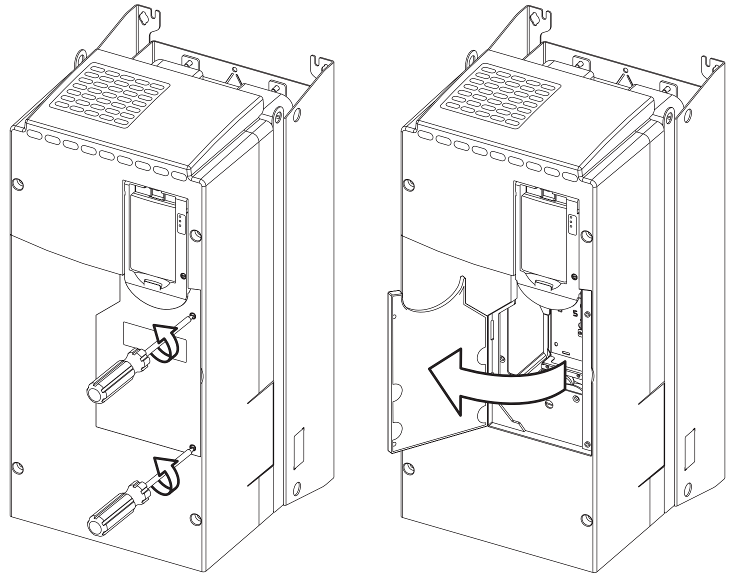
Figure 1.5 IP00, NEMA/UL Open Type, Frames 6 & 7



When cover is replaced:

- Recommended screwdriver = 6.4 mm (0.25 in.) flat

Figure 1.6 IP00, NEMA/UL Open Type, Frames 6 & 7 Access Door



When door is replaced:

- Recommended screwdriver = 6.4 mm (0.25 in.) flat or T20 Hexalobular

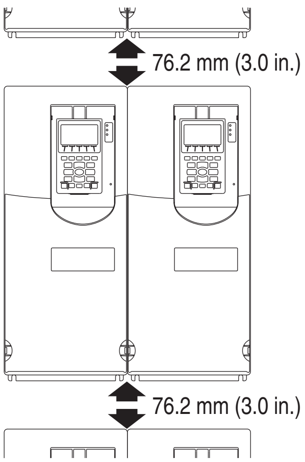
Mounting Considerations

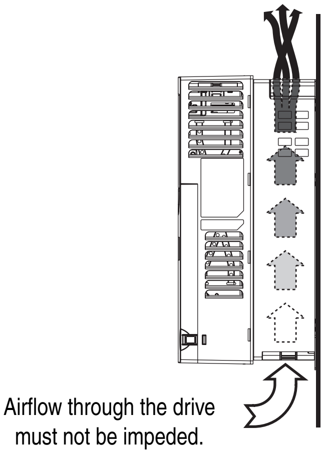
Operating Conditions and Temperatures

PowerFlex 750-Series drives are designed to operate at the following air temperatures without derating.

Table 1.A Acceptable Surrounding Air Temperature

Enclosure Rating	Temperature Range	Drive
IP20, NEMA/UL Open Type	0…50 °C (32…122 °F)	Frames 2…5, All Ratings
IP00, NEMA/UL Open Type	0…50 °C (32…122 °F)	Frames 6…7, All Ratings
IP20, NEMA/UL Type 1 (with Debris Hood)	0…40 °C (32…104 °F)	Frames 2…5, All Ratings
IP20, NEMA/UL Type 1 (with Debris Label)	0…40 °C (32…104 °F)	Frames 6…7, All Ratings
Flange Mount - Front:		
IP20, NEMA/UL Open Type	0…50 °C (32…122 °F)	Frames 2…5, All Ratings
IP00, NEMA/UL Open Type	0…50 °C (32…122 °F)	Frames 6…7, All Ratings
Back/Heat Sink:		
IP66, NEMA/UL Type 4X	0…40 °C (32…104 °F)	All Frames, All Ratings
Stand-alone/Wall Mount - IP54, NEMA/UL Type 12	0…40 °C (32…104 °F)	All Frames, All Ratings





Minimum Mounting Clearances

Specified vertical clearance requirements are intended to be from drive to drive. Other objects can occupy this space; however, reduced airflow may cause protection circuits to fault the drive. The drive must be mounted in a vertical orientation as shown. In addition, inlet air temperature must not exceed the product specification.

AC Supply Source Considerations

PowerFlex 750-Series drives are suitable for use on a circuit capable of delivering up to a maximum of 200,000 rms symmetrical amperes, 480 volts with recommended fuses/circuit breakers.

ATTENTION: To guard against personal injury and/or equipment damage caused by improper fusing or circuit breaker selection, use only the recommended line fuses/circuit breakers specified in Appendix A.

If a Residual Current Detector (RCD) is used as a system ground fault monitor, only Type B (adjustable) devices should be used to avoid nuisance tripping.

Unbalanced, Ungrounded, Impedance or Phase Grounded Distribution Systems

If phase to ground voltage will exceed 125% of normal line to line voltage or the supply system is ungrounded, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001.

ATTENTION: PowerFlex 750-Series drives contain protective MOVs and common mode capacitors that are referenced to ground. To guard against drive damage, these devices must be configured according to the recommendations in Table 1.J on page 1-24. See pages 1-25…1-26 for jumper locations.

Input Power Conditioning

Certain events on the power system supplying a drive can cause component damage or shortened product life. These conditions are divided into 2 basic categories:

1. **All Drives**
   - The power system has power factor correction capacitors switched in and out of the system, either by the user or by the power company.
   - The power source has intermittent voltage spikes in excess of 6000 volts. These spikes could be caused by other equipment on the line or by events such as lightning strikes.
   - The power source has frequent interruptions.
2. **5 Hp or Less Drives (in addition to “1” above)**
   - The supply transformer is larger than 100 kVA or the available short circuit (fault) current is greater than 100,000A.
   - The impedance on the input side of the drive is less than 0.5%.

If any of these conditions exist, additional source impedance is required. The total input impedance is a function of all transformers, cabling, and reactors (if used) that supply power to the drive. The impedance can be calculated using the information supplied in Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001.

Grounding Requirements

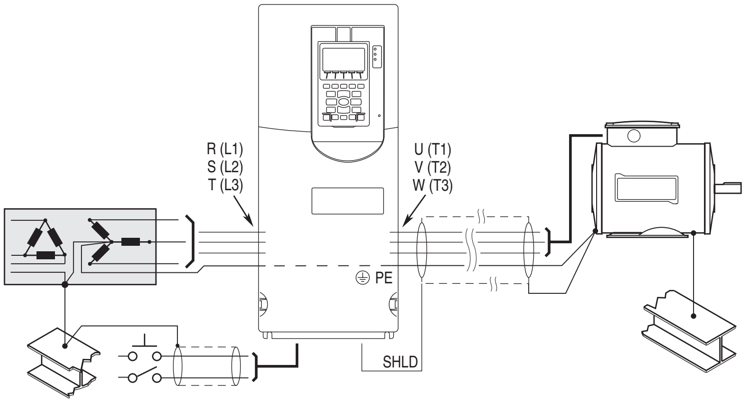
The drive Safety Ground-PE must be connected to system ground. Ground impedance must conform to the requirements of national and local industrial safety regulations and/or electrical codes. The integrity of all ground connections should be periodically checked.

Recommended Grounding Scheme

A single point (PE only) grounding scheme should be used. Some applications may require alternate grounding schemes, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001, for more information. These applications include installations with long distances between drives or drive line-ups, which could cause large potential differences between the drive or line-up grounds.

For installations within a cabinet, a single safety ground point or ground bus bar connected directly to building steel should be used. All circuits including the AC input ground conductor should be grounded independently and directly to this point/bar.

Figure 1.7 Typical Grounding



Shield Termination - SHLD

The Shield terminal (see page 1-15) provides a grounding point for the motor cable shield. It must be connected to an earth ground by a separate continuous lead. The **motor cable** shield should be connected to this terminal on the drive (drive end) and the motor frame (motor end). Use a shield terminating or EMI clamp to connect shield to this terminal.

RFI Filter Grounding

Using an optional RFI filter may result in relatively high ground leakage currents. Therefore, the **filter must only be used in installations with grounded AC supply systems and be permanently installed and solidly grounded** (bonded) to the building power distribution ground. Ensure that the incoming supply neutral is solidly connected (bonded) to the same building power distribution ground. Grounding must not rely on flexible cables and should not include any form of plug or socket that would permit inadvertent disconnection. Some local codes may require redundant ground connections. The integrity of all connections should be periodically checked. Refer to the instructions supplied with the filter.

Fuses and Circuit Breakers

PowerFlex 750-Series drives can be installed with either input fuses or an input circuit breaker. National and local industrial safety regulations and/or electrical codes may determine additional requirements for these installations. Refer to Appendix A for recommended fuses/circuit breakers.

ATTENTION: PowerFlex 750-Series drives do not provide input power short circuit protection. Specifications for the recommended fuse or circuit breaker to provide drive input power protection against short circuits are provided in Appendix A.

Power Wiring

Most start-up difficulties are the result of incorrect wiring. Every precaution must be taken to assure that the wiring is done as instructed. All items must be read and understood before the actual installation begins.

ATTENTION: The following information is merely a guide for proper installation. Rockwell Automation, Inc. cannot assume responsibility for the compliance or the noncompliance to any code, national, local or otherwise for the proper installation of this drive or associated equipment. A hazard of personal injury and/or equipment damage exists if codes are ignored during installation.

Power Cable Types Acceptable for 200…600 Volt Installations

ATTENTION: National Codes and standards (NEC, BSI etc.) and local codes outline provisions for safely installing electrical equipment. Installation must comply with specifications regarding wire types, conductor sizes, branch circuit protection and disconnect devices. Failure to do so may result in personal injury and/or equipment damage.

A variety of cable types are acceptable for drive installations. For many installations, unshielded cable is adequate, provided it can be separated from sensitive circuits. As an approximate guide, allow a spacing of 0.3 meters (1 foot) for every 10 meters (32.8 feet) of length. In all cases, long parallel runs must be avoided. Do not use cable with an insulation thickness less than or equal to 15 mils (0.4 mm/0.015 in.). Use copper wire only. Wire gauge requirements and recommendations are based on 75 °C. Do not reduce wire gauge when using higher temperature wire.

Table 1.B Recommended Cable Design

Rating/Type	Description
600V 75 °C (167 °F)	• Four tinned copper conductors with XLPE insulation. • Copper braid/aluminum foil combination shield and tinned copper drain wire. • PVC jacket.

Unshielded

THHN, THWN or similar wire is acceptable for drive installation in dry environments provided adequate free air space and/or conduit fill rates limits are provided. **Do not use THHN or similarly coated wire in wet areas**. Any wire chosen must have a minimum insulation thickness of 15 Mils and should not have large variations in insulation concentricity.

Shielded/Armored Cable

Shielded cable contains all of the general benefits of multi-conductor cable with the added benefit of a copper braided shield that can contain much of the noise generated by a typical AC Drive. Strong consideration for shielded cable should be given in installations with sensitive equipment such as weigh scales, capacitive proximity switches and other devices that may be affected by electrical noise in the distribution system. Applications with large numbers of drives in a similar location, imposed EMC regulations or a high degree of communications/networking are also good candidates for shielded cable.

Shielded cable may also help reduce shaft voltage and induced bearing currents for some applications. In addition, the increased impedance of shielded cable may help extend the distance the motor can be located from the drive without the addition of motor protective devices such as terminator networks. Refer to “Reflected Wave” in Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001.

Consideration should be given to all of the general specifications dictated by the environment of the installation, including temperature, flexibility, moisture characteristics and chemical resistance. In addition, a braided shield should be included and specified by the cable manufacturer as having coverage of at least 75%. An additional foil shield can be greatly improve noise containment.

A good example of recommended cable is Belden® 295xx (xx determines gauge). This cable has 4 XLPE insulated conductors with a 100% coverage foil and an 85% coverage copper braided shield (with drain wire) surrounded by a PVC jacket.

Other types of shielded cable are available, but the selection of these types may limit the allowable cable length. Particularly, some of the newer cables twist 4 conductors of THHN wire and wrap them tightly with a foil shield. This construction can greatly increase the cable charging current required and reduce the overall drive performance. Unless specified in the individual distance tables as tested with the drive, these cables are not recommended and their performance against the lead length limits supplied is not known.

EMC Compliance

Refer to CE Conformity on page 1-50 for details.

Cable Trays and Conduit

If cable trays or large conduits are to be used, refer to guidelines presented in Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001.

⚠ **ATTENTION:** To avoid a possible shock hazard caused by induced voltages, unused wires in the conduit must be grounded at both ends. For the same reason, if a drive sharing a conduit is being serviced or installed, all drives using this conduit should be disabled. This will help minimize the possible shock hazard from "cross coupled" motor leads.

Motor Cable Lengths

Typically, motor lead lengths less than 30 meters (100 feet) are acceptable. However, if your application dictates longer lengths, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001 for details.

Motor Considerations

Due to the operational characteristics of AC variable frequency drives, motors with inverter grade insulation systems designed to meet or exceed NEMA MG1 Part 31.40.4.2 standards for resistance to spikes of 1600 volts are recommended.

Guidelines must be followed when using non-inverter grade motors to avoid premature motor failures. Refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001 for recommendations.

Single-Phase Input Power

The PowerFlex 750-Series drive is typically used with a three-phase input supply. Single-phase operation of the drive is not currently rated under UL508C listing. Rockwell Automation has verified that single-phase operation with output current derated by 50% of the three-phase ratings identified on page A-11 will meet all safety requirements.

Power Terminal Blocks

Table 1.C Frames 2…5 Power Terminal Block

Frame	Wire Size Range[1] [2]		Strip Length	Recommended Torque	Recommended Tool(s)
	Maximum	Minimum			
2	4.0 mm^2 (10 AWG)	0.2 mm^2 (24 AWG)	8.0 mm (0.31 in.)	0.5 N•m (4.4 lb•in)	#1 Flat Screwdriver
3	16.0 mm^2 (6 AWG)	0.5 mm^2 (20 AWG)	10.0 mm (0.39 in.)	1.2 N•m (10.6 lb•in)	#2 Flat Screwdriver
4	25.0 mm^2 (3 AWG)	2.5 mm^2 (14 AWG)	10.0 mm (0.39 in.)	2.7 N•m (24 lb•in)	#2 Pozidrive® 492-C Phillips® 0.25 in. Flat Screwdriver
5	35.0 mm^2 (1 AWG)	10.0 mm^2 (8 AWG)	12.0 mm (0.5 in.)	4.0 N•m (35 lb•in)	#2 Pozidrive® 492-C Phillips® 0.25 in. Flat Screwdriver

(1) Maximum/minimum wire sizes that the terminal block will accept - these are not recommendations.
(2) Terminal blocks are designed to accept a single wire.

Table 1.D Frames 6 & 7 Power Terminal Block

Frame	Maximum Lug Width	Recommended Torque	Terminal Bolt Size	Recommended Tool
6	34.6 mm (1.36 in.)	11.3 N•m (100 lb•in)	M8 x 1.25	13 mm Hex Socket
7	43.5 mm (1.71 in.)	11.3 N•m (100 lb•in)	M8 x 1.25	13 mm Hex Socket

Table 1.E Frames 2…7 PE Grounding Stud

Frame	Recommended Torque	Terminal Bolt Size	Recommended Tool
2	1.36 N•m (12 lb•in)	M4	7 mm Hex Deep Socket
3	3.4 N•m (30 lb•in)	M6	10 mm Hex Deep Socket
4	3.4 N•m (30 lb•in)	M6	10 mm Hex Deep Socket
5	3.4 N•m (30 lb•in)	M6	10 mm Hex Deep Socket
6	11.3 N•m (100 lb•in)	M8	13 mm Hex Socket
7	11.3 N•m (100 lb•in)	M8	13 mm Hex Socket

Figure 1.8 Typical Terminal Block Location and Termination Points

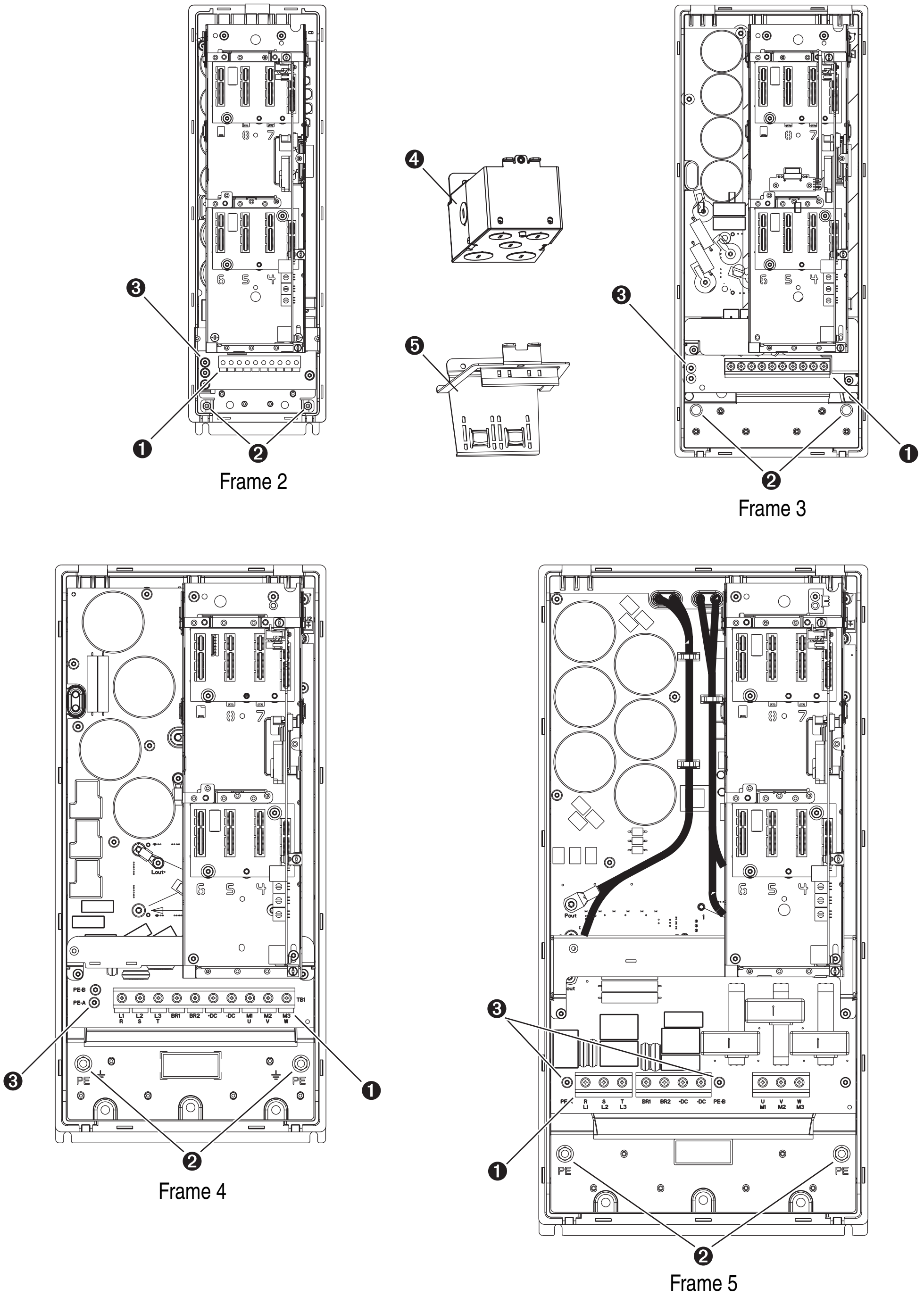
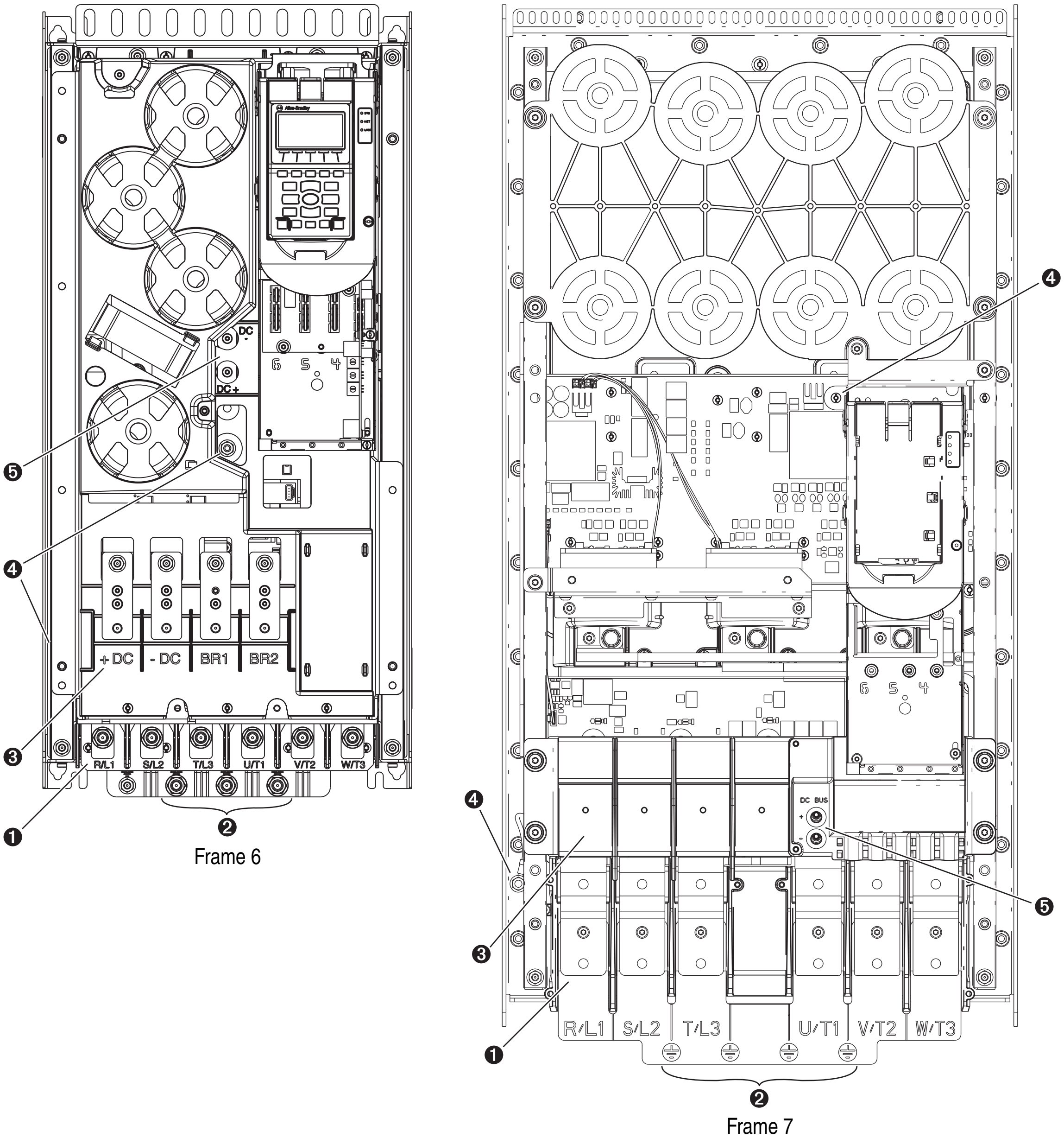


Table 1.F Frames 2…5

No.	Name	Description
❶	Power Terminal Block	R/L1, S/L2, T/L3, BR1, BR2, +DC, -DC, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shields.
❸	PE-A and PE-B	MOV and CMC Jumper Screws
❹	Optional NEMA/UL Type 1 Conduit Box	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields.
❺	Optional EMC Plate	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields.

Figure 1.9 Typical Terminal Block Location and Termination Points (continued)



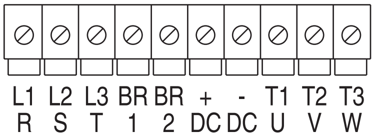
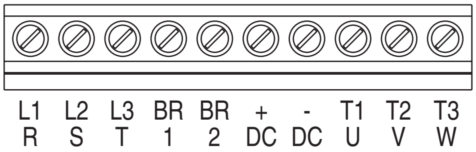
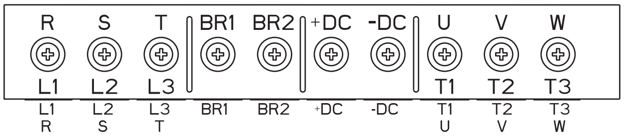
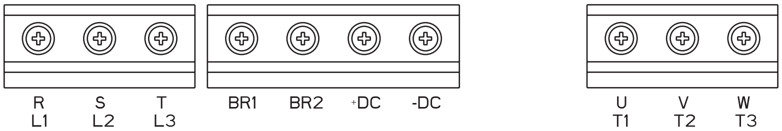
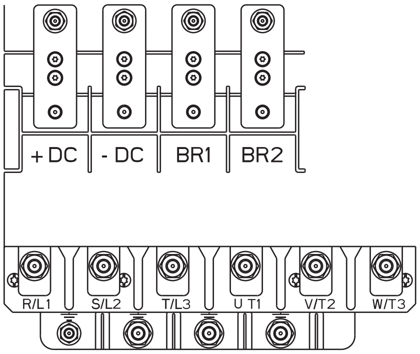
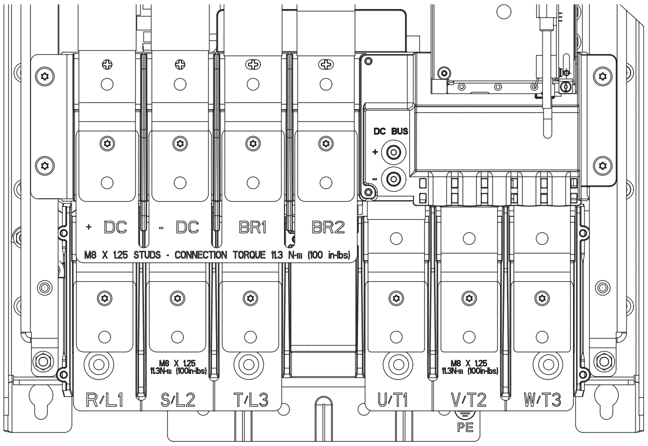
Frame 6

Frame 7

Table 1.G Frames 6…7

No.	Name	Description
❶	Power Terminals	R/L1, S/L2, T/L3, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming AC line and motor shield.
❸	DC Bus and Brake Terminals	+DC, -DC, BR1, BR2
❹	PE-A and PE-B	MOV and CMC Jumper Wires
❺	DC+ and DC-	Bus Voltage Test Points

Power Terminal Blocks

Frame	Power Terminal Blocks
2	
3	
4	
5	
6 (1)	
7 (1)	

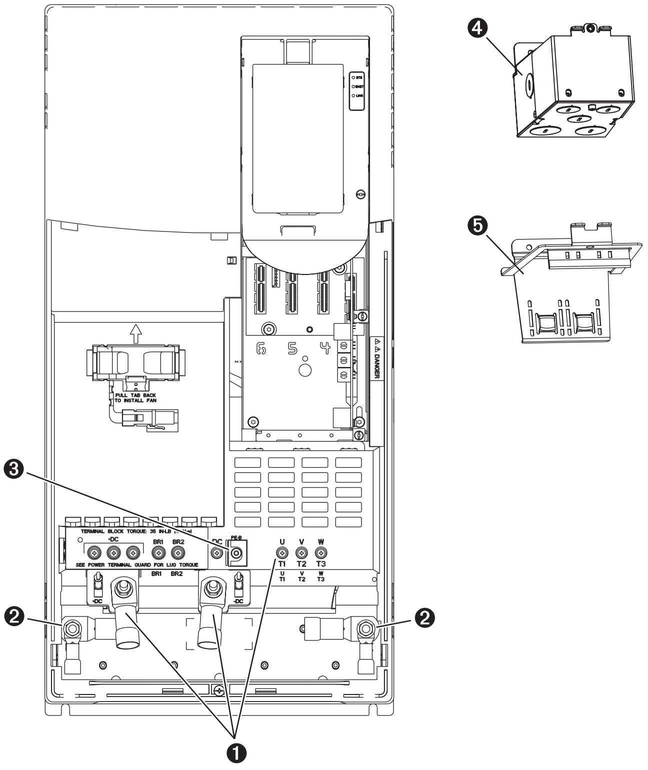
(1) DC Bus Terminals are optional on Frame 6 and 7 drives: catalog number position 5.
Dynamic Brake Resistor Terminals are optional on Frame 6 and 7 drives: catalog number position 12.
Refer to Catalog Number Explanation on page P-6.

Terminal	Description	Notes
+DC	DC Bus (+)	DC Input Power or Dynamic Brake Chopper
-DC	DC Bus (–)	DC Input Power or Dynamic Brake Chopper
BR1	DC Brake (+)	Dynamic Brake Resistor Connection (+)
BR2	DC Brake (–)	Dynamic Brake Resistor Connection (–)
U	U (T1)	Motor Connections (1)
V	V (T2)	
W	W (T3)	
R	R (L1)	AC Line Input Power
S	S (L2)	
T	T (L3)	
PE / ⏚	PE Ground	Terminating point to chassis ground for incoming AC line and motor shield.

(1) **Important:** Motors with NEMA MG1 Part 31.40.4.2 inverter grade insulation systems are recommended. If you intend to connect a motor that is not rated inverter grade, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001 for recommendations.

Common Bus Power Wiring

Figure 1.10 Common Bus Terminal Block Location and Termination Points

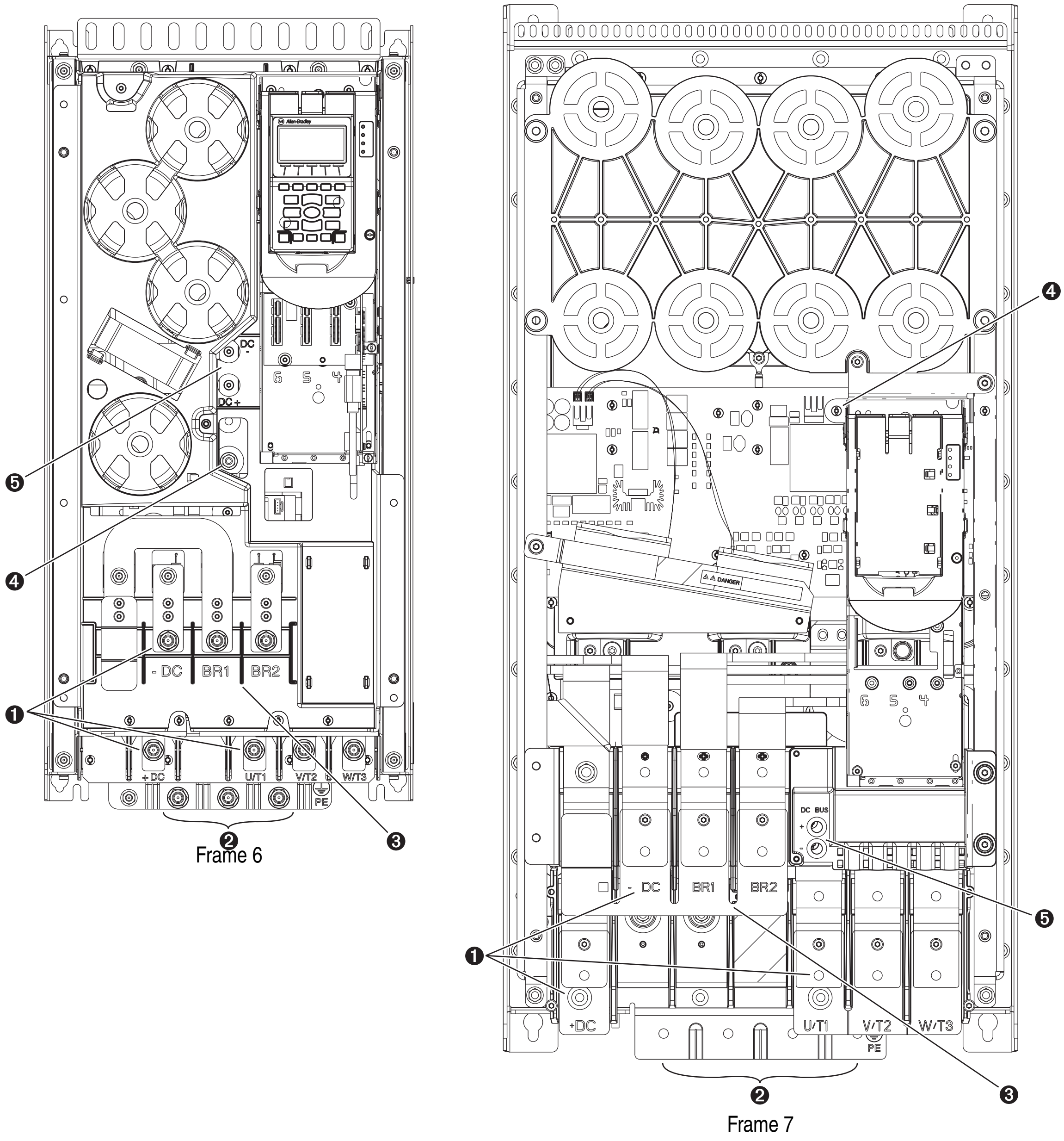


Frame 5

Table 1.H Frame 5 Common Bus

No.	Name	Description
❶	Power Terminal Connections	+DC, -DC, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming DC line and motor shields.
❸	PE-B	CMC Jumper Screw
❹	Optional NEMA/UL Type 1 Conduit Box	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields.
❺	Optional EMC Plate	Terminating point to chassis ground for incoming AC line, motor shields, and control wire shields.

Figure 1.11 Common Bus Terminal Block Location and Termination Points (continued)



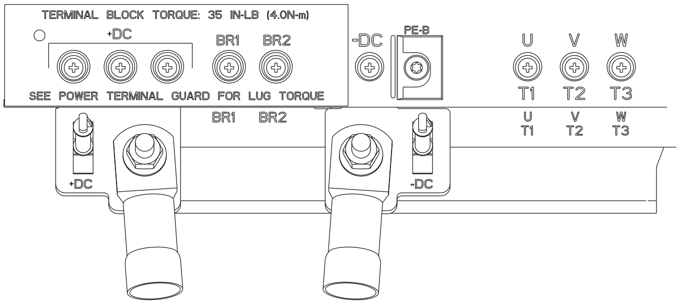
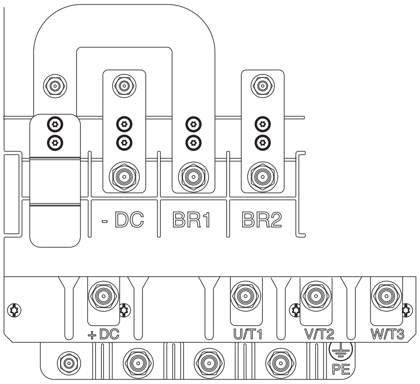
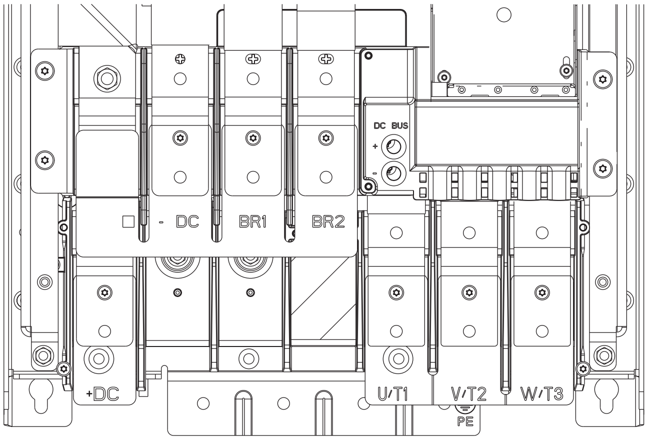
Frame 6

Frame 7

Table 1.I Frames 6…7 Common Bus

No.	Name	Description
❶	Power Terminals	+DC, -DC, U/T1, V/T2, W/T3
❷	PE Grounding Studs	Terminating point to chassis ground for incoming DC line and motor shield.
❸	DC Bus and Brake Terminals	+DC, -DC, BR1, BR2
❹	PE-B	CMC Jumper Wire
❺	DC+ and DC-	Bus Voltage Test Points

Common Bus Power Terminal Blocks

Frame	Power Terminal Blocks
5	
6 (1)	
7 (1)	

(1) Dynamic Brake Resistor Terminals are optional on Frame 6 and 7 drives: catalog number position 12. Refer to Catalog Number Explanation on page P-6.

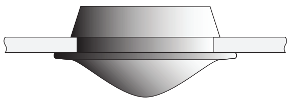
Terminal	Description	Notes
+DC	DC Bus (+)	DC Input Power
-DC	DC Bus (–)	DC Input Power
BR1	DC Brake (+)	Dynamic Brake Resistor Connection (+)
BR2	DC Brake (–)	Dynamic Brake Resistor Connection (–)
U	U (T1)	Motor Connections (1)
V	V (T2)	
W	W (T3)	
PE / ⏚	PE Ground	Terminating point to chassis ground for incoming DC line and motor shield.

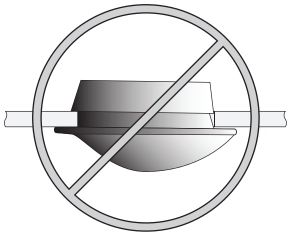
(1) **Important:** Motors with NEMA MG1 Part 31.40.4.2 inverter grade insulation systems are recommended. If you intend to connect a motor that is not rated inverter grade, refer to Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001 for recommendations.

IP65, NEMA Type 12 Installations

Use the plugs supplied with IP65 (NEMA Type 12) rated drives to seal unused holes in the conduit entry plate.

Important: Completely seat the plug inner rim for the best seal.





Using Input/Output Contactors

Input Contactor Precautions

ATTENTION: A contactor or other device that routinely disconnects and reapplies the AC line to the drive to start and stop the motor can cause drive hardware damage. The drive is designed to use control input signals that will start and stop the motor. If an input device is used, operation must not exceed one cycle per minute or drive damage will occur.

ATTENTION: The drive start/stop/enable control circuitry includes solid state components. If hazards due to accidental contact with moving machinery or unintentional flow of liquid, gas or solids exist, an additional hardwired stop circuit may be required to remove the AC line to the drive. An auxiliary braking method may be required.

Output Contactor Precautions

ATTENTION: To guard against drive damage when using output contactors, the following information must be read and understood. One or more output contactors may be installed between the drive and motor(s) for the purpose of disconnecting or isolating certain motors/loads. If a contactor is opened while the drive is operating, power will be removed from the respective motor, but the drive will continue to produce voltage at the output terminals. In addition, reconnecting a motor to an active drive (by closing the contactor) could produce excessive current that may cause the drive to fault. If any of these conditions are determined to be undesirable or unsafe, an auxiliary contact on the output contactor should be wired to a drive digital input that is programmed as “Enable.” This will cause the drive to execute a coast-to-stop (cease output) whenever an output contactor is opened.

Dynamic Brake Resistor Considerations

ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over temperature or a circuit equivalent to Figure C.1 on page C-2 must be supplied.

Using PowerFlex 750-Series Drives with Regenerative Power Units

If a Regenerative unit (i.e., 1336 REGEN) is used as a bus supply or a brake, the common mode capacitors should be disconnected (see Drive Power Jumper Configuration).

Regenerative Unit to Drive Connections

Regenerative Brake Mode

	Terminals	
Frame(s)	**1336 Regen**	**PowerFlex 750-Series Drive**
2…7	DC+ & DC-	+DC & -DC

Regenerative Bus Supply Mode

	Terminals	
Frame(s)	**1336 Regen**	**PowerFlex 750-Series Drive**
2…7	DC+ & DC-	+DC & -DC

Refer to 1336 REGEN Line Regeneration Package User Manual, publication 1336-REGEN-5.0, for more information.

Drive Power Jumper Configuration

PowerFlex 750-Series drives contain protective MOVs and common mode capacitors that are referenced to ground. To guard against drive damage and/or operation problems, these devices must be properly configured according to Table 1.J.

MOV, AC EMI Capacitor, and Common Mode Capacitor Circuits

Figure 1.12 MOV and AC EMI Capacitor Phase to Ground

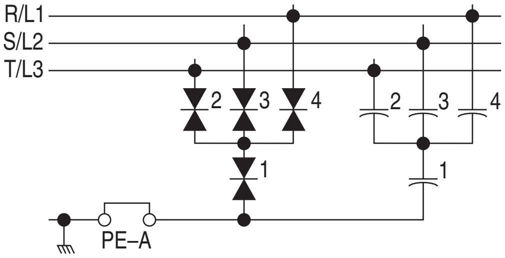
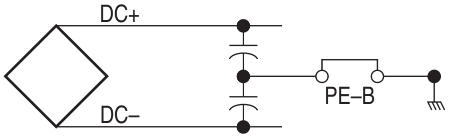


Figure 1.13 Common Mode Capacitors to Ground



ATTENTION: PE-A and PE-B jumpers must be configured according to the recommendations in Table 1.J.

ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before removing/installing jumpers. Check the DC bus voltage at the Power Terminal Block by measuring between the +DC and -DC terminals (refer to Figure 1.8 and Figure 1.9 for location), between the +DC terminal and the chassis, and between the -DC terminal and the chassis. The voltage must be zero for all three measurements.

Table 1.J Recommended Power Jumper Configurations

Power Source Type (1)	MOV / Input Filter Caps (PE-A) (2)	DC Bus Common Mode Caps (PE-B)	Default Configuration (Cat. No. Position 11)	Benefits Of Correct Configuration on Power Source Type
Unknown	Connected	Disconnected	A	See below.
• AC fed Solidly Grounded • DC fed from passive rectifier which has a Solidly Grounded AC source	Connected	Connected	J	UL compliance, Reduced electrical noise, Most stable operation, EMC compliance, Reduced voltage stress on components and motor bearings
• AC fed Ungrounded • Impedance Grounded • DC fed from an active converter	Disconnected	Disconnected	N/A	Helps avoid severe equipment damage when ground fault occurs

(1) It is highly recommended to accurately determine the power source type and then configure appropriately.

(2) When MOVs are disconnected, the power system must have its own transient protection to insure known and controlled voltages.

To connect or disconnect these devices, refer to the jumper locations shown in Figure 1.15, Figure 1.16 and Figure 1.17.

In addition, on an ungrounded distribution system where the line-to-ground voltages on any phase could exceed 125% of the nominal line-to-line voltage, an isolation transformer should be installed. See Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001 at www.rockwellautomation.com/literature for more information on impedance grounded and ungrounded systems.

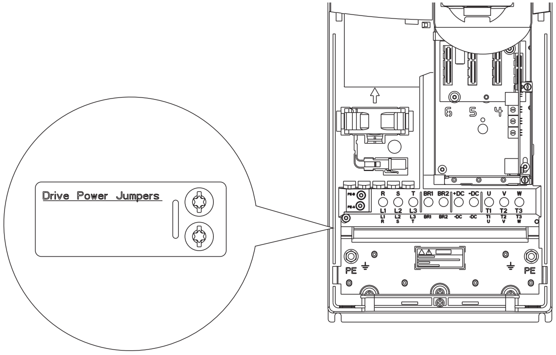
Power Jumper Screw Removal and Storage

Frames 2…5 use jumper screws to complete an electrical connection when installed. Install or remove jumper screws according to the recommendations in Table 1.J.

ATTENTION: Hazard of equipment damage exists if jumpers are not properly disconnected. For Frames 2…5, completely remove the jumper screw from the circuit board.

When power Jumper screws are not used, they are stored on the left interior chassis wall as shown.

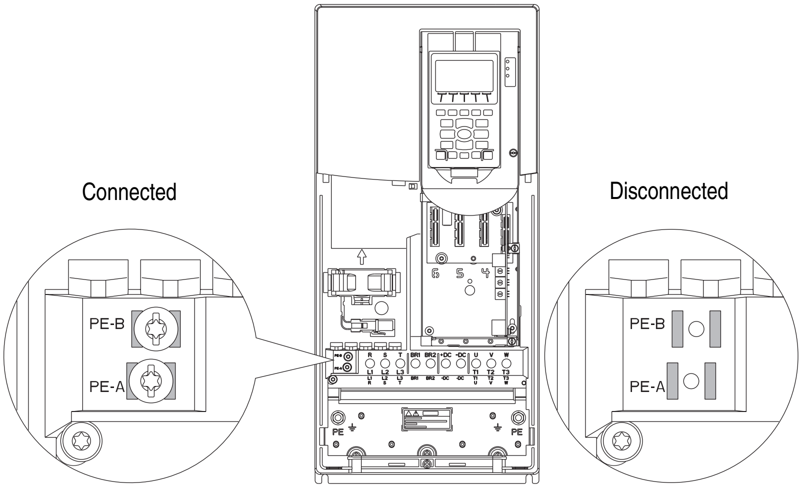
Figure 1.14 Typical Frame 2…5 Jumper Screw Storage Location (Frame 4 shown)



When screws are installed:

- Recommended torque = 1.36 N•m (12.0 lb•in) +/- 0.14 N•m (1.2 lb•in)
- Recommended screwdriver = 6.4 mm (0.25 in.) flat or T15 Hexalobular

Figure 1.15 Typical Frame 2…5 Jumper Screw Installation Locations (Frame 4 shown)

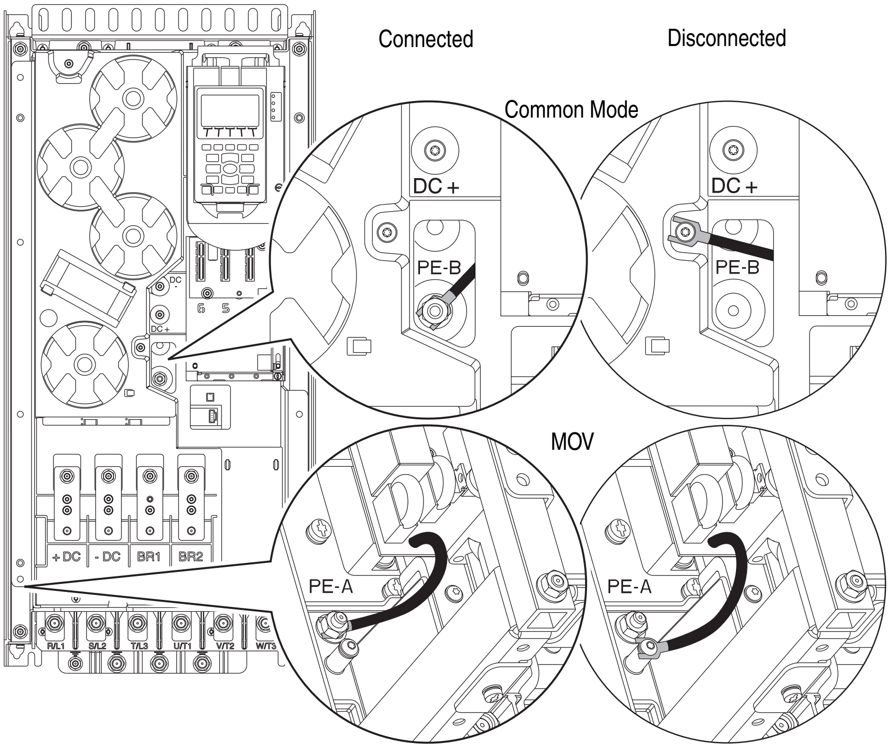


Power Jumper Wire Removal and Storage

Frames 6…7 use jumper wires to complete an electrical connection when installed. Install or remove jumper wires according to the recommendations in Table 1.J.

ATTENTION: Hazard of equipment damage exists if jumpers are not properly disconnected. For Frames 6…7, secure the disconnected jumper wire to the standoff provided.

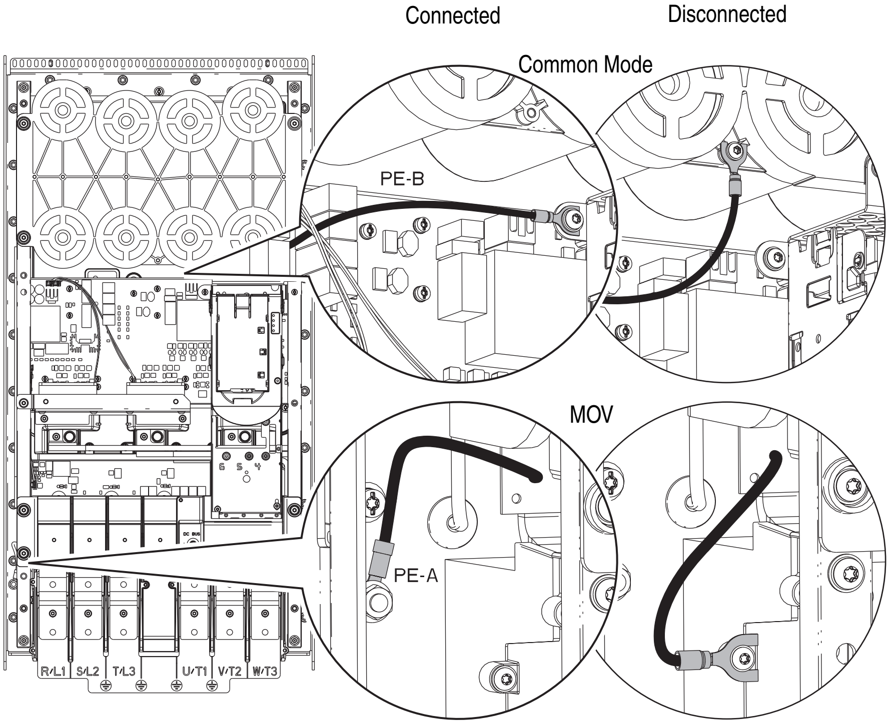
Figure 1.16 Frame 6 Jumper Wire Locations



When jumper wires are connected:

- Recommended torque (screws and nuts) = 1.36 N•m (12.0 lb•in)
- Recommended hex socket = 7 mm
- Recommended screwdriver = T20 Hexalobular

Figure 1.17 Frame 7 Jumper Wire Locations



When jumper wires are connected:

- Recommended torque (screws and nuts) = 1.36 N•m (12.0 lb•in)
- Recommended hex socket = 7 mm
- Recommended screwdriver = T20 Hexalobular

I/O Wiring

Important points to remember about I/O wiring:

- Always use copper wire.
- Wire with an insulation rating of 600V or greater is recommended.
- Control and signal wires should be separated from power wires by at least 0.3 meters (1 foot).
- In order to maintain electrical safety for all user-accessible low voltage circuits (ELV and PELV circuits), I/O terminals designated for 24V or lower voltage must not be connected to a circuit of higher voltage or a circuit which is not adequately insulated from dangerous voltages with double or reinforced insulation within other connected equipment or wiring.
- In order to provide electrical safety for user-accessible low voltage I/O circuits which are referenced to earth (PELV circuits) and which may be touched simultaneously, care should be taken to provide a common earth reference for all equipment connected to the drive.

Important: I/O terminals labeled "(–)" or "Common" are not referenced to earth ground and are designed to greatly reduce common mode interference. Grounding these terminals can cause signal noise.

ATTENTION: Hazard of personal injury or equipment damage exists when using bipolar input sources. Noise and drift in sensitive input circuits can cause unpredictable changes in motor speed and direction. Use speed command parameters to help reduce input source sensitivity.

I/O Terminal Blocks

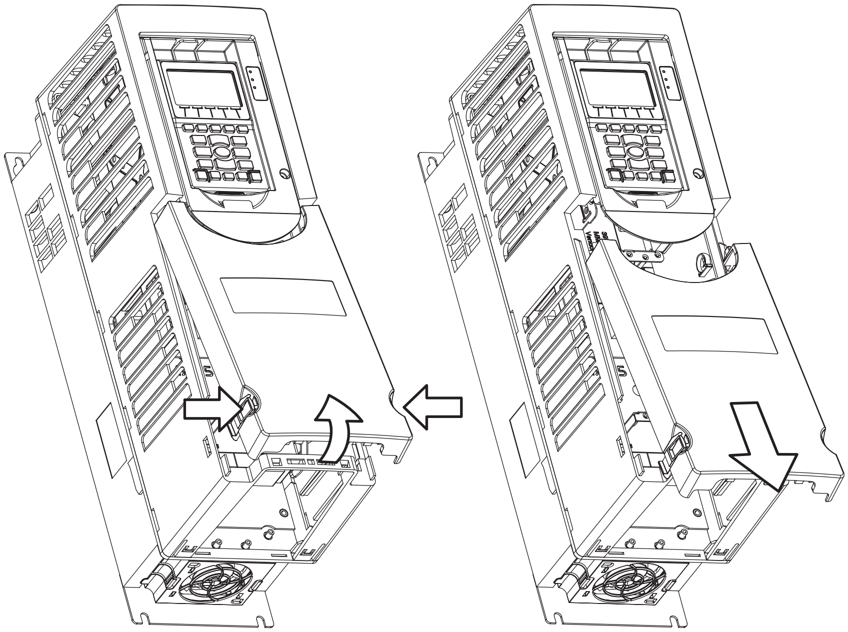
Table 1.K I/O Terminal Block Specifications

	Wire Size Range		Torque		Strip
Name	Maximum	Minimum	Maximum	Recommended	**Length**
753 Control Module TB2	2.5 mm^2 (14 AWG)	0.3 mm^2 (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)
753 Control Module TB1 and TB3	2.5 mm^2 (14 AWG)	0.3 mm^2 (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)
755 Control Module TB1	2.5 mm^2 (14 AWG)	0.3 mm^2 (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)
755 I/O Module TB1	2.5 mm^2 (14 AWG)	0.3 mm^2 (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)
755 I/O Module TB2	4.0 mm^2 (12 AWG)	0.25 mm^2 (24 AWG)	0.5 N•m (4.4 lb•in)	0.4 N•m (3.5 lb•in)	7 mm (0.28 in.)
Safe Torque Off	0.8 mm^2 (18 AWG)	0.3 mm^2 (28 AWG)	N/A		10 mm (0.39 in.)
Single Incremental Encoder	0.8 mm^2 (18 AWG)	0.3 mm^2 (28 AWG)	N/A		10 mm (0.39 in.)
Safe Speed Monitor TB1 and TB2	2.5 mm^2 (14 AWG)	0.25 mm^2 (24 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)
Dual Incremental Encoder	0.8 mm^2 (18 AWG)	0.3 mm^2 (28 AWG)	N/A		10 mm (0.39 in.)
Universal Feedback Module	0.8 mm^2 (18 AWG)	0.3 mm^2 (28 AWG)	N/A		10 mm (0.39 in.)
Auxiliary Power Supply TB1	2.5 mm^2 (14 AWG)	0.3 mm^2 (28 AWG)	0.25 N•m (2.2 lb•in)	0.2 N•m (1.8 lb•in)	6 mm (0.24 in.)

Access Drive Control Pod

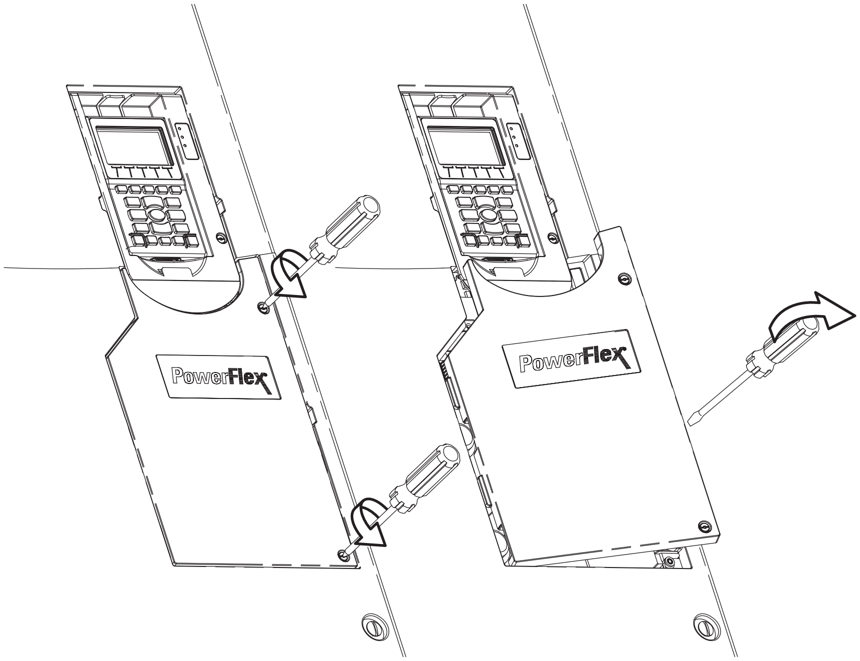
1. Remove drive cover

Frames 2…5



- Squeeze locking tabs and pull out bottom of cover.
- Pull cover down and away from the chassis.

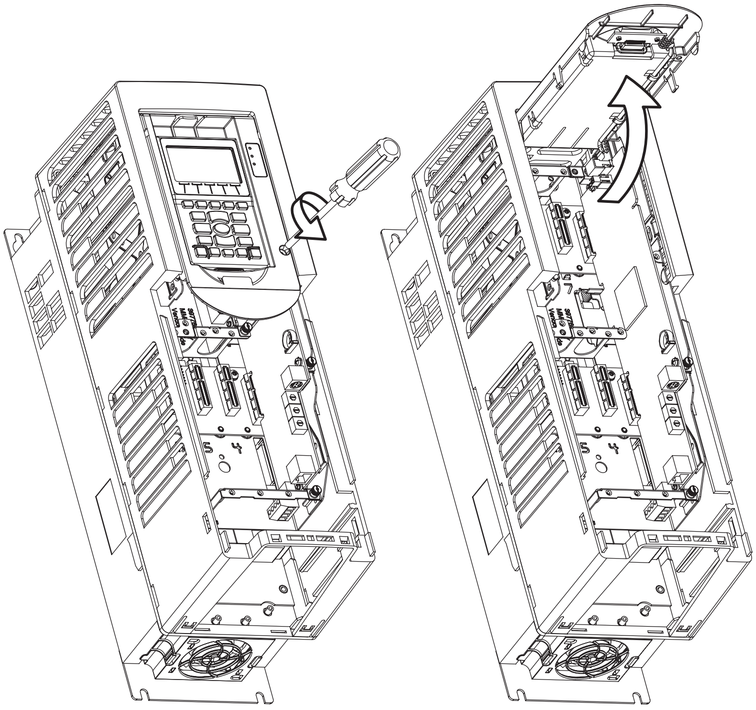
Frames 6…7



- Loosen door screws.
- Gently pry the door open to remove.

2. Lift the Human Interface Module (HIM) cradle.

   All Frames



   - Loosen the retention screw.
   - Lift the cradle until the latch engages.

PowerFlex 753 Main Control Board

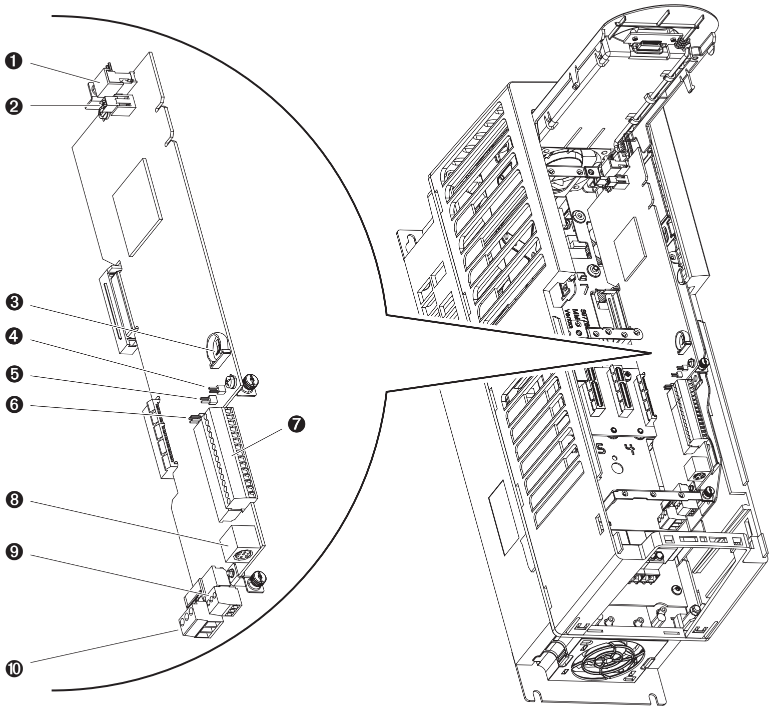


Table 1.L 753 Main Control Board Details

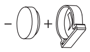
No.	Name	Description
❶	HIM Connector	DPI Port 1 (HIM Cradle) connection.
❷	Fan Connector	Power supply for internal cooling fan (Frames 2 & 3).
❸	Battery Receptacle 	User installed CR1220 lithium coin cell battery provides power to the Real Time Clock (Optional, not supplied).
❹	Jumper J1 ENABLE	Hardware enable jumper. Removed when a hardware enable configuration is utilized.
❺	Jumper J2 SAFETY	Safety enable jumper. Removed when safety option is installed.
❻	Jumper J4 Input Mode	Input mode jumper. Select voltage mode or current mode.
❼	TB1	I/O terminal block.
❽	DPI Port 2	Cable connection for handheld and remote HIM options.
❾	TB3	Digital input power terminal block.
❿	TB2	Relay terminal block.

Table 1.M J4 Input Mode Jumper

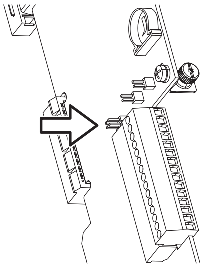
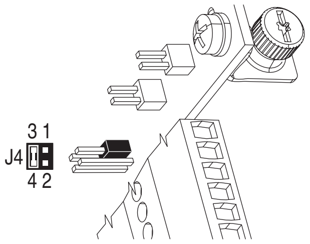
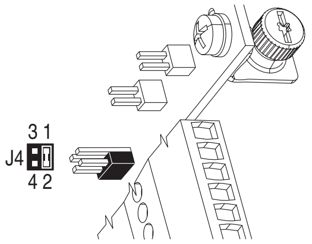
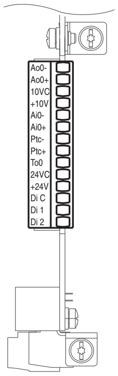
Jumper Position	Voltage Mode	Current Mode
		

Table 1.N TB1 Terminal Designations

	Terminal	Name	Description	Related Param
	Ao0–	Analog Out 0 (–)	Bipolar, ±10V, 11 bit & sign, 2 k ohm minimum load. 4-20 mA, 11 bit & sign, 400 ohm maximum load.	
	Ao0+	Analog Out 0 (+)		
	10VC	10 Volt Common	For (+) 10 Volt references. 2k ohm minimum.	
	+10V	+10 Volt Reference		
	Ai0–	Analog Input 0 (–)	Isolated (1), bipolar, differential, ±10V, 11 bit & sign, 88k ohm input impedance.	
	Ai0+	Analog Input 0 (+)		
	Ptc–	Motor PTC (–)	Motor protection device (Positive Temperature Coefficient).	
	Ptc+	Motor PTC (+)		
	T0	Transistor Output 0	Open drain output, 48V DC 250 mA maximum load.	
	24VC	24 Volt Common	Drive supplied logic input power. 150 mA maximum	
	+24V	+24 Volt DC		
	Di C	Digital Input Common	24V DC - Opto isolated Low State: less than 5V DC High State: greater than 20V DC	
	Di 1	Digital Input 1		
	Di 2	Digital Input 2		

(1) Differential Isolation - External source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

Note: 753 Main Control Board I/O TB1 wiring examples begin on page 1-38.

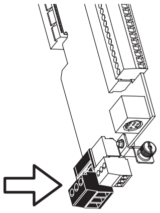
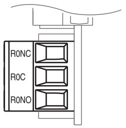


Table 1.O TB2 Terminal Designations

Fixed I/O	Terminal	Name	Description
	R0NC	Relay 0 N.C.	Output Relay 0 normally closed contact.
	R0C	Relay 0 Common	Output Relay 0 common
	R0NO	Relay 0 N.O.	Output Relay 0 normally open contact.

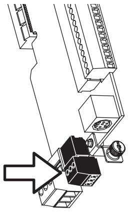
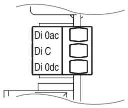


Table 1.P TB3 Terminal Designations

Power Block	Terminal	Name	Description
	Di 0dc	Digital Input 24V DC	Connections for DC power supply.
	Di C	Digital Input Common	Digital input common
	Di 0ac	Digital Input 120V AC	Connections for AC power supply.

Important: Wiring to pluggable terminal block connectors should be supported by wire ties or other means to help prevent unintentional disconnection.

PowerFlex 755 Main Control Board

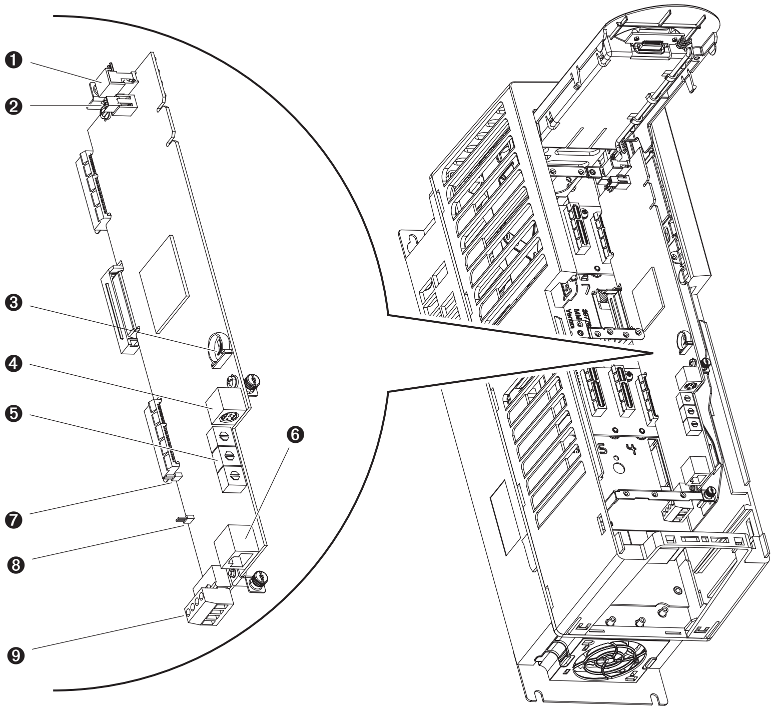
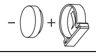
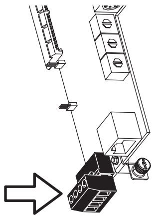


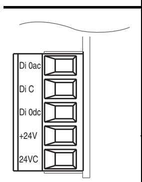
Table 1.Q 755 Main Control Board Details

No.	Name	Description
❶	HIM Connector	DPI Port 1 (HIM Cradle) connection.
❷	Fan Connector	Power supply for internal cooling fan (Frames 2 & 3).
❸	Battery Receptacle 	User installed CR1220 lithium coin cell battery provides power to the Real Time Clock (Optional, not supplied).
❹	DPI Port 2	Cable connection for handheld and remote HIM options.
❺	Embedded EtherNet/IP(1) Address Selectors	Rotary switches for setting lowest octet of EtherNet address (forces address to 192.168.1.xxx). Refer to page 2-5 for instructions on setting the IP address.
❻	Embedded EtherNet/IP(1) Connector	Network cable connection.
❼	Jumper J2 SAFETY	Safety enable jumper. Removed when safety option is installed.
❽	Jumper J1 ENABLE	Hardware enable jumper. Removed when a hardware enable configuration is utilized.
❾	TB1	I/O terminal block.

(1) Refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001.

Table 1.R TB1 I/O Terminal Designations



Fixed I/O	Terminal	Name	Description
	Di 0ac	Digital Input 120V AC	Connections for AC power supply.
	Di C	Digital Input Common	Digital input common
	Di 0dc	Digital Input 24V DC	Connections for DC power supply.
	+24V	+24 Volt Power	Connections for drive supplied 24V power.
	24VC	24 Volt Common	

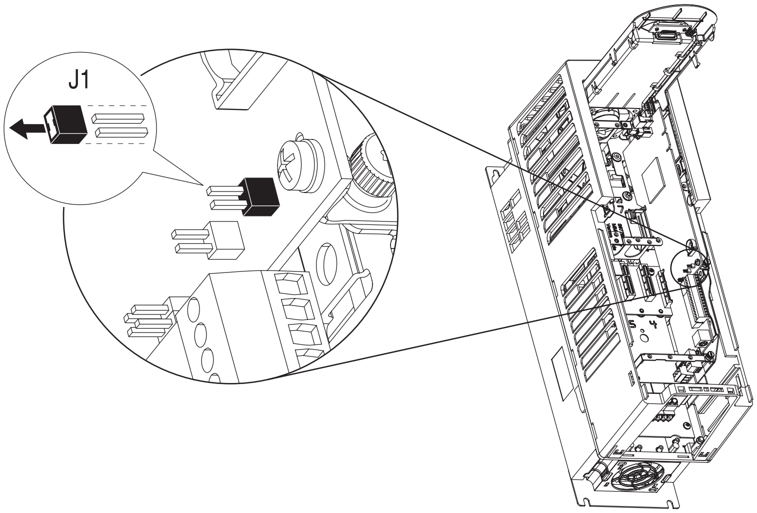
Important: Wiring to pluggable terminal block connectors should be supported by wire ties or other means to help prevent unintentional disconnection.

Hardware Enable Circuitry

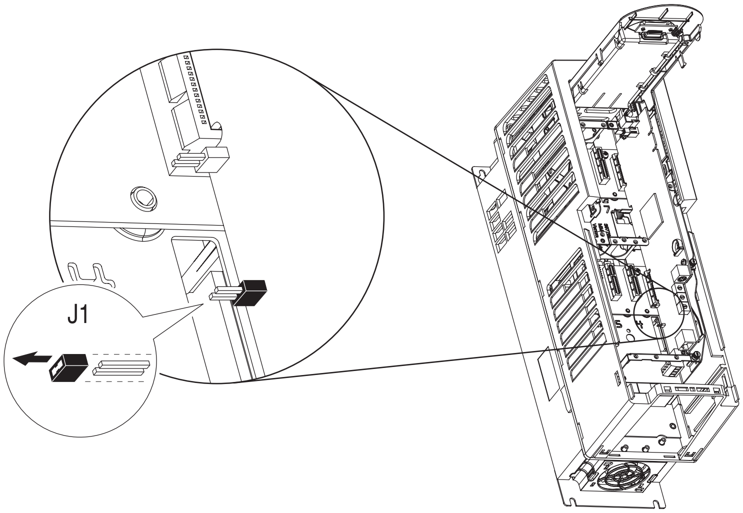
The main control board has one digital input that can be used as a general purpose programmable input, or by removal of a jumper, configured as a dedicated hardware enable, which is unaffected by parameter settings. To configure the input as a dedicated hardware enable, complete the following steps.

1. Access the control pod as described beginning on page 1-29.
2. Locate and remove Jumper J1 ENABLE on the main control board (see diagram).

PowerFlex 753 - J1 Jumper Location



PowerFlex 755 - J1 Jumper Location

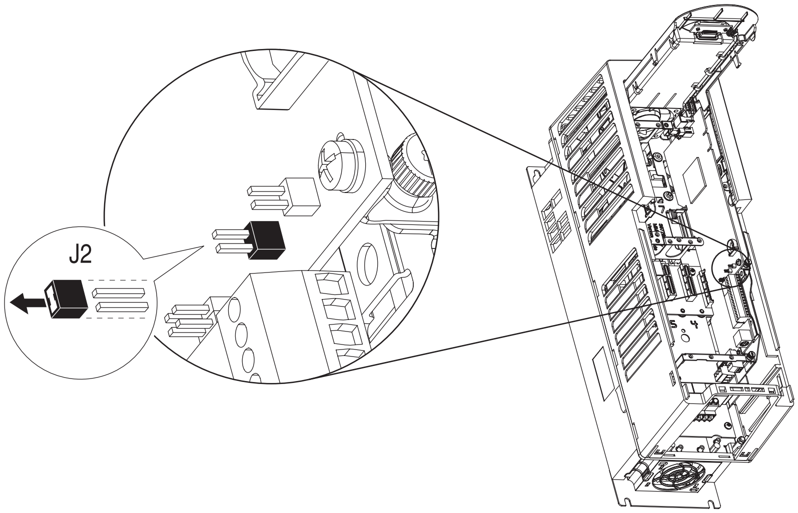


Safety Enable Circuitry

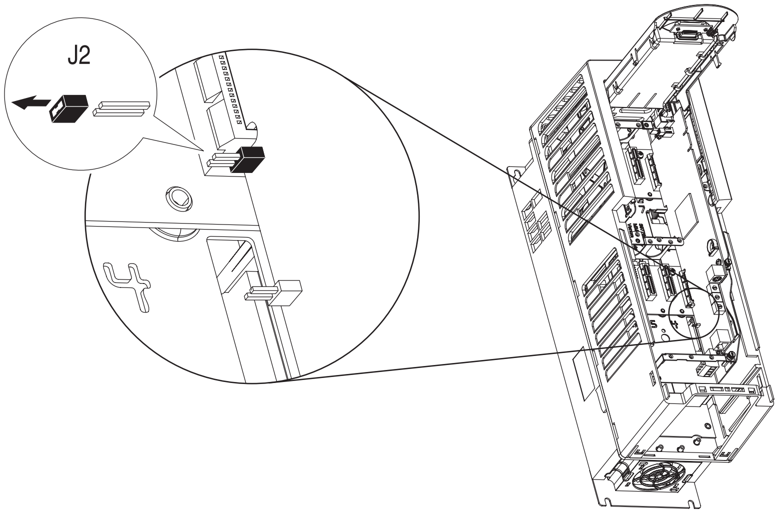
The drive ships with the safety enable jumper (J2 SAFETY) installed. This jumper must be removed when using the safe torque off or speed monitoring safety options.

Important: Failure to remove the jumper will cause the drive to fault when a start command is issued.

PowerFlex 753 - J2 Jumper Location



PowerFlex 755 - J2 Jumper Location



Option Module Installation

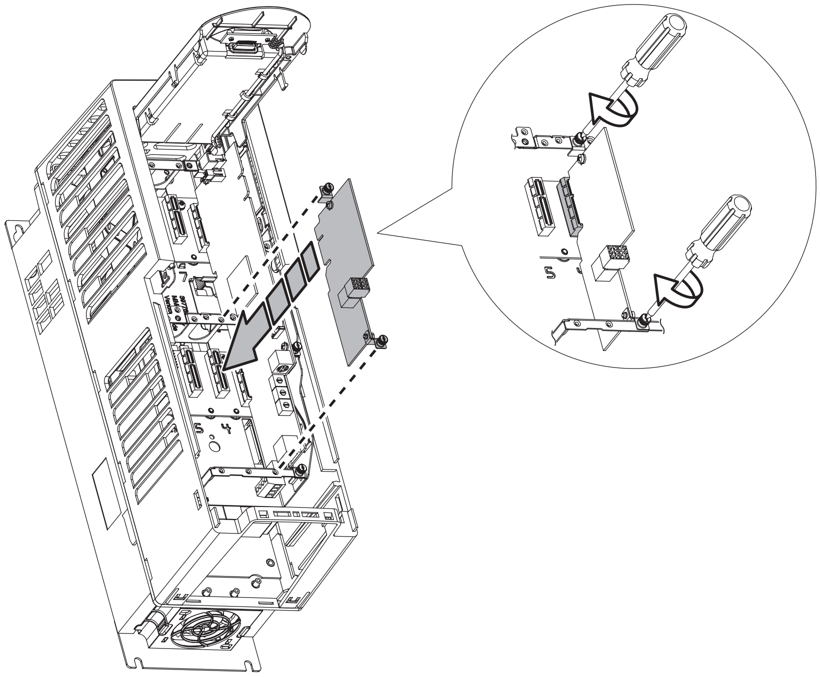
Compatible port locations may be restricted for each module. An icon with position number(s) is provided to indicate which option module ports are compatible. For example, the icon to the right indicates that the option module is only compatible with port 4.

ATTENTION: Hazard of equipment damage exists if an option module is installed or removed while the drive is powered. To avoid damaging the drive, verify that the voltage on the bus capacitors has discharged completely and all control power is removed before performing any work on the drive. Check the DC bus voltage at the Power Terminal Block by measuring between the +DC and -DC terminals (refer to page 1-17 for location), between the +DC terminal and the chassis, and between the -DC terminal and the chassis. The voltage must be zero for all three measurements.

To install an option module:

1. Firmly press the module edge connector into the desired port.
2. Tighten the top and bottom retaining screws.
   - Recommended torque = 0.45 N•m (4.0 lb•in)
   - Recommended screwdriver = T15 Hexalobular

   Important: Do not over-tighten retaining screws.



Option Module Parameter Access

Refer to Select A Device on page D-5 for instructions on how to access parameters on an option module.

750-Series I/O Module

20-750-2262C-2R
20-750-2262D-2R
20-750-2263C-1R2T

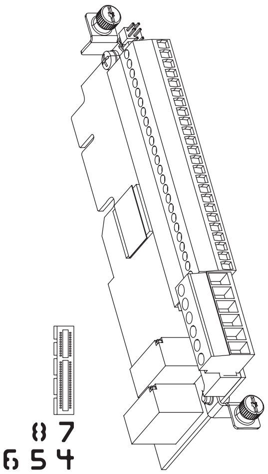


Table 1.S Input Mode Jumpers

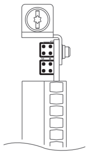
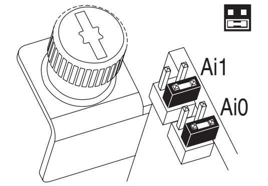
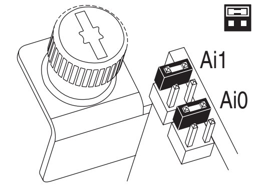
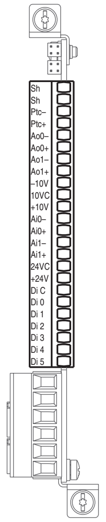
Jumper Position	Voltage Mode	Current Mode
		

Table 1.T TB1 Terminal Designations

	Terminal	Name	Description	Related Param
	Sh	Shield	Terminating point for wiring shields when an EMC plate or conduit box is not installed.	
	Sh			
	Ptc–	Motor PTC (–)	Motor protection device (Positive Temperature Coefficient).	40
	Ptc+	Motor PTC (+)		
	Ao0–	Analog Out 0 (–)	Bipolar, ±10V, 11 bit & sign, 2 k ohm minimum load. 4-20 mA, 11 bit & sign, 400 ohm maximum load.	75
	Ao0+	Analog Out 0 (+)		
	Ao1–	Analog Out 1 (–)		85
	Ao1+	Analog Out 1 (+)		
	–10V	–10 Volt Reference	2k ohm minimum.	
	10VC	10 Volt Common	For (–) and (+) 10 Volt references.	
	+10V	+10 Volt Reference	2k ohm minimum.	
	Ai0–	Analog Input 0 (–)	Isolated (2), bipolar, differential, ±10V, 11 bit & sign, 88k ohm input impedance.	50, 70
	Ai0+	Analog Input 0 (+)		
	Ai1–	Analog Input 1 (–)		60, 70
	Ai1+	Analog Input 1 (+)		
	24VC	24 Volt Common	Drive supplied logic input power. 200 mA max.	
	+24V	+24 Volt DC		
	Di C	Digital Input Common	Common for Digital Inputs 0…5	
	Di 0	Digital Input 0 (1)	24V DC - Opto isolated Low State: less than 5V DC High State: greater than 20V DC 11.2 mA DC 115V AC, 50/60 Hz - Opto isolated Low State: less than 30V AC High State: greater than 100V AC	1
	Di 1	Digital Input 1 (1)		
	Di 2	Digital Input 2 (1)		
	Di 3	Digital Input 3 (1)		
	Di 4	Digital Input 4 (1)		
	Di 5	Digital Input 5 (1)		

(1) Digital Inputs are either 24 Volts DC (2262C) or 115 Volts AC (2262D) based on module catalog number. Ensure applied voltage is correct for I/O module.

(2) Differential Isolation - External source must be maintained at less than 160V with respect to PE. Input provides high common mode immunity.

Note: 750-Series I/O Module TB1 wiring examples begin on page 1-41.

Table 1.U TB2 Terminal Designations (2 Relay Outputs: 2R)

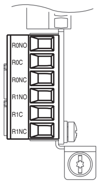
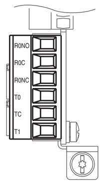
Relay Out	Terminal	Name	Description	Related Param
	R0NO	Relay 0 N.O.	Relay contact output Rating: 240V AC or 24V DC = 2 A max. Inductive/Resistive	10
	R0C	Relay 0 Common		
	R0NC	Relay 0 N.C.		
	R1NO	Relay 1 N.O.		20
	R1C	Relay 1 Common		
	R1NC	Relay 1 N.C.		

Table 1.V TB2 Terminal Designations (1 Relay and 2 Transistor Outputs: IR2T)

Relay Out	Terminal	Name	Description	Related Param
	R0NO	Relay 0 N.O.	Relay contact output Rating: 240V AC or 24V DC = 2 A max. Inductive/Resistive	10
	R0C	Relay 0 Common		
	R0NC	Relay 0 N.C.		
	T0	Transistor Output 0	Transistor output Rating: 24V DC = 1 A max. Resistive	20
	TC	Transistor Output Common		
	T1	Transistor Output 1		30

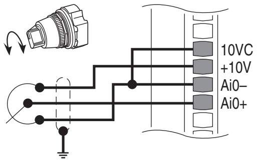
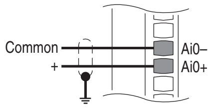
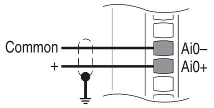
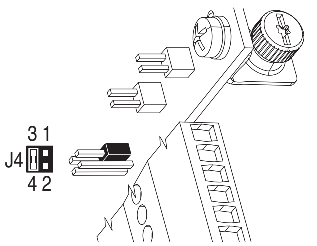
Parameter Descriptions

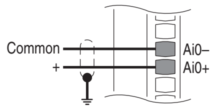
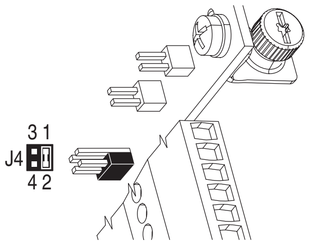
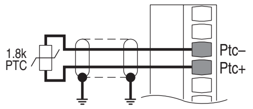
I/O option module parameter descriptions begin on page 3-137.

I/O Wiring Examples

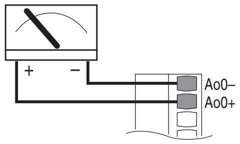
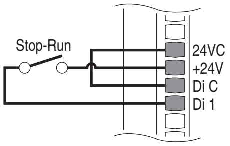
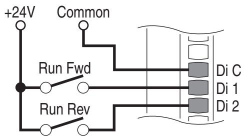
Important: Wiring to pluggable terminal block connectors should be supported by wire ties or other means to help prevent unintentional disconnection.

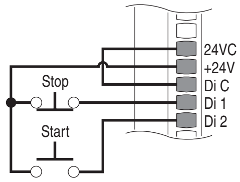
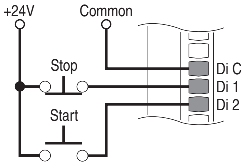
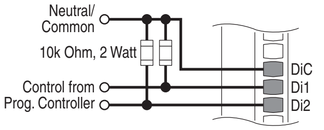
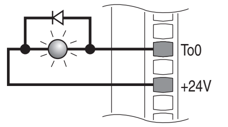
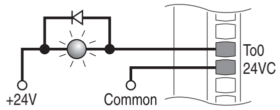
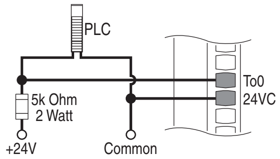
753 Main Control Board TB1 Wiring Examples

Input/Output	Connection Example	Required Parameter Changes
Potentiometer Unipolar Speed Reference 10k Ohm Pot. Recommended (2k Ohm Minimum)		• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port 0: P260 [Anlg In0 Value] • Adjust Scaling Port 0: P261 [Anlg In0 Hi] = 10 Volt Port 0: P262 [Anlg In0 Lo] = 0 Volt Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port 0: P260 [Anlg In0 Value] Port 0: P592 [Selected Spd Ref]
Analog Input Bipolar Speed Reference ±10V Input		• Set Direction Mode Port 0: P308 [Direction Mode] = 1 “Bipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port 0: P260 [Anlg In0 Value] • Adjust Scaling Port 0: P261 [Anlg In0 Hi] = +10 Volt Port 0: P262 [Anlg In0 Lo] = -10 Volt Port 0: P547 [Spd Ref A AnlgHi] = +60 Hz Port 0: P548 [Spd Ref A AnlgLo] = -60 Hz • View Results Port 0: P260 [Anlg In0 Value] Port 0: P592 [Selected Spd Ref]
Analog Voltage Input Unipolar Speed Reference 0 to +10V Input	 	• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port 0: P260 [Anlg In0 Value] • Adjust Scaling Port 0: P261 [Anlg In0 Hi] = 10 Volt Port 0: P262 [Anlg In0 Lo] = 0 Volt Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port 0: P260 [Anlg In0 Value] Port 0: P592 [Selected Spd Ref]

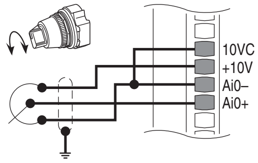
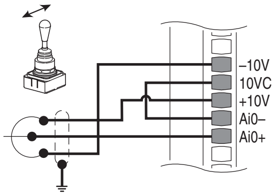
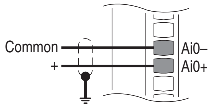
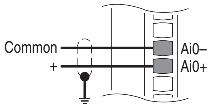
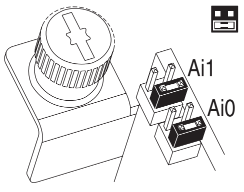
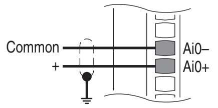
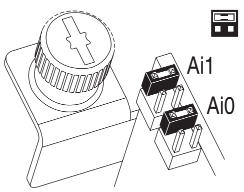
Input/Output	Connection Example	Required Parameter Changes
Analog Current Input Unipolar Speed Reference 0-20 mA Input	 	• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port 0: P260 [Anlg In0 Value] • Adjust Scaling Port 0: P261 [Anlg In0 Hi] = 20 mA Port 0: P262 [Anlg In0 Lo] = 0 mA Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port 0: P260 [Anlg In0 Value] Port 0: P592 [Selected Spd Ref]
HW Input PTC PTC Nominal = 1.8 k Ohm PTC Trip = 3.1k Ohm PTC Reset = 2.2 k Ohm		• Configuration Port 0: P250 [PTC Cfg] = 0 “Ignore,” 1 “Alarm,” 2 “Flt Minor,” 3 “FltCoastStop,” 4 “Flt RampStop,” or 5 “Flt CL Stop” • View Results Port 0: P251 [PTC Status]

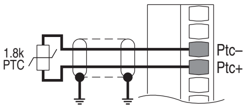
ATTENTION: To avoid an electric shock hazard, the connection of the motor temperature sensor requires double or reinforced insulation between motor live parts and the PTC.

Analog Voltage Output ±10V, 0…20 mA Bipolar +10V Unipolar		• Configuration Port 0: P270 [Anlg Out Type], bit 0 = 0 • Set Selection Port 0: P275 [Anlg Out0 Sel] = Port 0: P3 [Mtr Vel Fdbk] • Adjust Scaling Port 0: P278 [Anlg Out0 DataHi] = 60 Hz Port 0: P279 [Anlg Out0 DataLo] = 0 Hz Port 0: P280 [Anlg Out0 Hi] =10V/20 mA Port 0: P281 [Anlg Out0 Lo] = 0V/0 mA • View Results Port 0: P277 [Anlg Out0 Data] Port 0: P282 [Anlg Out0 Val]
2-Wire Control Non-Reversing 24V DC internal supply		• Set Direction Mode Port 0: P308 [Direction Mode] = 2 “Rev Disable” • Configuration Port 0: P150 [Digital In Cfg] = 1 “Run Level” • Set Selection Port 0: P163 [DI Run] = Port 0: P220 [Digital In Sts], bit 1 = Digital In 1 • View Results Port 0: P220 [Digital In Sts] Port 0: P935 [Drive Status 1]
2-Wire Control Reversing External supply		• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Configuration Port 0: P150 [Digital In Cfg] = 1 “Run Level” • Set Selection Port 0: P164 [DI Run Forward] = Port 0: P220 [Digital In Sts], bit 1 = Digital In 1 Port 0: P165 [DI Run Reverse] = Port 0: P220 [Digital In Sts], bit 2 = Digital In 2 • View Results Port 0: P220 [Digital In Sts] Port 0: P935 [Drive Status 1]

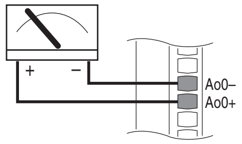
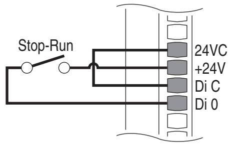
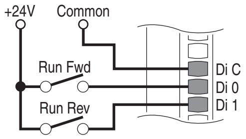
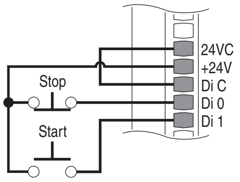
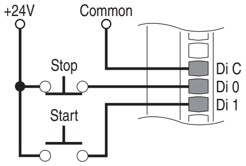
Input/Output	Connection Example	Required Parameter Changes
3-Wire Control Internal supply		- Set Selection Port 0: P158 [DI Stop] = Port 0: P220 [Digital In Sts], bit 1 = Digital In 1 Port 0: P161 [DI Start] = Port 0: P220 [Digital In Sts], bit 2 = Digital In 2 - View Results Port 0: P220 [Digital In Sts] Port 0: P935 [Drive Status 1]
3-Wire Control External supply		- Set Selection Port 0: P158 [DI Stop] = Port 0: P220 [Digital In Sts], bit 1 = Digital In 1 Port 0: P161 [DI Start] = Port 0: P220 [Digital In Sts], bit 2 = Digital In 2 - View Results Port 0: P220 [Digital In Sts] Port 0: P935 [Drive Status 1]
Digital Input PLC Output Module		- Set Selection Port 0: P158 [DI Stop] = Port 0: P220 [Digital In Sts], bit 1 = Digital In 1 Port 0: P161 [DI Start] = Port 0: P220 [Digital In Sts], bit 2 = Digital In 2 - View Results Port 0: P220 [Digital In Sts] Port 0: P935 [Drive Status 1]
Digital Output Internal supply		- Set Selection Port 0: P240 [TO0 Sel] = Port 0: P935 [Drive Status 1], bit 7 = Faulted - View Results Port 0: P225 [Dig Out Sts]
Digital Output External supply	 *OR* 	

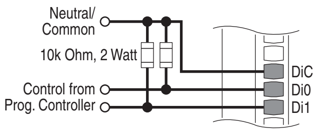
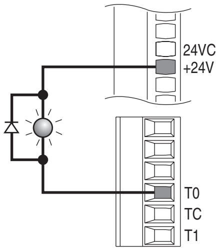
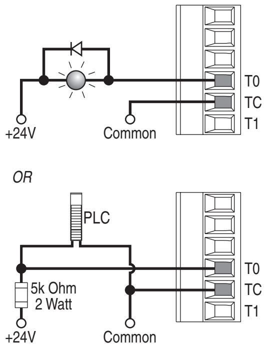
750-Series I/O Module TB1 Wiring Examples

Input/Output	Connection Example	Required Parameter Changes
Potentiometer Unipolar Speed Reference 10k Ohm Pot. Recommended (2k Ohm Minimum)		• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port X (I/O Module): P60 [Anlg In1 Value] • Adjust Scaling Port X (I/O Module): P61 [Anlg In1 Hi] = 10 Volt Port X (I/O Module): P62 [Anlg In1 Lo] = 0 Volt Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port X (I/O Module): P60 [Anlg In1 Value] Port 0: P592 [Selected Spd Ref]
Joystick Bipolar Speed Reference ±10V Input		• Set Direction Mode Port 0: P308 [Direction Mode] = 1 “Bipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port X (I/O Module): P60 [Anlg In1 Value] • Adjust Scaling Port X (I/O Module): P61 [Anlg In1 Hi] = +10 Volt Port X (I/O Module): P62 [Anlg In1 Lo] = -10 Volt Port 0: P547 [Spd Ref A AnlgHi] = +60 Hz Port 0: P548 [Spd Ref A AnlgLo] = -60 Hz • View Results Port X (I/O Module): P60 [Anlg In1 Value] Port 0: P592 [Selected Spd Ref]
Analog Input Bipolar Speed Reference ±10V Input		• Set Direction Mode Port 0: P308 [Direction Mode] = 1 “Bipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port X (I/O Module): P60 [Anlg In1 Value] • Adjust Scaling Port X (I/O Module): P61 [Anlg In1 Hi] = +10 Volt Port X (I/O Module): P62 [Anlg In1 Lo] = -10 Volt Port 0: P547 [Spd Ref A AnlgHi] = +60 Hz Port 0: P548 [Spd Ref A AnlgLo] = -60 Hz • View Results Port X (I/O Module): P60 [Anlg In1 Value] Port 0: P592 [Selected Spd Ref]
Analog Voltage Input Unipolar Speed Reference 0 to +10V Input	 	• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port X (I/O Module): P60 [Anlg In1 Value] • Adjust Scaling Port X (I/O Module): P61 [Anlg In1 Hi] = 10 Volt Port X (I/O Module): P62 [Anlg In1 Lo] = 0 Volt Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port X (I/O Module): P60 [Anlg In1 Value] Port 0: P592 [Selected Spd Ref]
Analog Current Input Unipolar Speed Reference 0-20 mA Input	 	• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Set Selection Port 0: P545 [Spd Ref A Sel] = Port X (I/O Module): P60 [Anlg In1 Value] • Adjust Scaling Port X (I/O Module): P61 [Anlg In1 Hi] = 20 mA Port X (I/O Module): P62 [Anlg In1 Lo] = 0 mA Port 0: P547 [Spd Ref A AnlgHi] = 60 Hz Port 0: P548 [Spd Ref A AnlgLo] = 0 Hz • View Results Port X (I/O Module): P60 [Anlg In1 Value] Port 0: P592 [Selected Spd Ref]

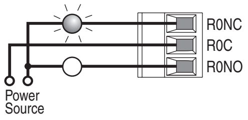
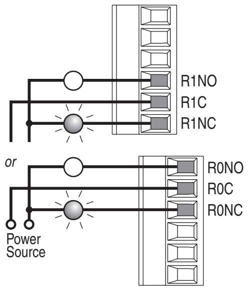
Input/Output	Connection Example	Required Parameter Changes
HW Input PTC PTC Nominal = 1.8 k Ohm PTC Trip = 3.1k Ohm PTC Reset = 2.2 kOhm		• Configuration Port X (I/O Module): P40 [PTC Cfg] = 0 “Ignore,” 1 “Alarm,” 2 “Flt Minor,” 3 “Flt CoastStop,” 4 “Flt RampStop,” or 5 “Flt CL Stop” • View Results Port X (I/O Module): P41 [PTC Sts] Port X (I/O Module): P42 [PTC Raw Value]

ATTENTION: To avoid an electric shock hazard, the connection of the motor temperature sensor requires double or reinforced insulation between motor live parts and the PTC.

Input/Output	Connection Example	Required Parameter Changes
Analog Voltage Output ±10V, 0…20 mA Bipolar +10V Unipolar		• Configuration Port X (I/O Module): P70 [Anlg Out Type], bit 0 = 0 • Set Selection Port X (I/O Module): P75 [Anlg Out0 Sel] = Port 0: P3 [Mtr Vel Fdbk] • Adjust Scaling Port X (I/O Module): P78 [Anlg Out0 DataHi] = 60 Hz Port X (I/O Module): P79 [Anlg Out0 DataLo] = 0 Hz Port X (I/O Module): P80 [Anlg Out0 Hi] =10V/20 mA Port X (I/O Module): P81 [Anlg Out0 Lo] = 0V/0 mA • View Results Port X (I/O Module): P77 [Anlg Out0 Data] Port X (I/O Module): P82 [Anlg Out0 Val]
2-Wire Control Non-Reversing 24V DC internal supply		• Set Direction Mode Port 0: P308 [Direction Mode] = 2 “Rev Disable” • Configuration Port 0: P150 [Digital In Cfg] = 1 “Run Level” • Set Selection Port 0: P163 [DI Run] = Port X (I/O Module): P1 [Dig In Sts], bit 0 = Input 0 • View Results Port X (I/O Module): P1 [Dig In Sts] Port 0: P935 [Drive Status 1]
2-Wire Control Reversing External supply		• Set Direction Mode Port 0: P308 [Direction Mode] = 0 “Unipolar” • Configuration Port 0: P150 [Digital In Cfg] = 1 “Run Level” • Set Selection Port 0: P164 [DI Run Forward] = Port X (I/O Module): P1 [Dig In Sts], bit 0 = Input 0 Port 0: P165 [DI Run Reverse] = Port X (I/O Module): P1 [Dig In Sts], bit 1 = Input 1 • View Results Port X (I/O Module): P1 [Dig In Sts] Port 0: P935 [Drive Status 1]
3-Wire Control Internal supply		• Set Selection Port 0: P158 [DI Stop] = Port X (I/O Module): P1 [Dig In Sts], bit 0 = Input 0 Port 0: P161 [DI Start] = Port X (I/O Module): P1 [Dig In Sts], bit 1 = Input 1 • View Results Port X (I/O Module): P1 [Dig In Sts] Port 0: P935 [Drive Status 1]
3-Wire Control External supply		• Set Selection Port 0: P158 [DI Stop] = Port X (I/O Module): P1 [Dig In Sts], bit 0 = Input 0 Port 0: P161 [DI Start] = Port X (I/O Module): P1 [Dig In Sts], bit 1 = Input 1 • View Results Port X (I/O Module): P1 [Dig In Sts] Port 0: P935 [Drive Status 1]

Input/Output	Connection Example	Required Parameter Changes
Digital Input PLC Output Module		• Set Selection Port 0: P158 [DI Stop] = Port X (I/O Module): P1 [Dig In Sts], bit 0 = Input 0 Port 0: P161 [DI Start] = Port X (I/O Module): P1 [Dig In Sts], bit 1 = Input 1 • View Results Port X (I/O Module): P1 [Dig In Sts] Port 0: P935 [Drive Status 1]
Digital Output Internal supply		• Set Selection Port X (I/O Module): P20 [TO0 Sel] = Port 0: P935 [Drive Status 1], bit 7 = Faulted • View Results Port X (I/O Module): P5 [Dig Out Sts]
Digital Output External supply		

Relay Wiring Examples

Input/Output	Connection Example	Required Parameter Changes
Relay Output External supply	753 Main Control Board 	• Set Selection Port 0: P230 [RO0 Sel] = Port 0: P935 [Drive Status 1], bit 7 = Faulted • View Results Port 0: P225 [Dig Out Sts]
	750-Series I/O Module 	• Set Selection Port X (I/O Module): P10 [RO0 Sel] = Port 0: P935 [Drive Status 1], bit 7 = Faulted • View Results Port X (I/O Module): P5 [Dig Out Sts]

Safe Torque Off Option Module

The safe torque off option is just one component in a safety control system. Components in the system must be chosen and applied appropriately to achieve the desired level of operational safety. For detailed information on applying this option, refer to the PowerFlex 750-Series Safe Torque Off User Manual, publication 750-UM002.

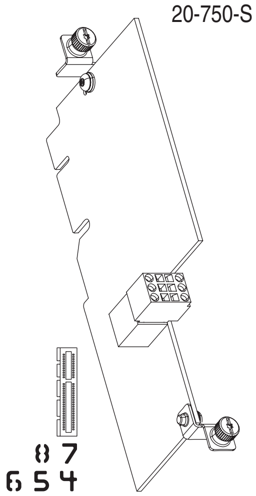
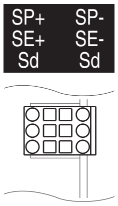
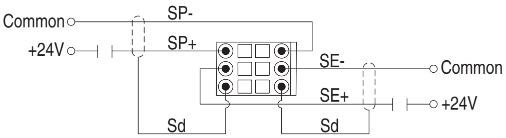


Table 1.W TB2 Terminal Designations

	Terminal	Name	Description
	SP+	+24 Volt Safety Power	User-supplied 24 volt power. 45 mA typical
	SP-	Safety Power Common	
	SE+	+24 Volt Safety Enable	User-supplied 24 volt power. 25 mA typical
	SE-	Safety Enable Common	
	Sd	Shield	Terminating point for wire shields when an EMC plate or conduit box is not installed.
	Sd	Shield	

Safety Input	Connection Example
Power Supply	

Installation Notes

1. Ensure the safety enable jumper (J2 SAFETY) is removed.
2. Ensure the hardware enable jumper (J1 ENABLE) is installed. If not installed, the drive will fault when a start command is issued.

Universal Feedback Encoder Option Module

See Appendix E.

Incremental Encoder Option Modules

See Appendix F.

Safe Speed Monitor Option Module

The Safe Speed Monitor option is just one component in a safety control system. Components in the system must be chosen and applied appropriately to achieve the desired level of operational safety. For detailed information on applying this option, refer to the Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Safety Reference Manual, publication 750-RM001.

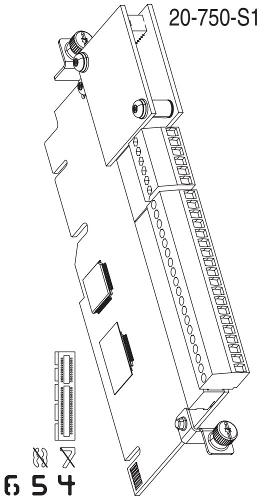


Table 1.X TB1 Terminal Designations

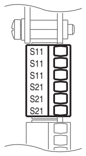
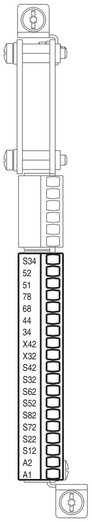
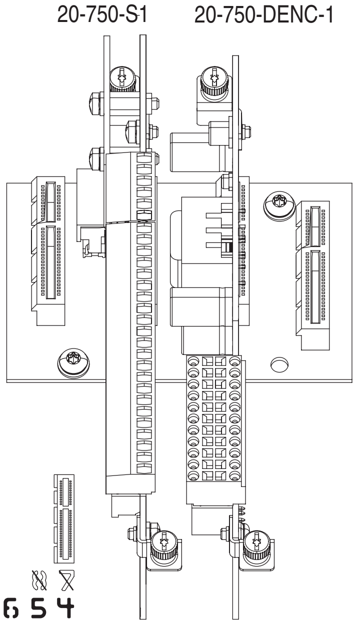
	Terminal	Name	Signal Name	Description
	S11	Pto0	TEST_OUT_0	Pulse test source for safety inputs.
	S11			
	S11			
	S21	Pto1	TEST_OUT_1	Pulse test source for safety inputs.
	S21			
	S21			

Table 1.Y TB2 Terminal Designations

	Terminal	Name	Description	Related Param
	S34	Res0	Reset	
	52	Dco1	Door Control Output. Enables pulse testing.	74
	51	Dco0		
	78	Slo1	Safe Limited Speed Output. Enables pulse testing.	73
	68	Slo0		
	44	Sso1	Safe Stop Output. Enables pulse testing.	72
	34	Sso0		
	X42	Lmi1	Lock Monitoring Input	60
	X32	Lmi0		
	S42	Dmi1	Door Monitoring Input	58
	S32	Dmi0		
	S62	Sli1	Safe Limited Speed Input	52
	S52	Sli0		
	S82	Esm1	Enabling Switch Monitoring Input	54
	S72	Esm0		
	S22	Ssi1	Safe Stop Input	44
	S12	Ssi0		
	A2	24VC	Customer supplied 24V DC. Module is not functional without these connections.	
	A1	+24V		



Installation Notes

1. Ensure the safety enable jumper (J2 SAFETY) is removed.
2. Ensure the hardware enable jumper (J1 ENABLE) is installed. If not installed, the drive will fault when a start command is issued.

Important: When the Safe Speed Monitor option is used with the Dual Incremental Encoder option (Appendix F), both modules must be installed on the same backplane (ports 6, 5, 4).

Parameter Descriptions

Safe Speed Monitor option module parameter descriptions begin on page page 3-148.

Auxiliary Power Supply Option Module

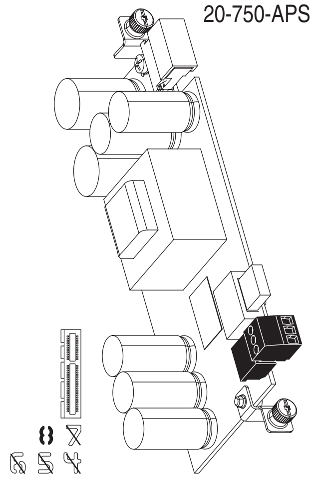
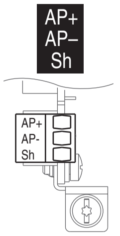


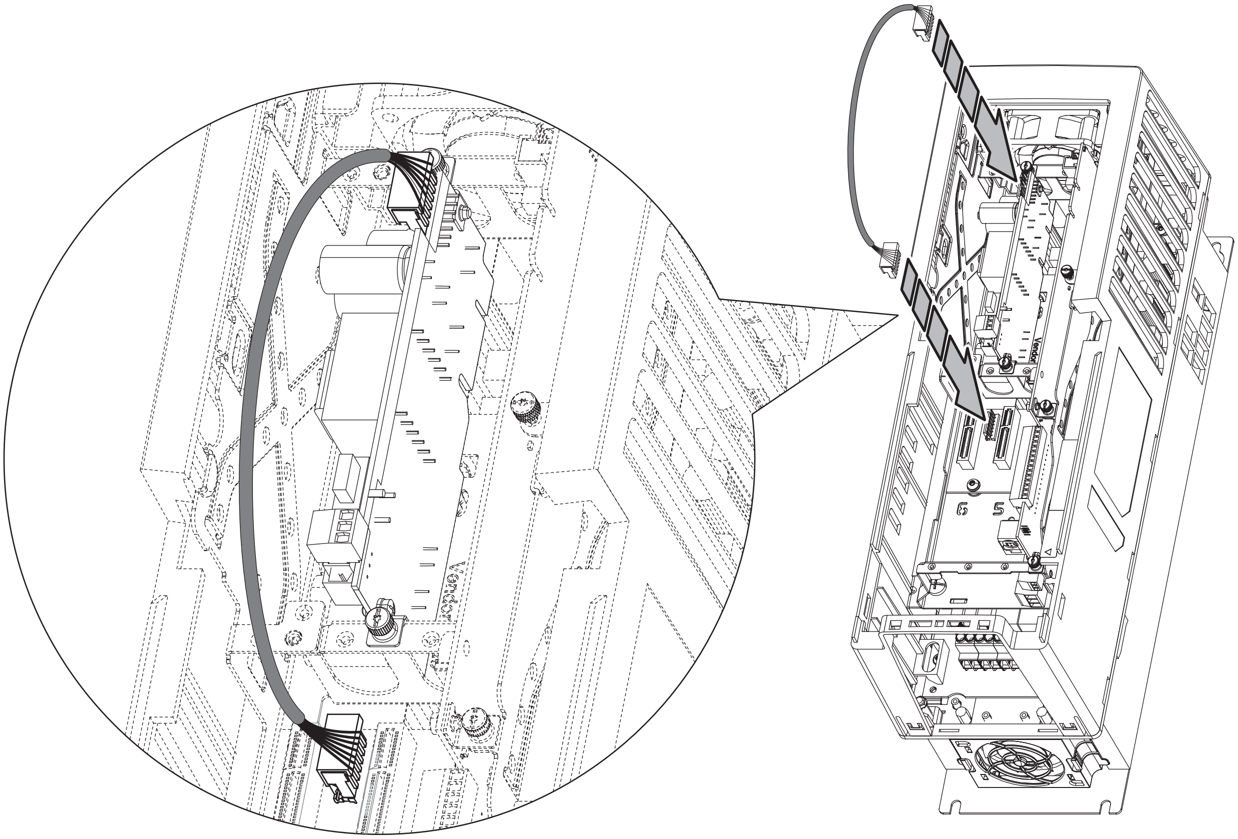
Table 1.Z TB1 Terminal Designations

	Terminal	Name	Description
	AP+	+24 Volt Auxiliary Power	Connections for customer supplied 24V/3A power supply.
	AP–	Auxiliary Power Common	
	Sh	Shield	Terminating point for wire shields when an EMC plate or conduit box is not installed.

Important: The Auxiliary Power Supply option module may be installed in any option port. Due to its size, the module will extend over and block an adjacent port. Therefore, installation in Port 8 is recommended.

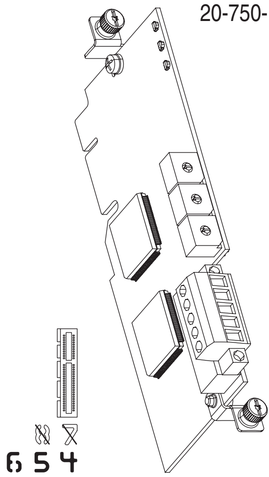
A connector cable is provided with Auxiliary Power Supply option modules for use in PowerFlex 753 drives. The cable is used to connect a module to the backplane when installed on the upper control pod brackets. The connector cable is not used with PowerFlex 755 drives.

Figure 1.18 Auxiliary Power Supply Installation in 753 Drives



DeviceNet Option Module

For complete information on the DeviceNet Option Module, refer to the PowerFlex 750-Series Drive DeviceNet Option Module User Manual, publication 750COM-UM002.



20-750-DNET

Table 1.AA DeviceNet Option Module LED Indication

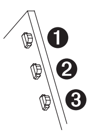
	LED	Name	Description
	❶	Port	DPI Connection Status
	❷	MOD	Option Module Status
	❸	NET A	DeviceNet Status

Table 1.AB DeviceNet Option Module Rotary Switches

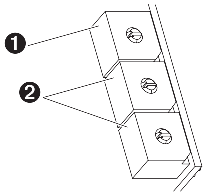
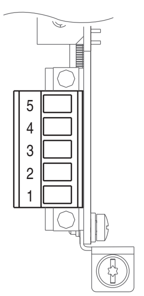
	Switch	Name	Description
	❶	Data Rate Switch	Sets the DeviceNet data rate at which the option module communicates.
	❷	Node Address Switches	Sets the node address of the option module.

Table 1.AC TB1 Terminal Designations

	Terminal	Color	Signal	Function
	5	Red	V+	Power Supply
	4	White	CAN_H	Signal High
	3	Bare	SHIELD	Shield
	2	Blue	CAN_L	Signal Low
	1	Black	V-	Common

ControlNet Option Module

For complete information on the ControlNet Option Module, refer to the PowerFlex 20-750-CNETC Coaxial ControlNet Option Module User Manual, publication 750COM-UM003.

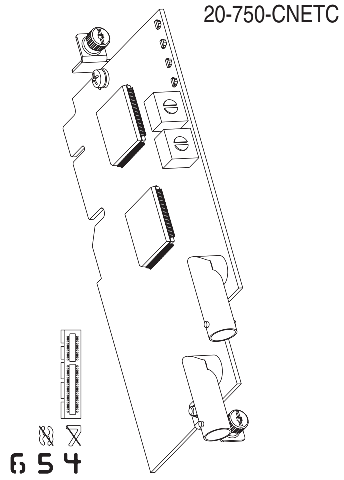


Table 1.AD ControlNet Option Module LED Indication

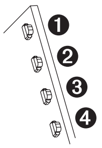
	LED	Name	Description
	❶	Port	DPI Connection Status
	❷	MOD	Option Module Status
	❸	NET A	ControlNet Channel A Status
	❹	NET B	ControlNet Channel B Status

Table 1.AE ControlNet Option Module Rotary Switches

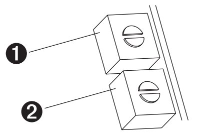
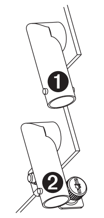
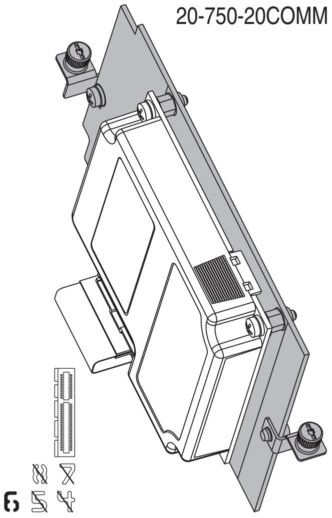
	Switch	Name	Description
	❶	TENS Switch	Sets the node address of the option module.
	❷	ONES Switch	

Table 1.AF Coax Receptacles

	Receptacle	Name	Description
	❶	Channel A	Channel A BNC connection to the network.
	❷	Channel B	Channel B (redundant) BNC connection to the network

s

20-COMM Carrier



Enables use of some 20-COMM adapters with PowerFlex 750-Series drives. See Table 1.AG.

Refer to publication 750COM-IN001 for instructions on installing a 20-COMM adapter on the 20-COMM Carrier.

Table 1.AG 20-COMM-* Network Adapter Compatibility with 750-Series Drives

Adapter Type	Accesses Ports 2, 3, and 6 for I/O Connections (Implicit and Explicit Messaging)	Accesses Port 7 through 14 Devices	Supports Drive Add On Profiles	Supports Asian-Languages (5)
20-COMM-B BACnet MS/TP	No			
20-COMM-C ControlNet (Coax)	✓ (1)	✓ v3.001 (3)	✓ (4)	✓ v3.001 (3)
20-COMM-D DeviceNet		✓ v2.005 (3)	No	
20-COMM-E EtherNet/IP		✓ v4.001 (3)	✓ (4)	✓ v4.001 (3)
20-COMM-H RS-485 HVAC	✓ (2)	No		
20-COMM-I Interbus	✓ (1)			
20-COMM-K CANopen				
20-COMM-L LonWorks	No			
20-COMM-M Modbus/TCP	✓ (1)	✓ v2.001 (3)	No	✓ v2.001 (3)
20-COMM-P Profibus DP		No		
20-COMM-Q ControlNet (Fiber)		✓ v3.001 (3)	✓ (4)	✓ v3.001 (3)
20-COMM-R Remote I/O		No		
20-COMM-S RS-485 DF1				

(1) Controller must be capable of reading/writing 32-bit floating point (REAL) values.
(2) Only works in the Modbus RTU mode.
(3) Requires this adapter firmware version or higher.
(4) Requires firmware version v1.05 or higher of the drive Add On Profiles for RSLogix 5000 version v16 or higher.
(5) Chinese, Japanese, and Korean languages are supported at the time of publication.

CE Conformity

Compliance with the Low Voltage Directive and Electromagnetic Compatibility Directive has been demonstrated using harmonized European Norm (EN) standards published in the Official Journal of the European Communities. PowerFlex 750-Series drives comply with the EN standards listed below when installed according to the PowerFlex 750-Series AC Drive Installation Instructions and this PowerFlex 750-Series AC Drive User Manual.

CE Declarations of Conformity are available online at:
www.rockwellautomation.com/products/certification/

Low Voltage Directive (2006/95/EC)

- EN 61800-5-1 Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy.

EMC Directive (2004/108/EC)

- EN 61800-3 Adjustable speed electrical power drive systems – Part 3: EMC product standard including specific test methods.

General Considerations

- For CE compliance, drives must satisfy installation requirements related to both EN 61800-5-1 and EN 61800-3 provided in this document.
- PowerFlex 750-Series AC Drives comply with the EMC requirements of EN 61800-3 when installed according to good EMC practices and the instructions provided in this document. However, many factors can influence the EMC compliance of an entire machine or installation, and compliance of the drive itself does not ensure compliance of all applications.
- PowerFlex 750-Series drives are not intended to be used on public low-voltage networks which supply domestic premises. Without additional mitigation, radio frequency interference is expected if used on such a network. The installer is responsible to take measures such as supplementary line filters and enclosures to prevent interference, in addition to the installation requirements of this document.
- Requirements for supplementary mitigation related to specific high frequency emission limits are provided in Table 1.AH.

- PowerFlex 750-Series drives generate harmonic current emissions on the AC supply system. When operated on a public low-voltage network it is the responsibility of the installer or user to ensure that applicable requirements of the distribution network operator have been met. Consultation with the network operator and Rockwell Automation may be necessary.

⚠ **ATTENTION:** PowerFlex 750-Series drives produce DC current in the protective earthing conductor which may reduce the ability of RCD's (residual current-operated protective devices) or RCM's (residual current-operated monitoring devices) of type A or AC to provide protection for other equipment in the installation.

Installation Requirements Related to EN 61800-5-1 and the Low Voltage Directive

- 600V and 690V class PowerFlex 750-Series drives are designed to be CE compliant only if they are NOT connected to "corner-earthed" supply systems where one of the three phases of the supply system has been earthed.

- Voltage classes up to 480V PowerFlex 750-Series drives are compliant with the CE LV Directive when used on a "corner-earthed" supply system as well as all other common supply systems for altitudes up to and including 2000 m (6562 ft).

- When used at altitudes above 2000 m (6562 ft) up to a maximum of 4865 m (15,961 ft), PowerFlex 750-Series drives of voltage classes up to 480V may not be powered from a "corner-earthed" supply system in order to maintain compliance with the CE LV Directive.

- Drives provided in the IP54, NEMA/UL Type 12 enclosure are compliant with the CE LV Directive when installed in pollution degree 1…4 environments. All other enclosure types must be installed in a pollution degree 1 or 2 environment to be compliant with the CE LV Directive. Characteristics of the different pollution degree ratings are provided on page A-7.

- NEMA/UL Open Type and Flange Mount drives must either be installed in a supplementary enclosure or equipped with a "NEMA Type 1 Kit" to be CE compliant with respect to protection against electrical shock.

- PowerFlex 750-Series drives produce leakage current in the protective earthing conductor which exceeds 3.5 mA AC and/or 10 mA DC. The minimum size of the protective earthing (grounding) conductor used in the application must comply with local safety regulations for high protective earthing conductor current equipment.

Installation Requirements Related to EN 61800-3 and the EMC Directive

- The drive must be earthed (grounded) as described in the PowerFlex 750-Series User Manual, publication 750-UM001.
- Output power wiring to the motor must employ cable with a braided shield providing 75% or greater coverage, or the cables must be housed in metal conduit, or equivalent shielding must be provided. Continuous shielding must be provided from the drive enclosure to the motor enclosure. Both ends of the motor cable shield (or conduit) must terminate with a low-impedance connection to earth. At the drive end of the motor cable, either

  a) The cable shield must be clamped to a properly-installed "EMC plate" for the drive. Kit number 20-750-EMC1-F*x*.

  or

  b) The cable shield or conduit must terminate in a shielded connector used in conjunction with a properly-installed conduit plate or conduit box provided in the "NEMA Type 1 Kit" for the drive. Kit number 20-750-NEMA1-F*x*.
- At the motor end, the motor cable shield or conduit must terminate in a shielded connector which must be properly installed in an earthed motor wiring box attached to the motor. The motor wiring box cover must be installed and earthed.
- All control (I/O) and signal wiring to the drive must use cable with a braided shield providing 75% or greater coverage, or the cables must be housed in metal conduit, or equivalent shielding must be provided. When shielded cable is used, only the drive end of the cable shield should be terminated with a low-impedance connection to earth. The cable shield may be terminated either by using a shielded connector in conjunction with a conduit plate or conduit box, or the shield may be clamped to an "EMC plate."
- Motor cabling must be separated from control and signal wiring wherever possible.
- Maximum motor cable length must not exceed the maximum length indicated in Table 1.AH for compliance with radio frequency emission limits for the specific standard and installation environment.
- EMC cores must be applied to input power and motor cabling for some models of the PowerFlex 750-Series drives as indicated in Table 1.AH.
- The drive must be powered from an earthed supply system such as a TN or TT system and the PE-A and PE-B jumpers in the drive must be installed (see Drive Power Jumper Configuration starting on page 1-23).

Table 1.AH PowerFlex 750-Series RF Emission Compliance and Installation Requirements

	Standard / Limits			
Drive Frame Catalog Number	**EN61800-3 Cat. C1 EN61000-6-3 CISPR11 Group 1 Class B**	**EN61800-3 Cat. C2 EN61000-6-4 CISPR11 Group 1 Class A (input power ≤20 kVA)**	**EN61800-3 Cat. C3 (I ≤100 A) CISPR11 Group 1 Class A (Input power > 20 kVA)**	**EN61800-3 Cat. C3 I > 100 A**
Frame 2 20F11xx2P1…20F11xx022 20G11xx2P1…20G11xx022	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit with input core (1)	30 m motor cable limit with input core (1)	N/A
Frame 3 20F11xx030…20F11xx043 20G11xx030…20G11xx043	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit with input core (1)	30 m motor cable limit with input core (1)	N/A
Frame 4 20F11xx060…20F11xx072 20G11xx060…20G11xx072	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit with input and output cores (1)	30 m motor cable limit with input and output cores (1)	N/A
Frame 5 20F11xx085…20F11xx104 20G11xx085…20G11xx104	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit with input and output cores (1)	30 m motor cable limit with input and output cores (1)	30 m motor cable limit with input and output cores (1)
Frame 6 20F11xx140…20F11xx260 20G11xx140…20G11xx260	Compliance possible with supplementary mitigation (Consult factory)	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit	30 m motor cable limit
Frame 7 20F11xx302…20F11xx477 20G11xx302…20G11xx477	Compliance possible with supplementary mitigation (Consult factory)	Compliance possible with supplementary mitigation (Consult factory)	30 m motor cable limit	30 m motor cable limit

More Stringent Limits ⟵⟶ Less Stringent Limits

(1) Rating-specific EMC cores are part of EMC kit numbers 20-750-EMC1-xx and 20-750-EMC2-xx.

Notes:

Chapter 2

Start Up

This chapter provides the information needed to start up the PowerFlex 750-Series drive.

Start-Up Check List

- This check list supports the Start-Up menu option.
- A Human Interface Module (HIM) is required to run the Start-Up routine.

  Important: Appendix D provides an overview of Human Interface Module (HIM) display elements and menu navigation.

- The Start-Up routine may modify parameter values for Analog and Digital I/O.

ATTENTION: Power must be applied to the drive to perform the following start-up procedure. Some of the voltages present are at incoming line potential. To avoid electric shock hazard or damage to equipment, only qualified service personnel should perform the following procedure. Thoroughly read and understand the procedure before beginning.

Prepare For Initial Drive Start-Up

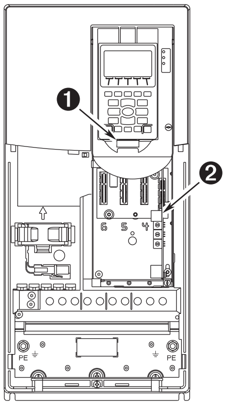
☐ **1.** Confirm that all inputs are connected to the correct terminals and are secure.

☐ **2.** Verify that AC line power at the disconnect device is within the rated value of the drive.

☐ **3.** Verify that control power voltage is correct.

☐ **4.** The remainder of this procedure requires that a Human Interface Module (HIM) is connected to DPI Port 1 or 2.

Figure 2.1 DPI Ports ❶ and ❷



☐ **5.** Apply AC power and control voltages to the drive.

If any digital inputs are configured to Stop – CF, Run, or Enable, verify that signals are present or the drive will not start. Refer to Chapter 4 for a list of potential digital input conflicts.

If the STS LED is not flashing green at this point, refer to Drive Status Indicators on page 2-4.

☐ **6.** When prompted, select a display language. The Start-Up Screen will automatically display for drives that have not been previously configured.

If the Start-Up screen is not displayed press the Enter key.

☐ **7.** Press the Enter key to display the Start-Up Menu.

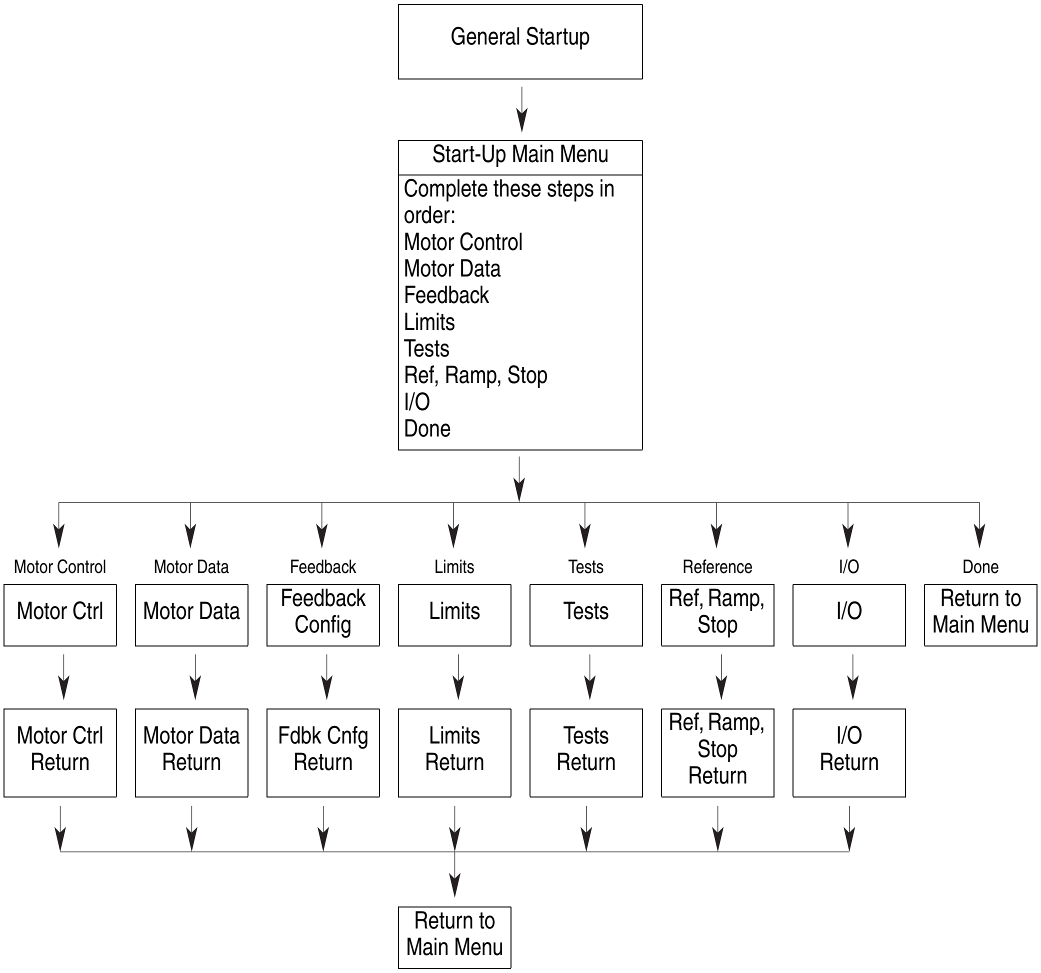
☐ **8.** Use the Up/Down Arrow keys to highlight “2. Basic”.

☐ **9.** Press the Enter key. Follow the menu using the Enter key which will step you through the Start-Up routine.

The Start-Up routine asks simple questions and prompts you to input required information.

Start-Up Menu

The Human Interface Module (HIM) displays the General Start-Up menu by default upon initial power up of the drive. To navigate to the Start-Up menu after the initial power up of the drive, follow the steps in Navigate to Start-Up Menu Using the HIM on page D-4



Drive Status Indicators

Table 2.A PowerFlex 753 Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started.
		Steady	Drive is not running, a type 1 (user configurable) alarm condition exists and the drive continues to run.
	Red	Flashing	A major fault has occurred. Drive will stop. Drive cannot be started until fault condition is cleared.
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Config] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists.
	Green / Red	Flashing Alternately	Drive is flash updating.

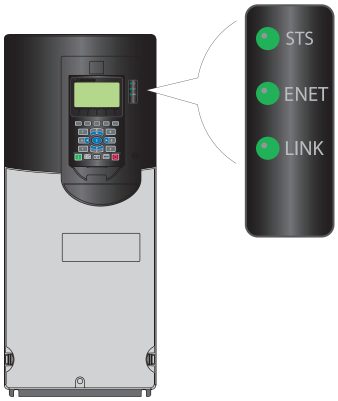


Table 2.B PowerFlex 755 Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started.
		Steady	Drive is not running, a type 1 (user configurable) alarm condition exists and the drive continues to run.
	Red	Flashing	A major fault has occurred. Drive will stop. Drive cannot be started until fault condition is cleared.
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Config] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists.
	Green / Red	Flashing Alternately	Drive is flash updating.
ENET	Unlit	Off	Adapter and/or network is not powered, adapter is not properly connected to the network, or adapter needs an IP address.
	Red	Flashing	An EtherNet/IP connection has timed out.
		Steady	Adapter failed the duplicate IP address detection test.
	Red / Green	Flashing Alternately	Adapter is performing a self-test.
	Green	Flashing	Adapter is properly connected but is not communicating with any devices on the network.
		Steady	Adapter is properly connected and communicating on the network.
LINK	Unlit	Off	Adapter is not powered or is not transmitting on the network.
	Green	Flashing	Adapter is properly connected and transmitting data packets on the network.
		Steady	Adapter is properly connected but is not transmitting on the network.

Important: The Status Indicator LEDs on the HIM cradle do not indicate the current status of an installed Communication Adapter option. If an optional Communication Adapter is installed, refer to that option's user manual for a description of LED location and indication.

Establishing A Connection With EtherNet/IP

There are three methods for configuring the embedded EtherNet/IP adapter's IP address:

- **Adapter Rotary Switches –** Use the switches when working on a simple, isolated network (for example, 192.168.1.xxx) that has other products with switches to set their IP addresses, does not need to be accessed from outside the network, and you prefer a simplified node addressing method. The three adapter switches are read when the drive powers up, and represent three decimal digits from top to bottom (see Figure 2.2). If set to a valid address (001-254), the adapter will use that value as the lower octet of its IP address (192.168.1.xxx, where xxx = rotary switch settings), along with a subnet mask of 255.255.255.0 and there will be no gateway configured. Also, the setting for adapter P36 [BOOTP] is automatically ignored.

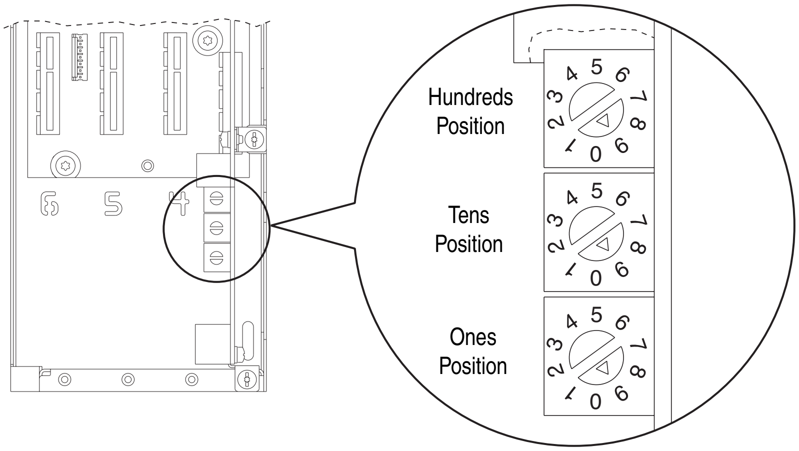
  See Figure 2.2 and its accompanying table for all possible switch settings and their related descriptions.

  Important: When using the adapter rotary switches, set the IP address before power is applied because the adapter uses the IP address it detects when it first receives power.

- **BOOTP Server –** Use BOOTP if you prefer to control the IP addresses of devices using a server. The IP address, subnet mask, and gateway addresses will then be provided by the BOOTP server.
- **Adapter Parameters –** Use adapter parameters when you want more flexibility in setting up the IP address, or need to communicate outside the control network using a gateway. The IP address, subnet mask, and gateway addresses will then come from the adapter parameters you set.

Important: Regardless of the method used to set the adapter's IP address, each node on the EtherNet/IP network must have a unique IP address. To change an IP address, you must set the new value and then remove and reapply power to (or reset) the adapter.

Figure 2.2 Setting the IP Address Switches



Possible Settings	Description
000	Adapter will use, depending on P36 [BOOTP], the BOOTP setting or the adapter parameter settings for the IP address.
001…254	Adapter will use the rotary switch settings for the IP address (192.168.1.xxx, where xxx = rotary switch settings).
255…887	Adapter will use, depending on P6 [BOOTP], the BOOTP setting or the adapter parameter settings for the IP address.
888	Resets the adapter IP address function to factory defaults. Thereafter, the drive must be powered down, the switches set to a setting other than 888, and then the drive must be powered up again to accept the new address.
889…998	Adapter will use, depending on P36 [BOOTP], the BOOTP setting or the adapter parameter settings for the IP address.
999 (default settings)	Disables the rotary switches. Adapter will use, depending on P36 [BOOTP], the BOOTP setting or the adapter parameter settings for the IP address.

Chapter 3

Programming and Parameters

This chapter provides a complete listing and description of the PowerFlex 750-Series drive parameters. The parameters can be programmed (viewed/edited) using a Human Interface Module (HIM). Refer to Appendix B for information on using the HIM to view and edit parameters. As an alternative, programming can also be performed using DriveTools™ software and a personal computer.

About Parameters

To configure a drive module to operate in a specific way, certain drive parameters may have to be configured appropriately. Three types of parameters exist:

- **ENUM Parameters**
  These parameters allow a selection from 2 or more items. The LCD HIM will display a text message for each item.
- **Bit Parameters**
  These parameters have individual bits associated with features or conditions. If the bit is 0, the feature is off or the condition is false. If the bit is 1, the feature is on or the condition is true.
- **Numeric Parameters**
  These parameters have a single numeric value (i.e. 0.1 Volts).

The following table shows how each parameter type is presented in this manual.

Table 3.A Table Explanation

❶			❷	❸			
		No.	**Name** **Description**	**Values**		**Read-Write**	**Data Type**
MOTOR CONTROL	Motor Data	28 ○	**Motor NP RPM** Motor Nameplate Revolutions Per Minute Rated RPM shown on the motor nameplate.	Units: Default: Min/Max:	RPM 1750.0 1.0 / 40000.0	RW	Real
	Vector Regulator	107	**Trq Adapt En** Torque Adaption Enable Enables or disables the adaptive torque calculation. This selection is active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 "Induction FV").	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
FEEDBACK & I/O	Digin Functions	158 ○	**DI Stop** Digital Input Stop Assigns a digital input used to issue a stop command.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
	Control Board IO	220	**Digital In Sts** Digital Input Status Status of the digital input(s) resident on the main control board (Port 0).				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Digital In 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

No.	**Name** **Description**			**Read-Write**	**Data Type**
❶	File and Group organization				
	No. - Parameter Number				
	○ Parameter value cannot be changed until the drive is stopped.				
❷	**Name** - Parameter name as it appears in the DriveExecutive software.				
	Description - Brief description of parameter function. The first line is the full text parameter name.				
	753 = Parameter is specific to PowerFlex 753 drives only. 755 = Parameter is specific to PowerFlex 755 drives only.				
❸	**Values** - Define the various operating characteristics of the parameter. *There are 3 types of Values.*				
	ENUM	Default: Options:	Lists the value assigned at the factory. Displays the selections available.		
	Bit	Default: Options:	Lists the value assigned at the factory. Displays the selections available.		
	Numeric	Default Min/Max.	Lists the value assigned at the factory. Displays lowest possible setting/Displays highest possible setting.	RW RO	
	Indicates if parameter is read-write or read-only. **RW**=Read-Write **RO**=Read Only				32-bit Integer
	Indicates parameter data type (i.e. integer, floating point, boolean).				

How Drive Parameters are Organized

DriveExecutive programming software displays parameters in “Linear List” or “File Group Parameter” format. Viewing the parameters in “File Group Parameter” format simplifies programming by grouping parameters that are used for similar functions. There are eleven files. Each file is divided into multiple groups of parameters.

Parameter descriptions begin on page 3-19.

Basic Parameter View

Parameter 301 [Access Level] set to option 0 “Basic.”

File	Group	Parameters							
Monitor	Metering	Output Frequency	1	Torque Cur Fdbk	5	Output Power	9		
		Commanded SpdRef	2	Flux Cur Fdbk	6	DC Bus Volts	11		
		Mtr Vel Fdbk	3	Output Current	7				
		Commanded Trq	4	Output Voltage	8				
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Maximum Voltage	36	PWM Frequency	38		
				Maximum Freq	37				
	Volts per Hertz	VHz Curve	65						
	Autotune	Autotune	70	Autotune Torque	71				
Feedback & I/O	Digin Functions	Digital In Cfg	150	DI Jog 1	166	DI Accel 2	179		
		DI Enable	155	DI Jog 1 Forward	167	DI Decel 2	180		
		DI Clear Fault	156	DI Jog 1 Reverse	168				
		DI Aux Fault	157	DI Jog 2	169				
		DI Stop	158	DI Jog 2 Forward	170				
		DI Cur Lmt Stop	159	DI Jog 2 Reverse	171				
		DI Coast Stop	160	DI Manual Ctrl	172				
		DI Start	161	DI Speed Sel 0	173				
		DI Fwd Reverse	162	DI Speed Sel 1	174				
		DI Run	163	DI Speed Sel 2	175				
		DI Run Forward	164						
		DI Run Reverse	165						
	Digital Inputs	Digital In Sts	220	Dig In Filt Mask ^{753}	222	Dig In Filt ^{753}	223		
	Digital Outputs ^{753}	Dig Out Sts	225	RO0 Sel	230	TO0 Sel	240		
		Dig Out Invert	226	RO0 Level Sel	231	TO0 Level Sel	241		
		Dig Out Setpoint	227	RO0 Level	232	TO0 Level	242		
				RO0 Level CmpSts	233	TO0 Level CmpSts	243		
				RO0 On Time	234	TO0 On Time	244		
				RO0 Off Time	235	TO0 Off Time	245		
	Motor PTC ^{753}	PTC Cfg	250	PTC Status	251				
	Analog Inputs ^{753}	Anlg In Type	255	Anlg In0 Value	260	Anlg In0 LssActn	263	Anlg In0 Filt Gn	265
		Anlg In Sqrt	256	Anlg In0 Hi	261	Anlg In0 Raw Val	264	Anlg In0 Filt BW	266
		Anlg In Loss Sts	257	Anlg In0 Lo	262				
	Analog Outputs ^{753}	Anlg Out Type	270	Anlg Out0 Sel	275	Anlg Out0 Data	277	Anlg Out0 Hi	280
		Anlg Out Abs	271	Anlg Out0 Stpt	276	Anlg Out0 DataHi	278	Anlg Out0 Lo	281
						Anlg Out0 DataLo	279	Anlg Out0 Val	282

File	Group	Parameters							
Drive Cfg	Preferences	Speed Units	300						
		Access Level	301						
		Language	302						
	Control Cfg	Voltage Class	305	SpdTrqPsn Mode A	309				
		Duty Rating	306						
		Direction Mode	308						
	Auto Manual Ctrl	Logic Mask	324	Alt Man Ref Sel	328	Manual Preload	331		
		Auto Mask	325	Alt Man Ref AnHi	329				
		Manual Cmd Mask	326	Alt Man Ref AnLo	330				
		Manual Ref Mask	327						
	Braking Features	Stop Mode A	370	DB Resistor Type	382	Dec Inhibit Actn	409		
		Stop Mode B	371	DB Ext Ohms	383				
		Bus Reg Mode A	372	DB Ext Watts	384				
		Bus Reg Mode B	373	DB ExtPulseWatts	385				
Protection	Motor Overload	Motor OL Actn	410	Mtr OL Factor	413	Mtr OL Reset Lvl	415		
		Mtr OL at Pwr Up	411	Mtr OL Hertz	414	MtrOL Reset Time	416		
		Mtr OL Alarm Lvl	412						
	Load Limits	Current Lmt Sel	421			Shear Pin Cfg	434		
		Current Limit 1	422			Shear Pin 1 Actn	435		
						Shear Pin1 Level	436		
						Shear Pin 1 Time	437		
	Power Loss	Power Loss Actn	449	Pwr Loss Mode A	450				
Speed Control	Speed Limits	Max Fwd Speed	520	Min Fwd Speed	522				
		Max Rev Speed	521	Min Rev Speed	523				
	Speed Ramp Rates	Accel Time 1	535	Decel Time 1	537	Jog Acc Dec Time	539		
		Accel Time 2	536	Decel Time 2	538				
	Speed Reference	Spd Ref A Sel	545	Jog Speed 1	556	Preset Speed 1	571		
		Spd Ref A Stpt	546	Jog Speed 2	557	Preset Speed 2	572		
		Spd Ref A AnlgHi	547			Preset Speed 3	573		
		Spd Ref A AnlgLo	548			Preset Speed 4	574		
		Spd Ref B Sel	550			Preset Speed 5	575		
		Spd Ref B Stpt	551			Preset Speed 6	576		
		Spd Ref B AnlgHi	552			Preset Speed 7	577		
		Spd Ref B AnlgLo	553						
Torque Control	Torque Reference	Trq Ref A Sel	675	Trq Ref B Sel	680	Selected Trq Ref	685		
		Trq Ref A Stpt	676	Trq Ref B Stpt	681				
		Trq Ref A AnlgHi	677	Trq Ref B AnlgHi	682				
		Trq Ref A AnlgLo	678	Trq Ref B AnlgLo	683				
		Trq Ref A Mult	679	Trq Ref B Mult	684				
Communication	Comm Control	Port 1 Reference(1)	871						
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
Diagnostics	Status	Speed Ref Source	930	Drive Status 1	935				
		Last StartSource	931	Drive Status 2	936				
		Last Stop Source	932	Condition Sts 1	937				
		Start Inhibits	933						
		Last StrtInhibit	934						
	Fault/Alarm Info	Minor Flt Cfg	950						
		Last Fault Code	951						
		Fault Status A	952						
		Fault Status B	953						

(1) 755 Basic View Only

Advanced Parameter View

Parameter 301 [Access Level] set to option 1 “Advanced.”

File	Group	Parameters							
Monitor	Metering	Output Frequency	1	Torque Cur Fdbk	5	Output Power	9	Elapsed MWH	13
		Commanded SpdRef	2	Flux Cur Fdbk	6	Output Powr Fctr	10	Elapsed kWH	14
		Mtr Vel Fdbk	3	Output Current	7	DC Bus Volts	11	Elapsed Run Time	15
		Commanded Trq	4	Output Voltage	8	DC Bus Memory	12		
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Flux Up Enable	43				
		Maximum Voltage	36	Flux Up Time	44				
		Maximum Freq	37						
		PWM Frequency	38						
		Mtr Options Cfg	40						
	Volts per Hertz	Start Acc Boost	60	Break Voltage	62	VHz Curve	65		
		Run Boost	61	Break Frequency	63				
	Autotune	Autotune	70	Total Inertia	76				
		Autotune Torque	71	Inertia Test Lmt	77				
		IR Voltage Drop	73						
		Ixo Voltage Drop	74						
		Flux Current Ref	75						
Feedback & I/O	Digin Functions	Digital In Cfg	150	DI Jog 1	166	DI Accel 2	179	DI PID Reset	193
		DI Enable	155	DI Jog 1 Forward	167	DI Decel 2	180	DI PID Invert	194
		DI Clear Fault	156	DI Jog 1 Reverse	168	DI SpTqPs Sel 0	181	DI Torque StptA	195
		DI Aux Fault	157	DI Jog 2	169	DI SpTqPs Sel 1	182	DI Fwd End Limit	196
		DI Stop	158	DI Jog 2 Forward	170	DI Stop Mode B	185	DI Fwd Dec Limit	197
		DI Cur Lmt Stop	159	DI Jog 2 Reverse	171	DI BusReg Mode B	186	DI Rev End Limit	198
		DI Coast Stop	160	DI Manual Ctrl	172	DI PwrLoss ModeB	187	DI Rev Dec Limit	199
		DI Start	161	DI Speed Sel 0	173	DI Pwr Loss	188	DI PHdwr OvrTrvl	200
		DI Fwd Reverse	162	DI Speed Sel 1	174	DI Precharge	189	DI NHdwr OvrTrvl	201
		DI Run	163	DI Speed Sel 2	175	DI Prchrg Seal	190		
		DI Run Forward	164	DI MOP Inc	177	DI PID Enable	191		
		DI Run Reverse	165	DI MOP Dec	178	DI PID Hold	192		
	Digital Inputs	Digital In Sts	220	Dig In Filt Mask ^{753}	222	Dig In Filt ^{753}	223		
	Digital Outputs ^{753}	Dig Out Sts	225	RO0 Sel	230	TO0 Sel	240		
		Dig Out Invert	226	RO0 Level Sel	231	TO0 Level Sel	241		
		Dig Out Setpoint	227	RO0 Level	232	TO0 Level	242		
				RO0 Level CmpSts	233	TO0 Level CmpSts	243		
				RO0 On Time	234	TO0 On Time	244		
				RO0 Off Time	235	TO0 Off Time	245		
	Motor PTC ^{753}	PTC Cfg	250	PTC Status	251				
	Analog Inputs ^{753}	Anlg In Type	255	Anlg In0 Value	260	Anlg In0 LssActn	263	Anlg In0 Filt Gn	265
		Anlg In Sqrt	256	Anlg In0 Hi	261	Anlg In0 Raw Val	264	Anlg In0 Filt BW	266
		Anlg In Loss Sts	257	Anlg In0 Lo	262				
	Analog Outputs ^{753}	Anlg Out Type	270	Anlg Out0 Sel	275	Anlg Out0 Data	277	Anlg Out0 Hi	280
		Anlg Out Abs	271	Anlg Out0 Stpt	276	Anlg Out0 DataHi	278	Anlg Out0 Lo	281
						Anlg Out0 DataLo	279	Anlg Out0 Val	282
	R0 Predict Main ^{753}	RO PredMaint Sts	285	RO0 Load Amps	287	RO0 ElapsedLife	289	RO0 LifeEvntLvl	291
		RO0 Load Type	286	RO0 TotalLife	288	RO0 RemainLife	290	RO0 LifeEvntActn	292

File	Group	Parameters							
Drive Cfg	Preferences	Speed Units	300						
		Access Level	301						
		Language	302						
	Control Cfg	Voltage Class	305	SpdTrqPsn Mode A	309	Actv SpTqPs Mode	313	Prchrg Control	321
		Duty Rating	306	SpdTrqPsn Mode B	310	SLAT Err Stpt	314	Prchrg Delay	322
		Direction Mode	308	SpdTrqPsn Mode C	311	SLAT Dwell Time	315	Prchrg Err Cfg	323
				SpdTrqPsn Mode D	312				
	Auto Manual Ctrl	Logic Mask	324	Alt Man Ref Sel	328	Manual Preload	331		
		Auto Mask	325	Alt Man Ref AnHi	329				
		Manual Cmd Mask	326	Alt Man Ref AnLo	330				
		Manual Ref Mask	327						
	Drive Memory	Reset Meters	336						
	Start Features	Start At PowerUp	345	Sleep Wake Mode	350	FlyingStart Mode	356		
		PowerUp Delay	346	SleepWake RefSel	351				
		Auto Retry Fault	347	Sleep Level	352				
		Auto Rstrt Tries	348	Sleep Time	353				
		Auto Rstrt Delay	349	Wake Level	354				
				Wake Time	355				
	Braking Features	Stop Mode A	370	DB Resistor Type	382	DC Brake Lvl Sel	393	Brake Off Adj 1	402
		Stop Mode B	371	DB Ext Ohms	383	DC Brake Level	394	Brake Off Adj 2	403
		Bus Reg Mode A	372	DB Ext Watts	384	DC Brake Time	395	Dec Inhibit Actn	409
		Bus Reg Mode B	373	DB ExtPulseWatts	385				
		Bus Reg Lvl Cfg	374	Flux Braking En	388				
		Bus Reg Level	375	Flux Braking Lmt	389				
Protection	Motor Overload	Motor OL Actn	410	Mtr OL Factor	413	Mtr OL Reset Lvl	415	Mtr OL Counts	418
		Mtr OL at Pwr Up	411	Mtr OL Hertz	414	MtrOL Reset Time	416	Mtr OL Trip Time	419
		Mtr OL Alarm Lvl	412						
	Load Limits	Drive OL Mode	420	Motor Power Lmt	427	Shear Pin Cfg	434	Load Loss Action	441
		Current Lmt Sel	421			Shear Pin 1 Actn	435	Load Loss Level	442
		Current Limit 1	422			Shear Pin1 Level	436	Load Loss Time	443
		Current Limit 2	423			Shear Pin 1 Time	437	OutPhaseLossActn	444
		Active Cur Lmt	424			Shear Pin 2 Actn	438	Out PhaseLossLvl	445
		Current Rate Lmt	425			Shear Pin2 Level	439		
		Regen Power Lmt	426			Shear Pin 2 Time	440		
	Power Loss	Power Loss Actn	449	Pwr Loss Mode A	450	Pwr Loss Mode B	453	UnderVltg Action	460
				Pwr Loss A Level	451	Pwr Loss B Level	454	UnderVltg Level	461
				Pwr Loss A Time	452	Pwr Loss B Time	455	InPhase LossActn	462
								InPhase Loss Lvl	463
								DC Bus Mem Reset	464
	Ground Fault	Ground Warn Actn	466						
		Ground Warn Lvl	467						
	Predictive Main	PredMaint Status	469	HSFan Derate	488	MtrBrngTotalLife	502	MchBrngTotalLife	511
		PredMaintAmbTemp	470	HSFan TotalLife	489	MtrBrngElpsdLife	503	MchBrngElpsdLife	512
		PredMaint Rst En	471	HSFan ElpsdLife	490	MtrBrngRemainLif	504	MchBrngRemainLif	513
		PredMaint Reset	472	HSFan RemainLife	491	MtrBrngEventLvl	505	MchBrngEventLvl	514
				HSFan EventLevel	492	MtrBrngEventActn	506	MchBrngEventActn	515
				HSFan EventActn	493	MtrBrng ResetLog	507	MchBrngResetLog	516
				HSFan ResetLog	494	MtrLubeElpsdHrs	508	MchLubeElpsdHrs	517
				InFan Derate	495	MtrLubeEventLvl	509	MchLube EventLvl	518
				InFan TotalLife	496	MtrLubeEventActn	510	MchLubeEventActn	519
				InFan ElpsdLife	497				
				InFan RemainLife	498				
				InFan EventLevel	499				
				InFan EventActn	500				
				InFan ResetLog	501				

File	Group	Parameters							
Speed Control	Speed Limits	Max Fwd Speed	520	Min Fwd Speed	522	Overspeed Limit	524	Skip Speed 1	526
		Max Rev Speed	521	Min Rev Speed	523	Zero Speed Limit	525	Skip Speed 2	527
								Skip Speed 3	528
								Skip Speed Band	529
	Speed Ramp Rates	Accel Time 1	535	Decel Time 1	537	Jog Acc Dec Time	539	S Curve Accel	540
		Accel Time 2	536	Decel Time 2	538			S Curve Decel	541
	Speed Reference	Spd Ref A Sel	545	Spd Ref Scale	555	Preset Speed 1	571		
		Spd Ref A Stpt	546	Jog Speed 1	556	Preset Speed 2	572		
		Spd Ref A AnlgHi	547	Jog Speed 2	557	Preset Speed 3	573		
		Spd Ref A AnlgLo	548	MOP Reference	558	Preset Speed 4	574		
		Spd Ref A Mult	549	Save MOP Ref	559	Preset Speed 5	575		
		Spd Ref B Sel	550	MOP Rate	560	Preset Speed 6	576		
		Spd Ref B Stpt	551	MOP High Limit	561	Preset Speed 7	577		
		Spd Ref B AnlgHi	552	MOP Low Limit	562				
		Spd Ref B AnlgLo	553	DI ManRef Sel	563				
		Spd Ref B Mult	554	DI ManRef AnlgHi	564				
				DI ManRef AnlgLo	565				
	Speed Trim	Trim Ref A Sel	600	Trim Ref B Sel	604	TrmPct RefA Sel	608	TrmPct RefB Sel	612
		Trim Ref A Stpt	601	Trim Ref B Stpt	605	TrmPct RefA Stpt	609	TrmPct RefB Stpt	613
		Trim RefA AnlgHi	602	Trim RefB AnlgHi	606	TrmPct RefA AnHi	610	TrmPct RefB AnHi	614
		Trim RefA AnlgLo	603	Trim RefB AnlgLo	607	TrmPct RefA AnLo	611	TrmPct RefB AnLo	615
	Slip/Droop Comp	Droop RPM at FLA	620						
		Slip RPM at FLA	621						
		Slip Comp BW	622						
	Speed Regulator	Spd Options Ctrl	635	Speed Reg Kp	645	Spd Loop Damping	653	VHzSV Spd Reg Kp	663
		Speed Reg BW	636	Speed Reg Max Kp	646	Spd Reg Int Out	654	VHzSV Spd Reg Ki	664
		Filtered SpdFdbk	640	Speed Reg Ki	647	Spd Reg Pos Lmt	655		
		Speed Error	641			Spd Reg Neg Lmt	656		
						SReg Output	660		
	Speed Comp	Speed Comp Sel	665						
		Speed Comp Gain	666						
		Speed Comp Out	667						
Torque Control	Torque Limits	Pos Torque Limit	670						
		Neg Torque Limit	671						
	Torque Reference	Trq Ref A Sel	675	Trq Ref B Sel	680	Selected Trq Ref	685	Torque Step	686
		Trq Ref A Stpt	676	Trq Ref B Stpt	681			Filtered Trq Ref	689
		Trq Ref A AnlgHi	677	Trq Ref B AnlgHi	682			Limited Trq Ref	690
		Trq Ref A AnlgLo	678	Trq Ref B AnlgLo	683				
		Trq Ref A Mult	679	Trq Ref B Mult	684				
	Inertia Comp ^{755}	Inertia CompMode	695	Inertia Acc Gain	696	Inert Comp LPFBW	698	Ext Ramped Ref	700
				Inertia Dec Gain	697	Inertia Comp Out	699		
	Friction Comp ^{755}	InAdp LdObs Mode	704	Load Estimate	707	IA LdObs Delay	709	Load Observer BW	711
		Inertia Adapt BW	705	InertiaTrqAdd	708	InertAdptFltrBW	710		
		InertiaAdaptGain	706						

File	Group	Parameters							
Position Control	Position Cfg/Sts	PTP PsnRefStatus	720	Psn Selected Ref	722	Psn Reg Status	724	In Pos Psn Band	726
		Position Control	721	Psn Command	723	Zero Position	725	In Pos Psn Dwell	727
	Position Homing	Homing Status	730	DI Find Home	732	Find Home Speed	735	Actual Home Psn	737
		Homing Control	731	DI Redefine Psn	733	Find Home Ramp	736	User Home Psn	738
				DI OL Home Limit	734				
	Position Watch ^{755}	PsnWatch1 Select	745	PsnWatch2 Select	748				
		PsnWatch1 DtctIn	746	PsnWatch2 DtctIn	749				
		PsnWatch1 Stpt	747	PsnWatch2 Stpt	750				
	Direct	Psn Ref Select	765	Psn Direct Stpt	766				
				Psn Direct Ref	767				
	Point to Point	PTP Control	770	PTP Ref Sel	775	PTP Setpoint	780	PTP Fwd Vel Lmt	785
		PTP Mode	771	PTP Reference	776	PTP Accel Time	781	PTP Rev Vel Lmt	786
		DI Indx Step	772	PTP Feedback	777	PTP Decel Time	782	PTP S Curve	787
		DI Indx StepRev	773	PTP Ref Scale	778	PTP Speed FwdRef	783	PTP Vel Override	788
		DI Indx StepPrst	774	PTP Index Preset	779	PTP Command	784	PTP EGR Mult	789
								PTP EGR Div	790
	Phase Lock Loop ^{755}	PLL Control	795	PLL Psn Ref Sel	799	PLL EPR Input	804	PLL Enc Out	809
		PLL Ext Spd Sel	796	PLL Psn Stpt	800	PLL Rvls Input	805	PLL Enc Out Adv	810
		PLL Ext Spd Stpt	797	PLL BW	801	PLL Psn Out Fltr	806	PLL EPR Output	811
		PLL Ext SpdScale	798	PLL LPFilter BW	802	PLL Speed Out	807	PLL Rvls Output	812
				PLL Virt Enc RPM	803	PLL Speed OutAdv	808		
	Electronic Gear	Psn Ref EGR Out	815	Psn EGR Mult	816				
				Psn EGR Div	817				
	Position Offset	Psn Offset 1 Sel	820	Psn Offset 2 Sel	822	Psn Offset Vel	824		
		Psn Offset 1	821	Psn Offset 2	823				
	Ld Psn Fdbk Scal ^{755}	LdPsn Fdbk Mult	825	LdPsn Fdbk Div	826				
	Position Reg			Psn Error	835	PReg Pos Int Lmt	840	PReg Pos Spd Lmt	844
				Psn Actual	836	PReg Neg Int Lmt	841	PReg Neg Spd Lmt	845
				Psn Load Actual ^{755}	837	PsnReg IntgrlOut	842	Psn Reg Droop	846
				Psn Reg Ki	838	PsnReg Spd Out	843	Psn Fdbk	847
				Psn Reg Kp	839				
Communication	Comm Control	Port 1 Reference	871	Port 4 Reference	874	Port13 Reference ^{755}	877	Drive Logic Rslt	879
		Port 2 Reference	872	Port 5 Reference	875	Port14 Reference	878	DPI Ref Rslt	880
		Port 3 Reference	873	Port 6 Reference	876			DPI Ramp Rslt	881
								DPI Logic Rslt	882
								Drive Ref Rslt ^{753}	883
								Drive Ramp Rslt ^{753}	884
	Security	Port Mask Act	885	Write Mask Act	887				
		Logic Mask Act	886	Write Mask Cfg	888				
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
	Owners	Stop Owner	919	Jog Owner	921	Clear Flt Owner	923	Ref Select Owner	925
		Start Owner	920	Dir Owner	922	Manual Owner	924		
Diagnostics	Status	Speed Ref Source	930	Drive Status 1	935	IGBT Temp Pct	941	At Limit Status	945
		Last StartSource	931	Drive Status 2	936	IGBT Temp C	942	Safety Port Sts	946
		Last Stop Source	932	Condition Sts 1	937	Drive Temp Pct	943		
		Start Inhibits	933	Drive OL Count	940	Drive Temp C	944		
		Last StrtInhibit	934						
	Fault/Alarm Info	Minor Flt Cfg	950	Status1 at Fault	954	Alarm Status A	959	AlarmA at Fault	962
		Last Fault Code	951	Status2 at Fault	955	Alarm Status B	960	AlarmB at Fault	963
		Fault Status A	952	Fault Frequency	956	Type 2 Alarms	961		
		Fault Status B	953	Fault Amps	957				
				Fault Bus Volts	958				
	Peak Detection ^{755}	PkDtct Stpt Real	1035	PkDtct1PresetSel	1038	PeakDetect1 Out	1041	Peak2 Cfg	1044
		PkDtct Stpt Dint	1036	Peak1 Cfg	1039	PkDtct2 In Sel	1042	Peak 2 Change	1045
		PkDtct1 In Sel	1037	Peak 1 Change	1040	PkDtct2PresetSel	1043	PeakDetect2 Out	1046

File	Group	Parameters							
Applications	Process PID	PID Cfg	1065	PID Fdbk Sel	1072	PID Output Sel	1079	PID Prop Gain	1086
		PID Control	1066	PID Fdbk AnlgHi	1073	PID Output Mult	1080	PID Int Time	1087
		PID Ref Sel	1067	PID Fdbk AnlgLo	1074	PID Upper Limit	1081	PID Deriv Time	1088
		PID Ref AnlgHi	1068	PID FBLoss SpSel	1075	PID Lower Limit	1082	PID Status	1089
		PID Ref AnlgLo	1069	PID FBLoss TqSel	1076	PID Deadband	1083	PID Ref Meter	1090
		PID Setpoint	1070	PID Fdbk	1077	PID LP Filter BW	1084	PID Fdbk Meter	1091
		PID Ref Mult	1071	PID Fdbk Mult	1078	PID Preload	1085	PID Error Meter	1092
								PID Output Meter	1093
	Torque Prove ^{755}	Trq Prove Cfg	1100	Trq Lmt SlewRate	1104	Brk Release Time	1107	Float Tolerance	1111
		Trq Prove Setup	1101	Speed Dev Band	1105	Brk Set Time	1108	MicroPsnScalePct	1112
		DI FloatMicroPsn	1102	SpdBand Intgrtr	1106	Brk Alarm Travel	1109	ZeroSpdFloatTime	1113
		Trq Prove Status	1103			Brk Slip Count	1110		
	Fibers Function ^{753}	Fiber Control	1120	Traverse Inc	1123	P Jump	1126	DI Fiber SyncEna	1129
		Fiber Status	1121	Traverse Dec	1124			DI Fiber TravDis	1130
		Sync Time	1122	Max Traverse	1125				
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		Adj Vltg Select	1133	Adj Vltg Trim Hi	1137	Adj Vltg Preset2	1143	Adj Vltg Scurve	1150
		Adj Vltg Ref Hi	1134	Adj Vltg Trim Lo	1138	Adj Vltg Preset3	1144	Adj Vltg TrimPct	1151
		Adj Vltg Ref Lo	1135	Adj Vltg Command	1139	Adj Vltg Preset4	1145	Min Adj Voltage	1152
				Adj Vltg AccTime	1140	Adj Vltg Preset5	1146		
				Adj Vltg DecTime	1141	Adj Vltg Preset6	1147		
						Adj Vltg Preset7	1148		
	Pump Jack ^{753}	Rod Speed	1165	TorqAlarm Action	1168	Total Gear Ratio	1174	Gearbox Limit	1181
		Rod Torque	1166	TorqAlarm Config	1169	Max Rod Speed	1175	Gearbox Rating	1182
		Rod Speed Cmd	1167	TorqAlarm Dwell	1170	Max Rod Torque	1176	Gearbox Ratio	1183
				TorqAlarm Level	1171	Min Rod Speed	1177	Gearbox Sheave	1184
				TorqAlm Timeout	1172	Motor Sheave	1178		
				TorqAlarm TOActn	1173	OilWell Pump Cfg	1179		
						PCP Pump Sheave	1180		
	Pump Off ^{753}	Pump Off Config	1187	Pump Cycle Store	1192	Pct Cycle Torque	1198	Pump Off Count	1203
		Pump Off Setup	1188	Set Top ofStroke	1193	Pct Lift Torque	1199	PumpOff SleepCnt	1204
		Pump Off Action	1189	Torque Setpoint	1194	Pct Drop Torque	1200	Day Stroke Count	1205
		Pump Off Control	1190	Pump Off Level	1195	Stroke Pos Count	1201	DI PumpOff Disbl	1206
		Pump Off Status	1191	Pump Off Speed	1196	Stroke Per Min	1202	Pump OffSleepLvl	1207
				Pump Off Time	1197				
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		Counts Per Unit	1215	DI StrtStep Sel2	1224	Step 1…16 Decel	1233, 1243, 1253…1383		
		ProfVel Override	1216	DI StrtStep Sel3	1225	Step 1…16 Value	1234, 1244, 1254…1384		
		Prof DI Invert	1217	DI StrtStep Sel4	1226	Step 1…16 Dwell	1235, 1245, 1255…1385		
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						Step 1…16 Dig In	1239, 1249, 1259…1389		
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		PCAM Psn Stpt	1393	PCAM ScaleY Sel	1399	PCAM Aux Types	1440		
		PCAM Psn Ofst	1394	PCAM ScaleYSetPt	1400	PCAM Aux Pt X 1…15	1441, 1443, 1445…1469		
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				PCAM Slope Begin	1403	PCAM Vel Out	1472		
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				PCAM Main EndPnt	1405	DI PCAM Start	1474		
				PCAM Main Types	1406				

Expert Parameter View

Parameter 301 [Access Level] set to option 2 “Expert.”

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Monitor	Metering	Output Frequency	1	Torque Cur Fdbk	5	Output Power	9	Elapsed MWH	13
		Commanded SpdRef	2	Flux Cur Fdbk	6	Output Powr Fctr	10	Elapsed kWH	14
		Mtr Vel Fdbk	3	Output Current	7	DC Bus Volts	11	Elapsed Run Time	15
		Commanded Trq	4	Output Voltage	8	DC Bus Memory	12		
	Drive Data	Rated Volts	20	Rated Amps	21	Rated kW	22		
Motor Control	Motor Data	Motor NP Volts	25	Motor NP Hertz	27	Mtr NP Pwr Units	29	Motor Poles	31
		Motor NP Amps	26	Motor NP RPM	28	Motor NP Power	30		
	Mtr Ctrl Options	Motor Ctrl Mode	35	Bus Utilization	42	Econ At Ref Ki	47	Stab Volt Gain	51
		Maximum Voltage	36	Flux Up Enable	43	Econ AccDec Ki	48	Stab Angle Gain	52
		Maximum Freq	37	Flux Up Time	44	Econ AccDec Kp	49		
		PWM Frequency	38	Flux Down Ki	45	Stability Filter	50		
		Mtr Options Cfg	40	Flux Down Kp	46				
	Volts per Hertz	Start Acc Boost	60	Break Voltage	62	SVC Boost Filter	64		
		Run Boost	61	Break Frequency	63	VHz Curve	65		
	Autotune	Autotune	70	Total Inertia	76	PM PriEnc Offset ^{755}	81	PM IR Voltage ^{755}	87
		Autotune Torque	71	Inertia Test Lmt	77	PM AltEnc Offset ^{755}	82	PM IXq Voltage ^{755}	88
		IR Voltage Drop	73	Encdrlss AngComp	78	PM OfstTst Cur ^{755}	83	PM IXd Voltage ^{755}	89
		Ixo Voltage Drop	74	Encdrlss VltComp	79	PM OfstTst CRamp ^{755}	84	PM Vqs Reg Kp ^{755}	91
		Flux Current Ref	75	PM Cfg ^{755}	80	PM OfstTst FRamp ^{755}	85	PM Vqs Reg Ki ^{755}	92
						PM CEMF Voltage ^{755}	86	PM Dir Test Cur ^{755}	93
	Vector Regulator	VCL Cur Reg BW	95	Slip Reg Ki	101	Trq Adapt En	107	SFAdapt SlewLmt	113
		VCL Cur Reg Kp	96	Slip Reg Kp	102	Phase Delay Comp	108	SFAdapt SlewRate	114
		VCL Cur Reg Ki	97	Flux Reg Enable	103	Trq Comp Mode	109	SFAdapt CnvrgLvl	115
		VEncdls FReg Kp	98	Flux Reg Ki	104	Trq Comp Mtring	110	SFAdapt CnvrgLmt	116
		VEncdls FReg Ki	99	Flux Reg Kp	105	Trq Comp Regen	111		
		Slip Reg Enable	100	Trq Adapt Speed	106	Slip Adapt Iqs	112		
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		Pri Vel FdbkFltr	126	Active Vel Fdbk	131	Load Psn FdbkSel ^{755}	136	Virtual EncDelay ^{755}	140
		Pri Vel Feedback	127	Aux Vel Fdbk Sel	132	Open Loop Fdbk	137	Virtual Enc EPR ^{755}	141
		Alt Vel Fdbk Sel	128	Aux Vel FdbkFltr	133	Simulator Fdbk	138	Virtual Enc Psn ^{755}	142
		Alt Vel FdbkFltr	129	Aux Vel Feedback	134				
	Digin Functions	Digital In Cfg	150	DI Jog 1	166	DI Accel 2	179	DI PID Reset	193
		DI Enable	155	DI Jog 1 Forward	167	DI Decel 2	180	DI PID Invert	194
		DI Clear Fault	156	DI Jog 1 Reverse	168	DI SpTqPs Sel 0	181	DI Torque StptA	195
		DI Aux Fault	157	DI Jog 2	169	DI SpTqPs Sel 1	182	DI Fwd End Limit	196
		DI Stop	158	DI Jog 2 Forward	170	DI Stop Mode B	185	DI Fwd Dec Limit	197
		DI Cur Lmt Stop	159	DI Jog 2 Reverse	171	DI BusReg Mode B	186	DI Rev End Limit	198
		DI Coast Stop	160	DI Manual Ctrl	172	DI PwrLoss ModeB	187	DI Rev Dec Limit	199
		DI Start	161	DI Speed Sel 0	173	DI Pwr Loss	188	DI PHdwr OvrTrvl	200
		DI Fwd Reverse	162	DI Speed Sel 1	174	DI Precharge	189	DI NHdwr OvrTrvl	201
		DI Run	163	DI Speed Sel 2	175	DI Prchrg Seal	190		
		DI Run Forward	164	DI MOP Inc	177	DI PID Enable	191		
		DI Run Reverse	165	DI MOP Dec	178	DI PID Hold	192		
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	Digital Outputs ^{753}	Dig Out Sts	225	RO0 Sel	230	TO0 Sel	240		
		Dig Out Invert	226	RO0 Level Sel	231	TO0 Level Sel	241		
		Dig Out Setpoint	227	RO0 Level	232	TO0 Level	242		
				RO0 Level CmpSts	233	TO0 Level CmpSts	243		
				RO0 On Time	234	TO0 On Time	244		
				RO0 Off Time	235	TO0 Off Time	245		
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		Anlg In Sqrt	256	Anlg In0 Hi	261	Anlg In0 Raw Val	264	Anlg In0 Filt BW	266
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		Anlg Out Abs	271	Anlg Out0 Stpt	276	Anlg Out0 DataHi	278	Anlg Out0 Lo	281
						Anlg Out0 DataLo	279	Anlg Out0 Val	282
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		Duty Rating	306	SpdTrqPsn Mode B	310	SLAT Err Stpt	314	Prchrg Delay	322
		Direction Mode	308	SpdTrqPsn Mode C	311	SLAT Dwell Time	315	Prchrg Err Cfg	323
				SpdTrqPsn Mode D	312				
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		Auto Mask	325	Alt Man Ref AnHi	329				
		Manual Cmd Mask	326	Alt Man Ref AnLo	330				
		Manual Ref Mask	327						
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		PowerUp Delay	346	SleepWake RefSel	351	FS Gain	357	FS Excitation Kp	362
		Auto Retry Fault	347	Sleep Level	352	FS Ki	358	FS Reconnect Dly	363
		Auto Rstrt Tries	348	Sleep Time	353	FS Speed Reg Ki	359	FS Msrmnt CurLvl	364
		Auto Rstrt Delay	349	Wake Level	354	FS Speed Reg Kp	360		
				Wake Time	355				
	Braking Features	Stop Mode A	370	Bus Reg Ki	380	Flux Braking Ki	390	DC Brk Vq Fltr	398
		Stop Mode B	371	Bus Reg Kp	381	Flux Braking Kp	391	DC Brk Vd Fltr	399
		Bus Reg Mode A	372	DB Resistor Type	382	DC Brake Lvl Sel	393	Fast Braking Ki [755]	400
		Bus Reg Mode B	373	DB Ext Ohms	383	DC Brake Level	394	Fast Braking Kp	401
		Bus Reg Lvl Cfg	374	DB Ext Watts	384	DC Brake Time	395	Brake Off Adj 1	402
		Bus Reg Level	375	DB ExtPulseWatts	385	DC Brake Ki	396	Brake Off Adj 2	403
		Bus Limit Kp	376	Flux Braking En	388	DC Brake Kp	397	Dec Inhibit Actn	409
		Bus Limit Kd	377	Flux Braking Lmt	389				
		Bus Limit ACR Ki	378						
		Bus Limit ACR Kp	379						
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		Mtr OL at Pwr Up	411	Mtr OL Hertz	414	MtrOL Reset Time	416	Mtr OL Trip Time	419
		Mtr OL Alarm Lvl	412						
	Load Limits	Drive OL Mode	420	Motor Power Lmt	427	Shear Pin Cfg	434	Load Loss Action	441
		Current Lmt Sel	421	Current Limit Kd	428	Shear Pin 1 Actn	435	Load Loss Level	442
		Current Limit 1	422	Current Limit Ki	429	Shear Pin1 Level	436	Load Loss Time	443
		Current Limit 2	423	Current Limit Kp	430	Shear Pin 1 Time	437	OutPhaseLossActn	444
		Active Cur Lmt	424	Id Lo FreqCur Kp	431	Shear Pin 2 Actn	438	Out PhaseLossLvl	445
		Current Rate Lmt	425	Iq Lo FreqCur Kp	432	Shear Pin2 Level	439		
		Regen Power Lmt	426	Jerk Gain	433	Shear Pin 2 Time	440		
	Power Loss	Power Loss Actn	449	Pwr Loss Mode B	453	PwrLoss RT BusKp	456	UnderVltg Action	460
		Pwr Loss Mode A	450	Pwr Loss B Level	454	PwrLoss RT BusKd	457	UnderVltg Level	461
		Pwr Loss A Level	451	Pwr Loss B Time	455	PwrLoss RT ACRKp	458	InPhase LossActn	462
		Pwr Loss A Time	452			PwrLoss RT ACRKi	459	InPhase Loss Lvl	463
								DC Bus Mem Reset	464
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		Ground Warn Lvl	467						
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		PredMaintAmbTemp	470	HSFan TotalLife	489	MtrBrngElpsdLife	503	MchBrngElpsdLife	512
		PredMaint Rst En	471	HSFan ElpsdLife	490	MtrBrngRemainLif	504	MchBrngRemainLif	513
		PredMaint Reset	472	HSFan RemainLife	491	MtrBrngEventLvl	505	MchBrngEventLvl	514
				HSFan EventLevel	492	MtrBrngEventActn	506	MchBrngEventActn	515
				HSFan EventActn	493	MtrBrng ResetLog	507	MchBrngResetLog	516
				HSFan ResetLog	494	MtrLubeElpsdHrs	508	MchLubeElpsdHrs	517
				InFan Derate	495	MtrLubeEventLvl	509	MchLube EventLvl	518
				InFan TotalLife	496	MtrLubeEventActn	510	MchLubeEventActn	519
				InFan ElpsdLife	497				
				InFan RemainLife	498				
				InFan EventLevel	499				
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		Max Rev Speed	521	Min Rev Speed	523	Zero Speed Limit	525	Skip Speed 2	527
								Skip Speed 3	528
								Skip Speed Band	529
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		Accel Time 2	536	Decel Time 2	538			S Curve Decel	541
	Speed Reference	Spd Ref A Sel	545	Spd Ref Scale	555	Preset Speed 1	571	Selected Spd Ref	592
		Spd Ref A Stpt	546	Jog Speed 1	556	Preset Speed 2	572	Limited Spd Ref	593
		Spd Ref A AnlgHi	547	Jog Speed 2	557	Preset Speed 3	573	Ramped Spd Ref	594
		Spd Ref A AnlgLo	548	MOP Reference	558	Preset Speed 4	574	Filtered Spd Ref	595
		Spd Ref A Mult	549	Save MOP Ref	559	Preset Speed 5	575	Speed Rate Ref	596
		Spd Ref B Sel	550	MOP Rate	560	Preset Speed 6	576	Final Speed Ref	597
		Spd Ref B Stpt	551	MOP High Limit	561	Preset Speed 7	577		
		Spd Ref B AnlgHi	552	MOP Low Limit	562	Spd Ref Filter	588		
		Spd Ref B AnlgLo	553	DI ManRef Sel	563	Spd Ref Fltr BW	589		
		Spd Ref B Mult	554	DI ManRef AnlgHi	564	Spd Ref FltrGain	590		
				DI ManRef AnlgLo	565	Spd Ref Sel Sts	591		
	Speed Trim	Trim Ref A Sel	600	Trim Ref B Sel	604	TrmPct RefA Sel	608	TrmPct RefB Sel	612
		Trim Ref A Stpt	601	Trim Ref B Stpt	605	TrmPct RefA Stpt	609	TrmPct RefB Stpt	613
		Trim RefA AnlgHi	602	Trim RefB AnlgHi	606	TrmPct RefA AnHi	610	TrmPct RefB AnHi	614
		Trim RefA AnlgLo	603	Trim RefB AnlgLo	607	TrmPct RefA AnLo	611	TrmPct RefB AnLo	615
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		VHzSV SpdTrimReg	623						
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		Speed Reg BW	636	Speed Reg Max Kp	646	Spd Loop Damping	653	VHzSV Spd Reg Ki	664
		SReg FB Fltr Sel	637	Speed Reg Ki	647	Spd Reg Int Out	654		
		SReg FB FltrGain	638	Alt Speed Reg BW	648	Spd Reg Pos Lmt	655		
		SReg FB Fltr BW	639	Alt Speed Reg Kp	649	Spd Reg Neg Lmt	656		
		Filtered SpdFdbk	640	Alt Speed Reg Ki	650	SReg OutFltr Sel	657		
		Speed Error	641	AltSpdErr FltrBW	651	SReg OutFltrGain	658		
		Servo Lock Gain ^{755}	642			SReg OutFltr BW	659		
		SpdReg AntiBckup	643			SReg Output	660		
		Spd Err Fltr BW	644						
	Speed Comp	Speed Comp Sel	665						
		Speed Comp Gain	666						
		Speed Comp Out	667						
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		Neg Torque Limit	671						
	Torque Reference	Trq Ref A Sel	675	Trq Ref B Sel	680	Selected Trq Ref	685	Torque Step	686
		Trq Ref A Stpt	676	Trq Ref B Stpt	681			Notch Fltr Freq	687
		Trq Ref A AnlgHi	677	Trq Ref B AnlgHi	682			Notch Fltr Atten	688
		Trq Ref A AnlgLo	678	Trq Ref B AnlgLo	683			Filtered Trq Ref	689
		Trq Ref A Mult	679	Trq Ref B Mult	684			Limited Trq Ref	690
	Inertia Comp ^{755}	Inertia CompMode	695	Inertia Acc Gain	696	Inert Comp LPFBW	698	Ext Ramped Ref	700
				Inertia Dec Gain	697	Inertia Comp Out	699		
	Friction Comp ^{755}	InAdp LdObs Mode	704	Load Estimate	707	IA LdObs Delay	709	Load Observer BW	711
		Inertia Adapt BW	705	InertiaTrqAdd	708	InertAdptFltrBW	710		
		InertiaAdaptGain	706						

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		Position Control	721	Psn Command	723	Zero Position	725	In Pos Psn Dwell	727
	Position Homing	Homing Status	730	DI Find Home	732	Find Home Speed	735	Actual Home Psn	737
		Homing Control	731	DI Redefine Psn	733	Find Home Ramp	736	User Home Psn	738
				DI OL Home Limit	734				
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		PsnWatch1 DtctIn	746	PsnWatch2 DtctIn	749				
		PsnWatch1 Stpt	747	PsnWatch2 Stpt	750				
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		PTP Mode	771	PTP Reference	776	PTP Accel Time	781	PTP Rev Vel Lmt	786
		DI Indx Step	772	PTP Feedback	777	PTP Decel Time	782	PTP S Curve	787
		DI Indx StepRev	773	PTP Ref Scale	778	PTP Speed FwdRef	783	PTP Vel Override	788
		DI Indx StepPrst	774	PTP Index Preset	779	PTP Command	784	PTP EGR Mult	789
								PTP EGR Div	790
	Phase Lock Loop ^{755}	PLL Control	795	PLL Psn Ref Sel	799	PLL EPR Input	804	PLL Enc Out	809
		PLL Ext Spd Sel	796	PLL Psn Stpt	800	PLL Rvls Input	805	PLL Enc Out Adv	810
		PLL Ext Spd Stpt	797	PLL BW	801	PLL Psn Out Fltr	806	PLL EPR Output	811
		PLL Ext SpdScale	798	PLL LPFilter BW	802	PLL Speed Out	807	PLL Rvls Output	812
				PLL Virt Enc RPM	803	PLL Speed OutAdv	808		
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				Psn EGR Div	817				
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		Psn Offset 1	821	Psn Offset 2	823				
	Ld Psn Fdbk Scal ^{755}	LdPsn Fdbk Mult	825	LdPsn Fdbk Div	826				
	Position Reg	PsnNtchFltrFreq	830	Psn Error	835	PReg Pos Int Lmt	840	PReg Pos Spd Lmt	844
		PsnNtchFltrDepth	831	Psn Actual	836	PReg Neg Int Lmt	841	PReg Neg Spd Lmt	845
		Psn Out Fltr Sel	832	Psn Load Actual ^{755}	837	PsnReg IntgrlOut	842	Psn Reg Droop	846
		Psn Out FltrGain	833	Psn Reg Ki	838	PsnReg Spd Out	843	Psn Fdbk	847
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		Port 2 Reference	872	Port 5 Reference	875	Port14 Reference	878	DPI Ref Rslt	880
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								DPI Logic Rslt	882
								Drive Ref Rslt ^{753}	883
								Drive Ramp Rslt ^{753}	884
	Security	Port Mask Act	885	Write Mask Act	887				
		Logic Mask Act	886	Write Mask Cfg	888				
	DPI Datalinks	Data In A1	895	Data In C1	899	Data Out A1	905	Data Out C1	909
		Data In A2	896	Data In C2	900	Data Out A2	906	Data Out C2	910
		Data In B1	897	Data In D1	901	Data Out B1	907	Data Out D1	911
		Data In B2	898	Data In D2	902	Data Out B2	908	Data Out D2	912
	Owners	Stop Owner	919	Jog Owner	921	Clear Flt Owner	923	Ref Select Owner	925
		Start Owner	920	Dir Owner	922	Manual Owner	924		
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		Last StartSource	931	Drive Status 2	936	IGBT Temp C	942	Safety Port Sts	946
		Last Stop Source	932	Condition Sts 1	937	Drive Temp Pct	943		
		Start Inhibits	933	Drive OL Count	940	Drive Temp C	944		
		Last StrtInhibit	934						
	Fault/Alarm Info	Minor Flt Cfg	950	Status1 at Fault	954	Alarm Status A	959	AlarmA at Fault	962
		Last Fault Code	951	Status2 at Fault	955	Alarm Status B	960	AlarmB at Fault	963
		Fault Status A	952	Fault Frequency	956	Type 2 Alarms	961		
		Fault Status B	953	Fault Amps	957				
				Fault Bus Volts	958				
	Testpoints	Testpoint Sel 1	970	Testpoint Sel 2	974	Testpoint Sel 3	978	Testpoint Sel 4	982
		Testpoint Fval 1	971	Testpoint Fval 2	975	Testpoint Fval 3	979	Testpoint Fval 4	983
		Testpoint Lval 1	972	Testpoint Lval 2	976	Testpoint Lval 3	980	Testpoint Lval 4	984
	Peak Detection ^{755}	PkDtct Stpt Real	1035	PkDtct1PresetSel	1038	PeakDetect1 Out	1041	Peak2 Cfg	1044
		PkDtct Stpt Dint	1036	Peak1 Cfg	1039	PkDtct2 In Sel	1042	Peak 2 Change	1045
		PkDtct1 In Sel	1037	Peak 1 Change	1040	PkDtct2PresetSel	1043	PeakDetect2 Out	1046

File	Group	Parameters							
Applications	Process PID	PID Cfg	1065	PID Fdbk Sel	1072	PID Output Sel	1079	PID Prop Gain	1086
		PID Control	1066	PID Fdbk AnlgHi	1073	PID Output Mult	1080	PID Int Time	1087
		PID Ref Sel	1067	PID Fdbk AnlgLo	1074	PID Upper Limit	1081	PID Deriv Time	1088
		PID Ref AnlgHi	1068	PID FBLoss SpSel	1075	PID Lower Limit	1082	PID Status	1089
		PID Ref AnlgLo	1069	PID FBLoss TqSel	1076	PID Deadband	1083	PID Ref Meter	1090
		PID Setpoint	1070	PID Fdbk	1077	PID LP Filter BW	1084	PID Fdbk Meter	1091
		PID Ref Mult	1071	PID Fdbk Mult	1078	PID Preload	1085	PID Error Meter	1092
								PID Output Meter	1093
	Torque Prove ^{755}	Trq Prove Cfg	1100	Trq Lmt SlewRate	1104	Brk Release Time	1107	Float Tolerance	1111
		Trq Prove Setup	1101	Speed Dev Band	1105	Brk Set Time	1108	MicroPsnScalePct	1112
		DI FloatMicroPsn	1102	SpdBand Intgrtr	1106	Brk Alarm Travel	1109	ZeroSpdFloatTime	1113
		Trq Prove Status	1103			Brk Slip Count	1110		
	Fibers Function ^{753}	Fiber Control	1120	Traverse Inc	1123	P Jump	1126	DI Fiber SyncEna	1129
		Fiber Status	1121	Traverse Dec	1124			DI Fiber TravDis	1130
		Sync Time	1122	Max Traverse	1125				
	Adjustable Vltg ^{753}	Adj Vltg Config	1131	Adj Vltg TrimSel	1136	Adj Vltg Preset1	1142	Adj Vltg RefMult	1149
		Adj Vltg Select	1133	Adj Vltg Trim Hi	1137	Adj Vltg Preset2	1143	Adj Vltg Scurve	1150
		Adj Vltg Ref Hi	1134	Adj Vltg Trim Lo	1138	Adj Vltg Preset3	1144	Adj Vltg TrimPct	1151
		Adj Vltg Ref Lo	1135	Adj Vltg Command	1139	Adj Vltg Preset4	1145	Min Adj Voltage	1152
				Adj Vltg AccTime	1140	Adj Vltg Preset5	1146		
				Adj Vltg DecTime	1141	Adj Vltg Preset6	1147		
						Adj Vltg Preset7	1148		
	Pump Jack ^{753}	Rod Speed	1165	TorqAlarm Action	1168	Total Gear Ratio	1174	Gearbox Limit	1181
		Rod Torque	1166	TorqAlarm Config	1169	Max Rod Speed	1175	Gearbox Rating	1182
		Rod Speed Cmd	1167	TorqAlarm Dwell	1170	Max Rod Torque	1176	Gearbox Ratio	1183
				TorqAlarm Level	1171	Min Rod Speed	1177	Gearbox Sheave	1184
				TorqAlm Timeout	1172	Motor Sheave	1178		
				TorqAlarm TOActn	1173	OilWell Pump Cfg	1179		
						PCP Pump Sheave	1180		
	Pump Off ^{753}	Pump Off Config	1187	Pump Cycle Store	1192	Pct Cycle Torque	1198	Pump Off Count	1203
		Pump Off Setup	1188	Set Top ofStroke	1193	Pct Lift Torque	1199	PumpOff SleepCnt	1204
		Pump Off Action	1189	Torque Setpoint	1194	Pct Drop Torque	1200	Day Stroke Count	1205
		Pump Off Control	1190	Pump Off Level	1195	Stroke Pos Count	1201	DI PumpOff Disbl	1206
		Pump Off Status	1191	Pump Off Speed	1196	Stroke Per Min	1202	Pump OffSleepLvl	1207
				Pump Off Time	1197				
	Profiling ^{755}	Profile Status	1210	DI Vel Override	1221	Step 1…16 Type	1230, 1240, 1250…1380		
		Units Traveled	1212	DI StrtStep Sel0	1222	Step 1…16 Velocity	1231, 1241, 1251…1381		
		Profile Command	1213	DI StrtStep Sel1	1223	Step 1…16 Accel	1232, 1242, 1252…1382		
		Counts Per Unit	1215	DI StrtStep Sel2	1224	Step 1…16 Decel	1233, 1243, 1253…1383		
		ProfVel Override	1216	DI StrtStep Sel3	1225	Step 1…16 Value	1234, 1244, 1254…1384		
		Prof DI Invert	1217	DI StrtStep Sel4	1226	Step 1…16 Dwell	1235, 1245, 1255…1385		
		DI Hold Step	1218			Step 1…16 Batch	1236, 1246, 1256…1386		
		DI Abort Step	1219			Step 1…16 Next	1237, 1247, 1257…1387		
		DI Abort Profile	1220			Step 1…16 Action	1238, 1248, 1258…1388		
						Step 1…16 Dig In	1239, 1249, 1259…1389		
	Camming ^{755}	PCAM Control	1390	PCAM Span X	1396	PCAM Main Pt X 0…15	1407, 1409, 1411…1437		
		PCAM Mode	1391	PCAM Scale X	1397	PCAM Main Pt Y 0…15	1408, 1410, 1412…1438		
		PCAM Psn Select	1392	PCAM Span Y	1398	PCAM Aux EndPnt	1439		
		PCAM Psn Stpt	1393	PCAM ScaleY Sel	1399	PCAM Aux Types	1440		
		PCAM Psn Ofst	1394	PCAM ScaleYSetPt	1400	PCAM Aux Pt X 1…15	1441, 1443, 1445…1469		
		PCAM PsnOfst Eps	1395	PCAM VelScaleSel	1401	PCAM Aux Pt Y 1…15	1442, 1444, 1446…1470		
				PCAM VelScaleSP	1402	PCAM Status	1471		
				PCAM Slope Begin	1403	PCAM Vel Out	1472		
				PCAM Slope End	1404	PCAM Psn Out	1473		
				PCAM Main EndPnt	1405	DI PCAM Start	1474		
				PCAM Main Types	1406				

How Option Module Parameters are Organized

Option module parameters are only available when that option is installed in a host drive. To view and edit option module parameters, select the port number of the device you want to access. See Select A Device on page D-5 for instructions.

I/O Modules

Parameter descriptions begin on page 3-137.

File	Group	Parameters							
Host Groups	Digital Inputs	Dig In Sts	1	Dig In Filt Mask	2	Dig In Filt	3		
	Digital Outputs	Dig Out Sts	5	RO0 Sel	10	RO1 Sel	20	TO1 Sel	30
		Dig Out Invert	6	RO0 Level Sel	11	TO0 Sel	20	TO1 Level Sel	31
		Dig Out Setpoint	7	RO0 Level	12	RO1 Level Sel	21	TO1 Level	32
				RO0 Level CmpSts	13	RO1 Level	22	TO1 Level CmpSts	33
				RO0 On Time	14	RO1 Level CmpSts	23	TO1 On Time	34
				RO0 Off Time	15	RO1 On Time	24	TO1 Off Time	35
						RO1 Off Time	25		
	Motor PTC	PTC Cfg	40	PTC Sts	41	PTC Raw Value	42		
	Analog Inputs	Anlg In Type	45	Anlg In0 Value	50	Anlg In1 Value	60		
		Anlg In Sqrt	46	Anlg In0 Hi	51	Anlg In1 Hi	61		
		Anlg In Loss Sts	47	Anlg In0 Lo	52	Anlg In1 Lo	62		
				Anlg In0 LssActn	53	Anlg In1 LssActn	63		
				Anlg In0 Raw Val	54	Anlg In1 Raw Val	64		
				Anlg In0 Filt Gn	55	Anlg In1 Filt Gn	65		
				Anlg In0 Filt BW	56	Anlg In1 Filt BW	66		
	Analog Outpts	Anlg Out Type	70	Anlg Out0 Sel	75	Anlg Out1 Sel	85		
		Anlg Out Abs	71	Anlg Out0 Stpt	76	Anlg Out1 Stpt	86		
				Anlg Out0 Data	77	Anlg Out1 Data	87		
				Anlg Out0 DataHi	78	Anlg Out1 DataHi	88		
				Anlg Out0 DataLo	79	Anlg Out1 DataLo	89		
				Anlg Out0 Hi	80	Anlg Out1 Hi	90		
				Anlg Out0 Lo	81	Anlg Out1 Lo	91		
				Anlg Out0 Val	82	Anlg Out1 Val	92		
	Predictive Main	PredMaint Sts	99	RO0 Load Type	100	RO1 Load Type	110		
				RO0 Load Amps	101	RO1 Load Amps	111		
				RO0 TotalLife	102	RO1 TotalLife	112		
				RO0 ElapsedLife	103	RO1 ElapsedLife	113		
				RO0 RemainLife	104	RO1 RemainLife	114		
				RO0 LifeEvntLvl	105	RO1 LifeEvntLvl	115		
				RO0 LifeEvntActn	106	RO1 LifeEvntActn	116		

Safe Speed Monitor Module

Parameter descriptions begin on page 3-148.

File	Group	Parameters							
Host Groups	Security	Password Lock State Operating Mode	1 5 6	Reset Defaults Signature ID New Password	7 10 13	Password Command Security Code Vendor Password	17 18 19	Config Flt Code	70
	General	Cascaded Config Safety Mode	20 21	Reset Type OverSpd Response	22 24	SS Out Mode SLS Out Mode	72 73		
	Feedback	Fbk Mode	27	Fbk 1 Type Fbk 1 Units Fbk 1 Polarity Fdk 1 Resolution Fbk 1 Volt Mon Fbk 1 Speed	28 29 30 31 32 33	Fbk 2 Units Fbk 2 Polarity Fbk 2 Resolution Fbk 2 Volt Mon Fbk 2 Speed	34 35 36 37 38	Fbk Speed Ratio Fbk Speed Tol Fbk Pos Tol Direction Mon Direction Tol	39 40 41 42 43
	Stop	Safe Stop Input Safe Stop Type	44 45	Stop Mon Delay Max Stop Time	46 47	Standstill Speed Standstill Pos	48 49	Decel Ref Speed Stop Decel Tol	50 51
	Limited Speed	Lim Speed Input LimSpd Mon Delay	52 53	Enable SW Input	54	Safe Speed Limit	55	Speed Hysteresis	56
	Door Control	Door Out Type	57	DM Input	58	Lock Mon Enable Lock Mon Input	59 60	Door Out Mode	74
	Max Speed	Max Speed Enable Safe Max Speed	61 62	Max Spd Stop Typ Max Accel Enable	63 64	Safe Accel Limit Max Acc Stop Typ	65 66		
	Faults	Fault Status	67	Guard Status	68	IO Diag Status	69	Config Flt Code	70

Single Incremental Encoder Module

Parameter descriptions begin on page 3-159.

File	Group	Parameters							
Host Groups	N/A	Encoder Cfg Encoder PPR	1 2	Fdbk Loss Cfg Encoder Feedback	3 4	Encoder Status Error Status	5 6	Phase Loss Count Quad Loss Count	7 8

Dual Incremental Encoder Module

Parameter descriptions begin on page 3-161.

File	Group	Parameters							
Host Groups	Encoder 0	Enc 0 Cfg Enc 0 PPR	1 2	Enc 0 FB Lss Cfg Enc 0 FB	3 4	Enc 0 Sts Enc 0 Error Sts	5 6	Enc 0 PhsLss Cnt Enc 0 QuadLssCnt	7 8
	Encoder 1	Enc 1 Cfg Enc 1 PPR	11 12	Enc 1 FB Lss Cfg Enc 1 FB	13 14	Enc 1 Sts Enc 1 Error Sts	15 16	Enc 1 PhsLss Cnt Enc 1 QuadLssCnt	17 18
	Homing Cfg	Homing Cfg	20						
	Module Status	Module Sts	21						

Universal Feedback Module

Parameter descriptions begin on page 3-166.

File	Group	Parameters							
Host Groups	Module	Module Sts	1						
		Module Err Reset	2						
	Feedback 0	FB0 Position	5	FB0 Cfg	8	FB0 Inc Cfg	16	FB0 SSI Turns	22
		FB0 Device Sel	6	FB0 Loss Cfg	9	FB0 Inc Sts	17	FB0 Lin CPR	25
		FB0 Identify	7	FB0 Sts	10	FB0 SSI Cfg	20	FB0 Lin Upd Rate	26
				FB0 IncAndSC PPR	15	FB0 SSI Resol	21	Fdbk0 LinStahl Sts	27
	Feedback 1	FB1 Position	35	FB1 Cfg	38	FB1 Inc Cfg	46	FB1 SSI Turns	52
		FB1 Device Sel	36	FB1 Loss Cfg	39	FB1 Inc Sts	47	FB1 Lin CPR	55
		FB1 Identify	37	FB1 Sts	40	FB1 SSI Cfg	50	FB1 Lin Upd Rate	56
				FB1 IncAndSC PPR	45	FB1 SSI Resol	51	Fdbk1 LinStahl Sts	57
	Encoder Out	Enc Out Sel	80	Enc Out FD PPR	82	Enc Out Z Offset	83		
		Enc Out Mode	81			Enc Out Z PPR	84		
	Registration	Rgsn Arm	90	Rgsn Latch1 Cfg	100	Rgsn Latch1 Psn	101	Rgsn Latch1 Time	102
		Rgsn In 0 Filter	91	Rgsn Latch2 Cfg	103	Rgsn Latch2 Psn	104	Rgsn Latch2 Time	105
		Rgsn In 1 Filter	92	Rgsn Latch3 Cfg	106	Rgsn Latch3 Psn	107	Rgsn Latch3 Time	108
		Rgsn HmIn Filter	93	Rgsn Latch4 Cfg	109	Rgsn Latch4 Psn	110	Rgsn Latch4 Time	111
		Rgsn Sts	94	Rgsn Latch5 Cfg	112	Rgsn Latch5 Psn	113	Rgsn Latch5 Time	114
				Rgsn Latch6 Cfg	115	Rgsn Latch6 Psn	116	Rgsn Latch6 Time	117
				Rgsn Latch7 Cfg	118	Rgsn Latch7 Psn	119	Rgsn Latch7 Time	120
				Rgsn Latch8 Cfg	121	Rgsn Latch8 Psn	122	Rgsn Latch8 Time	123
				Rgsn Latch9 Cfg	124	Rgsn Latch9 Psn	125	Rgsn Latch9 Time	126
				Rgsn Latch10 Cfg	127	Rgsn Latch10 Psn	128	Rgsn Latch10 Time	129

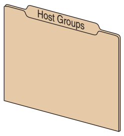
Embedded EtherNet/IP

Parameter descriptions begin on page 3-178.

File	Group	Parameters							
Host Groups	N/A	DL From Net 01	1	Port Number	33	Flt Cfg DL 01	60	DLs Fr Peer Cfg	76
		DL From Net 02	2	DLs From Net Act	34	Flt Cfg DL 02	61	DLs Fr Peer Act	77
		DL From Net 03	3	DLs To Net Act	35	Flt Cfg DL 03	62	Logic Src Cfg	78
		DL From Net 04	4	BOOTP	36	Flt Cfg DL 04	63	Ref Src Cfg	79
		DL From Net 05	5	Net Addr Src	37	Flt Cfg DL 05	64	Fr Peer Timeout	80
		DL From Net 06	6	IP Addr Cfg 1	38	Flt Cfg DL 06	65	Fr Peer Addr 1	81
		DL From Net 07	7	IP Addr Cfg 2	39	Flt Cfg DL 07	66	Fr Peer Addr 2	82
		DL From Net 08	8	IP Addr Cfg 3	40	Flt Cfg DL 08	67	Fr Peer Addr 3	83
		DL From Net 09	9	IP Addr Cfg 4	41	Flt Cfg DL 09	68	Fr Peer Addr 4	84
		DL From Net 10	10	Subnet Cfg 1	42	Flt Cfg DL 10	69	Fr Peer Enable	85
		DL From Net 11	11	Subnet Cfg 2	43	Flt Cfg DL 11	70	Fr Peer Status	86
		DL From Net 12	12	Subnet Cfg 3	44	Flt Cfg DL 12	71	DLs To Peer Cfg	87
		DL From Net 13	13	Subnet Cfg 4	45	Flt Cfg DL 13	72	DLs To Peer Act	88
		DL From Net 14	14	Gateway Cfg 1	46	Flt Cfg DL 14	73	To Peer Period	89
		DL From Net 15	15	Gateway Cfg 2	47	Flt Cfg DL 15	74	To Peer Skip	90
		DL From Net 16	16	Gateway Cfg 3	48	Flt Cfg DL 16	75	To Peer Enable	91
		DL To Net 01	17	Gateway Cfg 4	49				
		DL To Net 02	18	Net Rate Cfg	50				
		DL To Net 03	19	Net Rate Act	51				
		DL To Net 04	20	Web Enable	52				
		DL To Net 05	21	Web Features	53				
		DL To Net 06	22	Comm Flt Action	54				
		DL To Net 07	23	Idle Flt Action	55				
		DL To Net 08	24	Peer Flt Action	56				
		DL To Net 09	25	Msg Flt Action	57				
		DL To Net 10	26	Flt Cfg Logic	58				
		DL To Net 11	27	Flt Cfg Ref	59				
		DL To Net 12	28						
		DL To Net 13	29						
		DL To Net 14	30						
		DL To Net 15	31						
		DL To Net 16	32						

Embedded DeviceLogix

Parameter descriptions begin on page G-3.

File	Group	Parameters							
Host Groups 	Analog Outputs	DLX Out 01	1	DLX Out 05	5	DLX Out 09	9	DLX Out 13	13
		DLX Out 02	2	DLX Out 06	6	DLX Out 10	10	DLX Out 14	14
		DLX Out 03	3	DLX Out 07	7	DLX Out 11	11	DLX Out 15	15
		DLX Out 04	4	DLX Out 08	8	DLX Out 12	12	DLX Out 16	16
	Analog Inputs	DLX In 01	17	DLX In 05	21	DLX In 09	25	DLX In 13	29
		DLX In 02	18	DLX In 06	22	DLX In 10	26	DLX In 14	30
		DLX In 03	19	DLX In 07	23	DLX In 11	27	DLX In 15	31
		DLX In 04	20	DLX In 08	24	DLX In 12	28	DLX In 16	32
	Digital Inputs	DLX DIP 01	33	DLX DIP 05	37	DLX DIP 09	41	DLX DIP 13	45
		DLX DIP 02	34	DLX DIP 06	38	DLX DIP 10	42	DLX DIP 14	46
		DLX DIP 03	35	DLX DIP 07	39	DLX DIP 11	43	DLX DIP 15	47
		DLX DIP 04	36	DLX DIP 08	40	DLX DIP 12	44	DLX DIP 16	48
	Status & Cntl	DLX DigIn Sts	49	DLX DigOut Sts	50	DLX Prog Cond	52	DLX Operation	53
				DLX DigOut Sts2	51				
	Internal Regs	DLX Real SP1	54	DLX DINT SP1	70	DLX Real InSP1	82	DLX DINT InSP1	98
		DLX Real SP2	55	DLX DINT SP2	71	DLX Real InSP2	83	DLX DINT InSP2	99
		DLX Real SP3	56	DLX DINT SP3	72	DLX Real InSP3	84	DLX DINT InSP3	100
		DLX Real SP4	57	DLX DINT SP4	73	DLX Real InSP4	85	DLX DINT InSP4	101
		DLX Real SP5	58	DLX DINT SP5	74	DLX Real InSP5	86	DLX DINT OutSP1	102
		DLX Real SP6	59	DLX DINT SP6	75	DLX Real InSP6	87	DLX DINT OutSP2	103
		DLX Real SP7	60	DLX DINT SP7	76	DLX Real InSP7	88	DLX DINT OutSP3	104
		DLX Real SP8	61	DLX DINT SP8	77	DLX Real InSP8	89	DLX DINT OutSP4	105
		DLX Real SP9	62	DLX Bool SP1	78	DLX Real OutSP1	90		
		DLX Real SP10	63	DLX Bool SP2	79	DLX Real OutSP2	91		
		DLX Real SP11	64	DLX Bool SP3	80	DLX Real OutSP3	92		
		DLX Real SP12	65	DLX Bool SP4	81	DLX Real OutSP4	93		
		DLX Real SP13	66			DLX Real OutSP5	94		
		DLX Real SP14	67			DLX Real OutSP6	95		
		DLX Real SP15	68			DLX Real OutSP7	96		
		DLX Real SP16	69			DLX Real OutSP1	97		

Drive Monitor File

File	Group	No.	Name Description	Values		Read-Write	Data Type
MONITOR	Metering	1	**Output Frequency** Output Frequency Output frequency present at terminals T1, T2, and T3 (U, V & W)	Units: Default: Min/Max:	Hz 0.00 –/+650.00	RO	Real
		2	**Commanded SpdRef** Commanded Speed Reference Value of the active Speed/Frequency Reference. Displayed in Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		3	**Mtr Vel Fdbk** Motor Velocity Feedback Estimated or actual motor speed, with feedback. Displayed in Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		4	**Commanded Trq** Commanded Torque Final torque reference value after limits and filtering are applied. Percent of motor rated torque.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		5	**Torque Cur Fdbk** Torque Current Feedback Based on the motor, the amount of current that is in phase with the fundamental voltage component.	Units: Default: Min/Max:	Amps Based on Drive Rating –/+P21 [Rated Amps] x 2	RO	Real
		6	**Flux Cur Fdbk** Flux Current Feedback Amount of current that is out of phase with the fundamental voltage component.	Units: Default: Min/Max:	Amps Based on Drive Rating –/+P21 [Rated Amps] x 2	RO	Real
		7	**Output Current** Output Current The total output current present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	Amps Based on Drive Rating 0.00 / P21 [Rated Amps] x 2	RO	Real
		8	**Output Voltage** Output Voltage Output voltage present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / P20 [Rated Volts] x 1.15	RO	Real
		9	**Output Power** Output Power Output power present at terminals T1, T2, and T3 (U, V & W).	Units: Default: Min/Max:	kW 0.00 0.00/100.00	RO	Real
		10	**Output Powr Fctr** Output Power Factor Output power factor.	Default: Min/Max:	0.00 0.00/1.00	RO	Real
		11	**DC Bus Volts** Direct Current Bus Volts DC bus voltage.	Units: Default: Min/Max:	VDC Based on Drive Rating 0.00 / P20 [Rated Volts] x 2	RO	Real
		12	**DC Bus Memory** Direct Current Bus Memory A six-minute average of P11 [DC Bus Volts] used to estimate the DC equivalent of the input voltage. Automatically initialized upon power-up, continually updated during normal operation, and is used to trigger a power loss condition.	Units: Default: Min/Max:	VDC Based on Drive Rating 0.00 / P20 [Rated Volts] x 2	RO	Real
		13	**Elapsed MWH** Elapsed Megawatt Hour Accumulated output energy of the drive.	Units: Default: Min/Max:	MWh 0.000 0.000 / 4294967295.000	RO	Real
		14	**Elapsed kWH** Elapsed Kilowatt Hour Accumulated output energy of the drive.	Units: Default: Min/Max:	kWh 0.000 0.000 / 4294967295.000	RO	Real
		15	**Elapsed Run Time** Elapsed Run Time Accumulated time drive is outputting power.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 220000000.000	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
MONITOR	Drive Data	20	**Rated Volts** Rated Voltage Input voltage class (208, 240, 400 etc.) of the drive.	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / 690.00	RO	Real
		21	**Rated Amps** Rated Amperage Continuous current rating of drive.	Units: Default: Min/Max:	Amps Based on Drive Rating 0.00 / 500.00	RO	Real
		22	**Rated kW** Rated Kilowatts Continuous power rating of drive.	Units: Default: Min/Max:	kW Based on Drive Rating 0.00 / 400.00	RO	Real

Drive Motor Control File

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Motor Data	25 ○	**Motor NP Volts** Motor Nameplate Volts Rated volts shown on the motor nameplate.	Units: Default: Min/Max:	VAC P20 [Rated Volts] x 0.3913 0.10 / P20 [Rated Volts] (P305 = 0) 0.10 / 1.5 x P20 [Rated Volts] (P305 = 1)	RW	Real
		26 ○	**Motor NP Amps** Motor Nameplate Amps Rated full load amps shown on the motor nameplate.	Units: Default: Min/Max:	Amps Based on Drive Rating 0.01 / 3200.00	RW	Real
		27 ○	**Motor NP Hertz** Motor Nameplate Hertz Rated frequency shown on the motor nameplate.	Units: Default: Min/Max:	Hz Based on Drive Rating 2.00 / 650.00	RW	Real
		28 ○	**Motor NP RPM** Motor Nameplate Revolutions Per Minute Rated RPM shown on the motor nameplate.	Units: Default: Min/Max:	RPM Based on Drive Rating 1.0 / 40000.0	RW	Real
		29 ○	**Mtr NP Pwr Units** Motor Nameplate Power Units Power units shown on the motor nameplate.	Default: Options:	Based on Drive Rating 0 = “HP” 1 = “kW”	RW	32-bit Integer
		30 ○	**Motor NP Power** Motor Nameplate Power Rated power shown on the motor nameplate.	Units: Default: Min/Max:	HP Based on Drive Rating 0.01 / 2000.00	RW	Real
		31 ○	**Motor Poles** Motor Poles Number of poles in the motor.	Units: Default: Min/Max:	Pole 4 2 / 100	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	35 ○	**Motor Ctrl Mode** Motor Control Mode Motor type and motor control mode.	Default: 1 = "Induction SV" Options: 0 = "InductionVHz" 1 = "Induction SV" 2 = "Induct Econ" 3 = "Induction FV" 4 = "PM VHz" 5 = "PM SV" 6 = "PM FV" 7 = "SyncRel VHz" 8 = "SyncRel SV" 9 = "Adj Voltage"	RW	32-bit Integer
		36	**Maximum Voltage** Maximum Voltage The highest voltage the drive will output.	Units: VAC Default: Based on Drive Rating Min/Max: Based on Drive Rating	RW	Real
		37 ○	**Maximum Freq** Maximum Frequency The frequency the drive will output at P36 [Maximum Voltage] when a "VHz" mode is selected by P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Hz Default: P27 [Motor NP Hertz] x 2 + 10 Hz Min/Max: P27 [Motor NP Hertz] + 10 Hz / 420.00	RW	Real
		38 ○	**PWM Frequency** Pulse Width Modulation Frequency Pulse Width Modulated frequency (power transistor switching frequency). Drive derating may occur with increased values.	Units: kHz Default: Based on Drive Rating Min/Max: Based on Drive Rating	RW	Real
		40	**Mtr Options Cnfg** Motor Options Configuration Configuration of motor control-related functions.			

Options	Jerk Select	Reserved	Reserved	Xsistor Diag	Elect Stab	DB WhileStop	PWM FreqLock	AsyncPWMLock	PWM Type Sel	RS Adaption	Reflect Wave	Mtr Lead Rev	EnclsTrqProv [1]	Trq ModeJog	Trq ModeStop	Zero TrqStop
Default	1	0	0	1	1	0	0	0	1	1	1	0	0	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

(1) 755 drives only.

Bit 0 "Zero TrqStop" – Configures stopped condition when in torque mode. 0 = wait for zero speed before shutting off drive output, 1 = wait for zero torque before shutting off drive output.

Bit 1 "Trq ModeStop" – Configures stopping behavior when in torque mode. 0 = remain in torque mode, 1 = switch to speed mode

Bit 2 "Trq ModeJog" – Configures jogging behavior when in torque mode. 0 = remain in torque mode, 1 = switch to speed mode

Bit 3 "EnclsTrqProv" – Enables encoderless mode when using the torque prove function. 0 = Disabled, 1 = Enabled. Bits 0 and 1 of P1100 [Trq Prove Cfg] must also be set to use this mode.

Bit 4 "Mtr Lead Rev" – Reverses the phase rotation of the applied voltage, effectively reversing the motor leads. 0 = Not Reversed, 1 = Reversed

Bit 5 "Reflect Wave" – Enables reflected wave voltage protection for long motor cables. 0 = Disabled, 1 = Enabled

Bit 6 "RS Adaption" – Adapts for changes in motor stator resistance due to motor temperature. Active only in FV motor control mode with feedback. 0 = Disabled, 1 = Enabled

Bit 7 "PWM Type Sel" – Configures 3 Phase / 2 Phase switching of the power devices. 0 = 3 Phase modulation with auto switchover to 2 phase modulation. 1 = Full time 3 phase modulation (no switchover)

Bit 8 "AsyncPWMLock" – Configures Synchronous / Asynchronous switching of the power devices. 0 = Automatically changes between synchronous and asynchronous. 1 = Synchronous switching only.

Bit 9 "PWM FreqLock" – Configures switching frequency of the power devices while in FV motor control mode without feedback. 0 = switching frequency automatically reduces to 2 kHz at low speeds (best performance), 1 = switching frequency does not reduce (setting used when switching frequency reduction is undesirable)

Bit 10 "DB WhileStop" – Enables operation of the dynamic brake transistor while the drive is stopped. 0 = Disabled, 1 = Enabled

Bit 11 "Elect Stab" – Enables stability control for Sensorless Vector and V/Hz motor control modes. 0 = Disabled, 1 = Enabled

Bit 12 "Xsistor Diag" – Enables power transistor diagnostic test at each start command. 0 = Disabled, 1 = Enabled

Bit 15 "Jerk Select" – Limits the rate of change to the velocity reference for improved current limiting. This setting applies only to Sensorless Vector and V/Hz motor control modes. 0 = Disabled (0.0 second ramp time achievable), 1 = Enabled (0.0 second ramp time prevented)

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Mtr Ctrl Options	42	**Bus Utilization** Bus Utilization The maximum allowed bus voltage utilization for the Motor Control. Do not change this value without consulting Technical Support. Higher values may result in control instability or over-current faults.	Units: Default: Min/Max:	% 95.00 85.00 / 100.00	RW	Real
		43	**Flux Up Enable** Flux Up Enable “Manual” (0) – Flux is established for P44 [Flux Up Time] before acceleration. “Automatic” (1) – Flux is established for a calculated time period based on motor nameplate data before acceleration. P44 [Flux Up Time] is not used.	Default: Options:	1 = “Automatic” 0 = “Manual” 1 = “Automatic”	RW	32-bit Integer
		44	**Flux Up Time** Flux Up Time The amount of time the drive will use to try to achieve full motor stator flux. When a Start command is issued, DC current at P26 [Motor NP Amps] level is used to build stator flux before accelerating.	Units: Default: Min/Max:	Secs 0.0000 0.0000 / 5.0000	RW	Real
		45	**Flux Down Ki** Flux Down Ki The integral term used in the voltage regulator which controls the removal of flux in the motor.	Default: Min/Max:	0.20 0.00 / 100.00	RW	Real
		46	**Flux Down Kp** Flux Down Kp The proportional term used in the voltage regulator which controls the removal of flux in the motor.	Default: Min/Max:	150.0 0.0 / 10000.0	RW	Real
		47	**Econ At Ref Ki** Economize At Reference Ki Integral gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is at its reference.	Default: Min/Max:	305.0 0.0 / 100000.0	RW	Real
		48	**Econ AccDec Ki** Economize Acceleration/Deceleration Ki Integral gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is either accelerating or decelerating to a reference.	Default: Min/Max:	200.0 0.0 / 100000.0	RW	Real
		49	**Econ AccDec Kp** Economize Acceleration/Deceleration Kp Proportional gain that determines the response of the output voltage when P35 [Motor Ctrl Mode] option 2 “Induct Econ” is selected and the output frequency is either accelerating or decelerating to a reference.	Units: Default: Min/Max:	V/A 100.0 0.0 / 1000000.0	RW	Real
		50	**Stability Filter** Stability Filter The filter time constant for the angle and voltage stability control.	Units: Default: Min/Max:	Secs 5162.22 0.00 / 1000000.00	RW	Real
		51	**Stab Volt Gain** Stability Voltage Gain The gain of the voltage stability control function. Not active when any FV motor control mode is selected with speed feedback.	Default: Min/Max:	5322.22 0.00 / 10000000.00	RW	Real
		52	**Stab Angle Gain** Stability Angle Gain The gain of the electrical angle stability control function. Not active when any FV motor control mode is selected in P35 [Motor Ctrl Mode] with speed feedback.	Default: Min/Max:	790.43 0.00 / 10000000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Volts per Hertz	60	**Start Acc Boost** Start/Acceleration Boost The voltage boost level for starting and acceleration when a “VHz” mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / Based on Drive Rating	RW	Real
		61	**Run Boost** Run Boost The boost level for steady state and deceleration when a “VHz” mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / Based on Drive Rating	RW	Real
		62	**Break Voltage** Break Voltage The voltage the drive will output at P63 [Break Frequency] when a “VHz” mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		63	**Break Frequency** Break Frequency The frequency the drive will output at P62 [Break Voltage] when a “VHz” mode is selected, according to P35 [Motor Ctrl Mode]. Refer to diagram for P524 [Overspeed Limit].	Units: Default: Min/Max:	Hz P27 [Motor NP Hertz] x 0.25 0.00 / P27 [Motor NP Hertz]	RW	Real
		64	**SVC Boost Filter** SVC Boost Filter The voltage boost filter time constant when a “SVC” mode is selected, according to P35 [Motor Ctrl Mode].	Units: Default: Min/Max:	Secs 0.1000 0.0001 / 1000.0000	RW	Real
		65 ○	**VHz Curve** VHz Curve Selects either a predefined curve (e.g. Fan/Pump), or a custom curve when a “VHz” mode is selected, according to P35 [Motor Cntl Mode]. Refer to diagram for P524 [Overspeed Limit].	Default: Options:	0 = “Custom V/Hz” 0 = “Custom V/Hz” 1 = “Fan/Pump”	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	70 ○	**Autotune** Autotune Provides a manual or automatic method for setting P73 [IR Voltage Drop], P74 [Ixo Voltage Drop] and P75 [Flux Current Ref]. Valid only when parameter P35 [Motor Ctrl Mode] is set to 1 "Induction SV", 2 "Induct Econ", or 3 "Induction FV". "Ready" (0) – Parameter returns to this setting following a "Static Tune" or "Rotate Tune", at which time another start transition is required to operate the drive in normal mode. It also permits manually setting P73 [IR Voltage Drop], P74 [Ixo Voltage Drop] and P75 [Flux Current Ref]. "Calculate" (1) – Uses motor nameplate data to automatically set P73 [IR Voltage Drop], P74 [Ixo Voltage Drop], P75 [Flux Current Ref] and P621 [Slip RPM @ FLA]. "Static Tune" (2) – A temporary command that initiates a non-rotational motor stator resistance test for the best possible automatic setting of P73 [IR Voltage Drop] in all valid modes and a non-rotational motor leakage inductance test for the best possible automatic setting of P74 [Ixo Voltage Drop] in a Flux Vector (FV) mode. A start command is required following initiation of this setting. Used when motor cannot be rotated. "Rotate Tune" (3) – A temporary command that initiates a "Static Tune" followed by a rotational test for the best possible automatic setting of P75 [Flux Current Ref]. In Flux Vector (FV) mode, with encoder feedback, a test for the best possible automatic setting of P621 [Slip RPM @ FLA] is also run. A start command is required following initiation of this setting. **Important:** If using rotate tune for a Sensorless Vector (SV) mode, the motor should be uncoupled from the load or results may not be valid. With a Flux Vector (FV) mode, either a coupled or uncoupled load will produce valid results. ⚠ **ATTENTION:** Rotation of the motor in an undesired direction can occur during this procedure. To guard against possible injury and/or equipment damage, it is recommended that the motor be disconnected from the load before proceeding. "Inertia Tune" (4) – A temporary command that initiates an inertia test of the motor/load combination. The motor will ramp up and down while the drive measures the amount of inertia.	Default: Options:	1 = "Calculate" 0 = "Ready" 1 = "Calculate" 2 = "Static Tune" 3 = "Rotate Tune" 4 = "Inertia Tune"	RW	32-bit Integer
		71 ○	**Autotune Torque** Autotune Torque The motor torque applied to the motor during the flux current and inertia tests.	Units: Default: Min/Max:	% 50.00 0.00 / 200.00	RW	Real
		73	**IR Voltage Drop** IR Voltage Drop Value of voltage drop across the resistance of the motor stator at rated motor current. Used only when P35 [Motor Ctrl Mode] is set to 1 "Induction SV", 2 "Induct Econ", or 3 "Induction FV".	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / Based on Drive Rating	RW	Real
		74 ○	**Ixo Voltage Drop** Ixo Voltage Drop Value of voltage drop across the leakage inductance of the motor at rated motor current. Used only when P35 [Motor Ctrl Mode] is set to 1 "Induction SV", 2 "Induct Econ", or 3 "Induction FV".	Units: Default: Min/Max:	VAC P25 [Motor NP Volts] x 0.25 0.00 / P25 [Motor NP Volts]	RW	Real
		75	**Flux Current Ref** Flux Current Reference Value of amps for full motor flux.	Units: Default: Min/Max:	Amps P26 [Motor NP Amps] x 0.35 0.00 / P26 [Motor NP Amps] x 0.995	RW	Real
		76	**Total Inertia** Total Inertia Time in seconds for a motor coupled to a load to accelerate from zero to base speed at rated motor torque. Calculated during auto-tune.	Units: Default: Min/Max:	Secs 2.00 0.01 / 600.00	RW	Real
		77 ○	**Inertia Test Lmt** Inertia Test Limit Maximum number of revolutions the motor rotates during the Inertia AutoTune test. When the value is zero, the limit is not active.	Units: Default: Min/Max:	Revs 0.0 0.0 / 65535.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	78	**Encdrlss AngComp** Encoderless Angle Compensation Represents electrical angle compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Default: Min/Max:	Rad 0.0000 –/+6.2831.0000	RW	Real
		79	**Encdrlss VltComp** Encoderless Voltage Compensation Represents voltage compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Default: Min/Max:	VAC Based on Drive Rating 0.00 / P25 [Motor NP Volts] x 0.25	RW	Real
		80 ○	755 **PM Cfg** Permanent Magnet Motor Configuration This parameter includes two options for PM FV mode selected by P35 [Motor Ctrl Mode]. When Bit 0 = 1 - PM Offset test will be executed before the drive runs normal operation only after a power cycle or drive reset. When Bit 1 = 1 - Vqs regulator will be enabled.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Vqs Reg En	AutoOfstTest
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Autotune	81	755 **PM PriEnc Offset** Permanent Magnet Motor Primary Encoder Offset The amount of offset between the primary feedback encoder counts, and the rotor flux center position of the PM motor. A value of 1024 is equal to 360 electrical degrees. This parameter is updated during the PM Offset test which runs at the first start after a power cycle/ system reset (P80 [PM Cfg] Bit 0 = 1) and during autotune in PM FV mode.	Default: Min/Max:	0 0 / 1023	RW	32-bit Integer
		82	755 **PM AltEnc Offset** Permanent Magnet Motor Alternate Encoder Offset The amount of offset between the alternate feedback encoder counts, and the rotor flux center position of the PM motor. A value of 1024 is equal to 360 electrical degrees. This parameter is updated during the PM Offset test which runs at the first start after a power cycle/ system reset (P80 [PM Cfg] Bit 0 = 1) and during autotune in PM FV mode. Active only when Alternate Velocity Feedback is being used during Auto Tach Loss Switchover (see P635 [Spd Options Ctrl]).	Default: Min/Max:	0 0 / 1023	RW	32-bit Integer
		83 ○	755 **PM OfstTst Cur** Permanent Magnet Motor Offset Test Current Amplitude of the current command in per unit of the motor rated current during the PM Offset Test, which is one of the auto tune tests in PM FV mode.	Units: Default: Min/Max:	% 40.00 0.00 / 200.00	RW	Real
		84 ○	755 **PM OfstTst CRamp** Permanent Magnet Motor Offset Test Current Ramp Ramp time of the current command during the PM Offset Test in PM FV mode, which is defined as ramp time to reach the P80 [PM Cfg] current command amplitude.	Units: Default: Min/Max:	Secs 3.00 0.00 / 100.00	RW	Real
		85 ○	755 **PM OfstTst FRamp** Permanent Magnet Motor Offset Test Frequency Ramp Defines the frequency ramp time of the current command during the PM Offset Test in PM FV mode, which is defined as ramp time in seconds from 0 to 3 Hz.	Units: Default: Min/Max:	Secs 60.00 0.00 / 1000.00	RW	Real
		86	755 **PM CEMF Voltage** Permanent Magnet Motor Counter Electro Motive Force Counter electromotive force (CEMF) voltage displayed in line-to-line rms value, which is normalized to the base motor speed. Updated after the completion of the auto tune in PM FV mode.	Units: Default: Min/Max:	VAC P25 [Motor NP Volts] x 0.0675 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
MOTOR CONTROL	Autotune	87	755 **PM IR Voltage** Permanent Magnet Motor Stator Voltage Drop Voltage across the stator resistance of the PM motor at the rated motor current displayed in line-to-line rms value. Updated after the completion of the auto tune in PM FV mode.	Units: VAC Default: Based on Drive Rating Min/Max: 0.00 / P25 [Motor NP Volts] x 0.25	RW	Real
		88	755 **PM IXq Voltage** Permanent Magnet Motor Q-Axis Stator Inductance Voltage Drop Voltage across the q-axis stator inductance of the PM motor at the rated motor current and the rated motor frequency displayed in line-to-line rms value. This parameter is updated after the completion of the auto tune in PM FV mode.	Units: VAC Default: P25 [Motor NP Volts] x 0.0435 Min/Max: 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		89	755 **PM IXd Voltage** Permanent Magnet Motor D-Axis Stator Inductance Voltage Drop Voltage across the d-axis stator inductance of the PM motor at the rated motor current and the rated motor frequency displayed in line-to-line rms value. Updated after the completion of the auto tune in PM FV mode.	Units: VAC Default: P25 [Motor NP Volts] x 0.0435 Min/Max: 0.00 / P25 [Motor NP Volts] x 1.5	RW	Real
		91	755 **PM Vqs Reg Kp** Permanent Magnet Motor Vqs Regulator Proportional Gain Proportional gain of the vqs regulator in PM FV mode. When P80 [PM Cfg] Bit 1 = 1, the vqs regulator will be active either when the motor voltage exceeds the voltage limited by the DC bus voltage or when the motor voltage exceeds the value set by P36 [Maximum Voltage].	Default: 2.50 Min/Max: 0.00 / 1000.00	RW	Real
		92	755 **PM Vqs Reg Ki** Permanent Magnet Motor Vqs Regulator Integral Gain Integral gain of the vqs regulator in PM FV mode.	Default: 0.50 Min/Max: 0.00 / 1000.00	RW	Real
		93	755 **PM Dir Test Cur** Permanent Magnet Motor Direction Test Current Amount of current commanded during the direction test when P35 [Motor Ctrl Mode] option 6 "PM FV" is selected. When the Start-Up feature is used, this value is automatically set to 10% of the motor rated current.	Units: Amps Default: P26 [Motor NP Amps]/10 Min/Max: 0.00 / P26 [Motor NP Amps]	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
MOTOR CONTROL	Vector Regulator	95	**VCL Cur Reg BW** Vector Closed Loop Current Regulator Bandwidth Sets the bandwidth of the current regulator by automatically adjusting the gains (P96 and P97) based on motor autotune results. When the value of bandwidth is zero (default) the current regulator gains can be manually adjusted. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Units: R/S Default: 0.0 Min/Max: 0.0 / 9999.0	RW	Real
		96	**VCL Cur Reg Kp** Vector Closed Loop Current Regulator Proportional Gain Proportional gain of the current regulator. Can be adjusted when P95 is set to zero. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Default: 1250.0 Min/Max: 0.0 / 10000.0	RW	Real
		97	**VCL Cur Reg Ki** Vector Closed Loop Current Regulator Integral Gain Integral gain of the current regulator. Can be adjusted when P95 is set to zero. The default values for P95, P96, and P97 typically provide excellent performance, and do not normally need to be adjusted.	Default: 60.0 Min/Max: 0.0 / 10000.0	RW	Real
		98	**VEncdls FReg Kp** Encoderless Vector Frequency Regulator Proportional Gain Represents electrical angle compensation dependent on motor cable and PWM Frequency. Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback.	Units: Hz/A Default: 524.0 Min/Max: 0.0 / 100000.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Vector Regulator	99	**VEncdls FReg Ki** Encoderless Vector, Frequency Regulator Integral Gain Determined during autotuning when P35 [Motor Ctrl Mode] is set to one of the FV modes without speed feedback. Represents voltage compensation dependent on motor cable and PWM Frequency.	Units: Default: Min/Max:	Hz/A 9080.0 0.0 / 100000.0	RW	Real
		100	**Slip Reg Enable** Slip Regulator Enable Enables or disables the slip frequency regulator. This selection is active only in motor control mode flux vector induction (P35 [Motor Cntl Mode] = 3 “Induction FV”) and encoder feedback is used.	Default: Options:	1 = “Enabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
		101	**Slip Reg Ki** Slip Regulator Integral Gain Integral gain for the slip frequency regulator.	Default: Min/Max:	10.00 0.00 / 10000.00	RW	Real
		102	**Slip Reg Kp** Slip Regulator Proportional Gain Proportional gain for the slip frequency regulator.	Default: Min/Max:	0.50 0.00 / 10000.00	RW	Real
		103	**Flux Reg Enable** Flux Regulator Enable Enables or disables the flux regulator. This selection is active only in motor control mode flux vector induction (P35 [Motor Cntl Mode] = 3 “Induction FV”).	Default: Options:	1 = “Enabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
		104	**Flux Reg Ki** Flux Regulator Integral Gain Integral gain for the flux regulator.	Default: Min/Max:	30.00 0.00 / 10000.00	RW	Real
		105	**Flux Reg Kp** Flux Regulator Proportional Gain Proportional gain for the flux regulator.	Default: Min/Max:	1.00 0.00 / 10000.00	RW	Real
		106	**Trq Adapt Speed** Torque Adaption Speed Operating frequency (speed) at which the adaptive torque control regulators become active as a percent of motor nameplate frequency. This selection is active only in motor control mode flux vector induction (P35 [Motor Cntl Mode] = 3 “Induction FV”).	Units: Default: Min/Max:	% 10.00 0.00 / 100.00	RW	Real
		107	**Trq Adapt En** Torque Adaption Enable Enables or disables the adaptive torque control. This selection is active only in motor control mode flux vector induction (P35 [Motor Cntl Mode] = 3 “Induction FV”).	Default: Options:	1 = “Enabled” 0 = “Disabled” 1 = “Enabled”	RW	32-bit Integer
		108	**Phase Delay Comp** Phase Delay Compensation Used to adjust the sample delay compensation gain for the current feedback. The gain compensation is scaled to the sample time (for example, +1.0 would be a compensation of positive 1 sample time).	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		109	**Trq Comp Mode** Torque Compensation Mode Automatic: Updates the torque compensation gains (P110 [Trq Comp Mtring] and P111 [Torque Comp Regen]) after autotune.	Default: Options:	1 = “Auto” 0 = “Manual” 1 = “Auto”	RW	32-bit Integer
		110	**Trq Comp Mtring** Torque Compensation Motoring Motor torque compensation applied to the torque command for motoring power. This parameter can be set manually or determined automatically during autotune. (See P109 [Trq Comp Mode].) In manual mode, a value of 5% will increase the commanded torque by 5% (gain of 1.05). This is used for flux vector motor control mode (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Units: Default: Min/Max:	% 0.00 –/+50.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
MOTOR CONTROL	Vector Regulator	111	**Trq Comp Regen** Torque Compensation Regeneration Motor torque compensation applied to the torque command for regenerating torque. This parameter can be set manually or determined automatically during autotune. (See P109 [Trq Comp Mode].) In manual mode, a value of -3% will decrease the commanded torque by 3% (gain of 0.97). This is used for flux vector motor control modes (P35 [Motor Ctrl Mode]).	Units: Default: Min/Max:	% 0.00 –/+50.00	RW	Real
		112	**Slip Adapt Iqs** Slip Adaption Iqs Level of per unit Iqs at which the adaptive slip frequency regulator becomes active. Active only in motor control mode flux vector induction (P35 [Motor Ctrl Mode] = 3 “Induction FV”).	Default: Min/Max:	0.05 0.00 / 1.00	RW	Real
		113	**SFAdapt SlewLmt** Slip and Flux Adaption Slew Limit Time that the slip, flux, and torque regulators are allowed to converge before the regulators are turned on after the motor speed reaches the level set in P106 [Trq Adapt Speed].	Units: Default: Min/Max:	Secs 0.00 0.00 / 60.00	RW	Real
		114	**SFAdapt SlewRate** Slip and Flux Adaption Slew Rate Rate that the slip and flux regulators can converge before the regulators are enabled.	Default: Min/Max:	0.005000 0.000010 / 1.000000	RW	Real
		115	**SFAdapt CnvrgLvl** Slip and Flux Adaption Converge Level Slip and flux regulator error level that indicates convergence.	Default: Min/Max:	0.010000 0.000010 / 1.000000	RW	Real
		116	**SFAdapt CnvrgLmt** Slip and Flux Adaption Converge Limit Duration of convergence before the adaption regulators are enabled after the error has decreased below the level set in P115 [SFAdapt CnvrgLvl].	Default: Min/Max:	0.500 0.000 / 5.000	RW	Real

Drive Feedback & I/O File

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Feedback	125 ○	**Pri Vel Fdbk Sel** Primary Velocity Feedback Select Selects the source of the P3 [Mtr Vel Fdbk] and P131 [Active Vel Fdbk] that will be used when the drive is in operation without an Auto Tach Loss Switchover. Possible selections include: Port 0 – Open Loop Fdbk, Port 0 – Simulator Fdbk, and any Port that contains a feedback module (for example, Encoder). The Disabled and Open Loop Fdbk selections are functionally equivalent, with Open Loop being the default setting. Open Loop velocity feedback is estimated based on P1 [Output Frequency] and P5 [Torque Cur Fdbk], adjusted using P621 [Slip RPM @ FLA]. Simulator Fdbk is available in the Flux Vector selections for P35 [Motor Ctrl Mode]. Simulator velocity feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. This selection is useful for drive operational checkout and test when motor movement is undesired. In simulation mode, gating of the power inverter section of the drive is disabled. Selection of any option module port that contains an encoder module results in P3 [Mtr Vel Fdbk] based on a measured value. Data obtained from the selected feedback module will be used to determine motor velocity feedback.	Default: Min/Max:	137 0 / 159999	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Feedback	126	**Pri Vel FdbkFltr** Primary Velocity Feedback Filter Adjusts a filter setting that is applied to the motor velocity feedback source that is selected by P125 [Pri Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise in the feedback signal. This is moving average type filter that has a delay setting of N, where N is an integer number (0, 1, 2 …). A setting of zero provides no filtering and no delay. Larger values of N result in more filtering and more delay. The best setting for this filter depends on the level of noise in the feedback signal and the bandwidth setting of the velocity regulator. In the Flux Vector selections for P35 [Motor Ctrl Mode], setting P636 [Speed Reg BW] to a non-zero setting places the drive in an automatic gain/filter adjustment mode. When the drive is in this automatic adjustment mode, the value of P666 [Speed Comp Gain] and possibly P644 [Spd Err Filt BW] are adjusted, based on the setting of P126 [Pri Vel FdbkFltr]. The automatic setting of P644 [Spd Err Filt BW] becomes independent of the feedback filter setting when P704 [InAdp LdObs Mode] is set to 1 "InertiaAdapt."	Default: Options:	3 = "50R/S Noise" 0 = "190R/S Noise" 1 = "160R/S Noise" 2 = "100R/S Noise" 3 = "50R/S Noise" 4 = "25R/S Noise" 5 = "12R/S Noise" 6 = "6R/S Noise" 7 = "3R/S Noise"	RW	32-bit Integer
		127	**Pri Vel Feedback** Primary Velocity Feedback Output of the Primary Velocity Feedback Delay filter, in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. The Primary Velocity Feedback is used when the drive is operating without an auto Tach Loss Switchover.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		128 ○	**Alt Vel Fdbk Sel** Alternate Velocity Feedback Select Selects the source of the P3 [Mtr Vel Fdbk] and P131 [Active Vel Fdbk] to be used when the drive is in operation with an auto Tach Loss Switchover.	Default: Min/Max:	137 0 / 159999	RW	32-bit Integer
		129	**Alt Vel FdbkFltr** Alternate Velocity Feedback Filter Adjusts a filter setting that is applied to the motor velocity feedback source that is selected by P128 [Alt Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise in the feedback signal. Filter adjustment and operation is similar to P126 [Pri Vel FdbkFltr].	Default: Options:	3 = "50R/S Noise" 0 = "190R/S Noise" 1 = "160R/S Noise" 2 = "100R/S Noise" 3 = "50R/S Noise" 4 = "25R/S Noise" 5 = "12R/S Noise" 6 = "6R/S Noise" 7 = "3R/S Noise"	RW	32-bit Integer
		130	**Alt Vel Feedback** Alternate Velocity Feedback Output of the Alternate Velocity Feedback Delay filter, displayed in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. The Alternate Velocity Feedback is used when the drive is operating with an auto Tach Loss Switchover.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		131	**Active Vel Fdbk** Active Velocity Feedback Active motor velocity feedback value that used by the Flux Vector control's velocity regulator. This value in use is the result of the Primary/Alternate feedback selection. When the drive is operating without an auto Tach Loss Switchover, then P127 [Pri Vel Feedback] is selected. When the drive is operating with an auto Tach Loss Switchover, then the P130 [Alt Vel Feedback] will be selected. Status Bit 5 "FdbkLoss SwO" will become set in P936 [Drive Status 2] when an Auto Tach Switchover has occurred.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		132 ○	**Aux Vel Fdbk Sel** Auxiliary Velocity Feedback Select Selects the source of the drive's P134 [Aux Vel Feedback]. Possible selections are the same as for P125 [Pri Vel Fdbk Sel].	Default: Min/Max:	137 0 / 159999	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Feedback	133	**Aux Vel FdbkFltr** Auxiliary Velocity Feedback Filter Adjusts a filter setting that is applied to the P134 [Aux Vel Feedback] that is selected by P132 [Aux Vel Fdbk Sel]. The purpose of this filter is to reduce the level of noise present in the feedback signal. Filter adjustment and operation is similar to P126 [Pri Vel FdbkFltr].	Default: Options:	3 = “50R/S Noise” 0 = “190R/S Noise” 1 = “160R/S Noise” 2 = “100R/S Noise” 3 = “50R/S Noise” 4 = “25R/S Noise” 5 = “12R/S Noise” 6 = “6R/S Noise” 7 = “3R/S Noise”	RW	32-bit Integer
		134	**Aux Vel Feedback** Auxiliary Velocity Feedback Output of the Auxiliary Velocity Feedback Delay filter, in units of Hz or RPM, depending on the value of P300 [Speed Units]. Adjustment of the delay filter is made using P126 [Pri Vel FdbkFltr]. Typically used as a speed reference source. This selection is available in P545 [Spd Ref A Sel] and P550 [Spd Ref B Sel].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		135 ○	**Mtr Psn Fdbk Sel** Motor Position Feedback Select Selects the source of P847 [Psn Fdbk]. Possible selections include: Port 0 – Simulator Fdbk, and any Port that contains a feedback module (for example, Encoder). Open Loop Feedback is not available as a Position feedback source. The default setting is P138 [Simulator Fdbk]. This is a test mode where position feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. When position control is used, a valid position feedback source must be selected.	Default: Min/Max:	138 0 / 159999	RW	32-bit Integer
		136 ○	755 **Load Psn FdbkSel** Load Position Feedback Select Selects a position load feedback source for the position control. The position load feedback P847 [Psn Fdbk] indicates the selected position feedback value. The value forms the primary feedback for the position regulator integration channel.	Default: Min/Max:	137 0 / 159999	RW	32-bit Integer
		137	**Open Loop Fdbk** Open Loop Feedback An estimated motor feedback source that is available to any of the Velocity Feedback Selection parameters – P125 [Pri Vel Fdbk Sel], P128 [Alt Vel Fdbk Sel], and P132 [Aux Vel Fdbk Sel]. Open Loop Feedback is not available as a Position feedback source. The Open Loop Feedback’s parameter value has units of encoder counts as established by P141 [Virtual Enc EPR]. Open Loop feedback is estimated based on P1 [Output Frequency] and P5 [Torque Cur Fdbk], adjusted using P621 [Slip RPM @ FLA].	Default: Options:	0 –2147483648 / 2147483647	RO	32-bit Integer
		138	**Simulator Fdbk** Simulator Feedback Simulator Feedback is a calculated motor feedback source. It can be used when operating in any of the Flux Vector control modes that are selected in P35 [Motor Ctrl Mode]. Simulator Feedback is available to any of the Velocity Feedback Selection parameters: P125 [Pri Vel Fdbk Sel], P128 [Alt Vel Fdbk Sel], and P132 [Aux Vel Fdbk Sel]. Simulator Feedback is also available as a Position feedback source as selected by P135 [Mtr Psn Fdbk Sel]. The Simulator Feedback’s parameter value has units of encoder counts, as established by P141 [Virtual Enc EPR]. Simulator velocity feedback is calculated based on P690 [Limited Trq Ref] and P76 [Total Inertia]. This selection is useful for drive operational checkout and test when motor movement is undesired. In simulation mode, gating of the power inverter section of the drive is disabled.	Default: Options:	0 –2147483648 / 2147483647	RO	32-bit Integer
		139	755 **Delayed Spd Ref** Delayed Speed Reference One sample period delayed output of P594 [Ramped Spd Ref]. Used in some applications to synchronize the speed reference value when controlling multiple drives. In these applications, the drive that supplies the master speed reference would use the [Delayed Spd Ref] value. Setting P635 [Spd Options Ctrl] Bit 8 “Delayed Ref” will select the delayed reference in the master drive. P594 [Ramped Spd Ref] would then be transmitted to the slave drives over a communication link.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Feedback**	**140**	755 **Virtual EncDelay** Virtual Encoder Delay One sample period delayed output of P142 [Virtual Enc Psn]. Used in some applications to phase synchronize position reference though a drive communications link. The master is delayed one sample while the downstream drives update their position references – then all drives sample position simultaneously. The downstream drives do not select a delay. The selection of the delayed or non-delayed position reference is made by choosing the desired parameter in P766 [Psn Direct Stpt].	Default: Options:	0 –2147483648 / 2147483647	RO	32-bit Integer
		141	755 **Virtual Enc EPR** Virtual Encoder Edges Per Revolution Equivalent Edges Per Revolution (EPR) or line count of a virtual encoder. A virtual encoder is a position reference whose input is derived from the speed reference. It accumulates pulses at the same rate as a real encoder of identical Pulses Per Revolution (PPR). Enter the equivalent PPR. For example, enter 1024 PPR to match an encoder with 1024 EPR.	Default: Min/Max:	4096 10 / 67108864	RW	32-bit Integer
		142	755 **Virtual Enc Psn** Virtual Encoder Position A 32 bit pulse accumulator of the virtual encoder. The accumulated pulse count is equivalent to the hardware accumulator of a real encoder. It accumulates at a rate of 4x the value placed in P141 [Virtual Enc EPR]. The accumulator starts at zero upon position enable.	Default: Min/Max:	0 –/+32767	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Digin Functions**	**150** ○	**Digital In Cfg** Digital Input Configure Defines operation for DI Run type parameters. “Run Edge” (0) – Control function requires a rising edge (open to close transition) in order for the drive to run. “Run Level” (1) – As long as a separate “Stop” command is not issued, the level alone (no rising edge required) determines whether or not the drive will run.	Default: Options:	0 = “Run Edge” 0 = “Run Edge” 1 = “Run Level”	RW	32-bit Integer

ATTENTION: Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations, or industry guidelines.

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Digin Functions**	**155** ○	**DI Enable** Digital Input Enable Assigns a digital input used to enable the drive.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		156 ○	**DI Clear Fault** Digital Input Clear Fault Assigns a digital input used to clear faults.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		157 ○	**DI Aux Fault** Digital Input Auxiliary Fault Assigns a digital input used to force an external auxiliary fault.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		158 ○	**DI Stop** Digital Input Stop Assigns a digital input used to issue a stop command.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		159 ○	**DI Cur Lmt Stop** Digital Input Current Limit Stop Assigns a digital input used to perform a current limited stop.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Digin Functions	**160** ○	**DI Coast Stop** Digital Input Coast Stop Assigns a digital input used to perform a coast-to-stop.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		161 ○	**DI Start** Digital Input Start Assigns a digital input used to start the drive (3-wire control).	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		162 ○	**DI Fwd Reverse** Digital Input Forward Reverse Assigns a digital input used to command reverse direction.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		163 ○	**DI Run** Digital Input Run Assigns a digital input used to run the drive (2-wire control).	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		164 ○	**DI Run Forward** Digital Input Run Forward Assigns a digital input used to run the drive (2 wire control) and command forward direction.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		165 ○	**DI Run Reverse** Digital Input Run Reverse Assigns a digital input used to run the drive (2 wire control) and command reverse direction.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		166 ○	**DI Jog 1** Digital Input Jog 1 Assigns a digital input used to jog the drive at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		167 ○	**DI Jog 1 Forward** Digital Input Jog 1 Forward Assigns a digital input used to jog the drive in the forward direction at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		168 ○	**DI Jog 1 Reverse** Digital Input Jog 1 Reverse Assigns a digital input used to jog the drive in the reverse direction at the speed of P556 [Jog Speed 1].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		169 ○	**DI Jog 2** Digital Input Jog 2 Assigns a digital input used to jog the drive at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		170 ○	**DI Jog 2 Forward** Digital Input Jog 2 Forward Assigns a digital input used to jog the drive in the forward direction at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		171 ○	**DI Jog 2 Reverse** Digital Input Jog 2 Reverse Assigns a digital input used to jog the drive in the reverse direction at the speed of P557 [Jog Speed 2].	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		172 ○	**DI Manual Ctrl** Digital Input Manual Control Assigns a digital input used to command manual control.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>FEEDBACK & I/O</td><td>Digin Functions</td><td>173
174
175
○</td><td>DI Speed Sel 0
DI Speed Sel 1
DI Speed Sel 2
Digital Input Speed Select 0, 1, 2
Assigns digital inputs used to select between speed references as follows:
<table>
<tr><th colspan="3">Input Status (1 = Input Actuated)</th><th>Auto Reference Source</th></tr>
<tr><th>DI Speed Sel 2</th><th>DI Speed Sel 1</th><th>DI Speed Sel 0</th><th></th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>Reference A</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>Reference A</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>Reference B</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>Preset Speed 3</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>Preset Speed 4</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>Preset Speed 5</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>Preset Speed 6</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>Preset Speed 7</td></tr>
</table></td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>177
○</td><td>DI MOP Inc
Digital Input Motor Operated Potentiometer Increment
Assigns a digital input used to increment the MOP speed reference.</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>178
○</td><td>DI MOP Dec
Digital Input Motor Operated Potentiometer Decrement
Assigns a digital input used to decrement the MOP speed reference.</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>179
○</td><td>DI Accel 2
Digital Input Acceleration 2
Assigns a digital input used to activate P536 [Accel Time 2].</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>180
○</td><td>DI Decel 2
Digital Input Deceleration 2
Assigns a digital input used to activate P538 [Decel Time 2].</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>181
182
○</td><td>DI SpTqPs Sel 0
DI SpTqPs Sel 1
Digital Input Speed Torque Position Select 0, 1
Assigns digital inputs used to select between speed, torque, and position modes.</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>185
○</td><td>DI Stop Mode B
Digital Input Stop Mode B
Assigns a digital input used to activate P371 [Stop Mode B].</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>186
○</td><td>DI BusReg Mode B
Digital Input Bus Regulation Mode B
Assigns a digital input used to activate P373 [Bus Reg Mode B].</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>187
○</td><td>DI PwrLoss ModeB
Digital Input Power Loss Mode B
Assigns a digital input used to activate P453 [Pwr Loss Mode B].</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>188
○</td><td>DI Pwr Loss
Digital Input Power Loss
Assigns a digital input used to force a power loss condition.</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>189
○</td><td>DI Precharge
Digital Input Precharge
Assigns a digital input used to force the drive into precharge (normally only used in common bus applications).</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>190
○</td><td>DI Prchrg Seal
Digital Input Precharge Seal
Assigns a digital input used to force a unique fault when an external precharge circuit opens.</td><td>Default:
Min/Max:</td><td>0
0 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Digin Functions	191 ○	**DI PID Enable** Digital Input Proportional Integral Derivative Enable Assigns a digital input used to activate the Process PID control.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		192 ○	**DI PID Hold** Digital Input Proportional Integral Derivative Hold Assigns a digital input used to hold the Process PID integrator.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		193 ○	**DI PID Reset** Digital Input Proportional Integral Derivative Reset Assigns a digital input used to reset the Process PID integrator.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		194 ○	**DI PID Invert** Digital Input Proportional Integral Derivative Invert Assigns a digital input used to invert the output of the Process PID control.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		195 ○	**DI Torque StptA** Digital Input Torque Setpoint A Assigns a digital input used to force P676 [Trq Ref A Stpt] as the source for Torque Reference A, regardless of the setting in P675 [Trq Ref A Sel]. Used when the drive is in a mode that is commanding torque (see P309…P312).	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		196 ○	**DI Fwd End Limit** Digital Input Forward End Limit Assigns a digital input used to trigger a Forward End Limit. The resulting action is to execute a “Fast Stop” command. After the drive stops in this case, it will only restart in the opposite direction. This function is usually used with a limit switch near the point at which the drive should stop.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		197 ○	**DI Fwd Dec Limit** Digital Input Forward Deceleration Limit Assigns a digital input used to trigger a Forward Decel Limit. The resulting action is to override the speed reference and decelerate to Preset Speed 1. This function is usually used with a limit switch and initiates the slowing down process prior to encountering the End Limit.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		198 ○	**DI Rev End Limit** Digital Input Reverse End Limit Assigns a digital input used to trigger a Reverse End Limit. The resulting action is to execute a “Fast Stop” command. After the drive stops in this case, it will only restart in the opposite direction. This function is usually used with a limit switch near the point at which the drive should stop.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		199 ○	**DI Rev Dec Limit** Digital Input Reverse Deceleration Limit Assigns a digital input used to trigger a Reverse Decel Limit. The resulting action is to override the speed reference and decelerate to Preset Speed 1. This function is usually used with a limit switch and initiates the slowing down process prior to encountering the End Limit.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		200 ○	**DI PHdwr OvrTrvl** Digital Input Positive Hardware Over Travel Assigns a digital input used to trigger a Positive Hardware Over-travel. The resulting action is to immediately fault and produce zero torque. After the drive stops in this case, the fault will need to be reset, and the drive will only restart in the opposite direction. This function is usually used with a limit switch in a position beyond the “End Limit,” as an extra safety limit to prevent torque from damaging the machine in an over-travel situation.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer
		201 ○	**DI NHdwr OvrTrvl** Digital Input Negative Hardware Over Travel Assigns a digital input used to trigger a Negative Hardware Over-travel. The resulting action is to immediately fault and produce zero torque. After the drive stops in this case, the fault will need to be reset, and the drive will only restart in the opposite direction. This function is usually used with a limit switch in a position beyond the “End Limit,” as an extra safety limit to prevent torque from damaging the machine in an over-travel situation.	Default: Min/Max:	0 0 / 159999.15	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	220	**Digital In Sts** Digital Input Status Status of the digital input(s) resident on the main control board (Port 0).			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Digital In 2 (1)	Digital In 1 (1)	Digital In 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	222 ○	753 **Dig In Fltr Mask** Digital Input Filter Mask Filters the selected digital input. **Important:** Only used by the PowerFlex 753 main control board.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Input 2	Input 1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Inputs	223 ○	753 **Dig In Filt** Digital Input Filter Sets the amount of filtering on the digital inputs. **Important:** Only used by the PowerFlex 753 main control board.	Units: mS Default: 4 Min/Max: 2 / 10	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Outputs	225	753 **Dig Out Sts** Digital Output Status Status of the digital outputs.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Trans Out 0	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Outputs	226	753 **Dig Out Invert** Digital Output Invert Inverts the selected digital output.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Trans Out 0	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
FEEDBACK & I/O	Digital Outputs	227	753 **Dig Out Setpoint** Digital Output Setpoint Controls Relay or Transistor Outputs when chosen as the source. Can be used to control outputs from a communication device using DataLinks.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Trans Out 0	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
		230	753 **RO0 Sel** Relay Output 0 Select Selects the source that will energize the relay output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] bit 7 “Faulted”.	Default: 0 Min/Max: 0 / 159999.15	RW	32-bit Integer
		231	753 **RO0 Level Sel** Relay Output 0 Level Select Selects the source of the level that will be compared.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Integer
		232	753 **RO0 Level** Relay Output 0 Level Sets the level compare value.	Default: 0.0 Min/Max: –/+1000000.0	RW	Real
		233	753 **RO0 Lvl CmpSts** Relay Output 0 Level Compensation Status Status of the level compare, and a possible source for a relay or transistor output. Relay Output X Select or Transistor Output X Select must have this selected to energize the output. Can be used without a physical output as status information only.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
		234	753 **RO0 On Time** Relay Output 0 On Time Sets the “ON Delay” time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay.	Units: Secs Default: 0.00 Min/Max: 0.00 / 600.00	RW	Real
		235	753 **RO0 Off Time** Relay Output 0 Off Time Sets the “OFF Delay” time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay.	Units: Secs Default: 0.00 Min/Max: 0.00 / 600.00	RW	Real
		240	753 **TO0 Sel** Transistor Output 0 Select Selects the source that will energize the relay or transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] bit 7 “Faulted”.	Default: 0 Min/Max: 0 / 159999.15	RW	32-bit Integer
		241	753 **TO0 Level Sel** Transistor Output 0 Level Select Selects the source of the level that will be compared.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Integer
		242	753 **TO0 Level** Transistor Output 0 Level Sets the level compare value.	Default: 0.0 Min/Max: –/+1000000.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Digital Outputs	243	753 **TO0 Level CmpSts** Transistor Output 0 Level Compensation Status Status of the level compare, and a possible source for the transistor output. Transistor Output 0 Select must have this selected to energize the output. Can be used without a physical output as status information only.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Grt Than Equ	Less Than	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Digital Outputs	244	753 **TO0 On Time** Transistor Output 0 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay or transistor.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		245	753 **TO0 Off Time** Transistor Output 0 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay or transistor.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Motor PTC	250	753 **PTC Cfg** Positive Temperature Coefficient Configuration Sets the action that will be taken when the PTC is not Ok. "Ignore" (0) – No action is taken "Alarm" (1) – Alarm occurs "Flt Minor" (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop "FltCoastStop" (3) – Fault Coast Stop occurs "Flt RampStop" (4) – Fault Ramp Stop occurs "Flt CL Stop" (5) – Fault Current Limit Stop occurs	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		251	753 **PTC Status** Positive Temperature Coefficient Status Status of the PTC.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Over Temp	Reserved	PTC Ok	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Condition True

Bit 0 "PTC Ok" – PTC is OK
Bit 1 "PTC Short" – PTC is Shorted
Bit 2 "Over Temp" – PTC is indicating over temperature

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="6">FEEDBACK & I/O</td><td rowspan="6">Analog Inputs</td><td>255</td><td>753 Anlg In Type
Analog Input Type
Status of the analog input mode set by Jumper J4 on the main control board.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Analog 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td colspan="2">0 = Condition False
1 = Condition True</td><td></td><td></td></tr>
<tr><td>256</td><td>753 Anlg In Sqrt
Analog Input Square Root
Enables/disables the square root function for each input.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Analog 0</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td colspan="2">0 = Condition False
1 = Condition True</td><td></td><td></td></tr>
<tr><td>257</td><td>753 Anlg In Loss Sts
Analog Input Loss Status
Status of the analog input loss.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Loss 0</td><td>Reserved</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td colspan="2">0 = Condition False
1 = Condition True</td><td></td><td></td></tr>
<tr><td>260</td><td>753 Anlg In0 Value
Analog Input 0 Value
Value of the Analog input after filter, square root, and loss action.</td><td>Units:

Default:

Min/Max:</td><td>Volts
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RO</td><td>Real</td></tr>
<tr><td>261</td><td>753 Anlg In0 Hi
Analog Input 0 High
Sets the highest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volts
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
<tr><td>262</td><td>753 Anlg In0 Lo
Analog Input 0 Low
Sets the lowest input value to the analog input scaling block.</td><td>Units:

Default:

Min/Max:</td><td>Volts
mA
0.000 Volts
0.000 mA
–/+10.000 Volts
0.000 / 20.000 mA</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Analog Inputs**	**263**	753 **Anlg In0 LssActn** Analog Input 0 Loss Action Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor“ (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop“ (3) – Fault Coast Stop occurs “Flt RampStop“ (4) – Fault Ramp Stop occurs “Flt CL Stop“ (5) – Fault Current Limit Stop occurs “Hold Input” (6) – Holds input at last value “Set Input Lo” (7) – Sets input to P262 [Anlg In0 Lo] “Set Input Hi” (8) – Sets input to P261 [Anlg In0 Hi]	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop” 6 = “Hold Input” 7 = “Set Input Lo” 8 = “Set Input Hi”	RW	32-bit Integer
		264	753 **Anlg In0 Raw Val** Analog Input 0 Raw Value Raw Value of the analog input.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		265	753 **Anlg In0 Filt Gn** Analog Input 0 Filter Gain Sets the analog input filter gain.	Default: Min/Max:	1.00 –/+5.00	RW	Real
		266	753 **Anlg In0 Filt BW** Analog Input 0 Filter Bandwidth Sets the analog input filter bandwidth.	Default: Min/Max:	0.0 0.0 / 500.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	**Analog Outputs**	**270**	753 **Anlg Out Type** Analog Output Type Select the analog output mode for each analog output.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog Out 0	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Voltage Mode
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Current Mode

		271	753 **Anlg Out Abs** Analog Output Absolute Selects whether the signed value or absolute value of a parameter is used before being scaled to drive the analog output.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog Out 0	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Voltage Mode
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Current Mode

		275	753 **Anlg Out0 Sel** Analog Output 0 Select Selects the source for the analog output.	Default: Min/Max:	3 0 / 159999	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	Analog Outputs	276	753 **Anlg Out0 Stpt** Analog Output 0 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	VAC 0 –10/20	RW	Real
		277	753 **Anlg Out0 Data** Analog Output 0 Data Displays the value of the source selected by P275 [Anlg Out0 Sel].	Default: Min/Max:	0 –/+100000	RO	Real
		278	753 **Anlg Out0 DataHi** Analog Output 0 Data High Sets the high value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		279	753 **Anlg Out0 DataLo** Analog Output 0 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		280	753 **Anlg Out0 Hi** Analog Output 0 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		281	753 **Anlg Out0 Lo** Analog Output 0 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		282	753 **Anlg Out0 Val** Analog Output 0 Value Displays the analog output value.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	R0 Predict Main	285	753 **RO PredMaint Sts** Relay Output Predictive Maintenance Status Status of relay 0 predictive maintenance.				

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Relay Out 0	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Condition False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	R0 Predict Main	286	753 **RO0 Load Type** Relay Output 0 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life.	Default: Options:	1 = "DC Inductive" 0 = "DC Resistive" 1 = "DC Inductive" 2 = "AC Resistive" 3 = "AC Inductive"	RW	32-bit Integer
		287	753 **RO0 Load Amps** Relay Output 0 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		288	753 **RO0 TotalLife** Relay Output 0 Total Life Total life cycles of the relay based on programmed load type and amps.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
FEEDBACK & I/O	R0 Predict Main	289	753 **RO0 ElapsedLife** Relay Output 0 Elapsed Life Non-resettable, total accumulated cycles of the relay.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		290	753 **RO0 RemainLife** Relay Output 0 Remaining Life The difference between the Total Life and the Elapsed Life.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		291	753 **RO0 LifeEvntLvl** Relay Output 0 Life Event Level Sets the percentage of relay life cycles before action is taken.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		292	753 **RO0 LifeEvntActn** Relay Output 0 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor” (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop” (3) – Fault Coast Stop occurs “Flt RampStop” (4) – Fault Ramp Stop occurs “Flt CL Stop” (5) – Fault Current Limit Stop occurs	Default: Options:	1 = “Alarm” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

Drive Cfg File

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Preferences	300 ○	**Speed Units** Speed Units Selects the units to be used for all speed related parameters. Options 0 and 1 do not convert other parameter values (e.g. a 60 Hz reference becomes 60 rpm). Options 2 and 3 perform an automatic conversion of other parameter values (e.g. a 60 Hz reference becomes 1800 rpm, based on motor nameplate settings). This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Options:	Current Selection 0 = "Hz" 1 = "RPM"	RW	32-bit Integer
		301	**Access Level** Access Level Sets the access level for parameters and option choices. "Basic" (0) – Provides the smallest, simplest, and most user friendly view. "Advanced" (1) – May be required to use advanced features. "Expert" (2) – Not normally recommended (makes the list very long), and shows extra parameters that should rarely be required. When the access level is changed, PC-based tools (e.g. Drive Tools and Drive Explorer) will require a reconnect. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Options:	Current Selection 0 = "Basic" 1 = "Advanced" 2 = "Expert"	RW	32-bit Integer
		302	**Language** Language Select display language. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Options:	0 = "Not Used" 0 = "Not Used" 1 = "English" 2 = "French" 3 = "Spanish" 4 = "Italian" 5 = "German" 6 = "Japanese" 7 = "Portuguese" 8 = "Chinese" 9 = "Reserved" 10 = "Reserved" 10 = "Korean"	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>DRIVE CFG</td><td>Control Cfg</td><td>305
○</td><td>Voltage Class
Voltage Class
Selects the voltage class operation of the drive (e.g. for 400 / 480V drives, “Low Voltage” = 400V, “High Voltage” = 480V). This setting affects how the drive will appear as a node on a system (e.g. 400V or 480V), and also affects the drive's current rating (Rated Amps).
This parameter is only reset (to original factory setting) when Set Defaults “All” (not recommended) is executed.</td><td>Default:
Options:</td><td>0 = Based on Factory Setting
0 = “Low Voltage”
1 = “High Voltage”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>306
○</td><td>Duty Rating
Duty Rating
Selects the continuous and overload capacity of the drive. “Normal Duty” provides the highest continuous rating, but smaller overload ratings (110% for 60 sec, 150% for 3 sec). “Heavy Duty” provides a smaller continuous rating, but larger overload ratings (150% for 60 sec, 180% for 3 sec).
This parameter is only reset when Set Defaults “All” (not recommended) is executed.</td><td>Default:
Options:</td><td>0 = “Normal Duty”
0 = “Normal Duty”
1 = “Heavy Duty”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>308
○</td><td>Direction Mode
Direction Mode
Selects method for changing direction.<table><tr><th>Mode</th><th>Direction Change</th></tr><tr><td>Unipolar</td><td>Drive Logic</td></tr><tr><td>Bipolar</td><td>Sign of Reference</td></tr><tr><td>Rev Disable</td><td>Not Changeable</td></tr></table></td><td>Default:
Options:</td><td>0 = “Unipolar”
0 = “Unipolar”
1 = “Bipolar”
2 = “Rev Disable”</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

⚠ **ATTENTION:** Enabling the Bipolar Direction Mode can cause unexpected direction changes. Equipment damage and/or personal injury can result if this parameter is used in an inappropriate application. Do Not use this function without considering all applicable local, national, and international codes standards, regulations, or industry guidelines.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Control Cfg	**309** **310** **311** **312**	**SpdTrqPsn Mode A** **SpdTrqPsn Mode B** **SpdTrqPsn Mode C** **SpdTrqPsn Mode D** Speed Torque Position Mode A Applies only to the Flux Vector control modes in P35 [Motor Ctrl Mode]. It selects between speed regulation, torque regulation, or position regulation operation of the drive. The source of P685 [Selected Trq Ref] will be determined by the selection in this parameter when P181 [DI SpTqPs Sel 0] and P182 [DI SpTqPs Sel 1] have selected “Disabled” or selected bits that are logic low. In P935 [Drive Status 1] three bits are provided that indicate the regulation mode of the drive when it is running. Bit 21 “Speed Mode” will become set when the drive is running with the speed regulator active. Similarly, Bit 22 “PositionMode” and Bit 23 “Torque Mode” indicate when their respective regulation modes are active. Under some conditions, the active torque mode may be forced into speed mode regardless of the setting of Speed/Torque/Position. The P313 [Actv SpTqPs Mode] parameter will indicate this and will reflect the mode selection that is in use. Possible selections for Speed/Torque/Position are: “Zero Torque” (0) – Drive operates as a torque regulator with P685 [Selected Trq Ref] forced to a constant value of zero torque. “Speed Reg” (1) – Drive operates as a speed regulator. P685 [Selected Trq Ref] comes from P660 [SReg Output] plus P699 [Inertia Comp Out]. “Torq Ref” (2) – Drive operates as a torque regulator. P685 [Selected Trq Ref] comes from P4 [Commanded Trq]. Under some conditions such as jogging or performing a ramp to stop operation, the drive will automatically bypass this selection and temporarily switch to speed regulation mode. “SLAT Min” (3) – Drive operates in “Speed Limited Adjustable Torque – Minimum select” mode. This is a special mode of operation used primarily in winder applications. The drive will typically operate as a torque regulator, provided that the P4 [Commanded Trq] value is algebraically smaller in value than the speed regulator’s output. The drive may automatically enter speed regulation mode, based on conditions within the speed regulator and the magnitude of the speed regulator’s output relative to the torque reference. “SLAT Max” (4) – Drive operates in “Speed Limited Adjustable Torque – Maximum select” mode. This is a special mode of operation used primarily in winder applications. The drive will typically operate as a torque regulator, provided that the P4 [Commanded Trq] value is algebraically larger in value than the speed regulator’s output. The drive may automatically enter speed regulation mode, based on conditions within the speed regulator and the magnitude of the speed regulator’s output relative to the torque reference. “Sum” (5) – Drive operates as a speed regulator. P685 [Selected Trq Ref] comes from P660 [SReg Output] plus torque adders summed with P4 [Commanded Trq]. “Profilier” (6) – Drive uses the Speed Profiler / Position Indexer function. The drive operates as either a speed or position regulator. Mode of operation will depend on the configuration of the Step Types in the Profiler / Indexer table. “Psn PTP” (7) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Point-to-Point mode and uses its Point-to-point position reference. “Psn Camming” (8) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Position CAM mode and uses its PCAM Planner position and speed reference. “Psn PLL” (9) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Position Phase Lock Loop mode and uses its PLL Planner position and speed reference. “Psn Direct” (10) – Drive operates as a position regulator. P685 [Selected Trq Ref] has the same source as in Sum mode. The position control is active in Direct mode and uses its Direct Position Reference.	Default: Options:	1 = “Speed Reg” 0 = “Zero Torque” 1 = “Speed Reg” 2 = “Torque Reg” 3 = “SLAT Min” 4 = “SLAT Max” 5 = “Sum” 6 = “Profilier” 755 7 = “Psn PTP” 8 = “Psn Camming” 755 9 = “Psn PLL” 755 10 = “Psn Direct”	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Control Cfg	313	**Actv SpTqPs Mode** Active Speed Torque Position Mode Displays the Speed, Torque, Position Mode that is active, based on the dynamic selection of modes A, B, C, and D, per P309…P312, and digital input conditions programmed via P181 and P182. In some cases, such as operation in the SLAT min/max modes, the final regulation mode may be forced into Speed Regulation. Refer to the Speed, Torque, and Position mode bits in P935 [Drive Status 1] that indicate the final regulation mode of the drive when it is running.	Default: Options:	1 = "Speed Reg" 0 = "Zero Torque" 1 = "Speed Reg" 2 = "Torque Reg" 3 = "SLAT Min" 4 = "SLAT Max" 5 = "Sum" 6 = "Profilier" 755 7 = "Psn PTP" 8 = "Psn Camming" 755 9 = "Psn PLL" 755 10 = "Psn Direct"	RO	32-bit Integer
		314	**SLAT Err Stpt** Speed Limited Adjustable Torque, Error Setpoint Sets the magnitude of P641 [Speed Error] at which the SLAT function will release its Forced Speed Mode signal. This condition must exist for the time specified by P315 [SLAT Dwell Time]. Once released, the drive can operate as a torque regulator, depending on the relative levels of P660 [SReg Output] and P4 [Commanded Trq]. This parameter will be entered in units of Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P27 [Motor NP Hertz] 0.00 / P28 [Motor NP RPM]	RW	Real
		315	**SLAT Dwell Time** Speed Limited Adjustable Torque, Dwell Time Sets the time period that P641 [Speed Error] must exceed the P314 [SLAT Err Stpt] magnitude in order to return to min/max torque mode.	Units: Default: Min/Max:	Secs 0.00 0.00 / 2.00	RW	Real
		321	**Prchrg Control** Precharge Control When disabled, the drive will stay in the precharge mode and will not be able to run. When enabled, the normal precharge operation is run. This parameter allows programmable control of the completion of the precharge function and may be used to coordinate the precharge of a system of drives or to reset P12 [DC Bus Memory] in the drive.	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		322	**Prchrg Delay** Precharge Delay Adjustable delay between the time all other precharge conditions have been met and the time the drive leaves the precharge state. This can be used to control the sequences of precharge completion in a drive system.	Units: Default: Min/Max:	Secs 0.50 0.10 / 30.00	RW	Real
		323	**Prchrg Err Cfg** Precharge Error Confirguration Selects the action to take when P190 [DI Prchrg Seal] is used to indicate that an external precharge circuit has opened.	Default: Options:	3 = "FltCoastStop" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Auto Manual Ctrl	324 ○	**Logic Mask** Logic Mask Enables/disables ports to control the logic command (such as start and direction).			

Options	Reserved	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In	
Default	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	0 = Condition False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Auto Manual Ctrl	325 ○	**Auto Mask** Automatic Mask Enables/disables ports to control the logic command (such as start and direction), while in Auto mode.			

Options	Reserved	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Auto Manual Ctrl	326 ○	**Manual Cmd Mask** Manual Command Mask Enables/disables ports to control the logic command (such as start and direction), while in Manual Mode.			

Options	Reserved	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Auto Manual Ctrl	327 ○	**Manual Ref Mask** Manual Reference Mask Enables/disables ports to control the speed reference while in Manual Mode. When a port is commanding manual mode, the reference is forced to the commanding port (or alternate source selected by P328 [Alt Man Ref Sel]), if the respective bit in this parameter is set.			

Options	Reserved	Port 14	Port 13	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Auto Manual Ctrl	328 ○	**Alt Man Ref Sel** Alternate Manual Reference Select Provides a way to select a speed reference source when in manual mode, that is different than the port which is actuating the manual request. Specifies the port to be used for the reference. The default setting (0) results in the actuating port being the one that is used for the manual reference.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Integer
		329	**Alt Man Ref AnHi** Alternate Manual Reference Analog High Hi scale for the alternate manual speed reference when P328 [Alt Man Ref Sel] is connected to an Analog Input.	Units: Hz RPM Default: P520 Min/Max: P521 / P520	RW	Real
		330	**Alt Man Ref AnLo** Alternate Manual Reference Analog Low Lo scale for the alternate manual speed reference when P328 [Alt Man Ref Sel] is connected to an Analog Input.	Units: Hz RPM Default: 0 Min/Max: P521 / P520	RW	Real
		331	**Manual Preload** Manual Preload Enables/disables automatic preloading of the “Auto” speed reference into a HIM when the HIM has been granted Manual control.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 3	Port 2	Port 1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Drive Memory	336	**Reset Meters** Reset Meters Resets selected meters to zero. The value will automatically be returned to 0.	Default: Options:	0 = "Ready" 0 = "Ready" 1 = "MWH and kWh" 2 = "Elapsed Time"	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	345 ○	**Start At PowerUp** Start At Power Up Enables/disables a feature to issue a Start or Run command and automatically resume running at commanded speed after drive input power is restored. Requires a digital input configured for Run or Start and a valid start contact.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer

ATTENTION: Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations or industry guidelines.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	346	**PowerUp Delay** Power Up Delay Defines the programmed delay time, in seconds, before a start commend is accepted after power up.	Units: Default: Min/Max:	Secs 0.00 0.00 / 10800.00	RW	Real
		347	**Auto Retry Fault** Automatic Retry Fault Enables Retries Exhausted fault action.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	AttmpsExhstd
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	348	**Auto Rstrt Tries** Automatic Restart Tries Sets the maximum number of times the drive attempts to reset a fault and restart.	Default: Min/Max:	0 0 / 9	RW	32-bit Integer

ATTENTION: Equipment damage and/or personal injury may result if this parameter is used in an inappropriate application. Do not use this function without considering applicable local, national and international codes, standards, regulations or industry guidelines.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	349	**Auto Rstrt Delay** Automatic Restart Delay Sets the time between restart attempts when 348 [Auto Rstrt Tries] is set to a value other than zero.	Units: Default: Min/Max:	Secs 1.00 0.50 / 30.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	350 ○	**Sleep Wake Mode** Sleep Wake Mode Enables/disables the Sleep/Wake function. **Important:** When enabled, the following conditions must be met: • A proper value must be programmed for 352 [Sleep Level] and 354 [Wake Level]. • A sleep / wake reference must be selected in 351 [SleepWake RefSel]. • At least one of the following must be programmed (and input closed) in P155 [DI Enable], P158 [DI Stop], P163 [DI Run], P164 [DI Run Forward], or P165 [DI Run Reverse].	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “Direct” (Enabled) 2 = “Invert” (Enabled) (7)	RW	32-bit Integer

⚠ **ATTENTION:** Enabling the Sleep/Wake function can cause unexpected machine operation during the Wake mode. Equipment damage and/or personal injury can result if this parameter is used in an inappropriate application. Do Not use this function without considering the information below. In addition, all applicable local, national, and international codes, standards, regulations, or industry guidelines must be considered.

	After Power-Up	**After a Drive Fault**		**After a Stop Command**
Input		*Reset by Stop-CF, HIM or TB*	*Reset by Clear Faults (TB)*	*HIM or TB*
Stop	Stop Closed Wake Signal New Start or Run Cmd.(4)	Stop Closed Wake Signal New Start or Run Cmd.(4)	Stop Closed Wake Signal	Stop Closed Direct Mode Analog Sig. > Sleep Level (6) Invert Mode Analog Sig. < Sleep Level (6) New Start or Run Cmd.(4)
Enable	Enable Closed Wake Signal (4)	Enable Closed Wake Signal New Start or Run Cmd.(4)	Enable Closed Wake Signal	Enable Closed Direct Mode Analog Sig. > Sleep Level (6) Invert Mode Analog Sig. < Sleep Level (6) New Start or Run Cmd.(4)
Run Run For. Run Rev.	Run Closed Wake Signal	New Run Cmd.(5) Wake Signal	Run Closed Wake Signal	New Run Cmd.(5) Wake Signal

(1) When power is cycled, if all of the above conditions are present after power is restored, restart will occur.

(2) If all of the above conditions are present when [Sleep-Wake Mode] is “enabled,” the drive will start.

(3) The active speed reference. The Sleep/Wake function and the speed reference may be assigned to the same input.

(4) Command must be issued from HIM, TB, or network.

(5) Run Command must be cycled.

(6) Signal does not need to be greater than wake level.

(7) For Invert function, refer to P53/63 [Anlg InX LssActn] on the I/O module.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	351 ○	**SleepWake RefSel** Sleep Wake Reference Select Selects the source of the input controlling the Sleep-Wake function.	Default: Min/Max:	0 (Disabled) 0 / 159999	RW	32-bit Integer
		352	**Sleep Level** Sleep Level Defines the analog input level that will stop the drive.	Units: Default: Min/Max:	VAC, P351 = 0 (Disabled) VAC or mA, P351 = not 0 (Port X Device Jumper Setting) 5.00 VAC (P351 = 0) 5.00 VAC / 0.00 mA (Port X Device Jumper Setting) 0.00 / 10.00 VAC 0.00 / 20.00 mA	RW	Real
		353	**Sleep Time** Sleep Time Defines the amount of time at or below 352 [Sleep Level] before a Stop is issued.	Units: Default: Min/Max:	Secs 0.00 0.00 / 1000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	354	**Wake Level** Wake Level Defines the analog input level that will start the drive.	Units:	VAC, P351 = 0 (Disabled) VAC or mA, P351 = not 0 (Port X Device Jumper Setting)	RW	Real
				Default:	6.00 VAC (P351 = 0) 6.00 VAC / 12.00 mA (Port X Device Jumper Setting)		
				Min/Max:	0.00 / 10.00 VAC 0.00 / 20.00 mA		
		355	**Wake Time** Wake Time Defines the amount of time at or above 354 [Wake Level] before a Start is issued.	Units:	Secs	RW	Real
				Default:	0.00		
				Min/Max:	0.00 / 1000.0		
		356	**FlyingStart Mode** Flying Start Mode Enables/disables the function which reconnects to a spinning motor at actual RPM when a start command is issued.	Default:	0 = “Disabled”	RW	32-bit Integer
				Options:	0 = “Disabled” 1 = “Enhanced” 2 = “Sweep”		
		357	**FS Gain** Flying Start Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Proportional term used in the current regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Time required for the speed detection signal to remain at the programmed level (P360). Units of 50 µs.	Default:	1200.0	RW	Real
				Min/Max:	0.0 / 10000.0		
		358	**FS Ki** Flying Start Intergal Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Integral term used in the current regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Integral term used in the voltage recovery to the normal V/Hz level.	Default:	60.0	RW	Real
				Min/Max:	0.0 / 1000.0		
		359	**FS Speed Reg Ki** Flying Start Speed Regulator Intergal Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Integral term used in the speed regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Time to sweep frequency in one direction. Units of 10 µs.	Default:	100.0	RW	Real
				Min/Max:	0.0 / 10000.0		
		360	**FS Speed Reg Kp** Flying Start Speed Regulator Proportional Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Proportional term used in the speed regulator which controls the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Programmed level for the speed detection signal. The monitored signal needs to drop below this level to indicate motor speed.	Default:	75.0	RW	Real
				Min/Max:	0.0 / 100000.0		
		361	**FS Excitation Ki** Flying Start Excitation Intergal Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Integral term used in the current regulator which controls the excitation function when the need is determined by the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Integral term used to control initial output voltage.	Default:	60.0	RW	Real
				Min/Max:	0.0 / 32767.0		
		362	**FS Excitation Kp** Flying Start Excitation Proportional Gain P356 [FlyingStart Mode] = 1 “Enhanced”: Proportional term used in the current regulator which controls the excitation function when the need is determined by the reconnect function. P356 [FlyingStart Mode] = 2 “Sweep”: Proportional term used to control initial output voltage.	Default:	1200.00	RW	Real
				Min/Max:	0.0 / 32767.0		

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Start Features	363	**FS Reconnect Dly** Flying Start Reconnect Delay Delay time used between the issued start command and the start of the reconnect function.	Units: Default: Min/Max:	Secs 50.00 0.10 / 10000.00	RW	Real
		364	**FS Msrmnt CurLvl** Flying Start Measurement Current Level P356 [FlyingStart Mode] = 1 "Enhanced": Level of the current used during the measurement stage of the reconnect function. P356 [FlyingStart Mode] = 2 "Sweep": Adjustment for the V/Hz end point. Used to change the slope of the V/Hz curve during the frequency sweep.	Default: Min/Max:	44.97 0.00 / 4096.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	370 371	**Stop Mode A** **Stop Mode B** Stop Mode A, B Method of stopping the drive when a stop command is given. Normal Stop command and the RUN input changing from true to false will command a Normal Stop. "Coast" (0) – Power removed from motor, motor coasts to zero. "Ramp" (1) – Decelerates to zero speed at the decel rate. "Ramp to Hold" (2) – Decelerates to zero speed at the decel rate, followed by DC braking until the next start sequence. "DC Brake" (3) – DC braking is immediately applied (does not follow programmed decel ramp). "DCBrkAutoOff" (4) – Applies DC braking until zero speed is reached or DC brake time is reached, whichever is shorter. "Current Lmt" (5) – Max torque / current applied until zero speed "Fast Brake" (6) – High slip braking for maximum braking performance above base speed.	Default Options:	1 = "Ramp" 0 = "Coast" 0 = "Coast" 1 = "Ramp" 2 = "Ramp to Hold" 3 = "DC Brake" 4 = "DCBrkAutoOff" 5 = "Current Lmt" 6 = "Fast Brake"	RW	32-bit Integer
		372 373	**Bus Reg Mode A** **Bus Reg Mode B** Bus Regulation Mode A, B Method and sequence of the DC bus regulator voltage. Choices are dynamic brake, frequency adjust or both. Sequence is determined by programming or digital input to the terminal block. Dynamic Brake Setup If a dynamic brake resistor is connected to the drive, both of these parameters must be set to either option 2, 3 or 4.	Default: Options:	1 = "Adjust Freq" 4 = "Both-Frq 1st" 0 = "Disabled" 1 = "Adjust Freq" 2 = "Dyn Brake" 3 = "Both-DB 1st" 4 = "Both-Frq 1st"	RW	32-bit Integer
			ATTENTION: The drive does not offer protection for externally-mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over-temperature or the protective circuit shown in Figure C.1 on page C-2 (or equivalent) must be supplied.				
		374	**Bus Reg Lvl Cfg** Bus Regulation Level Configuration Selects the reference used to determine the bus voltage regulation level for the bus voltage regulator and the reference used for the dynamic brake. "Bus Memory" (0) – References are determined based on P12 [DC Bus Memory]. "BusReg Level" (1) – References are determined based on the voltage set in the bus regulator level parameter P375 [Bus Reg Level]. If coordinated operation of the dynamic brakes of a common bus system is desired, use this selection and set the P375 [Bus Reg Level] to coordinate the brake operation of the common bus drives.	Default: Options:	0 = "Bus Memory" 0 = "Bus Memory" 1 = "BusReg Level"	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
DRIVE CFG	Braking Features	375	**Bus Reg Level** Bus Regulation Level Sets the "turn-on" bus voltage level for the bus voltage regulator and the dynamic brake.	Units: VDC Default: P20 < 252V DC: 375 P20 = 252…503V DC: 750 P20 = 504…629V DC: 937 P20 > 629V DC: 1076 Min/Max: P20 < 252V DC: 375/389 P20 = 252…503V DC: 750/779 P20 = 504…629V DC: 937/974 P20 > 629V DC: 1076/1118	RW	Real
		376	**Bus Limit Kp** Bus Limit Proportional Gain Not functional when any of the FV motor control modes are selected.	Units: A/V Default: 1170.0 Min/Max: 0.0 / 1000000.0	RW	Real
		377	**Bus Limit Kd** Bus Limit Derivative Gain Not functional when any of the FV motor control modes are selected.	Units: Secs Default: 152.0 Min/Max: 0.0 / 1000000.0	RW	Real
		378	**Bus Limit ACR Ki** Bus Limit Active Current Regulator Integral Gain Not functional when any of the FV motor control modes are selected.	Default: 2045.0 Min/Max: 0.0 / 50000.0	RW	Real
		379	**Bus Limit ACR Kp** Bus Limit Active Current Regulator Proportional Gain Not functional when any of the FV motor control modes are selected.	Units: Hz/A Default: 524.0 Min/Max: 0.0 / 100000.0	RW	Real
		380	**Bus Reg Ki** Bus Regulator Integral Gain Integral gain for the bus voltage regulator. Sets the responsiveness of the bus voltage regulator.	Default: 100.000 Min/Max: 0.000 / 65535.000	RW	Real
		381	**Bus Reg Kp** Bus Regulator Proportional Gain Proportional gain for the bus voltage regulator. Sets the responsiveness of the bus voltage regulator.	Default: 10.000 Min/Max: 0.000 / 65535.000	RW	Real
		382	**DB Resistor Type** Dynamic Brake Resistor Type Selects whether the internal or external DB protection will be used. **Important:** Only one DB resistor can be connected to Frame 2 drives. If an external dynamic brake is used with a Frame 2 drive, the internal dynamic brake resistor must be disconnected. Connecting both an internal and external resistor is likely to cause drive damage. If a dynamic brake resistor is connected to the drive, P372 [Bus Reg Mode A] and P373 [Bus Reg Mode B] must be set to either option 2, 3, or 4; otherwise the dynamic brake will not turn on.	Default: 0 = "Internal" Options: 0 = "Internal" 1 = "External"	RW	32-bit Integer
		383	**DB Ext Ohms** Dynamic Brake External Ohms Calculates the maximum negative torque available from the dynamic brake and is used for the external resistor dynamic brake protection.	Units: Ohms Default: Based on Drive Rating Min/Max: Internal / 10000	RW	Real
		384	**DB Ext Watts** Dynamic Brake External Watts Sets the continuous rated power reference for the external dynamic brake resistor. Only valid when an external dynamic brake resistor is selected (P382 [DB Resistor Type] = 1 "External"). The DB continuous watts are used in the dynamic brake thermal protection algorithm. **Important:** If customer-supplied protection is to be used in place of the drive's calculated resistor thermal protection, set the [DB Ext Watts] to its maximum value.	Units: Watt Default: 100.00 Min/Max: 1.00 / 500000.00	RW	Real

⚠ **ATTENTION:** Equipment damage may result if a drive mounted (internal) resistor is installed and this parameter is set to "External." Thermal protection for the internal resistor will be disabled, resulting in possible device damage.

ATTENTION: The drive does not offer protection for externally-mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over-temperature or the protective circuit shown in Figure C.1 on page C-2 (or equivalent) must be supplied.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	385	**DB ExtPulseWatts** Dynamic Brake External Pulse Watts Sets the thermal transient response of the external dynamic brake resistor defined by the maximum allowable power to the dynamic brake resistor for 1 second without exceeding the resistor's element temperature. This parameter is only valid when an external dynamic brake resistor is selected (P382 [DB Resistor Type] = 1 "External"). If this value is not available from the resistor vendor it can be approximated by 1 or 2 below: 1. [DB ExtPulseWatts] = 75,000 x weight (lbs), where weight is the weight of the resistor wire in pounds (not the weight of the entire resistor). 2. [DB ExtPulseWatts] = Time Constant x Brake Watts, where the Time Constant equals the amount of time to reach 63% of its rated temperature while the maximum power is applied to the resistor and Brake Watts is the maximum continuous power rating of the resistor. **Important:** If customer supplied protection is to be used in place of the drive's calculated resistor thermal protection, set the [DB ExtPulse Watts] to its maximum value.	Units: Default: Min/Max:	Watt 2000.00 1.00 / 100000000.00	RW	Real
		388	**Flux Braking En** Flux Braking Enable Displays a value of 1 when flux braking is active and 0 when flux braking is not active.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		389	**Flux Braking Lmt** Flux Braking Limit Sets the limit on the desired motor voltage during flux braking as a percent of P25 [Motor NP Volts].	Units: Default: Min/Max:	% 125.00 100.00 / 250.00	RW	Real
		390	**Flux Braking Ki** Flux Braking Integral Gain Flux braking controller integral gain.	Default: Min/Max:	10000.0 0.0 / 1000000.0	RW	Real
		391	**Flux Braking Kp** Flux Braking Proportional Gain Flux braking controller proportional gain.	Default: Min/Max:	100.0 0.0 / 1000000.0	RW	Real
		393 ○	**DC Brake Lvl Sel** DC Brake Level Select Sets link to source used for P394 [DC Brake Level].	Default: Min/Max:	394 1 / 159999	RW	32-bit Integer
		394	**DC Brake Level** DC Brake Level Defines the DC brake current level injected into the motor when [Stop Mode x] = 3 "DC Brake." This also sets the braking current level when 6 "Fast Stop" is selected. The DC braking voltage used in this function is created by a PWM algorithm and may not generate the smooth holding force needed for some applications.	Units: Default: Min/Max:	Amps [Rated Amps] P21 [Rated Amps] x 0.01 / Based on Drive Rating	RW	Real

ATTENTION: If a hazard of injury due to movement of equipment or material exists, an auxiliary mechanical braking device must be used.

ATTENTION: This feature should not be used with synchronous or permanent magnet motors. Motors may be demagnetized during braking.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	395	**DC Brake Time** DC Brake Time Sets the amount of time DC brake current is "injected" into the motor. When the active stop mode, P370/371 [Stop Mode X] = 2 "Ramp to Hold," this parameter is ignored and DC braking is applied continuously.	Units: Default: Min/Max:	Secs 0.00 0.00 / 90.00	RW	Real
		396	**DC Brake Ki** DC Brake Integral Gain Sets the integral term used in the current regulator which controls the DC Brake function.	Default: Min/Max:	10.0 0.0 / 1000.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
DRIVE CFG	Braking Features	397	**DC Brake Kp** DC Brake Proportional Gain Sets the proportional term used in the current regulator which controls the DC Brake function.	Default: Min/Max:	1000.0 0.0 / 10000.0	RW	Real
		398	**DC Brk Vq Fltr** DC Brake Vq Filter Sets the level of filtering used on the Vq signal when the active stop mode P370/371 [Stop Mode X] = 4 "DCBrkAutoOff."	Default: Min/Max:	250.0 50.0 / 2000.0	RW	Real
		399	**DC Brk Vd Fltr** DC Brake Vd Filter Sets the level of filtering used on the Vd signal when the active stop mode P370/371 [Stop Mode X] = 4 "DCBrkAutoOff."	Default: Min/Max:	250.0 50.0 / 2000.0	RW	Real
		400	**Fast Braking Ki** Fast Braking Integral Gain Sets the integral term used in the speed regulator which controls the Fast Braking function.	Default: Min/Max:	0.10 0.00 / 10.00	RW	Real
		401	**Fast Braking Kp** Fast Braking Proportional Gain Sets the proportional term used in the speed regulator which controls the Fast Braking function.	Default: Min/Max:	0.0015 0.0000 / 10.0000	RW	Real
		402	**Brake Off Adj 1** Brake Off Adjustment 1 When Fast Braking is the selected Stop Mode, this parameter sets the power sensitivity to transition from Fast Braking to DC Brake. When DC Brake w/Auto ShutOff is selected, this parameter sets the level sensitivity for shut off.	Default: Min/Max:	1.00 0.01 / 5.00	RW	Real
		403	**Brake Off Adj 2** Brake Off Adjustment 2 When Fast Braking is the selected Stop Mode, this parameter sets the frequency sensitivity to transition from Fast Braking to DC Brake. When DC Brake w/Auto ShutOff is selected, this parameter sets the time sensitivity for shut off.	Default: Min/Max:	1.00 0.01 / 5.00	RW	Real
		409	**Dec Inhibit Actn** Deceleration Inhibit Action Configures the response to a Decel Inhibit condition, which occurs when the drive is not decelerating due to bus voltage regulation.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop"	RW	32-bit Integer

Drive Protection File

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Motor Overload	410	**Motor OL Actn** Motor Overload Action Configures the response to a motor overload condition.	Default: Options:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		411	**Mtr OL at Pwr Up** Motor Overload At Power Up Selects the mode to use for initial value of the motor overload counter, upon drive power-up.	Default: Options:	0 = “Assume Cold” 0 = “Assume Cold” 1 = “UseLastValue” 2 = “RealTimeClk”	RW	32-bit Integer
		412	**Mtr OL Alarm Lvl** Motor Overload Alarm Level Sets the level of P418 [Mtr OL Counts] for which a motor overload alarm will occur. Useful to provide warning prior to the drive taking action that is selected by P410 [Motor OL Actn]. This alarm level is different than , and independent of, the “Alarm” action selected by P410 [Motor OL Actn].	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RW	Real
		413	**Mtr OL Factor** Motor Overload Factor Sets the minimum level of current (in percent or P26 [Motor NP Amps]) that causes the motor overload counter to increment. Current levels below this value will decrement the overload counter. For example, a service factor of 1.15 implies continuous operation up to 115% of nameplate motor current.	Default: Min/Max:	1.00 0.20 / 2.00	RW	Real
		414	**Mtr OL Hertz** Motor Overload Hertz Selects the output frequency below which the motor operating current is derated (more sensitive) to account for the reduced self-cooling capability of typical motors, operating at slower speeds. For motors with extra low speed cooling capacity (e.g. 10:1 or blower cooled), reduce this setting to take full advantage of the motor being used.	Units: Default: Min/Max:	Hz 20.00 0.00 / 4096	RW	Real
		415	**Mtr OL Reset Lvl** Motor Overload Reset Level Sets the level that resets a motor overload condition, and allows a fault (if selected as the motor overload action) to be manually reset.	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RW	Real
		416	**MtrOL Reset Time** Motor Overload Reset Time Displays the time it will take to restart the drive after a motor overload fault has occurred and the value in P418 [Mtr OL Counts] is less than the P415 [Mtr OL Reset Lvl].	Units: Default: Min/Max:	Secs 0.00 –/+99999.00	RW	Real
		418	**Mtr OL Counts** Motor Overload Counts Accumulated percentage of motor overload. Continuously operating the motor over 100% of the motor overload setting will increase this value to 100% and cause the action selected in P410 [Motor OL Actn] to be taken.	Units: Default: Min/Max:	% 0.00 0.0 / 100.00	RO	Real
		419	**Mtr OL Trip Time** Motor Overload Trip time Displays the inverse of the motor overload time, equal to the number of seconds before P418 [Mtr OL Counts] reaches 100%, and the motor overload action is taken.	Units: Default: Min/Max:	Secs 99999 0 / 99999	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	420 ○	**Drive OL Mode** Drive Overload Mode Selects the action to take when the drive detects that it is being overloaded. Reducing current limit and / or PWM frequency may allow the drive to continue running without faulting. When using a sine wave output filter, set this parameter to 1 "Reduce CLmt" or 0 "Disabled."	Default: Options:	3 = "Both-PWM1rst" 0 = "Disabled" 1 = "Reduce CLmt" 2 = "Reduce PWM" 3 = "Both-PWM1rst"	RW	32-bit Integer
		421	**Current Lmt Sel** Current Limit Select Selects the source for the current limit value. When the load is large enough to cause current that equals or exceeds this value, the output frequency will automatically adjust (increase or decrease, as required) to attempt limiting the output current to this value.	Default: Options:	422 1 / 159999	RW	32-bit Integer
		422 423	**Current Limit 1** **Current Limit 2** Current Limit 1, 2 Constant values that can be used as sources for P421 [Current Lmt Sel].	Units: Default: Min/Max:	Amps Based on Drive Rating Based on Drive Rating	RW	Real
		424	**Active Cur Lmt** Active Current Limit Displays the current that is actively being used, including the automatic foldback effect from the drive overload function (see P420 [Drive OL Mode]).	Units: Default: Min/Max:	Amps 0.00 –/+P26 [Motor NP Amps] x 8	RO	Real
		425	**Current Rate Lmt** Current Rate Limit Sets the largest allowable rate of change for the torque producing current reference (Iq). This number is scaled in percent of rated motor current for every 250 microseconds.	Units: Default: Min/Max:	% 400.00 1.00 / 800.00	RW	Real
		426	**Regen Power Lmt** Regenerative Power Limit Sets the limit for power flow from the motor to the drive (regenerating).	Units: Default: Min/Max:	% –50.00 –800.00 / 0.00	RW	Real
		427	**Motor Power Lmt** Motor Power Limit Sets the limit for power flow from the drive to the motor (motoring).	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	428	**Current Limit Kd** Current Limit Derivative Gain Derivative gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Secs 760.0 0.0 / 1000000.0	RW	Real
		429	**Current Limit Ki** Current Limit Integral Gain Integral gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Default: Min/Max:	680.0 0.0 / 10000.0	RW	Real
		430	**Current Limit Kp** Current Limit Proportional Gain Proportional gain for the current limit function. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 290.0 0.0 / 1000000.0	RW	Real
		431	**Id Lo FreqCur Kp** Id Low Frequency Current Kp Current limit proportional gain active at very low operating frequencies. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	V/A 50.0 0.0 / 100000.0	RW	Real
		432	**Iq Lo FreqCur Kp** Iq Low Frequency Current Kp Current limit proportional gain active at very low operating frequencies. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	V/A 50.0 0.0 / 100000.0	RW	Real
		433	**Jerk Gain** Jerk Gain Allows you to adjust the amount of S Curve or "Jerk" applied to the Accel/Decel rate.	Default: Min/Max:	5200.0 0.0 / 1000000000.0	RW	Real

434 **Shear Pin Cfg**

Shear Pin Configure

Configures operation of the shear pin function.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Shear2NoAcc	Shear1NoAcc
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Shear1NoAcc" – 0 = Active during acceleration, 1 = Ignore during acceleration
Bit 1 "Shear2NoAcc" – 0 = Active during acceleration, 1 = Ignore during acceleration

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	435 438	**Shear Pin 1 Actn** **Shear Pin 2 Actn** Shear Pin 1 Action Shear Pin 2 Action Configures the action to take when the output current is greater than or equal to [Shear PinX Level] for the amount of time set in [Shear Pin X Time]. These two independent shear pin functions can be set up to achieve the equivalent of external overloads that have "stall" and "jam" indication.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		436 439	**Shear Pin1 Level** **Shear Pin2 Level** Shear Pin 1 Level Shear Pin 2 Level Sets the value of current which will activate the shear pin function (see [Shear Pin X Actn]).	Units: Default: Min/Max:	Amps P21 [Rated Amps] 0.0 / P21 [Rated Amps] x 1.5	RW	Real
		437 440	**Shear Pin 1 Time** **Shear Pin 2 Time** Shear Pin 1 Time Shear Pin 2 Time Sets the time associated with activation of the shear pin function (see [Shear Pin X Actn]).	Units: Default: Min/Max:	Secs 0.00 0.00 / 30.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Load Limits	441	**Load Loss Action** Load Loss Action Configures the action to take when the load is less than or equal to P442 [Load Loss Level] for the amount of time set in P443 [Load Loss Time].	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		442	**Load Loss Level** Load Loss Level Sets the percentage of motor nameplate torque (absolute value) associated with activation of the load loss function (see P441 [Load Loss Action]).	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real
		443	**Load Loss Time** Load Loss Time Sets the time associated with activation of the load loss function (see P441 [Load Loss Action]).	Units: Default: Min/Max:	Secs 0.00 0.00 / 300.00	RW	Real
		444	**OutPhaseLossActn** Output Phase Loss Action Selects action to take if output phase loss is detected.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		445	**Out PhaseLossLvl** Output Phase Loss Level Sets the threshold level which is used to determine an output phase loss condition.	Default: Min/Max:	200 0 / 1000	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Power Loss	449	**Power Loss Actn** Power Loss Action Configures the drive's response to a power loss timeout condition.	Default: Options:	1 = "Alarm" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop"	RW	32-bit Integer
		450 453	**Pwr Loss Mode A** **Pwr Loss Mode B** Power Loss Mode A, B Configures the drive's response to a loss of input power as sensed by a drop in bus voltage. The bus voltage drop is specified in [Pwr Loss X Level] and compared to the bus voltage memory P12 [DC Bus Memory].	Default: Options:	0 = "Coast" 0 = "Coast" 1 = "Decel" 2 = "Continue"	RW	32-bit Integer
		451 454	**Pwr Loss A Level** **Pwr Loss B Level** Power Loss Mode A, B Level Sets the bus voltage level at which ride-through begins and modulation ends. When bus voltage falls below this level, the drive prepares for an automatic restart. Enter a percentage of the bus voltage derived from the high voltage setting for the voltage class. For example: on a 400/480V drive, $0.221 \times 480\text{VAC} \times \sqrt{2} = 150\text{VDC}$	Units: Default: Min/Max:	VDC P20 [Rated Volts] x 0.3913 0.0 / P20 [Rated Volts] x 1.41	RW	Real
		452 455	**Pwr Loss A Time** **Pwr Loss B Time** Power Loss Mode A, B Time Sets the time that the drive will remain in power loss mode before a fault is detected.	Units: Default: Min/Max:	Secs 2.00 0.00 / 60.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Power Loss	456	**PwrLoss RT BusKp** Power Loss Ride Through Bus Kp Proportional gain that adjusts the response of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	A/V 585.0 0.0 / 1000000.0	RW	Real
		457	**PwrLoss RT BusKd** Power Loss Ride Through Bus Kd Derivative gain that adjusts the response of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Secs 50.0 0.0 / 1000000.0	RW	Real
		458	**PwrLoss RT ACRKp** Power Loss Ride Through Active Current Regulator Kp Proportional gain that adjusts the response of the active current regulator portion of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 524.0 0.0 / 1000000.0	RW	Real
		459	**PwrLoss RT ACRKi** Power Loss Ride Through Active Current Regulator Ki Integral gain that adjusts the response of the active current regulator portion of the bus regulator when power loss ride through is enabled and detected. This parameter is not functional when any of the FV motor control modes are selected.	Units: Default: Min/Max:	Hz/A 2045.0 0.0 / 50000.0	RW	Real
		460	**UnderVltg Action** Under Voltage Action Configures the drive's response to an under voltage event.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		461	**UnderVltg Level** Under Voltage Level AC line voltage level below which an undervoltage event occurs.	Units: Default: Min/Max:	VAC P20 [Rated Volts] x 0.625 0.00 / P20 [Rated Volts] x 1.41	RW	Real
		462	**InPhase LossActn** In Phase Loss Action Selects action to take if an Input Phase loss is detected.	Default: Options:	3 = "FltCoastStop" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		463	**InPhase Loss Lvl** In Phase Loss Level Sets the threshold level which is used to determine an Input phase loss condition.	Default: Min/Max:	325 10 / 32767	RW	32-bit Integer
		464	**DC Bus Mem Reset** Direct Current Bus Memory Reset Forces a manual update to P12 [DC Bus Memory], which is automatically initialized upon power-up and continually updated during normal operation. A manual reset is rarely required, but may occur when input voltage is abnormally high or low for an extended period of time followed by a fast return to a nominal value. A transition from 0 to 1 will cause an update, only if the drive is not regenerating and not firing the dynamic brake. The update will be ignored of not completed with 30 seconds of the command.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
PROTECTION	Ground Fault	466	**Ground Warn Actn** Ground Warning Action Selects ground current event configuration.	Default: 0 = "Ignore" Options: 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		467	**Ground Warn Lvl** Ground Warning Level Sets the level at which a ground warning alarm will occur.	Units: Amps Default: 3.0 Min/Max: 1.0 / 5.0	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
PROTECTION	Predictive Main	469	**PredMaint Status** Predictive Maintenance Status Status of predictive maintenance elapsed life relative to the programmed event level. A value of 1 = event level has been exceeded. Bit 15 is a master bit which = 1 when 1 or more individual bits = 1.			

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Mch Lube	Mch Bearing	Mtr Lube	Mtr Bearing	Internal Fan	Heatsink Fan
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	Name Description	Values	Read-Write	Data Type
		470	**PredMaintAmbTemp** Predictive Maintenance Ambient Temperature Used to predict cooling fan life, and possibly the life of other temperature dependent components in the future. Changes to this parameter affect the total life and remaining life, meaning that only one temperature can be programmed for the entire life of the drive.	Units: Degrees C Default: 50.00 Min/Max: 0.00 / 50.00	RW	Real
		471 ○	**PredMaint Rst En** Predictive Maintenance Reset Enable Enables [PredMaint Reset] to execute a reset of the selected elapsed life parameter. Any single reset in [PredMaint Reset] will force this parameter back to 0 (disabled), so that only one elapsed life parameter can be reset at a time. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Current Selection Options: 0 = "Disable" 1 = "Enable"	RW	32-bit Integer
		472 ○	**PredMaint Reset** Predictive Maintenance Reset Resets predictive maintenance elapsed life parameters, one at a time. Enabled by P471 [PredMaint Rst En]. This parameter is only reset when Set Defaults "All" (not recommended) is executed.	Default: Current Selection Options: 0 = "Ready" 1 = "HS Fan Life" 2 = "InFan Life" 3 = "MtrBrng Life" 4 = "MtrLube Hrs" 5 = "MchBrng Life" 6 = "MchLube Hrs"	RW	32-bit Integer
		488	**HSFan Derate** Heatsink Fan Derate Derating factor applied to P489 [HSFan TotalLife]. Used to adjust total fan life for poor air quality or vibration.	Default: 1.00 Min/Max: 0.01 / 1.00	RW	Real
		489	**HSFan TotalLife** Heatsink Fan Total Life Total number of hours expected over the life of the heatsink fans. Calculated as a function of fan manufacturer's life data (from frame rating table), P470 [PredMaintAmbTemp], and P488 [HSFan Derate].	Units: Hrs Default: 0.00 Min/Max: 0.00 / 21,474,836.47 (31 bits)	RO	32-bit Integer

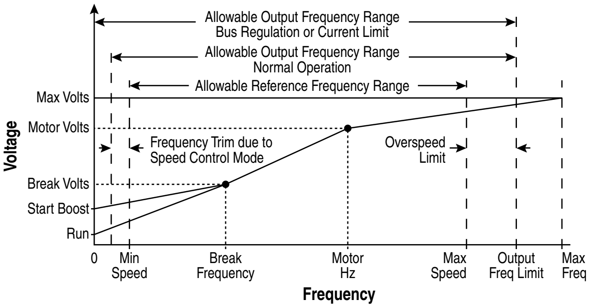
File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Predictive Main	490	**HSFan ElpsdLife** Heatsink Fan Elapsed Life Accumulated hours of heatsink fan run time.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47 (31 bits)	RO	32-bit Integer
		491	**HSFan RemainLife** Heatsink Fan Remaining Life Remaining number of hours until estimated end of life for heatsink fans, and is the difference between P489 [HSFan TotalLife] and P490 [HSFan ElpsdLife]. All negative values of this parameter need to be treated as excessive use (> 100%), and trigger the appropriate action chosen by P493 [HSFan EventActn].	Units: Default: Min/Max:	Hrs 0.00 –21,474,836.48 / 21,474,836.47	RO	32-bit Integer
		492	**HSFan EventLevel** Heatsink Fan Event Level Percent of total expected heatsink fan life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		493	**HSFan EventActn** Heatsink Fan Event Action Configures the response to a heatsink fan event, which occurs when P492 [HSFan EventLevel] is met or exceeded.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		494	**HSFan ResetLog** Heatsink Fan Reset Log Total number of resets performed on the P490 [HSFan ElpsdLife] parameter.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer
		495	**InFan Derate** Internal Fan Derate Derating factor applied to P496 [InFan TotalLife]. Used to adjust total fan life for poor air quality or vibration.	Default: Min/Max:	1.00 0.01 / 1.00	RW	Real
		496	**InFan TotalLife** Internal Fan Total Life Total number of hours expected over the life of the internal stirring fan(s). Calculated as a function of fan manufacturer's life data (from frame rating table) and P470 [PredMaintAmbTemp].	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47 (31 bits)	RO	32-bit Integer
		497	**InFan ElpsdLife** Internal Fan Elapsed Life Accumulated hours of internal stirring fan run time (Note that frames 6 and 7 run continuously. Frames 2 through 5 are controlled by firmware).	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47 (31 bits)	RO	32-bit Integer
		498	**InFan RemainLife** Internal Fan Remaining Life Remaining number of hours until estimated end of life for internal stirring fans, and is the difference between P496 [InFan TotalLife] and P497 [InFan ElpsdLife]. All negative values of this parameter need to be treated as excessive use (> 100%), and trigger the appropriate action chosen by P500 [InFan EventActn].	Units: Default: Min/Max:	Hrs 0.00 –21,474,836.48 / 21,474,836.47	RO	32-bit Integer
		499	**InFan EventLevel** Internal Fan Event Level Percent of total expected internal stirring fan life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		500	**InFan EventActn** Internal Fan Event Action Configures the response to an internal stirring fan event, which occurs when P499 [InFan EventLevel] is met or exceeded.	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		501	**InFan ResetLog** Internal Fan Reset Log Total number of resets performed on the P497 [InFan ElpsdLife] parameter.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer
		502 ○	**MtrBrngTotalLife** Motor Bearing Total Life Total number of hours expected over the life of the motor bearings.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47 (31 bits)	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Predictive Main	503	**MtrBrngElpsdLife** Motor Bearing Elapsed Life Accumulated hours of motor bearing run time. Hours are accumulated any time drive is running greater than zero speed.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47 (31 bits)	RO	32-bit Integer
		504	**MtrBrngRemainLif** Motor Bearing Remaining Life Remaining number of hours until estimated end of life for motor bearings, and is the difference between P502 [MtrBrngTotalLife] and P503 [MtrBrngElpsdLife].	Units: Default: Min/Max:	Hrs 0.00 –21,474,836.48 / 21,474,836.47	RO	32-bit Integer
		505	**MtrBrngEventLvl** Motor Bearing Event Level Percent of total expected motor bearing life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0 / 100.000	RW	Real
		506	**MtrBrngEventActn** Motor Bearing Event Action Configures the response to a motor bearing event, which occurs when P505 [MtrBrngEventLvl] is met or exceeded.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		507	**MtrBrng ResetLog** Motor Bearing Reset Log Total number of resets performed on the P503 [MtrBrngElpsdLife] parameter.	Default: Min/Max:	0 0 / 255 (unsigned 8 bits)	RO	32-bit Integer
		508	**MtrLubeElpsdHrs** Motor Lubricant Elapsed Hours Accumulated hours since the most recent lubrication of the motor bearings. Can be reset without restriction.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47	RO	32-bit Integer
		509	**MtrLubeEventLvl** Motor Lubricant Event Level Number of hours between scheduled lubrications of the motor bearings. Used for an early warning alarm or fault according to P510 [MtrLubeEventActn]. Event is disabled when set to 0.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 220000000.000	RW	Real
		510	**MtrLubeEventActn** Motor Lubricant Event Action Configures the response to a motor bearing lubrication event, which occurs when P509 [MtrLubeEventLvl] is met or exceeded.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		511 ○	**MchBrngTotalLife** Machine Bearing Total Life Total number of hours expected over the life of the machine bearings.	Units: Default: Min/Max:	Hrs Current Value 0 / 21,474,836.47	RW	32-bit Integer
		512	**MchBrngElpsdLife** Machine Bearing Elapsed Life Accumulated hours of machine bearing run time.	Units: Default: Min/Max:	Hours 0.00 0 / 21,474,836.47	RO	32-bit Integer
		513	**MchBrngRemainLif** Machine Bearing Remaining Life Remaining number of hours until estimated end of life for machine bearings, and is the difference between Machine Bearing Total Life and Machine Bearing Elapsed Life.	Units: Default: Min/Max:	Hrs 0.00 –21,474,836.48 / 21,474,836.47	RO	32-bit Integer
		514	**MchBrngEventLvl** Machine Bearing Event Level Percent of total expected machine bearing life for which an early warning alarm or fault can be programmed.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real

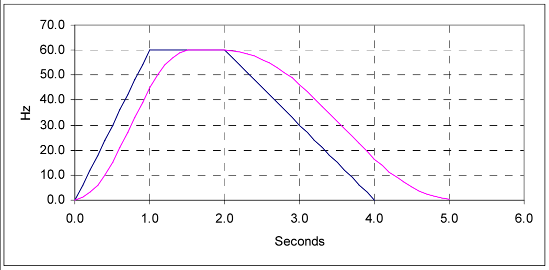
File	Group	No.	Name Description	Values		Read-Write	Data Type
PROTECTION	Predictive Main	515	**MtrBrngEventActn** Machine Bearing Event Action Configures the response to a machine bearing event, which occurs when P518 [MchBrngEventLvl] is met or exceeded.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer
		516	**MchBrngResetLog** Machine Bearing Reset Log Total number of resets performed on the P512 [MchBrngElpsdLife] parameter.	Default: Min/Max:	0 0 / 255	RO	32-bit Integer
		517	**MchLubeElpsdHrs** Machine Lubricant Elapsed Hours Accumulated machine hours since the most recent lubrication of the machine bearings. Can be reset without restriction.	Units: Default: Min/Max:	Hrs 0.00 0.00 / 21,474,836.47.00	RO	32-bit Integer
		518	**MchLube EventLvl** Machine Lubricant Event Level Number of hours between scheduled lubrications of the machine bearings. Used for an early warning alarm or fault according to P519 [MchLubeEventActn]. Event is disabled when set to 0.	Units: Default: Min/Max:	Hrs 0.000 0.000 / 220000000.000	RW	Real
		519	**MchLubeEventActn** Machine Lubricant Event Action Configures the response to a machine bearing lubrication event, which occurs when P518 [MchLube EventLvl] is met or exceeded.	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

Drive Speed Control File

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Limits	520 ○	**Max Fwd Speed** Maximum Forward Speed Sets the forward speed high limit. Refer to P524 [Overspeed Limit]. When using an analog input for the speed reference, this parameter is scaled to P51/61 [Anlg InX Hi] on the I/O module.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] P28 [Motor NP RPM] [Motor NP Hertz] x 0.05 / [Motor NP Hertz] x 16.00 [Motor NP RPM] x 0.05 / [Motor NP RPM] x 16.00	RW	Real
		521 ○	**Max Rev Speed** Maximum Reverse Speed Sets the reverse speed high limit. Refer to P524 [Overspeed Limit]. When using an analog input for the speed reference, this parameter is scaled to P51/61 [Anlg In X Hi] on the I/O module.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x –1.00 P28 [Motor NP RPM] x –1.00 [Motor NP Hertz] x –16.00 / 0.00 [Motor NP RPM] x –16.00 / 0.00	RW	Real
		522 ○	**Min Fwd Speed** Minimum Forward Speed Sets the low limit for speed reference after scaling is applied. Refer to P524 [Overspeed Limit]. When using an analog input for the speed reference, this parameter is scaled to P52/62 [Anlg InX Lo] on the I/O module.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / [Motor NP Hertz] x 16.00 0.00 / [Motor NP RPM] x 16.00	RW	Real
		523 ○	**Min Rev Speed** Minimum Reverse Speed Sets the low limit for speed reference after scaling is applied. Refer to P524 [Overspeed Limit]. When using an analog input for the speed reference, this parameter is scaled to P52/62 [Anlg InX Lo] on the I/O module.	Units: Default: Min/Max:	Hz RPM 0.00 [Motor NP Hertz] x –16.00 / 0.00 [Motor NP RPM] x –16.00 / 0.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Limits	524 ○	**Overspeed Limit** Overspeed Limit Sets the incremental amount of the output frequency (above maximum speed: either P520 [Max Fwd Speed] or P521 [Max Rev Speed]) allowable for functions such as slip compensation. Maximum speed + P524 [Overspeed Limit] must be ≤P37 [Maximum Freq] 	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] / 6 P28 [Motor NP RPM] / 6 0.00 / (P27 [Motor NP Hertz] / 3) 0.00 / (P28 [Motor NP RPM] / 6)	RW	Real
		525 ○	**Zero Speed Limit** Zero Speed Limit Establishes a band around zero speed that is used to determine when the drive considers the motor to be at zero speed.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.001 P28 [Motor NP RPM] x 0.001 0.00 / P27 [Motor NP Hertz] x 0.5 0.00 / P28 [Motor NP RPM] x 0.5	RW	Real
		526 527 528	**Skip Speed 1** **Skip Speed 2** **Skip Speed 3** Skip Speed 1, 2, 3 Sets a frequency at which the drive will not operate. [Skip Speed X] and P529 [Skip Speed Band] must not equal 0.	Units: Default: Min/Max:	Hz 0.00 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		529	**Skip Speed Band** Skip Speed Band Sets the bandwidth around a skip speed. [Skip Speed Band] is split, applying 1/2 above and 1/2 below the skip speed. The same bandwidth applies to all skip speeds.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P27 [Motor NP Hertz] x 0.5 0.00 / P28 [Motor NP RPM] x 0.5	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Ramp Rates	535 536	**Accel Time 1** **Accel Time 2** Acceleration Time 1, 2 Sets the acceleration rate for all speed changes. Defined as the time to accelerate from 0 to P27 [Motor NP Hertz] or P28 [Motor NP RPM], according to the setting in P300 [Speed Units]. Selection between Acceleration Time 1 and Acceleration Time 2 is controlled by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network).	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		537 538	**Decel Time 1** **Decel Time 2** Deceleration Time 1, 2 Sets the deceleration rate for all speed changes. Defined as the time to decelerate from P27 [Motor NP Hertz] or P28 [Motor NP RPM] to 0, according to the setting in P300 [Speed Units]. Selection between Deceleration Time 1 and Deceleration Time 2 is controlled by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network). Some stop modes (see P370 and P371) will cause the programmed decel time to be ignored during a stop command.	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Ramp Rates	539	**Jog Acc Dec Time** Jog Acceleration Deceleration Time Acceleration and deceleration rates while commanding jog (uses a jog speed reference).	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		540	**S Curve Accel** S Curve Acceleration Sets the percentage of accel time applied to the ramp to soften (reduce jerk) the acceleration. Time is added, 1/2 at the beginning and 1/2 at the end of the ramp.  	Units: Default: Min/Max:	% 0.000 0.000 / 100.000	RW	Real
		541	**S Curve Decel** S Curve Deceleration Sets the percentage of decel time applied to the ramp to soften (reduce jerk) the deceleration. Time is added, 1/2 at the beginning and 1/2 at the end of the ramp.	Units: Default: Min/Max:	% 0.000 0.000 / 100.000	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Reference	545 550 ○	**Spd Ref A Sel** **Spd Ref B Sel** Speed Reference A Select Speed Reference B Select Selects the source for speed references while in “Auto” (typical) mode. When the drive is in “Manual” mode, these sources are overridden (see P327). [Spd Ref A Sel] is the drive's main speed reference. [Spd Ref B Sel] is an alternate speed reference. Selecting between Reference A and Reference B is controlled by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network).	Default: Min/Max:	871 551 0 / 159999	RW	32-bit Integer
		546 551	**Spd Ref A Stpt** **Spd Ref B Stpt** Speed Reference A Setpoint Speed Reference B Setpoint A constant speed value (similar to a preset speed) to be used a possible source for P545 and P550.	Units: Default: Min/Max:	Hz RPM 0.0000 Hz –/+P27 [Motor NP Hertz] x 8 –/+P27 [Motor NP RPM] x 8	RW	Real
		547 552	**Spd Ref A AnlgHi** **Spd Ref B AnlgHi** Speed Reference A Analog High Speed Reference B Analog High Used only when an analog input is selected as a speed reference according to P546 or P551. Sets the speed that corresponds to [Anlg InX Hi] on an I/O module. This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz P520 [Max Fwd Speed] P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		548 553	**Spd Ref A AnlgLo** **Spd Ref B AnlgLo** Speed Reference A Analog Low Speed Reference B Analog Low Used only when an analog input is selected as a speed reference according to P546 or P551. Sets the speed that corresponds to [Anlg InX Lo] on an I/O module. This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz 0.00 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>SPEED CONTROL</td><td>Speed Reference</td><td>549
554</td><td>Spd Ref A Mult
Spd Ref B Mult
Speed Reference A Multiplier
Speed Reference B Multiplier
Applies multipliers to speed references A and B respectively.</td><td>Default:
Min/Max:</td><td>1.00
–/+22000.00</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>555</td><td>Spd Ref Scale
Speed Reference Scale
Applies only in Flux Vector (FV) modes according to P35 [Motor Ctrl Mode]. Applies a multiplier to P595 [Filtered Spd Ref] after it has been offset by the PID function (P1093 [PID Output Meter]). The scaled result, once limited, will become the primary component of the value of P597 [Final Speed Ref].</td><td>Default:
Min/Max:</td><td>1.000
0.000 / 1000.000</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>556
557</td><td>Jog Speed 1
Jog Speed 2
Jog Speed 1, 2
The speed used for jogging when the Jog 1 or Jog 2 function (respectively) is activated by a digital input function or by Logic Command (sent over a communication network).</td><td>Units:
Default:

Min/Max:</td><td>Hz
P27 [Motor NP Hertz] / 6
P27 [Motor NP RPM] / 6
–/+P27 [Motor NP Hertz] x 8
–/+P27 [Motor NP RPM] x 8</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>558</td><td>MOP Reference
Motor Operated Potentiometer Reference
Value of the MOP (Motor Operated Potentiometer) Reference to be used as a possible source for P545 and P550. The MOP Reference is activated (incremented or decremented) by digital input functions.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+800.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>559</td><td colspan="5">Save MOP Ref
Save Motor Operated Potentiometer Reference
Enables/disables the feature that saves the present MOP Ref value at power down or stop.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>At Stop</td><td>At Pwr Down</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = True</td></tr>
</table></td></tr>
<tr><td></td><td></td><td>560</td><td>MOP Rate
Motor Operated Potentiometer Rate
Sets the rate of change of the MOP reference when an increasing or decreasing MOP signal is present.</td><td>Units:
Default:
Min/Max:</td><td>%/Secs
1.0000
0.0100 / 100.0000</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>561</td><td>MOP High Limit
Motor Operated Potentiometer High Limit
Sets the upper limit for the MOP Reference.</td><td>Units:
Default:
Min/Max:</td><td>%
100.000
0.000 / 800.000</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>562</td><td>MOP Low Limit
Motor Operated Potentiometer low Limit
Sets the lower limit for the MOP Reference.</td><td>Units:
Default:
Min/Max:</td><td>%
–100.000
–800.000 / 0.000</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>563
○</td><td>DI ManRef Sel
Digital Input Manual Reference Select
Selects a speed reference to be used when a digital input activates Manual control, according to the operation described by P172 [DI Manual Ctrl].</td><td>Default:
Min/Max:</td><td>872
1 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>564</td><td>DI ManRef AnlgHi
Digital Input Manual Reference Analog High
Hi scale for the manual speed reference that is activated by a digital input when P563 [DI ManRef Sel] is connected to an Analog Input.</td><td>Units:

Default:
Min/Max:</td><td>Hz
RPM
P520 [Max Fwd Speed]
P521 [Max Rev Speed] / P520 [Max Fwd Speed]</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Reference	**565**	**DI ManRef AnlgLo** Digital Input Manual Reference Analog Low Used only when P563 [DI ManRef Sel] has selected an analog input as the source of the speed reference. Specifies the speed reference value that will be associated with the Analog In Lo parameter for the I/O Module. Example, P563 [DI ManRef Sel] has selected P50 [Anlg In0 Value] on an I/O Module. The P51 [Anlg In0 Hi] parameter on the I/O Module is set to -10 volts. P564 [DI ManRef AnlgHi] will specify the speed reference value that will correspond with a -10 volt analog input signal.	Units: Default: Min/Max:	Hz RPM 0.000 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		571 **572** **573** **574** **575** **576** **577**	**Preset Speed 1** **Preset Speed 2** **Preset Speed 3** **Preset Speed 4** **Preset Speed 5** **Preset Speed 6** **Preset Speed 7** Preset Speed 1, 2, 3, 4, 5, 6, 7 Discrete speed references that are activated by a digital input function (see Digin Functions) or by Logic Command (sent over a communication network).	Units: Default: Min/Max:	Hz RPM 1/12 x P27 or P28 (Preset Speed 1) 1/6 x P27 or P28 (Preset Speed 2) 1/3 x P27 or P28 (Preset Speed 3) 1/2 x P27 or P28 (Preset Speed 4) 2/3 x P27 or P28 (Preset Speed 5) 5/6 x P27 or P28 (Preset Speed 6) P27 or P28 (Preset Speed 7) P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		588	**Spd Ref Filter** Speed Reference Filter Selects the amount of filtering applied to the ramped speed reference (P594), and is only active in FV motor control modes (P35). When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P589 [Spd Ref Fltr BW] and P590 [Spd Ref FltrGain]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		589	**Spd Ref Fltr BW** Speed Reference Filter Bandwidth Sets the bandwidth of the speed reference filter when P588 [Spd Ref Filter] is set to one of the "Custom" settings (3, 4, or 5) A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 0.00 0.00 / 500.00	RW	Real
		590	**Spd Ref FltrGain** Speed Reference Filter Gain Sets the gain (kn) of the speed reference filter when P588 [Spd Ref Filter] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter. This is the default setting. This parameter has no units.	Default: Min/Max:	1.000 –/+5.000	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
SPEED CONTROL	Speed Reference	591	**Spd Ref Sel Sts** Speed Reference Select Status			

Options	Skip Band	End Lmt Sw	Decel Lmt Sw	Unipolar Ref	Rev Disable	Bipolar Ref	Sel Override	Manual	Preset Auto	Trim Ref	Trim Pct Ref	MicroPsnMult	Ref B Mult	Ref A Mult	Ref B Auto	Ref A Auto
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Displays the operating status of the speed referencing section of the drive. Individual bits are provided to represent the following conditions:

Bit 0 "Ref A Auto" – When set, the Reference A Auto path is active.

Control Logic has selected the Speed Reference source A. The exact origin of this speed reference is determined by the parameter specified in P545 [Spd Ref A Sel]. This parameter should also be reported in P930 [Speed Ref Source].

Bit 1 "Ref B Auto" – When set, the Reference B Auto path is active.

Control Logic has selected the Speed Reference source B. The exact origin of this speed reference is determined by the value specified in P550 [Spd Ref B Sel]. This parameter should also be reported in P930 [Speed Ref Source].

Bit 2 "Ref A Mult" – When set, speed reference A is being modified by P549 [Spd Ref A Mult]. When clear, either the multiplier is 1 or is not affecting the speed reference because the Ref A Auto path is inactive.

Bit 3 "Ref B Mult" – When set, the speed reference B is being modified by P554 [Spd Ref B Mult]. When clear, either the multiplier is 1 or is not affecting the speed reference because the "Ref B Auto" path is inactive.

Bit 4 "MicroPsnMult" – When set, P592 [Selected Spd Ref] is being multiplied by P1112 [MicroPsnScalePct].

Bit 5 "Trim Pct Ref" – When set, the speed reference is being multiplied by one plus the value of the parameter indicated in P616 [SpdTrimPrcRefSrc].

Bit 6 "Trim Ref" – When set, the speed reference is being offset by the value of the parameter indicated in P617 [Spd Trim Source].

Bit 7 "Preset Auto" – When set, Control Logic has selected a preset auto speed reference. The P930 [Speed Ref Source] parameter will indicate the source of this reference.

Bit 8 "Manual" -

Bit 9 "Sel Override" – The Selected Speed Reference parameter has been overridden by another reference. Refer to P930 [Speed Ref Source] for the cause of the override.

Bit 10 "Bipolar Ref" – When set, P308 [Direction Mode] = 1 "Bipolar." When in bipolar mode, the sign of the speed reference value will determine the direction of motor rotation.

Bit 11 "Rev Disable" – When set, P308 [Direction Mode] = 2 "Rev Disable." When in reverse disable mode, negative speed reference values are rejected and a zero speed value is used in their place.

Bit 12 "Unipolar Ref" – When set, P308 [Direction Mode] = 0 "Unipolar." When in unipolar mode, the sign of the speed reference value (and therefore direction of motor rotation) is determined by P879 [Drive Logic Rslt] Bit 4 "Forward" and Bit 5 "Reverse."

Bit 13 "Decel Lmt Sw" – When set, the Torque Proving function's control logic has detected a decel limit switch active and has selected P571 [Preset Speed 1] for the speed reference value.

Bit 14 "End Lim Sw" – When set, the Torque Proving function's control logic has detected an end limit switch active and has selected zero speed for the speed reference value.

Bit 15 "Skip Band" – When set, the Skip Band function has modified P2 [Commanded SpdRef]. When clear, the Skip Band function has not changed P2 [Commanded SpdRef].

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Reference	592	**Selected Spd Ref** Selected Speed Reference Displays the value of the active speed reference.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		593	**Limited Spd Ref** Limited Speed Reference Displays the value of the speed reference after the following limits have been applied: P520 [Max Fwd Speed], P521 [Max Rev Speed], P522 [Min Fwd Speed] and P523 [Min Rev Speed].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Reference	594	**Ramped Spd Ref** Ramped Speed Reference Displays the output of the speed reference ramp and S-curve functions, but prior to any corrections added by slip comp, PI, etc.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		595	**Filtered Spd Ref** Filtered Speed Reference Displays the output of the filter that is applied by P588.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real
		596	**Speed Rate Ref** Speed Rate Reference This parameter is shared by both the Inertia Compensation and Speed Compensation functions. These functions are only available in the Flux Vector selections for P35 [Motor Ctrl Mode]. A value shared by both the Inertia Compensation and Speed Compensation functions (active only in FV motor control modes), typically supplied by an external controller that is also providing a rate limited speed reference. The Speed Rate Reference corresponds to the derivative with respect to time of the speed reference signal. Units of time are in seconds. For example, if the controller provides a 10 second reference ramp, the controller would also supply a Speed Rate Ref value of 1 pu / 10 sec = 0.1 sec-1 while the reference is accelerating. When the reference is constant, Speed Rate Ref should be zero.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RW	Real
		597	**Final Speed Ref** Final Speed Reference Displays the speed reference value, after all reference modifications (including ramps), that is used as a final reference by the speed regulator. In Open Loop, Sensorless Vector mode, then this value represents the anticipated motor operating speed, and may differ slightly from the output frequency value due to slip compensation.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Trim	600 604 ○	**Trim Ref A Sel** **Trim Ref B Sel** Trim Reference A Select Trim Reference B Select Selects a trim source (in Hz or RPM) for Speed Reference A or Speed Reference B, respectively. For trim in % instead of Hz or RPM, use P608 and P612 (TrimPct RefX Sel).	Default: Min/Max:	P601 [Trim Ref A Sel] P605 [Trim Ref B Stpt] 0 / 159999	RW	32-bit Integer
		601 605	**Trim Ref A Stpt** **Trim Ref B Stpt** Trim Reference A Setpoint Trim Reference B Setpoint A digital value to be used as a possible trim source for P600 or P604, respectively	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] –/+P28 [Motor NP RPM]	RW	Real
		602 606	**Trim RefA AnlgHi** **Trim RefB AnlgHi** Trim Reference A Analog High Trim Reference B Analog High Used only when an analog input is selected as a trim source according to P600 or P604. Sets the amount of trim that corresponds to [Anlg InX Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz RPM P520 [Max Fwd Speed] P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Trim	**603** **607**	**Trim RefA AnlgLo** **Trim RefB AnlgLo** Trim Reference A Analog Low Trim Reference B Analog Low Used only when an analog input is selected as a trim source according to P600 or P604. Sets the amount of trim that corresponds to [Anlg InX Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	Hz RPM 0.00 P521 [Max Rev Speed] / P520 [Max Fwd Speed]	RW	Real
		608 **612** ○	**TrmPct RefA Sel** **TrmPct RefB Sel** Trim Percent Reference A Select Trim Percent Reference B Select Selects a trim source (in %) for Speed Reference A or Speed Reference B, respectively. For trim in Hz or RPM instead of %, use P600 and P604 (Trim Ref X Sel).	Default: Min/Max:	P609 [TrmPct RefA Stpt] P613 [TrmPct RefB Stpt] 0 / 159999	RW	32-bit Integer
		609 **613**	**TrmPct RefA Stpt** **TrmPct RefB Stpt** Trim Percent Reference A Setpoint Trim Percent Reference B Setpoint A digital value to be used a possible trim source for P608 or P612, respectively.	Units: Default: Min/Max:	% 0.000 –/+800.000	RW	Real
		610 **614**	**TrmPct RefA AnHi** **TrmPct RefB AnHi** Trim Percent Reference A Analog High Trim Percent Reference B Analog High Used only when an analog input is selected as a percent trim source according to P608 or P612. Sets the amount of trim that corresponds to [Anlg InX Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 100.00 –/+800.00	RW	Real
		611 **615**	**TrmPct RefA AnLo** **TrmPct RefB AnLo** Trim Percent Reference A Analog Low Trim Percent Reference B Analog Low Used only when an analog input is selected as a percent trim source according to P608 or P612. Sets the amount of trim that corresponds to [Anlg InX Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		616	**SpdTrimPrcRefSrc** Speed Trim Percent Reference Source Displays the source of Motor Speed Reference Trim Percent, in the format SSPPPP, where SS indicates the source port number (if non-zero) and PPPP indicates the source parameter number. A value of zero indicates that a source has not been assigned.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer
		617	**Spd Trim Source** Speed Trim Source Displays the source of Motor Speed Reference Trim, in the format SSPPPP, where SS indicates the source port number (if non-zero) and PPPP indicates the source parameter number. A value of zero indicates that a source has not been assigned.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Slip/Droop Comp	620	**Droop RPM at FLA** Droop Revolutions Per Minute at Full Load Amps Selects amount of droop that the speed reference is reduced when at full load torque. Zero disables the droop function.	Units: Default: Min/Max:	RPM 0.00 0.00/900.00	RW	Real
		621	**Slip RPM at FLA** Slip Revolutions Per Minute at Full Load Amps For open loop modes, this parameter sets the amount of slip (in rpm) that the motor is expected to experience at full load. A setting of zero disables slip compensation (not used in closed loop modes with encoder feedback). If the value of P70 [Autotune] is set to "Calculate", this value (in addition to others) is automatically calculated, and cannot be manually adjusted.	Units: Default: Min/Max:	RPM (P27 [Motor NP Hz] x 120) / (P31 [Motor Poles] – P28 [Motor NP RPM]) 0.00 / 1200.00	RW	Real
		622	**Slip Comp BW** Slip Compensation Bandwidth Adjusts the bandwidth of a low pass filter used for slip compensation. The response time of slip compensation will vary inversely with the setting of this filter.	Units: Default: Min/Max:	R/S 10.00 1.00 / 50.00	RW	Real
		623	**VHzSV SpdTrimReg** Volts per Hertz Sensorless Vector Speed Trim Regulator Displays the amount of trim that the slip compensation function dynamically adds (based on load) to final speed reference for improved open loop speed control.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
SPEED CONTROL	Speed Regulator	635	**Spd Options Ctrl** Speed Options Control	0 = False 1 = True		

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Delayed Ref	Auto Tach SW	Jog No Integ	SpdErrFilter	SpdRegIntHld	SpdRegIntRes	StpNoSCrvAcc	Ramp Disable	Ramp Hold
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Configures options related to Speed Control as follows:

Bit 0 “Ramp Hold” – The output of the speed reference ramp will stop changing and hold its output constant while this bit is set. When this bit is clear, the ramp output will be allowed to change. If this bit becomes set while P594 [Ramped Spd Ref] is in the S Curve region, the S Curve will be allowed to complete before the output is held.

Bit 1 “Ramp Disable” – When set, the speed reference ramp will become disabled. P594 [Ramped Spd Ref] will track the ramp input.

Bit 2 “StpNoSCrvAcc” – There are some conditions where the drive may continue to accelerate briefly following a request to stop. This will occur if the drive was in the process of accelerating on an S Curve when the stop request occurred. This bit enables an option to discontinue acceleration immediately when the stop request occurs. The S Curve profile that was in process will then change to a linear decel ramp.

Bit 3 “SpdRegIntRes” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will be forced to zero. The same result can be achieved by setting the regulator’s integral gain to zero.

Bit 4 “SpdRegIntHld” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will stop changing and be held constant. Other conditions in the drive such as a limit condition in P945 [At Limit Status] may have the same result.

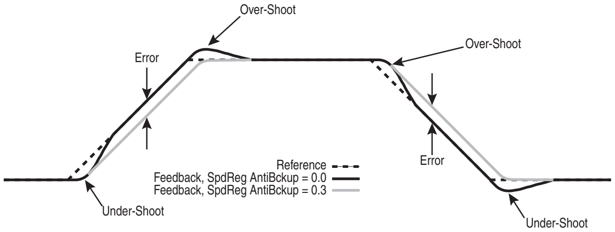
Bit 5 “SpdErrFilter” – When set, the speed error filter in the drive’s Vector mode speed regulator will be configured for a single stage low pass filter. When clear, the error filter will be configured for a two stage low pass filter. The two stage configuration is the normal or default setting for the error filter.

Bit 6 “Jog No Integ” – When set, the P654 [Spd Reg Int Out] which is the output of the Vector mode speed regulator’s integral term will be forced to zero while jogging.

Bit 7 “Auto Tach SW” – This bit is used to enable the Automatic Tach Switchover feature. This feature is used to switch motor velocity feedback sources from the Primary to Alternate source in the event that the primary source fails. This switchover can take place while the drive is running. The P936 [Drive Status 2] Bit 5 “FdbkLoss SwO” will indicate clear when the Primary source is active and set when the alternate source is active. Clearing the (Auto Tach SW) bit when the alternate source is active will restore control to the Primary source, provided that the primary source is functioning. If the (Auto Tach SW) bit remains off, then the Automatic Tach Switchover feature will be disabled.

Bit 8 “Delayed Ref” – When this bit is set, an additional processor scan delay period is inserted between the P594 [Ramped Spd Ref] and the input to the Speed Reference filter. This delay is intended to be used in applications where multiple, coordinated drives are used. A drive that supplies the speed reference for use by other drives to follow would typically use this delay. The delay would allow time for the speed reference to reach the other units before it is acted upon by the sourcing unit, thereby synchronizing the speed reference among all units. When this bit is clear, no speed reference delay is inserted.

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	**636**	**Speed Reg BW** Speed Regulator Bandwidth Sets the speed loop bandwidth and determines the dynamic behavior of the speed loop. As bandwidth increases, the speed loop becomes more responsive and can track a faster changing speed reference. A change to this parameter will cause an automatic update of P645 [Speed Reg Kp], P647 [Speed Reg Ki] and P644 [Spd Err Filt BW]. The configuration settings for Inertia Adaption (product dependent) will also be automatically selected when this feature is enabled. To disable the automatic gain and filter update, set this parameter to a value of zero. The maximum allowable value of this parameter will be limited by the ratio of P646 [Spd Reg Max Kp] to P76 [Total Inertia], and the type of speed feedback source in use (encoder vs. open loop). For operation following an automatic tach switchover, the bandwidth specified in P648 [Alt Speed Reg BW] will be used.	Units: Default: Min/Max:	R/S Calculated 0.00 / Calculated	RW	Real
		637	**SReg FB Fltr Sel** Speed Regulator Feedback Filter Select Selects the amount of filtering applied to the feedback channel of the speed regulator, and is only active in FV motor control modes (P35). When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P638 [Spd Ref Fltr BW] and P639 [Spd Ref FltrGain]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		638	**SReg FB FltrGain** Speed Regulator Feedback Filter Gain Sets the gain of the speed regulator feedback filter when P637 [SReg FB Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter.	Default: Min/Max:	0.700 –5.000 / 20.000	RW	Real
		639	**SReg FB Fltr BW** Speed Regulator Feedback Filter Bandwidth Sets the bandwidth of the speed regulator feedback filter when P637 [SReg FB Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 35.00 0.00 / 3760.00	RW	Real
		640	**Filtered SpdFdbk** Filtered Speed Feedback Displays the output of the filter that is applied by P637.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		641	**Speed Error** Speed Error Displays the error (difference) between the P597 [Final Speed Ref] (+) and the P640 [Filtered SpdFdbk] (–). This error signal is the primary input for the Vector control mode speed regulator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
SPEED CONTROL	Speed Regulator	642	755 **Servo Lock Gain** Servo Lock Gain Sets the gain of an additional integrator in the Vector control mode speed regulator. The effect of Servo Lock is to increase stiffness of the speed response to a load disturbance. It behaves like a position regulator with velocity feed forward, but without the pulse accuracy of a true position regulator. Gain should normally be set to less than 1/3 speed regulator bandwidth, or for the desired response. A value of zero disables this feature.	Units: /Sec Default: 0.000 Min/Max: 0.000 / 300.000	RW	Real
		643	**SpdReg AntiBckup** Speed Regulator Anti-backup Allows control of over-shoot/under-shoot in the step response of the Vector control mode speed regulator. Over-shoot/under-shoot can be effectively eliminated with a setting of 0.3, which will remove backup of the motor shaft when zero speed is reached. This parameter has no affect on the drive's response to load changes. A value of zero disables this feature. 	Default: 0.0000 Min/Max: 0.0000 / 0.5000	RW	Real
		644	**Spd Err Fltr BW** Speed Error Filter Bandwidth Sets the bandwidth of a 2nd order Butterworth low pass filter that is located in the proportional gain section of the speed regulator (in FV motor control modes). It filters a signal that is derived from P641 [Speed Error]. The purpose of this filter is to reduce quantization noise. When P636 [Speed Reg BW] is set to a non-zero value, this filter will be automatically set. If P636 [Speed Reg BW] is set to zero, this filter setting must be manually adjusted. It is normally set to at least 3 to 5 times the value of P636 [Speed Reg BW]. A value of zero disables the filter. The rules that are used to set the error filter bandwidth in automatic mode are as follows: 1. If the primary motor velocity feedback is Open Loop, then the error filter is set to 5 times P636 [Speed Reg BW]. 2. If a primary motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 1 "InertiaAdapt," then the error filter is set to 3 times P636 [Speed Reg BW]. 3. If a primary motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 0 "Disabled" or 2 "LoadObserver" then the error filter is using a table look up value determined by the setting of P126 [Pri Vel FdbkFltr]. **Important:** When Auto Tach Switchover is enabled through P635 [Spd Options Cntl], this filter adjustment applies only to the primary feedback source. The filter setting P651 [AltSpdErr FltrBW] is used for the alternate feedback source.	Units: R/S Default: 50.00 Min/Max: 0.00 / 8000.00	RW	Real
		645	**Speed Reg Kp** Speed Regulator Kp Sets the proportional gain of the speed regulator (in FV motor control modes). This value is automatically calculated based on the bandwidth setting in P636 [Speed Reg BW] and P76 [Total Inertia]. The proportional gain may be manually adjusted by setting P636 [Speed Reg BW] to a value of zero. Proportional gain has effective scaling of (per unit torque) / (per unit speed). The maximum allowable value of this parameter is limited by P76 [Total Inertia] and P646 [Spd Reg Max Kp].	Default: 20.00 Min/Max: 0.00 / P646 [Speed Reg Max Kp]	RW	Real
		646	**Speed Reg Max Kp** Speed Regulator Maximum Kp Limits the maximum value of P645 [Speed Reg Kp] and P649 [Alt Speed Reg Kp]. When gains are automatically calculated, this parameter is necessary to limit the amplification of noise with increased inertia.	Default: 3000.00 Min/Max: 0.00 / 3000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	**647**	**Speed Reg Ki** Speed Regulator Ki Sets the integral gain of the speed regulator (in FV motor control modes). This value is automatically calculated based on the bandwidth setting in P636 [Speed Reg BW], P645 [Speed Reg Kp] and P653 [Spd Loop Damping]. Integral gain may be manually adjusted by setting P636 [Speed Reg BW] to a value of zero. Integral gain has effective scaling of (per unit torque/sec) / (per unit speed).	Units: Default: Min/Max:	/Sec 50.00 0.00 / 100000.00	RW	Real
		648	**Alt Speed Reg BW** Alternate Speed Regulator Bandwidth Provides an independent setting for the same function as P636 [Speed Reg BW], but is active only when Automatic Feedback Loss Switchover occurs (indicated by bit 5 of P936 [Drive Status 2]). A change to this parameter will cause an automatic update of P649 [Alt Speed Reg Kp], P650 [Alt Speed Reg Ki] and P651 [Alt Spd Err Filt BW]. See P636 for additional information regarding speed regulator bandwidth. Also see P635 [Spd Options Ctrl] to enable the Auto Tach Switchover feature.	Units: Default: Min/Max:	R/S 10.00 0.00 / Calculated	RW	Real
		649	**Alt Speed Reg Kp** Alternate Speed Regulator Kp Provides an independent setting for the same function as P645 [Speed Reg Kp], but is active only when Automatic Feedback Loss Switchover occurs (indicated by bit 5 of P936 [Drive Status 2]). This value is automatically calculated based on the bandwidth setting in P648 [Alt Speed Reg BW] and P76 [Total Inertia]. The proportional gain may be manually adjusted by setting P648 [Alt Speed Reg BW] to a value of zero.	Default: Min/Max:	20.00 0.00 / Calculated	RW	Real
		650	**Alt Speed Reg Ki** Alternate Speed Regulator Ki Provides an independent setting for the same function as P647 [Speed Reg Ki], but is active only when Automatic Feedback Loss Switchover occurs (indicated by bit 5 of P936 [Drive Status 2]). This value is automatically calculated based on the bandwidth setting in P648 [Alt Speed Reg BW], P649 [Alt Speed Reg Kp] and P653 [Spd Loop Damping]. Integral gain may be manually adjusted by setting P648 [Alt Speed Reg BW] to a value of zero.	Default: Min/Max:	50.00 0.00 / 100000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	651	**AltSpdErr FltrBW** Alternate Speed Error Filter Bandwidth Provides an independent setting for the same function as P644 [Spd Err Filt BW], but is active only when Automatic Feedback Loss Switchover occurs (indicated by bit 5 of P936 [Drive Status 2]) When P648 [Alt Speed Reg BW] is set to a non-zero value, this filter setting will be automatically selected. If P648 [Alt Speed Reg BW] is set to zero, then this filter setting must be manually adjusted. An error filter value of 0 will disable the filter. This filter is normally set to at least 3 to 5 times the value of P648 [Alt Speed Reg BW]. Units for the error filter are rad/sec (R/S). The rules that are used to set the error filter bandwidth in automatic mode are as follows: 1. If the alternate motor velocity feedback is Open Loop, then the error filter is set to 5 times P648 [Alt Speed Reg BW]. 2. If an alternate motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] = 1 “InertiaAdapt,” then the error filter is set to 3 times P648 [Alt Speed Reg BW]. 3. If an alternate motor velocity feedback device has been selected and P704 [InAdp LdObs Mode] 0 “Disabled” or 2 “LoadObserver” then the error filter is using a table look up value determined by the setting of P129 [Alt Vel FdbkFltr].	Units: Default: Min/Max:	R/S 50.00 0.00 / 8000.00	RW	Real
		652	**SReg Trq Preset** Speed Regulator Torque Preset Sets the initial value of P654 [Spd Reg Int Out]. This is the output of the vector speed regulator’s integral channel, and. will be present in P654 [Spd Reg Int Out] when the regulator is first enabled (for example, upon rise of start or jog). The normal, default setting for this parameter is zero. In some applications, it may be necessary to preset the speed regulator integrator to a non-zero setting. This will result in the regulator’s output reaching its final steady state value sooner than it would if the integrator started from zero.	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		653	**Spd Loop Damping** Speed Loop Damping Sets the damping factor of the vector speed loop’s characteristic equation. Damping will affect the integral gain when a non-zero bandwidth has been entered. A damping factor of 1.0 is considered critical damping. Lowering the damping will produce faster load disturbance rejection, but may cause a more oscillatory response. When the speed regulator bandwidth is zero, gains are set manually and damping factor has no effect.	Default: Min/Max:	1.0000 0.5000 / 65.0000	RW	Real
		654	**Spd Reg Int Out** Speed Regulator Integrator Output Displays the current value of the vector speed regulator’s integral channel.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		655	**Spd Reg Pos Lmt** Speed Regulator Positive Limit Adjusts the upper limit of the vector speed regulator’s output.	Units: Default: Min/Max:	% 300.00 0.00 / 600.00	RW	Real
		656	**Spd Reg Neg Lmt** Speed Regulator Negative Limit Adjusts the lower limit of the vector speed regulator’s output.	Units: Default: Min/Max:	% –300.00 –600.00 / 0.00	RW	Real

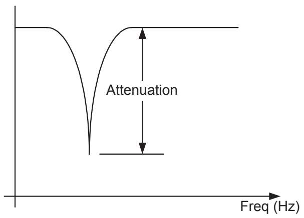
File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Regulator	657	**SReg OutFltr Sel** Speed Regulator Output Filter Select Selects the amount of filtering applied to the vector speed regulator's output. When set to any of the custom settings (3, 4, or 5) the filter is configured using the values set in P658 [SReg OutFltrGain] and P659 [SReg Out FltrBW]. Settings 4 and 5 initialize the values for light and heavy respectively.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Light" 2 = "Heavy" 3 = "Custom" 4 = "SetCustLight" 5 = "SetCustHeavy"	RW	32-bit Integer
		658	**SReg OutFltrGain** Speed Regulator Output Filter Gain Sets the gain of the vector speed regulator's output filter when P657 [SReg Out Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A gain value of zero results in a filter characteristic that behaves as a first order low pass. A gain value ranging between zero and one results in a lag type filter. A gain value greater than one results in a lead type filter. A gain value of one will disable (bypass) the filter.	Default: Min/Max:	1.000 –/+5.000	RW	Real
		659	**SReg OutFltr BW** Speed Regulator Output Filter Bandwidth Sets the bandwidth of the speed regulator's output filter when P657 [SReg Out Fltr Sel] is set to one of the "Custom" settings (3, 4, or 5). A value of zero will disable (bypass) the filter.	Units: Default: Min/Max:	R/S 35.00 0.00 / 3760.00	RW	Real
		660	**SReg Output** Speed Regulator Output Displays the output of the vector speed regulator. This signal will be routed to the P685 [Selected TorqRef] when P313 [Actv SpTqPs Mode] has selected the output of the speed regulator.	Units: Default: Min/Max:	% 0.00 –/+ 800.00	RO	Real
		663	**VHzSV Spd Reg Kp** Volts per Hertz Sensorless Vector Speed Regulator Proportional Gain Adjusts the proportional gain of the Speed Regulator used in non-vector modes according to P35 [Motor Cntl Mode]. The output of this regulator will adjust P623 [VHzSV SpdTrimReg] when P131 [Active Vel Fdbk] originates from a feedback device.	Default: Min/Max:	20.00 0.00 / 3000.00	RW	Real
		664	**VHzSV Spd Reg Ki** Volts per Hertz Sensorless Vector Speed Regulator Integral Gain Adjusts the integral gain of the Speed Regulator used in non-vector modes according to P35 [Motor Cntl Mode]. The output of this regulator will adjust P623 [VHzSV SpdTrimReg] when P131 [Active Vel Fdbk] originates from a feedback device.	Units: Default: Min/Max:	/Sec 50.00 0.00 / 100000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
SPEED CONTROL	Speed Comp	665	**Speed Comp Sel** Speed Compensation Select Configures the Speed Compensation function, which is used in Vector Control modes to create a feedforward compensation that is added into the speed reference. This helps compensate for position tracking errors during acceleration. These tracking errors are caused by the sample and hold process and delays caused by the position to velocity FIR filter. Speed Compensation will help reduce position error in position follower applications. Available settings for this parameter are: "Disabled" (0) – Function is disabled, speed compensation does not affect the speed reference. "Ramped Ref" (1) – Speed compensation function is enabled and uses an internally generated ramped speed reference signal. The rate of change (derivative) of the speed reference becomes the input to the Speed Compensation function. This is the most common setting when speed compensation is in use. "Rate Ref" (2) – Speed compensation function is enabled and uses an externally generated speed rate signal. The rate of change or derivative of the speed reference is supplied by P596 [Speed Rate Ref]. This signal is typically supplied by an external controller when the speed reference ramp is generated external to the drive.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Ramped Ref" 2 = "Rate Ref"	RW	32-bit Integer
		666	**Speed Comp Gain** Speed Compensation Gain The Speed Compensation Gain adjusts the magnitude of P667 [Speed Comp Out]. This gain can be either manually set or automatically determined as part of automatic gain mode for Vector speed control. Automatic mode can be activated by selecting a motor speed feedback device in P125 [Pri Vel Fdbk Sel] and setting a non-zero speed regulator bandwidth in P636 [Speed Reg BW]. In automatic mode, the gain is calculated internally using a table lookup from the interrupt times and delays of the speed feedback FIR filter. For any other case – non-vector control, open loop speed feedback, or zero bandwidth setting, the speed compensation gain must be manually adjusted.	Default: Min/Max:	–2.50 –/+32767.00	RW	Real
		667	**Speed Comp Out** Speed Compensation Output Displays the output of the Speed Compensation function. This value will be summed with the speed reference, following the application of P555 [Spd Ref Scale].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real

Drive Torque Control File

File	Group	No.	Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Torque Limits	670	**Pos Torque Limit** Positive Torque Limit Defines the torque limit for the positive torque reference value. The reference will not be allowed to exceed this value.	Units: Default: Min/Max:	% 200.00 0.00 / 800.00	RW	Real
		671	**Neg Torque Limit** Negative Torque Limit Defines the torque limit for the negative torque reference value. The reference will not be allowed to exceed this value.	Units: Default: Min/Max:	% –200.00 –800.00 / 0.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Torque Reference	675 680 ○	**Trq Ref A Sel** **Trq Ref B Sel** Torque Reference A Select Torque Reference B Select Selects the source for a torque reference, used when the drive is configured to command torque according to P309-312 [SpdTrqPsn Mode X]. The values of the torque reference sources are added together to provide a single torque reference.	Default: Min/Max:	676 681 0 / 159999	RW	32-bit Integer
		676 681	**Trq Ref A Stpt** **Trq Ref B Stpt** Torque Reference A Setpoint Torque Reference B Setpoint A digital torque value to be used as a possible source for P675 and P680 respectively.	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		677 682	**Trq Ref A AnlgHi** **Trq Ref B AnlgHi** Torque Reference A Analog High Torque Reference B Analog High Used only when an analog input is selected as a torque reference according to P676 or P681. Sets the torque value that corresponds to [Anlg InX Hi] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 100.00 –/+800.00	RW	Real
		678 683	**Trq Ref A AnlgLo** **Trq Ref B AnlgLo** Torque Reference A Analog Low Torque Reference B Analog Low Used only when an analog input is selected as a torque reference according to P676 or P681. Sets the torque value that corresponds to [Anlg InX Lo] on an I/O module or on the main control (product dependent). This establishes scaling throughout the range.	Units: Default: Min/Max:	% 0.00 –/+800.00	RW	Real
		679 684	**Trq Ref A Mult** **Trq Ref B Mult** Torque Reference A Multiplier Torque Reference B Multiplier A multiplier that is applied to the values referenced by P675 and P680 respectively. A value of 1 leaves the reference unaffected. Negative values invert the reference.	Default: Min/Max:	1.000 –/+1000.000	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
TORQUE CONTROL	Torque Reference	685	**Selected Trq Ref** Selected Torque Reference Displays the torque value of the selected torque reference (dynamic selection according to P313 [Actv SpTqPs Mode]). This value will be summed with P686 [Torque Step]. The result is then applied to the input of the notch filter located in the Vector torque reference section.	Units: % Default: 0.00 Min/Max: –/+800.00	RO	Real
		686	**Torque Step** Torque Step Defines the amount of torque reference step change to simulate a load disturbance, used to test the response. This value is added to the main torque reference P685 [Selected Torq Ref], and then applied to the input of the notch filter located in the Vector control torque reference section.	Units: % Default: 0.00 Min/Max: –/+800.00	RW	Real
		687	**Notch Fltr Freq** Notch Filter Frequency The center frequency for the Notch filter located in the Vector control torque reference section. To disable, set to zero (0).	Units: Hz Default: 0.00 Min/Max: 0.00 / 500.00	RW	Real
		688	**Notch Fltr Atten** Notch Filter Attenuation Sets the attenuation of the notch filter located in the Vector control torque reference section. Attenuation is the ratio of the notch filter input signal to its output at the P687 [Notch Fltr Freq]. An attenuation of 30 means that the notch output is 1/30th of the input at the specified frequency. 	Default: 50.000 Min/Max: 0.000 / 500.000	RW	Real
		689	**Filtered Trq Ref** Filtered Torque Reference Displays the output of the notch filter defined by P687 and P688. If P704 [InAdp LdObs Mode] indicates that either the Inertia Adaption or Load Estimate functions are active, then the filtered torque reference will also be modified by these functions.	Units: % Default: 0.00 Min/Max: –/+800.00	RO	Real
		690	**Limited Trq Ref** Limited Torque Reference Displays the torque reference value after filtering (P689), power limits, torque limits, and current limits have been applied. Motor power limits are set by P426 [Regen Power Lmt] and P427 [Motor Power Lmt]. Motor torque limits are set by P670 [Pos Torque Limit] and P671 [Neg Torque Limit]. Motor current limit is set by P422 [Current Limit 1] or P423 [Current Limit 2].	Units: % Default: 0.00 Min/Max: –/+800.00	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Inertia Comp	695	755 **Inertia CompMode** Inertia Compensation Mode The inertia compensation function calculates a feed forward torque signal P699 [Inertia Comp Out]. Inertia compensation attempts to predict the motor torque required to accelerate and decelerate an inertial load. The P699 [Inertia Comp Out] signal is summed with P660 [SReg Output] and becomes an input available to the P313 [Actv SpTqPs Mode] selector. The inputs to the inertia comp function are the rate of change of motor speed reference and P76 [Total Inertia]. This parameter enables the inertia comp function and selects possible sources of motor speed reference as follows: "Disabled" (0) – Inertia compensation function is disabled. P699 [Inertia Comp Out] is zero so the motor torque reference is not affected. "Int Ramp Ref" (1) – Inertia compensation is enabled. The function is configured to use the rate of change of P595 [Filtered Spd Ref]. This is the typical setting that should be used for inertia compensation on a stand-alone drive. "Ext Ramp Ref" (2) – Inertia compensation is enabled. The function is configured to use the rate of change of P700 [Ext Ramped Ref]. This setting is available for applications that supply a ramped speed reference external to the drive. "Spd Rate Ref" (3) – Inertia compensation is enabled. The function is configured to use the P596 [Speed Rate Ref]. This parameter should contain a value that represents the rate of change of the motor speed reference. This setting is available for applications that supply a ramped speed reference external to the drive.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "Int Ramp Ref" 2 = "Ext Ramp Ref" 3 = "Spd Rate Ref"	RW	32-bit Integer
		696	755 **Inertia Acc Gain** Inertia Acceleration Gain Sets the acceleration gain for the inertia compensation function. A value of 1 produces 100% compensation.	Default: Min/Max:	1.0000 0.0000 / 2.0000	RW	Real
		697	755 **Inertia Dec Gain** Inertia Deceleration Gain Sets the deceleration gain for the inertia compensation function. A value of 1 produces 100% compensation.	Default: Min/Max:	1.0000 0.0000 / 2.0000	RW	Real
		698	755 **Inert Comp LPFBW** Inertia Compensation Low Pass Filter Bandwidth Sets the bandwidth of a low pass filter for the inertia compensation function. The output of this filter supplies P699 [Inertia Comp Out].	Units: Default: Min/Max:	R/S 35.00 0.00 / 2000.00	RW	Real
		699	755 **Inertia Comp Out** Inertia Compensation Output Displays the output of the inertia compensation function. The P699 [Inertia Comp Out] signal is summed with P660 [Spd Reg Out] and becomes an input available to the P313 [Actv SpTqPs Mode] selector. Inertia compensation provides a torque feed forward signal during changes in motor speed reference.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		700	755 **Ext Ramped Ref** External Ramped Reference This parameter is meant for an external motor speed ramp input signal. This signal will be used by the inertia compensation function when P695 [InertiaComp Mode] = 2 "Ext Ramp Ref". This parameter will be entered in units of Hz or RPM, depending on the value of P300 [Speed Units].	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Friction Comp	704	755 **InAdp LdObs Mode** Inertia Adaption Load Observer Mode Used to enable operation of either Inertia Adaption or Load Observer. These System Control modes are only available in Vector Control mode when using a motor speed feedback device. The value of P76 [Total Inertia] must be valid in order for these features to work correctly. The P70 [Autotune] setting 4 "Inertia Tune" can be used to measure the System Inertia. Regardless of the Sys Control mode used, the parameter P707 [Load Estimate] is updated for monitoring purposes. The possible settings for Sys Control Sel are: "Disabled" (0) – Both Inertia Adaption and Load Observer functions are disabled. P708 [InertiaTrqAdd] is zero so the motor torque reference is not affected. P707 [Load Estimate] is still valid, provided that the drive is in Vector Mode, using a motor speed feedback device, and a valid P76 [Total Inertia] is used. "InertiaAdapt" (1) – Inertia Adaption function is enabled. The Inertia Adaption function will provide enhanced stability, higher bandwidths and dynamic stiffness. Inertia Adaption is especially useful in systems with a gear-box that become, in effect, disconnected from the load. Inertia Adaption may also be used for motors with very little inertia that otherwise would lack dynamic stiffness, even at high bandwidths. The output of the Inertia Adaption function P708 [InertiaTrqAdd], will subtract from the motor torque reference. "LoadObserver" (2) – Load Observer function is enabled. The Load Observer function removes or greatly reduces the effects of load disturbances and provides quicker system response. The output of the Load Observer function is similar to P707 [Load Estimate], but has a filter setting determined by P711 [Load Observer BW]. The Load Observer's output signal will add to the motor torque reference.	Default: Options:	0 = "Disabled" 0 = "Disabled" 1 = "InertiaAdapt" 2 = "LoadObserver"	RW	32-bit Integer
		705	755 **Inertia Adapt BW** Inertia Adapt Bandwidth Sets the bandwidth of a low pass filter located in the output of the Inertia Adaption function. This parameter should typically be set to match the bandwidth of the drive's speed regulator. This matching setting is automatically made when the Inertia Adaption function is active and the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this filter setting must be manually adjusted.	Units: Default: Min/Max:	R/S 10.00 1.00 / 1000.00	RW	Real
		706	755 **InertiaAdaptGain** Inertia Adaption Gain Sets a multiplier of system inertia used when the Inertia Adaption function is selected P704 [InAdp LdObs Mode] = 1 "InertiaAdapt." This gain has no effect on the parameter P707 [Load Estimate]. Higher gain values may cause high frequency ringing, while smaller values may cause fundamental load instability. This gain should typically range from 0.3 to 1.0 with 0.5 nominal best. The gain setting of 0.5 is automatically made when the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this gain setting must be manually adjusted.	Default: Min/Max:	0.500 0.300 / 1.000	RW	Real
		707	755 **Load Estimate** Load Estimate Displays an estimated load torque value for the drive. This value is only available in Vector Control mode when using a motor speed feedback device. The load estimate does not include any torque required to accelerate or decelerate the motor. In order to be accurate, the parameter P76 [Total Inertia] must contain a reasonably accurate value.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real
		708	755 **InertiaTrqAdd** Inertia Torque Adaption Displays the output of the Inertia Adaption function. This value will be subtracted from the motor torque reference, with the result displayed as P689 [Filtered Trq Ref]. The inertia adaption function will be active when operating in Vector Control mode with a motor speed feedback device and P704 [InAdp LdObs Mode] = 1 "InertiaAdapt." A value of 100% represents rated motor torque.	Units: Default: Min/Max:	% 0.00 –/+800.00	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
TORQUE CONTROL	Friction Comp	**709**	755 **IA LdObs Delay** Inertia Adaption Load Observer Delay Adjusts a filter setting that is applied to the active motor velocity feedback source. The purpose of this filter is to reduce the level of noise present in the feedback signal. Note that this filter is the same type but separate from the filters used to provide P127 [Pri Vel Feedback] and P130 [Alt Vel Feedback]. The derivative of the Sys Control Delay filtered motor velocity signal will be a Motor Acceleration Feedback signal. The Motor Acceleration Feedback is applied to the Inertia Adaption and Load Observer/ Load Estimate functions. This is moving average type filter that has a delay setting of N, where N is an integer number (0, 1, 2 …). A setting of zero provides no filtering and no delay. Larger values of N result in more filtering and more delay. The best setting for this filter will depend on the level of noise present in the feedback signal and the bandwidth setting of the velocity regulator.	Default: Options:	3 = “50R/S Noise” 0 = “190R/S Noise” 1 = “160R/S Noise” 2 = “100R/S Noise” 3 = “50R/S Noise” 4 = “25R/S Noise” 5 = “12R/S Noise” 6 = “6R/S Noise” 7 = “3R/S Noise”	RW	32-bit Integer
		710	755 **InertAdptFiltBW** Inertia Adaption Filter Bandwidth Sets the bandwidth of a low pass filter located in the output of the vector control speed regulator and used in connection with the Inertia Adaption function. The bandwidth of this filter should typically be set to five times the bandwidth of the speed regulator. This setting is automatically made when the Inertia Adaption function is active and the speed regulator bandwidth (P636 [Speed Reg BW]), is set to a non-zero value. If the speed regulator bandwidth is set to zero, then this filter setting must be manually adjusted.	Units: Default: Min/Max:	R/S 50.00 0.00 / 1000.00	RW	Real
		711	755 **Load Observer BW** Load Observer Bandwidth Sets the bandwidth of a low pass filter located in the output of the Load Observer function. Typical filter settings range from 10 radians/sec to 150 radians/sec with the higher values being more responsive to disturbances but with increased system noise. There is no nominal best setting, but 40 rad/sec is a suggested starting point. This selection may not function well in sloppy geared systems.	Units: Default: Min/Max:	R/S 40.00 1.00 / 1000.00	RW	Real

Drive Position Control File

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	720	**PTP PsnRefStatus** Point-To-Point Position Reference Status Displays the current operating status of the Point-To-Point Position Planner in the Position Referencing.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SpdFFRef En	PTP Int Hold	Ref Complete	ZeroFFSpdRef	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = True

Bit 0 “ZeroFFSpdRef” – Indicates the speed feed forward reference P783 [PTP Speed FwdRef] is zero.

Bit 1 “Ref Complete” – Indicates the position point-to-point feedback P777 [PTP Feedback] reaches the position point-to-point reference P784 [PTP Command], and the speed forward reference P783 [PTP Speed FwdRef] reaches zero.

Bit 2 “P2P Int Hold” – Indicates the position point-to-point planner integrator is holding. Read back of the point-to-point integral hold bit P770 [PTP Control] Bit 4 “Intgrtr Hold”.

Bit 3 “SpdFFRef En” – Indicates the speed feed forward reference P783 [PTP Speed FwdRef] is active.

721 **Position Control**

Position Control

Sets bits to enable various position control functions.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Add Spd Ref	PsnWatch2Dir (1)	PsnWtch2Arm (1)	PsnWatch1Dir (1)	PsnWtch1Arm (1)	Intgrtr Hold	Zero Psn	OffsetVel En	Offset ReRef	Intgrtr En	Reserved	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = True

(1) 755 drives only.

Bit 1 “Intgrtr En” – Enables integrator operation. Resetting it resets the integrator.

Bit 2 “Offset ReRef” – Permits changing the value of position offsets without changing actual position.

Bit 3 “OffsetVel En” – Uses the offset velocity P824 [Psn Offset Vel] for the position offset integrator. Sets the offset integrator bit, P724 [Psn Reg Status] Bit 0 “OffsetIntgtr” when this bit is on.

Bit 4 “Zero Psn” – Puts P836 [Psn Actual] in absolute mode with zero position offset. P836 [Psn Actual] sets value of P847 [Psn Fdbk] - the position P725 [Zero Position].

Bit 5 “Intgrtr Hold” – Holds the position integrator in present state.

Bit 6 “PsnWtch1Arm” – Enables the position watch 1. Resetting this bit clears the position watch 1 detection P724 [Psn Reg Status] Bit 9 “PsnW1Detect”.

Bit 7 “PsnWatch1Dir” – Causes the position watch 1 output to be set when P746 [PsnWatch 1 DtctIn] is greater than a set-point selected by the position watch 1 selection P745 [PsnWatch1 Select]. Resetting this bit causes the position watch 1 output to be set when P746 [PsnWatch 1 DtctIn] is less than a set-point selected by the position watch 1 selection P745 [PsnWatch1 Select].

Bit 8 “PsnWtch2Arm” – Enables the position watch 2. Resetting this bit clears the position watch 2 detection P724 [Psn Reg Status] Bit 10 “PsnW2Detect”.

Bit 9 “PsnWatch2Dir” – Causes the position watch 2 output to be set when P749 [PsnWatch2 DtctIn] is greater than a set-point selected by the position watch 2 selection P748 [PsnWatch2 DtctIn]. Resetting this bit causes the position watch 2 output to be set when P749 [PsnWatch2 DtctIn] is less than a set-point selected by the position watch 2 selection P748 [PsnWatch2 DtctIn].

Bit 10 “Add Spd Ref” – Adds the speed reference to the output of the position control, when in position control mode.

No.	Name Description	Values		Read-Write	Data Type
722	**Psn Selected Ref** Position Selected Reference Indicates output of the position referencing. When the Spd/Torq/Pos mode P313 [Actv SpTqPs Mode] is the position direct mode (Option 10), the value of the position direct reference P767 [Psn Direct Ref] appears on this parameter. When the Spd/Torq/Pos mode P313 [Actv SpTqPs Mode] is the position point-to-point mode (Option 7) or the speed/position profiler mode (Option 6), the position point-to-point reference P776 [PTP Reference] appears on this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	723	**Psn Command** Position Command Indicates final accumulated command to the position regulator. When the position regulator is not active, this parameter is initialized to P836 [Psn Actual].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		724	**Psn Reg Status** Position Regulator Status Indicates status of position control logic.				

Options	Reserved	Reserved	Reserved	Reserved	InPsn Detect	PsnW2Detect (1)	PsnW1Detect (1)	Intgrtr Hold	Psn Reg Actv	Spd Lmt Hi	Spd Lmt Lo	Integ Lmt Hi	Integ Lmt Lo	Psn Intgrtr	Offset ReRef	OffsetIntgtr
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.

Bit 0 “OffsetIntgtr” – Indicates the position offset Integrator is active with the position offset integrator bit P721 [Position Control] Bit 3 “OffsetVel En” is on.

Bit 1 “Offset ReRef” – Indicates the position offset re-referencing is active with the position offset re-referencing bit P721 [Position Control] Bit 2 “Offset ReRef” is on.

Bit 2 “Psn Intgrtr” – Indicates the position integrator is active with the position integrator bit P721 [Position Control] Bit 1 “Intgrtr En” is on.

Bit 3 “Integ Lmt Lo” – Indicates the position integrator is at the low limit.

Bit 4 “Integ Lmt Hi” – Indicates the position integrator is at the high limit.

Bit 5 “Spd Lmt Lo” – Indicates the position regulator output (speed) is at the low limit.

Bit 6 “Spd Lmt Hi” – Indicates the position regulator output (speed) is at the high limit.

Bit 7 “Psn Reg Actv” – Indicates the position regulator is active

Bit 8 “Intgrtr Hold” – Indicates the position Integrator is held in present state

Bit 9 “PsnW1Detect” – Indicates the position watch 1 has detected motor position equal to its setpoint, from the proper direction.

Bit 10 “PsnW2Detect” – Indicates the position watch 2 has detected motor position equal to its setpoint, from the proper direction.

Bit 11 “InPsn Detect” – Indicates P835 [Psn Error] is within the position band specified by the in-position band P726 [In Pos Psn Band]

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Cfg/Sts	725	**Zero Position** Zero Position Sets the absolute user zero position. When the zero position bit P721 [Position Control] Bit 4 “Zero Psn” is set, P836 [Psn Actual] accumulates the value of P847 [Psn Fdbk] - the P725 [Zero Position], and P836 [Psn Actual] becomes zero when P847 [Psn Fdbk] is at the zero position. The homing function also sets the value after homing process is completed.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		726	**In Pos Psn Band** In Positive Position Bandwidth Sets the overall bandwidth of the in position detector. The detector sets the in-position detect bit P724 [Psn Reg Status] Bit 11 “InPsn Detect” when P835 [Psn Error] is within this position band for a sufficient time specified by the in-position dwell time P727 [In Pos Psn Dwell]. A modest hysteresis count is added to the position bandwidth after the position error is within specified limits.		0 0 / 2147483647	RW	32-bit Integer
		727	**In Pos Psn Dwell** In Positive Position Dwell Sets dwell time for the in position detector. Position error must be within the value specified by the in-position band P726 [In Pos Psn Band] for this amount of time before the in-position detector sets the in-position detect bit P724 [Psn Reg Status] Bit 11 “InPsn Detect”. A momentary out-of-position indication will reset the internal timer and clear the in-position detect bit P724 [Psn Reg Status] Bit 11 “InPsn Detect”.	Default: Min/Max:	0.0040 0.0001 / 10.0000	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Homing	730	**Homing Status** Homing Status Indicates status of position control logic.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	At Home	Homing	Home Enabled	Home Request
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Home Request” – Indicates the homing function is requested. The homing function is requested by the homing configuration bits P731 [Homing Control].

Bit 1 “Home Enabled” – Indicates the homing function is enabled. This bit is set when the homing function is requested and the drive starts.

Bit 2 “Homing” – Indicates the drive is heading to home position.

Bit 3 “At Home” – Indicates the drive is at home position.

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Position Homing	731	**Homing Control** Homing Control Sets bits to configure the homing function.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Hold At Home	Home DI Inv	Homing Alarm	Psn Redefine	Return Home	Home Marker	Home DI	Find Home
Default	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Find Home” – Puts the drive in the homing mode. Setting this bit requests the homing function and sets homing request bit P730 [Homing Status] Bit 0 “Home Request”. This bit needs a toggle to reset the the homing function.

Bit 1 “Home DI” – Configures the homing function to use a switch (digital input). When this bit is on and Bit 2 “Home Marker” is off, the homing function is configured as home switch mode. When this bit is on and Bit 2 “Home Marker” is on, the homing function is configured as home marker-switch mode.

Bit 2 “Home Marker” – Configures the homing function to use a marker input. When this bit is on and Bit 1 “Home DI” is off, the homing function is configured as home marker mode. When this bit is on and Bit 1 “Home DI” is on, the homing function is configured as home marker-switch mode.

Bit 3 “Return Home” – Configures the homing function as return home mode. The drive returns to the actual home position P737 [Actual Home Psn].

Bit 4 “Psn Redefine” – Sets the position feedback P847 [Psn Fdbk] to the actual home position P737 [Actual Home Psn].

Bit 5 “Homing Alarm” – Enables the home running alarm when the homing function is active.

Bit 6 “Home DI Inv” – Changes polarity of the switch input (digital input).

Bit 7 “Hold At Home” – Configures the drive to return to the home position after completing the homing function. A start command is required for the drive to run again.

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Homing	732 ○	**DI Find Home** Digital Input Find Home Sets a digital input port for the “Find Home” function.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		733 ○	**DI Redefine Psn** Digital Input Redefine Position Sets a digital input port for the redefine position function. The digital input assigned by this parameter is equivalent to P731 [Homing Control] Bit 4 “Psn Redefine”.	Units: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		734 ○	**DI OL Home Limit** Digital Input Open Loop Home Limit Sets a digital input port for the limit switch of open loop homing function. Polarity of digital input (rising or falling edge) is specified by P731 [Homing Control] Bit 6 “Home DI Inv.”	Units: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		735	**Find Home Speed** Find Home Speed Sets the speed and direction that are active when P731 [Homing Control] Bit 0 “Find Home” is active. The sign of the value defines direction (“+” = Forward, “–” = Reverse).	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hz] x 0.1 P28 [Motor NP RPM] x 0.1 P27 [Motor NP Hz] x 0.5 P28 [Motor NP RPM] x 0.5	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Homing	736	**Find Home Ramp** Find Home Ramp Sets the rate of acceleration and deceleration of the Find Home moves.	Units: Default: Min/Max:	Secs 10.00 0.01 / 6554.00	RW	Real
		737	**Actual Home Psn** Actual Home Position Indicates actual home position after the homing function is complete. The value in this parameter displays the raw position feedback data at home position.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		738	**User Home Psn** User Home Position Sets user-defined home position. After the homing function is completed, the following parameters are updated with this parameter value; P723 [Psn Command], P815 [Psn Ref EGR Out], P836 [Psn Actual], P837 [Psn Load Actual].	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Watch	745 748	755 **PsnWatch1 Select** 755 **PsnWatch2 Select** Position Watch 1 Select Position Watch 2 Select Selects a position feedback source that is compared to the position watch detect-input P746 [PsnWatch1 DtctIn], P749 [PsnWatch2 DtctIn].	Default: Min/Max:	847 1 / 159999	RW	32-bit Integer
		746 749	755 **PsnWatch1 DtctIn** 755 **PsnWatch2 DtctIn** Position Watch 1 Detect Input Position Watch 2 Detect Input Provides position feedback source for the position watch function. The position watch function is enabled and configured by the position control configuration P721 [Position Control]. The position watch function compares this value to the position watch set point P747 [PsnWatch1 Stpt], P750 [PsnWatch2 Stpt] when this parameter P746, P749 is selected by the position watch select P745 [PsnWatch1 Select], P748 [PsnWatch2 Select]. The position detect bit P724 [Psn Reg Status] Bit 9 “PsnW1Detect”, Bit 10 “PsnW2Detect” is set when the appropriate condition is satisfied.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		747 750	755 **PsnWatch1 Stpt** 755 **PsnWatch2 Stpt** Position Watch 1 Setpoint Position Watch 2 Setpoint Provides set point for the position watch function. The position watch function is enabled and configured by P721 [Position Control]. The position watch function compares this value to the position feedback source selected by the position watch select P745 [PsnWatch1 Select], P748 [PsnWatch2 Select]. The position detect bit P724 [Psn Reg Status] Bit 9 “PsnW1Detect”, Bit 10 “PsnW2Detect” is set when the appropriate condition is satisfied.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Direct	765 ○	**Psn Ref Select** Position Reference Select Selects a source data for the direct position reference.	Default: Options:	759 1 / 159999	RW	32-bit Integer
		766	**Psn Direct Stpt** Position Direct Setpoint Provides set point for the direct position reference. This parameter provides position reference to the position regulator when the Spd/Torq/Pos mode P313 [Actv SpTqPs Mode] is the position direct mode (Option 10) and the position reference select P765 [Psn Ref Select] is the set point.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		767	**Psn Direct Ref** Position Direct Reference Indicates position direct reference selected by the position reference select P765 [Psn Ref Select].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Point to Point	770	**PTP Control** Point-To-Point Control Sets bits to configure the point-to-point position control.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Ref Sync	Ref Pause	Intgrtr Hold	Preset Psn	Reverse Move	Move	Vel Override	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = True

Bit 0 “Vel Override” – Applies the velocity overload P788 [PTP Vel Override] to the forward velocity limit P785 [PTP Fwd Vel Lmt] and the reverse velocity limit P786 [PTP Rev Vel Lmt] as a gain. When the velocity overload P788 [PTP Vel Override] is 1.1 and the forward velocity limit P785 [PTP Fwd Vel Lmt] is 30 Hz, the bit sets the maximum forward velocity to 33 Hz.

Bit 1 “Move” – Sets scaled point-to-point position reference to the point-to-point position command P784 [PTP Command]. When the point-to-point mode selection P771 [PTP Mode] is absolute mode (Option 0), the absolute position is set to the point-to-point position command P784 when the bit rises. When the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1), the index position is set to the point-to-point position command P784 when the bit rises.

Bit 2 “Reverse Move” – Changes direction of the index position when the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1).

Bit 3 “Preset Psn” – Sets index preset P779 [PTP Index Preset] to the point-to-point position command P784 [PTP Command] when the point-to-point mode selection P771 [PTP Mode] is index mode (Option 1).

Bit 4 “Intgrtr Hold” – Holds integrator in the velocity control.

Bit 5 “Ref Pause” – Pauses functioning of the point-to-point control. The point-to-point speed forward reference becomes zero, and the position selected reference P722 [Psn Selected Ref] keeps current position.

Bit 6 “Ref Sync” – Sets initial value to the point-to-point feedback P777 [PTP Feedback].

		771	**PTP Mode** Point-To-Point Mode Selects point-to-point position mode. The point-to-point position control is configured with the following selections. “Absolute” (0) – Absolute position mode “Index” (1) – Index position mode “Immediate” (2) – Absolute immediate position mode	Default: Options:	0 = “Absolute” 0 = “Absolute” 1 = “Index” 2 = “Immediate”	RW	32-bit Integer
		772 ○	**DI Indx Step** Digital Input Index Step Sets a digital input port for the index position move. The digital input assigned by this parameter is equivalent to the point-to-point move bit P770 [PTP Control] Bit 1 “Move” when the point-to-point mode P771 [PTP Mode] is selected to the index position mode (Option 1).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Point to Point	773 ○	**DI Indx StepRev** Digital Input Index Step Reverse Sets a digital input port for the index position reverse move. The digital input assigned by this parameter is equivalent to the point-to-point reverse move bit P770 [PTP Control] Bit 2 “Reverse Move” when the point-to-point mode P771 [PTP Mode] is selected to the index position mode (Option 1).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		774 ○	**DI Indx StepPrst** Digital Input Index Step Preset Sets a digital input port for the index preset position. The digital input assigned by this parameter is equivalent to the point-to-point preset position bit P770 [PTP Control] Bit 3 “Preset Psn” when the point-to-point mode P771 [PTP Mode] is selected to the index position mode (Option 1).	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		775 ○	**PTP Ref Sel** Point-To-Point Reference Select Selects a point-to-point reference source that applies to the point-to-point position control.	Default: Min/Max:	780 1 / 159999	RW	32-bit Integer
		776	**PTP Reference** Point-To-Point Reference Indicates output of the point-to-point position control as a reference of the position control. When the speed/torque/position mode P313 [Actv SpTqPs Mode] is selected to the point-to-point mode (Option 7) or the profiler mode (Option 6), this parameter value appears on the position selected reference P722 [Psn Selected Ref].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		777	**PTP Feedback** Point-To-Point Feedback Indicates position feedback in the point-to-point position control.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		778	**PTP Ref Scale** Point-To-Point Reference Scale Provides count per scale value for the point-to-point position reference. The value is a multiplier for the point-to-point reference source selected by the reference selection P775 [PTP Ref Sel].	Default: Min/Max:	1.00 –/+220000000.00	RW	Real
		779	**PTP Index Preset** Point-To-Point Index Preset Provides pre-set index value. The value sets to the point-to-point position command P784 [PTP Command] when the point-to-point mode is index mode P771 [PTP Mode] and the preset position bit P770 [PTP Control] Bit 3 “Preset Psn” is on.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		780	**PTP Setpoint** Point-To-Point Setpoint Provides set point for the point-to-point position control. The value applies to the point-to-point control when the point-to-point reference selection P775 [PTP Ref Sel] is P780.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		781	**PTP Accel Time** Point-To-Point Acceleration Time Provides the ramp time for acceleration (time to go from zero to speed limit).	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		782	**PTP Decel Time** Point-To-Point Deceleration Time Provides the ramp time for deceleration (time to go from speed limit to zero).	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		783	**PTP Speed FwdRef** Point-To-Point Speed Forward Reference Indicates speed reference output from the point-to-point position control. Typically this parameter is used by the drive speed loop.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		784	**PTP Command** Point-To-Point Command Indicates position command for the point-to-point position control. The source of the position command is selected by the speed/torque/position mode P313 [Actv SpTqPs Mode].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Point to Point	785	**PTP Fwd Vel Lmt** Point-To-Point Forward Velocity Limit Provides the maximum forward speed reference limit.	Units: Hz RPM Default: P27 [Motor NP Hertz] x 0.5 P28 [Motor NP RPM] x 0.5 Min/Max: 0.00/P27 [Motor NP Hertz] 0.00/P28 [Motor NP RPM]	RW	Real
		786	**PTP Rev Vel Lmt** Point-To-Point Reverse Velocity Limit Provides the maximum reverse speed reference limit.	Units: Hz RPM Default: P27 [Motor NP Hertz] x 0.5 P28 [Motor NP RPM] x 0.5 Min/Max: 0.00/P27 [Motor NP Hertz] 0.00/P28 [Motor NP RPM]	RW	Real
		787	**PTP S Curve** Point-To-Point S Curve Provides the amount of time that is applied to the S Curve.	Units: Secs Default: 0.500 Min/Max: 0.000 / 4.000	RW	Real
		788	**PTP Vel Override** Point-To-Point Velocity Override Provides multiplier to both forward P785 [PTP Fwd Vel Lmt] and reverse P786 [PTP Rev Vel Lmt] speed limits. This parameter applies to the speed limits when the override bit P770 [PTP Control] Bit 0 “Vel Override” is on.	Default: 1.00 Min/Max: 0.20 / 1.50	RW	Real
		789	**PTP EGR Mult** Point-To-Point Electronic Gear Ratio Multiply EGR multiplier (numerator) for position index output. The output applies to the point-to-point command P784 [PTP Command].	Default: 1 Min/Max: –/+2000000	RW	32-bit Integer
		790	**PTP EGR Div** Point-To-Point Electronic Gear Ratio Divide EGR divider (denominator) for position index output. The output applies to the point-to-point command P784 [PTP Command].	Default: 1 Min/Max: 1 / 2000000	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="2">POSITION CONTROL</td><td rowspan="2">Phase Lock Loop</td><td>795</td><td colspan="4">

755 PLL Control
Phase Locked Loop Control
Sets bits to configure the phase locked loop control.

<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Prof Enable</td><td>PTP Enable</td><td>PCAM Enable</td><td>Accel Comp</td><td>Ext Vel FF</td><td>Velocity FF</td><td>PLL Enable</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = False
1 = True</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td></td></tr>
</table>

Bit 0 “PLL Enable” – enables the phase locked loop control.
Bit 1 “Velocity FF” – enables the velocity feed forward path.
Bit 2 “Ext Vel FF” – enables the external velocity feed forward through the PLL external speed reference selected by the PLL external speed selection P796 [PLL Ext Spd Sel].
Bit 3 “Accel Comp” – enables providing an element of acceleration compensation to the feed forward branch. This is not recommended for use with external inputs because of increased noise.
Bit 4 “PCAM Enable” – enables PCAM function with the PLL function.
Bit 5 “PTP Enable” – enables point-to-point function with the PLL function.
Bit 6 “Prof Enable” – enables profiler function with the PLL function.
Only bits 4, 5, and 6 allow associating with the PLL function.

</td></tr>
<tr><td>796</td><td>755 PLL Ext Spd Sel
Phase Locked Loop External Speed Select
Selects an external speed reference source.</td><td>Default: 797
Options: 1 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Phase Lock Loop	797	755 **PLL Ext Spd Stpt** Phase Locked Loop External Speed Setpoint Provides external speed reference. This parameter is a velocity feed forward input that is selected by the external speed select P796 [PLL Ext Spd Sel].	Default: 0.00 Min/Max: –/+220000000.00	RW	Real
		798	755 **PLL Ext SpdScale** Phase Locked Loop External Speed Scale Sets scale factor to the external speed reference selected by the external speed select P796 [PLL Ext Spd Sel]. This parameter is used to properly scale the velocity feed forward. Adjust for zero average at the filtered position output P806 [PLL Psn Out Fltr] while running at moderate speed.	Default: 1.00 Min/Max: –/+220000000.00	RW	Real
		799 ○	755 **PLL Psn Ref Sel** Phase Locked Loop Position Reference Select Selects a position reference source.	Default: 800 Min/Max: 1 / 159999	RW	32-bit Integer
		800	755 **PLL Psn Stpt** Phase Locked Loop Position Setpoint Provides position reference when the position reference select P799 [PLL Psn Ref Sel] selects this parameter.	Default: 0 Min/Max: –2147483648 / 2147483647	RW	32-bit Integer
		801	755 **PLL BW** Phase Locked Loop Bandwidth Sets internal bandwidth of the PLL function response. The setting for very noisy mechanical systems could range from 1 to 10 (r/s) while well-behaved high line count input devices could range upwards of 100 (r/s). Higher bandwidths will quickly resolve tracking errors while the lower bandwidths will take longer to settle into a steady state. Some adjustment will be necessary to effect the best compromise between noise and tracking response.	Units: R/S Default: 20.00 Min/Max: 0.00 / 8000.00	RW	Real
		802	755 **PLL LPFilter BW** Phase Locked Loop Low Pass Filter Bandwidth Sets low pass filter bandwidth. The filter has two functions: • Basic noise reduction of input velocity. • Timed delay of input when feed forward is provided to an external master reference other than an input encoder. The filter low pass bandwidth should be set for best tracking which occurs when the filter output coincides with the loop filter output of PLL. Usually that means setting its bandwidth to the bandwidth of the master reference drive.	Units: R/S Default: 50.00 Min/Max: 0.00 / 8000.00	RW	Real
		803	755 **PLL Virt Enc RPM** Phase Locked Loop Virtual Encoder Revolutions Per Minute Sets RPM of the virtual output device. The value determines the 1 P.U. velocity for the speed out P807 [PLL Speed Out] and does not affect performance.	Units: RPM Default: 1750.00 Min/Max: 1.00 / 40000.00	RW	Real
		804	755 **PLL EPR Input** Phase Locked Loop Edges Per Revolution Input Sets edges per revolution of the physical input device. Using the highest line count device possible makes insure the smoother PLL operation.	Default: 1048576 Min/Max: 1 / 67108864	RW	32-bit Integer
		805	755 **PLL Rvls Input** Phase Locked Loop Revolutions Input Sets revolution of the input encoder. This parameter must be coordinated with the revolution of the output encoder P812 [PLL Rvls Output] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor.	Default: 1 Min/Max: 1 / 1000000	RW	32-bit Integer
		806	755 **PLL Psn Out Fltr** Phase Locked Loop Position Output Filter Indicates internal low pass filter output. This parameter is normally used to properly scale an external velocity reference. See description of the external speed scale P798 [PLL Ext SpdScale].	Default: 0.00 Min/Max: –/+220000000.00	RO	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Phase Lock Loop	807	755 **PLL Speed Out** Phase Locked Loop Speed Output Indicates velocity output. This parameter is used as a velocity feed forward. It is precisely in phase with the physical input device. The virtual encoder RPM P803 [PLL Virt Enc RPM] determines the RPM at 1 P.U. of this parameter.	Default: 0.00 Min/Max: –/+220000000.00	RO	Real
		808	755 **PLL Speed OutAdv** Phase Locked Loop Speed Output Advanced Indicates velocity advanced output. This parameter is one velocity reference sample in advance of the speed output P807 [PLL Speed Out].	Default: 0.00 Min/Max: –/+220000000.00	RO	Real
		809	755 **PLL Enc Out** Phase Locked Loop Encoder Output Indicates position output. This parameter is precisely in phase with the input physical device.	Default: 0 Min/Max: –2147483648 / 2147483647	RO	32-bit Integer
		810	755 **PLL Enc Out Adv** Phase Locked Loop Encoder Output Advanced Indicates position advanced output. This parameter is one position sample in advance of the position output P809 [PLL Enc Out].	Default: 0 Min/Max: –2147483648 / 2147483647	RO	32-bit Integer
		811	755 **PLL EPR Output** Phase Locked Loop Edges Per Revolution Output Sets edges per revolution of virtual the physical output device.	Default: 1048576 Min/Max: 1 / 67108864	RW	32-bit Integer
		812	755 **PLL Rvls Output** Phase Locked Loop Revolutions Output Sets revolution of the output encoder. This parameter must be coordinated with the revolution of the input encoder P805 [PLL Rvls Input] to resolve the gear-ratio between input revolutions and output (virtual) revolutions. The ratio of input to output revolutions can always be resolved into integer values and should be reduced to their lowest common factor.	Default: 1 Min/Max: 1 / 2000000	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
POSITION CONTROL	Electronic Gear	815	**Psn Ref EGR Out** Position Reference Electronic Gear Ratio Output Indicates accumulated output of the position reference electronic gear ratio (EGR) function. When the position regulator is not enabled, this parameter is initialized to P836 [Psn Actual].	Default: 0 Min/Max: –2147483648 / 2147483647	RO	32-bit Integer
		816	**Psn EGR Mult** Position Electronic Gear Ratio Multiplier Sets integer value in the numerator of the EGR function that is precision multiplied by the position reference. A negative value will effect a change in polarity.	Default: 1 Min/Max: –/+2000000	RW	32-bit Integer
		817	**Psn EGR Div** Position Electronic Gear Ratio Division Sets integer value in the denominator of the EGR function that divides into the product of the numerator and the position reference. Remainders are accumulated and not lost.	Default: 1 Min/Max: 1 / 2000000	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Offset	820 ○	**Psn Offset 1 Sel** Position Offset 1 Select Selects a Position Offset 1 source.	Default: Min/Max:	821 1 / 159999	RW	32-bit Integer
		821	**Psn Offset 1** Position Offset 1 Provides position reference offset, which is summed after the EGR and used to trim the phase of the position reference. A step in the offset position will be internally rate limited and added to the reference position. The rate of correction is set by the offset velocity P824 [Psn Offset Vel]. The initial value of this parameter is latched upon position enable without causing a change in reference. Subsequent changes to this value will be relative to the latched value. See the offset re-referencing bit P721 [Position Control] Bit 2 "Offset ReRef".	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		822 ○	**Psn Offset 2 Sel** Position Offset 2 Select Selects a Position Offset 2 source.	Default: Min/Max:	823 1 / 159999	RW	32-bit Integer
		823	**Psn Offset 2** Position Offset 2 Select Provides another position reference offset, which is summed with the position offset 1 P821 [Psn Offset 1] and used to trim the phase of the position reference. The rate of correction is set by the offset velocity P824 [Psn Offset Vel].	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		824	**Psn Offset Vel** Position Offset Velocity Sets speed of position offset. A position offset command will not exceed this speed. The actual speed of offset is limited to a maximum value of 1/(inertia * pos gain) so as not to cause a torque pulse greater than 1 per unit. The speed will change exponentially.	Units: Default: Min/Max:	Hz RPM P27 [Motor NP Hertz] x 0.005 P28 [Motor NP RPM] x 0.005 0.00/P27 [Motor NP Hertz] 0.00/P28 [Motor NP RPM]	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Ld Psn Fdbk Scal	825	755 **LdPsn Fdbk Mult** Load Position Feedback Multiplier Sets numerator of the load EGR function. It is multiplied by the position load feedback selected by the load feedback select P136 [Load Psn FdbkSel] and divided by the load feedback divider P826 [LdPsn Fdbk Div] to reflect the load pulse count to the motor (effectively removing the gear box ratio). The accumulated position values P836 [Psn Actual] and the position load actual P837 [Psn Load Actual] - will be equal if the ratio is set properly. There may be some difference due to lost motion in the gear train, but there should not be an accumulated difference. It is often necessary to count gear teeth as gear box manufacturers often approximate exact ratios with decimal numbers. Enter a negative value in the numerator to account for reversed motor rotation.	Default: Min/Max:	1 –/+1000000	RW	32-bit Integer
		826	755 **LdPsn Fdbk Div** Load Position Feedback Division Sets denominator of the load EGR function.	Default: Min/Max:	1 1 / 2000000	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Reg	830	**PsnNtchFltrFreq** Position Notch Filter Frequency Sets the center frequency of the position notch filter.	Units: Default: Min/Max:	Hz 0.00 0.00 / 500.00	RW	Real
		831	**PsnNtchFltrDepth** Position Notch Filter Depth Sets the depth for the position notch filter. Attenuation is the ratio of the output to the input at the notch frequency P830 [PsnNtchFltrFreq]. The attenuation of 30 means that the notch output is 1/30th of the input at the specified frequency. Calculation: Attenuation = Input / Output	Default: Min/Max:	50.00 0.00 / 500.00	RW	Real
		832	**Psn Out Fltr Sel** Position Output Filter Select Selects a type of lead-lag filter for position regulator speed output. This parameter sets filter gain P833 [Psn Out Fltr Sel] and bandwidth P834 [Psn Out Fltr BW] according to the selected type. “Off” (0) – P833 = 1.000, P834 = 0.00 “Custom” (1) – P833 = user setting, P834 = user setting	Default: Options:	0 = “Off” 0 = “Off” 1 = “Custom”	RW	32-bit Integer
		833	**Psn Out FltrGain** Position Output Filter Gain Sets lead-lag filter gain. A default value is sets when the filter type selection P832 [Psn Out Fltr Sel] is not Custom (Option 1). See the filter type selection P832.	Default: Min/Max:	3.000 –/+5.000	RW	Real
		834	**Psn Out Fltr BW** Position Output Filter Bandwidth Sets lead-lag bandwidth. A default value is sets when the filter type selection P832 [Psn Out Fltr Sel] is not Custom (Option 1). See the filter type selection P832.	Units: Default: Min/Max:	R/S 50.00 0.00 / 500.00	RW	Real
		835	**Psn Error** Position Error Indicates actual position error in motor pulse counts as a 32-bit integer. When the position regulator is not enabled, the value is initialized to zero. When the position regulator is enabled, the value contains the running value of position error between the position command P723 [Psn Command] and P836 [Psn Actual].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		836	**Psn Actual** Position Actual Indicates accumulated motor position as a 32-bit integer. It tracks the position feedback P847 [Psn Fdbk]. When P721 [Position Control] Bit 4 “Zero Psn” is set, this parameter accumulates the value of P847 [Psn Fdbk] - the P725 [Zero Position]. When P721 [Position Control] Bit 4 “Zero Psn” is off, this parameter accumulates the value of P847 [Psn Fdbk].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
POSITION CONTROL	Position Reg	837	755 **Psn Load Actual** Position Load Actual Indicates accumulated output of the load gear ratio as a 32-bit integer and forms the primary feedback for the position regulator integral channel. It is very important that the load gear ratio be precisely set such that the delta pulse count of one motor revolution equals the delta pulse count of this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer
		838	**Psn Reg Ki** Position Regulator Ki Sets position regulator integral gain as measured from position error to velocity reference. The value has gain units of (P.U. velocity/sec) / (P.U. position) and is unit compatible with the position regulator proportional gain P839 [Psn Reg Kp]. An integral gain of 25 means that a per unit position error of 0.1 sec will effect a 2.5 P.U. speed change per sec.	Default: Min/Max:	4.00 0.00 / 1000.00	RW	Real
		839	**Psn Reg Kp** Position Regulator Kp Sets position regulator gain as measured from position error to speed reference. The gain number is identically equal to position regulator bandwidth in rad/sec. For example: A gain of 10 means that a P.U. position error of 0.1 sec. will effect a 1.0 P.U. speed change (1 per unit position error is the distance traveled in 1 sec. at base motor speed). The maximum value of this parameter is typically 1/3 of the speed bandwidth (rad/sec) but may be set considerably higher with careful tuning of the speed regulator output lead/lag filter.	Units: Default: Min/Max:	R/S 4.00 0.00 / 200.00	RW	Real
		840	**PReg Pos Int Lmt** Position Regulation Positive Integral Limit Sets positive limit of the position regulator integral output.	Units: Default: Min/Max:	% 100.00 0.00 / 800.00	RW	Real
		841	**PReg Neg Int Lmt** Position Regulation Negative Integral Limit Sets negative limit of the position regulator integral output.	Units: Default: Min/Max:	% –100.00 –800.00 / 0.00	RW	Real
		842	**PsnReg IntgrlOut** Position Regulation Integral Output Indicates output of the position regulator integral channel after the limit function.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		843	**PsnReg Spd Out** Position Regulation Speed Output Indicates final output of the position regulator.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		844	**PReg Pos Spd Lmt** Position Regulation Positive Speed Limit Sets positive speed limit of total position regulator output.	Units: Default: Min/Max:	% 10.00 0.00 / 800.00	RW	Real
		845	**PReg Neg Spd Lmt** Position Regulation Negative Speed Limit Sets negative speed limit of total position regulator output.	Units: Default: Min/Max:	% –10.00 –800.00 / 0.00	RW	Real
		846	**Psn Reg Droop** Position Regulation Droop Sets position droop which limits the low frequency gain of the position regulators integral channel to a value of (1/droop). This parameter provides a means to fine tune the stability for load mounted feedback devices where lost motion may cause a problem. Typically, the position droop will have a value that is less than (1/position gain), perhaps even zero for tightly coupled loads. The position droop has a gain value of (P.U. position) / (P.U. speed). Note: 1 P.U. position is the distance traveled in 1 sec. at base motor speed.	Units: Default: Min/Max:	Secs 0.00 0.00 / 25.00	RW	Real
		847	**Psn Fdbk** Position Feedback Indicates the accumulated pulse count of the position feedback selected by the position feedback select [P135].	Default: Min/Max:	0 –2147483648 / 2147483647	RO	32-bit Integer

Drive Communication File

File	Group	No.	Name Description	Values		Read-Write	Data Type
COMMUNICATION	Comm Control	871 872 873 874 875 876 877 878	**Port 1 Reference** **Port 2 Reference** **Port 3 Reference** **Port 4 Reference** **Port 5 Reference** **Port 6 Reference** 755 **Port13 Reference** **Port14 Reference** Port 1, 2, 3, 4, 5, 6, 13, 14 Reference Reference value from port devices.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RO	Real
		879	**Drive Logic Rslt** Drive Logic Result This is the logic output of the logic parser that combines the outputs from the DPI ports and the DriveLogix controller to determine drive control based on the masks and owners. Used for peer to peer communication with PowerFlex 750-Series communication modules.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Jog 2	Run	Climit Stop	Coast Stop	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	Name Description	Values		Read-Write	Data Type
COMMUNICATION	Comm Control	880	**DPI Ref Rslt** DPI Reference Result Present frequency reference scaled as a DPI reference for peer to peer communications. The value shown is the value prior to the accel/decel ramp and the corrections supplied by slip comp, PI, etc. Used for peer to peer communication with 20-COMM communication modules.	Units: Default: Min/Max:	Hz / RPM 0.000 –2147483648.000 / 2147483624.000	RO	32-bit Integer
		881	**DPI Ramp Rslt** DPI Ramp Result Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. Used for peer-to-peer communication with 20-COMM communication modules.	Units: Default: Min/Max:	Hz / RPM 0.000 –2147483648.000 / 2147483624.000	RO	32-bit Integer
		882	**DPI Logic Rslt** DPI Logic Result A version of P879 that is used when doing peer-to-peer control with a 20-COMM communication module. (Not for use with a 20-750 communication module).				

Options	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop	Reserved	SpdRef Sel 2	SpdRef Sel 1	SpdRef Sel 0	Decel Time 2	Decel Time 1	Accel Time 2	Accel Time 1	Reserved	Manual	Reverse	Forward	Clear Faults	Jog 1	Start	Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False, 1 = True

File	Group	No.	Name Description	Values		Read-Write	Data Type
COMMUNICATION	Comm Control	883	753 **Drive Ref Rslt** Drive Reference Result Present frequency reference scaled as a DPI reference for peer to peer communications. The value shown is the value prior to the accel/decel ramp and the corrections supplied by slip comp, PI, etc. Used for peer to peer communication with 20-COMM communication modules.	Units: Default: Min/Max:	Hz / RPM 0.000 –2147483648.000 / 2147483624.000	RO	32-bit Integer
		884	753 **Drive Ramp Rslt** Drive Ramp Result Displays the speed reference value, after the limit function. This is the input to the error calculator and speed regulator. This number is scaled so that rated motor speed will read 32768. Used for peer to peer communication with 20-COMM communication modules.	Units: Default: Min/Max:	Hz / RPM 0.000 –2147483648.000 / 2147483624.000	RO	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>COMMUNICATION</td><td>Security</td><td>885</td><td>Port Mask Act
Port Mask Active
Active status for port communication.
<table>
<tr><td>Options</td><td>Security</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Digital In</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = False
1 = True</td><td></td><td></td></tr>
<tr><td></td><td></td><td>886</td><td>Logic Mask Act
Logic Mask Active
Active status of the logic mask for ports. Bit 15 “Security” determines if network security is controlling the logic mask instead of this parameter.
<table>
<tr><td>Options</td><td>Security</td><td>Port 14</td><td>Port 13</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Digital In</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = False
1 = True</td><td></td><td></td></tr>
<tr><td></td><td></td><td>887</td><td>Write Mask Act
Write Mask Active
Active status of write access for ports. Bit 15 “Security” determines if network security is controlling the write mask instead of this parameter.
<table>
<tr><td>Options</td><td>Security</td><td>Port 14</td><td>Port 13</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 9</td><td>Port 8</td><td>Port 7</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Reserved</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = False
1 = True</td><td></td><td></td></tr>
<tr><td></td><td></td><td>888</td><td>Write Mask Cfg
Write Mask Configuration
Enables/disables write access (parameters, links, etc.) for DPI ports. Changes to this parameter only become effective when power is cycled, the drive is reset or bit 15 of P887 [Write Mask Actv], transitions from “1” to “0.”
<table>
<tr><td>Options</td><td>Reserved</td><td>Port 14</td><td>Port 13</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Port 9</td><td>Port 8</td><td>Port 7</td><td>Port 6</td><td>Port 5</td><td>Port 4</td><td>Port 3</td><td>Port 2</td><td>Port 1</td><td>Reserved</td></tr>
<tr><td>Default</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td>0 = False
1 = True</td><td></td><td></td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
COMMUNICATION	DPI Datalinks	895 896	**Data In A1** **Data In A2** Data Input A1, A2 Parameter number whose value will be written from a communications device data table.	Default: Min/Max:	0 (0 = "Disabled") 0 / 159999	RW	32-bit Integer
		897 898	**Data In B1** **Data In B2** Data Input B1, B2 Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		899 900	**Data In C1** **Data In C2** Data Input C1, C2 Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		901 902	**Data In D1** **Data In D2** Data Input D1, D2 Parameter number whose value will be written from a communications device data table.	See [Data In A1].			
		905 906	**Data Out A1** **Data Out A2** Data Output A1, A2 Parameter number whose value will be written to a communications device data table.	Default: Min/Max:	0 (0 = "Disabled") 0 / 159999	RW	32-bit Integer
		907 908	**Data Out B1** **Data Out B2** Data Output B1, B2 Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			
		909 910	**Data Out C1** **Data Out C2** Data Output C1, C2 Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			
		911 912	**Data Out D1** **Data Out D2** Data Output D1, D2 Parameter number whose value will be written from a communications device data table.	See [Data Out A1].			

File	Group	No.	Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	919	**Stop Owner** Stop Owner Indicates which port is currently issuing a valid stop command.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
		920	**Start Owner** Start Owner Indicates which port is currently issuing a valid start command.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
		921	**Jog Owner** Jog Owner Indicates which port is currently issuing a valid jog command.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
		922	**Dir Owner** Direction Owner Indicates which port is currently has exclusive control of direction changes.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
		923	**Clear Flt Owner** Clear Fault Owner Indicates which port is currently clearing a fault.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	924	**Manual Owner** Manual Owner Adapter that has requested manual control of all drive logic and/or reference functions. If an adapter is in manual lockout, all other functions (except stop) on all other adapters are locked out and non-functional.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
COMMUNICATION	Owners	925	**Ref Select Owner** Reference Select Owner Indicates which port is issuing a valid reference select.	0 = False 1 = True		

Options	Reserved	Port 14	Port 13 (1)	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 6	Port 5	Port 4	Port 3	Port 2	Port 1	Digital In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 755 drives only.

Drive Diagnostics File

File	Group	No.	Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	Status	930	**Speed Ref Source** Speed Reference Source Indicates the currently selected source for value displayed in P593 [Limited Spd Ref]. The Speed Reference Source displays the parameter number that is supplying the speed reference. For example, if Speed Reference Source contains the value 546, then P546 [Spd Ref A Setpt] is the source of the speed reference.	Default: Min/Max:	0 0 / 159999	RO	32-bit Integer
		931	**Last StartSource** Last Start Source Displays the source that initiated the most recent start sequence. All bits in this parameter are refreshed each time the drive receives a start command.	Default: Options:	0 = Read Only 0 = "Pwr Removed" 1-6 = "DPI Port 1-6" 7 = "Digital In" 8 = "Sleep" 9 = "Jog" 10 = "Profiling" 11 = "AutoRestart" 12 = "Pwr Up Start" 13 = "Fault" 14 = "Enable" 15 = "Autotune" 16 = "Precharge" 17 = "Safety" 18 = "Fast Stop" 19 = "DPI Port 13" 20 = "DPI Port 14"	RO	32-bit Integer
		932	**Last Stop Source** Last Stop Source Displays the source that initiated the most recent stop sequence. All bits in this parameter are refreshed each time the drive receives a stop command.	Default: Options:	0 = Read Only 0 = "Pwr Removed" 1-6 = "DPI Port 1-6" 7 = "Digital In" 8 = "Sleep" 9 = "Jog" 10 = "Profiling" 11 = "AutoRestart" 12 = "Pwr Up Start" 13 = "Fault" 14 = "Enable" 15 = "Autotune" 16 = "Precharge" 17 = "Safety" 18 = "Fast Stop" 19 = "DPI Port 13" 20 = "DPI Port 14"	RO	32-bit Integer
		933	**Start Inhibits** Start Inhibits Indicates which condition is preventing the drive from starting or running.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Profilier (1)	Sleep	Safety	Reserved	Reserved	Stop	Precharge	Enable	Alarm	Faulted
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

(1) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	934	**Last StrtInhibit** Last Start Inhibit Displays the Inhibit which prevented the last Start signal from starting the drive. Bits will be cleared after the next successful start sequence.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Profilier	Sleep	Safety	Startup	Database	Stop	Precharge	Enable	Alarm	Faulted
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	935	**Drive Status 1** Drive Status 1 Present operating condition of the drive.			

Options	Regen	Motor OL	Enable On	Bus Frq Reg	Cur Limit	At Limit	At Home	AtZero Speed	Torque Mode	PositionMode	Speed Mode	DB Active	DC Braking	Stopping	Jogging	Running	Reserved	SpdRef Bit 4	SpdRef Bit 3	SpdRef Bit 2	SpdRef Bit 1	SpdRef Bit 0	Manual	At Speed	Faulted	Alarm	Decelerating	Accelerating	Actual Dir	Command Dir	Active	Ready
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Table 935A: Reference Status

Bit	14	13	12	11	10	Reference Source
	0	0	0	0	1	Auto, Ref A
	0	0	0	1	0	Auto, Ref B
	0	0	0	1	1	Auto, Preset 3
	0	0	1	0	0	Auto, Preset 4
	0	0	1	0	1	Auto, Preset 5
	0	0	1	1	0	Auto, Preset 6
	0	0	1	1	1	Auto, Preset 7
	1	0	0	0	0	MAN, Port 0, DIGIN SEL
	1	0	0	0	1	MAN, Port 1
	1	0	0	1	0	MAN, Port 2
	1	0	0	1	1	MAN, Port 3
	1	0	1	0	0	MAN, Port 4
	1	0	1	0	1	MAN, Port 5
	1	0	1	1	0	MAN, Port 6
	1	1	1	0	1	MAN, Port 13 INT. ENET
	1	1	1	1	0	MAN, Port 14 DRV LOGIX
	1	1	1	1	1	ALT MAN REF SEL

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	936	**Drive Status 2** Drive Status 2 Present operating condition of the drive.			

Options	Reserved	Reserved	Reserved	Decel Rate (1)	Accel Rate (1)	PID FB Loss	Autotuning	PrchrgClosed	Adj VltgMode (1)	Reserved	FdbkLoss SwO	Flux Brake	Reserved	HS Fan On	AuRstrCntDwn	AutoRstr Act
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

(1) 753 drives only.

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>DIAGNOSTICS</td><td>Status</td><td>937</td><td colspan="4">Condition Sts 1
Condition Status 1
Status of conditions that may or may not result in the drive taking action (faulting), based on configuration of protective functions.
<table>
<tr><th>Options</th><th>OW Timeout (1)</th><th>GndWarning</th><th>ExtPrchrgErr</th><th>PosFdbkLoss</th><th>AuxFdbkLoss</th><th>AltFdbkLoss</th><th>PriFdbkLoss</th><th>Shear Pin 2</th><th>Shear Pin 1</th><th>Dec Inhibit</th><th>OutPhaseLoss</th><th>InPhaseLoss</th><th>Load Loss</th><th>Motor OL</th><th>UnderVoltage</th><th>Power Loss</th></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
0 = Condition False
1 = Condition True
(1) 753 drives only</td></tr>
<tr><td></td><td></td><td>940</td><td>Drive OL Count
Drive Overload Count
Indicates power unit overload (IT) in percentage. When the value reaches 100 %, the power unit overload fault occurs.</td><td>Units: %
Default: 0.00
Min/Max: 0.00 / 200.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>941</td><td>IGBT Temp Pct
Insulated-Gate Bipolar Transistor Temperature Percent
Indicates IGBT junction temperature in percentage of the maximum junction temperature.</td><td>Units: %
Default: 0.00
Min/Max: –/+200.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>942</td><td>IGBT Temp C
Insulated-Gate Bipolar Transistor Temperature Celsius
Indicates IGBT junction temperature in centigrade.</td><td>Units: DegC
Default: 0.00
Min/Max: –/+200.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>943</td><td>Drive Temp Pct
Drive Temperature Percent
Indicates operating temperature of the drive power section (heat-sink) in percentage of the maximum heat-sink temperature.</td><td>Units: %
Default: 0.00
Min/Max: –/+200.00</td><td>RO</td><td>Real</td></tr>
<tr><td></td><td></td><td>944</td><td>Drive Temp C
Drive Temperature Celsius
Present operating temperature of the drive power section.</td><td>Units: DegC
Default: 0.00
Min/Max: –/+200.00</td><td>RO</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	945	**At Limit Status** At Limit Status Status of dynamic conditions within the drive that are either active or a limit is being applied.			

Options	Cur Rate Lmt	TrqPrvNegLmt	TrqPrvPosLmt	Mtr Vltg Lkg	BusVltgFVLmt	Therm RegLmt	Cur Lmt FV	Regen PwrLmt	Mtrng PwrLmt	Trq Neg Lmt	Trq Pos Lmt	FlxCurNegLmt	FlxCurPosLmt	TrqCurNegLmt	TrqCurPosLmt	PsnReg HiSpd	PsnReg LoSpd	PsnReg HiLmt	PsnReg LoLmt	DB Res Limit	PWM FreqLmt	Economize	Flux Braking	FreqOSNegLmt	FreqOSPosLmt	Freq Lo Lmt	Freq Hi Lmt	Spd Reg Lmt	OverSpd Lmt	MaxSpeed Lmt	Bus Vltg Lmt	Current Lmt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Current Lmt” – Scalar current limit is adjusting the output frequency
Bit 1 “Bus Vltg Lmt” – Scalar bus voltage limit is adjusting the output frequency
Bit 2 “MaxSpeed Lmt” – Motor speed reference is limited to maximum forward speed or maximum reverse speed
Bit 3 “OverSpd Lmt” – Motor speed reference positive (+) trim is at maximum speed limit plus or minus (+/-) the overspeed limit
Bit 4 “Spd Reg Lmt” – The output of the drive’s speed regulator has reached limit
Bit 5 “Freq Hi Lmt” – Scalar control inner ramp high limit is active
Bit 6 “Freq Lo Lmt” – Scalar control inner ramp low limit is active
Bit 7 “FreqOSPosLmt” – Scalar control inner ramp positive (+) overspeed limit is active
Bit 8 “FreqOSNegLmt” – Scalar control inner ramp negative (-) overspeed limit is active
Bit 9 “Flux Braking” – Flux braking is active
Bit 10 “Economize” – Economize is active
Bit 11 “PWM FreqLmt” – PWM frequency is reduced by the thermal regulator
Bit 12 “DB Res Limit” – Dynamic brake thermal protection is active
Bit 13 “PsnReg LoLmt” – The position integrator low limit is active
Bit 14 “PsnReg HiLmt” – The position integrator high limit is active
Bit 15 “PsnReg LoSpd” – The position regulator output (speed) is at low limit
Bit 16 “PsnReg HiSpd” – The position regulator output (speed) is at high limit
Bit 17 “TrqCurPosLmt” – The torque current positive limit is active
Bit 18 “TrqCurNegLmt” – The torque current negative limit is active
Bit 19 “FlxCurPosLmt” – The flux current positive limit is active
Bit 20 “FlxCurNegLmt” – The flux current negative limit is active
Bit 21 “Trq Pos Lmt” – The positive torque limit is active
Bit 22 “Trq Neg Lmt” – The negative torque limit is active
Bit 23 “Mtrng PwrLmt” – The motoring power limit is active
Bit 24 “Regen PwrLmt” – The regeneration power limit is active
Bit 25 “Cur Lmt FV” – The current limit parameter or analog Input current limit is active
Bit 26 “Therm RegLmt” – The thermal regulator torque limit is active
Bit 27 “BusVltgFVLmt” – The bus voltage regulator torque limit is active
Bit 28 “Mtr Vltg Lkg” – The Vds motor voltage limit is active
Bit 29 “TrqPrvPosLmt” – The torque proving positive torque limit is active
Bit 30 “TrqPrvNegLmt” – The torque proving negative torque limit is active
Bit 31 “Cur Rate Lmt” – The Iqs rate limit is active

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Status	946	**Safety Port Sts** Safety Port Status Indicates the port location of a valid feedback option for use with the Safe Speed Monitoring Option.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Port 8	Port 7	Port 6	Port 5	Port 4	Reserved	Reserved	Reserved	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	950	**Minor Flt Cfg** Minor Fault Configuration			

950 Minor Flt Cfg

Minor Fault Configuration

Enables / Disables operation of the “Minor Fault” function, which allows the drive to continue running while some types of faults are present. In addition to setting this parameter, the “Flt Minor” action must be selected for the condition that is desired to result in a minor fault (see P410 for an example).

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

No.	Name Description	Values		Read-Write	Data Type
951	**Last Fault Code** Last Fault Code The fault code of the most recent fault. This parameter is for convenience. A comprehensive history of fault information is available through the fault que (via HIM screens and / or software tools such as Drive Explorer).	Default: Min/Max:	0 0 / 424648720	RO	32-bit Integer

952 Fault Status A

Fault Status A

Indicates the occurrence of conditions that have been configured as faults. These conditions are from 937 [Condition Sts 1].

Options	Reserved	Reserved	ExtPrchrgErr	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Dec Inhibit	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

953 Fault Status B

Fault Status B

Indicates the occurrence of conditions that have been configured as faults.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Over Travel (1)	OW Alarm TO (1)	Ground Fault	TPEnclsCnfg (2)	TrqPrvSpdBnd (2)	HW OverCur	SW OverCur	AuRstExhaust	IXOVoltRange	FluxAmpsRang	IRVoltsRange	SafetyBrdFlt	Prchrg Open	Overspd Lmt	Excess Load	SinkUnderTmp	TransistorOT	Heatsink OT	Drive OL	OverVoltage	Aux InputFlt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drives only.
(2) 755 drives only.

0 = False
1 = True

954 Status1 at Fault

Status 1 at Fault

Captures and displays P935 [Drive Status 1] bit pattern at the time of the last fault.

Options	Regen	Motor OL	Enable On	Bus Frq Reg	Cur Limit	At Limit	At Home	AtZero Speed	Torque Mode	PositionMode	Speed Mode	DB Active	DC Braking	Stopping	Jogging	Running	Reserved	SpdRef Bit 4	SpdRef Bit 3	SpdRef Bit 2	SpdRef Bit 1	SpdRef Bit 0	Manual	At Speed	Faulted	Alarm	Decelerating	Accelerating	Actual Dir	Command Dir	Active	Ready
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	955	**Status2 at Fault** Status 2 at Fault Captures and displays P936 [Drive Status 2] bit pattern at the time of the last fault.	0 = Condition False 1 = Condition True		

Options	Reserved	Reserved	Reserved	Decel Rate	Accel Rate	PID FB Loss	Autotuning	PrchrgClosed	Reserved	Reserved	FdbkLoss SwO	Flux Brake	Reserved	HS Fan On	AuRstrCntDwn	AutoRstr Act
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Name Description	Values	Read-Write	Data Type
		956	**Fault Frequency** Fault Frequency Captures and displays the output speed of the drive at the time of the last fault.	Default: 0.00 Min/Max: –650.00 / 650.00	RO	Real
		957	**Fault Amps** Fault Amps Captures and displays motor amps at the time of the last fault.	Default: 0.00 Min/Max: 0.00 / P21 [Rated Amps] x 2	RO	Real
		958	**Fault Bus Volts** Fault Bus Volts Captures and displays the DC bus voltage of the drive at the time of the last fault.	Default: 0.00 Min/Max: 0.00 / P20 [Rated Volts] x 2	RO	Real
		959	**Alarm Status A** Alarm Status A Indicates the occurrence of conditions that have been configured as alarms. These events are from 937 [Condition Sts 1].	0 = False 1 = True		

Options	Reserved	Gnd Warning	Reserved	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Dec Inhibit	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Name Description	Values	Read-Write	Data Type
		960	**Alarm Status B** Alarm Status B Indicates the occurrence of conditions that have been configured as alarms.	0 = False 1 = True		

Options	Reserved	Reserved	PumpOff Alrm (1)	OW Level TO (1)	OW Level (1)	Gnd Warning	Not Home Set	Homing Actv	Profile Actv (2)	PWMFrq Reduc	CurLmt Reduc	Drive OL	StartOnPwrUp	Waking	Heatsink OT	IGBT OT
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drives only.
(2) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
		961	**Type 2 Alarms** Type 2 Alarms Indicates the occurrence of conditions that have been configured as alarms.	0 = False 1 = True		

Options	Reserved	BipolarCflct (1)	IXOVoltRange	FluxAmpsRang	IRVltg Range	DigIn Cnfg C	DigIn Cnfg B	AltOpenLoop	PriOpenLoop	VHz Incmpble	VHzBossLmt	VHzNegSlope	Frq Cflct	TrqProvCflct (2)	BrakeSlipped (2)	Sleep Cfg
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

(1) 753 drives only.
(2) 755 drives only.

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	962	**AlarmA at Fault** Alarm A at Fault Captures and displays P959 [Alarm Status A] at the time of the last fault.			

Options	Reserved	Ground Warn	Load Loss	PosFdbkLoss	AuxFdbkLoss	AltFdbkLoss	PriFdbkLoss	Shear Pin 2	Shear Pin 1	Dec Inhibit	OutPhaseLoss	InPhaseLoss	Load Loss	Motor OL	UnderVoltage	Power Loss	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = True

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Fault/Alarm Info	963	**AlarmB at Fault** Alarm B at Fault Captures and displays P960 [Alarm Status B] at the time of the last fault.			

Options	Reserved	Reserved	Reserved	OW Level TO (1)	OW Level (1)	Gnd Warning	Not Home Set	Homing Actv	Profile Actv (2)	PWMFrq Reduc	CurLmt Reduc	Drive OL	StartOnPwrUp	Waking	Heatsink OT	IGBT OT	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = False
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = True

(1) 753 drives only.

(2) 755 drives only.

File	Group	No.	Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	Testpoints	970 974 978 982	**Testpoint Sel 1** **Testpoint Sel 2** **Testpoint Sel 3** **Testpoint Sel 4** Testpoint Select 1, 2, 3, 4 Selects a source for the testpoint values (“Fval” and “Lval”). Used by the factory, typically for diagnostic purposes.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		971 975 979 983	**Testpoint Fval 1** **Testpoint Fval 2** **Testpoint Fval 3** **Testpoint Fval 4** Testpoint Float Value 1, 2, 3, 4 Displays data selected by Testpoint Sel X, if the data type is floating point.	Default: Min/Max:	0.000000 –/+ 220000000.000000	RW	Real
		972 976 980 984	**Testpoint Lval 1** **Testpoint Lval 2** **Testpoint Lval 3** **Testpoint Lval 4** Testpoint Long Value 1, 2, 3, 4 Displays data selected by Testpoint Sel X, if the data type is long integer.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Peak Direction	1035	755 **PkDtct Stpt Real** Peak Detection Setpoint Real A setpoint value, in the form of a real number. Intended to be used as a potential data source for P1038 [PkDtct1PresetSel] and P1043 [PkDtct2PresetSel].	Default: 0.000000 Min/Max: –/+ 220000000.000000	RW	Real
		1036	755 **PkDtct Stpt Dint** Peak Detection Setpoint D Integer A setpoint value, in the form of an integer number. Intended to be used as a potential data source for P1038 [PkDtct1PresetSel] and P1043 [PkDtct2PresetSel].	Default: 0 Min/Max: –2147483648 / 2147483647	RW	32-bit Integer
		1037	755 **PkDtct1 In Sel** Peak Detection 1 Input Select Selects the input data source for the peak detect functions. The functions can be configured to sample and hold either the largest (maximum) or smallest (minimum) value of the input signal selected by this parameter. **Important**: Either real or integer data sources can be selected, but integer sources will be internally converted to real and displayed in the peak detect output as real numbers.	Default: 1035 Min/Max: 0 / 159999	RW	32-bit Integer
		1038	755 **PkDtct1PresetSel** Peak Detection 1 Preset Select Selects the preset data source for the peak detect functions. The output of the each peak detect function can be forced to equal the value of the input signal selected by this parameter by using the 'Peak1 Set' bit in P1039 [Peak1 Cfg]. The same integer to real number conversion applies to both the input and the preset signal.	Default: 0 Min/Max: 0 / 159999	RW	32-bit Integer
		1039	755 **Peak1 Cfg** Peak 1 Configure Configures operation of each peak detector.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak1 Set	Peak1 Hold	Peak1 Peak
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Peak1 Peak” – 0 = Capture minimum value of the input signal. 1 = Capture maximum value of the input signal.

Bit 1 “Peak1 Hold” – 0 = Monitor input. 1 = Ignore input and hold output at present value. This bit is overridden by Bit 2.

Bit 2 “Peak1 Set” – 0 = Resume normal capture of the input signal value (assuming Bit 1 is also = 0). The preset signal will be used as a starting value to compare against further changes in the input signal level. 1 = Force output of the peak detect function to equal the signal selected by [PkDtctXPresetSel].

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Peak Direction	1040	755 **Peak 1 Change** Peak 1 Change Status of the peak detectors.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak1Change
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Output value is held or set.
1 = Output value has changed.

File	Group	No.	Name Description	Values	Read-Write	Data Type
DIAGNOSTICS	Peak Direction	1041	755 **PeakDetect1 Out** Peak Detection 1 Output Displays the output of the peak detector, according to the operation selected by the configuration bits, and is always displayed as a real number, regardless of the selected signal type.	Default: 0.000000 Min/Max: –/+21478000.000000	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
DIAGNOSTICS	**Peak Direction**	**1042**	755 **PkDtct2 In Sel** Peak Detection 2 Input Select Selects the input data source for the peak detect functions. The functions can be configured to sample and hold either the largest (maximum) or smallest (minimum) value of the input signal selected by this parameter. **Important**: Either real or integer data sources can be selected, but integer sources will be internally converted to real and displayed in the peak detect output as real numbers.	Default: Min/Max:	1035 0 / 159999	RW	32-bit Integer
		1043	755 **PkDtct2PresetSel** Peak Detection 2 Preset Select Selects the preset data source for the peak detect functions. The output of the each peak detect function can be forced to equal the value of the input signal selected by this parameter by using the “Peak1 Set” bit in P1039 [Peak1 Cfg]. The same integer to real number conversion applies to both the input and the preset signal.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		1044	755 **Peak2 Cfg** Peak 2 Configure Configures operation of each peak detector.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak1 Set	Peak1 Hold	Peak1 Peak
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Peak1 Peak” – 0 = Capture minimum value of the input signal. 1 = Capture maximum value of the input signal.

Bit 1 “Peak1 Hold” – 0 = Monitor input. 1 = Ignore input and hold output at present value. This bit is overridden by Bit 2.

Bit 2 “Peak1 Set” – 0 = Resume normal capture of the input signal value (assuming Bit 1 is also = 0). The preset signal will be used as a starting value to compare against further changes in the input signal level. 1 = Force output of the peak detect function to equal the signal selected by [PkDtctXPresetSel].

File	Group	No.	Name Description	Values		Read-Write	Data Type
		1045	755 **Peak 2 Change** Peak 2 Change Status of the peak detectors.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Peak1Change
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Output value is held or set.
1 = Output value has changed.

File	Group	No.	Name Description	Values		Read-Write	Data Type
		1046	755 **PeakDetect2 Out** Peak Detection 2 Output Displays the output of the peak detector, according to the operation selected by the configuration bits, and is always displayed as a real number, regardless of the selected signal type.	Default: Min/Max:	0.000000 –/+21478000.000000	RO	Real

Drive Applications File

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="11">APPLICATIONS</td><td rowspan="11">Process PID</td><td>1065
○</td><td>PID Cfg
PID Configuration
Main configuration of the Process PID controller.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Percent Ref</td><td>Anti Windup</td><td>Stop Mode</td><td>Fdbk Sqrt</td><td>Zero Clamp</td><td>Ramp Ref</td><td>Preload Int</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td colspan="2">0 = False
1 = True</td><td></td><td></td></tr>
<tr><td>1066</td><td>PID Control
PID Control
Used for dynamically controlling the Process PID controller.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>PID InvError</td><td>PID Reset</td><td>PID Hold</td><td>PID Enable</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table></td><td colspan="2">0 = False
1 = True</td><td></td><td></td></tr>
<tr><td>1067
○</td><td>PID Ref Sel
PID Reference Select
Selects the source for the PID Reference. A zero sets the Reference to a fixed value.</td><td>Default:
Min/Max:</td><td>1070
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>1068</td><td>PID Ref AnlgHi
PID Reference Analog High
When an analog input is selected for PID Ref this sets high value of scaling.</td><td>Units:
Default:
Min/Max:</td><td>%
100.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1069</td><td>PID Ref AnlgLo
PID Reference Analog Low
When an analog input is selected for PID Ref this sets low value of scaling.</td><td>Units:
Default:
Min/Max:</td><td>%
100.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1070</td><td>PID Setpoint
PID Setpoint
Provides an internal fixed value for PID Ref when P1067 [PID Ref Sel] is set to this parameter.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1071</td><td>PID Ref Mult
PID Reference Multiplier
Sets the multiplying factor which is applied to the Reference source before the Reference is used.</td><td>Units:
Default:
Min/Max:</td><td>%
100.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1072
○</td><td>PID Fdbk Sel
PID Feedback Select
Selects the source for the PID Feedback. A zero sets the Feedback to a fixed value.</td><td>Default:
Min/Max:</td><td>1077
1 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td>1073</td><td>PID Fdbk AnlgHi
PID Feedback Analog High
When an analog input is selected for PID Feedback this sets high value of scaling.</td><td>Units:
Default:
Min/Max:</td><td>%
100.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1074</td><td>PID Fdbk AnlgLo
PID Feedback Analog Low
When an analog input is selected for PID Feedback this sets low value of scaling.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+100.00</td><td>RW</td><td>Real</td></tr>
<tr><td>1075
○</td><td>PID FBLoss SpSel
PID Feedback Loss Speed Select
When an analog input is selected for PID Feedback, P1079 [PID Output Sel] is set to Speed Excl/Speed Trim, and an analog signal loss is detected, sets speed to this source.</td><td>Default:
Min/Max:</td><td>546
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Process PID	1076 ○	**PID FBLoss TqSel** PID Feedback Loss Torque Select When an analog input is selected for PID Feedback, P1079 [PID Output Sel] is set to Speed Excl/Speed Trim, and an analog signal loss is detected, sets torque to this source.	Default: Min/Max:	676 0 / 159999	RW	32-bit Integer
		1077	**PID Fdbk** PID Feedback Provides an internal fixed value for PID Feedback when [PID Fdbk Sel] is set to this parameter.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1078	**PID Fdbk Mult** PID Feedback Multiplier Sets the multiplying factor which is applied to the Feedback source before the Feedback is used.	Units: Default: Min/Max:	% 100.00 –/+100.00	RW	Real
		1079 ○	**PID Output Sel** PID Output Select Selects the target for the PID Output.	Default: Options:	2 = “Speed Trim” 0 = “Not Used” 1 = “Speed Excl” 2 = “Speed Trim” 3 = “Torque Excl” 4 = “Torque Trim” 5 = “Volt Excl” 6 = “Volt Trim”	RW	32-bit Integer
		1080	**PID Output Mult** PID Output Multiplier Sets the multiplying factor which is applied to the PID Output before the PID Output is used.	Units: Default: Min/Max:	% 100.00000 –/+100.00000	RW	Real
		1081	**PID Upper Limit** PID Upper Limit Sets the upper limit for the P1093 [PID Output Meter].	Units: Default: Min/Max:	% 100.00 –/+800.00	RW	Real
		1082	**PID Lower Limit** PID Lower Limit Sets the lower limit for the P1093 [PID Output Meter].	Units: Default: Min/Max:	% –100.00 –/+800.00	RW	Real
		1083	**PID Deadband** PID Deadband Determines the error (+/-) which will be ignored. Any error which falls within this band will not change the PID output.	Units: Default: Min/Max:	% 0.00 0.00 / 100.00	RW	Real
		1084	**PID LP Filter BW** PID Low Pass Filter Bandwidth Sets the level of filtering applied to the error signal. Zero will disable this filter.	Units: Default: Min/Max:	R/S 0.00 0.00 / 100.00	RW	Real
		1085	**PID Preload** PID Preload Sets the value used to preload PID Integrator when PID is enabled if configured to use this feature.	Units: Default: Min/Max:	% 0.00 –/+100.00	RW	Real
		1086	**PID Prop Gain** PID Proportional Gain Sets the value for the PI proportional component. PI Error x PI Prop Gain = PI Output	Default: Min/Max:	1.00 0.00 / 100.00	RW	Real
		1087	**PID Int Time** PID Integral Time Time required for the integral component to reach 100% of P1092 [PI Error Meter]. Not used when P1066 [PID Control] Bit 1 “PID Hold” = 1 (enabled).	Units: Default: Min/Max:	Secs 1.00 0.00 / 100.00	RW	Real
		1088	**PID Deriv Time** PID Derivative Time Refer to formula below: $PI_{Out} = KD\ (Sec) \times \frac{d_{PI\ Error}\ (\%)}{d_t\ (Sec)}$	Units: Default: Min/Max:	Secs 0.00 0.00 / 100.00	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Process PID	1089	**PID Status** PID Status Status of the Process PI regulator.	0 = False 1 = True		

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	PID In Limit	PID Reset	PID Hold	PID Enabled
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Process PID	1090	**PID Ref Meter** PID Reference Meter Present value of the PI reference signal.	Units: % Default: 0.00 Min/Max: –/+100.00	RO	Real
		1091	**PID Fdbk Meter** PID Feedback Meter Present value of the PI feedback signal.	Units: % Default: 0.00 Min/Max: –/+100.00	RO	Real
		1092	**PID Error Meter** PID Error Meter Present value of the PI error.	Units: % Default: 0.00 Min/Max: –/+200.00	RO	Real
		1093	**PID Output Meter** PID Output Meter Present value of the PI output.	Units: % Default: 0.00 Min/Max: –/+800.00	RO	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Prove	1100 ○	755 **Trq Prove Cfg** Torque Prove Configure Enables/disables torque/brake proving feature. When “Enabled,” brake control comes from a digital output relay that is set to select Port 0, P1103 [TorqProve Status] bit 4 “Brake Set.”	0 = Disabled 1 = Enabled		

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	BrkSlipStart	BrkSlipEncls	FW LoadLimit	Preload	Micro Psn	Encoderless	TP Enable
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “TP Enable” – Enables TorqProve features.
Bit 1 “Encoderless” – Enables encoderless operation – Bit 0 must also be enabled.
Bit 2 “Micro Psn” – A “1” allows the Micro Position digital input to change the speed command while the drive is running.
Bit 3 “Preload” – “0” uses the last torque for preload. “1” uses “TorqRef A” if commanded direction is forward and “TorqRef B” for reverse.
Bit 4 “FW LoadLimit” – Enables drive to perform load calculation at base speed. Drive will then limit operation above base speed depending on load.
Bit 5 “BrkSlipEncls” – A “1” Disables the partial Brake Slip routine from the drive when encoderless is selected.
Bit 6 “BrkSlipStart” – Starts drive if Brake slippage is detected.

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Prove	1101	755 **Trq Prove Setup** Torque Prove Setup Allows control of specific torque proving functions through a communication device.	0 = Disabled 1 = Enabled		

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	End Stop Rev	Decel Rev	End Stop Fwd	Decel Fwd	Float Micro	Fast Stop
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Prove	1102 ○	755 **DI FloatMicroPsn** Digital Input Float Micro Position Selects the digital input to be used for the float / micro position functions.	Default: 0.00 Min/Max: 0.00 / 159999.15	RW	32-bit Integer
		1103 ○	755 **Trq Prove Status** Torque Prove Status Displays the status bits for TorqProve.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Encoderless	RefLoadLmted	LoadTestActv	Brake Set	BrkSlip1 Alm	Micro Psn	DecelLmtActv	EndLimitActv
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Prove	1104	755 **Trq Lmt SlewRate** Torque Limit Slew Rate Sets the rate to ramp the torque limits to zero during brake proving.	Units: Secs Default: 10.000 Min/Max: 0.500 / 300.000	RW	Real
		1105	755 **Speed Dev Band** Speed Deviation Band The amount of allowable deviation between the commanded speed and the actual speed (from a feedback device). When this value is exceeded for the amount of time in P1106, a fault will occur.	Units: Hz RPM Default: P27 [Motor NP Hertz] x 0.0334 P28 [Motor NP RPM] x 0.0334 Min/Max: P27 x 0.0016 / P27 x 0.25 P28 x 0.0016 / P28 x 0.25	RW	Real
		1106	755 **SpdBand Intgrtr** Speed Band Integer The amount of time for which the actual speed is allowed to exceed P1105 [Speed Dev Band] before a fault occurs.	Units: Secs Default: 0.060 Min/Max: 0.001 / 0.200	RW	Real
		1107	755 **Brk Release Time** Brake Release Time Sets the time between the brake release command and when the drive begins to accelerate. In Encoderless mode, this parameter sets the time to release the brake after drive starts.	Units: Secs Default: 0.100 Min/Max: 0.000 / 10.000	RW	Real
		1108	755 **Brk Set Time** Brake Set Time Defines the amount of delay time between commanding the brake to be set and the start of brake proving.	Units: Secs Default: 0.100 Min/Max: 0.000 / 10.000	RW	Real
		1109	755 **Brk Alarm Travel** Brake Alarm Travel Sets the number of motor shaft revolutions allowed during the brake slippage test. Drive torque is reduced to check for brake slippage. When slippage occurs, the drive allows this number of motor shaft revolutions before regaining control. Not used when P1100 [Trq Prove Cfg] Bit 1 “Encoderless” = 1 (enabled).	Default: 1.00 Min/Max: 0.00 / 1000.00	RW	Real
		1110	755 **Brk Slip Count** Brake Slip Count Sets the number of encoder counts to define a brake slippage condition. Not used when P1100 [Trq Prove Cfg] Bit 1 “Encoderless” = 1 (enabled).	Default: 250.00 Min/Max: 0.00 / 65535.00	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Torque Prove	1111	755 **Float Tolerance** Float Tolerance Sets the frequency level where the float timer starts. Also sets the frequency level where the brake will be closed when P1100 [Trq Prove Cfg] Bit 1 “Encoderless” = 1 (enabled).	Units: Hz RPM Default: P27 [Motor NP Hertz] x 0.0334 P28 [Motor NP RPM] x 0.0334 Min/Max: P27 x 0.0016 / P27 x 0.25 P28 x 0.0016 / P28 x 0.25	RW	Real
		1112 ○	755 **MicroPsnScalePct** Micro Position Scale Percent Sets the percent of speed reference to be used when micropositioning has been selected in P1100 [Trq Prove Cfg]. Bit 2 of P1100 [Trq Prove Cfg], determines if the motor needs to come to a stop before this setting will take effect.	Units: % Default: 10.000 Min/Max: 0.100 / 100.000	RW	Real
		1113	755 **ZeroSpdFloatTime** Zero Speed Float Time Sets the amount of time the drive is below P1111 [Float Tolerance] before the brake is set. Not used when P1100 [Trq Prove Cfg] Bit 1 “Encoderless” = 1 (enabled).	Units: Secs Default: 5.000 Min/Max: 0.100 / 500.000	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Fiber Functions	1120	753 **Fiber Control** Fiber Control Controls the Sync and Traverse Fiber Application functions.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Traverse Ena	Sync Enable	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Disabled
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Enabled

Bit 0 “Sync Enable” – Used in combination with an optional digital input to begin Synchronous speed change upon the falling edge of enable.

Bit 1 “Traverse Ena” – Used in combination with an optional digital input to enable/disable the speed traverse routine.

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Fiber Functions	1121	753 **Fiber Status** Fiber Status Status of Sync and Traverse functions.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Traverse Dec	Traverse On	Sync Ramp	Sync Hold	
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 = Disabled
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1 = Enabled

Bit 0 “Synch Hold” – Set when the Synchronous Speed change function is holding the speed reference constant. The speed will begin ramping to its setpoint upon the falling edge of Sync Enable.

Bit 1 “Sync Ramp” – Set when the Synchronous Speed change function is ramping to its setpoint.

Bit 2 “Traverse On” – Set when the Traverse Speed function is varying the speed, either increasing or decreasing.

Bit 3 “Traverse Dec” – Set when the Traverse Speed function is decreasing the motor speed.

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Fiber Functions	1122	753 **Sync Time** Synchronize Time The time in seconds to ramp from the “held speed reference” to the current speed reference, after the Sync input is de-energized.	Units: Secs Default: 0.0 Min/Max: 0.0 / 3600.0	RW	Real
		1123	753 **Traverse Inc** Traverse Increment Sets the time period in seconds of increasing speed for the Fiber Traverse function.	Units: Secs Default: 0.00 Min/Max: 0.00 / 30.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Fiber Functions	1124	753 **Traverse Dec** Traverse Decrement Sets the time period in seconds of decreasing speed for the Fiber Traverse function.	Units: Default: Min/Max:	Secs 0.00 0.00 / 30.00	RW	Real
		1125	753 **Max Traverse** Maximum Traverse Sets the amplitude of the triangle wave speed modulation for the Fiber Traverse function. The total speed variation will be twice this value, from speed ref plus Max Traverse to speed ref minus Max Traverse.	Units: Default: Min/Max:	Hz 0.00 0.00 / P520 [Max Fwd Speed]	RW	Real
		1126	753 **P Jump** Position Jump Sets the amplitude of the square wave speed modulation for the Fiber Traverse function. This speed is alternately added to and subtracted from the speed reference together with the [Max Traverse] triangle speed modulation.	Units: Default: Min/Max:	Hz 0.00 0.00 / P520 [Max Fwd Speed]	RW	Real
		1129 ○	753 **DI Fiber SyncEna** Digital Input Fiber Synchronize Enable Selects a digital input source for the Fiber Application Functions's synchronous speed change routine. Used in combination with the [Fiber Control] Sync Enable bit.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1130 ○	753 **DI Fiber TravDis** Digital Input Fiber Traverse Disable Selects a digital input source for the Fiber Application Traverse Routine. This is an inverted input, so the Traverse Routine is disabled when the input is active (set). Used in combination with the [Fiber Control] Traverse Ena bit.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>APPLICATIONS</td><td>Adjustable Vltg</td><td>1131
○</td><td colspan="5">753 Adj Vltg Config
Adjustable Voltage Configuration
Selects input voltage phase setting.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>PhaseSetting</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = 3-Phase Operation</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = 1-Phase Operation</td></tr>
</table>
</td></tr>
<tr><td></td><td></td><td>1133
○</td><td>753 Adj Vltg Select
Adjustable Voltage Reference Select
Selects the source of the voltage reference to the drive.</td><td>Default:
Min/Max:</td><td>0
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1134</td><td>753 Adj Vltg Ref Hi
Adjustable Voltage Reference High
Scales the upper value of the P1133 [Adj Vltg Select] selection when the source is an analog input.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+100.00 of Drive Rated Volts</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1135</td><td>753 Adj Vltg Ref Lo
Adjustable Voltage Reference Low
Scales the lower value of the P1133 [Adj Vltg Select] selection when the source is an analog input.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+100.00 of Drive Rated Volts</td><td>RW</td><td>Real</td></tr>
<tr><td></td><td></td><td>1136
○</td><td>753 Adj Vltg TrimSel
Adjustable Voltage Trim Select
Selects the source of the voltage trim that is added to or subtracted from the voltage reference.</td><td>Default:
Min/Max:</td><td>0
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>1137</td><td>753 Adj Vltg Trim Hi
Adjustable Voltage Trim High
Scales the upper value of the P1136 [Adj Vltg TrimSel] selection when the source is an analog input.</td><td>Units:
Default:
Min/Max:</td><td>%
0.00
–/+100.00 of Drive Rated Volts</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Adjustable Vltg	1138	753 **Adj Vltg Trim Lo** Adjustable Voltage Trim Low Scales the lower value of the P1136 [Adj Vltg TrimSel] selection when the source is an analog input.	Units: Default: Min/Max:	% 0.00 –/+100.00 of Drive Rated Volts	RW	Real
		1139	753 **Adj Vltg Command** Adjustable Voltage Command Displays the voltage value of the reference specified in P1133 [Adj Vltg Select].	Units: Default: Min/Max:	VAC 0.0 0.0 / Drive Rated Volts	RO	Real
		1140	753 **Adj Vltg AccTime** Adjustable Voltage Acceleration Time Sets the rate of voltage increase. The value will be the time it takes to ramp the voltage from P1152 [Min Adj Voltage] to P36 [Maximum Voltage]. An “S” curve can be applied to the ramp using P1150 [Adj Volt Scurve].	Units: Default: Min/Max:	Secs 0.0 0.0 / 3600.0	RW	Real
		1141	753 **Adj Vltg DecTime** Adjustable Voltage Deceleration Time Sets the rate of voltage decrease. The value will be the time it takes to ramp the voltage from P36 [Maximum Voltage] to P1152 [Min Adj Voltage]. An “S” curve can be applied to the ramp using P1150 [Adj Volt Scurve]. **Important:** This ramp and P142/143 [Decel Time X] must ramp to zero for drive to Stop.	Units: Default: Min/Max:	Secs 0.0 0.0 / 3600.0	RW	Real
		1142 1143 1144 1145 1146 1147 1148	753 **Adj Vltg Preset1** 753 **Adj Vltg Preset2** 753 **Adj Vltg Preset3** 753 **Adj Vltg Preset4** 753 **Adj Vltg Preset5** 753 **Adj Vltg Preset6** 753 **Adj Vltg Preset7** Adjustable Voltage Preset 1…7 Provides an internal fixed voltage command value that is available as a selection for P1133 [Adj Vltg Select].	Units: Default: Min/Max:	VAC 0.0 0.0 / Drive Rated Volts	RW	Real
		1149	753 **Adj Vltg RefMult** Adjustable Voltage Reference Multiplier Scales the voltage reference value from the reference source.	Units: Default: Min/Max:	% 0.00 –/+100.00 of Drive Rated Volts	RW	Real
		1150	753 **Adj Vltg Scurve** Adjustable Voltage S Curve Sets the percentage of accel or decel time to be applied to the voltage ramp as “S” curve. Time is added 1/2 at the beginning and 1/2 at the end.	Units: Default: Min/Max:	% 0.0 0.0 / 100.0	RW	Real
		1151	753 **Adj Vltg TrimPct** Adjustable Voltage Trim Percentage Scales the total voltage trim value from all sources. Analog In 1 and 2 are scaled separately with P1137 [Adj Vltg Trim Hi] and P1138 [Adj Vltg Trim Lo] then [Adj Vltg TrimPct] sets the trim value. The sign of this value will determine if trim is added or subtracted from the reference.	Units: Default: Min/Max:	% 0.00 –/+100.00 of Drive Rated Volts	RW	Real
		1152	753 **Min Adj Voltage** Minimum Adjustable Voltage Sets the low limit for the voltage reference when P35 [Motor Ctrl Mode] is set to 9 “Adj Voltage.”	Units: Default: Min/Max:	VAC 0.0 0.0 / Drive Rated Volts	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Pump Jack	1165	753 **Rod Speed** Rod Speed Displays the speed in RPMs of the pump rod after the gearbox and sheaves.	Units: RPM Default: 0.00 Min/Max: 0.00 / 10000.00	RO	Real
		1166	753 **Rod Torque** Rod Torque Displays the load side torque. P1174 [Total Gear Ratio] must be greater than zero to activate this display.	Units: FtLb Default: 0.00 Min/Max: 0.00 / 10000.00	RO	Real
		1167	753 **Rod Speed Cmd** Rod Speed Command Displays the commanded speed in RPMs of the pump rod after the gearbox and sheaves.	Units: RPM Default: 0.00 Min/Max: 0.00 / 10000.00	RO	Real
		1168 ○	753 **TorqAlarm Action** Torque Alarm Action Sets the drive action when the Torque Alarm is exceeded. Note: only active with PC pump applications. See P1179 [OilWell Pump Cfg].	Default: 0 = “Ignore” Options: 0 = “Ignore” 1 = “Preset Spd 1”	RW	32-bit Integer
		1169 ○	753 **TorqAlarm Config** Torque Alarm Configure Enables the Torque Alarm function.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Torque Level
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Pump Jack	1170 ○	753 **TorqAlarm Dwell** Torque Alarm Dwell Sets the time that the torque must exceed P1171 [TorqAlarm Level] before P1168 [TorqAlarm Action] takes place.	Units: Secs Default: 0.0 Min/Max: 0.0 / 60.0	RW	Real
		1171 ○	753 **TorqAlarm Level** Torque Alarm Level Sets the level at which the Torque Alarm becomes active.	Units: FtLb Default: 0.0 Min/Max: 0.0 / 5000.0	RW	Real
		1172 ○	753 **TorqAlm Timeout** Torque Alarm Time Out Sets the amount of time a Torque Alarm can be active until timeout action begins.	Units: Secs Default: 0.0 Min/Max: 0.0 / 600.0	RW	Real
		1173 ○	753 **TorqAlarm TOActn** Torque Alarm Time Out Action Sets the drive action when P1172 [TorqAlrm Timeout] is exceeded. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor” (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop” (3) – Fault Coast Stop occurs “Flt RampStop” (4) – Fault Ramp Stop occurs “Flt CL Stop” (5) – Fault Current Limit Stop occurs	Default: 0 = “Ignore” Options: 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop” 6 = “Resume”	RW	32-bit Integer
		1174	753 **Total Gear Ratio** Total Gear Ratio Displays the calculated total gear ratio as follows: (P1184 [Gearbox Sheave] x P1183 [Gearbox Ratio]) / P1178 [Motor Sheave]	Default: 0.0 Min/Max: 0.0 / 32000.0	RO	Real
		1175	753 **Max Rod Speed** Maximum Rod Speed Sets the maximum speed for the polished rod in a PCP oil well application.	Units: RPM Default: 300.0 Min/Max: 200.0 / 600.0	RW	Real
		1176 ○	753 **Max Rod Torque** Maximum Rod Torque Sets the desired maximum torque on the polished rod in a PCP oil well application.	Units: FtLb Default: 500.0 Min/Max: 0.0 / 3000.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Jack	1177 ○	753 **Min Rod Speed** Minimum Rod Speed Sets the minimum speed for the polished rod in a PCP oil well application.	Units: Default: Min/Max:	RPM 0.0 0.0 / 199.0	RW	Real
		1178 ○	753 **Motor Sheave** Motor Sheave Sets the sheave diameter on the motor.	Units: Default: Min/Max:	Inch 10.0 0.25 / 25.00	RW	Real
		1179 ○	753 **OilWell Pump Cfg** Oil Well Pump Configure Selects the type of oil well application. "Disable" (0) – Disables oil well parameters. "Pump Jack" (1) – Sets parameters based on Pump Jack type oil well. "PC Oil Well" (2) – Sets parameters based on Progressive Cavity type Pumps.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Pump Jack" 2 = "PC Oil Well"	RW	32-bit Integer
		1180 ○	753 **PCP Pump Sheave** PCP Pump Sheave Specifies the pump sheave diameter.	Units: Default: Min/Max:	Inch 20.0 0.25 / 200.00	RW	Real
		1181 ○	753 **Gearbox Limit** Gearbox Limit Sets the gearbox torque limit. This value is used in determining the P670 [Pos Torque Limit] and P671 [Neg Torque Limit].	Units: Default: Min/Max:	% 100.0 0.0 / 200.0	RW	Real
		1182 ○	753 **Gearbox Rating** Gearbox Rating Sets the gearbox rating.	Units: Default: Min/Max:	Kin# 640.0 16.0 / 2560.0	RW	Real
		1183 ○	753 **Gearbox Ratio** Gearbox Ratio Specifies the nameplate gear ratio.	Default: Min/Max:	1.0 1.0 / 40.0	RW	Real
		1184 ○	753 **Gearbox Sheave** Gearbox Sheave Sets the Sheave diameter on the Gearbox	Units: Default: Min/Max:	Inch 0.25 0.25 / 100.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Off	1187	753 **Pump Off Config** Pump Off Configure Selects the torque data that will be used for the Pump-Off control. "Automatic" (0) – Auto select. "Position" (1) – Downstroke torque. "Cycle" (2) – Full Stroke torque.	Default: Options:	0 = "Automatic" 0 = "Automatic" 1 = "Position" 2 = "Cycle"	RW	32-bit Integer
		1188 ○	753 **Pump Off Setup** Pump Off Setup Select Pump-Off options.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Cycle PO Pos	Pos Min Trq	Pos Offset	Pos Filter
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Pump Off	1189	753 **Pump Off Action** Pump Off Action Selects the action to be taken after a Pump-Off condition has been detected.	Default: Options:	0 = "Change Speed" 0 = "Change Speed" 1 = "Always Stop" 2 = "Stop After 1" 3 = "Stop After 2"	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Pump Off	1190	753 **Pump Off Control** Pump Off Control Enables/Disable the Pump-Off control or select the source for the torque level.	Default: 0 = “Disable” Options: 0 = “Disable” 1 = “Baseline Set” 2 = “Fixed Setpt”	RW	32-bit Integer
		1191	753 **Pump Off Status** Pump Off Status Displays the status of the Pump-Off control.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Pump Stable	PumpOff Alrm	TopOf Stroke	Cycle Used	Pump Stopped	Pump Slowed	Pump OffEnbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Pump Off	1192	753 **Pump Cycle Store** Pump Cycle Store Stores the torque waveform. The value will automatically be returned to 0.	Default: 0 = “Disable” Options: 0 = “Disable” 1 = “Enable”	RW	32-bit Integer
		1193	753 **Set Top ofStroke** Set Top of Stroke Captures the position at the top of the pump stroke cycle. The value will automatically be returned to 0.	Default: 0 = “Disable” Options: 0 = “Disable” 1 = “Enable”	RW	32-bit Integer
		1194	753 **Torque Setpoint** Torque Set Point Sets the torque level for Pump-Off when P1190 [Pump Off Control] is set to 2 “Fixed Setpt.”	Units: % Default: 0.00 Min/Max: 0.00 / 100.00	RW	Real
		1195	753 **Pump Off Level** Pump Off Level Sets the percent change in torque from the baseline or setpoint that will indicate the well is in the pump-off condition.	Units: % Default: 5.00 Min/Max: 0.00 / 100.00	RW	Real
		1196	753 **Pump Off Speed** Pump Off Speed Sets the torque level for Pump-Off when P1190 [Pump Off Control] is set to Fixed Setpt.	Units: % Default: 20.00 Min/Max: 0.00 / 100.00	RW	Real
		1197	753 **Pump Off Time** Pump Off Time Sets the time the drive will run at the reduced P1196 [Pump Off Speed] before returning to the commanded speed.	Units: Secs Default: 600.00 Min/Max: 120.00 / 60000.00	RW	Real
		1198	753 **Pct Cycle Torque** Percent Cycle Torque Displays the average torque for a full pump cycle.	Units: % Default: 0.00 Min/Max: -100.00 / 200.00	RO	Real
		1199	753 **Pct Lift Torque** Percent Lift Torque Displays the average rod lift torque.	Units: % Default: 0.00 Min/Max: -100.00 / 200.00	RO	Real
		1200	753 **Pct Drop Torque** Percent Drop Torque Displays the average rod dropping torque.	Units: % Default: 0.00 Min/Max: -100.00 / 200.00	RO	Real
		1201	753 **Stroke Pos Count** Stroke Position Count Displays the pump cycle position. The top of stroke should be 0 and rolls over at 10,000.	Default: 0 Min/Max: 0 / 15000	RO	Real
		1202	753 **Stroke Per Min** Stroke Per Minute Displays the strokes per minute.	Default: 0.00 Min/Max: 0.00 / 50.00	RO	Real
		1203	753 **Pump Off Count** Pump Off Count Displays the number of times a pump-off condition has occurred since this parameter was reset.	Default: 0.00 Min/Max: 0.00 / 60000.00	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Pump Off	1204	753 **Pump Off SleepCnt** Pump Off Sleep Count Displays the number of times a sleep condition has occurred since this parameter was reset.	Default: 0.00 Min/Max: 0.00 / 60000.00	RW	Real
		1205	753 **Day Stroke Count** Day Stroke Count Displays the number of strokes for the past 24 hours. This is a rolling counter updated every hour.	Default: 0.00 Min/Max: 0.00 / 65535.00	RO	Real
		1206 ○	753 **DI PumpOff Disbl** Digital Input Pump Off Disable Selects the digital input source for the Pump Off Disable function.	Default: 0.00 Min/Max: 0.00 / 159999.15	RW	32-bit Integer
		1207	753 **Pump OffSleepLvl** Pump Off Sleep Level Provides a source for P351 [SleepWake RefSel]. This provides the start/stop control of the drive by the Pump-Off function.	Units: Secs Default: 0.00 Min/Max: 0.00 / 10.00	RO	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Profiling	1210	755 **Profile Status** Profile Status Indicates status of speed profile/position indexer control logic.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Home Not Set	Vel Override	Restart Step	Resume	Stopped	Complete	In Position	Holding	Dwell	PositionMode	Running	Enabled	Reserved	Reserved	Reserved	Step Bit 4	Step Bit 3	Step Bit 2	Step Bit 1	Step Bit 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Step Bit 0” – Bit 0 through Bit 4 indicate executing step number in the move table in binary format.

Bit 1 “Step Bit 1”

Bit 2 “Step Bit 2”

Bit 3 “Step Bit 3”

Bit 4 “Step Bit 4”

Bit 8 “Enabled” – Indicates that the profile control logic is enabled. When the drive is started with the profiler selection (Option 6) in the speed/torque/position mode P313 [Actv SpTqPs Mode], this bit turns on.

Bit 9 “Running” – Indicates that the profile control logic is in running state.

Bit 10 “PositionMode” – Indicates that the profile control logic is using position control logic.

Bit 11 “Dwell” – Indicates that the profile control logic is in dwell state.

Bit 12 “Holding” – Indicates that the profile control logic is in holding states

Bit 13 “In Position” – Indicates that the target position has been reached at the completion of a move. The in position bandwidth P726 [In Pos Psn Band] can be adjusted to affect when this bit is set with respect to the target position. This bit will be cleared when a new move is begun

Bit 14 “Complete” – Indicates that all steps in the move table have been executed and a step with a End action has been reached. The profile control logic is complete. This bit will be cleared when the profile is first enabled.

Bit 15 “Stopped” – Indicates that the profile control logic stops the drive following Bit 14 “Complete” and any additional dwell time specified for the End step. This bit will be cleared when a new profile is begun.

Bit 16 “Resume” – Indicates that an existing step is to resume execution when the profile is enabled. A previously running step will then be allowed to complete. When the bit is clear, the profile will begin at its Starting Step.

Bit 17 “Restart Step” – Follows the state of the restart step bit in P1213 [Profile Command] Bit 10 “Restart Step”.

Bit 18 “Vel Override” – Follows the state of the velocity override bit in P1213 [Profile Command] Bit 9 “Vel Override”.

Bit 19 “Home Not Set” – Indicates that the home position is not defined and the move table contains a position absolute move type. When this bit is set the profile will not be allowed to execute. This bit will be cleared when either a homing function or position redefine function is completed.

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Profiling**	**1212**	755 **Units Traveled** Units Traveled Indicates total number of units traveled. The relationship between the feedback edge counts and the position units is determined by the P1215 [Counts Per Unit]. Actual motor position is converted from the edge counts to this value using the P1215 [Counts Per Unit].	Units: Cnts Default: Read Only Min/Max: –/+ 2200000000.0	RO	Real
		1213	755 **Profile Command** Profile Command Sets bits to configure the speed profile/position indexer control logic.			

Options	Reserved	Reserved	Reserved	Prof Run Alm	HomNotSetAlm	Restart Step	Vel Override	Hold Step	Reserved	Reserved	Reserved	StrStepSel4	StrStepSel3	StrStepSel2	StrStepSel1	StrStepSel0
Default	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “StrStepSel0” – Bit 0 through Bit 4 set initial or starting step in the move table in binary format. A starting step value of zero results in no motion when the drive is enabled.

Bit 1 “StrStepSel1”

Bit 2 “StrStepSel2”

Bit 3 “StrStepSel3”

Bit 4 “StrStepSel4”

Bit 8 “Hold Step” – When the drive is enabled with this bit is set, the drive starts and runs at zero velocity. The starting step is not executed until the ‘Hold Step’ bit is removed.

For non-blended moves, the drive will hold zero speed and/or current position. This does not stop the drive. For blended moves, the drive will continue to run at the step velocity. If the Hold Step bit is removed, then the conditions required to complete the step can be evaluated.

Bit 9 “Vel Override” – can be used to rescale all move velocities by the velocity override P1216 [ProfVel Override]. When this bit is off, a scale factor of 1 is used.

Bit 10 “Restart Step” – can be used to disable a currently executing profile. This bit forces the current step to reset to the starting step value.

Bit 11 “HomNotSetAlm” – sets condition to indicate the “home position not set” alarm. The absolute position type will work without home position if the bit is off. Set on as default.

Bit 12 “Prof Run Alm” – sets condition to indicate the profile running alarm during the drive is running. Set on as default.

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Profiling**	**1215**	755 **Counts Per Unit** Counts Per Unit Sets number of position feedback counts per unit of machine travel (ex, 1024 encoder edge counts per inch). This parameter is used to scale position targets from their entered values of units to internal units of encoder edge counts. This parameter is also used to convert actual motor position from encoder edge counts back into the desired units for display in P1212 [Units Traveled].	Default: 1 Min/Max: 1 / 2200000000	RW	32-bit Integer
		1216	755 **ProfVel Override** Profile Velocity Override Sets multiplier for all move velocities when the velocity override function is selected P1213 [Profile Command] Bit 9 “Vel Override.” This parameter is typically set to a value less than 1. When the velocity override bit P1213 [Profile Command] Bit 9 “Vel Override” is off, a scale factor of 1 is used.	Units: % Default: 100.00 Min/Max: 10.00 / 150.00	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Profiling	1217	755 **Prof DI Invert** Profile Digital Input Invert Sets polarity of the digital inputs. Each bit is assigned to a move table step. Rising edge of the digital input is used when the bit is off, and falling edge of digital input is used when the bit is on.			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Step 16	Step 15	Step 14	Step 13	Step 12	Step 11	Step 10	Step 9	Step 8	Step 7	Step 6	Step 5	Step 4	Step 3	Step 2	Step 1	StrStepSel4	StrStepSel3	StrStepSel2	StrStepSel1	StrStepSel0	Vel Override	AbortProfile	Abort Step	Hold Step
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Hold Step” – sets polarity of the digital input for the hold step, P1218 [DI Hold Step].
Bit 1 “Abort Step” – sets polarity of the digital input for abort step, P1219 [DI Abort Step].
Bit 2 “AbortProfile” – sets polarity of the digital input for abort profile, P1220 [DI Abort Profile].
Bit 3 “Vel Override” – sets polarity of the digital input for velocity override, P1221 [DI Vel Override].
Bit 4 “StrStepSel0” – sets polarity of the digital input for start step 1, P1222 [DI StrtStep Sel0].
Bit 5 “StrStepSel1” – sets polarity of the digital input for start step 2, P1223 [DI StrtStep Sel1].
Bit 6 “StrStepSel2” – sets polarity of the digital input for start step 3, P1224 [DI StrtStep Sel2].
Bit 7 “StrStepSel3” – sets polarity of the digital input for start step 4, P1225 [DI StrtStep Sel3].
Bit 8 “StrStepSel4” – sets polarity of the digital input for start step 5, P1226 [DI StrtStep Sel4]
Bit 9 “Step 1” – sets polarity of the digital input for move step 1, P1230 [Step 1 Type].
Bit 10 “Step 2” – sets polarity of the digital input for move step 2, P1240 [Step 2 Type].
Bit 11 “Step 3” – sets polarity of the digital input for move step 3, P1250 [Step 3 Type].
Bit 12 “Step 4” – sets polarity of the digital input for move step 4, P1260 [Step 4 Type].
Bit 13 “Step 5” – sets polarity of the digital input for move step 5, P1270 [Step 5 Type].
Bit 14 “Step 6” – sets polarity of the digital input for move step 6, P1280 [Step 6 Type].
Bit 15 “Step 7” – sets polarity of the digital input for move step 7, P1290 [Step 7 Type].
Bit 16 “Step 8” – sets polarity of the digital input for move step 8, P1300 [Step 8 Type].
Bit 17 “Step 9” – sets polarity of the digital input for move step 9, P1310 [Step 9 Type].
Bit 18 “Step 10” – sets polarity of the digital input for move step 10, P1320 [Step 10 Type].
Bit 19 “Step 11” – sets polarity of the digital input for move step 11, P1330 [Step 11 Type].
Bit 20 “Step 12” – sets polarity of the digital input for move step 12, P1340 [Step 12 Type].
Bit 21 “Step 13” – sets polarity of the digital input for move step 13, P1350 [Step 13 Type].
Bit 22 “Step 14” – sets polarity of the digital input for move step 14, P1360 [Step 14 Type].
Bit 23 “Step 15” – sets polarity of the digital input for move step 15, P1370 [Step 15 Type].
Bit 24 “Step 16” – sets polarity of the digital input for move step 16, P1380 [Step 16 Type].

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1218	755 **DI Hold Step** Digital Input Hold Step Sets a digital input port for the hold step in profile/indexer control logic. The digital input assigned by this parameter is equivalent to P1213 [Profile Command] Bit 8 “Hold Step.” Polarity of active state is defined by P1217 [Prof DI Invert] Bit 0 “Hold Step.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1219	755 **DI Abort Step** Digital Input Abort Step Sets a digital input port for the abort step in profile/indexer control logic. Polarity of active state is defined by P1217 [Prof DI Invert] Bit 1 “Abort Step.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1220	755 **DI Abort Profile** Digital Input Abort Profile Sets a digital input port for the abort profile in profile/indexer control logic. Polarity of active state is defined by P1217 [Prof DI Invert] Bit 2 “AbortProfile.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1221	755 **DI Vel Override** Digital Input Velocity Profile Sets a digital input port for the velocity override in profile/indexer control logic. The digital input assigned by this parameter is equivalent to P1213 [Profile Command] Bit 9 “Vel Override.” Polarity of active state is defined by P1217 [Prof DI Invert] Bit 3 “Vel Override.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1222 1223 1224 1225 1226 ○	755 **DI StrtStep Sel0** 755 **DI StrtStep Sel1** 755 **DI StrtStep Sel2** 755 **DI StrtStep Sel3** 755 **DI StrtStep Sel4** Digital Input Start Step Select 0, 1, 2, 3, 4 Set digital input ports for the start step in profile/indexer control logic. The digital inputs assigned by these parameters are equivalent to P1213 [Profile Command] Bit 4 “StrStepSel4.” Polarities of active state are defined by P1217 [Prof DI Invert] Bit 4 “StrStepSel0” to Bit 8 “StrStepSel4.”	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer
		1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 ○	755 **Step 1 Type** 755 **Step 2 Type** 755 **Step 3 Type** 755 **Step 4 Type** 755 **Step 5 Type** 755 **Step 6 Type** 755 **Step 7 Type** 755 **Step 8 Type** 755 **Step 9 Type** 755 **Step 10 Type** 755 **Step 11 Type** 755 **Step 12 Type** 755 **Step 13 Type** 755 **Step 14 Type** 755 **Step 15 Type** 755 **Step 16 Type** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Type Set type of move for a particular step. The possible step types are: “Speed” (0) = Speed Profile moves in speed mode. “Position Abs” (1) = Position Absolute moves in absolute position mode. “PositionIncr” (2) = Position Incremental moves in position increment mode. The drive must have the direction mode set to the bipolar for the position regulator to function properly. The current, torque, and regen power limits must be set so as not to limit the programmed deceleration time. If the limits occur, the position regulator may overshoot the position set point.	Default: Options:	0 = “Speed” 0 = “Speed” 1 = “Position Abs” 2 = “PositionIncr”	RW	32-bit Integer
		1231 1241 1251 1261 1271 1281 1291 1301 1311 1321 1331 1341 1351 1361 1371 1381	755 **Step 1 Velocity** 755 **Step 2 Velocity** 755 **Step 3 Velocity** 755 **Step 4 Velocity** 755 **Step 5 Velocity** 755 **Step 6 Velocity** 755 **Step 7 Velocity** 755 **Step 8 Velocity** 755 **Step 9 Velocity** 755 **Step 10 Velocity** 755 **Step 11 Velocity** 755 **Step 12 Velocity** 755 **Step 13 Velocity** 755 **Step 14 Velocity** 755 **Step 15 Velocity** 755 **Step 16 Velocity** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Velocity Set speed at which a move will take place. The step velocity applies to all three types of moves – position absolute, position incremental, and speed profile. The motor may not achieve the step velocity in all cases. Short distance moves may begin to decelerate before the step velocity is reached. If the move is sufficiently long, then the motor speed will be limited to the step velocity. Sign on the step velocity is used to determine direction of motor rotation. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.	Units: Default: Min/Max:	Hz RPM 0.00 –/+P27 [Motor NP Hertz] x 8 –/+P28 [Motor NP RPM] x 8	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	**Profiling**	**1232** **1242** **1252** **1262** **1272** **1282** **1292** **1302** **1312** **1322** **1332** **1342** **1352** **1362** **1372** **1382**	755 **Step 1 Accel** 755 **Step 2 Accel** 755 **Step 3 Accel** 755 **Step 4 Accel** 755 **Step 5 Accel** 755 **Step 6 Accel** 755 **Step 7 Accel** 755 **Step 8 Accel** 755 **Step 9 Accel** 755 **Step 10 Accel** 755 **Step 11 Accel** 755 **Step 12 Accel** 755 **Step 13 Accel** 755 **Step 14 Accel** 755 **Step 15 Accel** 755 **Step 16 Accel** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Acceleration Set acceleration time between zero and rated motor speed in seconds. The motor will accelerate towards the step speed using the step velocity parameter. The minimum acceleration rate is determined by the system inertia. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real
		1233 **1243** **1253** **1263** **1273** **1283** **1293** **1303** **1313** **1323** **1333** **1343** **1353** **1363** **1373** **1383**	755 **Step 1 Decel** 755 **Step 2 Decel** 755 **Step 3 Decel** 755 **Step 4 Decel** 755 **Step 5 Decel** 755 **Step 6 Decel** 755 **Step 7 Decel** 755 **Step 8 Decel** 755 **Step 9 Decel** 755 **Step 10 Decel** 755 **Step 11 Decel** 755 **Step 12 Decel** 755 **Step 13 Decel** 755 **Step 14 Decel** 755 **Step 15 Decel** 755 **Step 16 Decel** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Deceleration Set deceleration time between rated motor speed and zero in seconds. The motor will decelerate towards zero speed. The minimum deceleration rate is determined by the system inertia. Cannot be used with most blended moves in Position Absolute type and Position Incremental type.	Units: Default: Min/Max:	Secs 10.00 0.00 / 3600.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	**1234 1244 1254 1264 1274 1284 1294 1304 1314 1324 1334 1344 1354 1364 1374 1384**	755 **Step 1 Value** 755 **Step 2 Value** 755 **Step 3 Value** 755 **Step 4 Value** 755 **Step 5 Value** 755 **Step 6 Value** 755 **Step 7 Value** 755 **Step 8 Value** 755 **Step 9 Value** 755 **Step 10 Value** 755 **Step 11 Value** 755 **Step 12 Value** 755 **Step 13 Value** 755 **Step 14 Value** 755 **Step 15 Value** 755 **Step 16 Value** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Value These parameters can take on any one of several meanings depending on the move type and action. The possible meanings for these parameters are given below. All other type/action combinations will be ignored. [Type] = Position Absolute [Action] = Posit Blend, Wait Dig-in, or Step to Next [Value] is the Absolute Target Position [Type] = Position Incremental [Action] = Posit Blend, Wait Dig-in, or Step to Next [Value] is the Incremental Target Position [Type] = Speed Profile [Action] = Posit Blend [Value] is the Incremental Target Position [Type] = Speed Profile [Action] = Time Blend, Wait Dig-in, or Step to Next [Value] is the Total Time to complete the move. Time is specified in 1/100ths of a second (1000 = 10.00 sec). Negative values result in time = 0 sec (no move) [Type] = Speed Profile [Action] = Parameter Blend [Value] is the parameter number to compare against the parameter set-point specified in the dwell parameter. Positive numbers will use a greater than check, negative numbers will use a less than check.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		1235 1245 1255 1265 1275 1285 1295 1305 1315 1325 1335 1345 1355 1365 1375 1385	755 **Step 1 Dwell** 755 **Step 2 Dwell** 755 **Step 3 Dwell** 755 **Step 4 Dwell** 755 **Step 5 Dwell** 755 **Step 6 Dwell** 755 **Step 7 Dwell** 755 **Step 8 Dwell** 755 **Step 9 Dwell** 755 **Step 10 Dwell** 755 **Step 11 Dwell** 755 **Step 12 Dwell** 755 **Step 13 Dwell** 755 **Step 14 Dwell** 755 **Step 15 Dwell** 755 **Step 16 Dwell** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Dwell Set time delay between moves. P1210 [Profile Status] Bit 11 "Dwell" will be set to indicate that the step dwell period is active and timing. Zero value will disable dwell, negative value will wait forever. Not all steps can use dwell (example, most blended moves cannot use dwell). When the speed type with the parameter blend action move is used, the step dwell parameter will contain the parameter number of the set-point value to compare with the parameter selected in the value parameter.	Units: Default: Min/Max:	Secs 0.00 –1.00 / 3600.00	RW	Real

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	**Profiling**	**1236 1246 1256 1266 1276 1286 1296 1306 1316 1326 1336 1346 1356 1366 1376 1386**	755 **Step 1 Batch** 755 **Step 2 Batch** 755 **Step 3 Batch** 755 **Step 4 Batch** 755 **Step 5 Batch** 755 **Step 6 Batch** 755 **Step 7 Batch** 755 **Step 8 Batch** 755 **Step 9 Batch** 755 **Step 10 Batch** 755 **Step 11 Batch** 755 **Step 12 Batch** 755 **Step 13 Batch** 755 **Step 14 Batch** 755 **Step 15 Batch** 755 **Step 16 Batch** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Batch Set number of times to repeat a step. For example, a batch count of two will cause that step to repeat two times before starting the next step. These parameters cannot be used with position absolute moves, since this would imply moving to the same position repeatedly. These parameters cannot be used with most blended moves (exception dig-in blend), because most blended moves need to transition to the next step, instead of repeating. The dig-in blend moves use this parameter to specify the number of digital input transitions required. A zero step batch setting will cause that step to repeat forever.	Default: 1 Min/Max: 0 / 65535	RW	32-bit Integer
		1237 1247 1257 1267 1277 1287 1297 1307 1317 1327 1337 1347 1357 1367 1377 1387	755 **Step 1 Next** 755 **Step 2 Next** 755 **Step 3 Next** 755 **Step 4 Next** 755 **Step 5 Next** 755 **Step 6 Next** 755 **Step 7 Next** 755 **Step 8 Next** 755 **Step 9 Next** 755 **Step 10 Next** 755 **Step 11 Next** 755 **Step 12 Next** 755 **Step 13 Next** 755 **Step 14 Next** 755 **Step 15 Next** 755 **Step 16 Next** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Next Set step number that will be executed after the current step is complete. The current step will be complete after any batch repeat cycles have finished. Typically, steps are executed in ascending order, although this is not a requirement. These parameters do not apply to a step having an End action, since this step is normally used to terminate a sequence of step moves.	Default: 2 Min/Max: 1 / 16	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Profiling	1238 1248 1258 1268 1278 1288 1298 1308 1318 1328 1338 1348 1358 1368 1378 1388	755 **Step 1 Action** 755 **Step 2 Action** 755 **Step 3 Action** 755 **Step 4 Action** 755 **Step 5 Action** 755 **Step 6 Action** 755 **Step 7 Action** 755 **Step 8 Action** 755 **Step 9 Action** 755 **Step 10 Action** 755 **Step 11 Action** 755 **Step 12 Action** 755 **Step 13 Action** 755 **Step 14 Action** 755 **Step 15 Action** 755 **Step 16 Action** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Action Set what is to be done at the end of a step after the move is complete. End (0) = End stops the move sequence. Step to Next (1) = Step to Next moves to the next step after the speed ramp up/down is completed in the specific total time. The dwell time and the batch can be applied. Psn Blend (2) = Posit Blend moves to the next step after the actual position becomes greater than the position specified in the value parameter. Time Blend (3) = Time Blend moves to the next step after the total running time becomes greater than the time specified in the value parameter. Param Blend (4) = Param Blend moves to the next step after comparison of two parameters is satisfied. The parameters for comparison are specified in the value and dwell parameter. DigIn Blend (5) = DigIn Blend moves to the next step after the specified number of digital input rising (or falling) edges are applied. The batch parameter specifies the number of digital input edges. Wait DigIn (6) = Wait DigIn moves to the next step after the digital input rising (or falling) edges are applied.	Default: Options:	1 = “Step to Next” 0 = “End” 1 = “Step to Next” 2 = “Psn Blend” 3 = “Time Blend” 4 = “Param Blend” 5 = “DigIn Blend” 6 = “Wait DigIn”	RW	32-bit Integer
		1239 1249 1259 1269 1279 1289 1299 1309 1319 1329 1339 1349 1359 1369 1379 1389 ○	755 **Step 1 Dig In** 755 **Step 2 Dig In** 755 **Step 3 Dig In** 755 **Step 4 Dig In** 755 **Step 5 Dig In** 755 **Step 6 Dig In** 755 **Step 7 Dig In** 755 **Step 8 Dig In** 755 **Step 9 Dig In** 755 **Step 10 Dig In** 755 **Step 11 Dig In** 755 **Step 12 Dig In** 755 **Step 13 Dig In** 755 **Step 14 Dig In** 755 **Step 15 Dig In** 755 **Step 16 Dig In** Step 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 Digital Input Set digital input sources. Not all steps use the digital input for the step move. The following type and action moves use the dig-in parameters to specify the digital input sources. Polarity (rising or falling edges) of digital input is set by P1217 [Prof DI Invert]. 1. [Type] Position Absolute [Action] Wait DigIn 2. [Type] Position Incremental [Action] Wait DigIn 3. [Type] Speed Profile [Action] DigIn Blend 4. [Type] Speed Profile [Action] Wait DigIn	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1390	755 **PCAM Control** Position Camming Control Sets bits to control the position CAM control logic.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Cndtnl Hold	Unidirection	Reref Psn In	Offset En	Alt Slope	Aux Cam En	ReverseY Out	ReverseX In	Start
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Start” – Start the position CAM
Bit 1 “ReverseX In” – Reverse polarity of x-axis input (P1392 [PCAM Psn Select])
Bit 2 “ReverseY Out” – Reverse polarity of y-axis output at beginning of next cycle (P1473 [PCAM Psn Out])
Bit 3 “Aux Cam En” – Switch to the auxiliary CAM profile at beginning of next cycle
Bit 4 “Alt Slope” – Use a different slope calculation
Bit 5 “Offset En” – Enable input offset function (P1394 [PCAM Psn Ofst])
Bit 6 “Reref Psn In” – Permit re-referencing x-axis input (P1392 PCAM Psn Select])
Bit 7 “Unidirection” – Use unidirectional operation
Bit 8 “Cndtnl Hold” – Freeze the speed regulator's integrator if position reference changes. This bit is recommended to be set for point to point motion.

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1391	755 **PCAM Mode** Position Camming Mode The parameter sets type of operational mode. “Off” (0) – Disable position CAM function “Single Step” (1) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs until the x-axis has reached the last point defined by the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]) at which point it is completed. If the x-axis then backs up into CAM range, nothing happens; the profile has already completed and won't restart until control Start (P1390 [PCAM Control]) is once again set. “Continuous” (2) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs to the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]), and then repeats forever or until the control bit Start (P1390 [PCAM Control]) is cleared. “Persistent” (3) – At rising edge of Start (P1390 [PCAM Control]), the CAM profile begins at point 0 and runs to the end point (P1405 [PCAM Main EndPnt] and P1439 [PCAM Aux EndPnt]), and remains active until the control bit Start (P1390 [PCAM Control]) is cleared.	Default: Options:	0 = “Off” 0 = “Off” 1 = “Single Step” 2 = “Continuous” 3 = “Persistent”	RW	32-bit Integer
		1392 ○	755 **PCAM Psn Select** Position Camming Position Select The parameter selects a position reference source for x-axis.	Default: Options:	1393 1 / 159999	RW	32-bit Integer
		1393	755 **PCAM Psn Stpt** Position Camming Position Setpoint The parameter provides position reference for x-axis when the position reference select (P1392 [PCAM Psn Select]) selects this parameter.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		1394	755 **PCAM Psn Ofst** Position Camming Position Offset The parameter provides position offset value to x-axis position when the offset enable control bit (P1390 [PCAM Control]) is set. The offset value causes a phase shift or position change in x-axis and a momentary change to CAM speed.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		1395	755 **PCAM PsnOfst Eps** Position Camming Position Offset Eps The parameter provides count of edges per second for virtual encoder function. The value makes a limit on change of x-axis position in change of position offset input.	Default: Min/Max:	2000 0 / 2147483647	RW	32-bit Integer
		1396	755 **PCAM Span X** Position Camming Span X The parameter provides the number of integer counts equivalent to the span or range of x-axis.	Default: Min/Max:	8192 0 / 2147483647	RW	32-bit Integer

File	Group	No.	Name Description	Values	Read-Write	Data Type
APPLICATIONS	Camming	1397	755 **PCAM Scale X** Position Camming Scale X The parameter multiplies span x (P1396 [PCAM Span X]) such that the x-axis dimension will expand if this parameter is greater than 1.	Default: 1.00 Min/Max: 0.01 / 214748000.00	RW	Real
		1398	755 **PCAM Span Y** Position Camming Span Y The parameter provides the number of edges equivalent to the span of the y-axis. The value is the number of integer counts representing the maximum vertical extent of the profile.	Default: 8192 Min/Max: 0 / 2147483647	RW	32-bit Integer
		1399 ○	755 **PCAM ScaleY Sel** Position Camming Scale Y Select The parameter selects a source for y scale.	Default: 1400 Options: 1 / 159999	RW	32-bit Integer
		1400	755 **PCAM ScaleYSetPt** Position Camming Scale Y Setpoint The parameter provides y-axis scale when the y scale select (P1399 [PCAM ScaleY Sel]) selects this parameter. The y scale multiplies the y span such that the y-axis dimension will increase if y scale is greater than 1.	Default: 1.00 Min/Max: 0.01 / 214748000.00	RW	Real
		1401 ○	755 **PCAM VelScaleSel** Position Camming Velocity Scale Select The parameter selects a source for velocity scale.	Default: 1402 Options: 1 / 159999	RW	32-bit Integer
		1402	755 **PCAM VelScaleSP** Position Camming Velocity Scale Setpoint The parameter provides velocity scale when the velocity scale select (P1401 [PCAM VelScaleSel]) selects this parameter. The velocity scale multiplies the velocity output (P1472 [PCAM Vel Out]) such that the velocity output (P1472) will decrease if the velocity scale is less than 1.	Units: MPE Default: 0.000100 Min/Max: 0.000000 / 8.00000	RW	Real
		1403	755 **PCAM Slope Begin** Position Camming Slope Begin The parameter provides beginning slope at CAM point 0. The parameter is used only if the segment is cubic type curve.	Default: 0.00 Min/Max: –214748000.00 / 214748000.00	RW	Real
		1404	755 **PCAM Slope End** Position Camming Slope End The parameter provides ending slope at CAM point 0. The parameter is used only if the segment is cubic type curve in both the main and the auxiliary CAM profile.	Default: 0.00 Min/Max: –214748000.00 / 214748000.00	RW	Real
		1405	755 **PCAM Main EndPnt** Position Camming Main End Point The parameter provides a number of the last CAM point used in the main CAM profile.	Default: 0 Options: 1 / 15	RW	32-bit Integer
		1406	755 **PCAM Main Types** Position Camming Main Types Each bit sets curve type for each segment in the main CAM profile. If the bit is clear, the curve is linear at the point of segment in the main CAM profile. If the bit is set, the curve is cubic at the point of segment in the main CAM profile.			

Options	CubicCurve15	CubicCurve14	CubicCurve13	CubicCurve12	CubicCurve11	CubicCurve10	CubicCurve9	CubicCurve8	CubicCurve7	CubicCurve6	CubicCurve5	CubicCurve4	CubicCurve3	CubicCurve2	CubicCurve1	CubicCurve0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1407 1409 1411 1413 1415 1417 1419 1421 1423 1425 1427 1429 1431 1433 1435 1437	755 **PCAM Main Pt X 0** 755 **PCAM Main Pt X 1** 755 **PCAM Main Pt X 2** 755 **PCAM Main Pt X 3** 755 **PCAM Main Pt X 4** 755 **PCAM Main Pt X 5** 755 **PCAM Main Pt X 6** 755 **PCAM Main Pt X 7** 755 **PCAM Main Pt X 8** 755 **PCAM Main Pt X 9** 755 **PCAM Main PtX 10** 755 **PCAM Main PtX 11** 755 **PCAM Main PtX 12** 755 **PCAM Main PtX 13** 755 **PCAM Main PtX 14** 755 **PCAM Main PtX 15** Position Camming Main Point X 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Provides x-coordinate value for CAM point in the main CAM profile.	Default: Min/Max:	0.00 –/+220000000.00	RW	Real
		1408 1410 1412 1414 1416 1418 1420 1422 1424 1426 1428 1430 1432 1434 1436 1438	755 **PCAM Main Pt Y 0** 755 **PCAM Main Pt Y 1** 755 **PCAM Main Pt Y 2** 755 **PCAM Main Pt Y 3** 755 **PCAM Main Pt Y 4** 755 **PCAM Main Pt Y 5** 755 **PCAM Main Pt Y 6** 755 **PCAM Main Pt Y 7** 755 **PCAM Main Pt Y 8** 755 **PCAM Main Pt Y 9** 755 **PCAM Main PtY 10** 755 **PCAM Main PtY 11** 755 **PCAM Main PtY 12** 755 **PCAM Main PtY 13** 755 **PCAM Main PtY 14** 755 **PCAM Main PtY 15** Position Camming Main Point Y 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Provides y-coordinate value for CAM point in the main CAM profile.	Default: Min/Max:	0.00 –/+220000000.00	RW	Real
		1439	755 **PCAM Aux EndPnt** Position Camming Auxiliary End Point Provides a number of the last CAM point used in the auxiliary CAM profile.	Default: Options:	0 1 / 15	RW	32-bit Integer
		1440	755 **PCAM Aux Types** Position Camming Auxiliary Types Each bit sets curve type for each segment in the auxiliary CAM profile. If the bit is clear, the curve is linear at the point of segment in the auxiliary CAM profile. If the bit is set, the curve is cubic at the point of segment in the auxiliary CAM profile.				

Options	CubicCurve15	CubicCurve14	CubicCurve13	CubicCurve12	CubicCurve11	CubicCurve10	CubicCurve9	CubicCurve8	CubicCurve7	CubicCurve6	CubicCurve5	CubicCurve4	CubicCurve3	CubicCurve2	CubicCurve1	Reserved
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1441 1443 1445 1447 1449 1451 1453 1455 1457 1459 1461 1463 1465 1467 1469	755 **PCAM Aux Pt X 1** 755 **PCAM Aux Pt X 2** 755 **PCAM Aux Pt X 3** 755 **PCAM Aux Pt X 4** 755 **PCAM Aux Pt X 5** 755 **PCAM Aux Pt X 6** 755 **PCAM Aux Pt X 7** 755 **PCAM Aux Pt X 8** 755 **PCAM Aux Pt X 9** 755 **PCAM Aux PtX 10** 755 **PCAM Aux PtX 11** 755 **PCAM Aux PtX 12** 755 **PCAM Aux PtX 13** 755 **PCAM Aux PtX 14** 755 **PCAM Aux PtX 15** Position Camming Auxiliary Point X 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Provides x-coordinate value for CAM point in the auxiliary CAM profile.	Default: Min/Max:	0.00 –/+220000000.00	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1442 1444 1446 1448 1450 1452 1454 1456 1458 1460 1462 1464 1466 1468 1470	755 **PCAM Aux Pt Y 1** 755 **APCAM Aux Pt Y 2** 755 **PCAM Aux Pt Y 3** 755 **PCAM Aux Pt Y 4** 755 **PCAM Aux Pt Y 5** 755 **PCAM Aux Pt Y 6** 755 **PCAM Aux Pt Y 7** 755 **PCAM Aux Pt Y 8** 755 **PCAM Aux Pt Y 9** 755 **PCAM Aux PtY 10** 755 **PCAM Aux PtY 11** 755 **PCAM Aux PtY 12** 755 **PCAM Aux PtY 13** 755 **PCAM Aux PtY 14** 755 **PCAM Aux PtY 15** Position Camming Auxiliary Point Y 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 Provides y-coordinate value for CAM point in the auxiliary CAM profile.	Default: Min/Max:	0.00 –/+220000000.00	RW	Real
		1471	755 **PCAM Status** Position Camming Status Indicates status of position CAM logic.				

Options	Reserved	Reserved	Reserved	Cndtnl Hold	Unidirection	Reref Pos In	Offset En	Alt Slope	Aux Cam En	ReverseY Out	ReverseX In	Start	In Cam	Persist Mode	Contins Mode	Single Mode
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

Bit 0 “Single Mode” – Position CAM is in single step mode.
Bit 1 “Contins Mode” – Position CAM is in continuous mode.
Bit 2 “Persist Mode” – Position CAM is in persistent mode.
Bit 3 “In Cam” – X-axis is in range of defined profile.
Bit 4 “Start” – Position CAM has started.
Bit 5 “ReverseX In” – X-axis input is reversed.
Bit 6 “ReverseY Out” – Y-axis output is reversed.
Bit 7 “Aux Cam En” – Auxiliary CAM profile is in use.
Bit 8 “Alt Slope” – Alternated slope is in use.
Bit 9 “Offset En” – X-axis offset is enabled.
Bit 10 “Reref Pos In” – X-position input is re-referencing.
Bit 11 “Unidirection” – Position CAM is in unidirectional mode.
Bit 12 “Cndtnl Hold” – Conditional integrator hold is in use.

File	Group	No.	Name Description	Values		Read-Write	Data Type
APPLICATIONS	Camming	1472	755 **PCAM Vel Out** Position Camming Velocity Output Indicates output velocity in per unit. The value is connected to the speed regulator.	Units: Default: Min/Max:	Hz RPM 0.00 0.00 / P27 [Motor NP Hertz] x 8 0.00 / P28 [Motor NP RPM] x 8	RO	Real
		1473	755 **PCAM Psn Out** Position Camming Position Output Indicates output position. The value is connected to the position regulator.	Default: Min/Max:	0.00 –/+220000000.00	RO	32-bit Integer
		1474 ○	755 **DI PCAM Start** Digital Input Position Camming Start Selects the digital input used to start the position camming sequence.	Default: Min/Max:	0.00 0.00 / 159999.15	RW	32-bit Integer

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I/O Module Parameters

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Inputs	1	**Dig In Sts** Digital Input Status Status of the digital inputs.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Input 5	Input 4	Input 3	Input 2	Input 1	Input 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Input Not Activated
1 = Input Activated

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Inputs	2 ○	**Dig In Filt Mask** Digital Input Filter Mask Filters the selected digital input. **Important:** Only used by I/O Module models 20-750-2263C-1R2T and 20-750-2262C-2R.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Input 5	Input 4	Input 3	Input 2	Input 1	Input 0
Default	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Input Not Filtered
1 = Input Filtered

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Inputs	3 ○	**Dig In Filt** Digital Input Filter Sets the amount of filtering on the digital inputs. **Important:** Only used by I/O Module models 20-750-2263C-1R2T and 20-750-2262C-2R.	Units: Default: Min/Max:	mS 4 2 / 10	RW	32-bit Integer

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th></th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>HOST GROUPS</td><td>Digital Outputs</td><td>5</td><td colspan="5">Dig Out Sts
Digital Output Status
Status of the digital outputs.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Output De-energized</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Output Energized</td></tr>
</table>
(1) Bit 1 = “Trans Out 0” for I/O Module model 20-750-2263C-1R2T
= “Relay Out 1” for I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by I/O Module 20-750-2263C-1R2T</td></tr>
<tr><td></td><td></td><td>6</td><td colspan="5">Dig Out Invert
Digital Output Invert
Inverts the selected digital output.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Output Not Inverted</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Output Inverted</td></tr>
</table>
(1) Bit 1 = “Trans Out 0” for I/O Module model 20-750-2263C-1R2T
= “Relay Out 1” for I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by I/O Module 20-750-2263C-1R2T</td></tr>
<tr><td></td><td></td><td>7</td><td colspan="5">Dig Out Setpoint
Digital Output Setpoint
Controls Relay or Transistor Outputs when chosen as the source. Can be used to control outputs from a communication device using DataLinks.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Trans Out 1(2)</td><td>Trans Out 0(1)</td><td>Relay Out 0</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Output De-energized</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Output Energized</td></tr>
</table>
(1) Bit 1 = “Trans Out 0” for I/O Module model 20-750-2263C-1R2T
= “Relay Out 1” for I/O Module models 20-750-2262C-2R and 20-750-2262D-2R
(2) Bit 2 is only used by I/O Module 20-750-2263C-1R2T</td></tr>
<tr><td></td><td></td><td>10</td><td>RO0 Sel
Relay Output 0 Select
Selects the source that will energize the relay output.
Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] bit 7 “Faulted”.</td><td>Default:
Min/Max:</td><td>0.00 (Disabled)
0.00 / 159999.15</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>11</td><td>RO0 Level Sel
Relay Output 0 Level Select
Selects the source of the level that will be compared.</td><td>Default:
Min/Max:</td><td>0 (Disabled)
0 / 159999</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>12</td><td>RO0 Level
Relay Output 0 Level
Sets the level compare value.</td><td>Default:
Min/Max:</td><td>0.0
–/+1000000.0</td><td>RW</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Outputs	13	**RO0 Level CmpSts** Relay Output 0 Level Compare Status Status of the level compare, and a possible source for a relay or transistor output. Relay Output X Select or Transistor Output X Select must have this selected to energize the output. Can be used without a physical output as status information only.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Less Than” – Level source is less than the level value.
Bit 1 “Grt Than Equ” – Level source is greater than or equal to the level value.

File	Group	No.	Name Description	Values		Read-Write	Data Type
		14	**RO0 On Time** Relay Output 0 On Time Sets the “ON Delay” time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		15	**RO0 Off Time** Relay Output 0 Off Time Sets the “OFF Delay” time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		20	**RO1 Sel** Relay Output 1 Select – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Sel** Transistor Output 0 Select – I/O Module model 20-750-2263C-1R2T is installed. Selects the source that will energize the relay or transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] bit 7 “Faulted”.	Default: Min/Max:	0 (Disabled) 0 / 15999915	RW	32-bit Integer
		21	**RO1 Level Sel** Relay Output 1 Level Select – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level Sel** Transistor Output 0 Level Select – I/O Module model 20-750-2263C-1R2T is installed. Selects the source of the level that will be compared.	Default: Min/Max:	0 (Disabled) 0 / 159999	RW	32-bit Integer
		22	**RO1 Level** Relay Output 1 Level – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level** Transistor Output 0 Level – I/O Module model 20-750-2263C-1R2T is installed. Sets the level compare value.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real
		23	**RO1 Level CmpSts** Relay Output 1 Level Compare Status – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Level CmpSts** Transistor Output 0 Level Compare Status – I/O Module model 20-750-2263C-1R2T is installed. Status of the level compare, and a possible source for a relay or transistor output. Relay Output X Select or Transistor Output X Select must have this selected to energize the output. Can be used without a physical output as status information only.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Less Than” – Level source is less than the level value.
Bit 1 “Grt Than Equ” – Level source is greater than or equal to the level value.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Outputs	24	**RO1 On Time** Relay Output 1 On Time – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 On Time** Transistor Output 0 On Time – I/O Module model 20-750-2263C-1R2T is installed. Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		25	**RO1 Off Time** Relay Output 1 Off Time – I/O Module model 20-750-2262C-2R or 20-750-2262D-2R is installed. **TO0 Off Time** Transistor Output 0 Off Time – I/O Module model 20-750-2263C-1R2T is installed. Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the relay or transistor.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		30	**TO1 Sel** Transistor Output 1 Select Selects the source that will energize the transistor output. Any status parameter bit can be used as an output source. For example P935 [Drive Status 1] bit 7 "Faulted". **Important:** Only used by I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0 (Disabled) 0 / 159999.15	RW	32-bit Integer
		31	**TO1 Level Sel** Transistor Output 1 Level Select Selects the source of the level that will be compared. **Important:** Only used by I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0 (Disabled) 0 / 159999.15	RW	32-bit Integer
		32	**TO1 Level** Transistor Output 1 Level Sets the level compare value. **Important:** Only used by I/O Module model 20-750-2263C-1R2T.	Default: Min/Max:	0.0 –/+1000000.0	RW	Real
		33 ○	**TO1 Level CmpSts** Transistor Output 1 Level Compare Status Status of the level compare, and a possible source for a transistor output. Transistor Output X Select must have this selected to energize the output. Can be used without a physical output as status information only.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Grt Than Equ	Less Than
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "Less Than" – Level source is less than the level value.
Bit 1 "Grt Than Equ" – Level source is greater than or equal to the level value.
Important: Only used by I/O Module model 20-750-2263C-1R2T.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Digital Outputs	34	**TO1 On Time** Transistor Output 1 On Time Sets the "ON Delay" time for the digital outputs. This is the time between the occurrence of a condition and activation of the transistor. **Important:** Only used by I/O Module model 20-750-2263C-1R2T.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real
		35	**TO1 Off Time** Transistor Output 1 Off Time Sets the "OFF Delay" time for the digital outputs. This is the time between the disappearance of a condition and de-activation of the transistor. **Important:** Only used by I/O Module model 20-750-2263C-1R2T.	Units: Default: Min/Max:	Secs 0.0 0.0 / 600.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Motor PTC	40	**PTC Cfg** Positive Temperature Coefficient Configuration Sets the action that will be taken when the PTC is not Ok. "Ignore" (0) – No action is taken "Alarm" (1) – Alarm occurs "Flt Minor" (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop "FltCoastStop" (3) – Fault Coast Stop occurs "Flt RampStop" (4) – Fault Ramp Stop occurs "Flt CL Stop" (5) – Fault Current Limit Stop occurs	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop"	RW	32-bit Integer
		41	**PTC Sts** Positive Temperature Coefficient Status Status of the PTC.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Over Temp	PTC Short	PTC Ok
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 "PTC Ok" – PTC is OK
Bit 1 "PTC Short" – PTC is Shorted
Bit 2 "Over Temp" – PTC is indicating over temperature

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Motor PTC	42	**PTC Raw Value** Positive Temperature Coefficient Raw Value Displays the value of the PTC.	Units: Default: Min/Max:	VAC 0 0 / 10	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Inputs	45	**Anlg In Type** Analog Input Type Status of the analog input mode set by the option jumpers.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Voltage Mode
1 = Current Mode

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Inputs	46	**Anlg In Sqrt** Analog Input Square Root Enables/disables the square root function for each input.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Square Root Disabled
1 = Square Root Enabled

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Inputs	47	**Anlg In Loss Sts** Analog Input Loss Status Status of the analog input loss. Bit 0 “Loss” – Indicates loss of one or both inputs.	0 = Loss not Present 1 = Loss Present			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Loss 1	Loss 0	Loss
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

File	Group	No.	Name Description	Values		Read-Write	Data Type
		50	**Anlg In0 Value** Analog Input 0 Value Value of the Analog input after filter, square root, and loss action.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		51	**Anlg In0 Hi** Analog Input 0 High Sets the highest input value to the analog input scaling block.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		52	**Anlg In0 Lo** Analog Input 0 Low Sets the lowest input value to the analog input scaling block.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		53	**Anlg In0 LssActn** Analog Input 0 Loss Action Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor” (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop” (3) – Fault Coast Stop occurs “Flt RampStop” (4) – Fault Ramp Stop occurs “Flt CL Stop” (5) – Fault Current Limit Stop occurs “Hold Input” (6) – Holds input at last value “Set Input Lo” (7) – Sets input to P52 [Anlg In0 Lo] “Set Input Hi” (8) – Sets input to P51 [Anlg In0 Hi]	Default: Options:	0 = “Ignore” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop” 6 = “Hold Input” 7 = “Set Input Lo” 8 = “Set Input Hi”	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Inputs	54	**Anlg In0 Raw Val** Analog Input 0 Raw Value Raw Value of the analog input.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		55	**Anlg In0 Filt Gn** Analog Input 0 Filter Gain Sets the analog input filter gain.	Default: Min/Max:	1.00 –/+5.00	RW	Real
		56	**Anlg In0 Filt BW** Analog Input 0 Filter Bandwidth Sets the analog input filter bandwidth.	Default: Min/Max:	0.0 0.0 / 500.0	RW	Real
		60	**Anlg In1 Value** Analog Input 1 Value Value of the Analog input after filter, square root, and loss action.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		61	**Anlg In1 Hi** Analog Input 1 High Sets the highest input value to the analog input scaling block.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		62	**Anlg In1 Lo** Analog Input 1 Low Sets the lowest input value to the analog input scaling block.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		63	**Anlg In1 LssActn** Analog Input 1 Loss Action Selects drive action when an analog signal loss is detected. Signal loss is defined as an analog signal less than 1V or 2mA. The signal loss event ends and normal operation resumes when the input signal level is greater than or equal to 1.5V or 3mA. "Ignore" (0) – No action is taken "Alarm" (1) – Alarm occurs "Flt Minor" (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop "FltCoastStop" (3) – Fault Coast Stop occurs "Flt RampStop" (4) – Fault Ramp Stop occurs "Flt CL Stop" (5) – Fault Current Limit Stop occurs "Hold Input" (6) – Holds input at last value "Set Input Lo" (7) – Sets input to P62 [Anlg In1 Lo] "Set Input Hi" (8) – Sets input to P61 [Anlg In1 Hi]	Default: Options:	0 = "Ignore" 0 = "Ignore" 1 = "Alarm" 2 = "Flt Minor" 3 = "FltCoastStop" 4 = "Flt RampStop" 5 = "Flt CL Stop" 6 = "Hold Input" 7 = "Set Input Lo" 8 = "Set Input Hi"	RW	32-bit Integer
		64	**Anlg In1 Raw Val** Analog Input 1 Raw Value Raw Value of the analog input.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real
		65	**Anlg In1 Filt Gn** Analog Input 1 Filter Gain Sets the analog input filter gain.	Default: Min/Max:	1.00 –/+5.00	RW	Real
		66	**Anlg In1 Filt BW** Analog Input 1 Filter Bandwidth Sets the analog input filter bandwidth.	Default: Min/Max:	0.0 0.0 / 500.0	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Outputs	70	**Anlg Out Type** Analog Output Type Select the analog output mode for each analog output.	0 = Voltage Mode 1 = Current Mode			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

		71	**Anlg Out Abs** Analog Output Absolute Selects whether the signed value or absolute value of a parameter is used before being scaled to drive the analog output.	0 = Condition False 1 = Condition True			

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Analog 1	Analog 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

		75	**Anlg Out0 Sel** Analog Output 0 Select Selects the source for the analog output.	Default: Min/Max:	3 0 / 159999	RW	32-bit Integer
		76	**Anlg Out0 Stpt** Analog Output 0 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	VAC 0 –10/20	RW	Real
		77	**Anlg Out0 Data** Analog Output 0 Data Displays the value of the source selected by P75 [Anlg Out0 Sel].	Default: Min/Max:	0 –/+100000	RO	Real
		78	**Anlg Out0 DataHi** Analog Output 0 Data High Sets the high value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		79	**Anlg Out0 DataLo** Analog Output 0 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		80	**Anlg Out0 Hi** Analog Output 0 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		81	**Anlg Out0 Lo** Analog Output 0 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		82	**Anlg Out0 Val** Analog Output 0 Value Displays the analog output value.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Outputs	85	**Anlg Out1 Sel** Analog Output 1 Select Selects the source for the analog output.	Default: Min/Max:	3 0 / 159999	RW	32-bit Integer
		86	**Anlg Out1 Stpt** Analog Output 1 Setpoint A possible source for an analog output. Can be used to control an analog output from a communication device using a DataLink. Not affected by analog output scaling.	Units: Default: Min/Max:	VAC 0 –10 / 20	RW	Real
		87	**Anlg Out1 Data** Analog Output 1 Data Displays the value of the source selected by P85 [Anlg Out1 Sel].	Default: Min/Max:	0 –/+100000	RO	Real
		88	**Anlg Out1 DataHi** Analog Output 1 Data High Sets the high value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		89	**Anlg Out1 DataLo** Analog Output 1 Data Low Sets the low value for the data range of analog out scale.	Default: Min/Max:	1 –/+214748000	RW	Real
		90	**Anlg Out1 Hi** Analog Output 1 High Sets the high value for the analog output value when the data value is at its maximum.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		91	**Anlg Out1 Lo** Analog Output 1 Low Sets the low value for the analog output value when the data value is at its minimum.	Units: Default: Min/Max:	Volts mA 0.000 Volts 0.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RW	Real
		92	**Anlg Out1 Val** Analog Output 1 Value Displays the analog output value.	Units: Default: Min/Max:	Volts mA 10.000 Volts 20.000 mA –/+10.000 Volts 0.000 / 20.000 mA	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Predictive Main	99	**PredMaint Sts** Predictive Maintenance Status Status of relay's predictive maintenance.				

Options	Master	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Relay Out 0[1]	Relay Out 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

[1] Bit 1 = “Relay Out 0” for I/O Module models 20-750-2262C-2R and 20-750-2262D-2R

File	Group	No.	Name Description	Values		Read-Write	Data Type
		100	**RO0 Load Type** Relay Output 0 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life.	Default: Options:	1 = “DC Inductive” 0 = “DC Resistive” 1 = “DC Inductive” 2 = “AC Resistive” 3 = “AC Inductive”	RW	32-bit Integer
		101	**RO0 Load Amps** Relay Output 0 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		102	**RO0 TotalLife** Relay Output 0 Total Life Total life cycles of the relay based on programmed load type and amps.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		103	**RO0 ElapsedLife** Relay Output 0 Elapsed Life Non-resettable, total accumulated cycles of the relay.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		104	**RO0 RemainLife** Relay Output 0 Remaining Life The difference between the Total Life and the Elapsed Life.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		105	**RO0 LifeEvntLvl** Relay Output 0 Life Event Level Sets the percentage of relay life cycles before action is taken.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		106	**RO0 LifeEvntActn** Relay Output 0 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor” (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop” (3) – Fault Coast Stop occurs “Flt RampStop” (4) – Fault Ramp Stop occurs “Flt CL Stop” (5) – Fault Current Limit Stop occurs	Default: Options:	1 = “Alarm” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Predictive Main	110	**RO1 Load Type** Relay Output 1 Load Type Sets the type of load that will be applied to the relay. Must be properly set for the Predictive Maintenance function to predict the relay life. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Default: Options:	1 = “DC Inductive” 0 = “DC Resistive” 1 = “DC Inductive” 2 = “AC Resistive” 3 = “AC Inductive”	RW	32-bit Integer
		111	**RO1 Load Amps** Relay Output 1 Load Amps Load current that will be applied to the relay contacts. Must be properly set for the Predictive Maintenance function to approximate the relay life. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Amps 2.000 0.000 / 2.000	RW	Real
		112	**RO1 TotalLife** Relay Output 1 Total Life Total life cycles of the relay based on programmed load type and amps. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		113	**RO1 ElapsedLife** Relay Output 1 Elapsed Life Non-resettable, total accumulated cycles of the relay. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 0 / 2147483647	RO	32-bit Integer
		114	**RO1 RemainLife** Relay Output 1 Remaining Life The difference between the Total Life and the Elapsed Life. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	Cycl 0 –/+2147483647	RO	32-bit Integer
		115	**RO1 LifeEvntLvl** Relay Output 1 Life Event Level Sets the percentage of relay life cycles before action is taken. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R.	Units: Default: Min/Max:	% 80.000 0.000 / 100.000	RW	Real
		116	**RO1 LifeEvntActn** Relay Output 1 Life Event Action Sets the action that will be taken when the percentage of relay life cycles has been reached. **Important:** Only used by I/O Module models 20-750-2262C-2R and 20-750-2262D-2R. “Ignore” (0) – No action is taken “Alarm” (1) – Alarm occurs “Flt Minor” (2) – Minor Fault occurs if enabled, otherwise Fault Coast Stop “FltCoastStop” (3) – Fault Coast Stop occurs “Flt RampStop” (4) – Fault Ramp Stop occurs “Flt CL Stop” (5) – Fault Current Limit Stop occurs	Default: Options:	1 = “Alarm” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop” 4 = “Flt RampStop” 5 = “Flt CL Stop”	RW	32-bit Integer

Safe Speed Monitor Module Parameters

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Security	1	**Password** Password for Lock and Unlock function.	Default: Min/Max:	N/A 0 / 4,294,967,295	RO	Real
		5	**Lock State** Command to lock or unlock the safety option configuration.	Default: Options:	0 = “Unlock” 0 = “Unlock” 1 = “Lock”	RW	Real
		6	**Operating Mode** Command to place the system in Program or Run mode.	Default: Options:	0 = “Program” 0 = “Program” 1 = “Run” 2 = “Config flt”	RW	Real
		7	**Reset Defaults** Resets safety option to factory defaults.	Default: Options:	0 = “No action” 0 = “No action” 1 = “Reset Fac” (Reset to factory defaults)	RW	Real
		10	**Signature ID** Safety configuration identifier.	Default: Min/Max:	N/A 0 / 4,294,967,295	RO	Real
		13	**New Password** 32-bit configuration password.	Default: Min/Max:	N/A 0 / 4,294,967,295	RW	Real
		17	**Password Command** Save new password command.	Default: Options:	0 = “No action” 0 = “No action” 1 = “Change PW” (Change Password) 2 = “Reset PW” (Reset Password)	RW	Real
		18	**Security Code** Used for Reset Password command.	Default: Min/Max:	N/A 0 / 65,535	RO	Real
		19	**Vendor Password** Vendor password for Reset Password command.	Default: Min/Max:	N/A 0 / 65,535	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	General	20	**Cascaded Config** Defines whether the speed monitoring safety option is a single unit or if it occupies a first, middle, or last position in a multi-axis cascaded system. “Single” (0) - Single Unit System “Milti First” (1) - Cascaded System First Unit “Multi Mid” (2) - Cascaded System Middle Unit “Multi Last” (3) - Cascaded System Last Unit	Default: Options:	0 = “Single” 0 = “Single” 1 = “Multi First” 2 = “Multi Mid” 3 = “Multi Last”	RW	Real
		21	**Safety Mode** Defines the primary operating mode of the speed monitoring safety functions. “Safe Stop” (1) - Master, Safe Stop “Safe Stop DM” (2) - Master, Safe Stop with Door Monitoring “Lim Speed” (3) - Master, Safe Limited Speed “Lim Speed DM” (4) -Master, Safe Limited Speed with Door Monitoring “Lim Speed ES” (5) - Master, Safe Limited Speed with Enabling Switch Control “LimSpd DM ES” (6) - Master, Safe Limited Speed with Door Monitoring and Enabling Switch Control “Lim Spd Stat” (7) - Master, Safe Limited Speed Status Only “Slv Safe Stp” (8) - Slave, Safe Stop “Slv Lim Spd” (9) - Slave, Safe Limited Speed “Slv Spd Stat” (10) - Slave, Safe Limited Speed Status Only	Default: Options:	1 = “Safe Stop” 0 = “Disabled” 1 = “Safe Stop” 2 = “Safe Stop DM” 3 = “Lim Speed” 4 = “Lim Speed DM” 5 = “Lim Speed ES” 6 = “LimSpd DM ES” 7 = “Lim Spd Stat” 8 = “Slv Safe Stp” 9 = “Slv Lim Spd” 10 = “Slv Spd Stat”	RW	Real
		22	**Reset Type** Defines the type of reset used by the safety option.	Default: Options:	2 = “Monitored” 0 = “Automatic” 1 = “Manual” 2 = “Monitored” (Manual Monitored)	RW	Real
		24	**OverSpd Response** Configuration for the feedback interface sampling rate.	Default: Options:	0 = “42 ms” 0 = “42 ms” 1 = “48 ms” 2 = “60 ms” 3 = “84 ms” 4 = “132 ms” 5 = “228 ms” 6 = “420 ms”	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback	27	**Fbk Mode** Selects the number of feedback devices and the type of discrepancy checking. “Single Fbk” (0) - 1 Encoder “Dual S/P Chk” (1) - 2 Encoders with Speed and Position Discrepancy Checking “Dual Spd Chk” (2) - 2 Encoders with Speed Discrepancy Checking “Dual Pos Chk” (3) - 2 Encoders with Position Discrepancy Checking	Default: Options:	0 = “Single Fbk” 0 = “Single Fbk” 1 = “Dual S/P Chk” 2 = “Dual Spd Chk” 3 = “Dual Pos Chk”	RW	Real
		28	**Fbk 1 Type** Selects the type of feedback for safety option 1.	Default: Options:	1 = “TTL” 0 = “Sine/Cosine” 1 = “TTL” (Incremental)	RW	Real
		29	**Fbk 1 Units** Selects rotary or linear feedback for safety option 1.	Default: Options:	0 = “Rev” 0 = “Rev” (Rotary) 1 = “mm” (Linear)	RW	Real
		30	**Fbk 1 Polarity** Defines the direction polarity for encoder 1.	Default: Options:	0 = “Normal” 0 = “Normal” (Same as encoder) 1 = “Reversed”	RW	Real
		31	**Fbk 1 Resolution** Counts/Revolution. 1…65,535 pulses/revolution or pulses/mm based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Default: Min/Max:	1024 1 / 65,535	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback	32	**Fbk 1 Volt Mon** Encoder 1 voltage to be monitored.	Default: Options:	0 = Voltage not monitored 0 = Voltage not monitored 5 = 5V +/- 5% 9 = 7…12V 12 = 12V +/- 5% 24 = 24V - 10%…24V + 5%	RW	Real
		33	**Fbk 1 Speed** Displays the output speed of encoder 1. Units based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Min/Max:	RPM mm/s -214,748,364.8 / 214,748,364.7 RPM -214,748,364.8 / 214,748,364.7 mm/s	RO	Real
		34	**Fbk 2 Units** Selects rotary or linear feedback for safety option 2.	Default: Options:	0 = “Rev” 0 = “Rev” (Rotary) 1 = “mm” (Linear)	RW	Real
		35	**Fbk 2 Polarity** Defines the direction polarity for encoder 2.	Default: Options:	0 = “Normal” 0 = “Normal” (Same as encoder) 1 = “Reversed”	RW	Real
		36	**Fbk 2 Resolution** Counts/Revolution. 0…65,535 pulses/revolution or pulses/mm based on rotary or linear configuration defined by P34 [Fbk 2 Units].	Default: Min/Max:	0 1 / 65,535	RO	Real
		37	**Fbk 2 Volt Mon** Encoder 2 voltage to be monitored.	Default: Options:	0 = Voltage not monitored 0 = Voltage not monitored 5 = 5V +/- 5% 9 = 7…12V 12 = 12V +/- 5% 24 = 24V - 10%…24V + 5%	RW	Real
		38	**Fbk 2 Speed** Displays the output speed of encoder 2. Units based on rotary or linear configuration defined by P34 [Fbk 2 Units].	Units: Min/Max:	RPM mm/s -214,748,364.8 / 214,748,364.7 RPM -214,748,364.8 / 214,748,364.7 mm/s	RO	Real
		39	**Fbk Speed Ratio** Defines the ratio of the expected speed of encoder 2 divided by the expected speed of encoder 1. Ratio based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Default: Min/Max:	0.0000 0.0001 / 10,000.0	RW	Real
		40	**Fbk Speed Tol** Acceptable difference in speed between P33 [Fbk 1 Speed] and P38 [Fbk 2 Speed]. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Min/Max:	RPM mm/s 0 / 6553.5 RPM 0 / 6553.5 mm/s	RW	Real
		41	**Fbk Pos Tol** Acceptable difference in position between encoder 1 and encoder 2. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Deg mm 0 0 / 65,535 deg 0 / 65,535 mm	RW	Real
		42	**Direction Mon** Defines the allowable direction if Safe Direction Monitoring is enabled. “Pos Always” (1) – Positive always “Neg Always” (2) – Negative always “Pos in SLS” (3) – Positive during safe limited speed monitoring “Neg in SLS” (4) – Negative during safe limited speed monitoring	Default: Options:	0 = “Disabled” 0 = “Disabled” 1 = “Pos Always” 2 = “Neg Always” 3 = “Pos in SLS” 4 = “Neg in SLS”	RW	Real
		43	**Direction Tol** The position limit in encoder units tolerated in the wrong direction when Safe Direction Monitoring is active. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Deg mm 10 0 / 65,535 deg 0 / 65,535 mm	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Stop	44	**Safe Stop Input** Configuration for Safe Stop input (SS_In). "2NC" (1) – Dual-channel equivalent "2 NC 3s" (2) – Dual-channel equivalent 3 s "1 NO + 1 NC" (3) – Dual-channel complementary "1 NO + 1 NC 3s" (4) – Dual-channel complementary 3 s "2 OSSD" (5) – Dual-channel SS equivalent "1 NC" (6) – Single channel equivalent	Default: Options:	1 = "2NC" 0 = "Not used" 1 = "2NC" 2 = "2 NC 3s" 3 = "1 NO + 1 NC" 4 = "1 NO + 1 NC 3s" 5 = "2 OSSD" 6 = "1 NC"	RW	Real
		45	**Safe Stop Type** Safe operating stop type selection. This defines the type of Safe Stop that is performed if the Safe Stop function is initiated by a stop type condition. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Torque Off NoCk" (3) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stop 1" 2 = "Safe Stop 2" 3 = "Torque Off NoCk"	RW	Real
		46	**Stop Mon Delay** Defines the monitoring delay between the request and the Max Stop Time when the request for a Safe Stop 1 or a Safe Stop 2 is initiated by an SS_In input ON to OFF transition. If the Safe Stop Type is Safe Torque Off With or Without Standstill Speed Checking, the Stop Monitor Delay must be 0 or a Invalid Configuration Fault occurs.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	Real
		47	**Max Stop Time** Defines the maximum stop delay time that is used when the Safe Stop function is initiated by a stop type condition.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	Real
		48	**Standstill Speed** Defines the speed limit that is used to declare motion as stopped. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	RPM mm/s 0.001 0.001/ 65.535 RPM 000/ 65.535 mm/s	RW	Real
		49	**Standstill Pos** Defines the position limit window in encoder 1 degrees or mm that will be tolerated after a safe stop condition has been detected. Degrees (360° = 1 revolution) or mm based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Deg mm 10 0 / 65,535 deg 0 / 65.535 mm	RW	Real
		50	**Decel Ref Speed** Determines deceleration rate to monitor for Safe Stop 1 or Safe Stop 2. Units are based on rotary or linear configuration defined by encoder 1 feedback configuration, P29 [Fbk 1 Units].	Units: Default: Min/Max:	RPM mm/s 0 0 / 65,535 RPM 0 / 65,535 mm/s	RW	Real
		51	**Stop Decel Tol** This is the acceptable tolerance above the deceleration rate set by the Decel Ref Speed parameter.	Units: Default: Min/Max:	% 0 0 / 100	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Limited Speed	52	**Lim Speed Input** Configuration for Safe Limited Speed input (SLS_In). “2NC” (1) – Dual-channel equivalent “2 NC 3s” (2) – Dual-channel equivalent 3 s “1 NO + 1 NC” (3) – Dual-channel complementary “1 NO + 1 NC 3s” (4) – Dual-channel complementary 3 s “2 OSSD” (5) – Dual-channel SS equivalent “1 NC” (6) – Single channel equivalent	Default: Options:	0 = “Not used” 0 = “Not used” 1 = “2NC” 2 = “2 NC 3s” 3 = “1 NO + 1 NC” 4 = “1 NO + 1 NC 3s” 5 = “2 OSSD” 6 = “1 NC”	RW	Real
		53	**LimSpd Mon Delay** Defines the Safe Limited Speed Monitoring Delay between the SLS_In ON to OFF transition and the initiation of the Safe Limited Speed (SLS) or Safe Maximum Speed (SMS) monitoring.	Units: Default: Min/Max:	Secs 0 0 / 6553.5	RW	Real
		54	**Enable SW Input** Configuration for the Enabling Switch input (ESM_In). “2NC” (1) – Dual-channel equivalent “2 NC 3s” (2) – Dual-channel equivalent 3 s “1 NO + 1 NC” (3) – Dual-channel complementary “1 NO + 1 NC 3s” (4) – Dual-channel complementary 3 s “2 OSSD” (5) – Dual-channel SS equivalent “1 NC” (6) – Single channel equivalent	Default: Options:	0 = “Not used” 0 = “Not used” 1 = “2NC” 2 = “2 NC 3s” 3 = “1 NO + 1 NC” 4 = “1 NO + 1 NC 3s” 5 = “2 OSSD” 6 = “1 NC”	RW	Real
		55	**Safe Speed Limit** Defines the speed limit that will be monitored in Safe Limited Speed (SLS) mode. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	RPM mm/s 0 0 / 6553.5 RPM 0 / 6553.5 mm/s	RW	Real
		56	**Speed Hysteresis** Provides hysteresis for SLS_Out output when Safe Limited Speed monitoring is active.	Units: Default: Min/Max:	% 0 0 / 100	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Door Control	57	**Door Out Type** Defines the lock and unlock state for door control output (DC_Out). When Door Out Type equals power to release, DC_Out is OFF in the lock state and ON in the unlock state. When Door Out Type equals power to lock, DC_Out is ON in the lock state and OFF in the unlock state. The first and middle units of a multi-axis system must be configured as cascading (2).	Default: Options:	0 = "Pwr to Rel" 0 = "Pwr to Rel" 1 = "Pwr to Lock" 2 = "2 Ch Sourcing"	RW	Real
		58	**DM Input** Configuration for the Door Monitor input (DM_In). "2NC" (1) – Dual-channel equivalent "2 NC 3s" (2) – Dual-channel equivalent 3 s "1 NO + 1 NC" (3) – Dual-channel complementary "1 NO + 1 NC 3s" (4) – Dual-channel complementary 3 s "2 OSSD" (5) – Dual-channel SS equivalent "1 NC" (6) – Single channel equivalent	Default: Options:	0 = "Not used" 0 = "Not used" 1 = "2NC" 2 = "2 NC 3s" 3 = "1 NO + 1 NC" 4 = "1 NO + 1 NC 3s" 5 = "2 OSSD" 6 = "1 NC"	RW	Real
		59	**Lock Mon Enable** Lock Monitoring can only be enabled when the speed monitoring safety option is a single unit or as the first unit in a multi-axis system (Cascaded Config equals 0 or 3).	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	Real
		60	**Lock Mon Input** Configuration for the Lock Monitor input (LM_In). "2NC" (1) – Dual-channel equivalent "2 NC 3s" (2) – Dual-channel equivalent 3 s "1 NO + 1 NC" (3) – Dual-channel complementary "1 NO + 1 NC 3s" (4) – Dual-channel complementary 3 s "2 OSSD" (5) – Dual-channel SS equivalent "1 NC" (6) – Single channel equivalent	Default: Options:	0 = "Not used" 0 = "Not used" 1 = "2NC" 2 = "2 NC 3s" 3 = "1 NO + 1 NC" 4 = "1 NO + 1 NC 3s" 5 = "2 OSSD" 6 = "1 NC"	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Max Speed	61	**Max Speed Enable** Enable Safe Maximum Speed Monitoring.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	Real
		62	**Safe Max Speed** Defines the maximum speed limit that will be tolerated if Safe Maximum Speed monitoring is enabled.	Units: Default: Min/Max:	RPM mm/s 0 0 / 65,535 RPM 0 / 65,535 mm/s	RW	Real
		63	**Max Spd Stop Typ** Defines the safe stop type that will be initiated in the event of a SMS Speed Fault. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Safe Stp Typ" (1) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stp Typ"	RW	Real
		64	**Max Accel Enable** Enable Safe Maximum Acceleration Monitoring.	Default: Options:	0 = "Disable" 0 = "Disable" 1 = "Enable"	RW	Real
		65	**Safe Accel Limit** Defines the Safe Maximum Acceleration Limit, relative to encoder 1, for which the system is being monitored. Units are based on rotary or linear configuration defined by P29 [Fbk 1 Units].	Units: Default: Min/Max:	Rev/s^2 mm/s^2 0 0 / 65,535 rev/s^2 0 / 65,535 mm/s^2	RW	Real
		66	**Max Acc Stop Typ** Defines the safe stop type that will be initiated in the event of an Acceleration Fault. "Torque Off" (0) – Safe Torque Off With Standstill Checking "Safe Stp Typ" (1) – Safe Torque Off Without Standstill Checking	Default: Options:	0 = "Torque Off" 0 = "Torque Off" 1 = "Safe Stp Typ"	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Faults	67	**Fault Status** Fault Status Bit-encoded faults.				

Options	Reserved	Reserved	Reserved	Fbk 2 V Flt	Fbk 1 V Flt	ESM Mon Flt	ESM In Flt	Lock Mon Flt	LM In Flt	DC Out Flt	Door Mon Flt	DM In Flt	Dir Flt	Accel Flt	SMS Spd Flt	SLS Spd Flt	SLS Out Flt	SLS In Flt	Mov in Stop	Stop Spd Flt	Decel Flt	SS Out Flt	SS In Flt	Dual Fbk Pos	Dual Fbk Spd	Fbk 2 Flt	Fbk 1 Flt	Reset PwrUp	MP Out Flt	Invalid Cfg	Core Error	Combined Flt
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “Combined Flt” – Combined Fault Status
Bit 1 “Core Error” – Reserved for Core Error
Bit 2 “Invalid Cfg” – Invalid Configuration Fault
Bit 3 “MP Out Flt” – MP Out Fault
Bit 4 “Reset PwrUp” – Reset On at PwrUp Fault
Bit 5 “Fbk 1 Flt” – Feedback 1 Fault
Bit 6 “Fbk 2 Flt” – Feedback 2 Fault
Bit 7 “Dual Fbk Spd” – Dual FB Speed Fault
Bit 8 “Dual Fbk Pos” – Dual FB Position Fault
Bit 9 “SS In Flt” – SS_In Fault
Bit 10 “SS Out Flt” – SS_Out Fault
Bit 11 “Decel Flt” – Deceleration Fault
Bit 12 “Stop Spd Flt” – Stop Speed Fault
Bit 13 “Mov in Stop” – Motion After Stopped Fault
Bit 14 “SLS In Flt” – SLS_In Fault
Bit 15 “SLS Out Flt” – SLS_Out Fault
Bit 16 “SLS Spd Flt” – SLS_Speed Fault
Bit 17 “SMS Spd Flt” – SMS_Speed Fault
Bit 18 “Accel Flt” – Acceleration Fault
Bit 19 “Dir Flt” – Direction Fault
Bit 20 “DM In Flt” – DM_In Fault
Bit 21 “Door Mon Flt” – Door Monitoring Fault
Bit 22 “DC Out Flt” – DC_Out Fault
Bit 23 “LM In Flt” – LM_In Fault
Bit 24 “Lock Mon Flt” – Lock Monitoring Fault
Bit 25 “ESM In Flt” – ESM_In Fault
Bit 26 “ESM Mon Flt” – ESM Monitoring Fault
Bit 27 “Fbk 1 V Flt” – Encoder 1 Voltage Fault
Bit 28 “Fbk 2 V Flt” – Encoder 2 Voltage Fault

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Faults	68	**Guard Status** Guard Status				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Wait No Stop	Wait SS Cyc	Wait Reset	Reset In	ESM In Prog	ESM In	LM In	DM In Prog	DM In	DC Out	DC Lock	SDM In Prog	SMA In Prog	SMS In Prog	SLS Out	SLS In Prog	SLS Req	SLS In	SS Out	SS Stopped	SS Decel	SS In Prog	SS Req	SS In	MP Out	Config Lock	StatusOK
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

Bit 0 “StatusOK” – 0 = Fault; 1 = OK
Bit 1 “Config Lock” – Configuration_Lock: 0 = Unlock; 1 = Lock
Bit 2 “MP Out” – MP_Out_Value: 0 = Off; 1 = On
Bit 3 “SS In” – SS_In_Value: 0 = Off; 1 = On
Bit 4 “SS Req” – SS_Request_Status: 0 = Inactive; 1 = Active
Bit 5 “SS In Prog” – SS_In_Progress: 0 = Inactive; 1 = Active
Bit 6 “SS Decel” – SS_Decelerating_Status: 0 = Inactive; 1 = Active
Bit 7 “SS Stopped” – SS_Axis_Stopped_Status: 0 = Inactive; 1 = Active
Bit 8 “SS Out” – SS_Output_Value: 0 = Off; 1 = On
Bit 9 “SLS In” – SLS_In_Value: 0 = Off; 1 = On
Bit 10 “SLS Req” – SLS_Request_Status: 0 = Inactive; 1 = Active
Bit 11 “SLS In Prog” – SLS_In_Progress: 0 = Inactive; 1 = Active
Bit 12 “SLS Out” – SLS_Output_Value: 0 = Off; 1 = On
Bit 13 “SMS In Prog” – SMS_In_Progress: 0 = Inactive; 1 = Active
Bit 14 “SMA In Prog” – SMA_In_Progress: 0 = Inactive; 1 = Active
Bit 15 “SDM In Prog” – SDM_In_Progress: 0 = Inactive; 1 = Active
Bit 16 “DC Lock” – DC_Lock_Status: 0 = Lock; 1 = Unlock
Bit 17 “DC Out” – DC_Out_Value: 0 = Off; 1 = On
Bit 18 “DM In” – DM_In_Value: 0 = Off; 1 = On
Bit 19 “DM In Prog” – DM_In_Progress: 0 = Inactive; 1 = Active
Bit 20 “LM In” – LM_In_Value: 0 = Off; 1 = On
Bit 21 “ESM In” – ESM_In_Value: 0 = Off; 1 = On
Bit 22 “ESM In Prog” – ESM_In_Progress: 0 = Inactive; 1 = Active
Bit 23 “Reset In” – Reset_In_Value: 0 = Off; 1 = On
Bit 24 “Wait Reset” – Waiting_for_SS_Reset: 0 = Inactive; 1 = Active
Bit 25 “Wait SS Cyc” – Waiting_for_Cycle_SS_In: 0 = Inactive; 1 = Active
Bit 26 “Wait No Stop” – Waiting_for_Stop_Request_Removal: 0 = Inactive; 1 = Active

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Faults	69	**IO Diag Status** Indicates present state of I/O used for diagnostics. **Important:** When the safety option is not in the Run mode. this parameter is not updated.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	MP Out Ch 1	MP Out Ch 0	Stop Cmd	SLS Cmd	Reserved	Reset In	LM In Ch 1	LM In Ch 0	DC Out Ch 1	DC Out Ch 0	DM In Ch 1	DM In Ch 0	ESM In Ch 1	ESM In Ch 0	SLS Out Ch 1	SLS Out Ch 0	SLS In Ch 1	SLS In Ch 0	SS Out Ch 1	SS Out Ch 0	SS In Ch 1	SS In Ch 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Open
1 = Closed

Bit 0 “SS In Ch 0” – SS_in_ch_0 status
Bit 1 “SS In Ch 1” – SS_in_ch_1 status
Bit 2 “SS Out Ch 0” – SS_out_ch_0 status
Bit 3 “SS Out Ch 1” – SS_out_ch_1 status
Bit 4 “SLS In Ch 0” – SLS_in_ch_0 status
Bit 5 “SLS In Ch 1” – SLS_in_ch_1 status
Bit 6 “SLS Out Ch 0” – SLS_out_ch_0 status
Bit 7 “SLS Out Ch 1” – SLS_out_ch_1 status
Bit 8 “ESM In Ch 0” – ESM_in_ch_0 status
Bit 9 “ESM In Ch 1” – ESM_in_ch_1 status
Bit 10 “DM In Ch 0” – DM_in_ch_0 status
Bit 11 “DM In Ch 1” – DM_in_ch_1 status
Bit 12 “DC Out Ch 0” – DC_out_ch_0 status
Bit 13 “DC Out Ch 1” – DC_out_ch_1 status
Bit 14 “LM In Ch 0” – LM_in_ch_0 status
Bit 15 “LM In Ch 1” – LM_in_ch_1 status
Bit 16 “Reset In” – Reset_In status
Bit 17 “Reserved”
Bit 18 “SLS Cmd” – SLS_command status
Bit 19 “Stop Cmd” – Stop_command status
Bit 20 “MP Out Ch 0” – MP_Out_Ch_0 status
Bit 21 “MP Out Ch 1” – MP_Out_Ch_1 status

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Faults	70	**Config Flt Code** Configuration Fault Code. 0 = No Fault 1 = Password Required (Password Req) 2 = P21 [Safety Mode] value not legal based on P20 [Cascaded Config] value. 3 = P57 [Door Out Type] value not legal based on P20 [Cascaded Config] value. 4 = P46 [Stop Mon Delay] value not legal based on P45 [Safe Stop Type] value. 5 = P50 [Decel Ref Speed] value not legal based on P31 [Fbk 1 Resolution] value. 6 = P48 [Standstill Speed] value not legal based on P20 [Cascaded Config] value. 7 = P53 [LimSpd Mon Delay] value not legal based on P21 [Safety Mode] value. 8 = P55 [Safe Speed Limit] value not legal based on P21 [Safety Mode] and P31 [Fbk 1 Resolution] value. 9 = P56 [Speed Hysteresis] value not legal based on P21 [Safety Mode] value. 10 = P62 [Safe Max Speed] value not legal based on P31 [Fbk 1 Resolution] value. 11 = P42 [Direction Mon] value not legal based on P21 [Safety Mode] value. 12 = P59 [Lock Mon Enable] value not legal based on P21 [Safety Mode] value. 13 = P36 [Fbk 2 Resolution] value not legal based on P27 [Fbk Mode] value. 14 = P35 [Fbk 2 Polarity] value not legal based on P27 [Fbk Mode] value. 15 = P39 [Fbk Speed Ratio] value not legal based on P27 [Fbk Mode] value. 16 = P41 [Fbk Pos Tol] value not legal based on P27 [Fbk Mode] value. 17 = P40 [Fbk Speed Tol] value not legal based on P27 [Fbk Mode] value. 18 = P44 [Safe Stop In Typ] value not legal based on P21 [Safety Mode] value. 19 = P52 [Lim Spd In Typ] value not legal based on P21 [Safety Mode] value. 20 = P58 [DM Input Type] value not legal based on P20 [Cascaded Config] and P21 [Safety Mode] value. 21 = P54 [Enable SW In Typ] value not legal based on P21 [Safety Mode] value. 22 = P60 [Lock Mon In Type] value not legal based on P21 [Safety Mode] value and P59 [Lock Mon Enable] value. 23 = Illegal P20 [Cascaded Config] value. 24 = Illegal P22 [Reset Type] value. 25 = Reserved 26 = Illegal P45 [Safe Stop Type] value. 27 = Illegal P51 [Stop Decel Tol] value. 28 = Illegal P27 [Fbk Mode] value. 29 = Illegal P28 [Fbk 1 Type] value. 30 = Illegal P31 [Fbk 1 Resolution] value. 31 = Illegal P32 [Fbk1 Volt Mon] value. 32 = Illegal P37 [Fbk 2 Volt Mon] value. 33 = Illegal P24 [OverSpd Response] value. 34 = Reserved 36 = Unknown error (Unknown Err).	Default: Options:		RW	Real
		72	**SS Out Mode** Defines whether the SS_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire PowerFlex safety system.	Default: Options:	0 = “Pulse test” 0 = “Pulse test” 1 = “No pulse test”	RW	Real
		73	**SLS Out Mode** Defines whether the SLS_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire PowerFlex safety system.	Default: Options:	0 = “Pulse test” 0 = “Pulse test” 1 = “No pulse test”	RW	Real
		74	**Door Out Mode** Defines whether the DC_Out output is pulse-tested. If pulse-testing is turned off for any output, the SIL, Category, and PL rating is reduced for the entire PowerFlex safety system.	Default: Options:	0 = “Pulse test” 0 = “Pulse test” 1 = “No pulse test”	RW	Real

Single Incremental Encoder Module Parameters

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th colspan="2">Values</th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="4">HOST GROUPS</td><td rowspan="4"></td><td>1
○</td><td colspan="5">Encoder Cfg
Encoder Configure
Configures the position direction, speed calculation method, signal type and active encoder channels.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Direction</td><td>Single Ended</td><td>Inv Home In</td><td>Edge Mode</td><td>A Chan Only</td><td>Z Chan Enbl</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>
Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored.
Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.
Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count.
Bit 3 “Inv Home In” – Configures the home input to be inverted. 1 = inverted, 0 = not inverted
Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled. 0 = Differential, 1 = Single Ended
Bit 5 “Direction” – Inverts the position count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert</td></tr>
<tr><td>2
○</td><td>Encoder PPR
Encoder Pulses Per Revolution
Configures the encoder module for the Pulses Per Revolution (Encoder Lines) of the A Quad B Encoder.</td><td>Default:
Min/Max:</td><td>1024
2 / 20000</td><td>RW</td><td>Real</td></tr>
<tr><td>3
○</td><td>Fdbk Loss Cfg
Feedback Loss Configure
Configures how the drive reacts to an error status condition for the feedback.</td><td>Default:
Options:</td><td>3 = “FltCoastStop”
0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop”</td><td>RW</td><td>Real</td></tr>
<tr><td>4</td><td>Encoder Feedback
Encoder Feedback
Displays the position feedback value of the encoder. This should be used as a source for the main control (Port 0) Feedback Select.</td><td>Default:
Min/Max:</td><td>0
–/+2147483647</td><td>RO</td><td>Real</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type

HOST GROUPS

5 **Encoder Status**

Encoder Status

Status information for the Incremental Encoder Module

Options	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Encoder Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Encoder Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of encoder faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Encoder Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Encoder Cfg] parameter.

6 **Error Status**

Error Status

Status information that will result in a feedback loss condition.

Options	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. -- see [Encoder Cfg].
Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8msec time period. The same restrictions apply as on [Encoder Cfg] Bit 0.
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 10 msec time period are detected. Only valid when both A and B channels are used (not 'A Chan Only' in [Encoder Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

No.	Name Description	Values		Read-Write	Data Type
7	**Phase Loss Count** Phase Loss Count Displays the active value of the encoder module's phase loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Phase Loss errors.	Default: Min/Max:	0 0 / 127	RO	Real
8	**Quad Loss Count** Displays the active value of the encoder module's quad loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Quad Loss errors.	Default: Min/Max:	0 0 / 15	RO	Real

Dual Incremental Encoder Module Parameters

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 0	1 ○	**Enc 0 Cfg** Encoder 0 Configure Configures the position direction, speed calculation method, signal type and active encoder channels used for Encoder 0 (primary encoder).				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored.

Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.

Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count.

Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled. 0 = Differential, 1 = Single Ended

Bit 5 “Direction” – Inverts the position count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 0	2 ○	**Enc 0 PPR** Encoder 0 Pulses Per Revolution Configures the encoder module's primary input (Encoder 0) for the Pulses Per Revolution (Encoder Lines) of the A Quad B Encoder.	Default: Min/Max:	1024 2 / 20000	RW	Real
		3 ○	**Enc 0 FB Lss Cfg** Encoder 0 Feedback Loss Configure Configures how the drive reacts to an error status condition for Encoder 0 (primary encoder).	Default: Options:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop”	RW	Real
		4	**Enc 0 FB** Encoder 0 Feedback Displays the position feedback value of Encoder 0 (primary encoder). This should be used as a source for the main control (Port 0) Feedback Select.	Default: Min/Max:	0 –/+2147483647	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 0	5	**Enc 0 Sts** Encoder 0 Status Status information for Encoder 0.				

Options	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Enc 0 Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Enc 0 Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of encoder faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Enc 0 Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Enc 0 Cfg] parameter.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 0	6	**Enc 0 Error Sts** Encoder 0 Error Status Status information that will result in a feedback loss condition for Encoder 0.				

Options	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled.
Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8msec time period. The same restrictions apply as on [Enc 0 Cfg] Bit 0 “Z Chan Enbl.”
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 10 msec time period are detected. Only valid when both A and B channels are used (not 'A Chan Only' in [Enc 0 Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 0	7	**Enc 0 PhsLss Cnt** Encoder 0 Phase Loss Count Displays the active value of the encoder module's Encoder 0 phase loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Phase Loss errors.	Default: Min/Max:	0 0 / 127	RO	Real
		8	**Enc 0 QuadLssCnt** Encoder 0 Quad Loss Count Displays the active value of the encoder module's Encoder 0 quad loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Quad Loss errors.	Default: Min/Max:	0 0 / 15	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 1	11 ○	**Enc 1 Cfg** Encoder 1 Configure Configures the position direction, speed calculation method, signal type and active encoder channels used for Encoder 1 (secondary encoder).				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Direction	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Channel Enbl” – Configures the Channel Z to be used and monitored for Phase Loss. A value of 0 = the Z channel will be ignored.

Bit 1 “A Chan Only” – Configures the module to use only the A channel, and ignore the B channel. In this mode, direction cannot be determined, and the position counter will always count up.

Bit 2 “Edge Mode” – Configure the module to use AB edge time data for speed calculation rather than accumulated count.

Bit 4 “Single Ended” – Configure when the A Quad B encoder has single ended signals. In this mode, Phase Loss detection is disabled. 0 = Differential, 1 = Single Ended

Bit 5 “Direction” – Inverts the position count up/down associated with a given rotation direction internally. 1 = invert, 0 = do not invert

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 1	12 ○	**Enc 1 PPR** Encoder 1 Pulses Per Revolution Configures the encoder module's secondary input (Encoder 1) for the Pulses Per Revolution (Encoder Lines) of the A Quad B Encoder.	Default: Min/Max:	1024 2 / 20000	RW	Real
		13 ○	**Enc 1 FB Lss Cfg** Encoder 1 Feedback Loss Configures how the drive reacts to an error status condition for Encoder 1 (secondary encoder).	Default: Min/Max:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor“ 3 = “FltCoastStop“	RW	Real
		14	**Enc 1 FB** Encoder 1 Feedback Displays the position feedback value of Encoder 1 (secondary encoder). This should be used as a source for the main control (Port 0) Feedback Select.	Default: Min/Max:	0 –/+2147483647	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 1	15	**Enc 1 Sts** Encoder 1 Status Status information for Encoder 1				

Options	Direction	HomMrk Event	HomMrk Armed	HomeIn Event	HomeIn Armed	Home Input	Inv Home In	Marker Event	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – State of the corresponding bit in the [Enc 1 Cfg] parameter.
Bit 1 “A Chan Only” – State of the corresponding bit in the [Enc 1 Cfg] parameter.
Bit 2 “A Input” – State of encoder A input signal.
Bit 3 “A Not Input” – State of encoder A Not input signal.
Bit 4 “B Input” – State of encoder B input signal.
Bit 5 “B Not Input” – State of encoder B Not input signal.
Bit 6 “Z Input” – State of encoder Z input signal.
Bit 7 “Z Not Input” – State of encoder Z Not input signal.
Bit 8 “Marker Event” – When channel Z (marker pulse) is used, indicates that a marker pulse is detected. Automatically cleared in the homing routine or due to clearing of encoder faults.
Bit 9 “Inv Home In” – State of the corresponding bit in the [Enc 1 Cfg] parameter. When set, the home input signal will be inverted.
Bit 10 “Home Input” – Active state of the Home Input signal. This status bit gets inverted if the “Inv Home In” bit is enabled.
Bit 11 “HomeIn Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next transition of the home input.
Bit 12 “HomeIn Event” – Indicates that the homing logic has latched the encoder position in response to a transition of the home input.
Bit 13 “HomMrk Armed” – Indicates that the homing logic is configured to latch the encoder position upon the next marker (Z channel) pulse.
Bit 14 “HomMrk Event” – Indicates that the homing logic has latched the encoder position in response to a marker (Z channel) pulse.
Bit 15 “Direction” – State of the corresponding bit in the [Enc 1 Cfg] parameter.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 1	16	**Enc 1 Error Sts** Encoder 1 Error Status Status information that will result in a feedback loss condition for Encoder 1.				

Options	SI Comm Loss	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Quad Loss	Phase Loss	Open Wire
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Open Wire” – Indicates that an input signal (A, B or Z) is in the same state as its complement (A Not, B Not, Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled.
Bit 1 “Phase Loss” – Indicates that more than 30 phase loss (open wire) events have occurred over an 8msec time period. The same restrictions apply as on [Enc 1 Cfg] bit 0.
Bit 2 “Quad Loss” – Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. Indicates that more than 10 quad loss events over a 10 msec time period are detected. Only valid when both A and B channels are used (not “A Chan Only” in [Enc 1 Cfg]).
Bit 15 “SI Comm Loss” – Indicates a communication loss between the main control board and the encoder module over the Serial Interface backplane.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder 1	17	**Enc 1 PhsLss Cnt** Encoder 1 Phase Loss Count Displays the active value of the encoder module's Encoder 1 phase loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Phase Loss errors.	Default: Min/Max:	0 0 / 127	RO	Real
		18	**Enc 1 QuadLssCnt** Encoder 1 Quad Loss Count Displays the active value of the encoder module's Encoder 1 quad loss counter hardware register. Values in this register accumulated over 8 msec are used to detect Quad Loss errors.	Default: Min/Max:	0 0 / 15	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Homing Cfg	20 ○	**Homing Cfg** Homing Configure Configures options for the homing function. Common to both encoders.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Inv Home In
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Not Inverted
1 = Inverted

Bit 0 “Inv Home In” – Inverts the home input signal.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Module Status	21	**Module Sts** Module Status Encoder module status information (common to both encoders).				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SafetyVoltHi	Safety Mode
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Cleared
1 = Set

Bit 0 “Safety Mode” – Indicates that the dip switch on the dual encoder module is configured to place its feedback signals on the SI backplane for use by the Safe Speed Monitor module. If multiple dual encoder modules are present, only one dual encoder can be configured for Safety Mode. 0 = Safety Mode Off. 1 = Safety Mode On.

Bit 1 “SafetyVoltHi” – Indicates the status (configured by a jumper on the module) of the safety feedback voltage mode. 0 = 5V safety feedback mode, 1 = 12V safety feedback mode.

Universal Feedback Module Parameters

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Module	1	**Module Sts** Module Status Shows error and alarm information of the Feedback Option module.				

Options	DPI Ready	Sec Safety	Pri Safety	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Initializing	FB0FB1 Cflct	Reserved	Reserved	Safety Cflct	EncOut Cflct	Reserved	Reserved	Firmware Err	Hardware Err	Reserved	Cfg Alarm	FB1 Alarm	FB0 Alarm	Reserved	System Error	FB1 Error	FB0 Error	Reserved	Alarm Type 2	Alarm Type 1	Module Error
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

Bit 0 “Module Error” – Indicates that the Feedback Option module has any error. This bit is set if at least one of the bits “FB0 Error”, “FB1 Error”, or “System Error” is set.

Bit 1 “Alarm Type 1” – Indicates that there is any alarm of type 1 active on the Feedback Option module. Bits 8…10 indicate what kind of alarm is active.

Bit 2 “Alarm Type 2” – Indicates that there is any alarm of type 2 active on the Feedback Option module. Bits 20 and 21 indicate what kind of alarm is active.

Bit 4 “FB0 Error” – Indicates that Feedback 0 has an error. This bit is set if any Feedback 0 error bit in P10 [FB0 Sts] is set. If this bit is set, the bit “Module Error” is also set.

Bit 5 “FB1 Error” – Indicates that Feedback 1 has an error. This bit is set if any Feedback 1 error bit in P10 [FB1 Sts] is set. If this bit is set, the bit “Module Error” is also set.

Bit 6 “System Error” – Indicates that there is a feedback independent error on the Feedback Option module. Bits 12 and 13 show the type of the System Error. If this bit is set, the bit “Module Error” is also set.

Bit 8 “FB0 Alarm” – Indicates that Feedback 0 has an alarm This bit is set if there is an alarm in the Feedback 0 encoder. If this bit is set, the bit “Alarm Type 1” is also set.

Bit 9 “FB1 Alarm” – Indicates that Feedback 1 has an alarm This bit is set if there is an alarm in the Feedback 1 encoder. If this bit is set, the bit “Alarm Type 1” is also set.

Bit 10 “Cfg Alarm” – Indicates that there is a feedback independent alarm on the Feedback Option module. Bits 16 and 17 show the type of the Cfg Alarm. If this bit is set, Bit 1 “Alarm Type 1” is also set.

Bit 12 “Hardware Err” – Indicates that there is a Hardware Error on the Feedback Option module. If this bit is set, Bit 6 “System Error” is also set.

Bit 13 “Firmware Err” – Indicates that there is a Firmware Error on the Feedback Option module. A Firmware Error occurs if the Hardware and the downloaded Firmware are not compatible. If this bit is set, Bit 6 “System Error” is also set.

Bit 16 “EncOut Cflct” – If set, there is one of the following problems with the Encoder Output:

- The selection in P80 [Enc Out Sel] is not possible since the required pins on the terminal blocks are already used for Feedback 0 or 1 according to P6 [FB0 Device Sel] and P36 [FB1 Device Sel].
- P80 [Enc Out Sel] is set to “Sine Cosine” and there is no signal connected to the pins 1-4 of the Terminal Block 1.
- P80 [Enc Out Sel] is set to “Sine Cosine”, the value of [FBX IncAndSC PPR] is not a power of two, and the parameter P84 [Enc Out Z PPR] is not set to 0 “1 ZPulse”. This is not allowed.
- P80 [Enc Out Sel] is set to “Channel X” or “Channel Y” and there is no encoder connected to that channel.
- P80 [Enc Out Sel] is set to “Channel X” or “Channel Y” and there is a linear encoder connected to this channel. If this bit is set, Bit 10 “Cfg Alarm” is also set.

Bit 17 “Safety Cflct” – If set, the Safety DIP switches are in an invalid position. If this bit is set, Bit 10 “Cfg Alarm” is also set.

Bit 20 “FB0FB1 Cflct” – If set, the combination of the feedback selection done with the parameters P6 [FB0 Device Sel] and P36 [FB1 Device Sel] is invalid, i.e. both feedbacks have Sin-Cos-Signals (There is only place for one set of Sin-Cos-Signals on the Terminal Blocks). If this bit is set, Bit 2 “Alarm Type 2” is also set.

Bit 21 “Initializing” – Indicates that the Universal Feedback State Machine is in the Initialize State. This Type 2 alarm makes sure that the motor cannot be started during the initialization state. If this bit is set, the bit “Alarm Type 2” is also set.

Bit 29 “Pri Safety” – Indicates that the UFB is used as primary safety module.

Bit 30 “Sec Safety” – Indicates that the UFB is used as secondary safety module.

Bit 31 “DPI Ready” – This bit tells the MCB if the UFB is ready for DPI communication.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Module	2	**Module Err Reset** Module Error Reset Selects the module reset type.	Default: Options:	0 = “Ready” 0 = “Ready” 1 = “Clr FB Intlz” 2 = “Clear Errors” 3 = “FB Initlz”	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 0	5	**FB0 Position** Feedback 0 Position Displays the position value from the feedback 0 device.	Default: Min/Max:	0 2147483648 / 2147483647	RO	32-bit Integer
		6 ○	**FB0 Device Sel** Feedback 0 Device Select Specifies the encoder type for the feedback 0 device.	Default: Options:	0 = “None” 0 = “None” 1 = “EnDat SC” 2 = “Hiperface SC” 3 = “BiSS SC” 4 = “SSI SC” 5 = “EnDat FD ChX” 6 = “EnDat FD ChY” 7 = “BiSS FD ChX' 8 = “BiSS FD ChY” 9 = “Reserved” 10 = “Reserved” 11 = “SinCos Only” 12 = “Inc A B Z” 13 = “Inc SC” 14 = “LinTempo ChX” 15 = “LinTempo ChY” 16 = “LinStahl ChX” 17 = “LinStahl ChY” 18 = “LinSSI ChX” 19 = “LinSSI ChY”	RW	Real
		7	**FB0 Identify** Feedback 0 Identify Displays the used encoder type for the feedback 0 device, e.g. Multi turn, rotary encoder with EnDat 2.1 interface including SIN/COS incremental signals.				

Options	Reserved	Stahl	Temposonic	SSI	BiSS	Hiperface	EnDat 2p2	EnDat 2p1	Incremental	Full Digital	Sin Cos	Enh Resol	Multi Turn	Single Turn	Linear	Rotary
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Rotary” – Rotary encoder

Bit 1 “Linear” – Linear encoder; e.g. Temposonic and Stahl

Bit 2 “Single Turn” – Single turn absolute encoder

Bit 3 “Multi Turn” – Multiturn absolute encoder

Bit 4 “Enh Resol” – High resolution encoder. This bit is set if there are more than 24 bits resolution (full digital encoders) or the PPR is greater than or equal to 16384. If this bit is set, bit 1 “24-bit Resol” in parameter [FB0 Cfg] should also be set.

Bit 5 “Sin Cos” – SinCos encoder

Bit 6 “Full Digital” – Full digital encoder

Bit 7 “Incremental” – A Quad B encoder

Bit 8 “EnDat 2p1” – Heidenhain EnDat 2.1 command set

Bit 9 “EnDat 2p2” – Heidenhain EnDat 2.2 command set

Bit 10 “Hiperface” – Hiperface Interface

Bit 11 “BiSS” – BiSS interface

Bit 12 “SSI” – SSI interface

Bit 13 “Temposonic” – Temposonic linear encoder

Bit 14 “Stahl” – Stahl linear encoder

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th></th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td>HOST GROUPS</td><td>Feedback 0</td><td>8
○</td><td colspan="5">FB0 Cfg
Feedback 0 Configuration
Configure the position direction, position data format, as well as the baud rate for the serial communication interface for the feedback 0 device.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>SC Quadrant</td><td>FD Low Baud</td><td>24-bit Resol</td><td>Direction</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>
Bit 0 “Direction” – Inverts the position direction internally.
Bit 1 “24-bit Resol” – If set, the data format of [FB0 Position] is set to 8/24 (8 bit resolution, 24 bits position within one revolution). Otherwise, the data format is set to 12/20. It only makes sense to set this bit if the bit “Enh Resol” in parameter [FB0 Identify] is set.
Bit 2 “FD Low Baud” – Reduces the communication baud rate from the default setting for the connected encoder with a serial communication channel.
Bit 3 “SC Quadrant” – Reserved for future use.</td></tr>
<tr><td></td><td></td><td>9</td><td>FB0 Loss Cfg
Feedback 0 Loss Configuration
Configures how the drive reacts to an error status condition on the feedback 0 device.</td><td>Default:
Options:</td><td>3 = “FltCoastStop”
0 = “Ignore”
1 = “Alarm”
2 = “Flt Minor”
3 = “FltCoastStop”</td><td>RW</td><td>32-bit Integer</td></tr>
<tr><td></td><td></td><td>10</td><td colspan="5">FB0 Sts
Feedback 0 Status
Shows feedback specific errors and alarms for the feedback 0 device.
<table>
<tr><td>Options</td><td>Reserved</td><td>Reserved</td><td>Reserved</td><td>Encoder Alm</td><td>Reserved</td><td>Unsupp Enc</td><td>Phase Loss</td><td>Quad Loss</td><td>Open Wire</td><td>SC Amplitude</td><td>SpplyVltRng</td><td>Diagnostic</td><td>Comm</td><td>Timeout</td><td>Msg Checksum</td><td>Encoder Err</td><td></td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0 = Condition False</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><td>1 = Condition True</td></tr>
</table>
Bit 0 “Encoder Err” – When asserted, there is an Encoder Error.
Bit 1 “Msg Checksum” – When asserted, the module has experienced a checksum error while attempting to communicate to an encoder via the serial communication channel.
Bit 2 “Timeout” – When asserted, the module has experienced a time out condition while attempting to communicate to the encoder via the serial communication channel.
Bit 3 “Comm” – When asserted, there was an error (except Checksum and Time Out) while attempting to communicate to an encoder via the serial communication channel.
Bit 4 “Diagnostic” – When asserted, the module has experienced a diagnostic test failure on power up.
Bit 5 “SpplyVltRng” – When asserted, the voltage source to the encoder is out of range.
Bit 6 “SC Amplitude” – When asserted, the module detected that the encoder signal amplitude is out of tolerance.
Bit 7 “Open Wire” – When asserted, the module has detected an open wire.
Bit 8 “Quad Loss” – Indicates that there is a signal quadrature error.
Bit 9 “Phase Loss” – Indicates that an A or B signal of an A Quad B Incremental encoder is disconnected.
Bit 10 “Unsupp Enc” – Indicates that the connected encoder is not supported.
Bit 12 “Encoder Alm” – When asserted, there is an Encoder Alarm.</td></tr>
</table>

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 0	15 ○	**FB0 IncAndSC PPR** Feedback 0 Incremental and Sine Cosine Pulses Per Revolution Indicates the Pulses Per Revolution (Encoder Lines) of the SinCos or A Quad B encoder for the feedback 0 device. For the following selections, PPR is automatically read from the encoder: • EnDat SC • BiSS SC (not manually configured) • Hiperface SC For the following selections, PPR has to be entered by the user: • BiSS SC, Manually configured • Gen SinCos • A Quad B	Units: Default: Min/Max:	PPR 1024 1 / 100000	RW	32-bit Integer
		16 ○	**FB0 Inc Cfg** Feedback 0 Incremental Configuration Configures Incremental Feedback for the feedback 0 device.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – When set, Channel Z is also monitored for Phase Loss. When cleared, Channel Z is ignored for Phase Loss detection. Only used if [FB0 Device Sel] = “Inc A B Z”.

Bit 1 “A Chan Only” – When set, logic monitors only channel A. When clear, logic monitors both A and B.

Bit 2 “Edge Mode” – When set, speed calc uses AB edge data. When clear, speed calc does not use AB edge data.

Bit 4 “Single Ended” – This bit has to be set if the connected A Quad B encoder has single ended signals. For these encoders, the Phase Loss detection is switched off.

No.	Name Description
17	**FB0 Inc Sts** Feedback 0 Incremental Status Displays Incremental Feedback status for the feedback 0 device.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – Indicates that Channel Z is monitored for Phase Loss. Only used if [FB0 Device Sel] = “Inc A B Z”.

Bit 1 “A Chan Only” – Indicates only A channel is monitored, B channel not used.

Bit 2 “A Input” – State of encoder A input signal

Bit 3 “A Not Input” – State of encoder A Not input signal

Bit 4 “B Input” – State of encoder B input signal

Bit 5 “B Not Input” – State of encoder B Not input signal

Bit 6 “Z Input” – State of encoder Z input signal

Bit 7 “Z Not Input” – State of encoder Z Not input signal

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 0	20 ○	**FB0 SSI Cfg** Feedback 0 SSI Configuration Configures the communication to a SSI encoder for the feedback 0 device. Transmission format: [MSB...Position...LSB], [Error Bit]*, [Parity Bit]*.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DblWordQuery	Err Bit Enbl	Gray Code	Reserved	Parity Bit
Default	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Parity Bit” – If set, SSI encoder has to support a parity bit (even parity).
Bit 2 “Gray Code” – Enables the gray to binary conversion of the position.
Bit 3 “Err Bit Enbl” – If set, there is an error bit transmitted by the encoder.
Bit 4 “DblWordQuery” – If set, a Double Word Query is executed at startup which means that the same position is transmitted twice by the encoder. If the two positions are not identical, the “Comm” error bit in [FB0 Sts] is set. This bit only needs to be cleared if the encoder does not support Double Word Query and it does not send zeros instead of the second position (which it actually should according to the SSI specification).

File	Group	No.	Name Description	Values		Read-Write	Data Type
		21 ○	**FB0 SSI Resol** Feedback 0 SSI Resolution Configures the number of bits for the position within one revolution (resolution) of the SSI encoder for the feedback 0 device.	Units: Default: Min/Max:	Bits 13 8 / 32	RW	32-bit Integer
		22 ○	**FB0 SSI Turns** Feedback 0 SSI Turns Configures the number of bits for the revolutions of the SSI encoder for the feedback 0 device.	Units: Default: Min/Max:	Bits 12 0 / 16	RW	32-bit Integer
		25 ○	**FB0 Lin CPR** Feedback 0 Linear Encoder Counts Per Revolution Specifies the counts per motor revolution for a linear encoder for the feedback 0 device.	Default: Min/Max:	0 0 / 4294967295	RW	32-bit Integer
		26 ○	**FB0 Lin Upd Rate** Feedback Linear Update Rate Sets the sample rate for the linear channel for the feedback 0 device.	Default: Options:	2 = “1.5 ms” 0 = “0.5 ms” 1 = “1.0 ms” 2 = “1.5 ms“ 3 = “2.0 ms“	RW	32-bit Integer
		27	**FB0 LinStahl Sts** Feedback 0 Linear Stahl Status Displays the error status of the linear Stahl encoder for the feedback 0 device.				

Options	Reserved	No Position	Reserved	ROM Error	EPROM Error	RAM Error	Read Head 2	Read Head 1	Reserved	Reserved	Reserved	OutOfRailErr	Reserved	Reserved	OutOfRailAlm	Optics Alarm
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False e
1 = Condition True

Bit 0 “Optics Alarm” – Displays an alarm when fiber optics require cleaning.
Bit 1 “OutOfRailAlm” – Indicates that the read encoder count is at the maximum value (524,287).
Bit 4 “OutOfRailErr” – Indicates that there is no more room between the read head and the rail.
Bit 8 “Read Head 1” – Indicates that the read head must be cleaned or installed correctly.
Bit 9 “Read Head 2” – Indicates that the read head must be cleaned or installed correctly.
Bit 10 “RAM Error” – Indicates a RAM error. Reading head needs to be repaired.
Bit 11 “EPROM Error” – Indicates an EPROM error. Reading head needs to be repaired.
Bit 12 “ROM Error” – Indicates a ROM error. Reading head needs to be repaired.
Bit 14 “No Position” – Indicates that no position value was available. Only happens after power on or reset.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	35	**FB1 Position** Feedback 1 Position Displays the position value from the feedback 1 device.	Default: Min/Max:	0 2147483648 / 2147483647	RO	32-bit Integer
		36 ○	**FB1 Device Sel** Feedback 1 Device Select Specifies the encoder type for the feedback 1 device.	Default: Options:	0 = “None” 0 = “None” 1 = “EnDat SC” 2 = “Hiperface SC” 3 = “BiSS SC” 4 = “SSI SC” 5 = “EnDat FD ChX” 6 = “EnDat FD ChY” 7 = “BiSS FD ChX” 8 = “BiSS FD ChY” 9 = “Reserved” 10 = “Reserved” 11 = “SinCos Only” 12 = “Inc A B Z” 13 = “Inc SC” 14 = “LinTempo ChX” 15 = “LimTempo ChY” 16 = “LinStahl ChX” 17 = “LinStahl ChY” 18 = “LinSSI ChX” 19 = “LinSSI ChY”	RW	Real
		37	**FB1 Identify** Feedback 1 Identify Displays the used encoder type for the feedback 1 device, e.g. Multi turn, rotary encoder with EnDat 2.1 interface including SIN/COS incremental signals.				

Options	Reserved	Stahl	Temposonic	SSI	BiSS	Hiperface	EnDat 2p2	EnDat 2p1	Incremental	Full Digital	Sin Cos	Enh Resol	Multi Turn	Single Turn	Linear	Rotary
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Rotary” – Rotary encoder

Bit 1 “Linear” – Linear encoder; e.g. Temposonic and Stahl

Bit 2 “Single Turn” – Single turn absolute encoder

Bit 3 “Multi Turn” – Multiturn absolute encoder

Bit 4 “Enh Resol” – High resolution encoder. This bit is set if there are more than 24 bits resolution (full digital encoders) or the PPR is greater than or equal to 16384. If this bit is set, bit 1 “24-bit Resol” in parameter [FB1 Cfg] should also be set.

Bit 5 “Sin Cos” – SinCos encoder

Bit 6 “Full Digital” – Full digital encoder

Bit 7 “Incremental” – A Quad B encoder

Bit 8 “EnDat 2p1” – Heidenhain EnDat 2.1 command set

Bit 9 “EnDat 2p2” – Heidenhain EnDat 2.2 command set

Bit 10 “Hiperface” – Hiperface Interface

Bit 11 “BiSS” – BiSS interface

Bit 12 “SSI” – SSI interface

Bit 13 “Temposonic” – Temposonic linear encoder

Bit 14 “Stahl” – Stahl linear encoder

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	38	**FB1 Cfg** Feedback 1 Configuration Configure the position direction, position data format, as well as the baud rate for the serial communication interface for the feedback 1 device.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	SC Quadrant	FD Low Baud	24-bit Resol	Direction
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Direction” – Inverts the position direction internally.

Bit 1 “24-bit Resol” – If set, the data format of the parameter [FB1 Position] is set to 8/24 (8 bit resolution, 24 bits position within one revolution). Otherwise, the data format is set to 12/20. It only makes sense to set this bit if the bit “Enh Resol” in parameter [FB1 Identify] is set.

Bit 2 “FD Low Baud” – Reduces the communication baud rate from the default setting for the connected encoder with a serial communication channel.

Bit 3 “SC Quadrant” – Reserved for future use.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	39 ○	**FB1 Loss Cfg** Feedback 1 Loss Configuration Configures how the drive reacts to an error status condition on the feedback 1 device.	Default: Options:	3 = “FltCoastStop” 0 = “Ignore” 1 = “Alarm” 2 = “Flt Minor” 3 = “FltCoastStop”	RW	32-bit Integer
HOST GROUPS	Feedback 1	40	**FB1 Sts** Feedback 1 Status Shows feedback specific errors and alarms for the feedback 1 device.				

Options	Reserved	Reserved	Reserved	Encoder Alm	Reserved	Unsupp Enc	Phase Loss	Quad Loss	Open Wire	SC Amplitude	SpplyVltRng	Diagnostic	Comm	Timeout	Msg Checksum	Encoder Err
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Encoder Err” – When asserted, there is an Encoder Error.

Bit 1 “Msg Checksum” – When asserted, the module has experienced a checksum error while attempting to communicate to an encoder via the serial communication channel.

Bit 2 “Timeout” – When asserted, the module has experienced a time out condition while attempting to communicate to the encoder via the serial communication channel.

Bit 3 “Comm” – When asserted, there was an error (except Checksum and Time Out) while attempting to communicate to an encoder via the serial communication channel.

Bit 4 “Diagnostic” – When asserted, the module has experienced a diagnostic test failure on power up.

Bit 5 “SpplyVltRng” – When asserted, the voltage source to the encoder is out of range.

Bit 6 “SC Amplitude” – When asserted, the module detected that the encoder signal amplitude is out of tolerance.

Bit 7 “Open Wire” – When asserted, the module has detected an open wire.

Bit 8 “Quad Loss” – Indicates that there is a signal quadrature error.

Bit 9 “Phase Loss” – Indicates that an A or B signal of an A Quad B Incremental encoder is disconnected.

Bit 10 “Unsupp Enc” – Indicates that the connected encoder is not supported.

Bit 12 “Encoder Alm” – When asserted, there is an Encoder Alarm.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	45 ○	**FB1 IncAndSC PPR** Feedback 1 Incremental and Sine Cosine Pulses Per Revolution Indicates the Pulses Per Revolution (Encoder Lines) of the SinCos or A Quad B encoder for the feedback 1 device. For the following selections, PPR is automatically read from the encoder: • EnDat SC • BiSS SC (not manually configured) • Hiperface SC For the following selections, PPR has to be entered by the user: • BiSS SC, Manually configured • Gen SinCos • A Quad B	Units: Default: Min/Max:	PDR 1024 1 / 100000	RW	32-bit Integer

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FB1 Inc Cfg

Feedback 1 Incremental Configuration

Configures Incremental Feedback for the feedback 1 device.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Single Ended	Reserved	Edge Mode	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – When set, Channel Z is also monitored for Phase Loss. When cleared, Channel Z is ignored for Phase Loss detection.
Only used if [FB1 Device Sel] = “Inc A B Z”.
Bit 1 “A Chan Only” – When set, logic monitors only channel A. When clear, logic monitors both A and B.
Bit 2 “Edge Mode” – When set, speed calc uses AB edge data. When clear, speed calc does not use AB edge data.
Bit 4 “Single Ended” – This bit has to be set if the connected A Quad B encoder has single ended signals. For these encoders, the Phase Loss detection is switched off.

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FB1 Inc Sts

Feedback 1 Incremental Status

Displays Incremental Feedback status for the feedback 1 device.

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Z Not Input	Z Input	B Not Input	B Input	A Not Input	A Input	A Chan Only	Z Chan Enbl
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Z Chan Enbl” – Indicates that Channel Z is monitored for Phase Loss. Only used if [FB1 Device Sel] = “Inc A B Z”.
Bit 1 “A Chan Only” – Indicates only A channel is monitored, B channel not used.
Bit 2 “A Input” – State of encoder A input signal
Bit 3 “A Not Input” – State of encoder A Not input signal
Bit 4 “B Input” – State of encoder B input signal
Bit 5 “B Not Input” – State of encoder B Not input signal
Bit 6 “Z Input” – State of encoder Z input signal
Bit 7 “Z Not Input” – State of encoder Z Not input signal

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	50 ○	**FB1 SSI Cfg** Feedback 1 SSI Configuration Configures the communication to a SSI encoder for the feedback 1 device. Transmission format: [MSB...Position...LSB], [Error Bit]*, [Parity Bit]*.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	DblWordQuery	Err Bit Enbl	Gray Code	Reserved	Parity Bit
Default	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Parity Bit” – If set, SSI encoder has to support a parity bit (even parity).
Bit 2 “Gray Code” – Enables the gray to binary conversion of the position.
Bit 3 “Err Bit Enbl” – If set, there is an error bit transmitted by the encoder.
Bit 4 “DblWordQuery” – If set, a Double Word Query is executed at startup which means that the same position is transmitted twice by the encoder. If the two positions are not identical, the “Comm” error bit in [FB1 Sts] is set. This bit only needs to be cleared if the encoder does not support Double Word Query and it does not send zeros instead of the second position (which it actually should according to the SSI specification).

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Feedback 1	51 ○	**FB1 SSI Resol** Feedback 1 SSI Resolution Configures the number of bits for the position within one revolution (resolution) of the SSI encoder for the feedback 1 device.	Units: Default: Min/Max:	Bits 13 8 / 32	RW	32-bit Integer
		52 ○	**FB1 SSI Turns** Feedback 1 SSI Turns Configures the number of bits for the revolutions of the SSI encoder for the feedback 1 device.	Units: Default: Min/Max:	Bits 12 0 / 16	RW	32-bit Integer
		55 ○	**FB1 Lin CPR** Feedback 1 Linear Encoder Counts Per Revolution Specifies the counts per motor revolution for a linear encoder for the feedback 1 device.	Default: Min/Max:	0 0 / 4294967295	RW	32-bit Integer
		56 ○	**FB1 Lin Upd Rate** Feedback Linear Update Rate Sets the sample rate for the linear channel for the feedback 1 device.	Default: Options:	2 = “1.5 ms” 0 = “0.5 ms” 1 = “1.0 ms” 2 = “1.5 ms” 3 = “2.0 ms”	RW	32-bit Integer
		57	**FB1 LinStahl Sts** Feedback 1 Linear Stahl Status Displays the error status of the linear Stahl encoder for the feedback 1 device.				

Options	Reserved	No Position	Reserved	ROM Error	EPROM Error	RAM Error	Read Head 2	Read Head 1	Reserved	Reserved	Reserved	OutOfRailErr	Reserved	Reserved	OutOfRailAlm	Optics Alarm
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

Bit 0 “Optics Alarm” – Displays an alarm when fiber optics require cleaning.
Bit 1 “OutOfRailAlm” – Indicates that the read encoder count is at the maximum value (524,287).
Bit 4 “OutOfRailErr” – Indicates that there is no more room between the read head and the rail.
Bit 8 “Read Head 1” – Indicates that the read head must be cleaned or installed correctly.
Bit 9 “Read Head 2” – Indicates that the read head must be cleaned or installed correctly.
Bit 10 “RAM Error” – Indicates a RAM error. Reading head needs to be repaired.
Bit 11 “EPROM Error” – Indicates an EPROM error. Reading head needs to be repaired.
Bit 12 “ROM Error” – Indicates a ROM error. Reading head needs to be repaired.
Bit 14 “No Position” – Indicates that no position value was available. Only happens after power on or reset.

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Encoder Out	80 ○	**Enc Out Sel** Encoder Output Select Selects the Encoder Output. If the feedback 0 or 1 device is configured as A Quad B Z or Hall Sensor, then this parameter has to be set to None. Otherwise, there is an Encoder Output Alarm (Bit 16 of [Module Sts]).	Default: Options:	0 = "None" 0 = "None" 1 = "Reserved" 2 = "Sine Cosine" 3 = "Channel X" 4 = "Channel Y"	RW	32-bit Integer
		81 ○	**Enc Out Mode** Encoder Output Mode Configures the Encoder Output type.	Default: Options:	0 = "A Quad B" 0 = "A Quad B" 1 = "Inv A Quad B"	RW	32-bit Integer
		82 ○	**Enc Out FD PPR** Encoder Output PPR Specifies the encoder output PPR for the simulated encoder mode ([Enc Out Sel] = "Virtual Master" or "Channel X" or "Channel Y"). In the emulated encoder mode, the SIN/COS signals PPR defines the encoder output PPR.	Default: Options:	1 = "1024 PPR" 0 = "512 PPR" 1 = "1024 PPR" 2 = "2048 PPR" 3 = "4096 PPR"	RW	32-bit Integer
		83	**Enc Out Z Offset** Encoder Output Z Offset Configures the offset of the Z pulse for the emulated/simulated encoder output. The marker offset is specified within one revolution.	Units: Default: Min/Max:	PPR 0 0 / 100000	RW	32-bit Integer
		84 ○	**Enc Out Z PPR** Encoder Output Z PPR Configures the number of Z-Pulses per revolution.	Default: Options:	0 = "1 Z-Pulse" 0 = "1 Z-Pulse" 1 = "2 Z-Pulses" 2 = "4 Z-Pulses" 3 = "8 Z-Pulses" 4 = "16 Z-Pulses" 5 = "32 Z-Pulses"	RW	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Registration	90	**Rgsn Arm** Registration Arm Selects Registration Latches to be used.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Arm Latch 10	Arm Latch 9	Arm Latch 8	Arm Latch 7	Arm Latch 6	Arm Latch 5	Arm Latch 4	Arm Latch 3	Arm Latch 2	Arm Latch 1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition False
1 = Condition True

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Registration	91	**Rgsn In 0 Filter** Registration Input 0 Filter Configures a digital filter for the registration input 0. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = "0 ns" 0 = "0 ns" 1 = "100 ns" 2 = "200 ns" 3 = "300 ns" 4 = "400 ns" 5 = "500 ns" 6 = "600 ns" 7 = "700 ns" 8 = "800 ns" 9 = "900 ns" 10 = "1000 ns" 11 = "1100 ns" 12 = "1200 ns" 13 = "1300 ns" 14 = "1400 ns" 15 = "1500 ns"	RW	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Registration	92	**Rgsn In 1 Filter** Registration Input 1 Filter Configures a digital filter for the registration input 1. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = "0 ns" 0 = "0 ns" 1 = "100 ns" 2 = "200 ns" 3 = "300 ns" 4 = "400 ns" 5 = "500 ns" 6 = "600 ns" 7 = "700 ns" 8 = "800 ns" 9 = "900 ns" 10 = "1000 ns" 11 = "1100 ns" 12 = "1200 ns" 13 = "1300 ns" 14 = "1400 ns" 15 = "1500 ns"	RW	Real
		93	**Rgsn HmIn Filter** Registration Home Input Filter Configures a digital filter for the home input. This filter can be used to reject spurious noise. The filter works by waiting a programmed time before deciding that the signal is valid. This waiting imposes a mandatory delay in the registration signal. The filter delay is programmable in increments of 100 nanoseconds from 0 (or no delay) up to 1500 nanoseconds.	Default: Options:	0 = "0 ns" 0 = "0 ns" 1 = "100 ns" 2 = "200 ns" 3 = "300 ns" 4 = "400 ns" 5 = "500 ns" 6 = "600 ns" 7 = "700 ns" 8 = "800 ns" 9 = "900 ns" 10 = "1000 ns" 11 = "1100 ns" 12 = "1200 ns" 13 = "1300 ns" 14 = "1400 ns" 15 = "1500 ns"	RW	Real
		94	**Rgsn Sts** Registration Status Status of the configured registration events.				

Options	Home Input	Rgsn Input 1	Rgsn Input 0	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Latch10Found	Latch10Armed	Latch9 Found	Latch9 Armed	Latch8 Found	Latch8 Armed	Latch7 Found	Latch7 Armed	Latch6 Found	Latch6 Armed	Latch5 Found	Latch5 Armed	Latch4 Found	Latch4 Armed	Latch3 Found	Latch3 Armed	Latch2 Found	Latch2 Armed	Latch1 Found	Latch1 Armed
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = False
1 = True

<table>
<tr><th>File</th><th>Group</th><th>No.</th><th>Name
Description</th><th>Values</th><th></th><th>Read-Write</th><th>Data Type</th></tr>
<tr><td rowspan="3">HOST GROUPS</td><td rowspan="3">Registration</td><td>100
103
106
109
112
115
118
121
124
127</td><td>Rgsn Latch1 Cfg
Rgsn Latch2 Cfg
Rgsn Latch3 Cfg
Rgsn Latch4 Cfg
Rgsn Latch5 Cfg
Rgsn Latch6 Cfg
Rgsn Latch7 Cfg
Rgsn Latch8 Cfg
Rgsn Latch9 Cfg
Rgsn Latch10 Cfg
Registration Latch X Configure
Configures Registration Latch 1
<table>
<tr><td>Options</td><td>Reserved</td><td>Stg2EdgeFall</td><td>Stg2EdgeRise</td><td>Reserved</td><td>Stg2 In b1</td><td>Stg2 In b0</td><td>Logic Sel b1</td><td>Logic Sel b0</td><td>Stg1EdgeFall</td><td>Stg1EdgeRise</td><td>Reserved</td><td>Stg1 In b1</td><td>Stg1 In b0</td><td>Rev Capture</td><td>Fwd Capture</td><td>Channel Sel</td></tr>
<tr><td>Default</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr>
</table>
Bit 0 “Channel Sel” – Channel select (FB0 or FB1).
Bit 1 “Fwd Capture” – Direction select forward.
Bit 2 “Rev Capture” – Direction select reverse.
Bit 3 “Stg1 In b0” – Latch stage 1 input selection b0
Bit 4 “Stg1 In b1” – Latch stage 1 input selection b1
Bit 6 “Stg1EdgeRise” – Latch stage 1 edge/level select: Rising edge or high level
Bit 7 “Stg1EdgeFall” – Latch stage 1 edge/level select: Falling edge or low level
Bit 8 “Logic Sel b0” – Trigger stage combination logic
Bit 9 “Logic Sel b1” – Trigger stage combination logic
Bit 10 “Stg2 In b0” – Latch stage 2 input selection b0
Bit 11 “Stg2 In b1” – Latch stage 2 input selection b1
Bit 13 “Stg2EdgeRise” – Latch stage 2 edge/level select: Rising edge or high level
Bit 14 “Stg2EdgeFall” – Latch stage 2 edge/level select: Falling edge or low level</td><td colspan="2">0 = Condition False
1 = Condition True</td><td></td><td></td></tr>
<tr><td>101
104
107
110
113
116
119
122
125
128</td><td>Rgsn Latch1 Psn
Rgsn Latch2 Psn
Rgsn Latch3 Psn
Rgsn Latch4 Psn
Rgsn Latch5 Psn
Rgsn Latch6 Psn
Rgsn Latch7 Psn
Rgsn Latch8 Psn
Rgsn Latch9 Psn
Rgsn Latch10 Psn
Registration Latch X Position
Position Captured during the Registration Event for Latch X.</td><td>Default:
Min/Max:</td><td>0
2147483648 / 2147483647</td><td>RO</td><td>32-bit Integer</td></tr>
<tr><td>102
105
108
111
114
117
120
123
126
129</td><td>Rgsn Latch1 Time
Rgsn Latch2 Time
Rgsn Latch3 Time
Rgsn Latch4 Time
Rgsn Latch5 Time
Rgsn Latch6 Time
Rgsn Latch7 Time
Rgsn Latch8 Time
Rgsn Latch9 Time
Rgsn Latch10 Time
Registration Latch X Time
Time Captured when the Registration Event occurred for Latch X.</td><td>Units:
Default:
Min/Max:</td><td>Cnt
0
0 / 4294967295</td><td>RO</td><td>32-bit Integer</td></tr>
</table>

Embedded EtherNet/IP Parameters

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		**1** Thru **16** ○	755 **DL From Net 01** 755 **DL From Net 16** Datalinks From Network 01…16 Sets the port number and parameter number to which the selected Datalinks should connect. Each selected port/parameter will be written with data received from the network. These are parameters written by the controller (outputs from the controller). If setting the value manually, the parameter value = (10000 x port number) + (destination parameter number). For example, suppose you want to use P1 [DL From Net 01] to write to Parameter 1 of an optional encoder module plugged into drive Port 5. The value for P1 [DL From Net 01] would be 50001 [(10000 x 5) + 1].	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		17 Thru **32** ○	755 **DL To Net 01** 755 **DL To Net 16** Datalinks To Network 01…16 Sets the port number and parameter number to which the selected Datalinks should connect. Each selected port/parameter will be read and their values transmitted over the network to the controller. These are parameters read by the controller (inputs to the controller). If setting the value manually, the parameter value = (10000 x port number) + (origination parameter number). For example, suppose you want to use P17 [DL To Net 01] to read Parameter 01 of an optional I/O module plugged into drive Port 4. The value for P17 [DL To Net 01] would be 40001 [(10000 x 4) + 1].	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
		33	755 **Port Number** Port number Displays the drive port to which the embedded EtherNet/IP adapter is dedicated. This is always Port 13.	Default: Value:	13 13	RO	Real
		34	755 **DLs From Net Act** Datalinks From Network Actual Displays the number of actual controller-to- drive Datalinks that the drive is using based on the I/O connection opened by the controller.	Default: Min/Max:	0 0 / 16	RO	Real
		35	755 **DLs To Net Act** Datalinks To Network Actual Displays the number of actual drive-to- controller Datalinks that the controller is using based on the I/O connection opened by the controller.	Default: Min/Max:	0 0 / 16	RO	Real
		36	755 **BOOTP** BOOTP Configures the adapter to use BOOTP so that you can set its IP address, subnet mask, and gateway address with a BOOTP server. When this parameter is disabled, you must use the adapter parameters to set these addressing functions.	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enable"	RW	Real
		37	755 **Net Addr Src** Network Address Source Displays the source from which the adapter node address is taken. This will be switches, Parameters 40…43 [IP Addr Cfg x], or BOOTP. It is determined by the settings of the octet switches on the adapter. See Establishing A Connection With EtherNet/IP on page 2-5 for details.	Default: Options:	0 = "Switches" 0 = "Switches" 1 = "Parameters" 2 = "BOOTP"	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		38 39 40 41	755 **IP Addr Cfg 1** 755 **IP Addr Cfg 2** 755 **IP Addr Cfg 3** 755 **IP Addr Cfg 4** IP Address Configure 1…4 Sets the bytes in the IP address. 255 . 255 . 255 . 255 [IP Addr Cfg 1] [IP Addr Cfg 2] [IP Addr Cfg 3] Set with Octet Switch on Drive Main Control Board **Important:** To set the IP address using these parameters, P36 [BOOTP] must be set to “0” (Disabled).	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		42 43 44 45	755 **Subnet Cfg 1** 755 **Subnet Cfg 2** 755 **Subnet Cfg 3** 755 **Subnet Cfg 4** Subnet Configure 1…4 Sets the bytes of the subnet mask. 255 . 255 . 255 . 255 [Subnet Cfg 1] [Subnet Cfg 2] [Subnet Cfg 3] [Subnet Cfg 4] **Important:** To set the subnet mask using these parameters, P36 [BOOTP] must be set to “0” (Disabled).	Default: Min/Max:	0 0 / 255	RW	32-bit Integer
		46 47 48 49	755 **Gateway Cfg 1** 755 **Gateway Cfg 2** 755 **Gateway Cfg 3** 755 **Gateway Cfg 4** Gateway Configure 1…4 Sets the bytes of the gateway address. 255 . 255 . 255 . 255 [Gateway Cfg 1] [Gateway Cfg 2] [Gateway Cfg 3] [Gateway Cfg 4] **Important:** To set the gateway address using these parameters, P36 [BOOTP] must be set to “0” (Disabled).	Default: Min/Max:	0 0 / 255	RW	Real
		50	755 **Net Rate Cfg** Network Rate Configure Sets the network data rate at which the adapter communicates. (Updates P51 [Net Rate Act] after a reset.)	Default: Options:	0 = “Autodetect” 0 = “Autodetect” 1 = “10Mbps Full” 2 = “10Mbps Half” 3 = “100Mbps Full” 4 = “100Mbps Half”	RW	32-bit Integer
		51	755 **Net Rate Act** Network Rate Actual Displays the actual network data rate used by the adapter.	Default: Options:	0 = “No Link” 0 = “No Link” 1 = “10Mbps Full” 2 = “10Mbps Half” 3 = “100Mbps Full” 4 = “100Mbps Half” 5 = “Dup IP Addr”	RO	32-bit Integer

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		52	755 **Web Enable** Web Enabled Enables/disables the adapter web page features.	Default: Options:	1 = "Enabled" 0 = "Disabled" 1 = "Enabled"	RW	32-bit Integer
		53	755 **Web Features** Web Features Enables/disables the Web-configurable e-mail notification feature.				

Options	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved	E-mail Cfg
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Disabled
1 = Enabled

File	Group	No.	Name Description	Values		Read-Write	Data Type
		54	755 **Comm Flt Action** Communication Fault Action Sets the action that the adapter and drive will take if the adapter detects that I/O communications have been disrupted. This setting is effective only if I/O that controls the drive is transmitted through the adapter.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P54 [Comm Flt Action] lets you determine the action of the adapter and connected drive if I/O communications are disrupted. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	Name Description	Values		Read-Write	Data Type
		55	755 **Idle Flt Action** Idle Fault Action Sets the action that the adapter and drive will take if the adapter detects that the controller is in program mode or faulted. This setting is effective only if I/O that controls the drive is transmitted through the adapter.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P55 [Idle Flt Action] lets you determine the action of the adapter and connected drive when the controller is idle. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a controller in idle state).

File	Group	No.	Name Description	Values		Read-Write	Data Type
		56	755 **Peer Flt Action** Peer Fault Action Sets the action that the adapter and drive will take if the adapter detects that Peer I/O communications have been disrupted. This setting is effective only if I/O is transmitted through the adapter.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last" 4 = "Send Flt Cfg"	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P56 [Peer Flt Action] lets you determine the action of the adapter and connected drive if the adapter is unable to communicate with the designated peer. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		57	755 **Msg Flt Action** Message Fault Action Sets the action that the adapter and drive will take if the adapter detects that explicit messaging, only when used for drive control via PCCC and the CIP Register Object, has been disrupted.	Default: Options:	0 = “Fault” 0 = “Fault” 1 = “Stop” 2 = “Zero Data” 3 = “Hold Last” 4 = “Send Flt Cfg”	RW	32-bit Integer

ATTENTION: Risk of injury or equipment damage exists. P57 [Msg Flt Action] lets you determine the action of the adapter and connected drive if explicit messaging for drive control is disrupted. By default, this parameter faults the drive. You can set this parameter so that the drive continues to run. Precautions should be taken to ensure that the setting of this parameter does not create a risk of injury or equipment damage. When commissioning the drive, verify that your system responds correctly to various situations (for example, a disconnected cable).

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		58	755 **Flt Cfg Logic** Fault Configure Logic Sets the Logic Command data that is sent to the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 “Send Flt Cfg” and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 “Send Flt Cfg” and the controller is idle. • P56 [Peer Flt Action] is set to 4 “Send Flt Cfg” and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 “Send Flt Cfg” and explicit messaging for drive control is disrupted. The bit definitions in the Logic Command word for PowerFlex 750-Series drives are shown in Appendix A.	Default: Min/Max:	0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 1111 1111 1111 1111 1111 1111 1111 1111	RW	Real
		59	755 **Flt Cfg Ref** Fault Configure Reference Sets the Reference data that is sent to the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 “Send Flt Cfg” and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 “Send Flt Cfg” and the controller is idle. • P56 [Peer Flt Action] is set to 4 “Send Flt Cfg” and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 “Send Flt Cfg” and explicit messaging for drive control is disrupted.	Default: Min/Max:	0 –/+3.40282 x 10^{38}	RW	Real
		60 Thru 75	755 **Flt Cfg DL 01** 755 **Flt Cfg DL 16** Fault Configure DeviceLogix Sets the data that is sent to the Datalink in the drive if any of the following is true: • P54 [Comm Flt Action] is set to 4 “Send Flt Cfg” and I/O communications are disrupted. • P55 [Idle Flt Action] is set to 4 “Send Flt Cfg” and the controller is idle. • P56 [Peer Flt Action] is set to 4 “Send Flt Cfg” and Peer I/O communications are disrupted. • P57 [Msg Flt Action] is set to 4 “Send Flt Cfg” and explicit messaging for drive control is disrupted.	Default: Min/Max:	0 0 / 4294967295	RW	Real
		76	755 **DLs Fr Peer Cfg** Datalinks From Peer Configure Sets the number of network-to-drive Datalinks (parameters) that are used for peer I/O. The Datalinks being used are allocated from the end of the list. For example, if this parameter's value is set to 3, Datalinks 14…16 are allocated for the three selected Datalinks. The Datalinks allocated for peer I/O cannot overlap with other assigned DL From Net 01…16 parameters.	Default: Min/Max:	0 0 / 16	RW	Real
		77	755 **DLs Fr Peer Act** Datalinks From Peer Action Displays the value of P76 [DLs Fr Peer Cfg] at the time the drive was reset. This is the number of actual peer-to-drive Datalinks that the drive is expecting.	Default: Min/Max:	0 0 / 16	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		78	755 **Logic Src Cfg** Logic Source Configure Controls which of the peer-to-drive Datalinks contain the Logic Command for the drive.	Default: Min/Max:	0 0 / 16	RW	Real
		79	755 **Ref Src Cfg** Reference Source Configure Controls which of the peer-to-drive Datalinks contain the Reference for the drive.	Default: Min/Max:	0 0 / 16	RW	Real
		80	755 **Fr Peer Timeout** From Peer Timeout Sets the timeout for a Peer I/O connection. If the time is reached without the adapter receiving (consuming) a message, the adapter will respond with the action specified in P56 [Peer Flt Action]. In an adapter receiving (consuming) Peer I/O, the value of this parameter must be greater than the product of the value of P89 [To Peer Period] in the adapter transmitting (producing) Peer I/O multiplied by the value of P90 [To Peer Skip] in the adapter transmitting (producing) Peer I/O.	Units: Default: Min/Max:	Secs 10.00 0.01 / 10.00	RW	Real
		81 82 83 84	755 **Fr Peer Addr 1** 755 **Fr Peer Addr 2** 755 **Fr Peer Addr 3** 755 **Fr Peer Addr 4** From Peer Address 1…4 Sets the bytes in the IP address that specifies the device from which the adapter receives (consumes) Peer I/O data. 255 . 255 . 255 . 255 [Peer Inp Addr 1] [Peer Inp Addr 2] [Peer Inp Addr 3] [Peer Inp Addr 4] **Important:** The Peer Inp Addr must be on the same subnet as the embedded EtherNet/IP adapter. Changes to these parameters are ignored when P85 [Fr Peer Enable] is "1" (On).	Default: Min/Max:	0 0 / 255	RW	Real
		85	755 **Fr Peer Enable** From Peer Enable Controls whether Peer I/O input is operating. A value of 0 "Off" turns off Peer I/O input. A value of 1 "Cmd/Ref" overrides the settings in Parameters P76 [DLs Fr Peer Cfg], P78 [Logic Src Cfg], and P79 [Ref Src Cfg] and automatically uses peer Datalink 01 as the drive's present Logic Command and peer Datalink 02 as the drive's Reference. A value of 2 "Custom" enables peer I/O input using the Datalink count and settings provided by the user.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Cmd/Ref" 2 = "Custom"	RW	32-bit Integer
		86	755 **Fr Peer Status** From Peer Status Displays the status of the consumed Peer I/O input connection.	Default: Options:	0 = "Off" 0 = "Off" 1 = "Waiting" 2 = "Running" 3 = "Faulted"	RO	32-bit Integer
		87	755 **DLs To Peer Cfg** Datalinks To Peer Configure Sets the number of drive-to-network Datalinks (parameters) that are used for Peer I/O. The Datalinks being used are allocated from the end of the list. For example, if this parameter's value is set to 3, Datalinks 14…16 are allocated for the three selected Datalinks. The Datalinks allocated for this cannot overlap with other assigned DL To Net 01…16 parameters.	Default: Min/Max:	0 0 / 16	RW	Real
		88	755 **DLs To Peer Act** Datalinks To Peer Action Displays the value of P87 [DLs To Peer Cfg] at the time the drive was reset. This is the number of actual drive-to-peer Datalinks that the drive is expecting.	Default: Min/Max:	0 0 / 16	RO	Real

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS		**89**	755 **To Peer Period** To Peer Period Sets the minimum time that an adapter will wait when transmitting data to a peer. **Important:** Changes to this parameter are ignored when P91 [To Peer Enable] is 0 “Off.”	Units: Default: Min/Max:	Secs 10.00 0.01 / 10.00	RW	Real
		90	755 **To Peer Skip** To Peer Skip Sets the maximum time that an adapter will wait when transmitting data to a peer. The value of P89 [To Peer Period] is multiplied by the value of this parameter to set the time. Important: Changes to this parameter are ignored when P91 [To Peer Enable] is 0 “Off.”	Default: Min/Max:	1 1 / 16	RW	Real
		91	755 **To Peer Enable** To Peer Enable Controls whether Peer I/O output is operating. A value of 0 “Off” turns off Peer I/O output. A value of 1 “Cmd/Ref” overrides the settings in Parameters P31 [DL To Net 15], P32 [DL To Net 16], P76 [DLs Fr Peer Cfg], and P77 [DLs Fr Peer Act], and automatically sends the drive's present Logic Command (as Datalink 01) and Reference (as Datalink 02). A value of 2 “Custom” enables Peer I/O output using the Datalink count and settings provided by the user.	Default: Options:	0 = “Off” 0 = “Off” 1 = “Cmd/Ref” 2 = “Custom”	RW	32-bit Integer

Notes:

Troubleshooting

This chapter provides information to guide through troubleshooting PowerFlex 750-Series faults and alarms.

Faults, Alarms and Configurable Conditions

A fault is a condition that stops the drive. There are three types of faults.

Type	Description
Auto Reset Run	When this type of fault occurs, and P348 [Auto Rstrt Tries] is set to a value greater than "0," a user-configurable timer, P349 [Auto Rstrt Delay] begins. When the timer reaches zero, the drive attempts to automatically reset the fault. If the condition that caused the fault is no longer present, the fault will be reset and the drive will be restarted. "Auto Reset Run" faults are identified by "Y" in the "Auto Reset" column in Table 4.C on page 4-4.
Resettable	This type of fault can be cleared. Resettable faults are identified by "Resettable Fault" in the "Type" column in Table 4.C.
Non-Resettable	This type of fault normally requires drive or motor repair. The cause of the fault must be corrected before the fault can be cleared. The fault will be reset on power up after repair. Non-Resettable faults are identified by "Non-Reset Fault" in the "Type" column in Table 4.C.

An alarm is a condition that, if left unaddressed, may stop the drive if running or prevent starting of the drive. There are two types of alarms.

Type	Description
Alarm 1	Alarms of type 1 indicate that a condition exists. Type 1 alarms are user configurable.
Alarm 2	Alarms of type 2 indicate that a configuration error exists and the drive cannot be started. Type 2 alarms are non-configurable.

User configurable conditions can be enabled as an alarm or fault.

Type	Description
Configurable	Event action is enabled/disabled by the parameter identified in the "Configuration Parameter" column of Table 4.C. **Options** "Ignore" (0) – No action. "Alarm" (1) – Type 1 alarm indicated. "Flt Minor" (2) – Minor fault indicated. If running, drive continues to run. Enable with P950 [Minor Flt Config]. If not enabled, acts like a major fault. "FltCoastStop" (3) – Major fault indicated. Coast to Stop. "Flt RampStop" (4) – Major fault indicated. Ramp to Stop. "Flt CL Stop" (5) – Major fault indicated. Current Limit Stop.

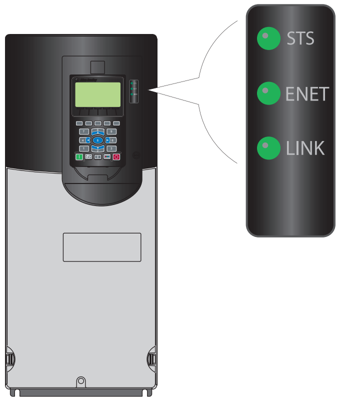
Drive Status Indicators

The condition or state of the drive is constantly monitored and is indicated through the LEDs and/or the HIM (if present).

PowerFlex 753

Table 4.A PowerFlex 753 Drive Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started.
		Steady	Drive is not running, a type 1 alarm condition exists. The drive can be started.
	Red	Flashing	A major fault has occurred. Drive will stop. Drive cannot be started until fault condition is cleared.
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Config] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists.
	Green / Red	Flashing Alternately	Drive is flash updating.



PowerFlex 755

Table 4.B PowerFlex 755 Drive Status Indicator Descriptions

Name	Color	State	Description
STS (Status)	Green	Flashing	Drive ready but not running, and no faults are present.
		Steady	Drive running, no faults are present.
	Yellow	Flashing	Drive is not running, a type 2 (non-configurable) alarm condition exists and the drive cannot be started.
		Steady	Drive is not running, a type 1 alarm condition exists. The drive can be started.
	Red	Flashing	A major fault has occurred. Drive will stop. Drive cannot be started until fault condition is cleared.
		Steady	A non-resettable fault has occurred.
	Red / Yellow	Flashing Alternately	A minor fault has occurred. When running, the drive continues to run. System is brought to a stop under system control. Fault must be cleared to continue. Use parameter 950 [Minor Flt Config] to enable. If not enabled, acts like a major fault.
	Yellow / Green	Flashing Alternately	When running, a type 1 alarm exists.
	Green / Red	Flashing Alternately	Drive is flash updating.
ENET	Unlit	Off	Adapter and/or network is not powered, adapter is not properly connected to the network, or adapter needs an IP address.
	Red	Flashing	An EtherNet/IP connection has timed out.
		Steady	Adapter failed the duplicate IP address detection test.
	Red / Green	Flashing Alternately	Adapter is performing a self-test.
	Green	Flashing	Adapter is properly connected but is not communicating with any devices on the network.
		Steady	Adapter is properly connected and communicating on the network.
LINK	Unlit	Off	Adapter is not powered or is not transmitting on the network.
	Green	Flashing	Adapter is properly connected and transmitting data packets on the network.
		Steady	Adapter is properly connected but is not transmitting on the network.

Important: The Status Indicator LEDs on the HIM cradle do not indicate the current status of an installed Communication Adapter option. If an optional Communication Adapter is installed, refer to that option’s user manual for a description of LED location and indication.

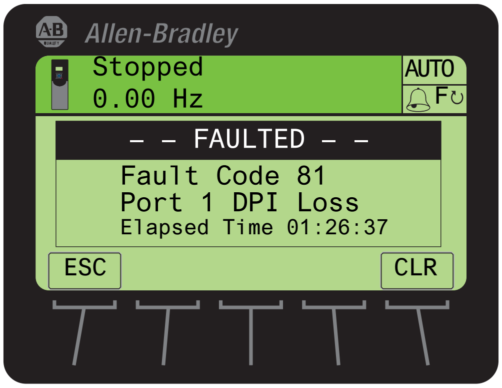
HIM Indication

Fault Display Screen

The pop-up Fault Display screen automatically appears when a fault condition for the Host Drive or any connected peripheral is detected. The pop-up Fault Display screen flashes to alert that a fault condition exists. This screen displays the:

- Fault Code number (See Fault and Alarm Display Codes on page 4-4.)
- Fault description
- Elapsed time (in hh:mm:ss format) from fault detection

Figure 4.1 Pop-Up/Flashing Fault Display Screen



– – FAULTED – –
Fault Code 81
Port 1 DPI Loss
Elapsed Time 01:26:37

Soft Key Functions

Label	Name	Description
ESC	Escape	Reverts back to the previous screen without clearing the fault.
CLR	Clear	Removes the pop-up Fault Display screen from the display and clears the fault.

Single Function Key

Key	Name	Description
○	Stop	Removes the pop-up Fault Display screen from the display and clears the fault.

Manually Clearing Faults

Step	Key(s)
1. Press the “Clear” soft key to acknowledge the fault. The fault information will be removed so that you can use the HIM. 2. Address the condition that caused the fault. The cause must be corrected before the fault can be cleared. 3. After corrective action has been taken, clear the fault by one of these methods: • Press Stop (if running the drive will stop) • Cycle drive power • Select the “Clear” soft key on the HIM Diagnostic folder Faults menu.	CLR ○

Fault and Alarm Display Codes

Event numbers for PowerFlex 750-Series faults and alarms are displayed in one of three formats.

- Port 00 (Host Drive) displays the event number only. For example, Fault 3 “Power Loss” is displayed as:
  Fault Code 3.
- Ports 01 through 09 use the format PEEE, indicating port number (P) and event number (EEE). For example, Fault 1 “Analog In Loss” on an I/O module installed in Port 4 is displayed as:
  Fault Code 4001.
- Ports 10 through 14 use the format PPEEE, indicating port number (PP) and event number (EEE). For example, Fault 37 “Net IO Timeout” on Port 14 is displayed as:
  Fault Code 14037.

Drive Fault and Alarm Descriptions

The table below contains a list of drive-specific faults and alarms, the type of fault or alarm, the action taken when the drive faults, the parameter used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 4.C Drive Fault and Alarm Types, Descriptions and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
0	No Entry					
2	Auxiliary Input	Resettable Fault	Coast			An auxiliary input interlock is open.
3	Power Loss	Configurable		P449 [Power Loss Actn]	Y	The DC bus voltage remained below the P451/P454 [Pwr Loss X Level] of nominal for longer than the time programmed in P452/P455 [Pwr Loss X Time].
4	UnderVoltage	Configurable		P460 [UnderVltg Action]	Y	If the bus voltage, P11 [DC Bus Volts] falls below the value set in P461 [UnderVltg Level] an undervoltage condition exists.
5	OverVoltage	Resettable Fault	Coast		Y	The DC bus voltage exceeded the maximum value.
7	Motor Overload	Configurable		P410 [Motor OL Actn]	Y	An internal electronic overload trip has occurred.
8	Heatsink OvrTemp	Resettable Fault	Coast		Y	The heatsink temperature has exceeded 100% of the drive temperature.
9	Trnsistr OvrTemp	Resettable Fault	Coast		Y	The output transistors have exceeded the maximum operating temperature.
10	DynBrake OvrTemp	Alarm 1				The dynamic brake resistor has exceeded its maximum operating temperature.
12	HW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the hardware current limit.
13	Ground Fault	Resettable Fault	Coast		Y	A current path to earth ground greater than 25% of drive rating has occurred.
14	Ground Warning	Configurable				The ground current has exceeded the level set in P467 [Ground Warn Lvl].
15	Load Loss	Configurable		P441 [Load Loss Action]		The output torque current is below the value programmed in P442 [Load Loss Level] for a time period greater than the time programmed in P443 [Load Loss Time].
17	Input Phase Loss	Configurable		P462 [InPhase LossActn]		The DC bus ripple has exceeded a preset level.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
18	Motor PTC Trip	Configurable		P250 [PTC Config]		Motor PTC (Positive Temperature Coefficient) over temperature.
20	TorqPrv Spd Band	Resettable Fault	Coast			The difference between P2 [Commanded SpdRef] and P3 [Mtr Vel Fdbk] has exceeded the level programmed in P1105 [Speed Dev Band] for a time period greater than the time programmed in P1106 [SpdBand Intgrtr].
21	Output PhaseLoss	Configurable		P444 [OutPhaseLossActn]		The current in one or more phases has been lost or remains below a preset level.
24	Decel Inhibit	Configurable		P409 [Dec Inhibit Actn]		The drive is not following a commanded deceleration because it is attempting to limit the bus voltage.
25	OverSpeed Limit	Resettable Fault	Coast		Y	The motor operating speed exceeds the limit set by the maximum speed setting P524 [Overspeed Limit]. For forward motor rotation, this limit is P520 [Max Fwd Speed] + P524 [Overspeed Limit]. For reverse motor rotation, this limit is P521 [Max Rev Speed] - P524 [Overspeed Limit]. When flux vector control modes are selected in P35 [Motor Ctrl Mode] the motor operating speed is determined by P131 [Active Vel Fdbk]. For all other non-flux vector control modes, the motor operating speed is determined by P1 [Output Frequency].
26	Brake Slipped	Alarm 1				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is controlling the drive. (Drive is active.)
		Alarm 2				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is finished. (Drive is stopped.)
27	Torq Prove Cflct	Alarm 2				When P1100 [Trq Prove Cfg] is enabled, P35 [Motor Ctrl Mode], P125 [Pri Vel Fdbk Sel] and P135 [Mtr Psn Fdbk Sel] must be properly set. If these parameters point to a feedback module, the module parameters must also be properly set.
28	TrqProv EnclsCfg	Alarm 2				Encoderless TorqProve has been enabled but user has not read and understood application concerns of encoderless operation. Read the “Attention” on page C-4 relating to the use of TorqProve with no encoder.
29	Analog In Loss	Configurable		263 [Anlg In0 LssActn]		Analog input has a lost signal.
33	AuRsts Exhausted	Resettable Fault	Coast			The drive unsuccessfully attempted to reset a fault and resume running for the programmed number of tries.
36	SW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the 1 ms current rating. This rating is greater than the 3 second current rating and less than the hardware overcurrent fault level. It is typically 200…250% of the drive continuous rating.
38	Phase U to Gnd	Resettable Fault	Coast			A phase to ground fault has been detected between the drive and motor in this phase.
39	Phase V to Gnd					
40	Phase W to Gnd					
41	Phase UV Short	Resettable Fault	Coast			Excessive current has been detected between these two output terminals.
42	Phase VW Short					
43	Phase WU Short					
44	Phase UNot ToGnd	Resettable Fault	Coast			A phase to ground fault has been detected between the drive and motor in this phase.
45	Phase VNot ToGnd					
46	Phase WNot ToGnd					
48	Params Defaulted	Resettable Fault	Coast			The drive was commanded to write default values.
49	Drive Powerup	–				A Power Up Marker in the Fault Queue indicating that the drive power cycled.
51	Clr Fault Queue	–				Indication that the fault queue has been cleared.
55	Crtl Bd Overtemp	Resettable Fault	Coast			The temperature sensor on the main control board detected excessive heat. See product temperature requirement.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
58	Module Defaulted	Resettable Fault	Coast			The module was commanded to write default values.
59	Invalid Code	Resettable Fault	Coast			Internal error.
61	Shear Pin 1	Configurable		P435 [Shear Pin 1 Actn]	Y	The programmed value in P436 [Shear Pin1 Level] has been exceeded.
62	Shear Pin 2	Configurable		P438 [Shear Pin 2 Actn]	Y	The programmed value in P439 [Shear Pin2 Level] has been exceeded.
64	Drive OverLoad	Alarm 1			Y	P940 [Drive OL Count] has exceeded 50% but is less than 100%.
		Resettable Fault	Coast			P940 [Drive OL Count] has exceeded 100%. Reduce the mechanical load on the drive.
67	Pump Off	Alarm 1				Pump Off condition has been detected.
71	Port 1 Adapter	Resettable Fault	Coast			The DPI communications option has a fault. See device event queue.
72	Port 2 Adapter					
73	Port 3 Adapter					
74	Port 4 Adapter					
75	Port 5 Adapter					
76	Port 6 Adapter					
77	IR Volts Range	Alarm 2				The default for P70 [Autotune] is 1 “Calculate” and the value calculated from the motor nameplate values returned a value for P73 [IR Voltage Drop] which is not in the range of acceptable values.
		Resettable Fault	Coast			P70 [Autotune] is set to 2 “Static Tune” or 3 “Rotate Tune” and the value measured by the Autotune procedure for P73 [IR Voltage Drop] is not in the range of acceptable values.
78	FluxAmpsRef Rang	Alarm 2				The default for P70 [Autotune] is 1 “Calculate” and the value for flux amps determined by the Autotune procedure exceeds the value programmed in P26 [Motor NP Amps].
		Resettable Fault	Coast			P70 [Autotune] is set to 2 “Static Tune” or 3 “Rotate Tune” and the value for flux amps measured by the Autotune procedure exceeds the value programmed in P26 [Motor NP Amps].
79	Excessive Load	Resettable Fault	Coast			The motor did not come up to speed in the allotted time during Autotune.
80	AutoTune Aborted	Resettable Fault	Coast			The Autotune function was manually canceled or a fault occurred.
81	Port 1 DPI Loss	Resettable Fault	Coast			The DPI port stopped communicating. Check connections and drive grounding.
82	Port 2 DPI Loss					
83	Port 3 DPI Loss					
84	Port 4 DPI Loss					
85	Port 5 DPI Loss					
86	Port 6 DPI Loss					
87	IXo VoltageRange	Alarm 2				The default for P70 [Autotune] is 1 “Calculate” and the voltage calculated for motor inductive impedance exceeds 25% of the value of P25 [Motor NP Volts].
		Resettable Fault	Coast			P70 [Autotune] is set to 2 “Static Tune” or 3 “Rotate Tune” and the voltage measured for motor inductive impedance exceeds 25% of the value of P25 [Motor NP Volts].
91	Pri VelFdbk Loss	Configurable		Note: See option module for config parameter number		A Feedback Loss has been detected for the source of P134 [Aux Vel Feedback]. This could be due to a problem detected by the feedback option module selected by P125 [Pri Vel Fdbk Sel] or due to a loss in communication between the feedback option module and main control board. The source of primary velocity feedback must be configured not to fault if the feedback loss switchover feature is used.
93	Hw Enable Check	Resettable Fault	Coast			Hardware enable is disabled (jumper installed) but indicates not enabled.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
94	Alt VelFdbk Loss	Configurable		Note: See option module for config parameter number		A Feedback Loss has been detected for the source of P128 [Alt Vel Fdbk Sel]. This could be due to a problem detected by the feedback option module selected by P128 [Alt Vel Fdbk Sel] or due to a loss in communication between the feedback option module and main control board.
95	Aux VelFdbk Loss	Configurable				A Feedback Loss has been detected for the source of P132 [Aux Vel Fdbk Sel]. This could be due to a problem detected by the feedback option module selected by P132 [Aux Vel Fdbk Sel] or due to a loss in communication between the feedback option module and main control board.
96	PositionFdbkLoss	Configurable				A Feedback Loss has been detected for the source of P847 [Psn Fdbk]. This could be due to a problem detected by the feedback option module selected by P135 [Mtr Psn Fdbk Sel] or due to a loss in communication between the feedback option module and main control board.
97	Auto Tach Switch	Resettable Fault	Coast			Indication that either of the two following conditions exists. • Tach switch has occurred and alternate feedback device has failed. • Tach switch has not occurred, Auto Tach Switch Option is enabled and both primary and alternate devices have failed.
100	Parameter Chksum	Resettable Fault	Coast			The checksum read from the non-volatile storage does not match the checksum calculated. Data set to default value.
104	Pwr Brd Checksum	Non-Reset Fault				The checksum read from the non-volatile storage does not match the checksum calculated. Data set to default value.
106	Incompat MCB-PB	Non-Reset Fault	Coast			The main control board did not recognize the power structure. Flash with newer Application version.
107	Replaced MCB-PB	Resettable Fault	Coast			The main control board was moved to a different power structure. Data set to default values.
108	Anlg Cal Chksum	Non-Reset Fault	Coast			The checksum read from the analog calibration data does not match the checksum calculated.
111	PwrBd Invalid ID	Non-Reset Fault	Coast			Power structure ID invalid. Flash with newer Application version.
112	PwrBd App MinVer	Resettable Fault	Coast			Power structure needs newer Application version. Flash with newer Application version.
113	Tracking DataErr	Resettable Fault	Coast			Internal data error.
115	PwrDn Table Full	Resettable Fault	Coast			Internal data error.
116	PwrDnEntry2Large	Resettable Fault	Coast			Internal data error.
117	PwrDn Data Chksm	Resettable Fault	Coast			Internal data error.
118	PwrBd PwrDn Chks	Resettable Fault	Coast			Internal data error.
124	App ID Changed	Resettable Fault	Coast			Application Firmware changed. Verify Application version.
125	Using Backup App	Resettable Fault	Coast			Application did not flash correctly. Reflash.
134	Start On PowerUp	Alarm 1				When P345 [Start At PowerUp] is enabled, an alarm will be set for the time programmed in P346 [PowerUp Delay].
137	Ext Prechrg Err	Configurable		P323 [Prchrg Err Cfg]		The seal contact on the external precharge contactor has opened (as signalled by P190 [DI Prchrg Seal]) while the drive was running (PWM was active).
138	Precharge Open	Resettable Fault	Coast			The internal precharge was commanded to open while the drive was running (PWM was active). The internal fault latch will be automatically cleared when PWM is disabled.
141	Autn Enc Angle	Resettable Fault	Coast			P78 [Encdrlss AngComp] is out of range.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
142	Autn Spd Rstrct	Resettable Fault	Coast			Frequency limit settings are preventing the drive from reaching a suitable speed during an Inertia Tune test.
143	Autotune CurReg	Resettable Fault	Coast			Calculated values for P96 [VCL Cur Reg Kp] and/or P97 [VCL Cur Reg Ki] are out of range.
144	Autotune Inertia	Resettable Fault	Coast			Results from the Inertia Tune test out of range for P76 [Total Inertia].
145	Autotune Travel	Resettable Fault	Coast			When P77 [Inertia Test Lmt] is set, the Inertia Tune test was prevented from reaching a suitable speed to run the test.
152	No Stop Source	Resettable Fault	Coast			Last stop source has been removed.
155	Bipolar Conflict	Alarm 2				P308 [Direction Mode] is set to 1 “Bipolar” or 2 “Rev Disable” and one or more digital input is enabled for direction control.
157	DigIn Cfg B	Alarm 2				Digital input conflict. Correct Digital Input configuration.
158	DigIn Cfg C	Alarm 2				Digital input conflict. Correct Digital Input configuration.
161	Sleep Cfg	Alarm 2				There is a Sleep/Wake configuration error. With Sleep Wake Mode = Direct, possible causes include: Drive is stopped and Wake Level < Sleep Level. Stop=CF, Run, Run Fwd, or Run Rev is not configured in Digital Input functions.
162	Waking	Alarm 2				The Wake timer is counting toward a value that will start the drive.
168	HeatSinkUnderTmp	Resettable Fault				Heatsink temperature sensor is reporting a value below -18.7 °C (-1.66 °F) or the sensor feedback circuit is open.
169	PWM Freq Reduced	Alarm 1				The PWM Frequency has been reduced from the value set in P38 [PWM Frequency] due to excessive IGBT junction temperatures.
170	CurLimit Reduced	Alarm 1				The current limit value has been reduced from the value set in P422/423 [Current Limit X] due to excessive IGBT junction temperatures or P940 [Drive OL Count] = 95%.
171	Adj Vltg Ref	Alarm 1				Invalid adjustable voltage reference selection conflict.
177	Profiling Active	Alarm 1				The Profile/Indexer is active.
178	Homing Active	Alarm 1				The Homing function is active.
179	Home Not Set	Alarm 1				The Home position was not set before profile operation.
185	Freq Conflict	Alarm 2				Indicates that the values of P520 [Max Fwd Speed] and P521 [Max Rev Speed] are in conflict with the value of P63 [Break Frequency].
186	VHz Neg Slope	Alarm 2				Indicates that the V/Hz curve segment resulted in a negative V/Hz slope.
187	VHz Boost Limit	Alarm 2				Indication that one of the two following conditions exists. • P60 [Start/Acc Boost] and P61 [Run Boost] are greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 0 “Custom V/Hz.” • P61 [Run Boost] is greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 1 “Fan/Pump.”
190	PM FV Pri Fdbk	Alarm 2				Indicates a control mode and primary feedback device configuration error. P35 [Motor Ctrl Mode] is set to a flux vector “FV” control mode, P125 [Pri Vel Fdbk Sel] is set to 137 (port 0, P137 [Open Loop Fdbk]).
191	PM FV Alt Fdbk	Alarm 2				Indicates a control mode and alternate feedback device configuration error. P35 [Motor Ctrl Mode] is set to a flux vector “FV” control mode, P635 [Spd Options Ctrl] is set to bit 7 “Auto Tach SW,” P125 [Pri Vel Fdbk Sel] is set to 137 (port 0, P137 [Open Loop Fdbk]).
192	Fwd Spd Lim Cfg	Alarm 2				The forward speed reference is out of range. Verify the settings of P38 [PWM Frequency] and P520 [Max Fwd Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P522 [Min Fwd Speed] is less than P520 [Max Fwd Speed].

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
193	Rev Spd Lim Cfg	Alarm 2				The reverse speed reference is out of range. Verify the settings of P38 [PWM Frequency] and P521 [Max Rev Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P523 [Min Rev Speed] is less than P521 [Max Rev Speed].
203	Port 13 Adapter	Resettable Fault	Coast			The embedded EtherNet/IP adapter has a fault. See EtherNet event queue.
204	Port 14 Adapter	Resettable Fault	Coast			The DeviceLogix adapter has a fault.
205	DPI TransportErr	Alarm 1				A DPI Communication Error has occurred.
210	HW En Jumper Out	Resettable Fault	Coast			A Safety Option module is present and Jumper J1 ENABLE is removed. Install the jumper.
211	Safety Brd Fault	Resettable Fault	Coast			A Safety option module has indicated a fault. Verify that Jumper J1 ENABLE is installed. Reset or power cycle drive.
212	Safety JumperOut	Resettable Fault	Coast			Jumper J2 SAFETY is not installed and a Safety option module is not present. Install the jumper.
213	Safety Jumper In	Resettable Fault	Coast			Jumper J2 SAFETY is installed and a Safety option module is present. Remove the jumper.
214	SafetyPortCnflct	Alarm 2				Allowable number of safety options exceeded.
224	Port 4 Comm Loss	Resettable Fault	Coast			The device at the port has stopped communicating with the main control board. Verify that the device is present and functional. Verify network connections. Verify options installed in ports 4…8 are seated in the port and secured with mounting screws.
225	Port 5 Comm Loss					
226	Port 6 Comm Loss					
227	Port 7 Comm Loss					
228	Port 8 Comm Loss					
229	Port 9 Comm Loss					
230	Port10 Comm Loss					
231	Port11 Comm Loss					
232	Port12 Comm Loss					
233	Port13 Comm Loss					
234	Port14 Comm Loss					
244	Port 4 Cfg	Alarm 2				The main control board does not have the correct option in the port. Option may not be compatible with product or MCB firmware needs to be updated to support it. Option my have to be moved or removed, accept option configuration change.
245	Port 5 Cfg					
246	Port 6 Cfg					
247	Port 7 Cfg					
248	Port 8 Cfg					
249	Port 9 Cfg					
250	Port 10 Cfg					
251	Port 11 Cfg					
252	Port 12 Cfg					
253	Port 13 Cfg					
254	Port 14 Cfg					
264	Port 4 Checksum	Resettable Fault	Coast			A option module storage checksum failed. Option data has been set to default values.
265	Port 5 Checksum					
266	Port 6 Checksum					
267	Port 7 Checksum					
268	Port 8 Checksum					
269	Port 9 Checksum					
270	Port10 Checksum					
271	Port11 Checksum					
272	Port12 Checksum					
273	Port13 Checksum					
274	Port14 Checksum					

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
291	HS Fan Life	Configurable		P493 [HSFan EventActn]		Predictive maintenance function has reached the event level. Perform maintenance.
292	In Fan Life	Configurable		P500 [InFan EventActn]		
293	MtrBrng Life	Configurable		P506 [MtrBrngEventActn]		
294	MtrBrng Lube	Configurable		P510 [MtrLubeEventActn]		
295	MachBrng Life	Configurable		P515 [MtrBrngEventActn]		
296	MachBrng Lube	Configurable		P519 [MchLubeEventActn]		
307	Port7InvalidCard	Non-Reset Fault	Coast			Option not valid in that port. Remove option module.
308	Port8InvalidCard	Non-Reset Fault	Coast			
313	ENet Checksum	Resettable Fault	Coast			Ethernet/IP storage checksum failed. Data set to default values.
314	DLX Checksum	Resettable Fault	Coast			DeviceLogix storage checksum failed. Data set to default values.
14037	Net IO Timeout	Configurable		P52 [DLX Prog Cond]		DeviceLogix has been disabled.

Important: Fault and Alarm event numbers between 3000 and 13999 are generated by a module installed in a port. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation. For event numbers that fall between 13000 and 13999, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001 for descriptions.

Table 4.D Drive Fault and Alarm Cross Reference By Name

Fault/Alarm Text	Number
Alt VelFdbk Loss	94
App ID Changed	124
AuRsts Exhausted	33
Autn Enc Angle	141
Autn Spd Rstrct	142
Auto Tach Switch	97
AutoTune Aborted	80
Autotune CurReg	143
Autotune Inertia	144
Autotune Travel	145
Aux VelFdbk Loss	95
Auxiliary Input	2
Bipolar Conflict	155
Brake Slipped	26
Crtl Bd Overtemp	55
CurLimit Reduced	170
Decel Inhibit	24
DigIn Cnfg B	157
DigIn Cnfg C	158
DLX Checksum	314
DPI TransportErr	205
Drive OverLoad	64
Drive Powerup	49
DynBrake OvrTemp	10
ENet Checksum	313
Port 1 Adapter	71
Port 1 DPI Loss	81
Port 13 Adapter	203
Port 14 Adapter	204
Port 2 Adapter	72
Port 2 DPI Loss	82
Port 3 Adapter	73
Port 3 DPI Loss	83
Port 4 Adapter	74
Port 4 Checksum	264
Port 4 Comm Loss	224
Port 4 Config	244
Port 4 DPI Loss	84
Port 5 Adapter	75
Port 5 Checksum	265
Port 5 Comm Loss	225
Port 5 Config	245
Port 5 DPI Loss	85
Port 6 Adapter	76
Port 6 Checksum	266
Port 6 Comm Loss	226
Port 6 Config	246
Port 6 DPI Loss	86
Port 7 Checksum	267
Port 7 Comm Loss	227

Fault/Alarm Text	Number
Excessive Load	79
Ext Prechrg Err	137
Flt QueueCleared	51
FluxAmpsRef Rang	78
Fwd Spd Lim Cnfg	192
Ground Fault	13
Ground Warning	14
Heatsink OvrTemp	8
HeatSinkUnderTmp	168
Home Not Set	179
Homing Active	178
HS Fan Life	291
Hw Enable Check	93
HW Enbl Jmpr Out	210
HW OverCurrent	12
In Fan Life	292
Incompat MCB-PB	106
Input Phase Loss	17
IR Volts Range	77
IXo VoltageRange	87
Load Loss	15
MachBrng Life	295
MachBrng Lube	296
MaxFreq Conflict	185
Module Defaulted	58
Motor Overload	7
MtrBrng Life	293
MtrBrng Lube	294
Output PhaseLoss	21
OverSpeed Limit	25
OverVoltage	5
OW Torq Level	66
OW TqLvl Timeout	65
Parameter Chksum	100
Params Defaulted	48
Phase U to Grnd	38
Phase UNegToGrnd	44
Phase UV Short	41
Phase V to Grnd	39
Phase VNegToGrnd	45
Phase VW Short	42
Phase W to Grnd	40
Phase WNegToGrnd	46
Phase WU Short	43
PM FV Alt Fdbk	191
PM FV Pri Fdbk	190

Fault/Alarm Text	Number
Port 7 Config	247
Port 8 Checksum	268
Port 8 Comm Loss	228
Port 8 Config	248
Port 9 Checksum	269
Port 9 Comm Loss	229
Port 9 Config	249
Port7InvalidCard	307
Port8InvalidCard	308
PositionFdbkLoss	96
Power Loss	3
Precharge Open	138
Prev Maint Reset	290
Pri VelFdbk Loss	91
Profiling Active	177
PWM Freq Reduced	169
Pwr Brd Checksum	104
PwrBd App MinVer	112
PwrBd Invalid ID	111
PwrBd PwrDn Chks	118
PwrDn Data Chksm	117
PwrDn Table Full	115
PwrDnEntry2Large	116
Replaced MCB-PB	107
Rev Spd Lim Cnfg	193
Safety Brd Fault	211
Safety Jmpr Out	212
Safety Jumper In	213
SafetyPortCnflct	214
Shear Pin 1	61
Shear Pin 2	62
Sleep Config	161
Start On PowerUp	134
SW OverCurrent	36
Torq Prove Cflct	27
TorqPrv Spd Band	20
TP Encls Config	28
Tracking DataErr	113
Trnsistr OvrTemp	9
TrqMode Incompat	184
UnderVoltage	4
Using Backup App	125
Vel Fbk Sel Err	189
VHz Boost Limit	187
VHz Curve Incomp	188
VHz Neg Slope	186
Waking	162

I/O Faults and Alarms

The table below contains a list of I/O-specific faults and alarms, the type of fault or alarm, the action taken when the drive faults, the parameter used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 4.E I/O Fault and Alarm Types, Descriptions and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	No Entry					
*xx*001	Analog In Loss	Configurable		P53/P63 [Anlg InX LssActn]		Analog input has a lost signal.
*xx*002	Motor PTC Trip	Configurable		P40 [PTC Cfg]		Motor PTC (Positive Temperature Coefficient) over temperature.
*xx*005	Relay0 Life	Configurable		P106 [RO0 LifeEvntActn]		Predictive maintenance.
*xx*006	Relay1 Life	Configurable		P116 [RO1 LifeEvntActn]		Predictive maintenance.
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation.

Safe Torque Off Fault

The table below lists the safe torque off-specific fault, the action taken when the drive faults, and its description.

Table 4.F Safe Torque Fault and Alarm Types, Descriptions and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	No Entry					
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation.

Single Incremental Encoder Faults and Alarms

The table below contains a list of encoder-specific faults and alarms, the type of fault or alarm, the action taken when the drive faults, the parameter used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 4.G Single Incremental Encoder Fault and Alarm Types, Descriptions and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	Open Wire	Configurable		P3 [Fdbk Loss Cfg]		The encoder module has detected an input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P1 [Encoder Cfg].
*xx*001	Phase Loss	Configurable		P3 [Fdbk Loss Cfg]		More than 30 phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Open Wire detection apply.
*xx*002	Quadrature Loss	Configurable		P3 [Fdbk Loss Cfg]		Quadrature loss events occur when simultaneous edge transitions occur on both the A and B encoder channels. This fault will occur when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 “A Chan Only”) in P1 [Encoder Cfg].
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation.

Dual Incremental Encoder Faults and Alarms

The table below contains a list of encoder-specific faults and alarms, the type of fault or alarm, the action taken when the drive faults, the parameter used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 4.H Dual Incremental Encoder Fault and Alarm Types, Descriptions and Actions

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
*xx*000	Enc0 Open Wire	Configurable		P3 [Enc 0 FB Lss Cfg]		The dual encoder module has detected an encoder 0 input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P1 [Enc 0 Cfg].
*xx*001	Enc0 Phase Loss	Configurable		P3 [Enc 0 FB Lss Cfg]		More than 30 encoder 0 phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Enc0 Open Wire detection apply.
*xx*002	Enc0 Quad Loss	Configurable		P3 [Enc 0 FB Lss Cfg]		Encoder 0 Quadrature loss events occur when simultaneous edge transitions occur on both the A and B channels of encoder 0. This fault will occur when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 “A Chan Only”) in P1 [Enc 0 Cfg].
*xx*030	Enc1 Open Wire	Configurable		P13 [Enc 1 FB Lss Cfg]		The dual encoder module has detected an encoder 1 input signal (A, B, or Z) in the same state as its complement (A Not, B Not, or Z Not). For open wire detection to work, the encoder signals must be differential (not single ended). The Z channel is only checked when enabled. See P11 [Enc 1 Cfg].
*xx*031	Enc1 Phase Loss	Configurable		P13 [Enc 1 FB Lss Cfg]		More than 30 encoder 1 phase loss (open wire) events have occurred over an 8 millisecond time period. The same restrictions as for Enc1 Open Wire detection apply.
*xx*032	Enc1 Quad Loss	Configurable		P13 [Enc 1 FB Lss Cfg]		Encoder 1 Quadrature loss events occur when simultaneous edge transitions occur on both the A and B channels of encoder 1. This fault will occur when more than 10 quad loss events over a 10 millisecond time period are detected. Only valid when both A and B channels are used (not Bit 1 “A Chan Only”) in P11 [Enc 1 Cfg].
*xx*058	Module Defaulted	Fault	Coast			Module was commanded to write default values.

(1) *xx* indicates the port number. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation.

Universal Feedback Faults and Alarms

The table below contains a list of universal feedback-specific faults and alarms, the type of fault or alarm, the action taken when the drive faults, the parameter used to configure the fault or alarm (if applicable), and a description and action (where applicable).

Table 4.I Universal Feedback Fault and Alarm Types, Descriptions and Actions

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*000	LightSrc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Light source failure
*xx*001	Ch0 SigAmp Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface -Signal amplitude error
*xx*002	Ch0 PsnVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Position value error
*xx*003	Ch0 OverVolt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Overvoltage error
*xx*004	Ch0 UndVolt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Undervoltage error
*xx*005	Ch0 OverCur Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Overcurrent error
*xx*006	Ch0 Battery Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Battery empty
*xx*009	Ch0 AnalSig Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog signals outside specification
*xx*010	Ch0 IntOfst Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Faulty internal angular offset
*xx*011	Ch0 DataTabl Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Data field partitioning table damaged
*xx*012	Ch0 AnalLim Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog limit values not available
*xx*013	Ch0 Int I2C Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Internal I2C bus not operational
*xx*014	Ch0 IntChksm Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Internal checksum error
*xx*015	Ch0 PrgmResetErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Encoder reset occurred as a result of program monitoring
*xx*016	Ch0 CntOvrflwErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Counter overflow
*xx*017	Ch0 Parity Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Parity error
*xx*018	Ch0 Chksum Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Checksum of the data transmitted is incorrect
*xx*019	Ch0 InvCmd Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Unknown command code
*xx*020	Ch0 SendSize Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Number of data transmitted is incorrect
*xx*021	Ch0 CmdArgmt Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Command argument transmitted is not allowed
*xx*022	Ch0 InvWrtAdrErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - The selected data field must not be written to (invalid write address)
*xx*023	Ch0 AccCode Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Incorrect access code
*xx*024	Ch0 FieldSizeErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Size of data field stated cannot be changed

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*025	Ch0 Address Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Word address stated is outside data field
*xx*026	Ch0 FieldAcc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Access to non-existent data field
*xx*028	Ch0 SiTurnPsnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Single turn position unreliable
*xx*029	Ch0 MulTrnPsnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Multiple turn position unreliable
*xx*036	Ch0 AnalVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Analog value error (process data)
*xx*037	Ch0 SendCurr Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Transmitter current critical (dirt, broken transmitter)
*xx*038	Ch0 EncTemp Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Encoder temperature critical
*xx*039	Ch0 Speed Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by Stegmann Encoder on Channel 0 with Hiperface Interface - Speed too high, no position formation possible
*xx*040	Ch0 General Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - An error bit of the BiSS Single Cycle Data is set
*xx*046	Ch0 LED Curr Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - LED current out of control range
*xx*047	Ch0 ExMulTurnErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - External multiturn error
*xx*048	Ch0 PsnCode Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - Position code error (single step error)
*xx*049	Ch0 Config Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - failure configuring interface
*xx*050	Ch0 PsnVal Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - Position data not valid
*xx*051	Ch0 SerialComErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - Serial interface failure
*xx*052	Ch0 Ext Failure	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - External failure over NERR
*xx*053	Ch0 Temp Exc Err	Configurable		P9 [FB0 Loss Cfg]		Error reported by a Encoder on Channel 0 with BiSS Interface - Temperature out of defined range
*xx*058	Module Defaulted	Fault	Coast			Parameter values for this encoder have been reset to their default settings.
*xx*064	Ch0 OutOfRailErr	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Rail is no longer present between the read head
*xx*068	Ch0 Read Head 1	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that the read head must be cleaned or installed correctly
*xx*069	Ch0 Read Head 2	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that the read head must be cleaned or installed correctly
*xx*070	Ch0 RAM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates a RAM error. Reading head needs to be repaired
*xx*071	Ch0 EPROM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates a EPROM error. Reading head needs to be repaired
*xx*072	Ch0 ROM Error	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates a ROM error. Reading head needs to be repaired
*xx*074	Ch0 No Position	Configurable		P9 [FB0 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 0 - Indicates that no position value was available - only possible following powerup or reset

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*081	Ch0 Msg Cheksum	Configurable		P9 [FB0 Loss Cfg]		Indicates the option card has detected a serial communications checksum error while attempting to communicate with the encoder on channel 0.
*xx*082	Ch0 Timeout	Configurable		P9 [FB0 Loss Cfg]		Indicates the option card has detected a serial communications timeout error while attempting to communicate with the encoder on channel 0.
*xx*083	Ch0 Comm	Configurable		P9 [FB0 Loss Cfg]		Indicates the option card has detected a serial communications error (other than checksum or timeout) while attempting to communicate with the encoder on channel 0.
*xx*084	Ch0 Diagnostic	Configurable		P9 [FB0 Loss Cfg]		Indicates the option card has detected a powerup diagnostic test failure for encoder channel 0.
*xx*085	Ch0 SpplyVltgRng	Configurable		P9 [FB0 Loss Cfg]		Indicates that the voltage source to the encoder 0 is out of range.
*xx*086	Ch0 SC Amplitude	Configurable		P9 [FB0 Loss Cfg]		Indicates that the encoder 0 signal amplitude is out of tolerance.
*xx*087	Ch0 Open Wire	Configurable		P9 [FB0 Loss Cfg]		Indicates that an open wire condition has been detected for encoder 0.
*xx*088	Ch0 Quad Loss	Configurable		P9 [FB0 Loss Cfg]		Indicates that a signal quadrature error has been detected for encoder 0
*xx*089	Ch0 Phase Loss	Configurable		P9 [FB0 Loss Cfg]		Indicates that an A or B signal of an A quad B incremental encoder on Channel 0 is disconnected.
*xx*090	Ch0 Unsupp Enc	Configurable		P9 [FB0 Loss Cfg]		Indicates that the connected encoder on Channel 0 is not supported
*xx*100	Ch0 FreqExc Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Frequency exceeded warning
*xx*101	Ch0 TempExc Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Temperature exceeded warning
*xx*102	Ch0 LightLim Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Limit of light control reserve reached
*xx*103	Ch0 Battery Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Battery warning
*xx*104	Ch0 RefPoint Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 0 with EnDat Interface - Reference point not reached
*xx*108	Ch0 General Alm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by a Encoder on Channel 0 with BiSS Interface - A warning bit of the BiSS Single Cycle Data is set
*xx*115	Ch0 Optics Alarm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 0 - Displays an alarm when the Stahl optical system requires cleaning
*xx*116	Ch0 OutOfRailAlm	Alarm 1		P9 [FB0 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 0 - Indicates that the read encoder count is at the maximum value (524287)
*xx*200	Ch1 LightSrc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Light source failure
*xx*201	Ch1 SigAmp Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface -Signal amplitude error
*xx*202	Ch1 PsnVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Position value error
*xx*203	Ch1 OverVolt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Overvoltage error
*xx*204	Ch1 UndVolt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Undervoltage error
*xx*205	Ch1 OverCur Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Overcurrent error
*xx*206	Ch1 Battery Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Battery empty
*xx*209	Ch1 AnalSig Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog signals outside specification

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*210	Ch1 IntOfst Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Faulty internal angular offset
*xx*211	Ch1 DataTabl Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Data field partitioning table damaged
*xx*212	Ch1 AnalLim Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog limit values not available
*xx*213	Ch1 Int I2C Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Internal I2C bus not operational
*xx*214	Ch1 IntChksm Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Internal checksum error
*xx*215	Ch1 PrgmResetErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Encoder reset occurred as a result of program monitoring
*xx*216	Ch1 CntOvrflwErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Counter overflow
*xx*217	Ch1 Parity Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Parity error
*xx*218	Ch1 Chksum Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Checksum of the data transmitted is incorrect
*xx*219	Ch1 InvCmd Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Unknown command code
*xx*220	Ch1 SendSize Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Number of data transmitted is incorrect
*xx*221	Ch1 CmdArgmt Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Command argument transmitted is not allowed
*xx*222	Ch1 InvWrtAdrErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - The selected data field must not be written to (invalid write address)
*xx*223	Ch1 AccCode Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Incorrect access code
*xx*224	Ch1 FieldSizeErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Size of data field stated cannot be changed
*xx*225	Ch1 Address Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Word address stated is outside data field
*xx*226	Ch1 FieldAcc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Access to non-existent data field
*xx*228	Ch1 SiTurnPsnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Single turn position unreliable
*xx*229	Ch1 MulTrnPsnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Multiple turn position unreliable
*xx*236	Ch1 AnalVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Analog value error (process data)
*xx*237	Ch1 SendCurr Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Transmitter current critical (dirt, broken transmitter)
*xx*238	Ch1 EncTemp Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Encoder temperature critical
*xx*239	Ch1 Speed Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by Stegmann Encoder on Channel 1 with Hiperface Interface - Speed too high, no position formation possible
*xx*240	Ch1 General Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - An error bit of the BiSS Single Cycle Data is set
*xx*246	Ch1 LED Curr Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - LED current out of control range

Event No. [1]	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*247	Ch1 ExMulTurnErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - External multiturn error
*xx*248	Ch1 PsnCode Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - Position code error (single step error)
*xx*249	Ch1 Config Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - failure configuring interface
*xx*250	Ch1 PsnVal Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - Position data not valid
*xx*251	Ch1 SerialComErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - Serial interface failure
*xx*252	Ch1 Ext Failure	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - External failure over NERR
*xx*253	Ch1 Temp Exc Err	Configurable		P39 [FB1 Loss Cfg]		Error reported by a Encoder on Channel 1 with BiSS Interface - Temperature out of defined range
*xx*256	Ch1 OutOfRailErr	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Rail is no longer present between the read head
*xx*260	Ch1 Read Head 1	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that the read head must be cleaned or installed correctly
*xx*261	Ch1 Read Head 2	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that the read head must be cleaned or installed correctly
*xx*262	Ch1 RAM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates a RAM error. Reading head needs to be repaired
*xx*263	Ch1 EPROM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates a EPROM error. Reading head needs to be repaired
*xx*264	Ch1 ROM Error	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates a ROM error. Reading head needs to be repaired
*xx*266	Ch1 No Position	Configurable		P39 [FB1 Loss Cfg]		Error reported by a linear Stahl encoder on Channel 1 - Indicates that no position value was available - only possible following powerup or reset
*xx*281	Ch1 Msg Cheksum	Configurable		P39 [FB1 Loss Cfg]		Indicates the option card has detected a serial communications checksum error while attempting to communicate with the encoder on channel 1.
*xx*282	Ch1 Timeout	Configurable		P39 [FB1 Loss Cfg]		Indicates the option card has detected a serial communications timeout error while attempting to communicate with the encoder on channel 1.
*xx*283	Ch1 Comm	Configurable		P39 [FB1 Loss Cfg]		Indicates the option card has detected a serial communications error (other than checksum or timeout) while attempting to communicate with the encoder on channel 1.
*xx*284	Ch1 Diagnostic	Configurable		P39 [FB1 Loss Cfg]		Indicates the option card has detected a powerup diagnostic test failure for encoder channel 1.
*xx*285	Ch1 SpplyVltgRng	Configurable		P39 [FB1 Loss Cfg]		Indicates that the voltage source to the encoder 1 is out of range.
*xx*286	Ch1 SC Amplitude	Configurable		P39 [FB1 Loss Cfg]		Indicates that the encoder 1 signal amplitude is out of tolerance.
*xx*287	Ch1 Open Wire	Configurable		P39 [FB1 Loss Cfg]		Indicates that an open wire condition has been detected for encoder 1.
*xx*288	Ch1 Quad Loss	Configurable		P39 [FB1 Loss Cfg]		Indicates that a signal quadrature error has been detected for encoder 1
*xx*289	Ch1 Phase Loss	Configurable		P39 [FB1 Loss Cfg]		Indicates that an A or B signal of an A quad B incremental encoder on Channel 1 is disconnected.
*xx*290	Ch1 Unsupp Enc	Configurable		P39 [FB1 Loss Cfg]		Indicates that the connected encoder on Channel 1 is not supported
*xx*300	Ch1 FreqExc Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Frequency exceeded warning

Event No. (1)	Fault/Alarm Text	Type	Fault Action	Configuration Param	Auto Reset	Description
*xx*301	Ch1 TempExc Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Temperature exceeded warning
*xx*302	Ch1 LightLim Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Limit of light control reserve reached
*xx*303	Ch1 Battery Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Battery warning
*xx*304	Ch1 RefPoint Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by Heidenhain Encoder on Channel 1 with EnDat Interface - Reference point not reached
*xx*308	Ch1 General Alm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by a Encoder on Channel 1 with BiSS Interface - A warning bit of the BiSS Single Cycle Data is set
*xx*315	Ch1 Optics Alarm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 1 - Displays an alarm when the Stahl optical system requires cleaning
*xx*316	Ch1 OutOfRailAlm	Alarm 1		P39 [FB1 Loss Cfg]		Alarm reported by a linear Stahl encoder on Channel 1 - Indicates that the read encoder count is at the maximum value (524287)
*xx*412	Hardware Err	Configurable		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is a Hardware Error on the Feedback Option module.
*xx*413	Firmware Err	Configurable		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is a Firmware Error on the Feedback Option module. A Firmware Error occurs if the Hardware and the downloaded Firmware are not compatible.
*xx*416	EncOut Cflct	Alarm 1		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that there is one of the following problems with the Encoder Output: • The selection in the P80 [Enc Out Sel] is not possible since the required pins on the terminal blocks are already used for Feedback 0 or 1 according to P6 [FB0 Device Sel] and P36 [FB1 Device Sel]. • P80 [Enc Out Sel] is set to 2 “Sine Cosine” and there is no signal connected to the pins 1…4 of TB 1. • P80 [Enc Out Sel] is set to 2 “Sine Cosine,” the value of P15/45 [FBX IncAndSC PPR] is not a power of two, and P84 [EncOut Z PPR] is not set to 0 “1 ZPulse.” This is not allowed. • P80 [Enc Out Sel] is set to 3 “Channel X” or 4 “Channel Y” and there is no encoder connected to that channel. • P80 [Enc Out Sel] is set to 3 “Channel X” or 4 “Channel Y” and there is a linear encoder connected to this channel.
*xx*417	Safety Cflct	Alarm 1		Either P9 [FB0 Loss Cfg] or P39 [FB1 Loss Cfg]		Indicates that the Safety DIP switches are in an invalid position.
*xx*420	FB0FB1 Cflct	Alarm 2				Indicates that the combination of the feedback selection done with P6 [FB0 Device Sel] and P36 [FB1 Device Sel] is invalid, i.e. both feedbacks have Sin-Cos-Signals (There is only place for one set of Sin-Cos-Signals on the Terminal Blocks). The drive cannot be started until this configuration conflict is resolved.
*xx*421	Initializing	Alarm 2				Indicates that the Universal Feedback State Machine is in the Initialize State. This Type 2 alarm makes sure that the motor cannot be started during this.

(1) *XX* indicates the port number. Refer to Fault and Alarm Display Codes on page 4-4 for an explanation.

Common Symptoms and Corrective Actions

Drive does not Start from Start or Run Inputs wired to the terminal block.

Cause(s)	Indication	Corrective Action
Drive is Faulted	Flashing red status light	Clear fault. • Press Stop • Cycle power • "Clear Faults" on the HIM Diagnostic menu.
Incorrect input wiring. See page 1-38 for wiring examples. • 2 wire control requires Run, Run Forward, Run Reverse or Jog input. • 3 wire control requires Start and Stop inputs. • Verify 24 Volt Common is connected to Digital Input Common.	None	Wire inputs correctly.
Incorrect digital input programming. • Mutually exclusive choices have been made (i.e., Jog and Jog Forward). • 2 wire and 3 wire programming may be conflicting. • Start configured without a Stop configured.	None	Configure input function.
	Flashing yellow status light and "DigIn Cnfg B" or "DigIn Cnfg C" indication on LCD HIM. P936 [Drive Status 2] shows type 2 alarm(s).	Resolve input function conflicts.
Terminal block does not have control.	None	Check P324 [Logic Mask].

Drive does not Start from HIM.

Cause(s)	Indication	Corrective Action
Drive is configured for 2 wire level control.	None	Change P150 [Digital In Conf] to correct control function.
Another device has Manual control.	None	
Port does not have control.	None	Change P324 [Logic Mask] to enable correct port.

Drive does not respond to changes in speed command.

Cause(s)	Indication	Corrective Action
No value is coming from the source of the command.	LCD HIM Status Line indicates "At Speed" and output is 0 Hz.	1. If the source is an analog input, check wiring and use a meter to check for presence of signal. 2. Check P2 [Commanded SpdRef] for correct source. (See page 3-19)
Incorrect reference source has been programmed.	None	3. Check P545 [Spd Ref A Sel] for the source of the speed reference. (See page 3-64) 4. Reprogram P545 [Spd Ref A Sel] for correct source. (See page 3-64)
Incorrect Reference source is being selected via remote device or digital inputs.	None	5. Check P935 [Drive Status 1], page 3-101, bits 12 and 13 for unexpected source selections. 6. Check P220 [Digital In Sts], page 3-35 to see if inputs are selecting an alternate source. 7. Check configuration of P173-175 [DI Speed Sel X] functions

Motor and/or drive will not accelerate to commanded speed.

Cause(s)	Indication	Corrective Action
Acceleration time is excessive.	None	Reprogram P535/536 [Accel Time X]. (See page 3-63)
Excess load or short acceleration times force the drive into current limit, slowing or stopping acceleration.	None	Check P935 [Drive Status 1], bit 27 to see if the drive is in Current Limit. (See page 3-101) Remove excess load or reprogram P535/536 [Accel Time X].(See page 3-63)
Speed command source or value is not as expected.	None	Check for the proper Speed Command using Steps 1 through 7 above.
Programming is preventing the drive output from exceeding limiting values.	None	Check P520 [Max Fwd Speed], P521 [Max Rev Speed] (See page 3-62) and P37 [Maximum Freq] (See page 3-21) to assure that speed is not limited by programming.

Motor operation is unstable.

Cause(s)	Indication	Corrective Action
Motor data was incorrectly entered or Autotune was not performed.	None	1. Correctly enter motor nameplate data. 2. Perform “Static Tune” or “Rotate Tune” Autotune procedure. See P70 [Autotune] on page 3-24

Drive will not reverse motor direction.

Cause(s)	Indication	Corrective Action
Digital input is not selected for reversing control.	None	Check that the DI Reversing function is correctly configured.
Digital input is incorrectly wired.	None	Check digital input wiring.
Direction mode parameter is incorrectly programmed.	None	Reprogram P308 [Direction Mode], page 3-43 for analog “Bipolar” or digital “Unipolar” control.
Motor wiring is improperly phased for reverse.	None	Switch two motor leads.
A bipolar analog speed command input is incorrectly wired or signal is absent.	None	1. Use meter to check that an analog input voltage is present. 2. Check bipolar analog signal wiring. Positive voltage commands forward direction. Negative voltage commands reverse direction.

Stopping the drive results in a Decel Inhibit fault.

Cause(s)	Indication	Corrective Action
The bus regulation feature is enabled and is halting deceleration due to excessive bus voltage. Excess bus voltage is normally due to excessive regenerated energy or unstable AC line input voltages. Internal timer has halted drive operation.	Decel Inhibit fault screen. LCD Status Line indicates “Faulted”.	1. Reprogram parameters 372/373 [Bus Reg Mode X] to eliminate any “Adjust Freq” selection. 2. Disable bus regulation (parameters 372/373 [Bus Reg Mode X]) and add a dynamic brake. 3. Correct AC input line instability or add an isolation transformer. 4. Reset drive.

Technical Support Options

What You Need When You Call Tech Support

When you contact Technical Support, please be prepared to provide the following information:

- Order number
- Product catalog number and drives series number (if applicable)
- Product serial number
- Firmware revision level
- Fault code listed in P951 [Last Fault Code]
- Installed options and port assignments

Also be prepared with:

- A description of your application
- A detailed description of the problem
- A brief history of the drive installation
  - First-time installation, product has not been running
  - Established installation, product has been running

The data contained in the following parameters will help in initial troubleshooting of a faulted drive. You can use the table below to record the data provided in each parameter listed.

Parameter(s)	Name	Description	Parameter Data
956	Fault Frequency	Captures and displays the output speed of drive at time of last fault.	
957	Fault Amps	Captures and displays motor amps at time of last fault.	
958	Fault Bus Volts	Captures and displays the DC bus voltage of drive at time of last fault.	
954	Status1 at Fault	Captures and displays [Drive Status 1] bit pattern at time of last fault.	
955	Status2 at Fault	Captures and displays [Drive Status 2] bit pattern at time of last fault.	
962	AlarmA at Fault	Captures and displays [Alarm Status A] bit pattern at time of last fault.	
963	AlarmB at Fault	Captures and displays [Alarm Status B] bit pattern at time of last fault.	
951	Last Fault Code	A code that represents the fault that tripped the drive.	

Technical Support Wizards

If you are connected to a drive via DriveExplorer™ or DriveExecutive™, you can run a Tech Support wizard to gather information that will help diagnose problems with your drive and/or peripheral device. The information gathered by the wizard is saved as a text file and can be emailed to your remote technical support contact.

To run a Tech Support wizard in DriveExplorer, select **Wizards** from the **Actions** menu. In DriveExecutive, select **Wizards** from the **Tools** menu. Or, click the button. Follow the prompts to complete the wizard.

Important: The Tech Support wizard cannot be accessed when the Control Bar is launched.

Supplemental Drive Information

Specifications

Category		PowerFlex 755
Certifications	c UL us	Listed to UL508C and CAN/CSA-C22.2 No. 14-05.
	CE	In conformity with the following European Directives: EMC Directive (2004/108/EC) Low Voltage Directive (2006/95/EC) Standards applied: EN 61800-3:2004 EN 61800-5-1:2007
	TÜV Rheinland Product Safety EMC Production inspected TÜV EN 61800-5-1 TÜV Rheinland Bauart geprüft Functional Safety FS Type approved	TÜV Rheinland Standards applied: EN 61800-3:2004 EN 61800-5-1:2007 EN ISO 13849-1:2008 EN ISO 13849-2:2003 EN 61800-5-2:2007 EN 61508 PARTS 1-7:2000 EN 62061:2005 EN 60204-1:2006
	N223	Australian Communications and Media Authority In conformity with the following: Radiocommunications Act: 1992 Radiocommunications Standard: 2008 Radiocommunications Labelling Notice: 2008 Standards applied: EN 61800-3:2004
	EPRI PQ SEMI F47	Electric Power Research Institute Certified compliant with the following standards: SEMI F47 IEC 61000-4-34
	GOST-R	Russian GOST-R Certificate no. POCC US.ME92.H00040
	RoHS	Compliant with the European "Restriction of Hazardous Substances" Directive

Category	Specification					
Protection	**Drive**	**380/400**	**480V**	**500V**	**600V**	**690V**
	AC Input Overvoltage Trip:	576V AC	576V AC			
	AC Input Undervoltage Trip:	250V AC	300V AC			
	Bus Overvoltage Trip:	815V DC	815V DC			
	Bus Undervoltage Shutoff:	200V DC	200V DC			
	Nominal Bus Voltage (Full Load):	540V DC	648V DC			
	Drive Overcurrent Trip					
	Software Overcurrent Trip:	Calculated value, 105% of motor rated to 200% of drive rated				
	Hardware Overcurrent Trip:	105% of 3 sec. rating (158…210%)				
	Instantaneous Current Limit:	143% of 3 sec. rating (215…287%)				
	Line transients:	up to 6000 volts peak per IEEE C62.41-1991				
	Control Logic Noise Immunity:	Showering arc transients up to 1500V peak				
	Power Ride-Thru:	15 milliseconds at full load				
	Logic Control Ride-Thru:	0.5 seconds minimum, 2 seconds typical				
	Ground Fault Trip:	Phase-to-ground on drive output				
	Short Circuit Trip:	Phase-to-phase on drive output				

<table>
<tr><th>Category</th><th colspan="2">Specification</th></tr>
<tr><td>Environment</td><td>Altitude:</td><td>1000 m (3300 ft) max. without derating</td></tr>
<tr><td></td><td>Maximum Surrounding Air Temperature without De-rating
IP20, NEMA/UL Open Type:
IP00, NEMA/UL Open Type:
IP20, NEMA/UL Type 1 (w/Hood):
IP20, NEMA/UL Type 1 (w/Label):
Flange Mount –
Front:
IP20, NEMA/UL Open Type:
IP00, NEMA/UL Open Type:
Back/Heat Sink:
IP66, NEMA/UL Type 4X
Stand-alone/Wall Mount –
IP54, NEMA/UL Type 12</td><td>

0…50 °C (32…122 °F) Frames 2…5, All Ratings
0…50 °C (32…122 °F) Frames 6…7, All Ratings
0…40 °C (32…104 °F) Frames 2…5, All Ratings
0…40 °C (32…104 °F) Frames 6…7, All Ratings

0…50 °C (32…122 °F) Frames 2…5, All Ratings
0…50 °C (32…122 °F) Frames 6…7, All Ratings

0…40 °C (32…104 °F) All Frames, All Ratings

0…40 °C (32…104 °F) All Frames, All Ratings</td></tr>
<tr><td></td><td>Storage Temperature (all const.):</td><td>–40…70 °C (–40…158 °F)</td></tr>
<tr><td></td><td>Atmosphere:</td><td>Important: Drive <u>must</u> <u>not</u> be installed in an area where the ambient atmosphere contains volatile or corrosive gas, vapors or dust. If the drive is not going to be installed for a period of time, it must be stored in an area where it will not be exposed to a corrosive atmosphere.</td></tr>
<tr><td></td><td>Relative Humidity:</td><td>5…95% non-condensing</td></tr>
<tr><td></td><td>Shock - Operating

Shock - Packaged for Shipment</td><td>Frame 2…6: 15 g peak for 11 ms duration (±1.0 ms)
Frame 7: 10 g peak for 11 ms duration (±1.0 ms)
Frame 2: 381 mm (15 in.) drop height
Frame 3…4: 330 mm (13 in.) drop height
Frame 5: 305 mm (12 in.) drop height
Frame 6…7: Meets International Safe Transit Association (ISTA) test procedure 2B</td></tr>
<tr><td></td><td>Vibration - Operating

Vibration - Packaged for Shipment
Sinusoidal Loose Load:

Random Secured:</td><td>Frame 2: 1.000 mm (0.040 in.) displacement, 2 g peak
Frame 3…5: 1.000 mm (0.040 in.) displacement, 1.5 g peak
Frame 6…7: 1.000 mm (0.040 in.) displacement, 1 g peak

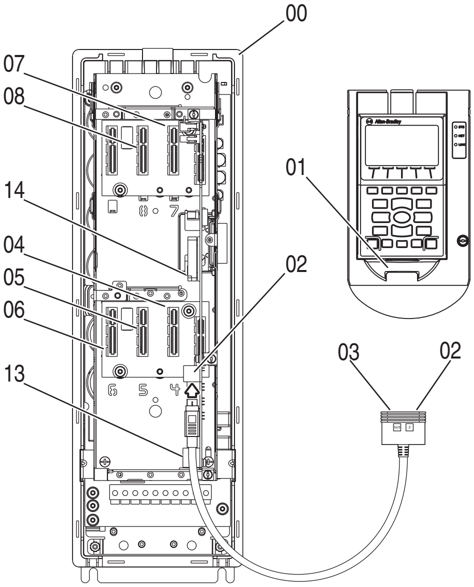
Frame 2…5: 20.0 mm (0.8 in.) peak to peak, 2…5.186 Hz; 1.1 g peak from 5.186…20 Hz
Frame 6…7: Meets ISTA 2B packaging standards
Frame 2…5:
<table>
<tr><th><u>Frequency (Hz)</u></th><th><u>PSD (g^2/Hz)</u></th></tr>
<tr><td>1</td><td>0.00005</td></tr>
<tr><td>4</td><td>0.01</td></tr>
<tr><td>16</td><td>0.01</td></tr>
<tr><td>40</td><td>0.001</td></tr>
<tr><td>80</td><td>0.001</td></tr>
<tr><td>200</td><td>0.00001</td></tr>
</table>
Frame 6…7 Meets International Safe Transit Association (ISTA) test procedure 2B</td></tr>
<tr><td></td><td>Sound:</td><td>
<table>
<tr><th>Frame</th><th>Fan Speed</th><th>Sound Level</th><th>Note: Sound pressure level is measured at 2 meters.</th></tr>
<tr><td>2</td><td>50 CFM</td><td>63 dB</td><td></td></tr>
<tr><td>3</td><td>80 CFM</td><td>64 dB</td><td></td></tr>
<tr><td>4</td><td>160 CFM</td><td>72 dB</td><td></td></tr>
<tr><td>5</td><td>260 CFM</td><td>77 dB</td><td></td></tr>
<tr><td>6</td><td>252 CFM</td><td>73 dB</td><td></td></tr>
<tr><td>7</td><td>252 CFM</td><td>74 dB</td><td></td></tr>
</table>
</td></tr>
<tr><td></td><td>Surrounding Environment Pollution Degree
Pollution Degree 1 & 2:
Pollution Degree 3 & 4:
(See page A-7 for descriptions of each pollution degree rating.)</td><td>
All enclosures acceptable.
Enclosure that meets or exceeds IP54, NEMA/UL Type 12 required.</td></tr>
</table>

Category	Specification	
Electrical	AC Input Voltage Tolerance:	See page C-1 for full power and operating range.
	Frequency Tolerance:	47-63 Hz.
	Input Phases:	Three-phase input provides full rating for all drives. Single-phase operation provides up to 50% of rated current.
	DC Input Voltage Tolerance:	–/+ 10% of Nominal Bus Voltage (above)
	Displacement Power Factor:	0.98 across entire speed range.
	DC Link Inductance:	≥ 5%
	Efficiency:	97.5% at rated amps, nominal line volts.
	Maximum Short Circuit Rating:	200,000 Amps RMS symmetrical.
	Actual Short Circuit Rating:	Determined by AIC rating of installed fuse/circuit breaker.
	Maximum Drive to Motor Power Ratio	Recommended not greater than 2:1 ratio.
Control	Method:	Sine coded PWM with programmable carrier frequency. Ratings apply to all drives. The drive can be supplied as 6 pulse.
	Carrier Frequency:	Default Settings: Drive Frames 2…4: 4 kHz Drive Frames 5…7: 2 kHz Settings: Drive Frames 2…6: 2, 4, 8, 12 kHz Drive Frame 7: 2, 4, 8 kHz
	Output Voltage Range:	0 to rated motor voltage
	Output Frequency Range:	0…325 Hz @ 2 kHz carrier 0…650 Hz @ 4 kHz carrier
	Frequency Accuracy Digital Input: Analog Input:	 Within ±0.01% of set output frequency. Within ±0.4% of maximum output frequency.
	Frequency Control:	Speed regulation - with Slip Compensation 0.5% of base speed across 40:1 speed range 40:1 operating range
	Speed Control:	Speed regulation - without feedback 0.1% of base speed across 120:1 speed range 120:1 operating range 50 rad/sec bandwidth
		Speed regulation - with feedback 0.001% of base speed across 100:1 speed range 1000:1 operating range 190 rad/sec bandwidth
	Torque Regulation:	Torque Regulation - without feedback ±5%, 600 rad/sec bandwidth
		Torque Regulation - with feedback ±2%, 2500 rad/sec bandwidth
	Selectable Motor Control:	Standard V/Hz with full custom capability. Sensorless Vector with full tuning. Flux Vector with and without a feedback device. Induction and Permanent magnet motor control.
	Stop Modes:	Multiple programmable stop modes including - Ramp, Coast, DC-Brake, Ramp-to-Hold, Fast Braking, and Current Limit Stop.
	Accel/Decel:	Two independently programmable accel and decel times. Each time may be programmed from 0 to 3600 seconds in 0.1 second increments.
	S Curve Time	Adjustable from 0 to 100% of ramp time (normal duty rating).
	Intermittent Overload:	110% Overload capability for up to 1 minute 150% Overload capability for up to 3 seconds
	Current Limit Capability:	Proactive Current Limit programmable from 20 to 160% of rated output current. Independently programmable proportional and integral gain.
	Electronic Motor Overload Protection:	Class 10 protection with speed sensitive response. Complies with N.E.C. Article 430. U.L. File E59272, volume 12.

Ports and Devices

Connectors, embedded devices, and installed option modules such as I/O, communication adapters, and DeviceLogix, have unique port number assignments. Connectors and embedded devices have fixed port numbers that cannot be changed. Option modules are assigned a port number when installed.

Figure A.1 Drive Device Ports



Port	Device	Description
00	Host Drive	Fixed port for the drive.
01	HIM	Fixed port at HIM cradle connector. Splitter cable connector provides Port 01 when HIM cradle connector is unused.
02	DPI Port	Handheld or Remote HIM connection. Splitter cable connection.
03	Splitter Cable	Connects to DPI Port 02. Provides Port 02 and Port 03.
04…08	Option Modules	Available ports for option modules. Refer to the I/O Wiring section, beginning on page 1-28, for each option’s port recommendations. (Ports 07 and 08 PowerFlex 755 drives only.)
09…12	Reserved for future use.	
13	EtherNet/IP	Fixed port for embedded EtherNet/IP (PowerFlex 755 drives only).
14	DeviceLogix	Fixed port for embedded DeviceLogix (PowerFlex 755 drives only).

Watts Loss

Table A.A 400 Volt Ratings - Watts Loss

Frame [1]	ND kW	External Watts	Internal Watts	Total Watts
2	0.75	16	55	71
	1.5	26	57	83
	2.2	39	58	97
	4.0	75	64	139
	5.5	108	70	178
	7.5	161	80	241
	11	225	86	311
3	15	300	103	403
	18.5	362	115	477
	22	505	126	631
4	30	487	130	617
	37	615	147	762
5	45	705	162	867
	55	928	201	1129
6	75	1239	319	1558
	90	1381	300	1681
	110	1893	381	2274
	132	2449	502	2951
7	160	2566	461	3027
	200	3322	586	3908
	250	3922	743	4665

(1) Enclosure codes F and N only.

Table A.B 480 Volt Ratings - Watts Loss

Frame [1]	ND Hp	External Watts	Internal Watts	Total Watts
2	1.0	17	60	77
	2.0	27	61	88
	3.0	41	63	104
	5.0	71	68	139
	7.5	108	74	182
	10	149	81	230
	15	237	91	328
3	20	273	101	374
	25	368	115	483
	30	503	126	629
4	40	422	125	547
	50	559	144	703
5	60	646	158	804
	75	855	189	1044
6	100	1109	299	1408
	125	1299	294	1593
	150	1718	358	2076
	200	2384	492	2876
7	250	2704	491	3195
	300	3409	606	4015
	350	3604	683	4287

(1) Enclosure codes F and N only.

Minimum Dynamic Brake Resistance

Table A.C 400 Volt Ratings - Minimum Resistance

Frame	ND kW	Minimum Resistance	Maximum DB Current
2	0.75	31.6	25
	1.5	31.6	25
	2.2	31.6	25
	4.0	31.6	25
	5.5	31.6	25
	7.5	31.6	25
	11	22.6	34.9
3	15	31.6	25
	18.5	31.6	25
	22	16.6	47.6
4	30	15.8	50
	37	15.8	50
5	37 (IP54, NEMA/UL Type 12)	7.9	100
	45	7.9	100
	55	7.9	100
6	55 (IP54, NEMA/UL Type 12)	3.3	239.4
	75	3.3	239.4
	90	3.3	239.4
	110	3.3	239.4
	132	3.3	239.4
7	132 (IP54, NEMA/UL Type 12)	2.4	329
	160	2.4	329
	200	2.4	329
	250	1.65	478.8

Table A.D 480 Volt Ratings - Minimum Resistance

Frame	ND Hp	Minimum Resistance	Maximum DB Current
2	1.0	31.6	25
	2.0	31.6	25
	3.0	31.6	25
	5.0	31.6	25
	7.5	31.6	25
	10	31.6	25
	15	22.6	34.9
3	20	31.6	25
	25	31.6	25
	30	16.6	47.6
4	40	15.8	50
	50	15.8	50
5	50 (IP54, NEMA/UL Type 12)	7.9	100
	60	7.9	100
	75	7.9	100
6	75 (IP54, NEMA/UL Type 12)	3.3	239.4
	100	3.3	239.4
	125	3.3	239.4
	150	3.3	239.4
	200	3.3	239.4
7	200 (IP54, NEMA/UL Type 12)	2.4	329
	250	2.4	329
	300	2.4	329
	350	1.65	478.8

Pollution Degree Ratings According to EN 61800-5-1

Pollution Degree	Description
1	No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.
2	Normally, only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation is to be expected, when the drive is out of operation.
3	Conductive pollution or dry non-conductive pollution occurs, which becomes conductive due to condensation, which is to be expected.
4	The pollution generates persistent conductivity caused, for example by conductive dust or rain or snow.

Drive Enclosure Ratings

Frames	Enclosure Type (Cat. No. Position 6)	Installed Accessory Kit	Front Side Rating		Back Side/Heat Sink Rating	
			Enclosure Type	Pollution Degree	Enclosure Type	Pollution Degree
2, 3, 4, 5	N	None	IP20 NEMA/UL Open Type	1, 2	IP20 NEMA/UL Open Type	1, 2
		NEMA Type 1	IP20 NEMA/UL Type 1	1, 2	IP20 NEMA/UL Type 1	1, 2
		Flange	IP20 NEMA/UL Type 1	1, 2	IP20 NEMA/UL Type 1	1, 2
	F	None	IP20 NEMA/UL Open Type	1, 2	IP66 NEMA/UL Type 4X	1, 2, 3, 4
	G	None	IP54 NEMA/UL Type 12	1, 2, 3, 4	IP54 NEMA/UL Type 12	1, 2, 3, 4
6, 7	N	None	IP00 NEMA/UL Open Type	1, 2	IP00 NEMA/UL Open Type Kit	1, 2
		NEMA Type 1	IP20 NEMA/UL Type 1	1, 2	IP20 NEMA/UL Type 1	1, 2
		NEMA Type 4X Flange	IP00 NEMA/UL Open Type	1, 2	IP66 NEMA/UL Type 4X	1, 2, 3, 4
	G	None	IP54 NEMA/UL Type 12	1, 2, 3, 4	IP54 NEMA/UL Type 12	1, 2, 3, 4

Communication Configurations

20-COMM-* Network Adapter Compatibility

Some 20-COMM adapters can be used with PowerFlex 750-Series drives. See page 1-49 for more information.

Typical Programmable Controller Configurations

Important: If block transfers are programmed to continuously write information to the drive, care must be taken to properly format the block transfer. If attribute 10 is selected for the block transfer, values will be written only to RAM and will not be saved by the drive. This is the preferred attribute for continuous transfers. If attribute 9 is selected, each program scan will complete a write to the drives non-volatile memory (EEprom). Since the EEprom has a fixed number of allowed writes, continuous block transfers will quickly damage the EEprom. Do Not assign attribute 9 to continuous block transfers. Refer to the individual communications adapter User Manual for additional details.

Logic Command/Status Words

Table A.E Logic Command Word

Logic Bits																																	
31	**30**	**29**	**28**	**27**	**26**	**25**	**24**	**23**	**22**	**21**	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**	**Command**	**Description**
																															x	Normal Stop	0 = Not Normal Stop 1 = Normal Stop
																														x		Start (1)	0 = Not Start 1 = Start
																													x			Jog 1 (2)	0 = Not Jog 1 (Par. 556) 1 = Jog 1
																												x				Clear Fault (3)	0 = Not Clear Fault 1 = Clear Fault
																										x	x					Unipolar Direction	00 = No Command 01 = Forward Command 10 = Reverse Command 11 = Hold Direction Control
																									x							Manual	0 = Not Manual 1 = Manual
																								x								Reserved	
																						x	x									Accel Time	00 = No Command 01 = Use Accel Time 1 (Par. 535) 10 = Use Accel Time 2 (Par. 536) 11 = Use Present Time
																				x	x											Decel Time	00 = No Command 01 = Use Decel Time 1 (Par. 537) 10 = Use Decel Time 2 (Par. 538) 11 = Use Present Time
																			x													Ref Select 1	000 = No Command 001 = Ref A Select (Par. 545) 010 = Ref B Select (Par. 550) 011 = Preset 3 (Par. 573) 100 = Preset 4 (Par. 574) 101 = Preset 5 (Par. 575) 110 = Preset 6 (Par. 576) 111 = Preset 7 (Par. 577)
																		x														Ref Select 2	
																	x															Ref Select 3	
																x																Reserved	
															x																	Coast Stop	0 = Not Coast to Stop 1 = Coast to Stop
														x																		Current Limit Stop	0 = Not Current Limit Stop 1 = Current Limit Stop
													x																			Run (4)	0 = Not Run 1 = Run
												x																				Jog 2 (2)	0 = Not Jog 2 (Par. 557) 1 = Jog 2
											x																					Reserved	
										x																						Reserved	
									x																							Reserved	
								x																								Reserved	
							x																									Reserved	
						x																										Reserved	
					x																											Reserved	
				x																												Reserved	
			x																													Reserved	
		x																														Reserved	
	x																															Reserved	
x																																Reserved	

(1) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Start condition will start the drive.

(2) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Jog 1/Jog 2 condition will jog the drive. A transition to a “0” will stop the drive.

(3) To perform this command, the value must switch from “0” to “1.”

(4) A Not Stop condition (logic bit 0 = 0) must first be present before a 1 = Run condition will run the drive. A transition to a “0” will stop the drive.

Table A.F Logic Status Word

Logic Bits																																	
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	Command	Description
																															x	Run Ready	0 = Not Ready to Run 1 = Ready to Run
																														x		Active	0 = Not Active 1 = Active
																													x			Command Direction	0 = Reverse 1 = Forward
																												x				Actual Direction	0 = Reverse 1 = Forward
																											x					Accelerating	0 = Not Accelerating 1 = Accelerating
																										x						Decelerating	0 = Not Decelerating 1 = Decelerating
																									x							Alarm	0 = No Alarm (Par. 959 & 960) 1 = Alarm
																								x								Fault	0 = No Fault (Par. 952 & 953) 1 = Fault
																							x									At Setpt Spd	0 = Not at Setpoint Speed 1 = At Setpoint Speed
																						x										Manual	0 = Manual Mode Not Active 1 = Manual Mode Active
																					x											Spd Ref ID 0	00000 = Reserved 00001 = Auto Ref A (par. 545) 00010 = Auto Ref B (Par. 550) 00011 = Auto Preset Speed 3 (Par. 573) 00100 = Auto Preset Speed 4 (Par. 574) 00101 = Auto Preset Speed 5 (Par. 575) 00110 = Auto Preset Speed 6 (Par. 576) 00111 = Auto Preset Speed 7 (Par. 577) 01000 = Reserved 01001 = Reserved 01010 = Reserved 01011 = Reserved 01100 = Reserved 01101 = Reserved 01110 = Reserved 01111 = Reserved 10000 = Man Port 0 10001 = Man Port 1 10010 = Man Port 2 10011 = Man Port 3 10100 = Man Port 4 10101 = Man Port 5 10110 = Man Port 6 10111 = Reserved 11000 = Reserved 11001 = Reserved 11010 = Reserved 11011 = Reserved 11100 = Reserved 11101 = Man Port 13 (Emb. ENET) 11110 = Man Port 14 (Drive Logix) 11111 = Alternate Man Ref Sel
																				x												Spd Ref ID 1	
																			x													Spd Ref ID 2	
																		x														Spd Ref ID 3	
																	x															Spd Ref ID 4	
																x																Reserved	
															x																	Running	0 = Not Running 1 = Running
														x																		Jogging	0 = Not Jogging (Par. 556 & 557) 1 = Jogging
													x																			Stopping	0 = Not Stopping 1 = Stopping
												x																				DC Brake	0 = Not DC Brake 1 = DC Brake
											x																					DB Active	0 = Not Dynamic Brake Active 1 = Dynamic Brake Active
										x																						Speed Mode	0 = Not Speed Mode (Par. 309) 1 = Speed Mode
									x																							Position Mode	0 = Not Position Mode (Par. 309) 1 = Position Mode
								x																								Torque Mode	0 = Not Torque Mode (Par. 309) 1 = Torque Mode
							x																									At Zero Speed	0 = Not at Zero Speed 1 =At Zero Speed
						x																										At Home	0 = Not at Home 1 = At Home
					x																											At Limit	0 = Not at Limit 1 = At Limit
				x																												Current Limit	0 = Not at Current Limit 1 = At Current Limit
			x																													Bus Freq Reg	0 = Not Bus Freq Reg 1 = Bus Freq Reg
		x																														Enable On	0 = Not Enable On 1 = Enable On
	x																															Motor Overload	0 = Not Motor Overload 1 = Motor Overload
x																																Regen	0 = Not Regen 1= Regen

Output Devices

Common mode cores are internal to the drive.

Drive, Fuse & Circuit Breaker Ratings

Table A.H and Table A.I provide drive ratings (including continuous, 1 minute and 3 second) and recommended AC line input fuse and circuit breaker information. Sizes listed are the recommended sizes based on 40 degree C and the U.S. N.E.C. Other country, state or local codes may require different ratings.

Refer to Table A.G which describes input device requirements based on physical installation choice.

Table A.G Input Device Requirements

Frames	Enclosure Catalog Code	Enclosure Type	Installation Type	UL Certification Required	UL Certification Not Required
2, 3, 4, 5	N	IP20 NEMA/UL Open Type	Installed in a non-ventilated cabinet. Heat sink is inside or outside of cabinet.	All devices in Table A.H are acceptable.	All devices in Table A.H are acceptable.
	F	Flange			
	N	IP20 NEMA/UL Open Type	Installed outside of cabinet using NEMA Type 1 kit or in a ventilated cabinet.	Devices in Table A.H excluding time delay fuses and maximum value for non-time delay fuses.	
	F	Flange			
	G	IP54 NEMA/UL Type 12	Installed inside or outside of any cabinet.	All devices in Table A.H are acceptable.	
6, 7	N	IP00 NEMA/UL Open Type	Installed in any cabinet. Heat sink is inside or outside of cabinet.	All devices in Table A.H are acceptable.	
			Installed outside of cabinet using NEMA Type 1 kit.		
	G	IP54 NEMA/UL Type 12	Installed inside or outside of any cabinet.	All devices in Table A.H are acceptable.	

Fusing

If fuses are chosen as the desired protection method, refer to the recommended types listed below. If available amp ratings do not match the tables provided, the closest fuse rating that exceeds the drive rating should be chosen.

- IEC – BS88 (British Standard) Parts 1 & 2(1), EN60269-1, Parts 1 & 2, type gG or equivalent should be used.
- UL – UL Class T, J or L should be used.

Circuit Breakers

The "non-fuse" listings in the following tables include both circuit breakers (inverse time or instantaneous trip). **If one of these is chosen as the desired protection method**, the following requirements apply.

- IEC and UL – Both types of devices are acceptable for IEC and UL installations.

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(1) Typical designations include, but may not be limited to the following; Parts 1 & 2: AC, AD, BC, BD, CD, DD, ED, EFS, EF, FF, FG, GF, GG, GH.

Table A.H 400 Volt AC Input Protection Devices

Applied Rating (1)	Frame (2)	Continuous Output Amps	Drive Sized For Normal Duty			Drive Sized For Heavy Duty			Input Quantities		AC Input Protection Devices										Input Quantities		DC Input Protection
			Catalog Number	Output Overload Amps		Catalog Number	Output Overload Amps		Continuous AC Input		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker Max Size(5)	Motor Circuit Protector (6)	140M Motor Starter with Adjustable Current Range (7) (8)				Continuous DC Input		Non-Time Delay Fuse
			(x = F or G)	60 sec	3 sec	(x = F or G)	60 sec	3 sec	kVA	Amps	Min(3)	Max(4)	Min(3)	Max(4)							kW	Amps	
400 Volt AC Input																					**540 Volt DC Input**		
0.75 kW	2	2.1	20x…C2P1	3.1	3.7	20x…C2P1	3.1	3.7	1.2	1.7	3	6	3	8	15	3	M-C2E-B25	M-D8E-B25			1.1	2.1	JKS-6
1.5 kW	2	3.5	20x…C3P5	5.2	6.3	20x…C3P5	5.2	6.3	1.9	2.8	6	7	6	12	15	7	M-C2E-B40	M-D8E-B40			2.0	3.7	JKS-8
2.2 kW	2	5	20x…C5P0	7.5	9.0	20x…C5P0	7.5	9.0	3.1	4.5	6	10	6	20	20	7	M-C2E-B63	M-D8E-B63			2.9	5.3	JKS-10
4.0 kW	2	8.7	20x…C8P7	13.0	15.6	20x…C8P7	13.0	15.6	5.4	7.8	10	17.5	10	30	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10		5.0	9.3	HSJ15
5.5 kW	2	11.5	20x…C011	17.2	20.7	20x…C011	17.2	20.7	7.4	10.7	15	25	15	45	45	15	M-C2E-C16	M-D8E-C16	M-F8E-C16		6.8	12.6	HSJ20
7.5 kW	2	15.4	20x…C015	16.9	23.1	20x…C022	24.2	33.0	10.1	14.6	20	30	20	60	60	20	M-C2E-C20	M-D8E-C20	M-F8E-C20		9.2	17.0	HSJ25
11 kW	2	22	20x…C022	24.2	33.0	20x…C030	33.0	45.0	14.6	21.1	30	45	30	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25		13.3	24.6	HSJ40
15 kW	3	30	20x…C030	33.0	45.0	20x…C037	45.0	55.5	19.9	28.7	40	60	40	120	100	50			M-F8E-C32		18.1	33.6	HSJ50
18.5 kW	3	37	20x…C037	40.7	55.5	20x…C043	55.5	66.6	24.5	35.4	45	80	45	125	110	50			M-F8E-C45		22.3	41.4	HSJ70
22 kW	3	43	20x…C043	47.3	64.5	20x…C060	66.0	90.0	28.5	41.2	55	90	55	150	120	60					26.0	48.1	HSJ90
30 kW	4	60	20x…C060	66.0	90.0	20x…C072	90.0	108.0	39.8	57.4	75	125	75	225	180	100					36.2	67.1	HSJ100
37 kW	4	72	20x…C072	79.2	108.0	20x…C085	108.0	129.6	48.9	70.5	90	150	90	275	200	100					44.5	82.4	HSJ125
45 kW	5	85	20x…C085	93.5	127.5	20x…C104	127.5	156.0	57.7	83.3	110	175	110	325	250	150					52.5	97.3	HSJ150
55 kW	5	104	20x…C104	114.4	156.0	20x…C140	156.0	210.0	71.3	102.9	130	225	130	400	300	150					64.9	120.2	HSJ175
75 kW	6	140	20x…C140	154.0	210.0	20x…C170	210.0	255.0	95.0	137.2	175	300	175	550	400	250					86.5	160.3	HSJ250
90 kW	6	170	20x…C170	187.0	255.0	20x…C205	255.0	307.5	115.4	166.5	225	375	225	600	500	250					105.1	194.6	HSJ350
110 kW	6	205	20x…C205	225.5	307.5	20x…C260	307.5	390.0	139.1	200.8	275	450	275	600	600	400					126.7	234.7	HSJ350
132 kW	6	260	20x…C260	286.0	390.0	20x…C302	390.0	468.0	176.5	254.7	325	575	325	750	700	400					160.7	297.7	HSJ400
160 kW	7	302	20x…C302	332.2	453.0	20x…C367	453.0	550.5	205.0	295.9	400	675	400	900	900	600					186.7	345.7	Bussman 170M6608
200 kW	7	367	20x…C367	403.7	550.5	20x…C456	550.5	684.0	249.1	359.5	475	800	475	1000	1100	600					226.9	420.2	Bussman 170M6612
250 kW	7	456	20x…C456	501.6	684.0				309.5	446.7	600	1000	600	1800	1300	600					281.9	522.0	Bussman 170M6613

Notes:

(1) "Applied Rating" refers to the motor that will be connected to the drive. For example, a "C015 drive" can be used in Normal Duty mode on a 7.5 kW motor, or in Heavy Duty mode on a 5.5 kW motor. The drive can be programmed for either mode. Wiring and fuses can be sized based on the programmed mode. For any given drive catalog number, Normal Duty mode provides higher continuous current but smaller overload current with respect to Heavy Duty mode. See parameter 306 [Duty Rating].

(2) Enclosure codes F and N only. See Table A.J for frame sizes of other enclosure types.

(3) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(6) Recommended Motor circuit protector - Instantaneous trip circuit breaker. The trip setting should be set to the input current of the drive and should be sized for the continuous current of the system.

(7) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(8) Manual Self-Protected (Type E) Combination Motor Controller. 480Y/277V and 600Y/347V AC Input.

Table A.I 480 Volt AC Input Protection Devices

Applied Rating [1]	Frame [2]	Continuous Output Amps	Drive Sized For Normal Duty			Drive Sized For Heavy Duty			Input Quantities		AC Input Protection Devices										Input Quantities		DC Input Protection
			Catalog Number	Output Overload Amps		Catalog Number	Output Overload Amps		Continuous AC Input		Dual Element Time Delay Fuse		Non-Time Delay Fuse		Circuit Breaker Max Size[5]	Motor Circuit Protector [6]	140M Motor Starter with Adjustable Current Range [7] [8]				Continuous DC Input		Non-Time Delay Fuse
			(x = F or G)	60 sec	3 sec	(x = F or G)	60 sec	3 sec	kVA	Amps	Min[3]	Max[4]	Min[3]	Max[4]							kW	Amps	
480 Volt AC Input																					**650 Volt DC Input**		
1.0 Hp	2	2.1	20x…D2P1	3.1	3.7	20x…D2P1	3.1	3.7	1.3	1.6	2	6	2	8	15	3	M-C2E-B25	M-D8E-B25			1.2	1.9	JKS-6
2.0 Hp	2	3.4	20x…D3P4	5.1	6.1	20x…D3P4	5.1	6.1	2.2	2.6	4	7	4	12	15	7	M-C2E-B40	M-D8E-B40			1.9	3.0	JKS-6
3.0 Hp	2	5	20x…D5P0	7.5	9.0	20x…D5P0	7.5	9.0	3.2	3.9	6	10	6	20	20	7	M-C2E-B63	M-D8E-B63			2.9	4.5	JKS-10
5.0 Hp	2	8	20x…D8P0	12.0	14.4	20x…D8P0	12.0	14.4	5.7	6.9	10	17.5	10	30	30	15	M-C2E-C10	M-D8E-C10	M-F8E-C10		5.2	8.1	HSJ15
7.5 Hp	2	11	20x…D011	16.5	19.8	20x…D011	16.5	19.8	7.9	9.5	12	20	12	40	40	15	M-C2E-C16	M-D8E-C16	M-F8E-C16	CMN-2500	7.2	11.1	HSJ20
10 Hp	2	14	20x…D014	15.4	21.0	20x…D022	24.2	33.0	10.4	12.5	20	30	20	55	50	20	M-C2E-C16	M-D8E-C16	M-F8E-C16	CMN-4000	9.5	14.7	HSJ30
15 Hp	2	22	20x…D022	24.2	33.0	20x…D027	33.0	40.5	16.6	19.9	30	50	30	80	80	30	M-C2E-C25	M-D8E-C25	M-F8E-C25	CMN-4000	15.1	23.3	HSJ40
20 Hp	3	27	20x…D027	29.7	40.5	20x…D034	40.5	51.0	20.6	24.8	35	60	35	100	100	50			M-F8E-C32	CMN-4000	18.8	28.9	HSJ50
25 Hp	3	34	20x…D034	37.4	51.0	20x…D040	51.0	61.2	25.9	31.2	45	75	45	125	100	50			M-F8E-C45	CMN-6300	23.6	36.4	HSJ60
30 Hp	3	40	20x…D040	44.0	60.0	20x…D052	60.0	78.0	30.5	36.7	50	90	50	150	120	50			M-F8E-C45	CMN-9000	27.8	42.9	HSJ80
40 Hp	4	52	20x…D052	57.2	78.0	20x…D065	78.0	97.5	39.7	47.7	65	110	65	200	150	70				CMN-9000	36.1	55.7	HSJ90
50 Hp	4	65	20x…D065	71.5	97.5	20x…D077	97.5	117.0	49.6	59.6	90	125	90	250	175	100				CMN-9000	45.1	69.7	HSJ100
60 Hp	5	77	20x…D077	84.7	115.5	20x…D096	115.5	144.0	60.1	72.3	100	170	100	300	225	100					54.7	84.5	HSJ150
75 Hp	5	96	20x…D096	105.6	144.0	20x…D125	144.0	187.5	74.9	90.1	125	200	125	375	275	125					68.3	105.3	HSJ175
100 Hp	6	125	20x…D125	137.5	187.5	20x…D156	187.5	234.0	97.6	117.4	175	275	175	500	375	250					88.9	137.1	HSJ200
125 Hp	6	156	20x…D156	171.6	234.0	20x…D186	234.0	280.8	121.8	146.5	200	350	200	600	450	250					110.9	171.2	HSJ300
150 Hp	6	186	20x…D186	204.6	279.0	20x…D248	279.0	372.0	145.2	174.6	250	400	250	600	550	250					132.2	204.1	HSJ400
200 Hp	6	248	20x…D248	272.8	372.0	20x…D302	372.0	453.0	193.6	232.8	325	550	325	700	700	400					176.3	272.1	HSJ400
250 Hp	7	302	20x…D302	332.2	453.0	20x…D361	453.0	543.6	235.7	283.5	400	675	400	900	900	600					214.7	331.3	Bussman 170M6608
300 Hp	7	361	20x…D361	397.1	541.5	20x…D415	541.5	649.8	281.8	338.9	475	800	475	1000	1000	600					256.6	396.1	Bussman 170M6612
350 Hp	7	415	20x…D415	456.5	622.5				323.9	389.6	525	900	525	1200	1200	600					295.0	455.3	Bussman 170M6612

Notes:

(1) "Applied Rating" refers to the motor that will be connected to the drive. For example, a "D014 drive" can be used in Normal Duty mode on a 10 Hp motor, or in Heavy Duty mode on a 7.5 Hp motor. The drive can be programmed for either mode. Wiring and fuses can be sized based on the programmed mode. For any given drive catalog number, Normal Duty mode provides higher continuous current but smaller overload current with respect to Heavy Duty mode. See parameter 306 [Duty Rating].

(2) Enclosure codes F and N only. See Table A.J for frame sizes of other enclosure types.

(3) Minimum protection device size is the lowest rated device that supplies maximum protection without nuisance tripping.

(4) Maximum protection device size is the highest rated device that supplies drive protection. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(5) Circuit Breaker - inverse time breaker. For US NEC, minimum size is 125% of motor FLA. Ratings shown are maximum.

(6) Recommended Motor circuit protector - Instantaneous trip circuit breaker. The trip setting should be set to the input current of the drive and should be sized for the continuous current of the system.

(7) Bulletin 140M with adjustable current range should have the current trip set to the minimum range that the device will not trip.

(8) Manual Self-Protected (Type E) Combination Motor Controller. 480Y/277V and 600Y/347V AC Input.

Dimensions

Table A.J Frame/Rating Cross-Reference

400V AC Input			480V AC Input			Frame Size		
Catalog Number	**Normal Duty kW Output**	**Heavy Duty kW Output**	**Catalog Number**	**Normal Duty Hp Output**	**Heavy Duty Hp Output**	**Enclosure Code**		
						N	**F**	**G**
20x…C2P1	0.75	0.75	20x…D2P1	1	1	2	2	2
20x…C3P5	1.5	1.5	20x…D3P4	2	2			
20x…C5P0	2.2	2.2	20x…D5P0	3	3			
20x…C8P7	4	4	20x…D8P0	5	5			
20x…C011	5.5	5.5	20x…D011	7.5	7.5			
20x…C015	7.5	5.5	20x…D014	10	7.5			
20x…C022	11	7.5	20x…D022	15	10			
20x…C030	15	11	20x…D027	20	15	3	3	3
20x…C037	18.5	15	20x…D034	25	20			
20x…C043	22	18.5	20x…D040	30	25			
20x…C060	30	22	20x…D052	40	30	4	4	4
20x…C072	37	30	20x…D065	50	40			5
20x…C085	45	37	20x…D077	60	50	5	5	
20x…C104	55	45	20x…D096	75	60			6
20x…C140	75	55	20x…D125	100	75	6	N/A	
20x…C170	90	75	20x…D156	125	100			
20x…C205	110	90	20x…D186	150	125			
20x…C260	132	110	20x…D248	200	150			7
20x…C302	160	132	20x…D302	250	200	7		
20x…C367	200	160	20x…D361	300	250			
20x…C456	250	200	20x…D415	350	300			

Figure A.2 IP20, NEMA/UL Open Type, Frame 2

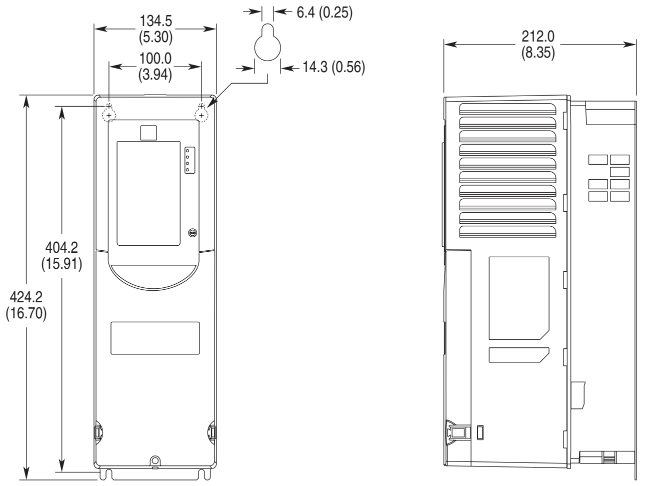
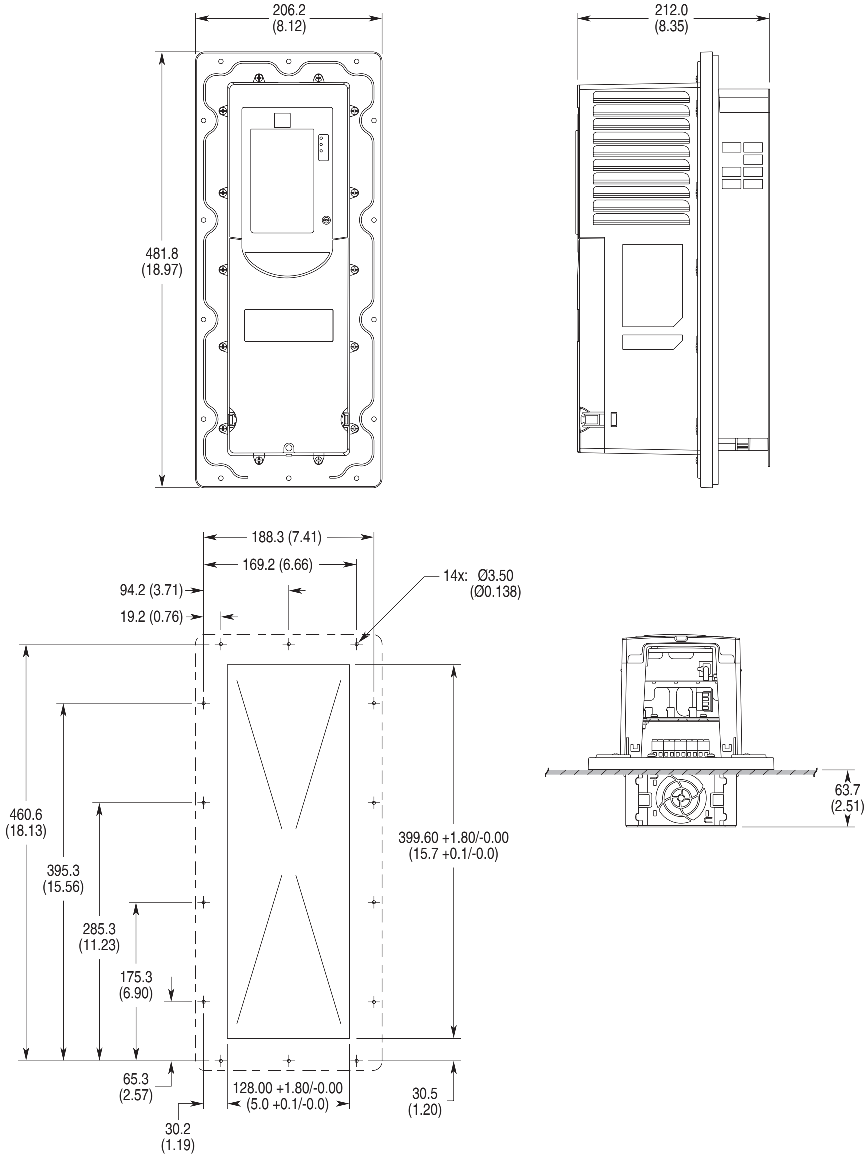


Figure A.3 Flange Mount, Frame 2



Dimensions are in millimeters and (inches).

Important: Must use mounting hardware supplied to meet enclosure rating.

Figure A.4 IP54, NEMA/UL Type 12, Frame 2

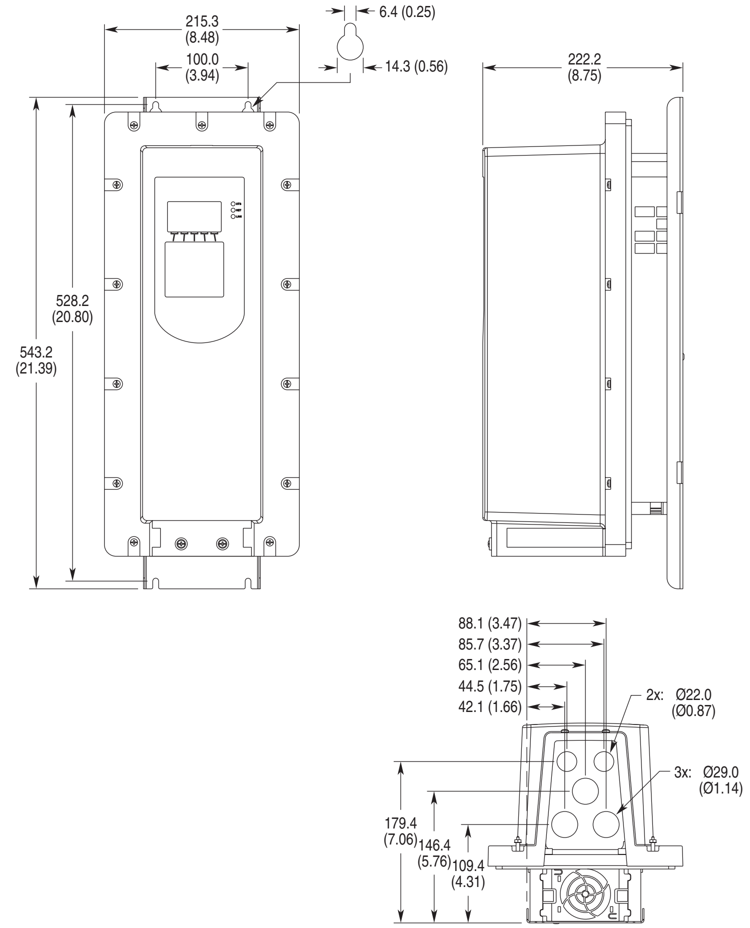
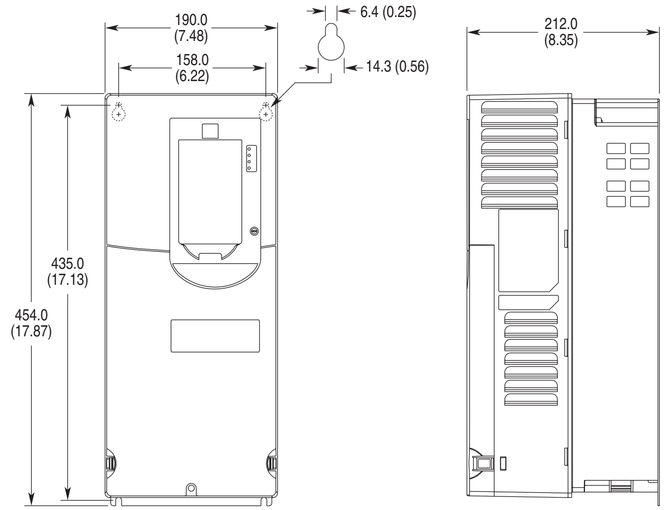
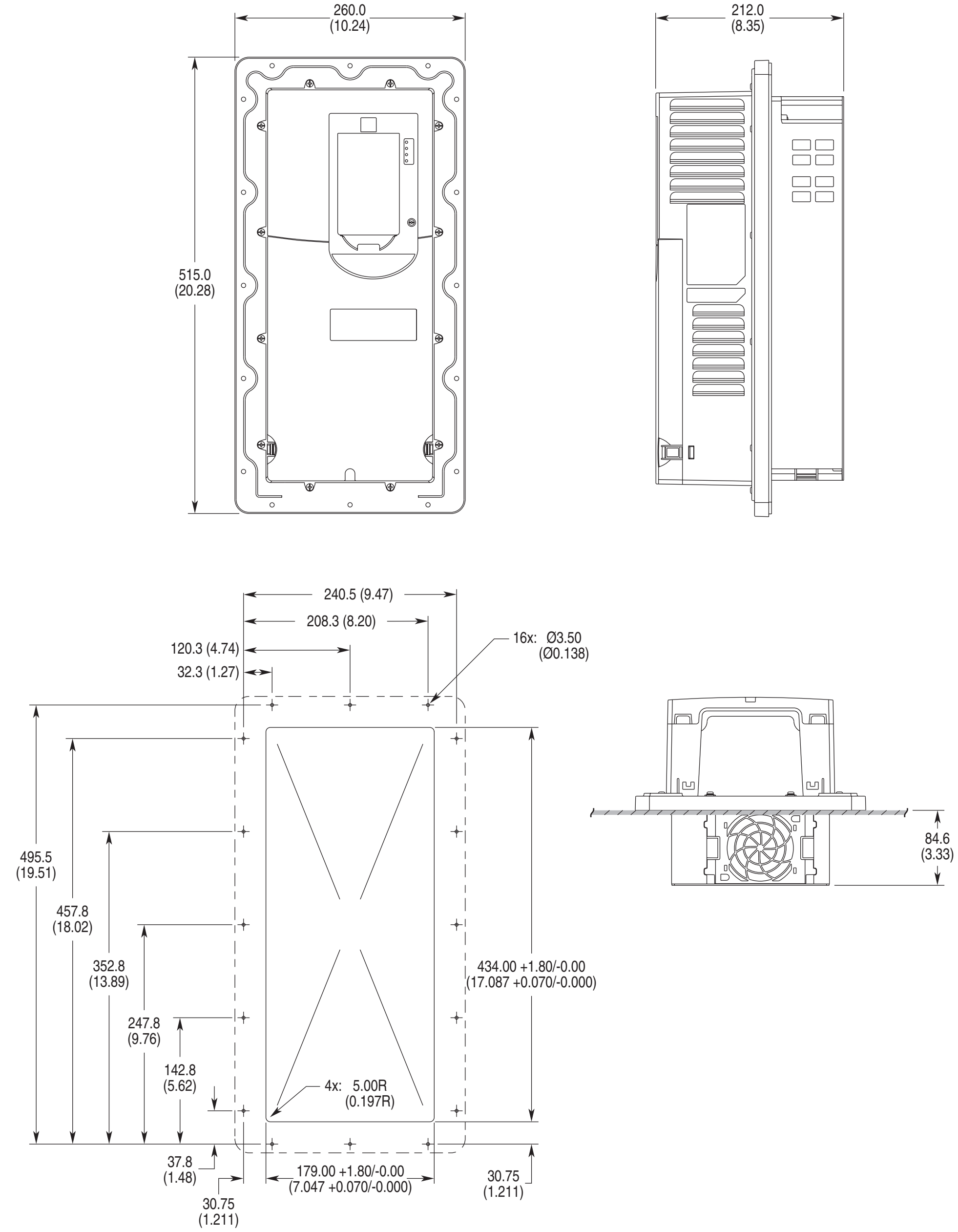


Figure A.5 IP20, NEMA/UL Open Type, Frame 3



Dimensions are in millimeters and (inches).

Figure A.6 Flange Mount, Frame 3



Dimensions are in millimeters and (inches).

Important: Must use mounting hardware supplied to meet enclosure rating.

Figure A.7 IP54, NEMA/UL Type 12, Frame 3

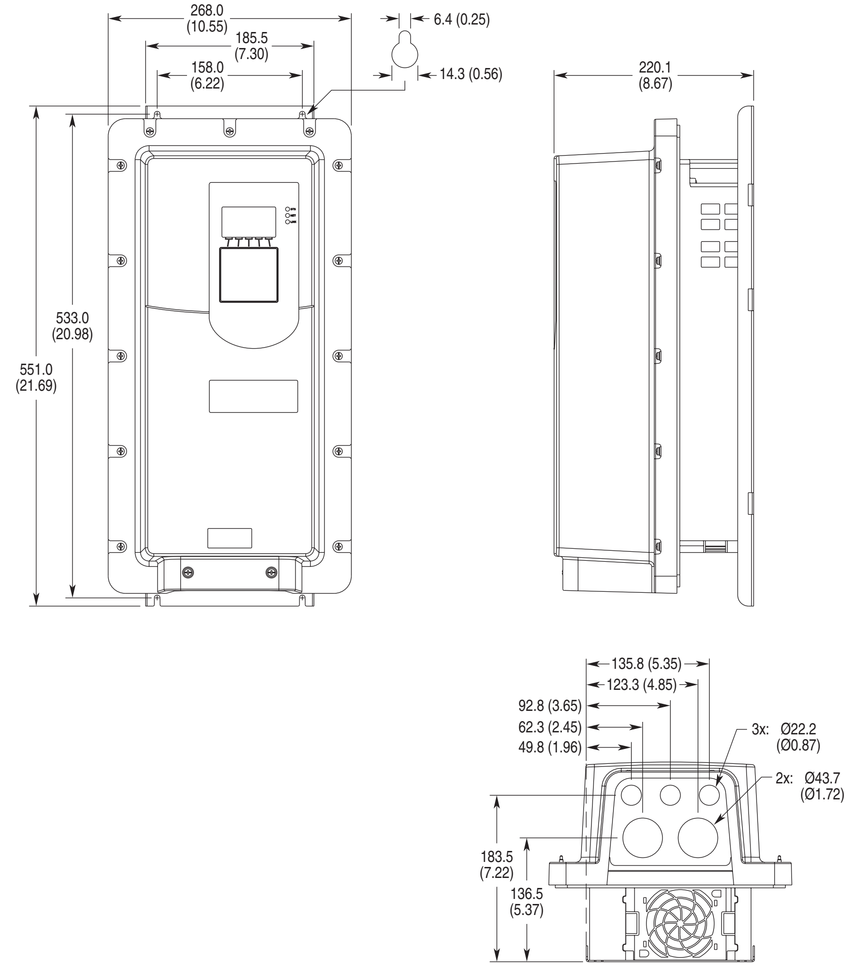
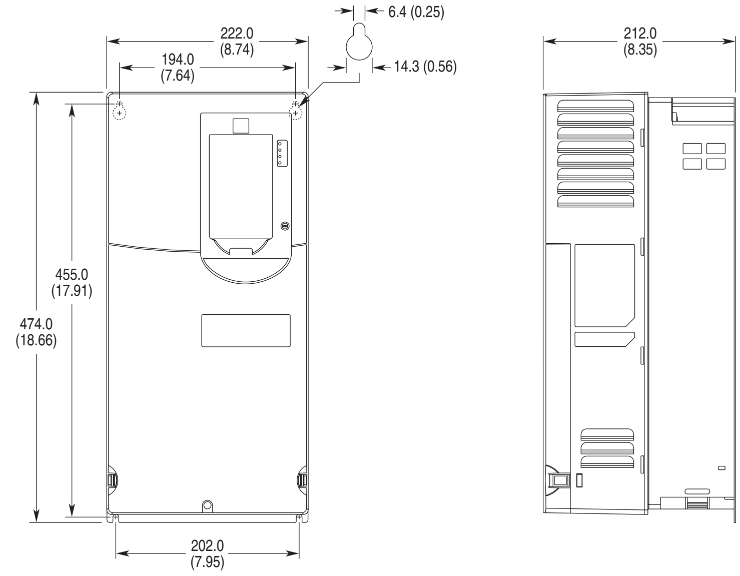
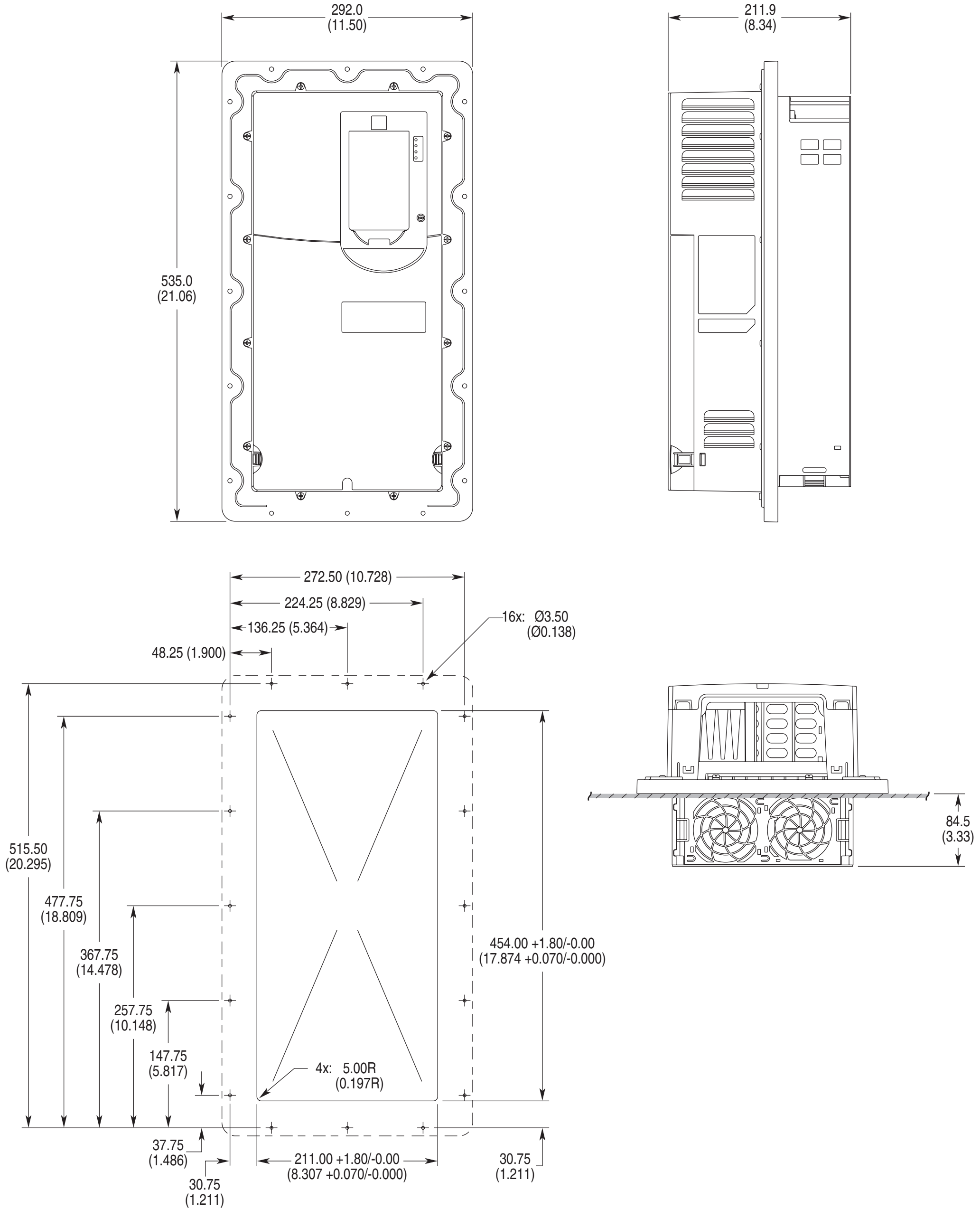


Figure A.8 IP20, NEMA/UL Open Type, Frame 4



Dimensions are in millimeters and (inches).

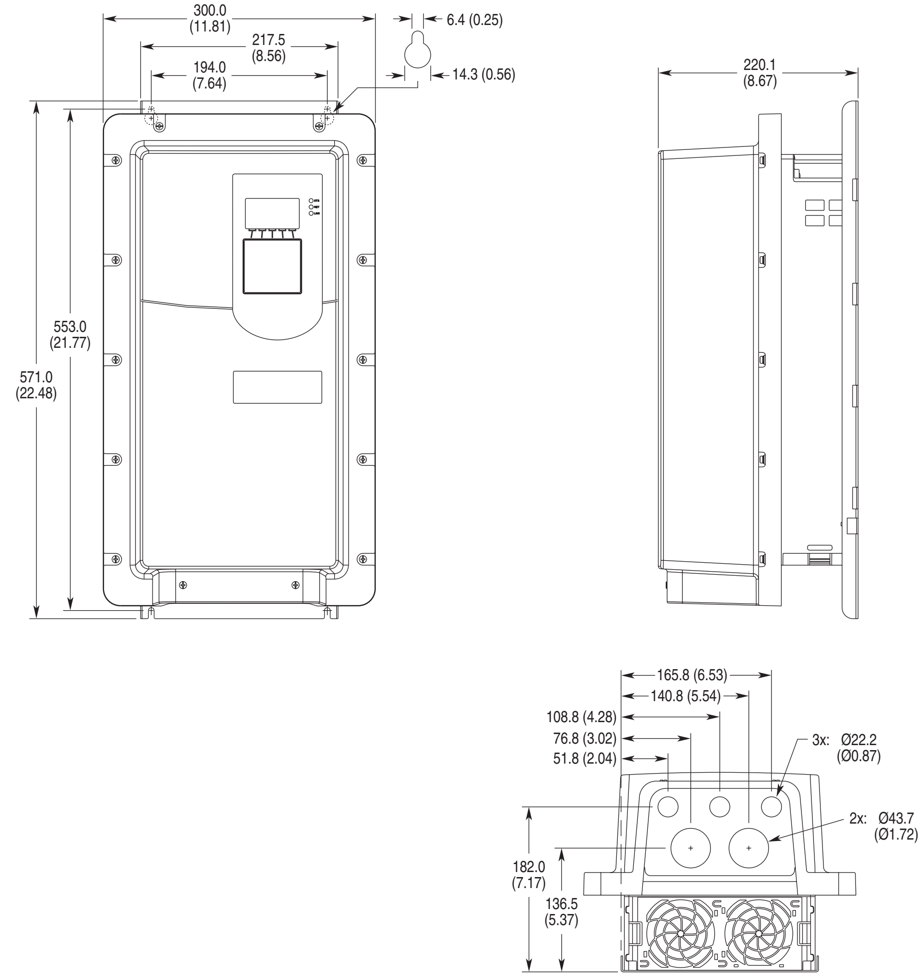
Figure A.9 Flange Mount, Frame 4



Dimensions are in millimeters and (inches).

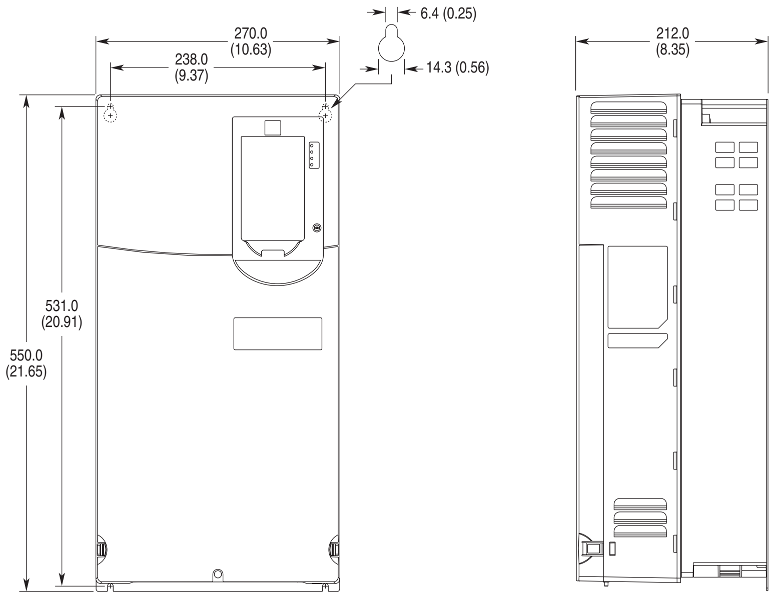
Important: Must use mounting hardware supplied to meet enclosure rating.

Figure A.10 IP54, NEMA/UL Type 12, Frame 4



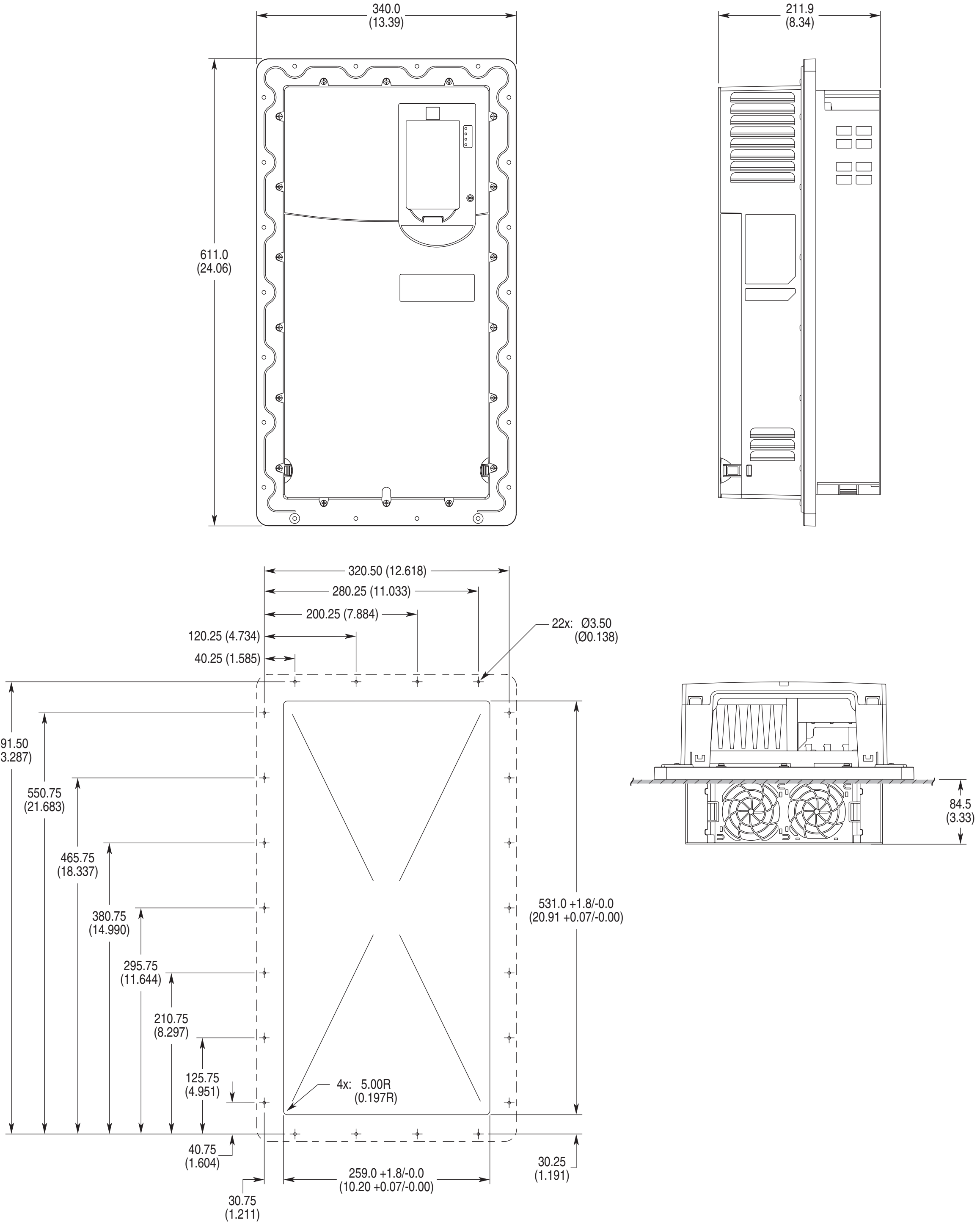
Dimensions are in millimeters and (inches).

Figure A.11 IP20, NEMA/UL Open Type, Frame 5



Dimensions are in millimeters and (inches).

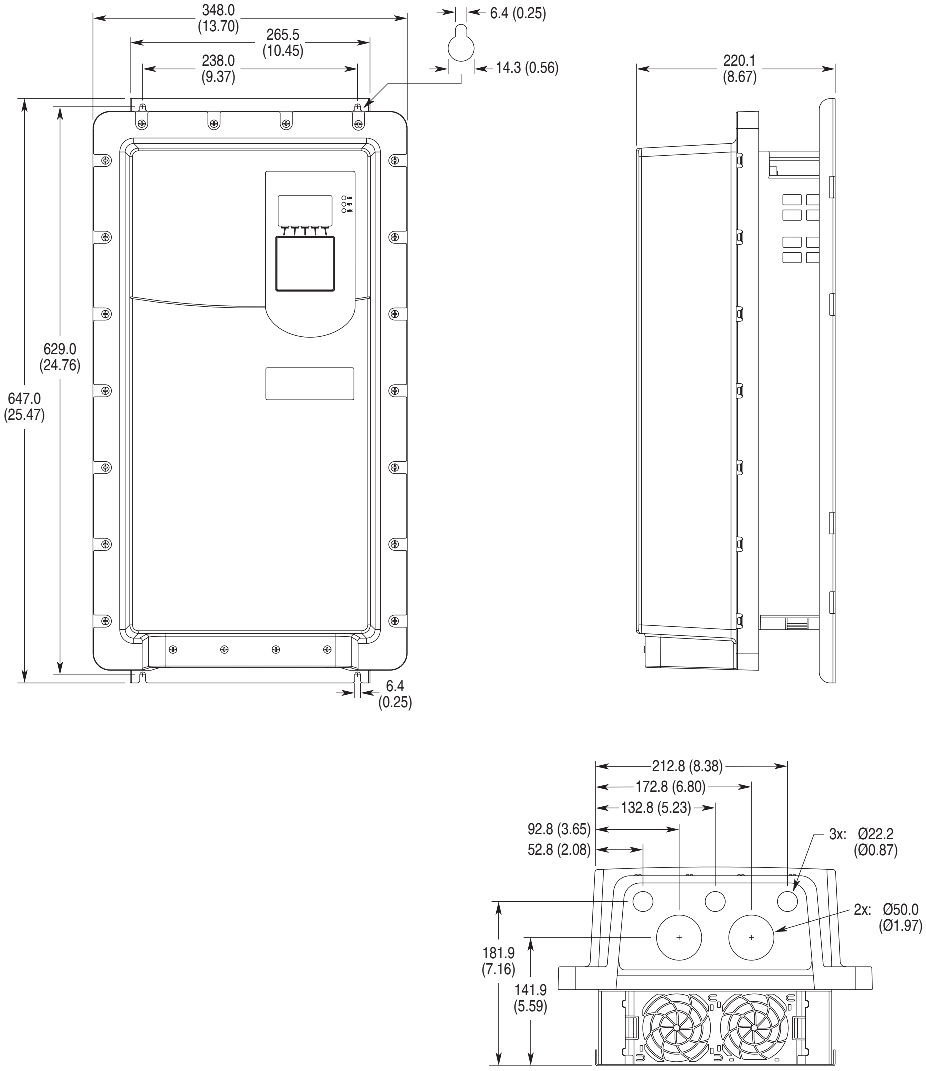
Figure A.12 Flange Mount, Frame 5



Dimensions are in millimeters and (inches).

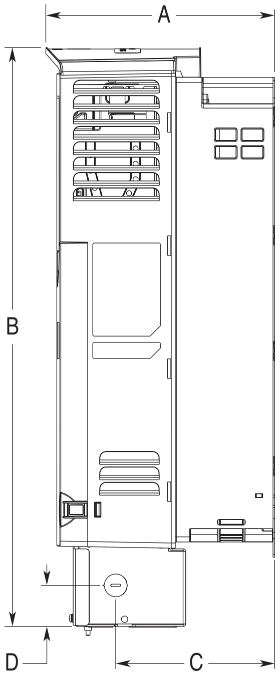
Important: Must use mounting hardware supplied to meet enclosure rating.

Figure A.13 IP54, NEMA/UL Type 12, Frame 5



Dimensions are in millimeters and (inches).

Figure A.14 NEMA/UL Type 1 Kit Frames 2…5 *(Frame 4 Shown)*

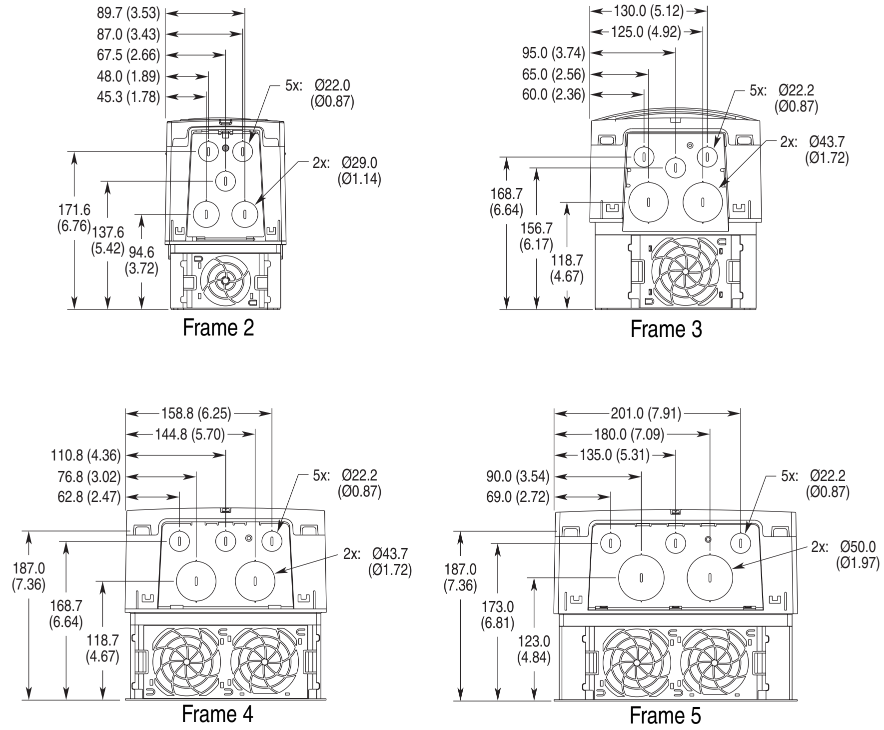


Dimensions are in millimeters and (inches).

Frame	A	B	C	D
2	222.2 (8.75)	497.1 (19.57)	117.7 (4.63)	38.0 (1.50)
3	223.1 (8.78)	530.1 (20.87)	154.7 (6.09)	38.0 (1.50)
4	222.7 (8.77)	564.4 (22.22)	154.7 (6.09)	40.0 (1.57)
5	222.7 (8.77)	665.4 (26.20)	155.0 (6.10)	55.0 (2.17)

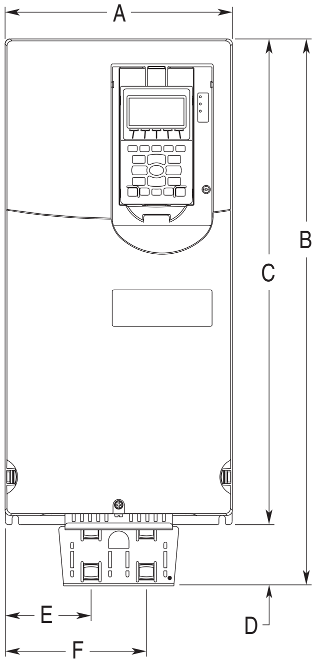
Important: NEMA Type 1 Kits (20-750-NEMA-F*x*) do not change the mounting dimensions.

Figure A.15 NEMA/UL Type 1 Frames 2…5 Bottom View Dimensions



Dimensions are in millimeters and (inches).

Figure A.16 EMC Plate Kit Frames 2…5 *(Frame 4 Shown)*

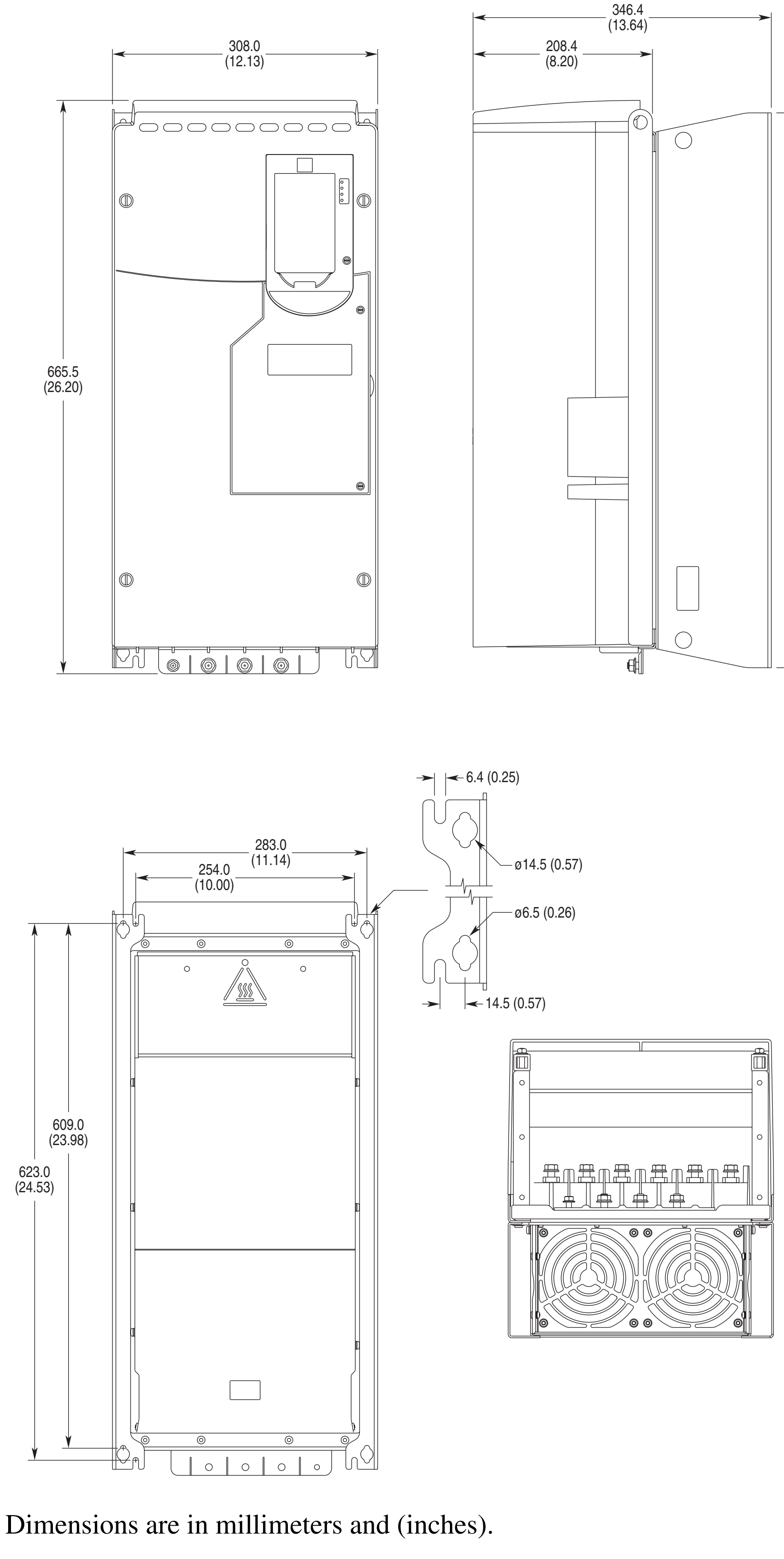


Dimensions are in millimeters and (inches).

Frame	A	B	C	D	E	F
2	134.5 (5.30)	485.9 (19.13)	424.2 (16.70)	61.7 (2.43)	43.5 (1.71)	79.5 (3.13)
3	190.0 (7.48)	514.0 (20.24)	454.0 (17.87)	60.0 (2.36)	74.0 (2.91)	116.0 (4.57)
4	222.0 (8.74)	533.7 (21.01)	474.0 (18.66)	59.7 (2.35)	84.0 (3.31)	138.0 (5.43)
5	270.0 (10.63)	609.7 (24.00)	550.0 (21.65)	59.7 (2.35)	77.8 (3.06)	191.8 (7.55)

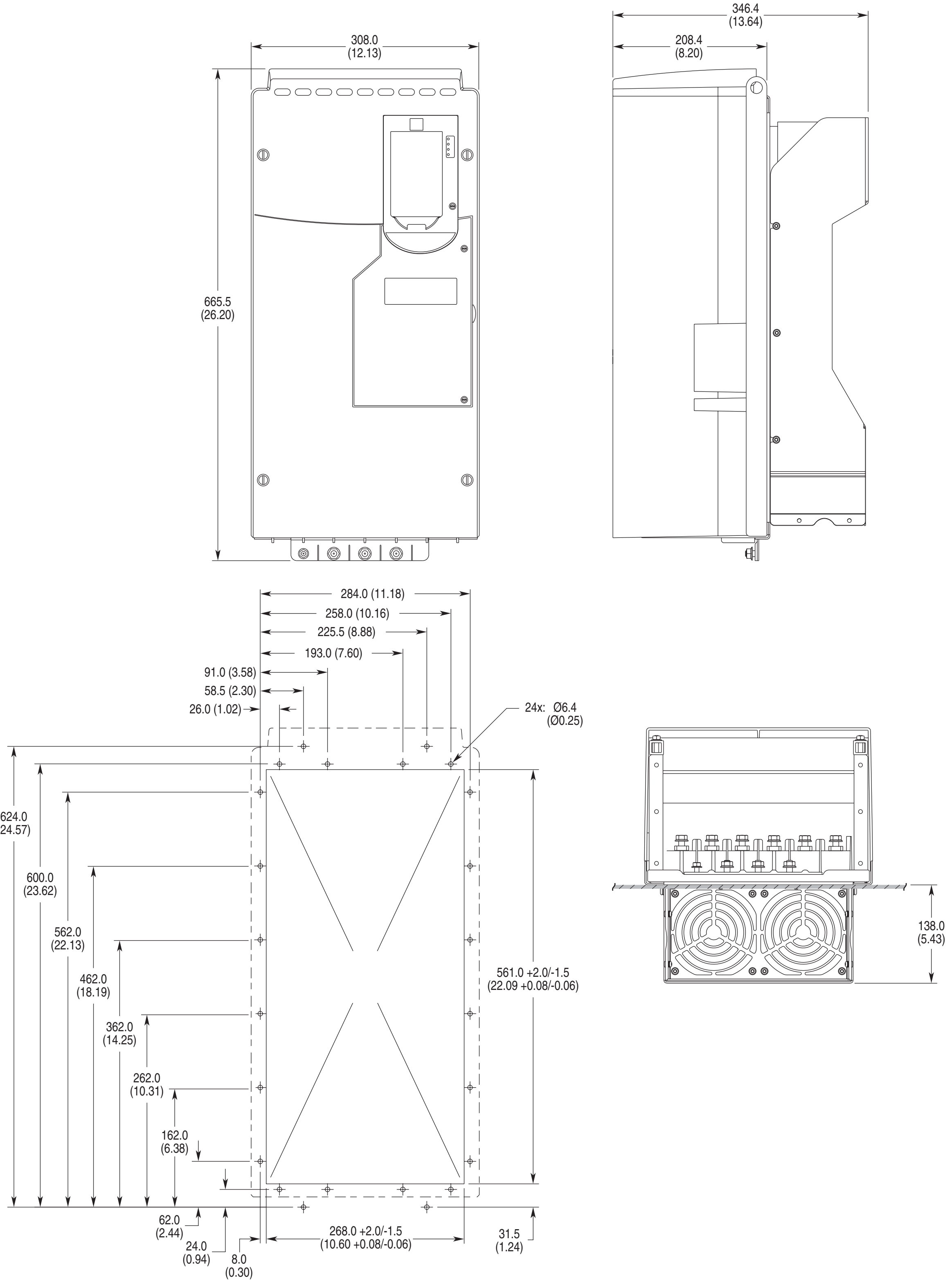
Important: EMC Kits (20-750-EMC-F*x*) do not change the mounting dimensions. Refer to the PowerFlex 750-Series EMC Plate and Core(s) Installation Instructions, publication 750-IN006, for detailed information on kit installation.

Figure A.17 IP00, NEMA/UL Open Type, Frame 6



Dimensions are in millimeters and (inches).

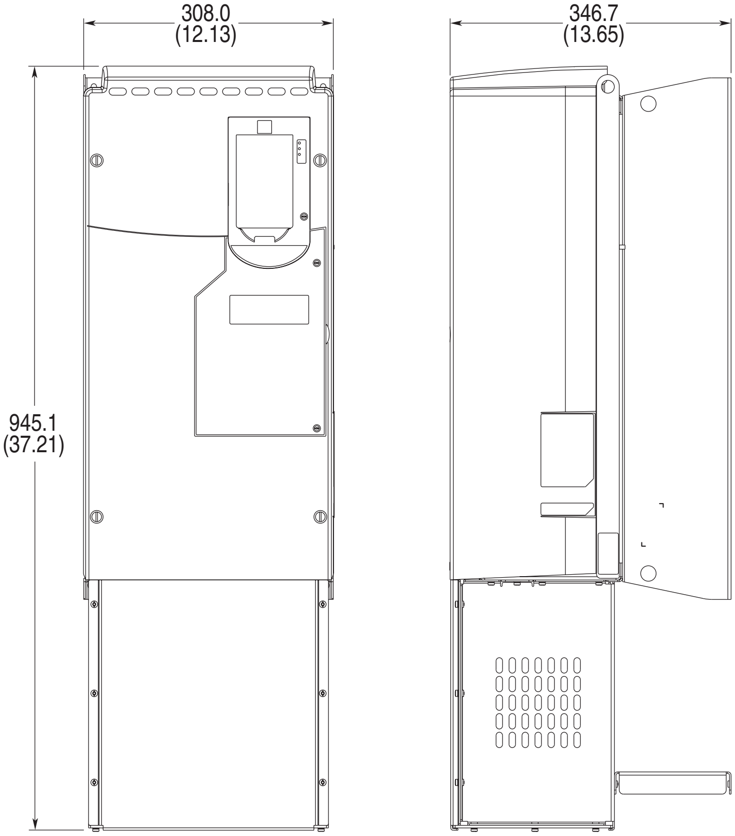
Figure A.18 Flange Mount, Frame 6



Dimensions are in millimeters and (inches).

Important: Must use Flange Adapter kit (20-750-FLNG4-F6) to meet enclosure rating.

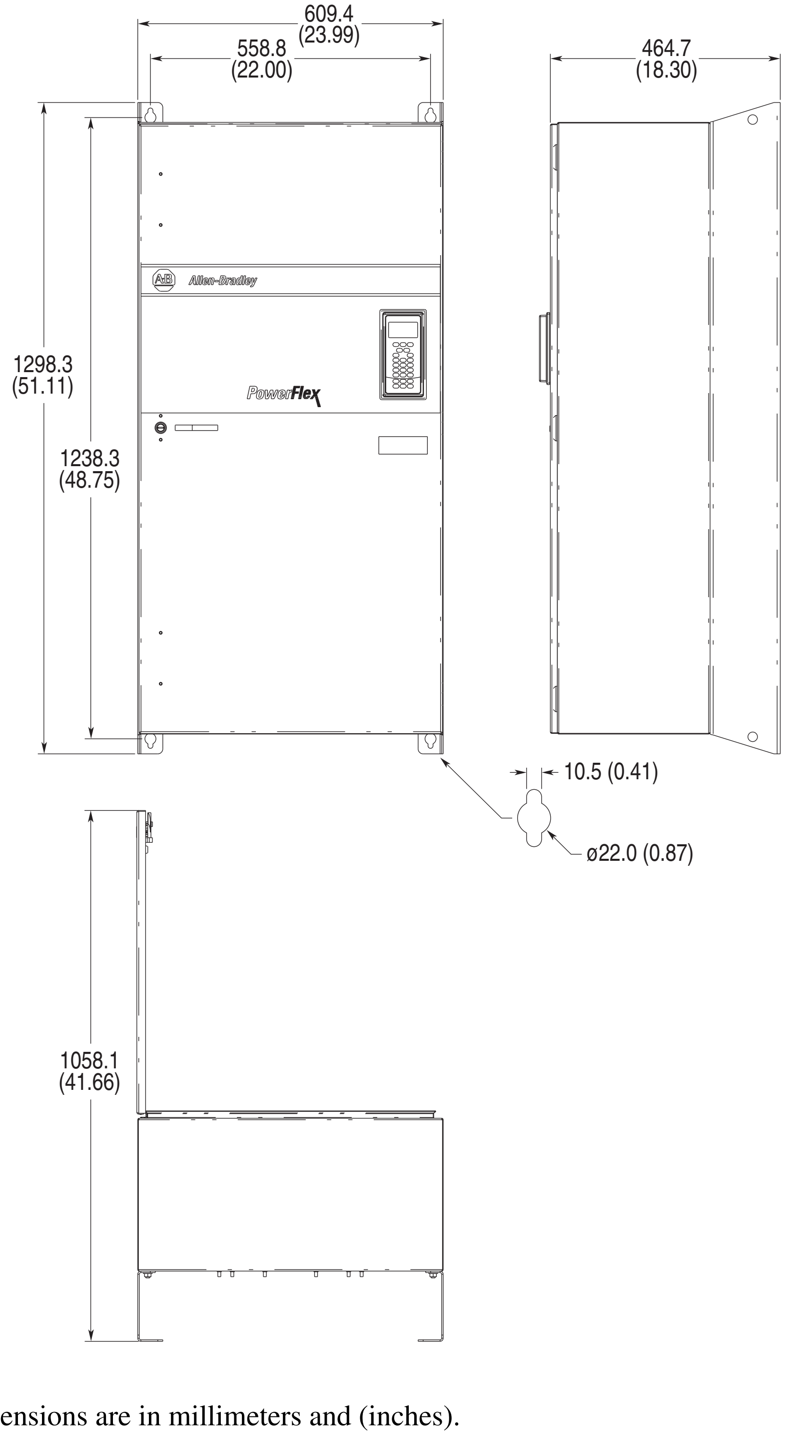
Figure A.19 NEMA/UL Type 1 Kit Frame 6



Dimensions are in millimeters and (inches).

Important: NEMA Type 1 Kit (20-750-NEMA-F6) does not change the mounting dimensions.

Figure A.20 IP54, NEMA/UL Type 12, Frame 6



Dimensions are in millimeters and (inches).

Figure A.21 IP00, NEMA/UL Open Type, Frame 7

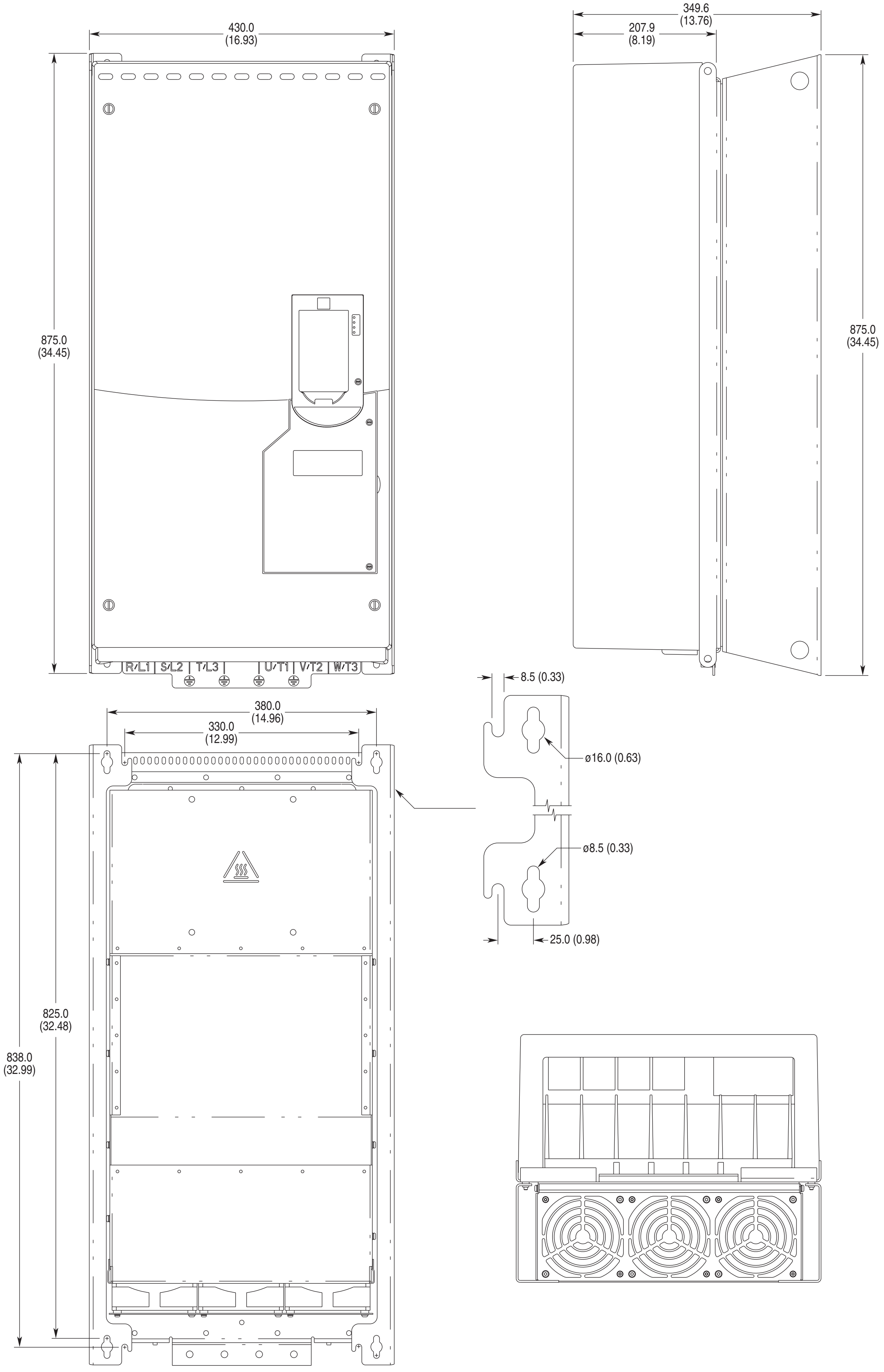
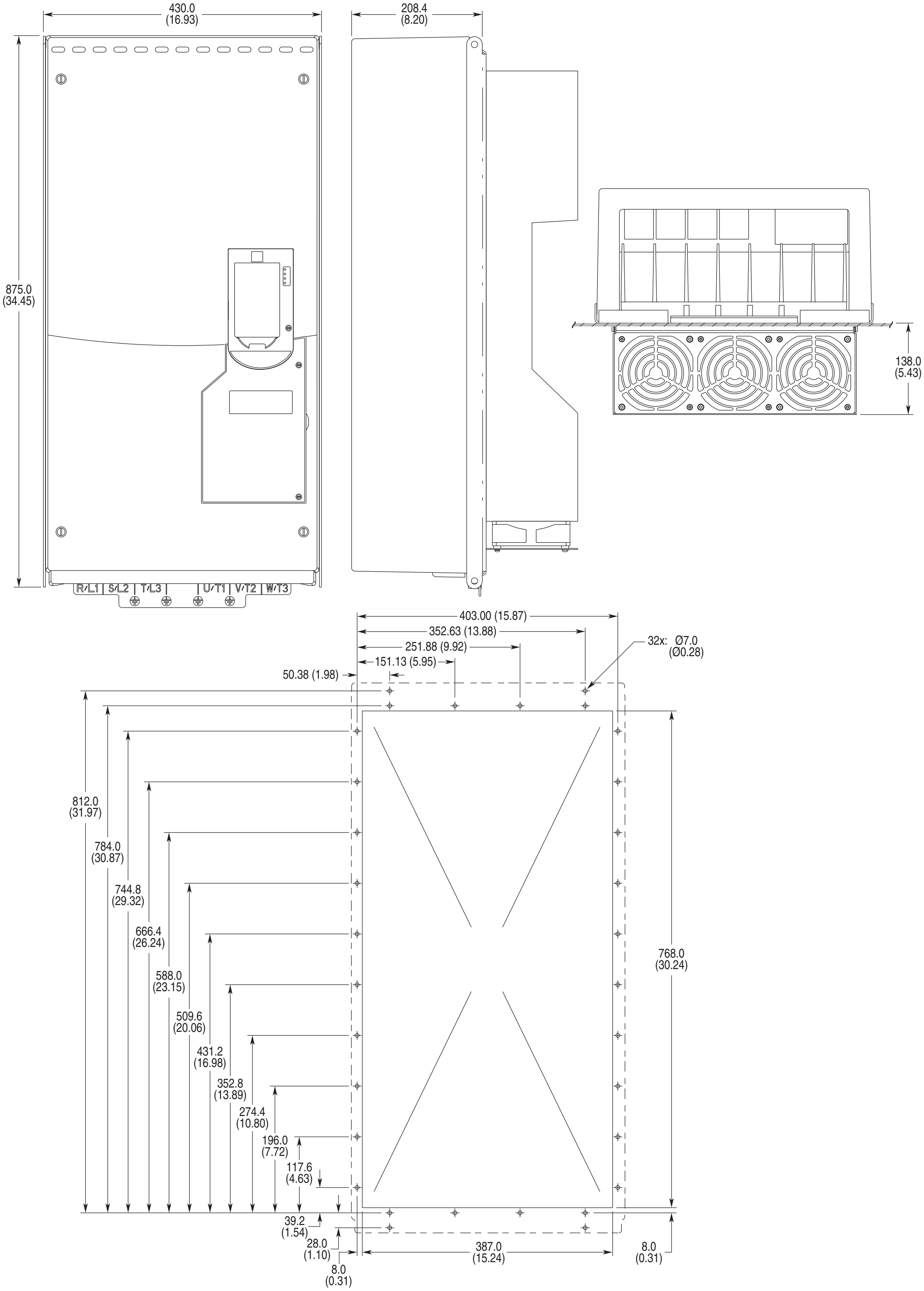


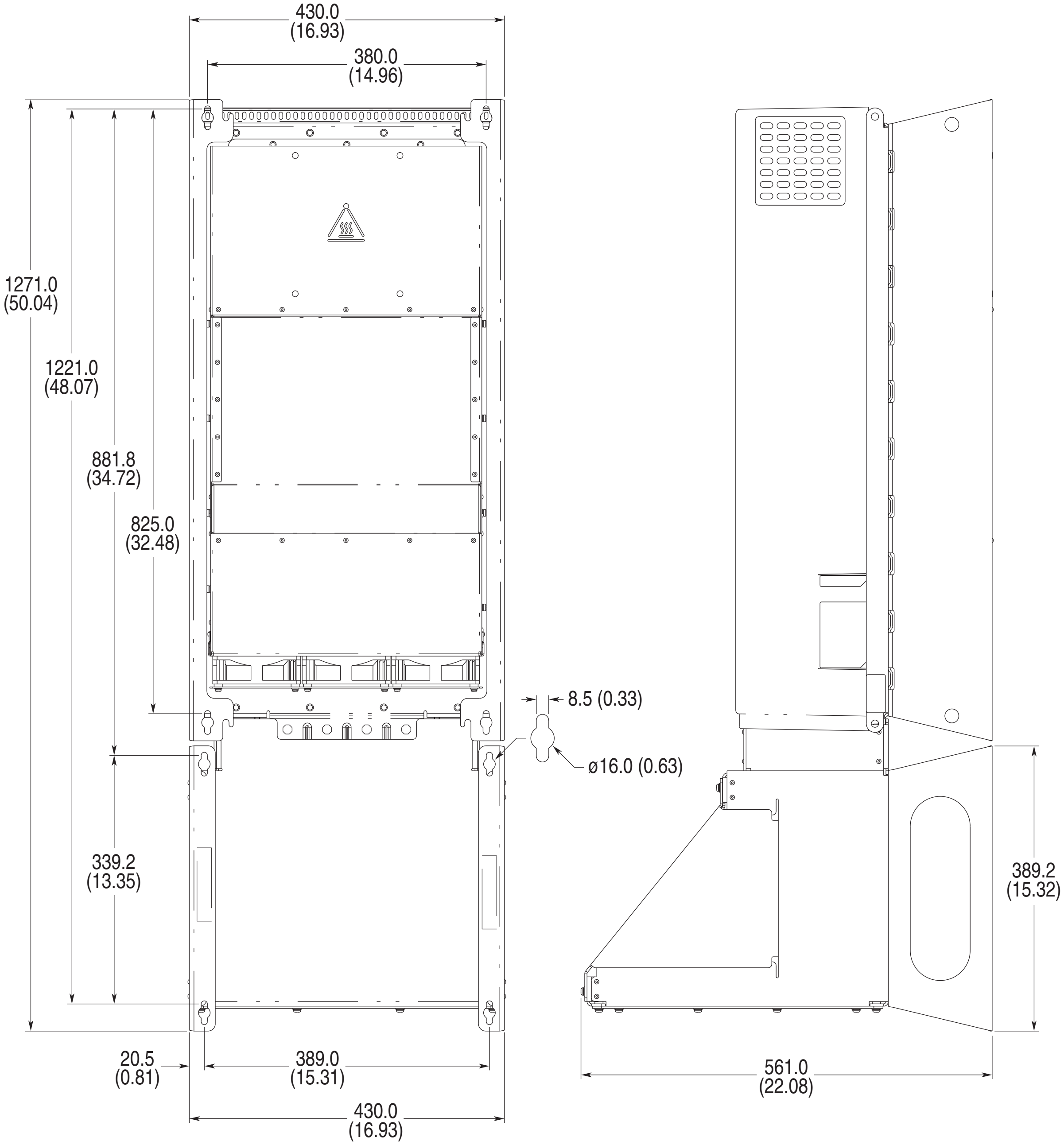
Figure A.22 Flange Mount, Frame 7



Dimensions are in millimeters and (inches).

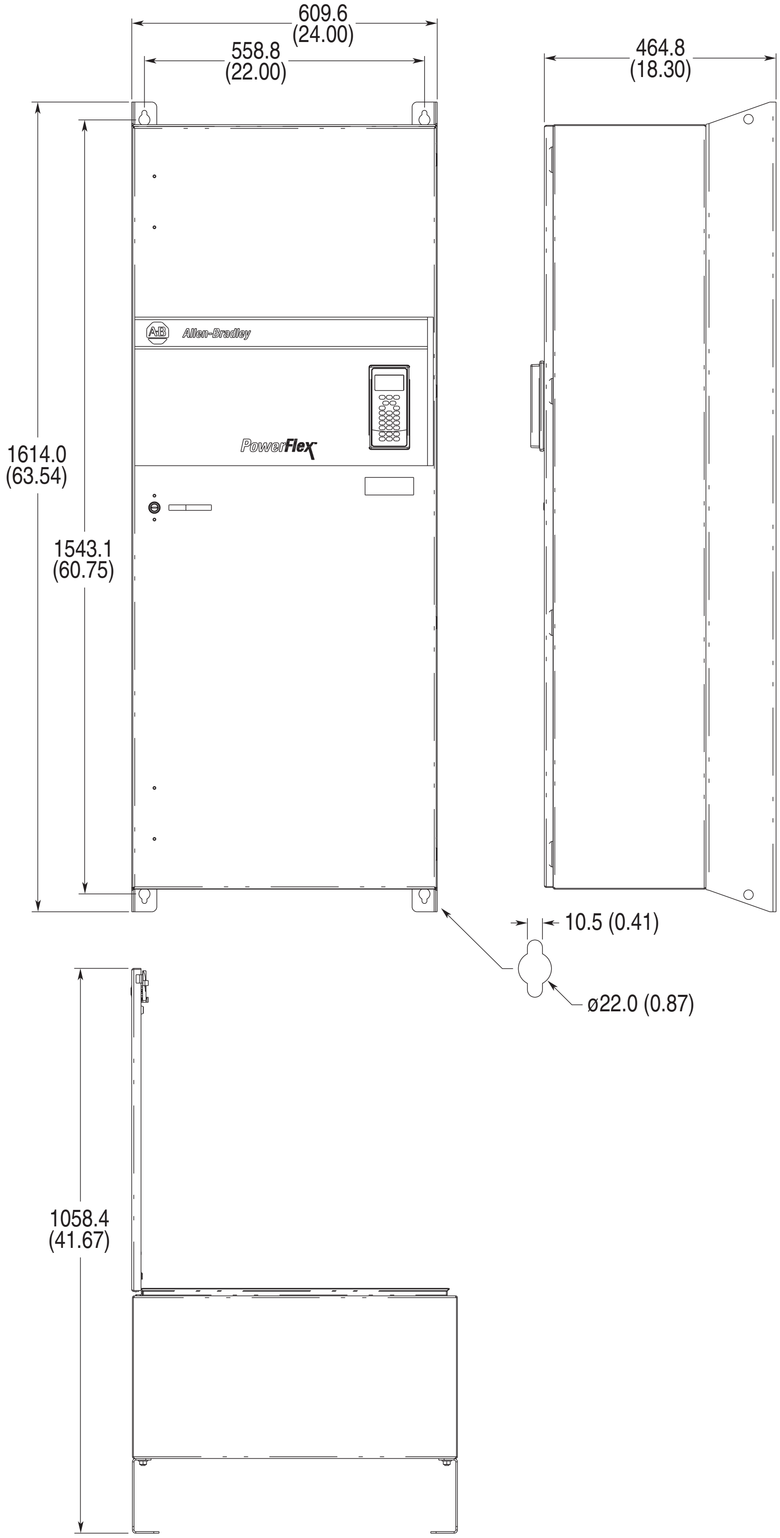
Important: Must use Flange Adapter kit (20-750-FLNG4-F7) to meet enclosure rating.

Figure A.23 NEMA/UL Type 1, Frame 7



Dimensions are in millimeters and (inches).

Figure A.24 IP54, NEMA/UL Type 12, Frame 7



Dimensions are in millimeters and (inches).

Appendix B

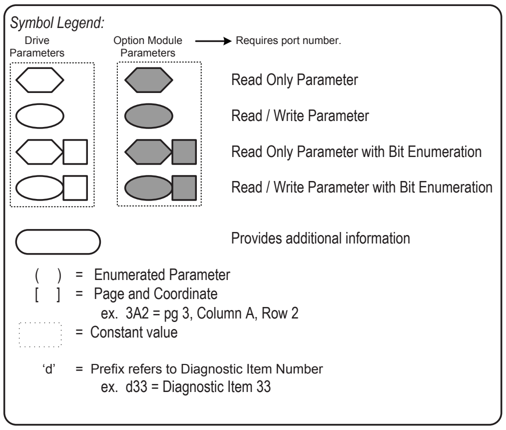
Control Block Diagrams

List of PowerFlex 753 Control Block Diagrams

Flow diagrams on the following pages illustrate the PowerFlex 753 drive control algorithms.

Diagram Conventions and Definitions

Definitions of the Per Unit system:
1.0 PU Position = Distance traveled / 1sec at Base Spd
1.0 PU Speed = Base Speed of the Motor
1.0 PU Torque = Base Torque of the Motor

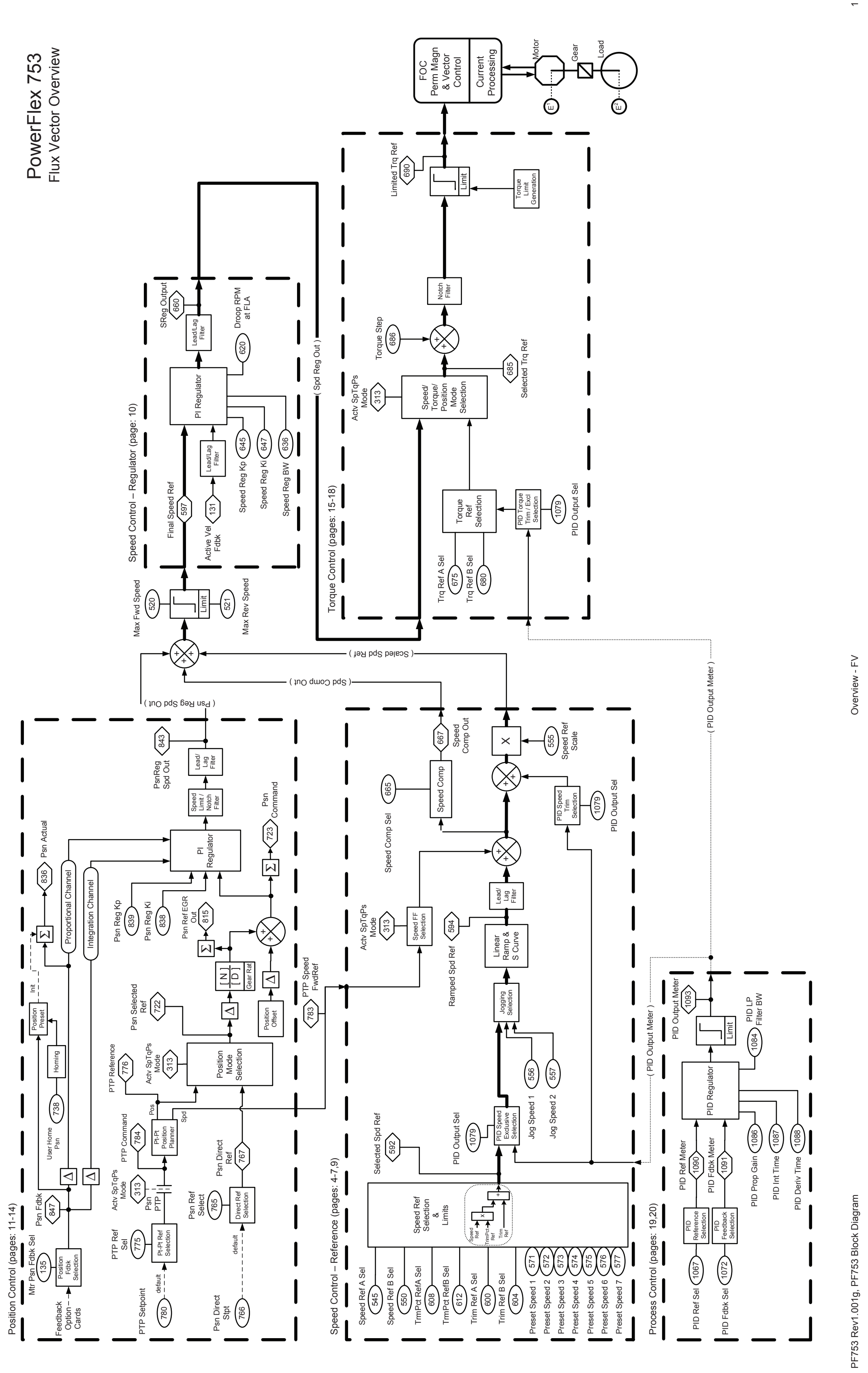

Symbol Legend:

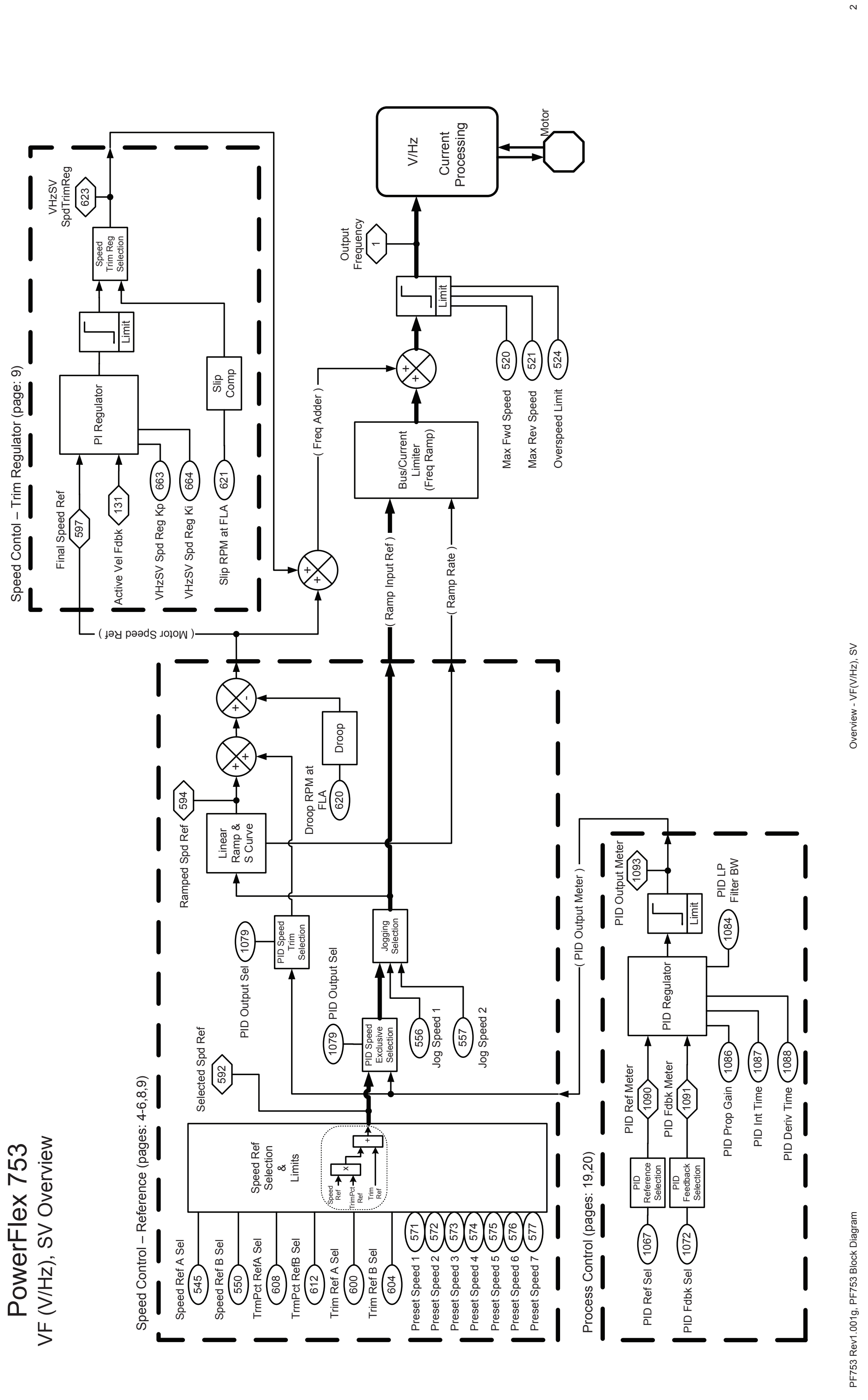
( ) = Enumerated Parameter
[ ] = Page and Coordinate
ex. 3A2 = pg 3, Column A, Row 2
= Constant value

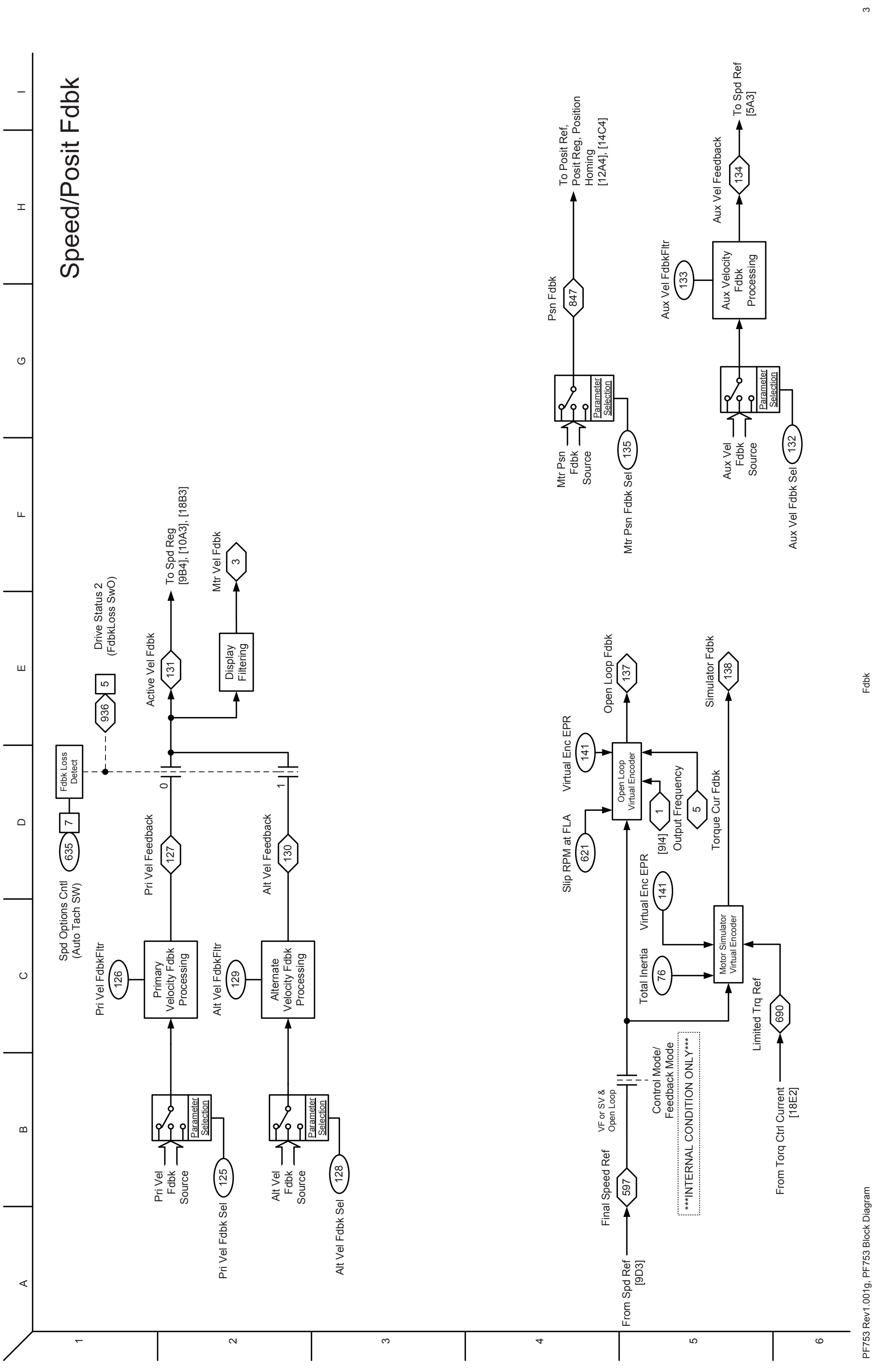
'd' = Prefix refers to Diagnostic Item Number
ex. d33 = Diagnostic Item 33

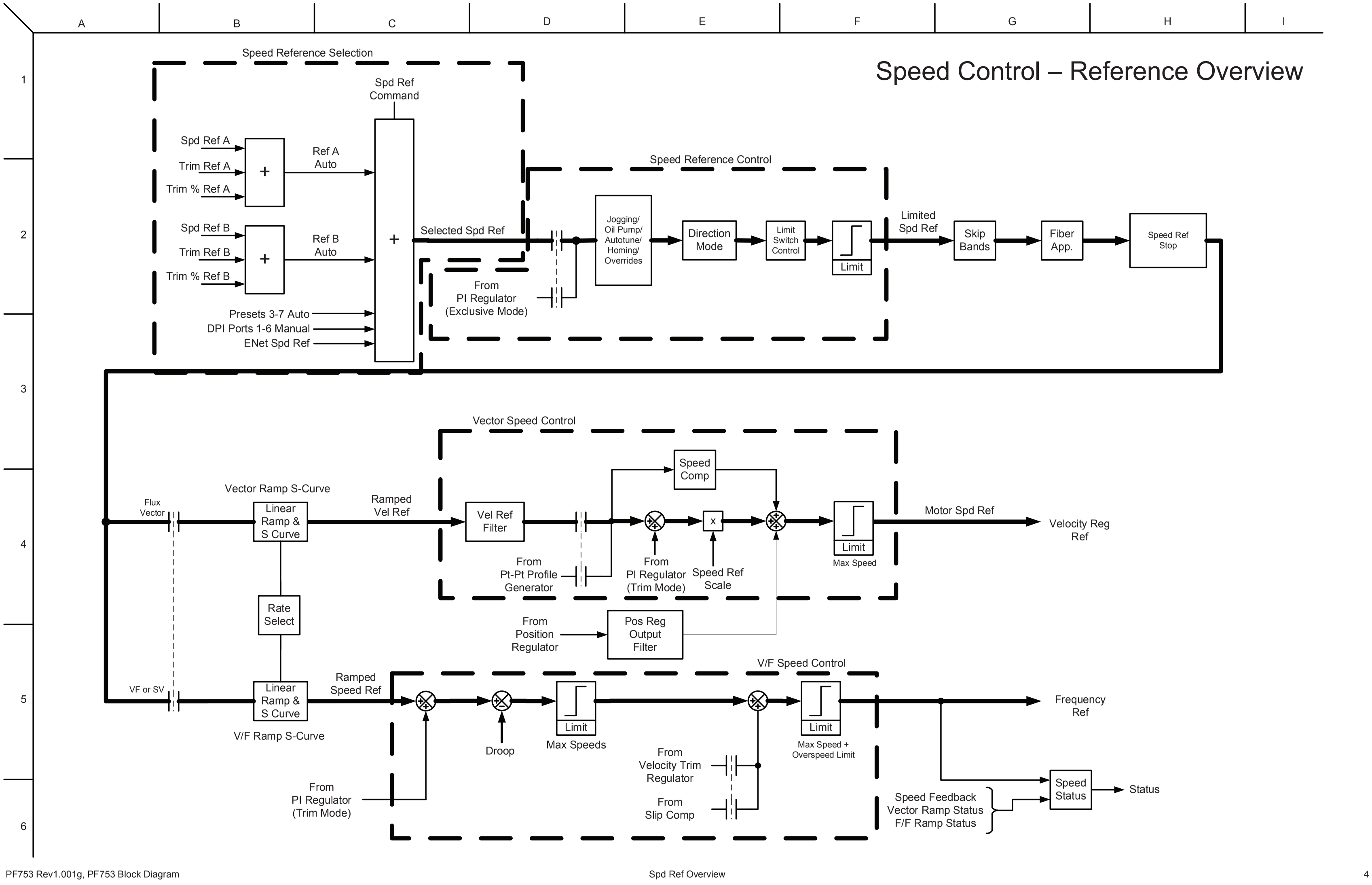
*** Notes, *Important*:**

(1) These diagrams are for reference only and may not accurately reflect all logical control signals; actual functionality is implied by the approximated diagrams. Accuracy of these diagrams is not guaranteed.

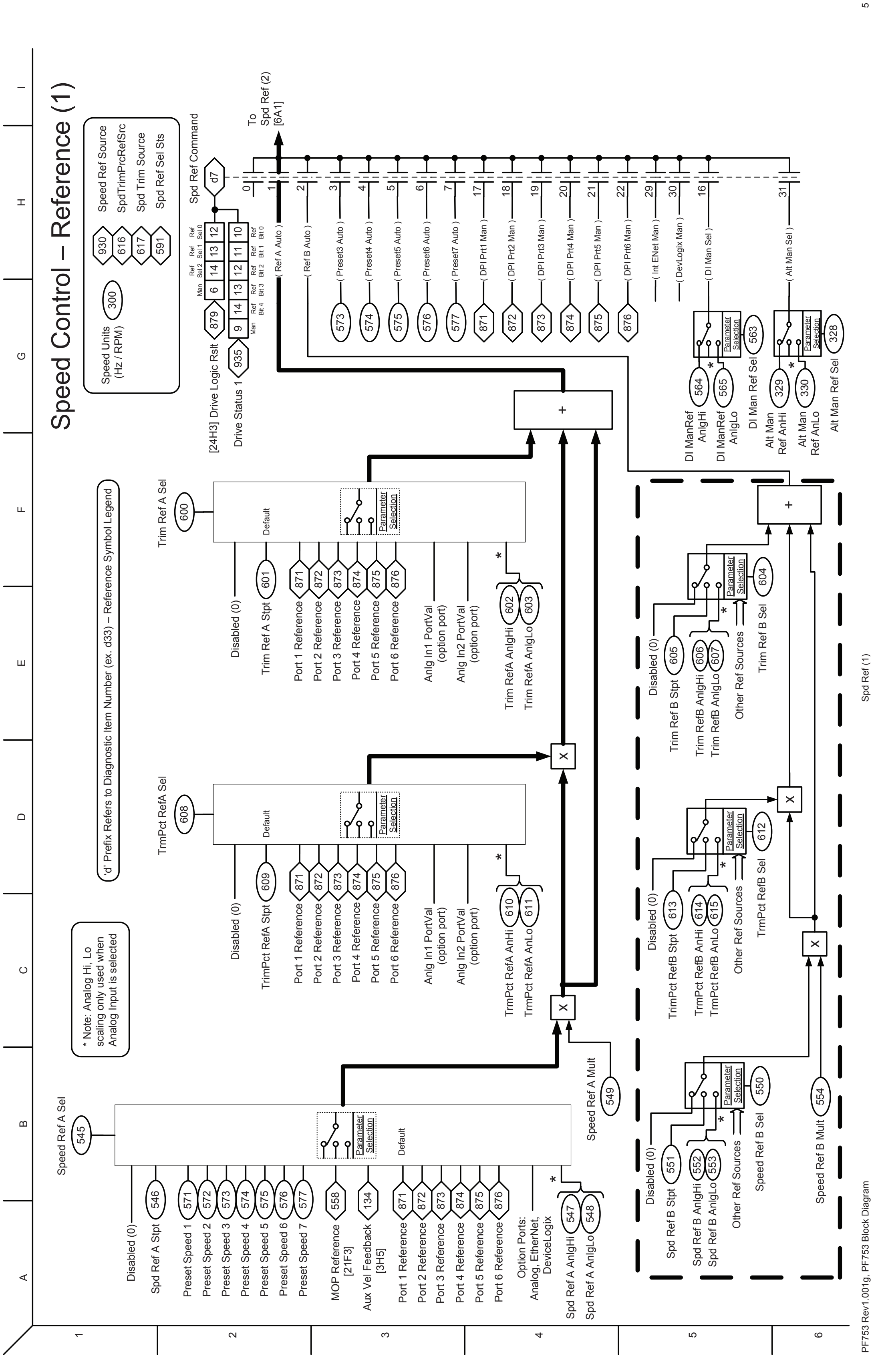

PowerFlex 753
Flux Vector Overview
Position Control (pages: 11-14)
Feedback Option Cards
Mtr Psn Fdbk Sel 135
Position Fdbk Selection
Psn Fdbk 847
User Home Psn 738
Homing
Position Preset
Init
Proportional Channel
Integration Channel
Psn Actual 836
PTP Setpoint 780
default
PTP Ref Sel 775
Pt-Pt Ref Selection
Actv SpTqPs Mode 313
Psn PTP
PTP Command 784
Pt-Pt Position Planner
Pos
Spd
PTP Reference 776
Actv SpTqPs Mode 313
Position Mode Selection
Psn Selected Ref 722
Position Offset
Gear Rat
PTP Speed FwdRef 783
Psn Reg Kp 839
Psn Reg Ki 838
Psn Ref EGR Out 815
PI Regulator
Psn Command 723
Speed Limit / Notch Filter
Lead/Lag Filter
PsnReg Spd Out 843
Psn Direct Stpt 766
Psn Ref Select 765
Direct Ref Selection
Psn Direct Ref 767
(Psn Reg Spd Out)
(Spd Comp Out)
(Scaled Spd Ref)
Max Fwd Speed 520
Limit
Max Rev Speed 521
Speed Control – Regulator (page: 10)
Final Speed Ref 597
Active Vel Fdbk 131
Lead/Lag Filter
Speed Reg Kp 645
Speed Reg Ki 647
Speed Reg BW 636
PI Regulator
Droop RPM at FLA 620
Lead/Lag Filter
SReg Output 660
(Spd Reg Out)
Speed Control – Reference (pages: 4-7,9)
Speed Ref A Sel 545
Speed Ref B Sel 550
TrmPct RefA Sel 608
TrmPct RefB Sel 612
Trim Ref A Sel 600
Trim Ref B Sel 604
Preset Speed 1 571
Preset Speed 2 572
Preset Speed 3 573
Preset Speed 4 574
Preset Speed 5 575
Preset Speed 6 576
Preset Speed 7 577
Speed Ref Selection & Limits
Speed Ref
TrimPct Ref
Trim Ref
Selected Spd Ref 592
PID Output Sel 1079
PID Speed Exclusive Selection
Jog Speed 1 556
Jog Speed 2 557
Jogging Selection
Linear Ramp & S Curve
Ramped Spd Ref 594
Actv SpTqPs Mode 313
Speed FF Selection
Lead/Lag Filter
Speed Comp Sel 665
Speed Comp
Speed Comp Out 667
PID Speed Trim Selection
PID Output Sel 1079
Speed Ref Scale 555
Torque Control (pages: 15-18)
Trq Ref A Sel 675
Trq Ref B Sel 680
Torque Ref Selection
PID Torque Trim / Excl Selection
PID Output Sel 1079
Actv SpTqPs Mode 313
Speed/ Torque/ Position Mode Selection
Selected Trq Ref 685
Torque Step 686
Notch Filter
Limit
Torque Limit Generation
Limited Trq Ref 690
FOC Perm Magn & Vector Control
Current Processing
Motor
Gear
Load
E
E
Process Control (pages: 19,20)
PID Ref Sel 1067
PID Reference Selection
PID Fdbk Sel 1072
PID Feedback Selection
PID Ref Meter 1090
PID Fdbk Meter 1091
PID Prop Gain 1086
PID Int Time 1087
PID Deriv Time 1088
PID Regulator
PID LP Filter BW 1084
Limit
PID Output Meter 1093
(PID Output Meter)
1
Overview - FV
PF753 Rev1.001g, PF753 Block Diagram


PowerFlex 753
VF (V/Hz), SV Overview
Speed Control – Reference (pages: 4-6,8,9)
Speed Ref A Sel
545
Speed Ref B Sel
550
TrmPct RefA Sel
608
TrmPct RefB Sel
612
Trim Ref A Sel
600
Trim Ref B Sel
604
Preset Speed 1
571
Preset Speed 2
572
Preset Speed 3
573
Preset Speed 4
574
Preset Speed 5
575
Preset Speed 6
576
Preset Speed 7
577
Speed Ref Selection & Limits
Speed Ref
TrmPct Ref
Trim Ref
x
+
+
Selected Spd Ref
592
PID Output Sel
1079
PID Speed Exclusive Selection
PID Output Sel
1079
PID Speed Trim Selection
Jogging Selection
556
Jog Speed 1
557
Jog Speed 2
Ramped Spd Ref
594
Linear Ramp & S Curve
Droop RPM at FLA
620
Droop
(Motor Speed Ref)
(Ramp Input Ref)
(Ramp Rate)
(PID Output Meter)
Speed Contol – Trim Regulator (page: 9)
Final Speed Ref
597
Active Vel Fdbk
131
VHzSV Spd Reg Kp
663
VHzSV Spd Reg Ki
664
Slip RPM at FLA
621
PI Regulator
Limit
Slip Comp
Speed Trim Reg Selection
VHzSV SpdTrimReg
623
(Freq Adder)
Bus/Current Limiter (Freq Ramp)
Limit
Max Fwd Speed
520
Max Rev Speed
521
Overspeed Limit
524
Output Frequency
1
V/Hz
Current Processing
Motor
Process Control (pages: 19,20)
PID Ref Sel
1067
PID Fdbk Sel
1072
PID Reference Selection
PID Feedback Selection
PID Ref Meter
1090
PID Fdbk Meter
1091
PID Regulator
PID Prop Gain
1086
PID Int Time
1087
PID Deriv Time
1088
Limit
PID LP Filter BW
1084
PID Output Meter
1093
Overview - VF(V/Hz), SV
PF753 Rev1.001g, PF753 Block Diagram
2

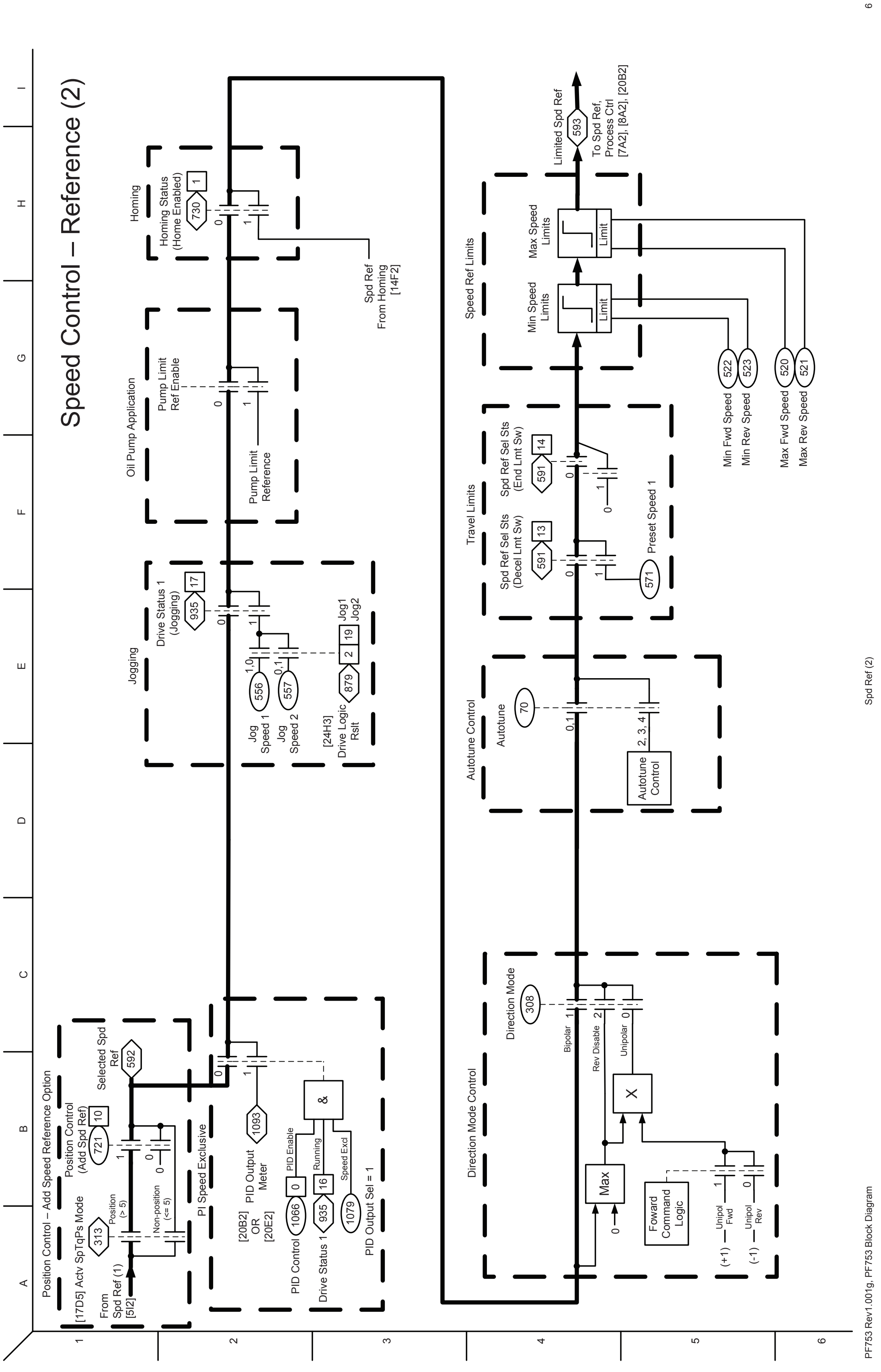

Speed/Posit Fdbk
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Pri Vel Fdbk Source
Parameter Selection
125
Pri Vel Fdbk Sel
Alt Vel Fdbk Source
Parameter Selection
128
Alt Vel Fdbk Sel
Pri Vel FdbkFltr
126
Primary Velocity Fdbk Processing
Alt Vel FdbkFltr
129
Alternate Velocity Fdbk Processing
Spd Options Cntl (Auto Tach SW)
635
7
Fdbk Loss Detect
Pri Vel Feedback
127
Alt Vel Feedback
130
0
1
936
5
Drive Status 2 (FdbkLoss SwO)
Active Vel Fdbk
131
To Spd Reg [9B4], [10A3], [18B3]
Display Filtering
Mtr Vel Fdbk
3
From Spd Ref [9D3]
Final Speed Ref
597
VF or SV & Open Loop
Control Mode/ Feedback Mode
INTERNAL CONDITION ONLY
From Torq Ctrl Current [18E2]
Limited Trq Ref
690
Total Inertia
76
Virtual Enc EPR
141
Motor Simulator Virtual Encoder
Slip RPM at FLA
621
[9I4] Output Frequency
1
Torque Cur Fdbk
5
Virtual Enc EPR
141
Open Loop Virtual Encoder
Open Loop Fdbk
137
Simulator Fdbk
138
Mtr Psn Fdbk Source
Parameter Selection
135
Mtr Psn Fdbk Sel
Psn Fdbk
847
To Posit Ref, Posit Reg, Position Homing [12A4], [14C4]
Aux Vel Fdbk Source
Parameter Selection
132
Aux Vel Fdbk Sel
Aux Vel FdbkFltr
133
Aux Velocity Fdbk Processing
Aux Vel Feedback
134
To Spd Ref [5A3]
PF753 Rev1.001g, PF753 Block Diagram
Fdbk
3

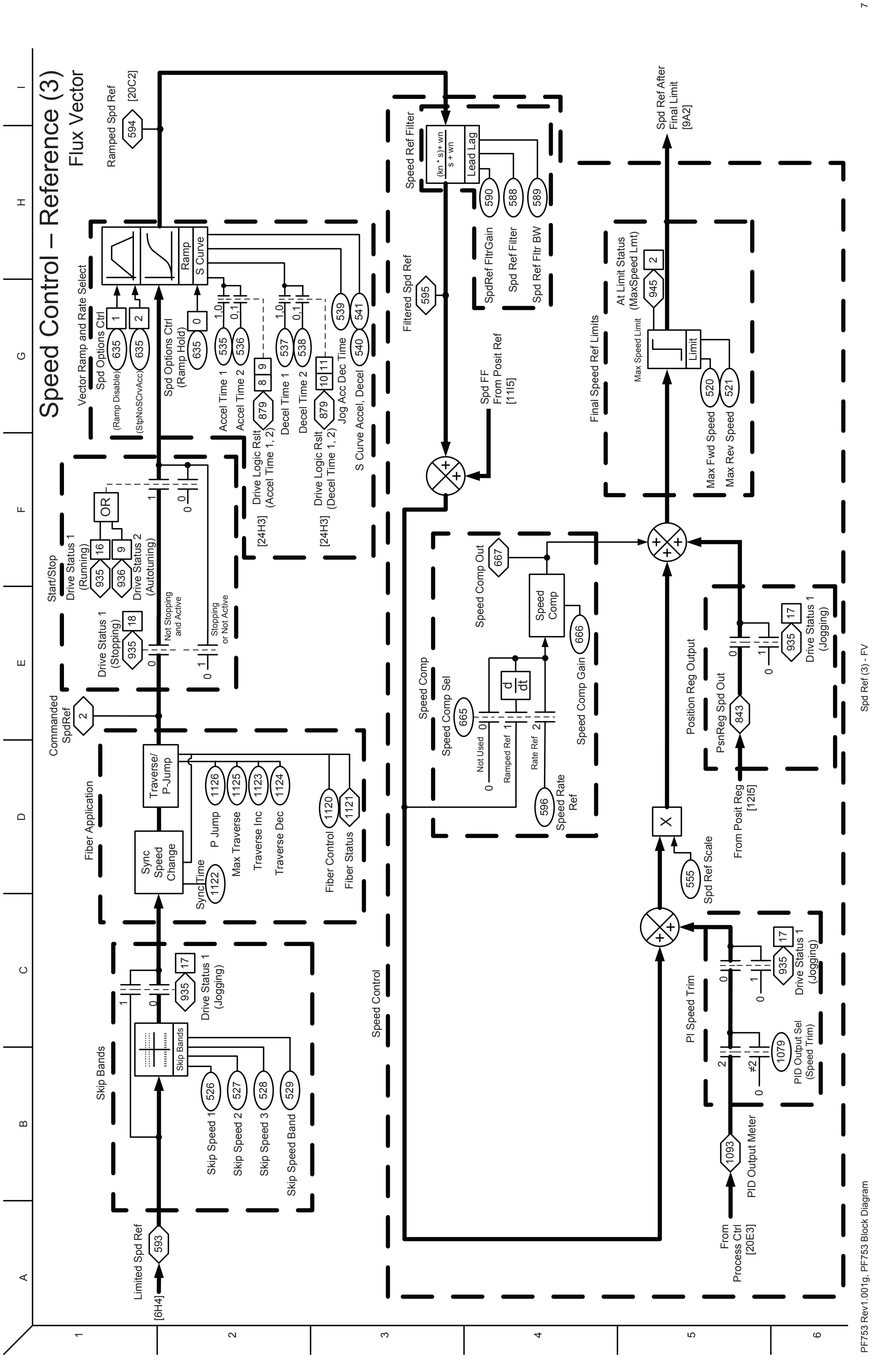


Speed Control – Reference Overview
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Speed Reference Selection
Spd Ref A
Trim Ref A
Trim % Ref A
Spd Ref B
Trim Ref B
Trim % Ref B
+
+
Ref A Auto
Ref B Auto
Spd Ref Command
+
Presets 3-7 Auto
DPI Ports 1-6 Manual
ENet Spd Ref
Selected Spd Ref
Speed Reference Control
From PI Regulator (Exclusive Mode)
Jogging/ Oil Pump/ Autotune/ Homing/ Overrides
Direction Mode
Limit Switch Control
Limit
Limited Spd Ref
Skip Bands
Fiber App.
Speed Ref Stop
Vector Speed Control
Flux Vector
Vector Ramp S-Curve
Linear Ramp & S Curve
Ramped Vel Ref
Vel Ref Filter
From Pt-Pt Profile Generator
Speed Comp
From PI Regulator (Trim Mode)
x
Speed Ref Scale
Limit
Max Speed
Motor Spd Ref
Velocity Reg Ref
Rate Select
From Position Regulator
Pos Reg Output Filter
V/F Speed Control
VF or SV
Linear Ramp & S Curve
V/F Ramp S-Curve
Ramped Speed Ref
Droop
Limit
Max Speeds
From PI Regulator (Trim Mode)
From Velocity Trim Regulator
From Slip Comp
Limit
Max Speed + Overspeed Limit
Frequency Ref
Speed Feedback
Vector Ramp Status
F/F Ramp Status
Speed Status
Status
PF753 Rev1.001g, PF753 Block Diagram
Spd Ref Overview
4

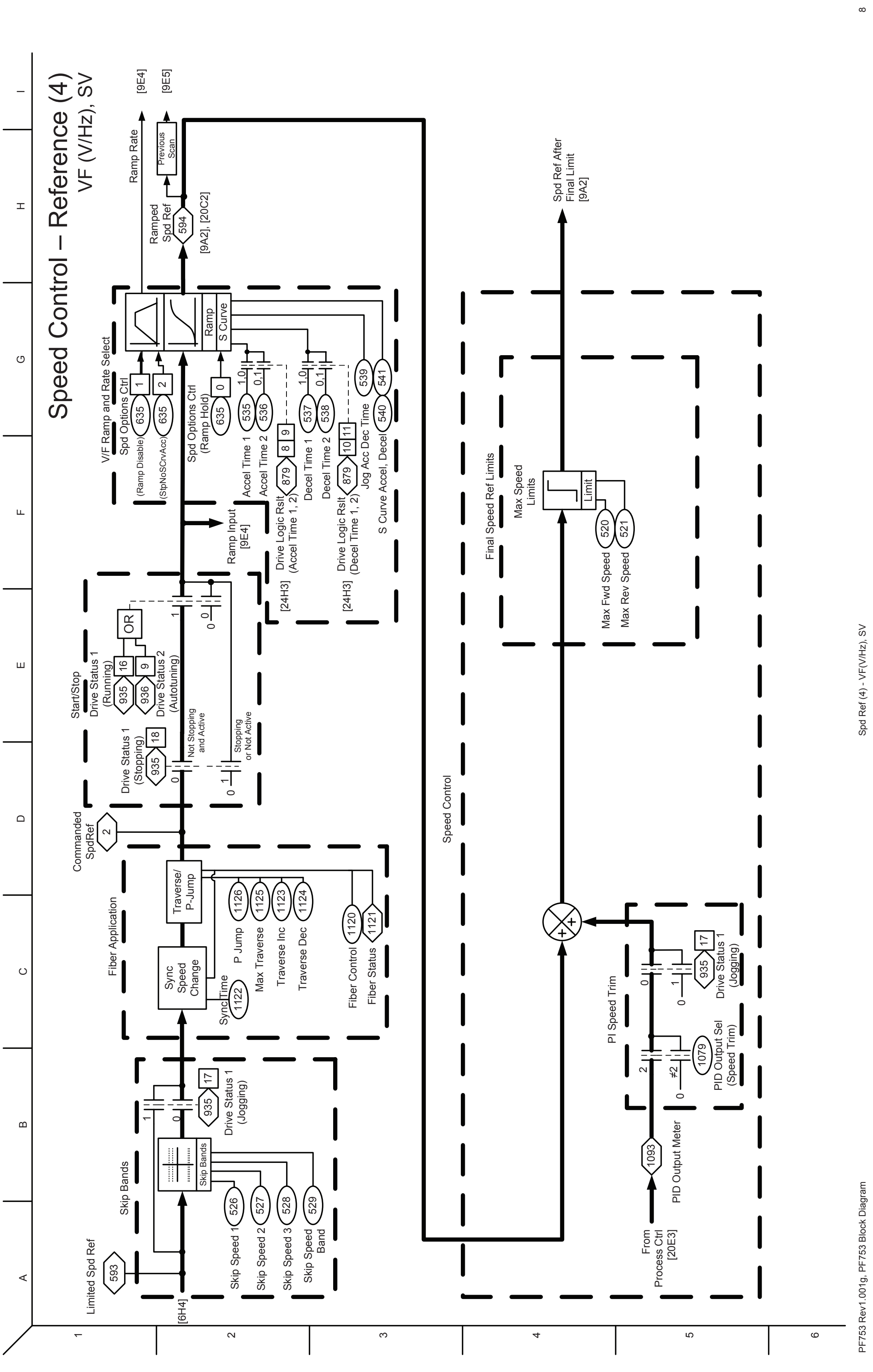


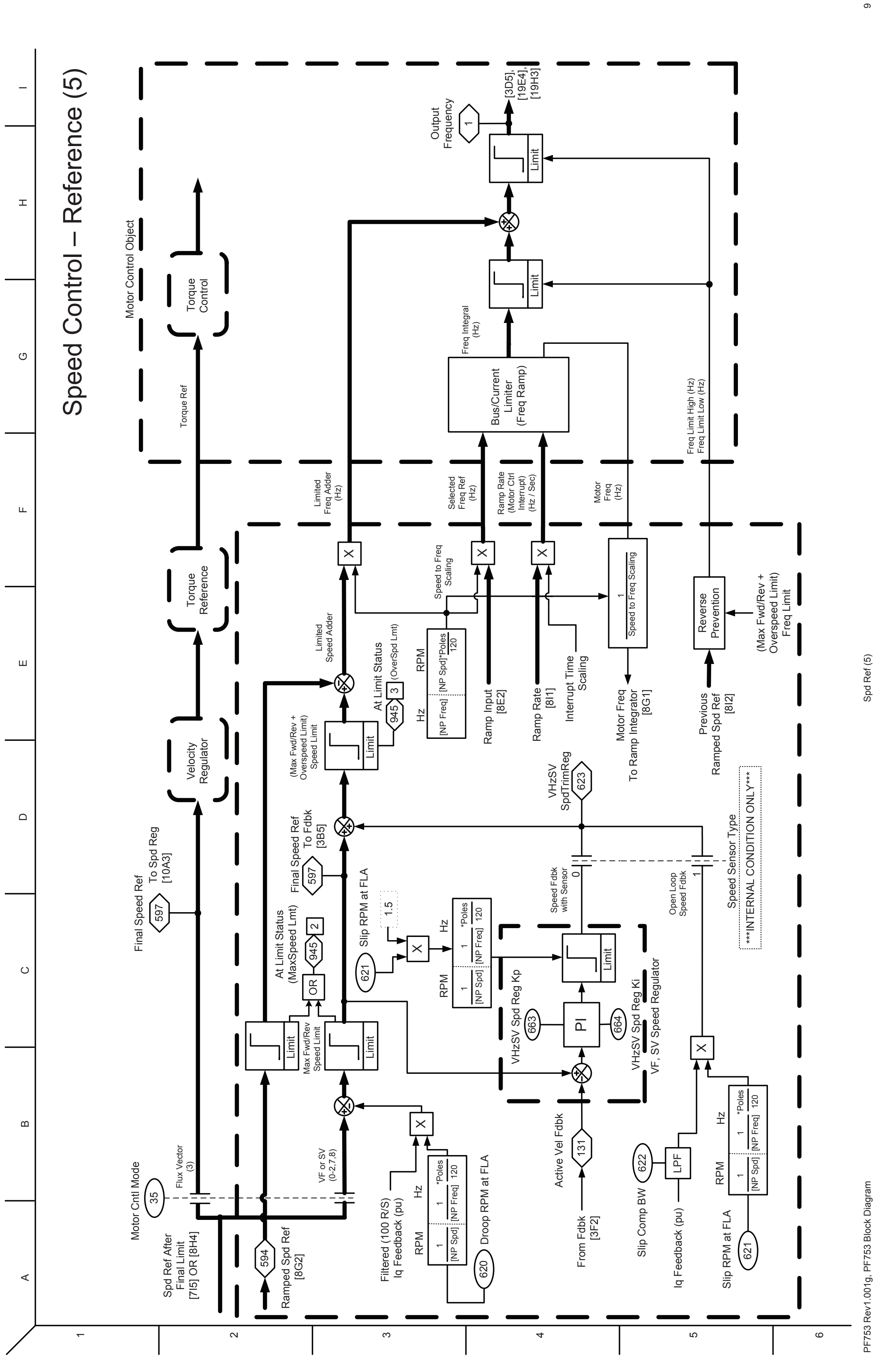
Speed Control – Reference (1)

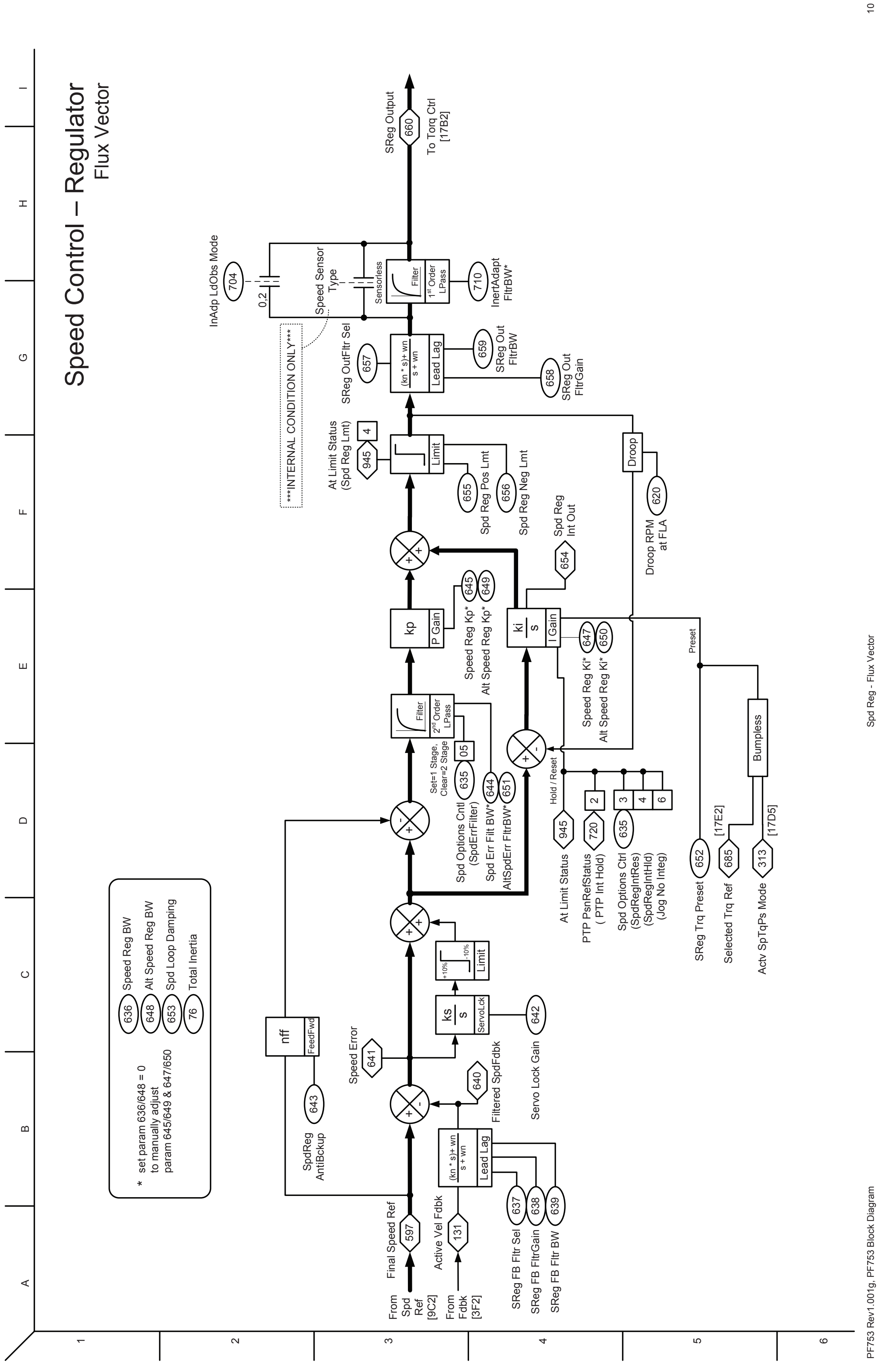

Speed Control – Reference (2)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Position Control – Add Speed Reference Option
[17D5] Actv SpTqPs Mode
313
Position (> 5)
Non-position (<= 5)
From Spd Ref (1) [5I2]
Position Control (Add Spd Ref)
721
10
1
0
Selected Spd Ref
592
PI Speed Exclusive
[20B2] OR [20E2]
PID Output Meter
1093
PID Control
1066
0
PID Enable
Drive Status 1
935
16
Running
1079
Speed Excl
&
PID Output Sel = 1
Jogging
Drive Status 1 (Jogging)
935
17
Jog Speed 1
556
Jog Speed 2
557
1,0
0,1
[24H3] Drive Logic Rslt
879
2
19
Jog1
Jog2
Oil Pump Application
Pump Limit Ref Enable
Pump Limit Reference
Homing
Homing Status (Home Enabled)
730
1
Spd Ref From Homing [14F2]
Direction Mode Control
Direction Mode
308
Bipolar
Rev Disable
Unipolar
1
2
0
X
Max
Foward Command Logic
(+1)
Unipol Fwd
(-1)
Unipol Rev
Autotune Control
Autotune
70
0,1
2, 3, 4
Autotune Control
Travel Limits
Spd Ref Sel Sts (Decel Lmt Sw)
591
13
Spd Ref Sel Sts (End Lmt Sw)
591
14
Preset Speed 1
571
Speed Ref Limits
Min Speed Limits
Max Speed Limits
Limit
Limit
522
523
520
521
Min Fwd Speed
Min Rev Speed
Max Fwd Speed
Max Rev Speed
Limited Spd Ref
593
To Spd Ref, Process Ctrl [7A2], [8A2], [20B2]
Spd Ref (2)
PF753 Rev1.001g, PF753 Block Diagram
9



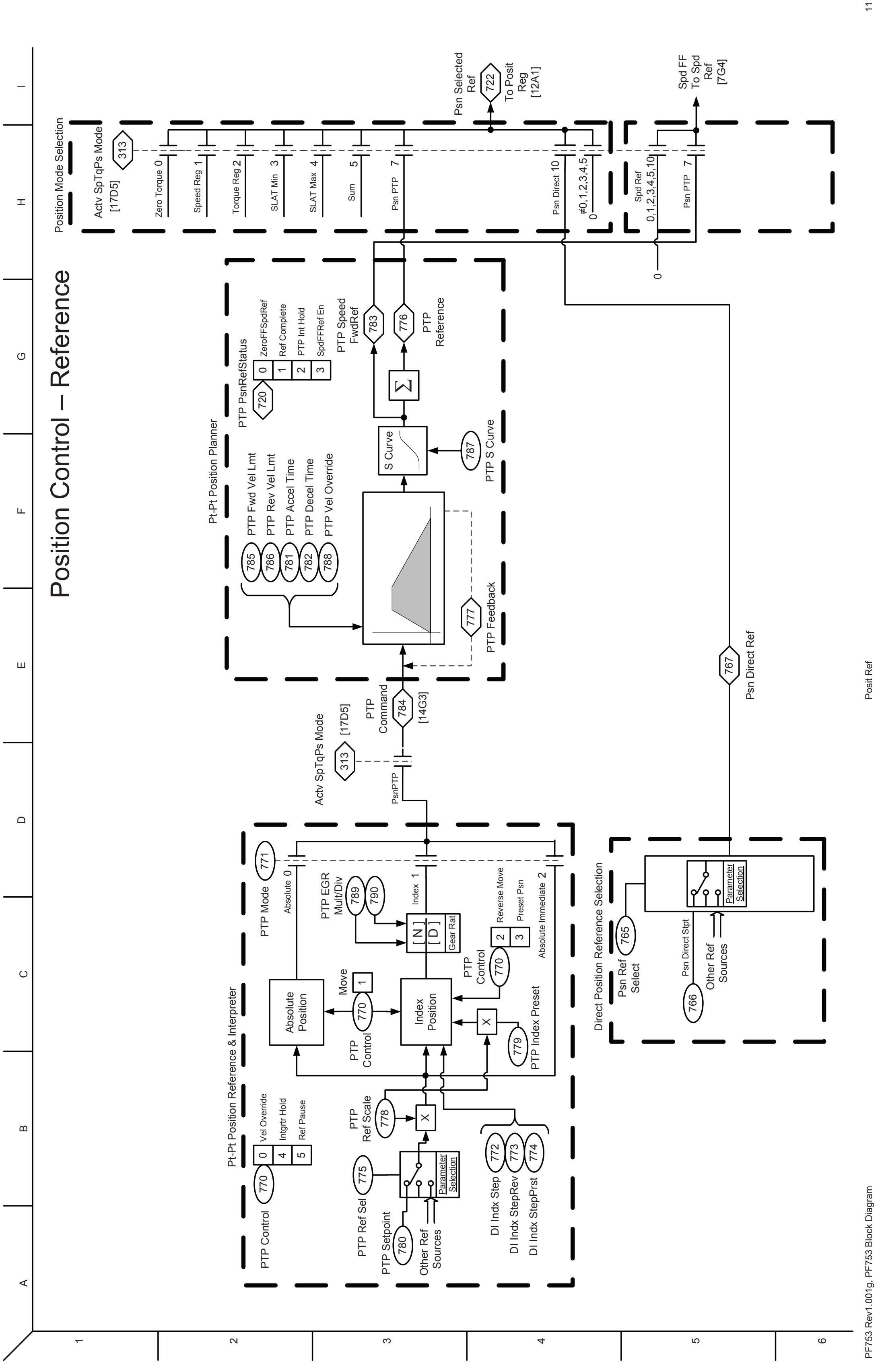
Speed Control – Reference (3)
Flux Vector

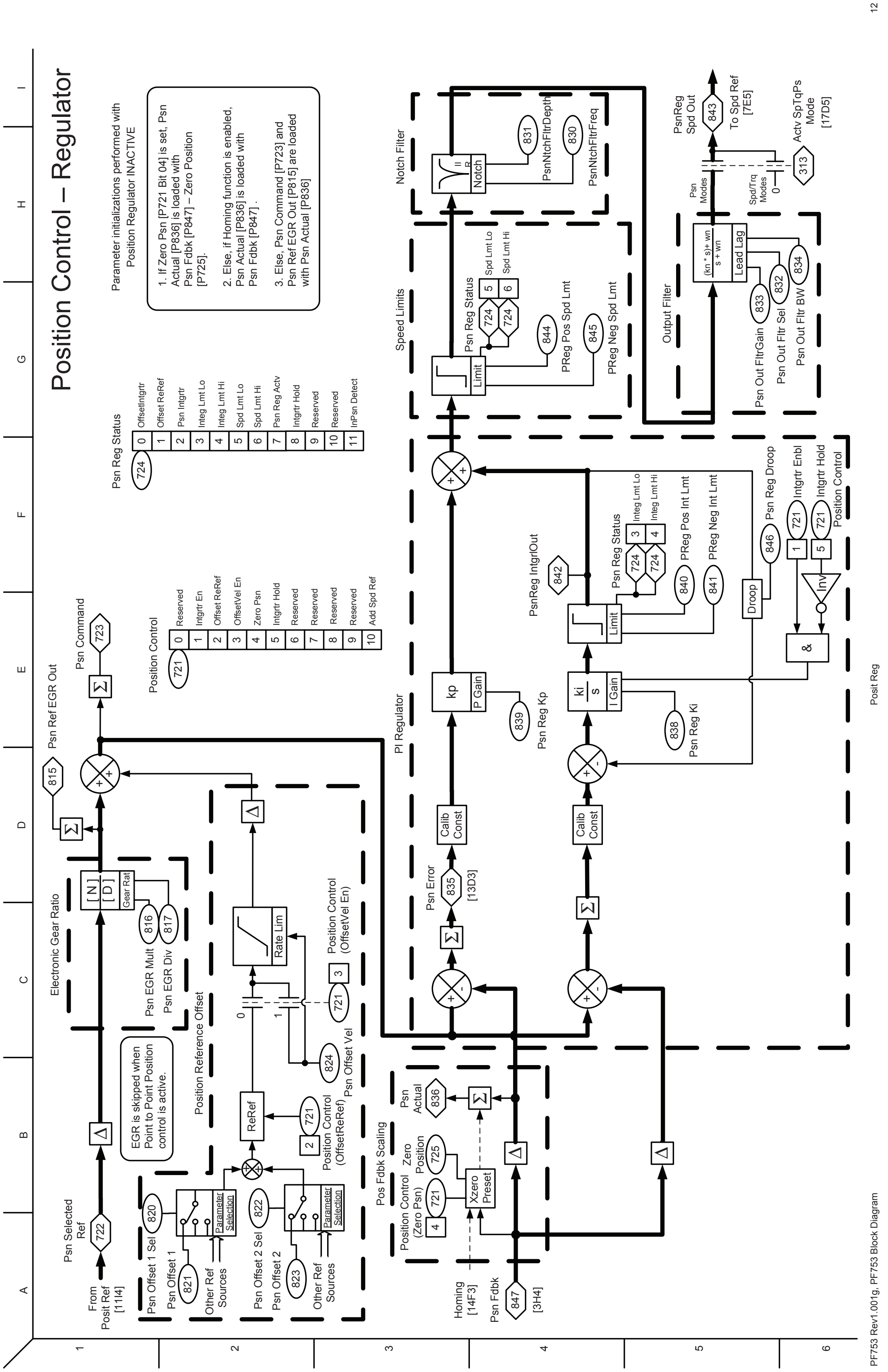

Speed Control – Reference (4)
VF (V/Hz), SV
Limited Spd Ref
593
[6H4]
Skip Bands
Skip Bands
Skip Speed 1 526
Skip Speed 2 527
Skip Speed 3 528
Skip Speed Band 529
935 17
Drive Status 1 (Jogging)
Fiber Application
Sync Speed Change
Sync Time 1122
Traverse/ P-Jump
P Jump 1126
Max Traverse 1125
Traverse Inc 1123
Traverse Dec 1124
Fiber Control 1120
Fiber Status 1121
Commanded SpdRef
2
Start/Stop
Drive Status 1 (Stopping)
935 18
Not Stopping and Active
Stopping or Not Active
Drive Status 1 (Running)
935 16
936 9
Drive Status 2 (Autotuning)
OR
Ramp Input [9E4]
V/F Ramp and Rate Select
Spd Options Ctrl
(Ramp Disable) 635 1
(StpNoSCrvAcc) 635 2
Spd Options Ctrl (Ramp Hold)
635 0
Accel Time 1 535
Accel Time 2 536
Drive Logic Rslt (Accel Time 1, 2)
879 8 9
[24H3]
Decel Time 1 537
Decel Time 2 538
Drive Logic Rslt (Decel Time 1, 2)
879 10 11
[24H3]
Jog Acc Dec Time 539
S Curve Accel, Decel 540 541
1.0
0.1
Ramp
S Curve
Ramp Rate [9E4]
Ramped Spd Ref
594
[9A2], [20C2]
Previous Scan
[9E5]
Speed Control
Final Speed Ref Limits
Max Speed Limits
Limit
Max Fwd Speed 520
Max Rev Speed 521
Spd Ref After Final Limit [9A2]
From Process Ctrl [20E3]
1093
PID Output Meter
PI Speed Trim
PID Output Sel (Speed Trim)
1079
≠2
935 17
Drive Status 1 (Jogging)
+
+
A B C D E F G H I
1 2 3 4 5 6
8
PF753 Rev1.001g, PF753 Block Diagram
Spd Ref (4) - VF(V/Hz), SV


Speed Control – Reference (5)
Motor Control Object
Torque Ref
Torque Control
Torque Reference
Velocity Regulator
Final Speed Ref
597
To Spd Reg
[10A3]
Motor Cntl Mode
35
Flux Vector
(3)
VF or SV
(0-2,7,8)
Spd Ref After
Final Limit
[7I5] OR [8H4]
594
Ramped Spd Ref
[8G2]
Limit
Max Fwd/Rev
Speed Limit
OR
At Limit Status
(MaxSpeed Lmt)
945
2
Final Speed Ref
To Fdbk
[3B5]
597
621
Slip RPM at FLA
1.5
X
RPM
Hz
1
[NP Spd]
1
[NP Freq]
*Poles
120
Filtered (100 R/S)
Iq Feedback (pu)
620
Droop RPM at FLA
(Max Fwd/Rev +
Overspeed Limit)
Speed Limit
At Limit Status
945
3
(OverSpd Lmt)
Limited
Speed Adder
Limited
Freq Adder
(Hz)
Speed to Freq
Scaling
[NP Freq]
[NP Spd]*Poles
120
Selected
Freq Ref
(Hz)
Ramp Input
[8E2]
Ramp Rate
(Motor Ctrl
Interrupt)
(Hz / Sec)
Ramp Rate
[8I1]
Interrupt Time
Scaling
Motor
Freq
(Hz)
1
Speed to Freq Scaling
Motor Freq
To Ramp Integrator
[8G1]
Bus/Current
Limiter
(Freq Ramp)
Freq Integral
(Hz)
Freq Limit High (Hz)
Freq Limit Low (Hz)
Output
Frequency
1
[3D5],
[19E4],
[19H3]
Reverse
Prevention
Previous
Ramped Spd Ref
[8I2]
(Max Fwd/Rev +
Overspeed Limit)
Freq Limit
VHzSV
SpdTrimReg
623
Speed Fdbk
with Sensor
0
1
Open Loop
Speed Fdbk
Speed Sensor Type
INTERNAL CONDITION ONLY
VHzSV Spd Reg Kp
663
PI
664
VHzSV Spd Reg Ki
VF, SV Speed Regulator
Active Vel Fdbk
131
From Fdbk
[3F2]
Slip Comp BW
622
LPF
Iq Feedback (pu)
Slip RPM at FLA
621
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Spd Ref (5)
PF753 Rev1.001g, PF753 Block Diagram

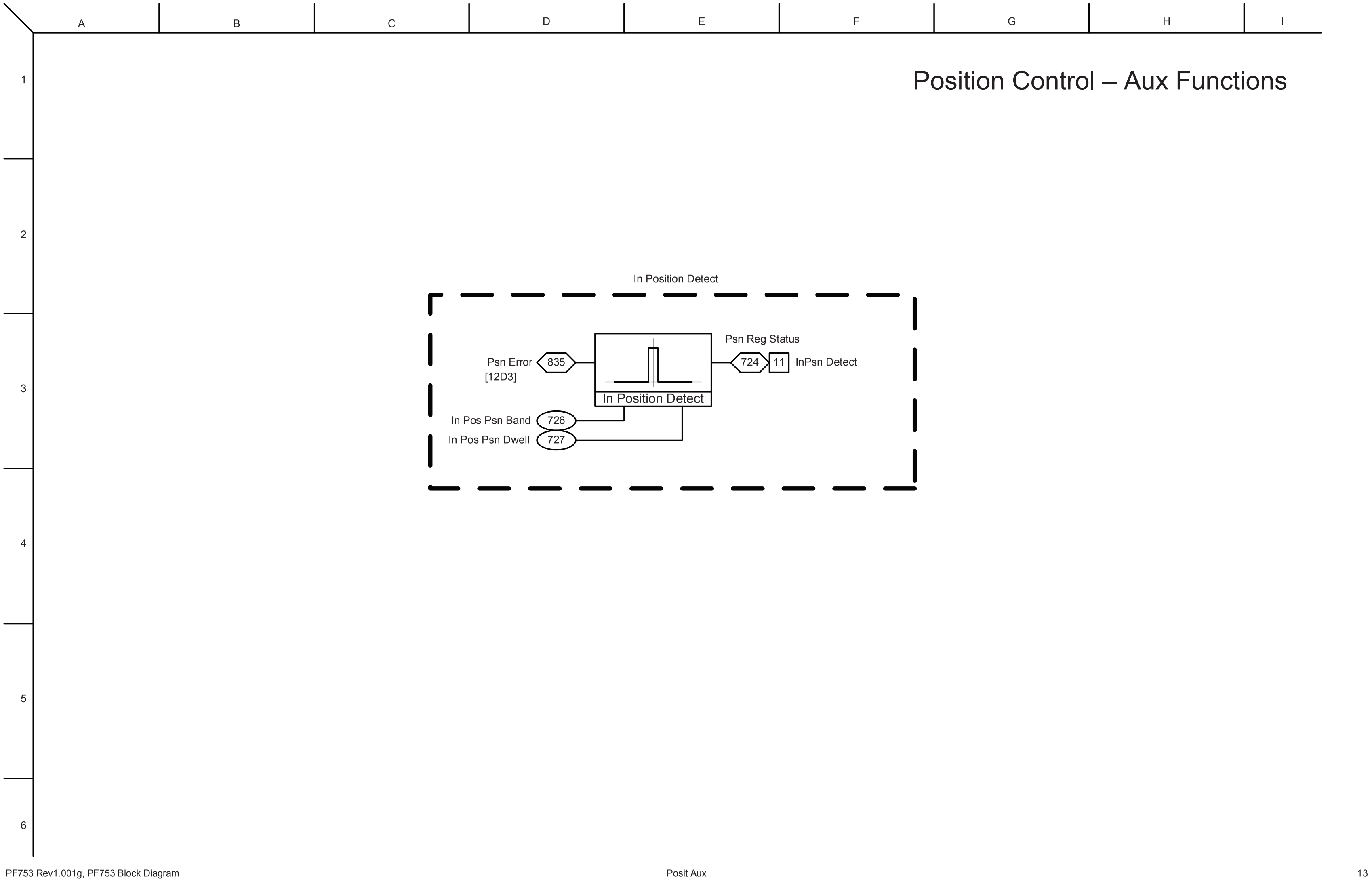

Speed Control – Regulator
Flux Vector
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
10
* set param 636/648 = 0
to manually adjust
param 645/649 & 647/650
636 Speed Reg BW
648 Alt Speed Reg BW
653 Spd Loop Damping
76 Total Inertia
From Spd Ref [9C2]
Final Speed Ref
597
From Fdbk [3F2]
Active Vel Fdbk
131
(kn * s)+ wn / s + wn
Lead Lag
SReg FB Fltr Sel 637
SReg FB FltrGain 638
SReg FB Fltr BW 639
640 Filtered SpdFdbk
641 Speed Error
SpdReg AntiBckup
643
nff
FeedFwd
ks / s
ServoLck
642 Servo Lock Gain
+10%
-10%
Limit
Spd Options Cntl (SpdErrFilter) 635
05
Set=1 Stage, Clear=2 Stage
Spd Err Filt BW* 644
AltSpdErr FltrBW* 651
Filter
2nd Order LPass
kp
P Gain
Speed Reg Kp* 645
Alt Speed Reg Kp* 649
ki / s
I Gain
Speed Reg Ki* 647
Alt Speed Reg Ki* 650
Hold / Reset
At Limit Status 945
PTP PsnRefStatus (PTP Int Hold) 720
2
Spd Options Ctrl (SpdRegIntRes) (SpdRegIntHld) (Jog No Integ) 635
3
4
6
SReg Trq Preset 652
Selected Trq Ref 685 [17E2]
Actv SpTqPs Mode 313 [17D5]
Bumpless
Preset
654 Spd Reg Int Out
Limit
655 Spd Reg Pos Lmt
656 Spd Reg Neg Lmt
At Limit Status (Spd Reg Lmt) 945
4
Droop
620 Droop RPM at FLA
SReg OutFltr Sel 657
(kn * s)+ wn / s + wn
Lead Lag
659 SReg Out FltrBW
658 SReg Out FltrGain
INTERNAL CONDITION ONLY
InAdp LdObs Mode 704
0.2
Speed Sensor Type
Sensorless
Filter
1st Order LPass
710 InertAdapt FltrBW*
SReg Output 660
To Torq Ctrl [17B2]
+
-
Spd Reg - Flux Vector
PF753 Rev1.001g, PF753 Block Diagram

Position Control – Reference

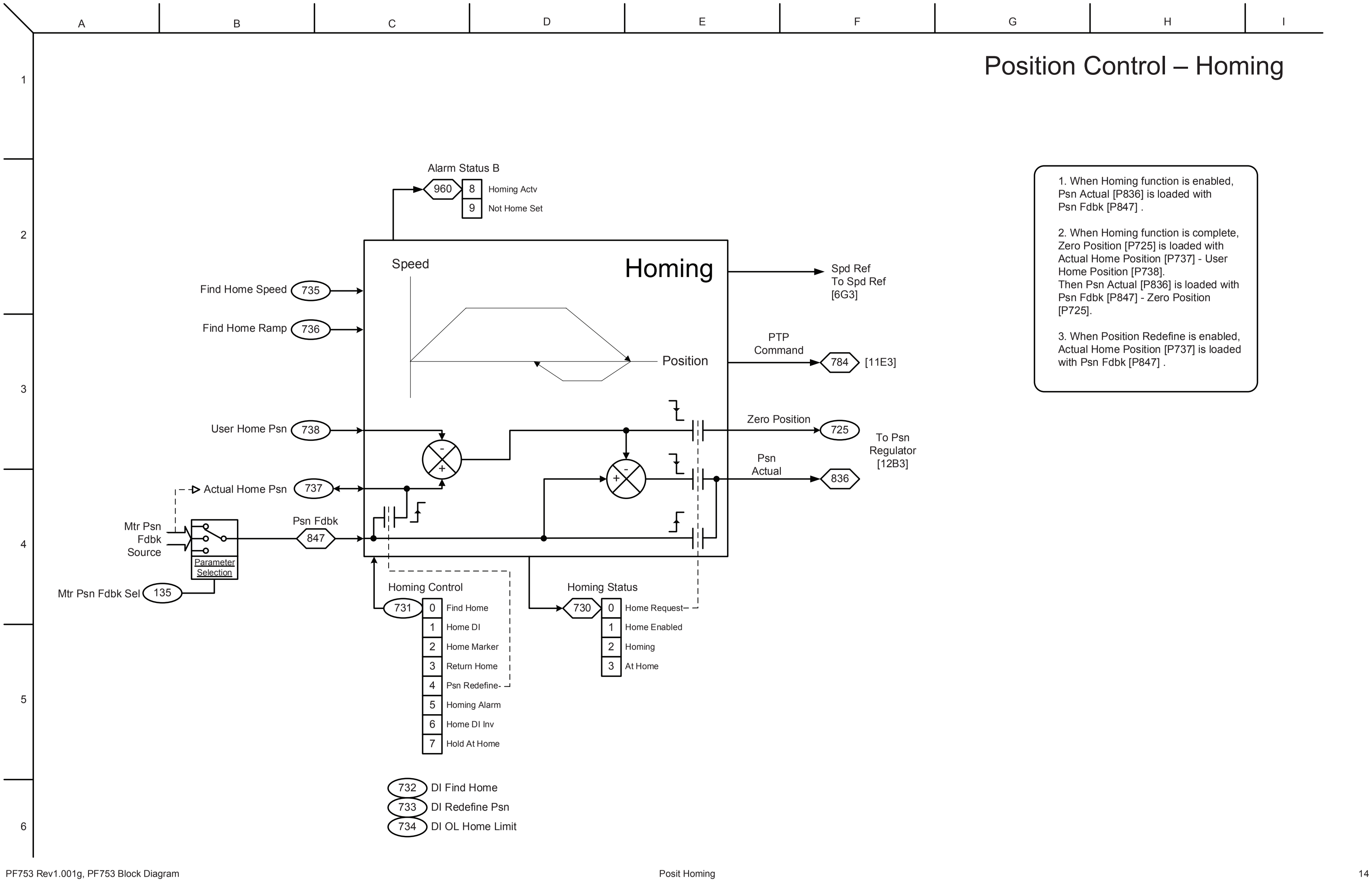



Position Control – Regulator
Parameter initializations performed with Position Regulator INACTIVE
1. If Zero Psn [P721 Bit 04] is set, Psn Actual [P836] is loaded with Psn Fdbk [P847] – Zero Position [P725].
2. Else, if Homing function is enabled, Psn Actual [P836] is loaded with Psn Fdbk [P847] .
3. Else, Psn Command [P723] and Psn Ref EGR Out [P815] are loaded with Psn Actual [P836]
Psn Reg Status
724
0 OffsetIntgrtr
1 Offset ReRef
2 Psn Intgrtr
3 Integ Lmt Lo
4 Integ Lmt Hi
5 Spd Lmt Lo
6 Spd Lmt Hi
7 Psn Reg Actv
8 Intgrtr Hold
9 Reserved
10 Reserved
11 InPsn Detect
Position Control
721
0 Reserved
1 Intgrtr En
2 Offset ReRef
3 OffsetVel En
4 Zero Psn
5 Intgrtr Hold
6 Reserved
7 Reserved
8 Reserved
9 Reserved
10 Add Spd Ref
Psn Command
723
Psn Ref EGR Out
815
Electronic Gear Ratio
[N]
[D]
Gear Rat
816
817
Psn EGR Mult
Psn EGR Div
EGR is skipped when Point to Point Position control is active.
From Posit Ref [11I4]
Psn Selected Ref
722
Psn Offset 1 Sel
820
Psn Offset 1
821
Other Ref Sources
Parameter Selection
Psn Offset 2 Sel
822
Psn Offset 2
823
Other Ref Sources
Parameter Selection
Position Reference Offset
ReRef
2
721
Position Control (OffsetReRef)
Rate Lim
0
1
721
3
Position Control (OffsetVel En)
824
Psn Offset Vel
Pos Fdbk Scaling
Position Control (Zero Psn)
4
721
Zero Position
725
Xzero Preset
Psn Actual
836
Homing [14F3]
Psn Fdbk
847
[3H4]
Psn Error
835
[13D3]
Calib Const
kp
P Gain
839
Psn Reg Kp
PI Regulator
Calib Const
ki/s
I Gain
838
Psn Reg Ki
Limit
PsnReg IntgrlOut
842
Psn Reg Status
724
3 Integ Lmt Lo
724
4 Integ Lmt Hi
840
PReg Pos Int Lmt
841
PReg Neg Int Lmt
Droop
846
Psn Reg Droop
721
1
Intgrtr Enbl
721
5
Intgrtr Hold
Position Control
Inv
&
Speed Limits
Limit
Psn Reg Status
724
5 Spd Lmt Lo
724
6 Spd Lmt Hi
844
PReg Pos Spd Lmt
845
PReg Neg Spd Lmt
Notch Filter
Notch
831
PsnNtchFltrDepth
830
PsnNtchFltrFreq
Output Filter
(kn * s)+ wn / s + wn
Lead Lag
833
Psn Out FltrGain
832
Psn Out Fltr Sel
834
Psn Out Fltr BW
Psn Modes
Spd/Trq Modes
0
313
Actv SpTqPs Mode [17D5]
843
PsnReg Spd Out
To Spd Ref [7E5]
Posit Reg
12
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
PF753 Rev1.001g, PF753 Block Diagram

Position Control – Aux Functions



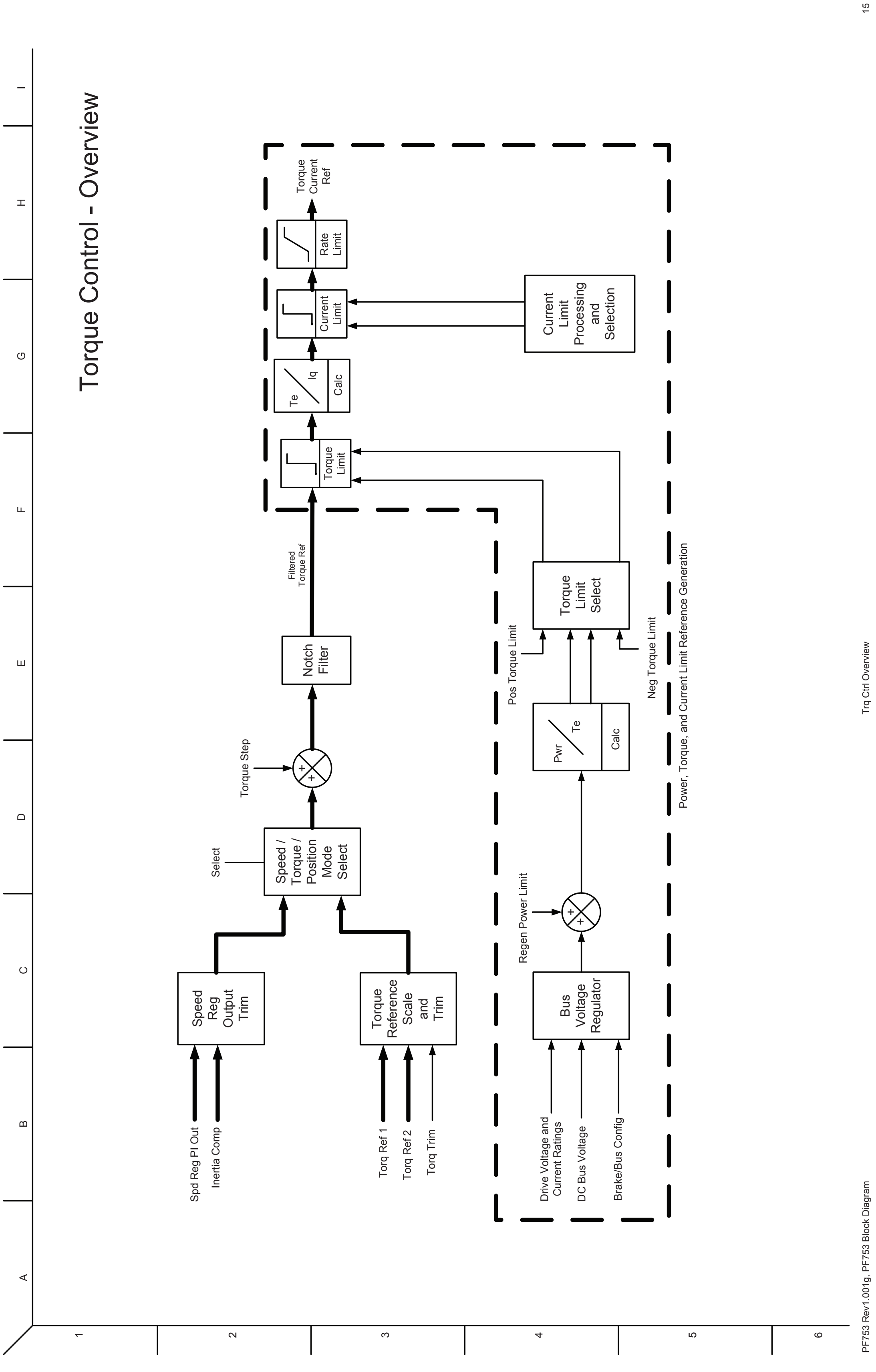
Position Control – Homing

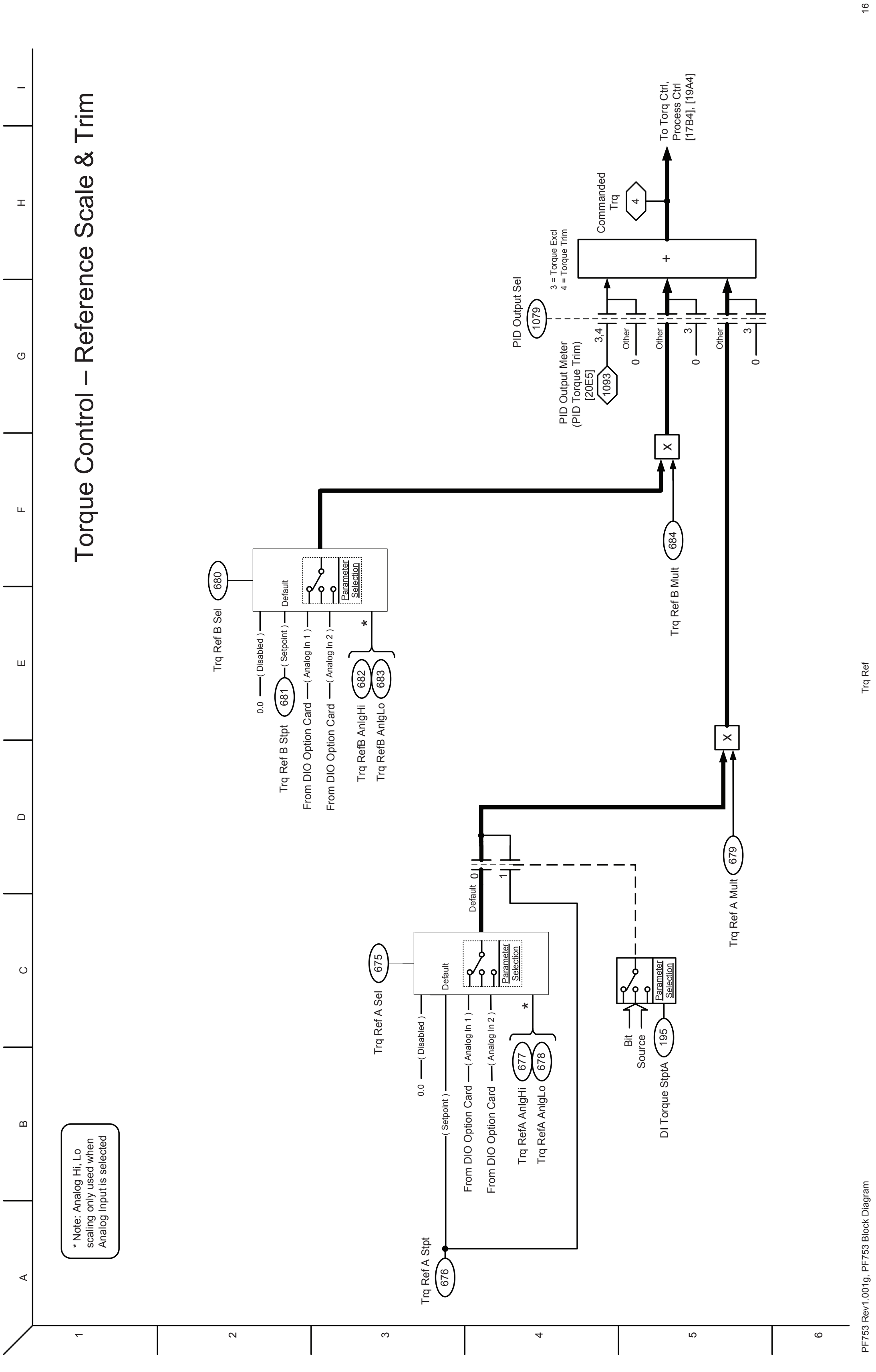


1. When Homing function is enabled, Psn Actual [P836] is loaded with Psn Fdbk [P847] .

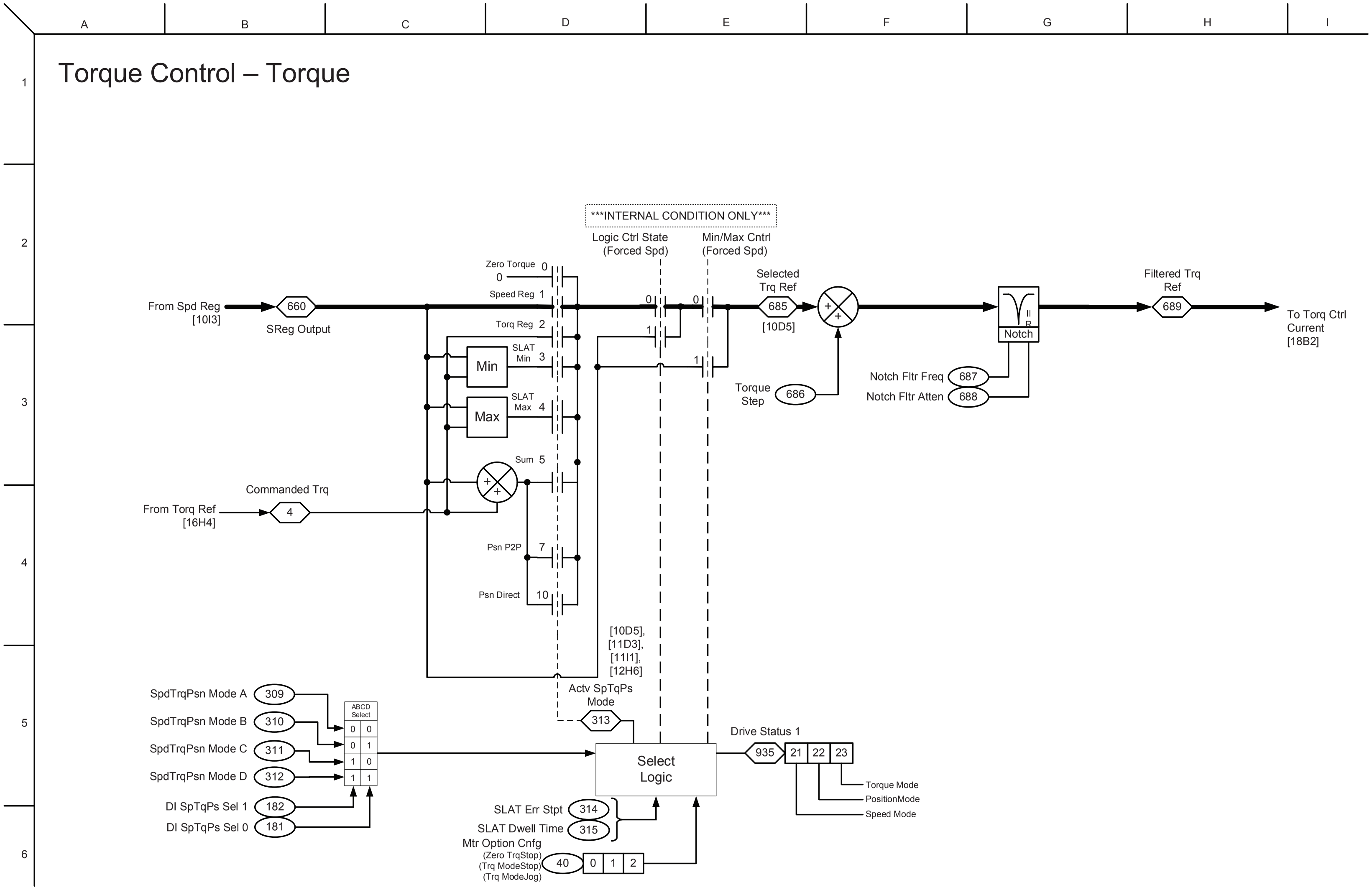
2. When Homing function is complete, Zero Position [P725] is loaded with Actual Home Position [P737] - User Home Position [P738].
Then Psn Actual [P836] is loaded with Psn Fdbk [P847] - Zero Position [P725].

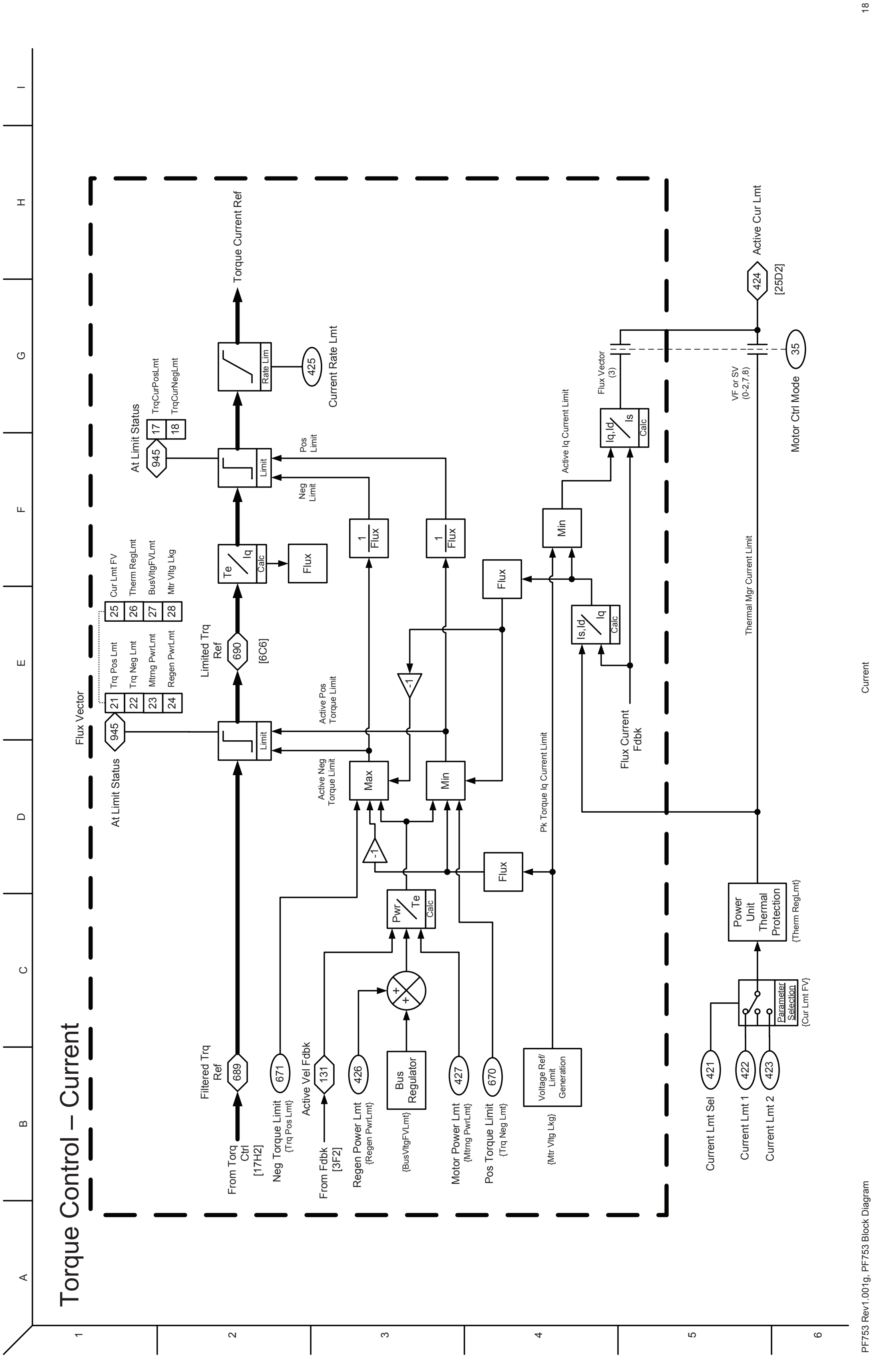
3. When Position Redefine is enabled, Actual Home Position [P737] is loaded with Psn Fdbk [P847] .

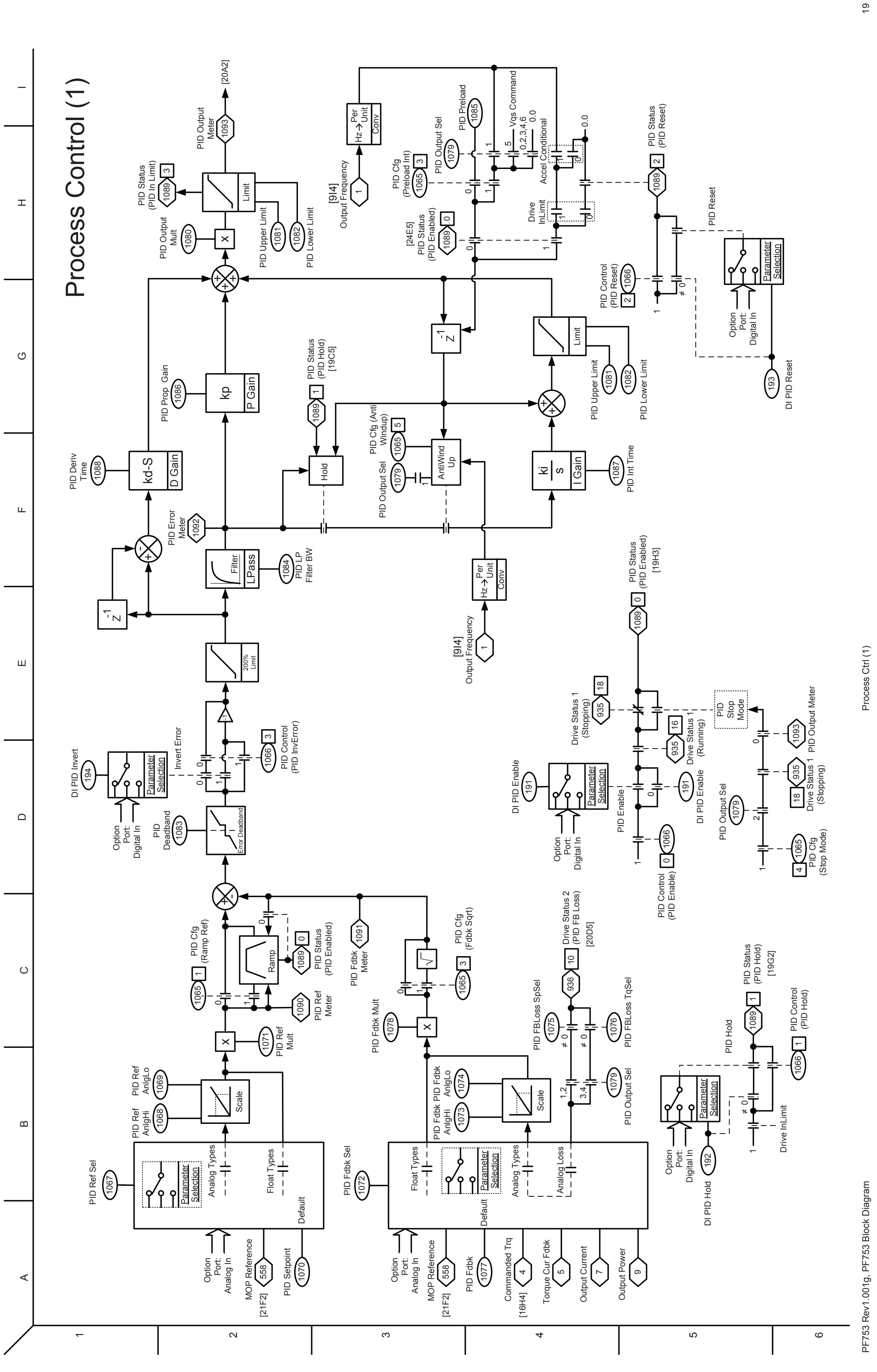

Torque Control - Overview
Spd Reg PI Out
Inertia Comp
Speed Reg Output Trim
Torq Ref 1
Torq Ref 2
Torq Trim
Torque Reference Scale and Trim
Select
Speed / Torque / Position Mode Select
Torque Step
+
+
Notch Filter
Filtered Torque Ref
Torque Limit
Te
Iq
Calc
Current Limit
Rate Limit
Torque Current Ref
Current Limit Processing and Selection
Drive Voltage and Current Ratings
DC Bus Voltage
Brake/Bus Config
Bus Voltage Regulator
Regen Power Limit
+
+
Pwr
Te
Calc
Pos Torque Limit
Torque Limit Select
Neg Torque Limit
Power, Torque, and Current Limit Reference Generation
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
15
Trq Ctrl Overview
PF753 Rev1.001g, PF753 Block Diagram


Torque Control – Reference Scale & Trim
* Note: Analog Hi, Lo scaling only used when Analog Input is selected
Trq Ref A Stpt
676
Trq Ref A Sel
675
0.0
(Disabled)
(Setpoint)
From DIO Option Card
(Analog In 1)
From DIO Option Card
(Analog In 2)
Trq RefA AnlgHi
677
Trq RefA AnlgLo
678
*
Default
Parameter Selection
Default
0
1
Bit
Source
DI Torque StptA
195
Parameter Selection
Trq Ref A Mult
679
X
Trq Ref B Sel
680
0.0
(Disabled)
Trq Ref B Stpt
681
(Setpoint)
From DIO Option Card
(Analog In 1)
From DIO Option Card
(Analog In 2)
Trq RefB AnlgHi
682
Trq RefB AnlgLo
683
*
Default
Parameter Selection
Trq Ref B Mult
684
X
Trq Ref
PID Output Sel
1079
3 = Torque Excl
4 = Torque Trim
PID Output Meter
(PID Torque Trim)
[20E5]
1093
3,4
Other
0
Other
3
0
Other
3
0
+
Commanded Trq
4
To Torq Ctrl, Process Ctrl
[17B4], [19A4]
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
16
PF753 Rev1.001g, PF753 Block Diagram

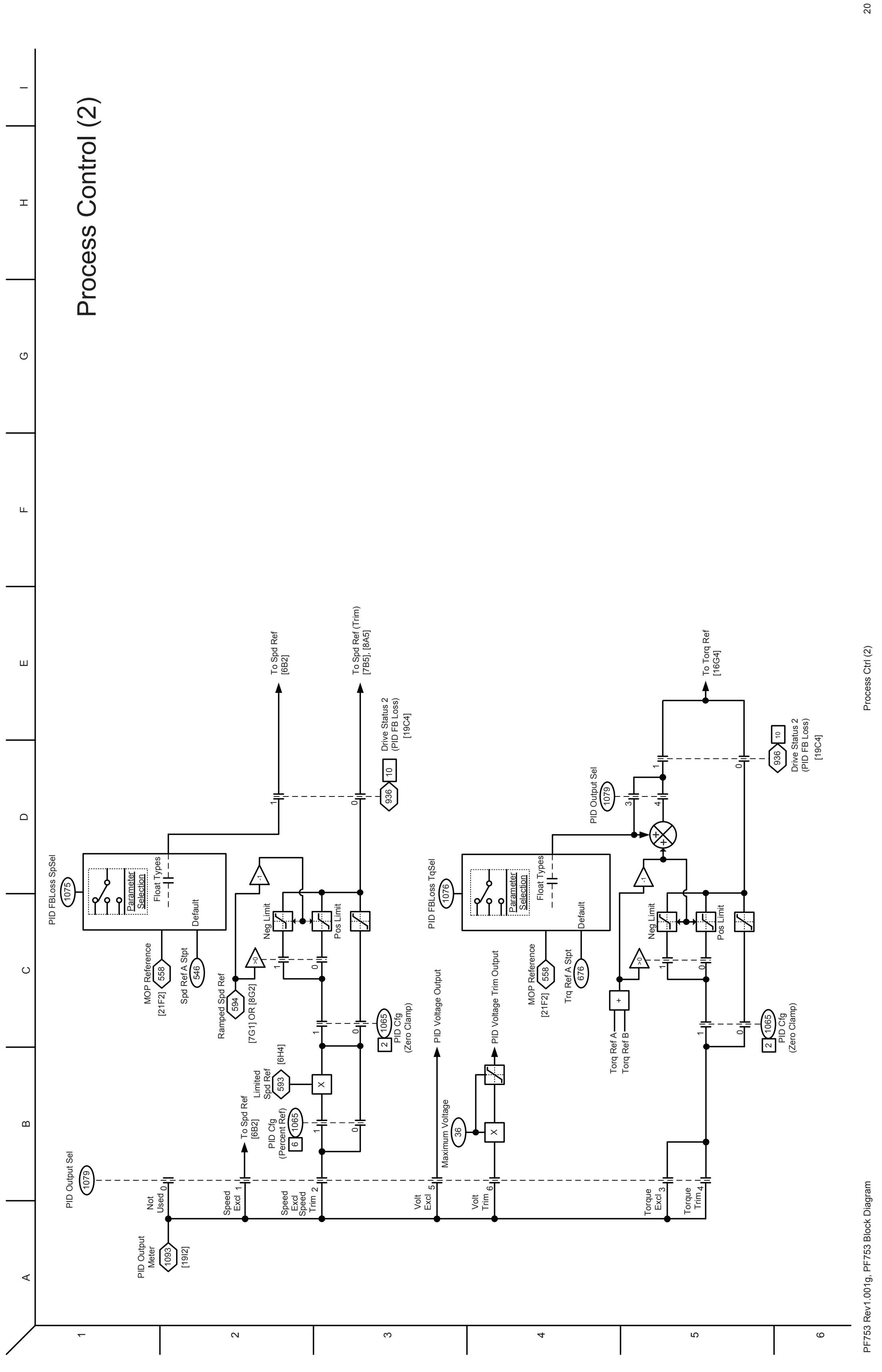
Torque Control – Torque

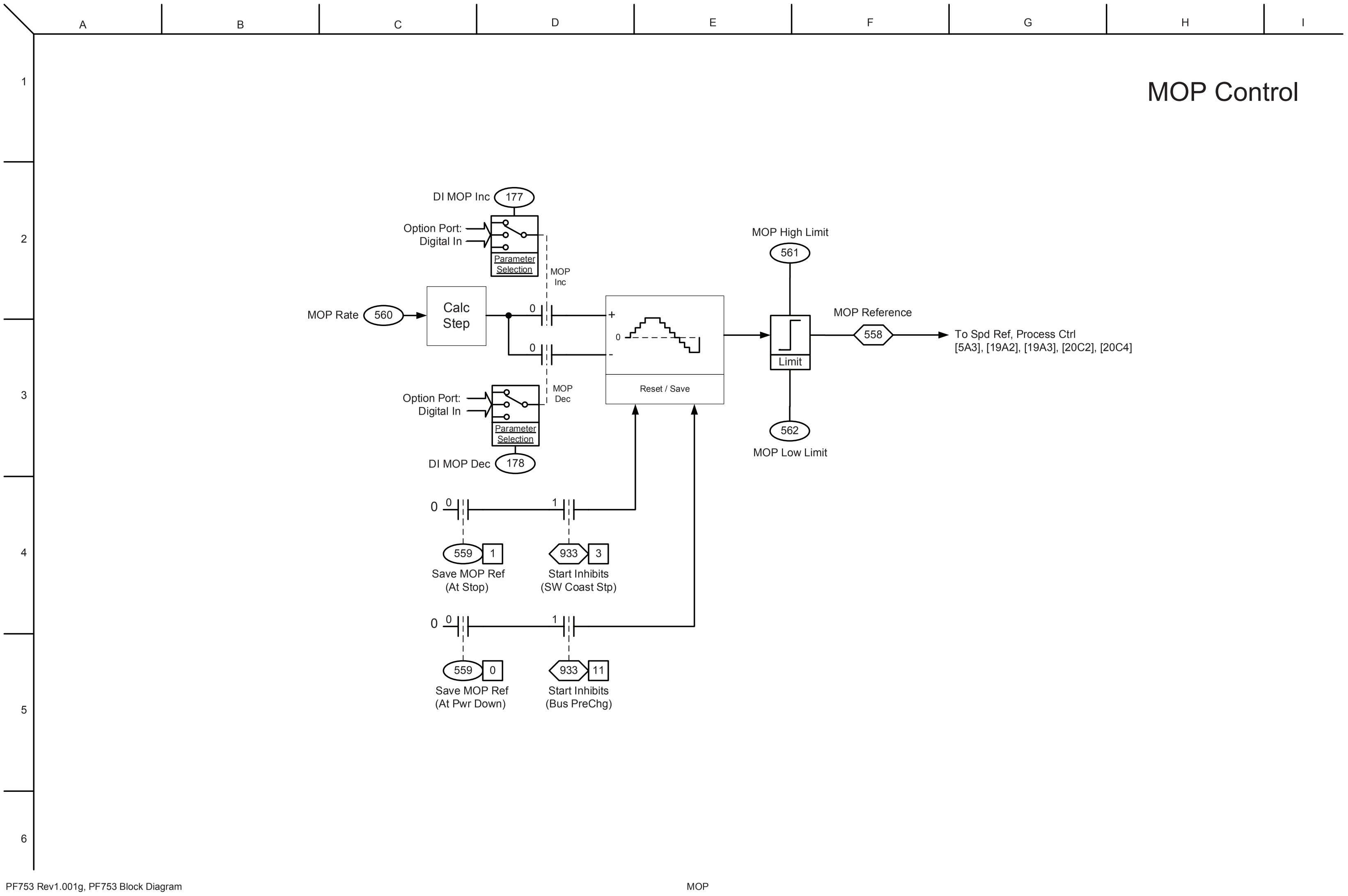


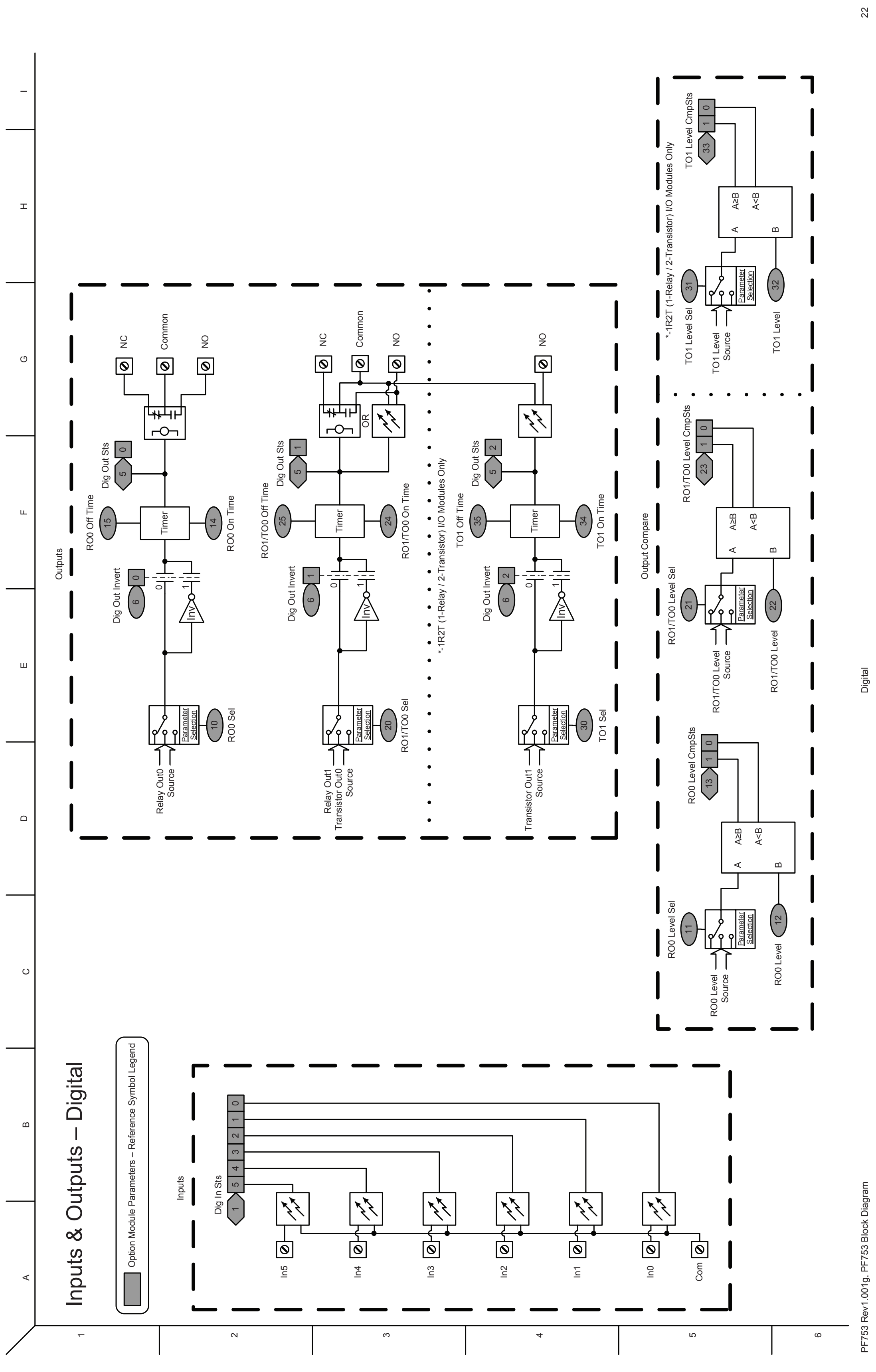

Torque Control – Current
From Torq Ctrl [17H2]
Filtered Trq Ref
689
Neg Torque Limit {Trq Pos Lmt}
671
From Fdbk [3F2]
Active Vel Fdbk
131
Regen Power Lmt {Regen PwrLmt}
426
{BusVltgFVLmt}
Bus Regulator
Motor Power Lmt {Mtrng PwrLmt}
427
Pos Torque Limit {Trq Neg Lmt}
670
{Mtr Vltg Lkg}
Voltage Ref/ Limit Generation
Pwr / Te Calc
-1
Max
Min
Flux
Active Neg Torque Limit
Active Pos Torque Limit
Limit
At Limit Status
945
Flux Vector
21 Trq Pos Lmt
22 Trq Neg Lmt
23 Mtrng PwrLmt
24 Regen PwrLmt
25 Cur Lmt FV
26 Therm RegLmt
27 BusVltgFVLmt
28 Mtr Vltg Lkg
Limited Trq Ref
690
[6C6]
Te / Iq Calc
Flux
1 / Flux
Neg Limit
Pos Limit
Limit
At Limit Status
945
17 TrqCurPosLmt
18 TrqCurNegLmt
Rate Lim
425
Current Rate Lmt
Torque Current Ref
Pk Torque Iq Current Limit
Is,Id / Iq Calc
Flux Current Fdbk
Min
Active Iq Current Limit
Iq,Id / Is Calc
Flux Vector (3)
Thermal Mgr Current Limit
VF or SV (0-2,7,8)
35
Motor Ctrl Mode
424
[25D2]
Active Cur Lmt
Current Lmt Sel
421
Current Lmt 1
422
Current Lmt 2
423
Parameter Selection {Cur Lmt FV}
Power Unit Thermal Protection {Therm RegLmt}
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
PF753 Rev1.001g, PF753 Block Diagram
Current
18


Process Control (1)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
19
Process Ctrl (1)
PF753 Rev1.001g, PF753 Block Diagram
PID Ref Sel
1067
Parameter Selection
Analog Types
Float Types
Default
Option Port: Analog In
MOP Reference
558
[21F2]
PID Setpoint
1070
PID Ref AnlgHi
1068
PID Ref AnlgLo
1069
Scale
PID Ref Mult
1071
PID Cfg (Ramp Ref)
1065
1
Ramp
PID Status (PID Enabled)
1089
0
PID Ref Meter
1090
PID Fdbk Sel
1072
Option Port: Analog In
MOP Reference
558
[21F2]
PID Fdbk
1077
Commanded Trq
4
[16H4]
Torque Cur Fdbk
5
Output Current
7
Output Power
9
PID Fdbk AnlgHi
1073
PID Fdbk AnlgLo
1074
Analog Loss
PID Fdbk Mult
1078
PID Cfg (Fdbk Sqrt)
1065
3
PID Fdbk Meter
1091
PID FBLoss SpSel
1075
PID FBLoss TqSel
1076
PID Output Sel
1079
1,2
3,4
≠ 0
Drive Status 2 (PID FB Loss)
936
10
[20D5]
DI PID Hold
192
Option Port: Digital In
Drive InLimit
PID Hold
1089
1
PID Control (PID Hold)
1066
1
PID Status (PID Hold)
[19G2]
PID Deadband
1083
Error Deadband
DI PID Invert
194
Option Port: Digital In
Invert Error
PID Control (PID InvError)
1066
3
200% Limit
Z-1
PID Error Meter
1092
Filter
LPass
PID LP Filter BW
1084
DI PID Enable
191
PID Enable
PID Control (PID Enable)
1066
0
Drive Status 1 (Stopping)
935
18
Drive Status 1 (Running)
935
16
PID Stop Mode
PID Cfg (Stop Mode)
1065
4
PID Output Meter
1093
PID Status (PID Enabled)
1089
0
[19H3]
Output Frequency
1
[9I4]
Per Unit Conv
Hz→
PID Deriv Time
1088
kd-S
D Gain
PID Prop Gain
1086
kp
P Gain
PID Status (PID Hold)
1089
1
[19C5]
Hold
PID Cfg (Anti Windup)
1065
5
AntiWind Up
PID Output Sel
1079
ki/s
I Gain
PID Int Time
1087
Limit
PID Upper Limit
1081
PID Lower Limit
1082
PID Output Mult
1080
PID Status (PID In Limit)
1089
3
PID Output Meter
1093
[20A2]
PID Status (PID Enabled)
1089
0
[24E5]
PID Cfg (Preload Int)
1065
3
PID Output Sel
1079
PID Preload
1085
Vqs Command
0,2,3,4,6
0.0
Accel Conditional
Drive InLimit
PID Control (PID Reset)
1066
2
PID Reset
DI PID Reset
193
Option Port: Digital In
PID Status (PID Reset)
1089
2

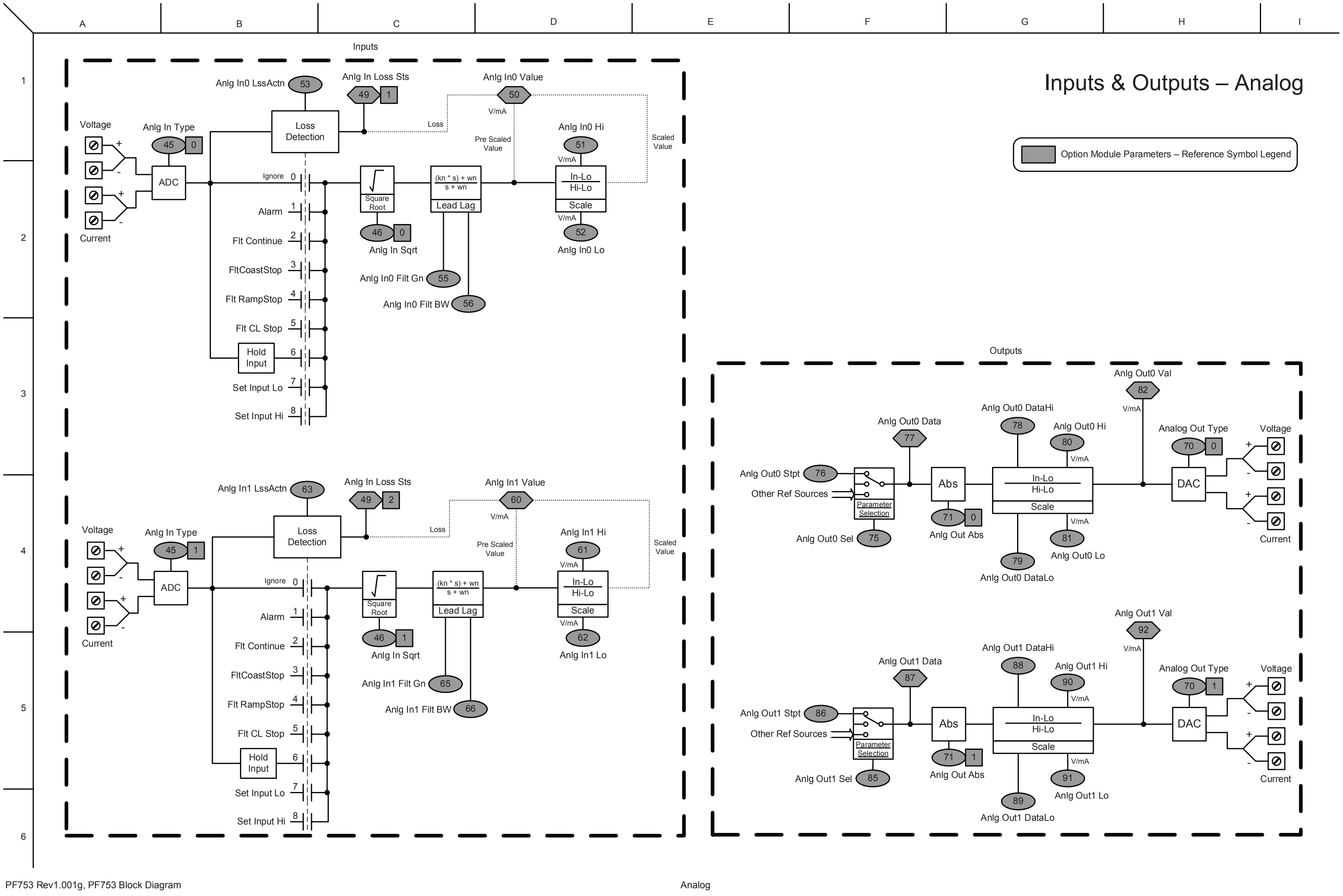
]


Process Control (2)
20
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
PID Output Meter
1093
[19I2]
PID Output Sel
1079
Not Used 0
Speed Excl 1
Speed Excl Speed Trim 2
Volt Excl 5
Volt Trim 6
Torque Excl 3
Torque Trim 4
To Spd Ref [6B2]
PID Cfg (Percent Ref)
6
1065
Limited Spd Ref
593
[6H4]
X
1
0
Ramped Spd Ref
594
[7G1] OR [8G2]
2
1065
PID Cfg (Zero Clamp)
>0
-1
Neg Limit
Pos Limit
PID FBLoss SpSel
1075
MOP Reference
558
[21F2]
Spd Ref A Stpt
546
Parameter Selection
Float Types
Default
936
10
Drive Status 2 (PID FB Loss) [19C4]
To Spd Ref [6B2]
To Spd Ref (Trim) [7B5], [8A5]
Maximum Voltage
36
PID Voltage Output
PID Voltage Trim Output
PID FBLoss TqSel
1076
Trq Ref A Stpt
676
Torq Ref A
Torq Ref B
+
3
4
To Torq Ref [16G4]
Process Ctrl (2)
PF753 Rev1.001g, PF753 Block Diagram


A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
MOP Control
DI MOP Inc
177
Option Port:
Digital In
Parameter Selection
MOP Inc
MOP Rate
560
Calc Step
0
0
+
0
-
Reset / Save
MOP Dec
Option Port:
Digital In
Parameter Selection
DI MOP Dec
178
MOP High Limit
561
Limit
562
MOP Low Limit
MOP Reference
558
To Spd Ref, Process Ctrl
[5A3], [19A2], [19A3], [20C2], [20C4]
0
0
1
559
1
Save MOP Ref
(At Stop)
933
3
Start Inhibits
(SW Coast Stp)
0
0
1
559
0
Save MOP Ref
(At Pwr Down)
933
11
Start Inhibits
(Bus PreChg)
PF753 Rev1.001g, PF753 Block Diagram
MOP
21

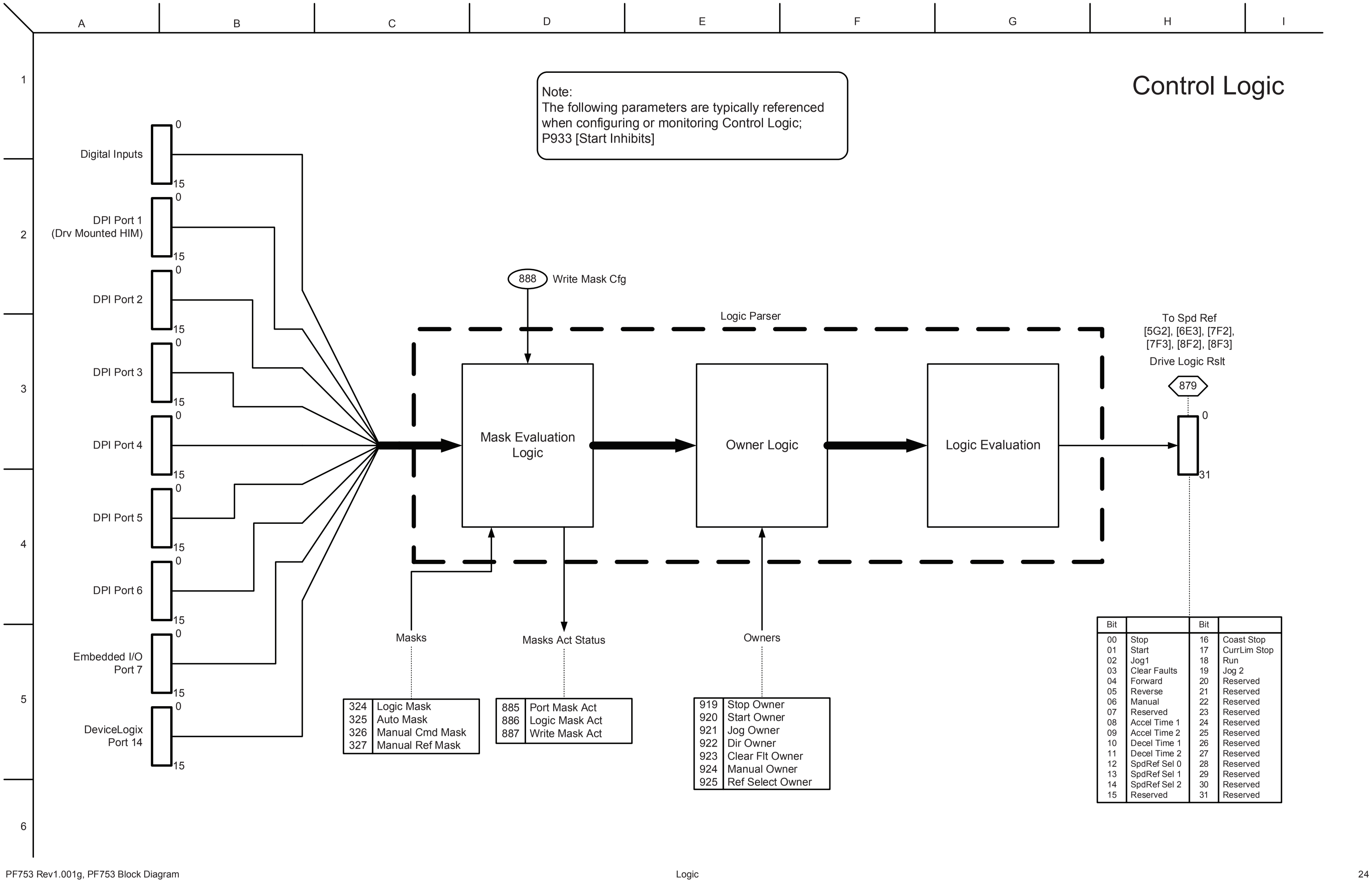

Inputs & Outputs – Digital
Option Module Parameters – Reference Symbol Legend
Inputs
Dig In Sts
1
5 4 3 2 1 0
In5
In4
In3
In2
In1
In0
Com
Outputs
Dig Out Invert
Dig Out Sts
RO0 Off Time
RO0 On Time
Timer
Inv
Relay Out0 Source
RO0 Sel
Parameter Selection
NC
Common
NO
RO1/TO0 Off Time
RO1/TO0 On Time
Relay Out1 Transistor Out0 Source
RO1/TO0 Sel
OR
*-1R2T (1-Relay / 2-Transistor) I/O Modules Only
TO1 Off Time
TO1 On Time
Transistor Out1 Source
TO1 Sel
Output Compare
RO0 Level Sel
RO0 Level Source
RO0 Level
RO0 Level CmpSts
A
B
A≥B
A<B
RO1/TO0 Level Sel
RO1/TO0 Level Source
RO1/TO0 Level
RO1/TO0 Level CmpSts
TO1 Level Sel
TO1 Level Source
TO1 Level
TO1 Level CmpSts
5
6
10
11
12
13
14
15
20
21
22
23
24
25
30
31
32
33
34
35
Digital
22
A B C D E F G H I
1 2 3 4 5 6
PF753 Rev1.001g, PF753 Block Diagram

Inputs & Outputs – Analog



Control Logic

Note:
The following parameters are typically referenced when configuring or monitoring Control Logic;
P933 [Start Inhibits]

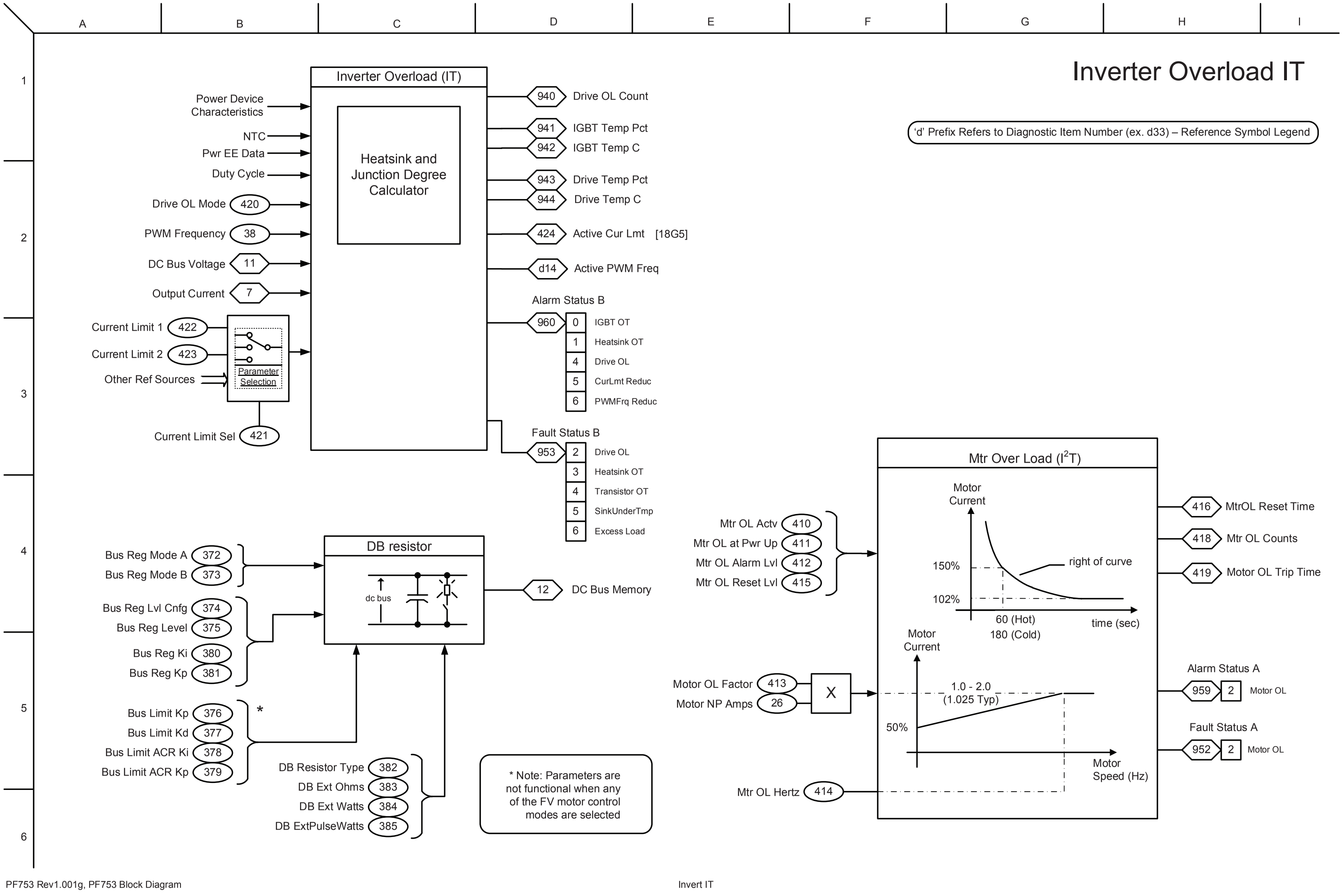


324	Logic Mask
325	Auto Mask
326	Manual Cmd Mask
327	Manual Ref Mask

885	Port Mask Act
886	Logic Mask Act
887	Write Mask Act

919	Stop Owner
920	Start Owner
921	Jog Owner
922	Dir Owner
923	Clear Flt Owner
924	Manual Owner
925	Ref Select Owner

Bit		Bit	
00	Stop	16	Coast Stop
01	Start	17	CurrLim Stop
02	Jog1	18	Run
03	Clear Faults	19	Jog 2
04	Forward	20	Reserved
05	Reverse	21	Reserved
06	Manual	22	Reserved
07	Reserved	23	Reserved
08	Accel Time 1	24	Reserved
09	Accel Time 2	25	Reserved
10	Decel Time 1	26	Reserved
11	Decel Time 2	27	Reserved
12	SpdRef Sel 0	28	Reserved
13	SpdRef Sel 1	29	Reserved
14	SpdRef Sel 2	30	Reserved
15	Reserved	31	Reserved


Inverter Overload IT
'd' Prefix Refers to Diagnostic Item Number (ex. d33) – Reference Symbol Legend
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Inverter Overload (IT)
Heatsink and Junction Degree Calculator
Power Device Characteristics
NTC
Pwr EE Data
Duty Cycle
Drive OL Mode 420
PWM Frequency 38
DC Bus Voltage 11
Output Current 7
Current Limit 1 422
Current Limit 2 423
Other Ref Sources
Parameter Selection
Current Limit Sel 421
940 Drive OL Count
941 IGBT Temp Pct
942 IGBT Temp C
943 Drive Temp Pct
944 Drive Temp C
424 Active Cur Lmt [18G5]
d14 Active PWM Freq
Alarm Status B
960
0 IGBT OT
1 Heatsink OT
4 Drive OL
5 CurLmt Reduc
6 PWMFrq Reduc
Fault Status B
953
2 Drive OL
3 Heatsink OT
4 Transistor OT
5 SinkUnderTmp
6 Excess Load
DB resistor
dc bus
12 DC Bus Memory
Bus Reg Mode A 372
Bus Reg Mode B 373
Bus Reg Lvl Cnfg 374
Bus Reg Level 375
Bus Reg Ki 380
Bus Reg Kp 381
*
Bus Limit Kp 376
Bus Limit Kd 377
Bus Limit ACR Ki 378
Bus Limit ACR Kp 379
DB Resistor Type 382
DB Ext Ohms 383
DB Ext Watts 384
DB ExtPulseWatts 385
* Note: Parameters are not functional when any of the FV motor control modes are selected
Mtr OL Actv 410
Mtr OL at Pwr Up 411
Mtr OL Alarm Lvl 412
Mtr OL Reset Lvl 415
Motor OL Factor 413
Motor NP Amps 26
X
Mtr OL Hertz 414
Mtr Over Load (I^2T)
Motor Current
150%
102%
right of curve
60 (Hot)
180 (Cold)
time (sec)
Motor Current
1.0 - 2.0
(1.025 Typ)
50%
Motor Speed (Hz)
416 MtrOL Reset Time
418 Mtr OL Counts
419 Motor OL Trip Time
Alarm Status A
959 2 Motor OL
Fault Status A
952 2 Motor OL
PF753 Rev1.001g, PF753 Block Diagram
Invert IT
25

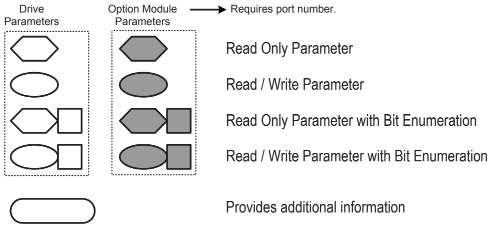
List of PowerFlex 755 Control Block Diagrams

Flow diagrams on the following pages illustrate the PowerFlex 755 drive control algorithms.

Diagram Conventions and Definitions

Definitions of the Per Unit system:
1.0 PU Position = Distance traveled / 1sec at Base Spd
1.0 PU Speed = Base Speed of the Motor
1.0 PU Torque = Base Torque of the Motor

Symbol Legend:

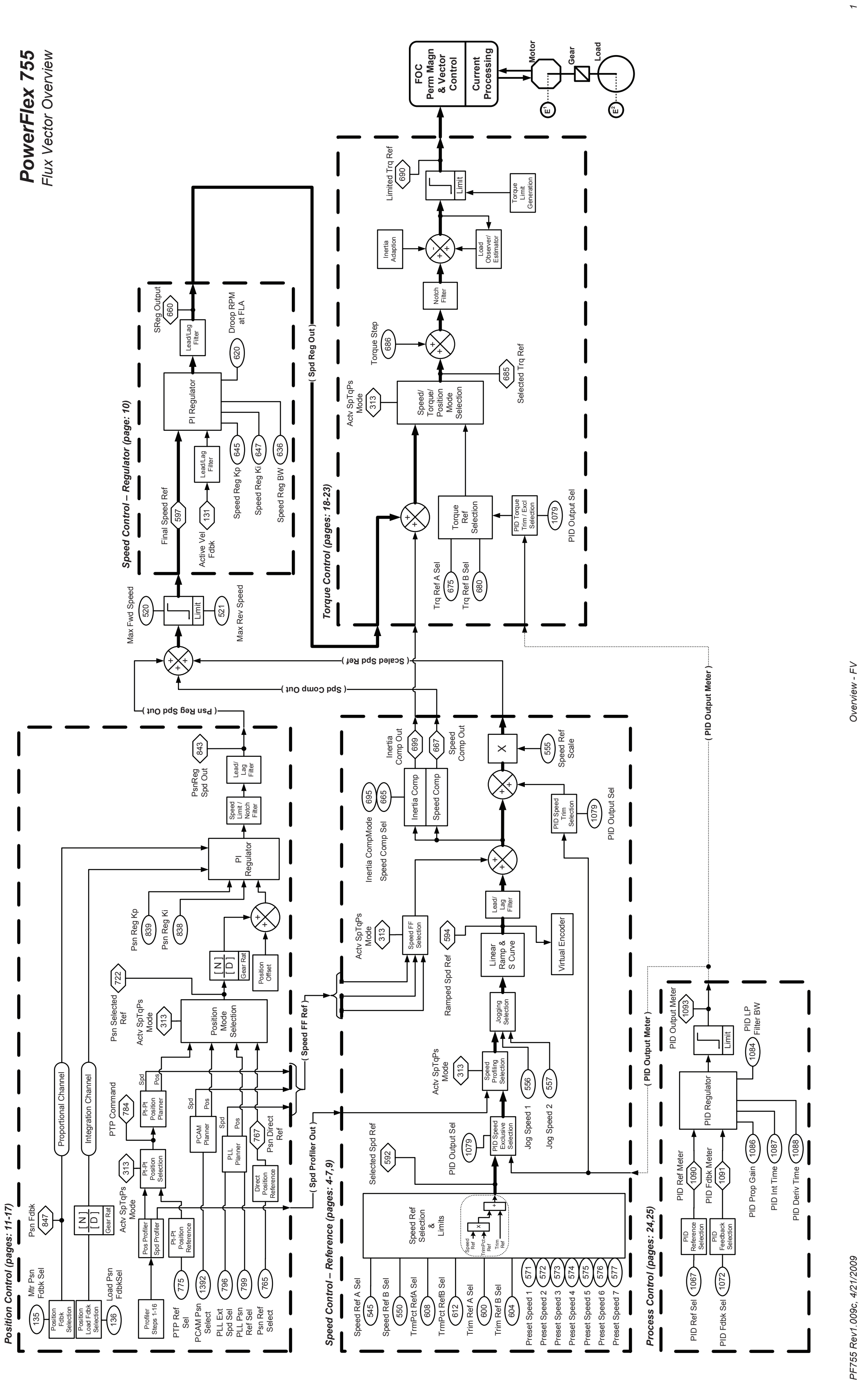


( ) = Enumerated Parameter
[ ] = Page and Coordinate
ex. 3A2 = pg 3, Column A, Row 2
⬚ = Constant value

'd' = Prefix refers to Diagnostic Item Number
ex. d33 = Diagnostic Item 33

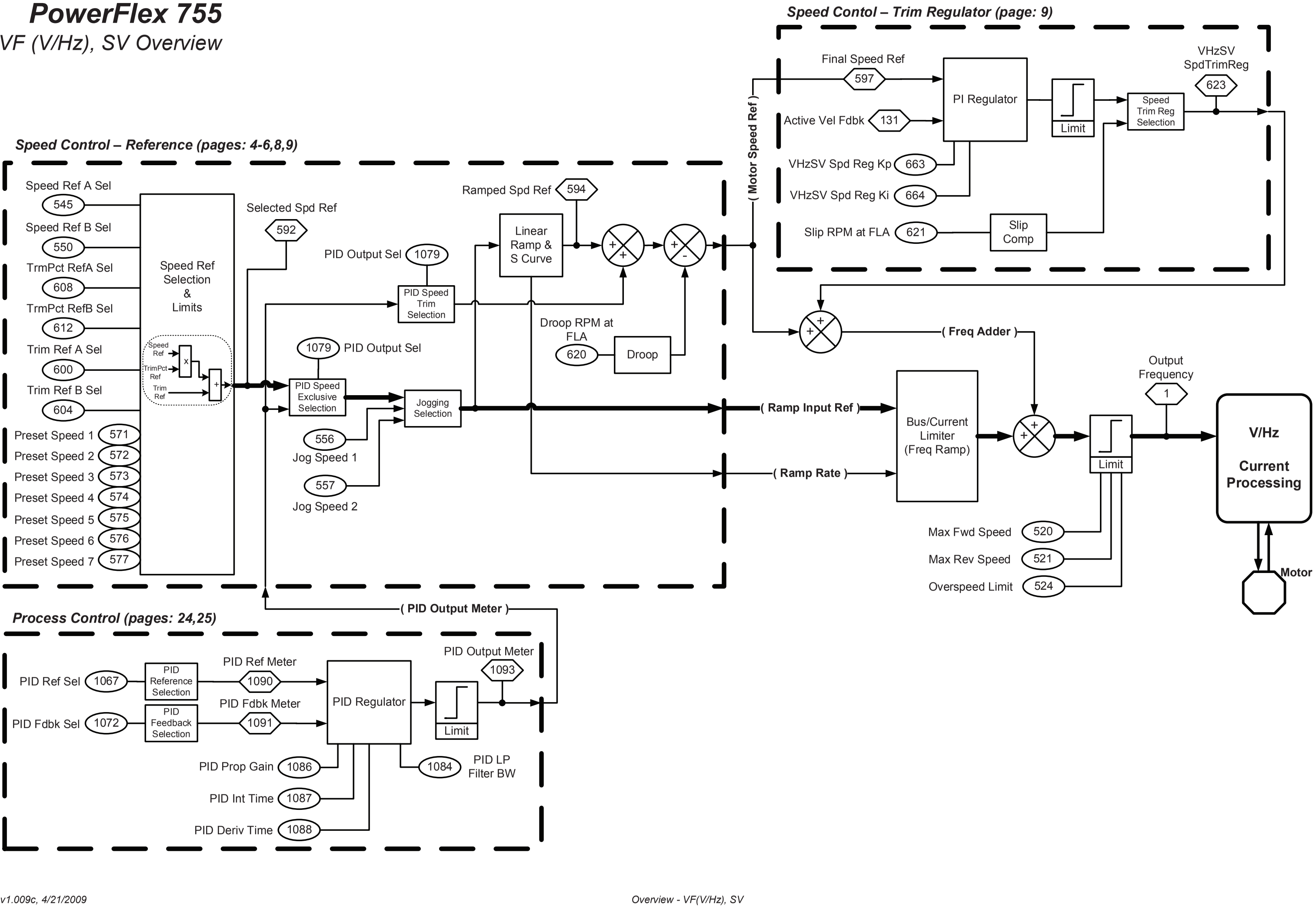
*** Notes, *Important*:**

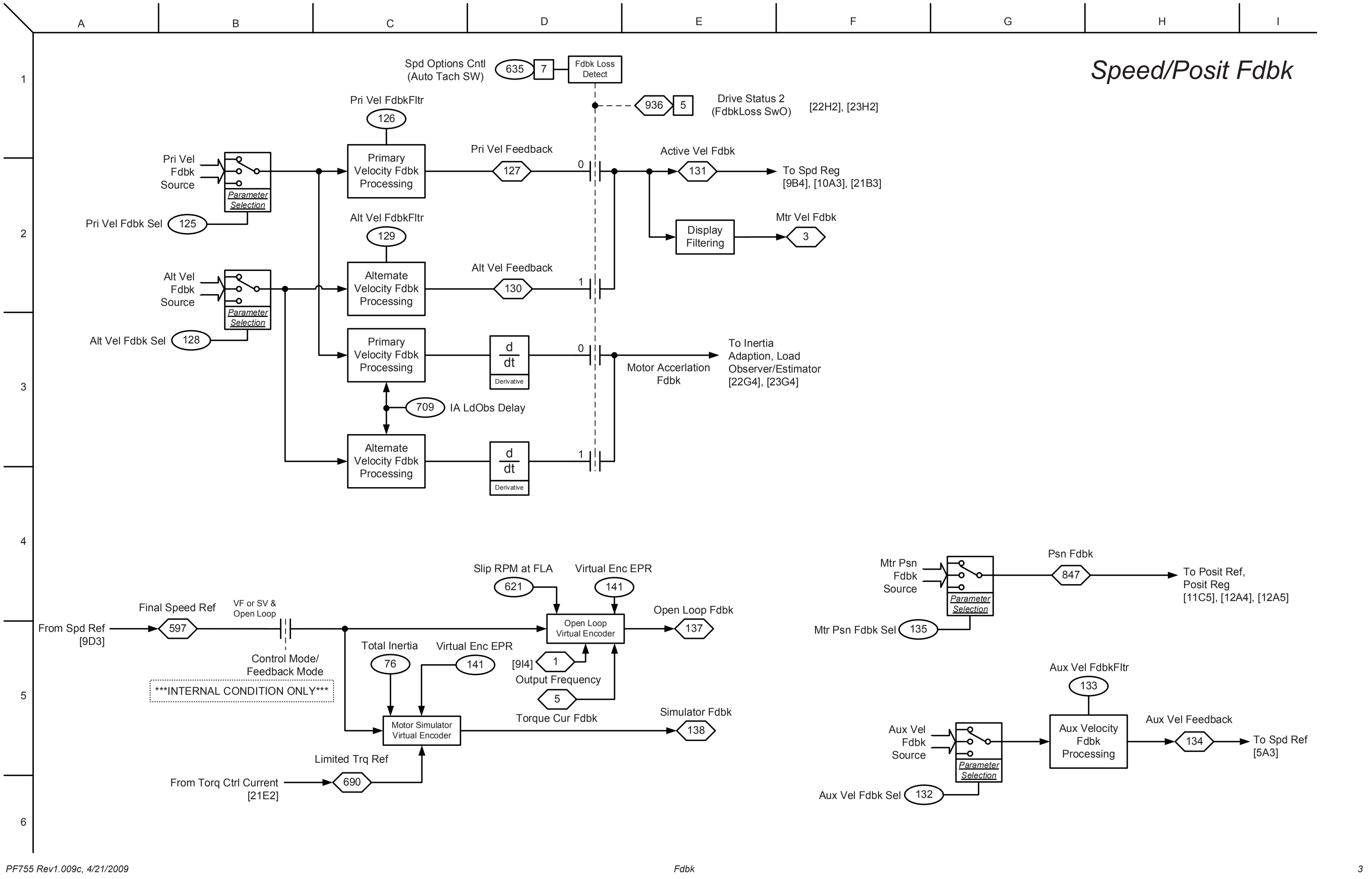
(1) These diagrams are for reference only and may not accurately reflect all logical control signals; actual functionality is implied by the approximated diagrams. Accuracy of these diagrams is not guaranteed.

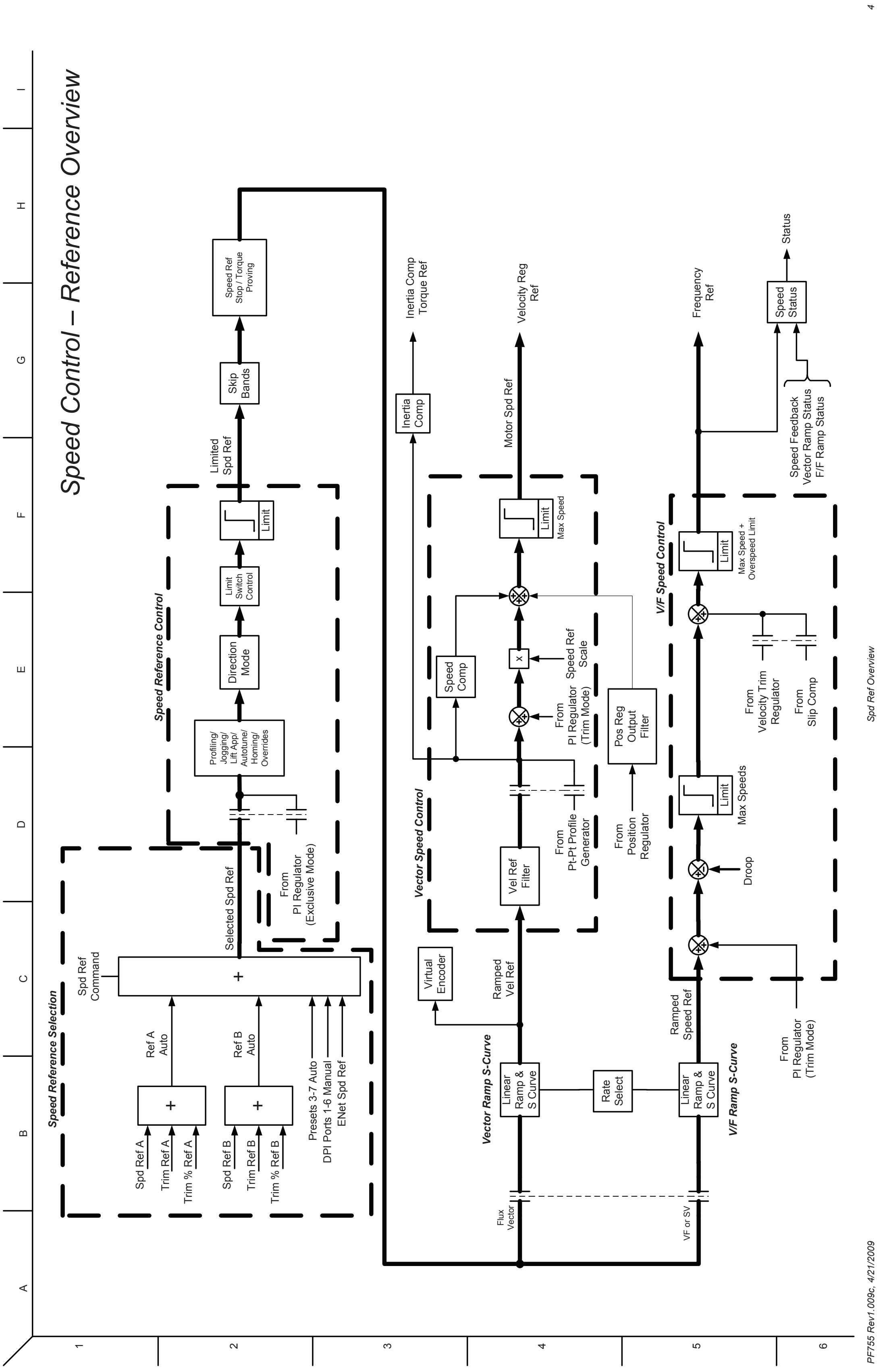

PowerFlex 755
Flux Vector Overview
Position Control (pages: 11-17)
Speed Control – Regulator (page: 10)
Torque Control (pages: 18-23)
Speed Control – Reference (pages: 4-7,9)
Process Control (pages: 24,25)
Mtr Psn Fdbk Sel
135
Position Fdbk Selection
Load Psn FdbkSel
136
Position Load Fdbk Selection
Psn Fdbk
847
Gear Rat
Proportional Channel
Integration Channel
Profiler Steps 1-16
PTP Ref Sel
775
PCAM Psn Select
1392
PLL Ext Spd Sel
796
PLL Psn Ref Sel
799
Psn Ref Select
765
Pos Profiler
Spd Profiler
Pt-Pt Position Reference
Actv SpTqPs Mode
313
Pt-Pt Position Selection
PTP Command
784
Pt-Pt Position Planner
PCAM Planner
PLL Planner
Direct Position Reference
767
Psn Direct Ref
Spd
Pos
Position Mode Selection
Psn Selected Ref
722
Position Offset
Psn Reg Kp
839
Psn Reg Ki
838
PI Regulator
Speed Limit / Notch Filter
Lead/Lag Filter
PsnReg Spd Out
843
(Psn Reg Spd Out)
(Speed FF Ref)
(Spd Profiler Out)
(Spd Comp Out)
(Scaled Spd Ref)
Max Fwd Speed
520
Max Rev Speed
521
Limit
Final Speed Ref
597
Active Vel Fdbk
131
Lead/Lag Filter
Speed Reg Kp
645
Speed Reg Ki
647
Speed Reg BW
636
PI Regulator
620
Droop RPM at FLA
SReg Output
660
(Spd Reg Out)
Trq Ref A Sel
675
Trq Ref B Sel
680
Torque Ref Selection
PID Torque Trim / Excl Selection
1079
PID Output Sel
Actv SpTqPs Mode
313
Speed/ Torque/ Position Mode Selection
685
Selected Trq Ref
Torque Step
686
Notch Filter
Inertia Adaption
Load Observer/ Estimator
Torque Limit Generation
Limited Trq Ref
690
FOC Perm Magn & Vector Control
Current Processing
Motor
Gear
Load
E
Speed Ref A Sel
545
Speed Ref B Sel
550
TrmPct RefA Sel
608
TrmPct RefB Sel
612
Trim Ref A Sel
600
Trim Ref B Sel
604
Preset Speed 1
571
Preset Speed 2
572
Preset Speed 3
573
Preset Speed 4
574
Preset Speed 5
575
Preset Speed 6
576
Preset Speed 7
577
Speed Ref Selection & Limits
Speed Ref
TrimPct Ref
Trim Ref
Selected Spd Ref
592
PID Output Sel
1079
PID Speed Exclusive Selection
Actv SpTqPs Mode
313
Speed Profiling Selection
Jog Speed 1
556
Jog Speed 2
557
Jogging Selection
Ramped Spd Ref
594
Linear Ramp & S Curve
Virtual Encoder
Actv SpTqPs Mode
313
Speed FF Selection
Lead/ Lag Filter
Inertia CompMode
695
Speed Comp Sel
665
Inertia Comp
Speed Comp
Inertia Comp Out
699
Speed Comp Out
667
PID Speed Trim Selection
1079
PID Output Sel
555
Speed Ref Scale
(PID Output Meter)
PID Ref Sel
1067
PID Reference Selection
PID Fdbk Sel
1072
PID Feedback Selection
PID Ref Meter
1090
PID Fdbk Meter
1091
PID Regulator
PID Prop Gain
1086
PID Int Time
1087
PID Deriv Time
1088
1084
PID LP Filter BW
PID Output Meter
1093
Overview - FV
PF755 Rev1.009c, 4/21/2009
1

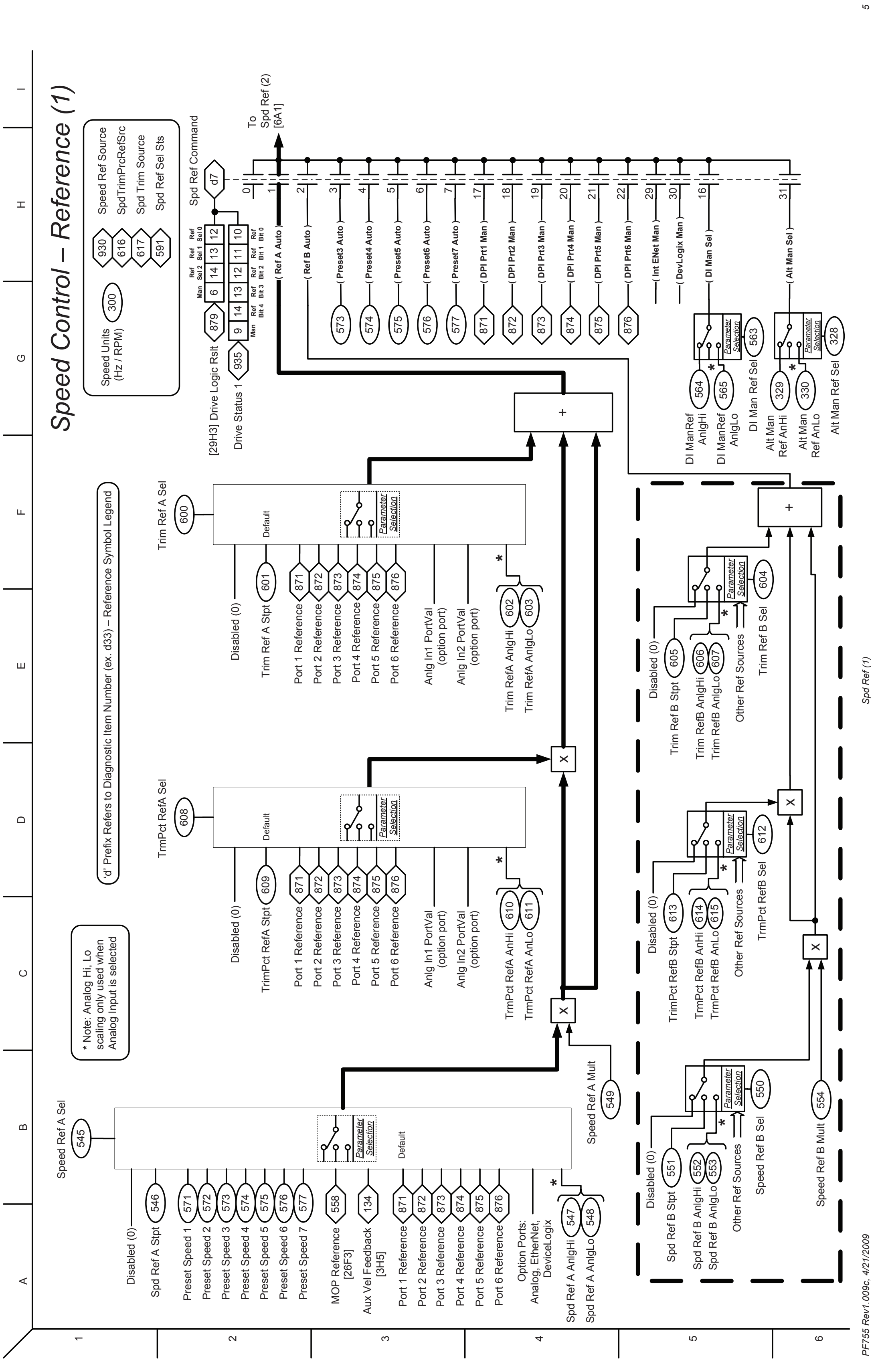
PowerFlex 755

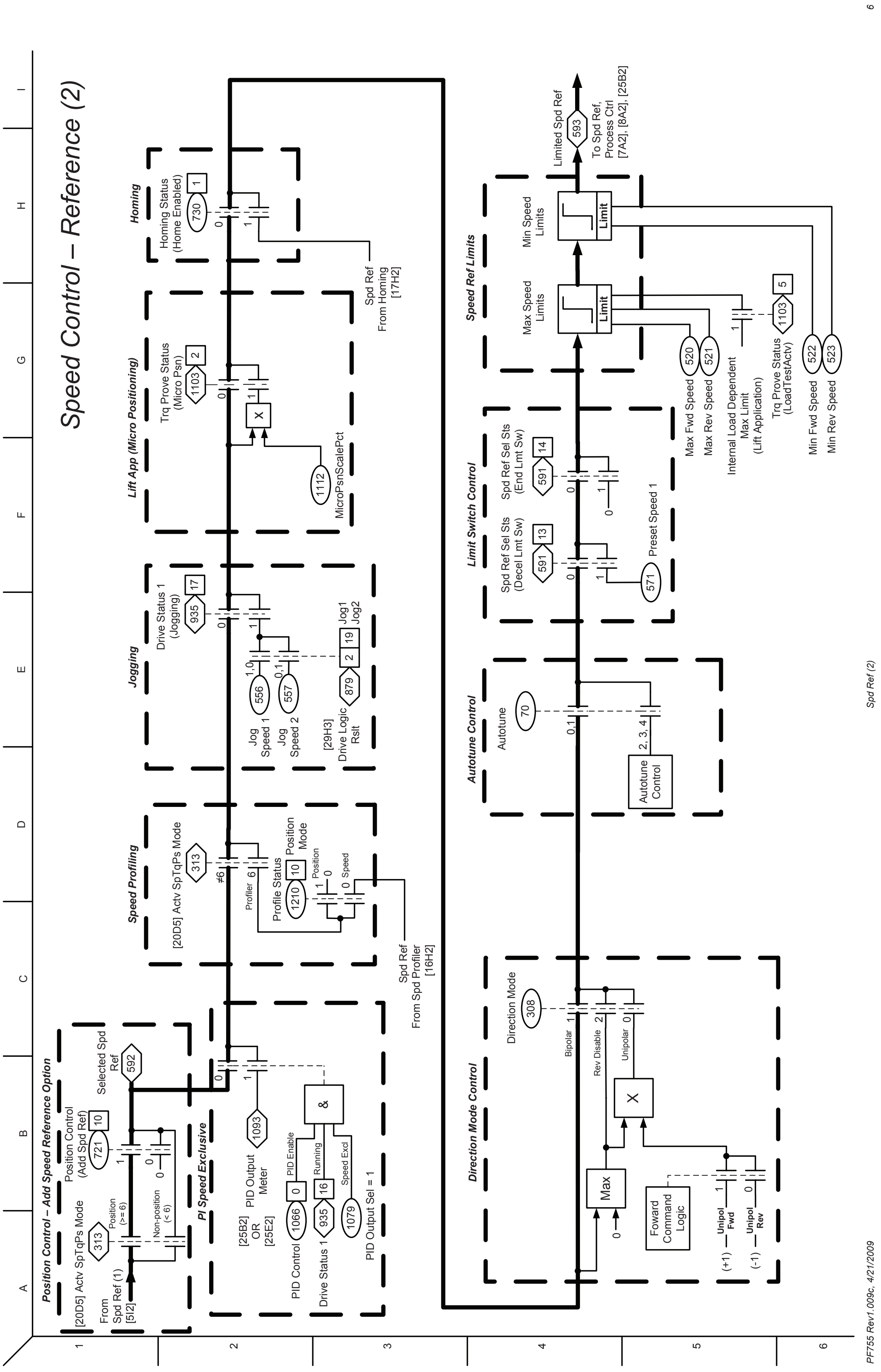
VF (V/Hz), SV Overview




A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Speed/Posit Fdbk
Spd Options Cntl (Auto Tach SW)
635
7
Fdbk Loss Detect
936
5
Drive Status 2 (FdbkLoss SwO)
[22H2], [23H2]
Pri Vel FdbkFltr
126
Pri Vel Fdbk Source
Parameter Selection
Pri Vel Fdbk Sel
125
Primary Velocity Fdbk Processing
Pri Vel Feedback
127
0
Active Vel Fdbk
131
To Spd Reg [9B4], [10A3], [21B3]
Display Filtering
Mtr Vel Fdbk
3
Alt Vel FdbkFltr
129
Alt Vel Fdbk Source
Parameter Selection
Alt Vel Fdbk Sel
128
Alternate Velocity Fdbk Processing
Alt Vel Feedback
130
1
Primary Velocity Fdbk Processing
d/dt
Derivative
0
Motor Accerlation Fdbk
To Inertia Adaption, Load Observer/Estimator [22G4], [23G4]
709
IA LdObs Delay
Alternate Velocity Fdbk Processing
d/dt
Derivative
1
From Spd Ref [9D3]
Final Speed Ref
597
VF or SV & Open Loop
Control Mode/ Feedback Mode
INTERNAL CONDITION ONLY
Slip RPM at FLA
621
Virtual Enc EPR
141
Open Loop Virtual Encoder
Open Loop Fdbk
137
Total Inertia
76
Virtual Enc EPR
141
[9I4]
1
Output Frequency
5
Torque Cur Fdbk
Motor Simulator Virtual Encoder
Simulator Fdbk
138
Limited Trq Ref
From Torq Ctrl Current [21E2]
690
Mtr Psn Fdbk Source
Parameter Selection
Mtr Psn Fdbk Sel
135
Psn Fdbk
847
To Posit Ref, Posit Reg [11C5], [12A4], [12A5]
Aux Vel FdbkFltr
133
Aux Vel Fdbk Source
Parameter Selection
Aux Vel Fdbk Sel
132
Aux Velocity Fdbk Processing
Aux Vel Feedback
134
To Spd Ref [5A3]
PF755 Rev1.009c, 4/21/2009
Fdbk
3

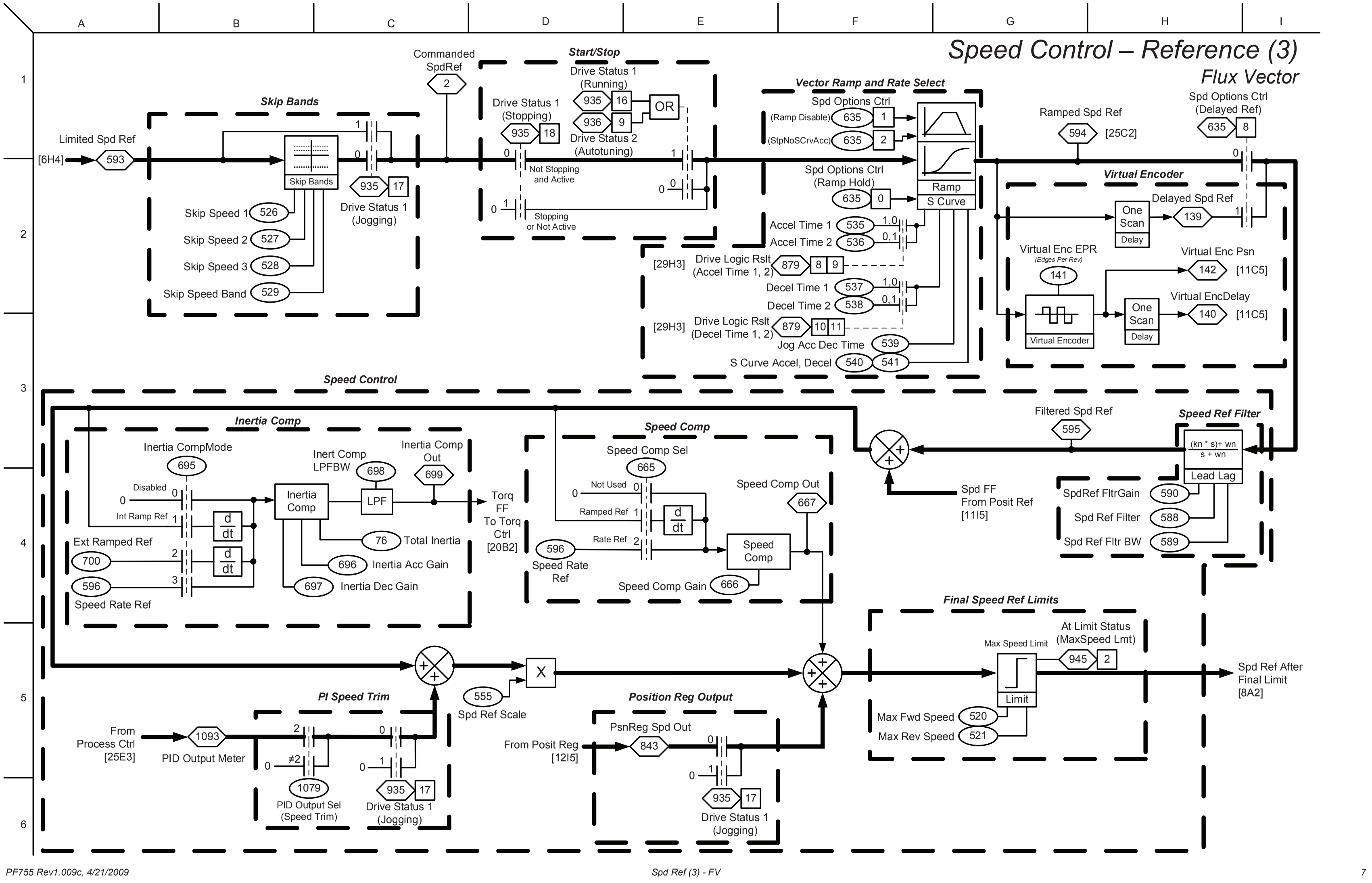

Speed Control – Reference Overview
4
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Speed Reference Selection
Spd Ref A
Trim Ref A
Trim % Ref A
Spd Ref B
Trim Ref B
Trim % Ref B
Presets 3-7 Auto
DPI Ports 1-6 Manual
ENet Spd Ref
+
+
Ref A Auto
Ref B Auto
Spd Ref Command
+
Selected Spd Ref
Speed Reference Control
From PI Regulator (Exclusive Mode)
Profiling/ Jogging/ Lift App/ Autotune/ Homing/ Overrides
Direction Mode
Limit Switch Control
Limit
Limited Spd Ref
Skip Bands
Speed Ref Stop / Torque Proving
Flux Vector
VF or SV
Vector Ramp S-Curve
Linear Ramp & S Curve
Rate Select
V/F Ramp S-Curve
Linear Ramp & S Curve
Virtual Encoder
Ramped Vel Ref
Vector Speed Control
Vel Ref Filter
From Pt-Pt Profile Generator
From PI Regulator (Trim Mode)
x
Speed Ref Scale
Speed Comp
Pos Reg Output Filter
From Position Regulator
Limit
Max Speed
Motor Spd Ref
Velocity Reg Ref
Inertia Comp
Inertia Comp Torque Ref
Ramped Speed Ref
From PI Regulator (Trim Mode)
V/F Speed Control
Droop
Limit
Max Speeds
From Velocity Trim Regulator
From Slip Comp
Limit
Max Speed + Overspeed Limit
Frequency Ref
Speed Feedback
Vector Ramp Status
F/F Ramp Status
Speed Status
Status
Spd Ref Overview
PF755 Rev1.009c, 4/21/2009

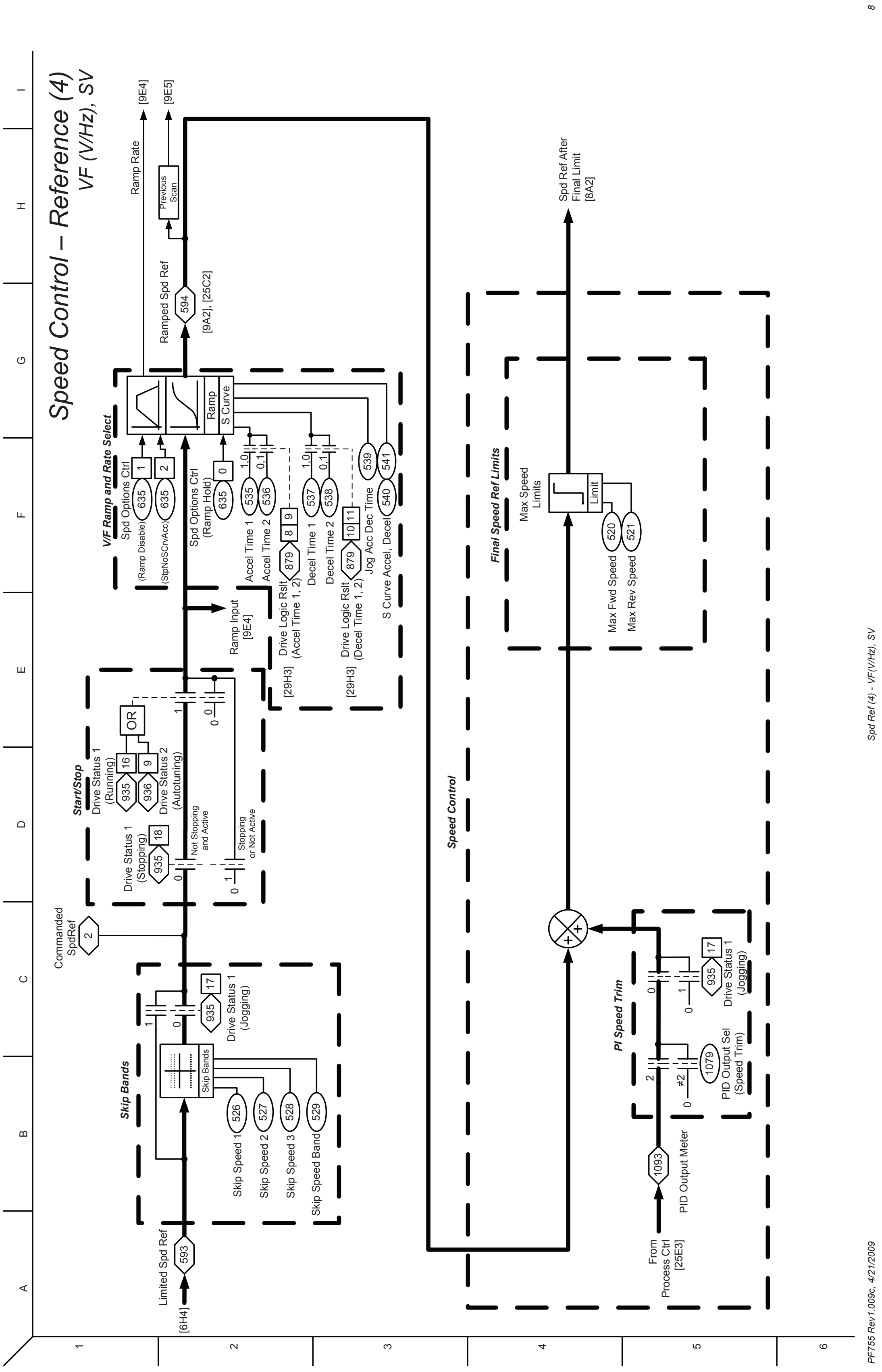

Speed Control – Reference (1)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
5
Speed Units (Hz / RPM)
300
930 Speed Ref Source
616 SpdTrimPrcRefSrc
617 Spd Trim Source
591 Spd Ref Sel Sts
'd' Prefix Refers to Diagnostic Item Number (ex. d33) – Reference Symbol Legend
* Note: Analog Hi, Lo scaling only used when Analog Input is selected
Speed Ref A Sel
545
Disabled (0)
Spd Ref A Stpt 546
Preset Speed 1 571
Preset Speed 2 572
Preset Speed 3 573
Preset Speed 4 574
Preset Speed 5 575
Preset Speed 6 576
Preset Speed 7 577
MOP Reference [26F3] 558
Aux Vel Feedback [3H5] 134
Port 1 Reference 871
Port 2 Reference 872
Port 3 Reference 873
Port 4 Reference 874
Port 5 Reference 875
Port 6 Reference 876
Option Ports: Analog, EtherNet, DeviceLogix
Spd Ref A AnlgHi 547
Spd Ref A AnlgLo 548
Parameter Selection
Default
Speed Ref A Mult
549
X
TrmPct RefA Sel
608
Disabled (0)
TrimPct RefA Stpt 609
Port 1 Reference 871
Port 2 Reference 872
Port 3 Reference 873
Port 4 Reference 874
Port 5 Reference 875
Port 6 Reference 876
Anlg In1 PortVal (option port)
Anlg In2 PortVal (option port)
TrmPct RefA AnHi 610
TrmPct RefA AnLo 611
Trim Ref A Sel
600
Disabled (0)
Trim Ref A Stpt 601
Trim RefA AnlgHi 602
Trim RefA AnlgLo 603
+
[29H3] Drive Logic Rslt 879
Drive Status 1 935
Man
Ref Sel 2
Ref Sel 1
Ref Sel 0
6 14 13 12
9 14 13 12 11 10
Ref Bit 4
Ref Bit 3
Ref Bit 2
Ref Bit 1
Ref Bit 0
Spd Ref Command
d7
0
1 (Ref A Auto)
2 (Ref B Auto)
3 (Preset3 Auto) 573
4 (Preset4 Auto) 574
5 (Preset5 Auto) 575
6 (Preset6 Auto) 576
7 (Preset7 Auto) 577
17 (DPI Prt1 Man) 871
18 (DPI Prt2 Man) 872
19 (DPI Prt3 Man) 873
20 (DPI Prt4 Man) 874
21 (DPI Prt5 Man) 875
22 (DPI Prt6 Man) 876
29 (Int ENet Man)
30 (DevLogix Man)
16 (DI Man Sel)
31 (Alt Man Sel)
To Spd Ref (2) [6A1]
DI ManRef AnlgHi 564
DI ManRef AnlgLo 565
DI Man Ref Sel 563
Alt Man Ref AnHi 329
Alt Man Ref AnLo 330
Alt Man Ref Sel 328
Disabled (0)
Spd Ref B Stpt 551
Spd Ref B AnlgHi 552
Spd Ref B AnlgLo 553
Other Ref Sources
Speed Ref B Sel 550
Speed Ref B Mult 554
TrimPct RefB Stpt 613
TrmPct RefB AnHi 614
TrmPct RefB AnLo 615
TrmPct RefB Sel 612
Trim Ref B Stpt 605
Trim RefB AnlgHi 606
Trim RefB AnlgLo 607
Trim Ref B Sel 604
Spd Ref (1)
PF755 Rev1.009c, 4/21/2009

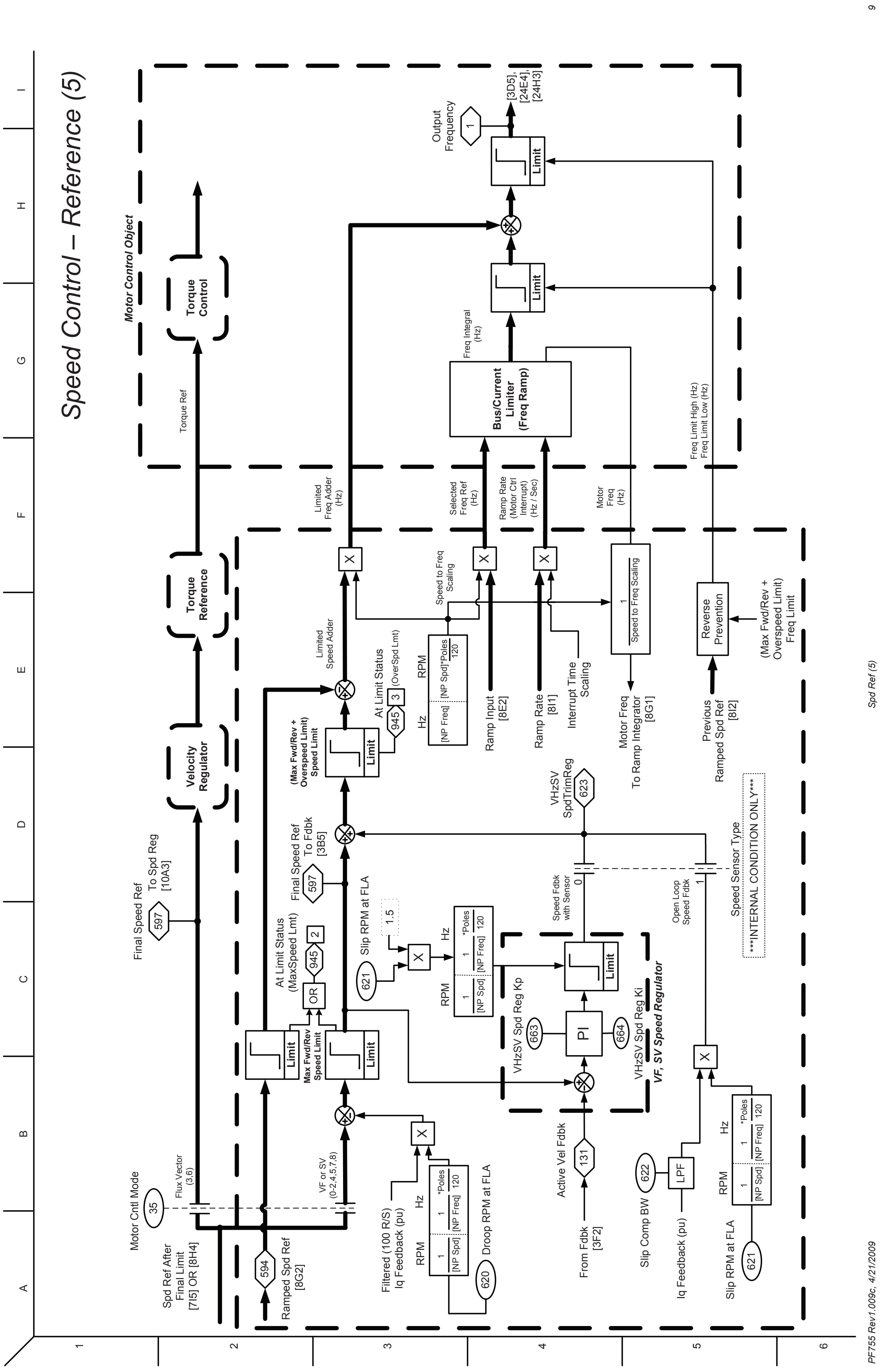

Speed Control – Reference (2)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
9
Position Control – Add Speed Reference Option
[20D5] Actv SpTqPs Mode
313
Position (>= 6)
Non-position (< 6)
From Spd Ref (1) [5I2]
Position Control (Add Spd Ref)
721
10
1
0
0
Selected Spd Ref
592
PI Speed Exclusive
[25B2] OR [25E2]
PID Output Meter
1093
PID Control
1066
0
PID Enable
Drive Status 1
935
16
Running
1079
Speed Excl
PID Output Sel = 1
&
0
1
Speed Profiling
[20D5] Actv SpTqPs Mode
313
≠6
6
Profiler
Profile Status
1210
10
Position Mode
Position
1
0
0
Speed
Spd Ref From Spd Profiler [16H2]
Jogging
Drive Status 1 (Jogging)
935
17
0
1
Jog Speed 1
556
1,0
Jog Speed 2
557
0,1
[29H3] Drive Logic Rslt
879
2
19
Jog1
Jog2
Lift App (Micro Positioning)
Trq Prove Status (Micro Psn)
1103
2
0
1
X
1112
MicroPsnScalePct
Spd Ref From Homing [17H2]
Homing
Homing Status (Home Enabled)
730
1
0
1
Direction Mode Control
Direction Mode
308
Bipolar
1
Rev Disable
2
Unipolar
0
X
Max
0
Foward Command Logic
(+1)
Unipol Fwd
1
(-1)
Unipol Rev
0
Autotune Control
Autotune
70
0,1
2, 3, 4
Autotune Control
Limit Switch Control
Spd Ref Sel Sts (Decel Lmt Sw)
591
13
0
1
571
Spd Ref Sel Sts (End Lmt Sw)
591
14
0
1
0
Preset Speed 1
Speed Ref Limits
Max Speed Limits
Limit
Min Speed Limits
Limit
Max Fwd Speed
520
Max Rev Speed
521
Internal Load Dependent Max Limit (Lift Application)
1
Trq Prove Status (LoadTestActv)
1103
5
Min Fwd Speed
522
Min Rev Speed
523
Limited Spd Ref
593
To Spd Ref, Process Ctrl [7A2], [8A2], [25B2]
Spd Ref (2)
PF755 Rev1.009c, 4/21/2009

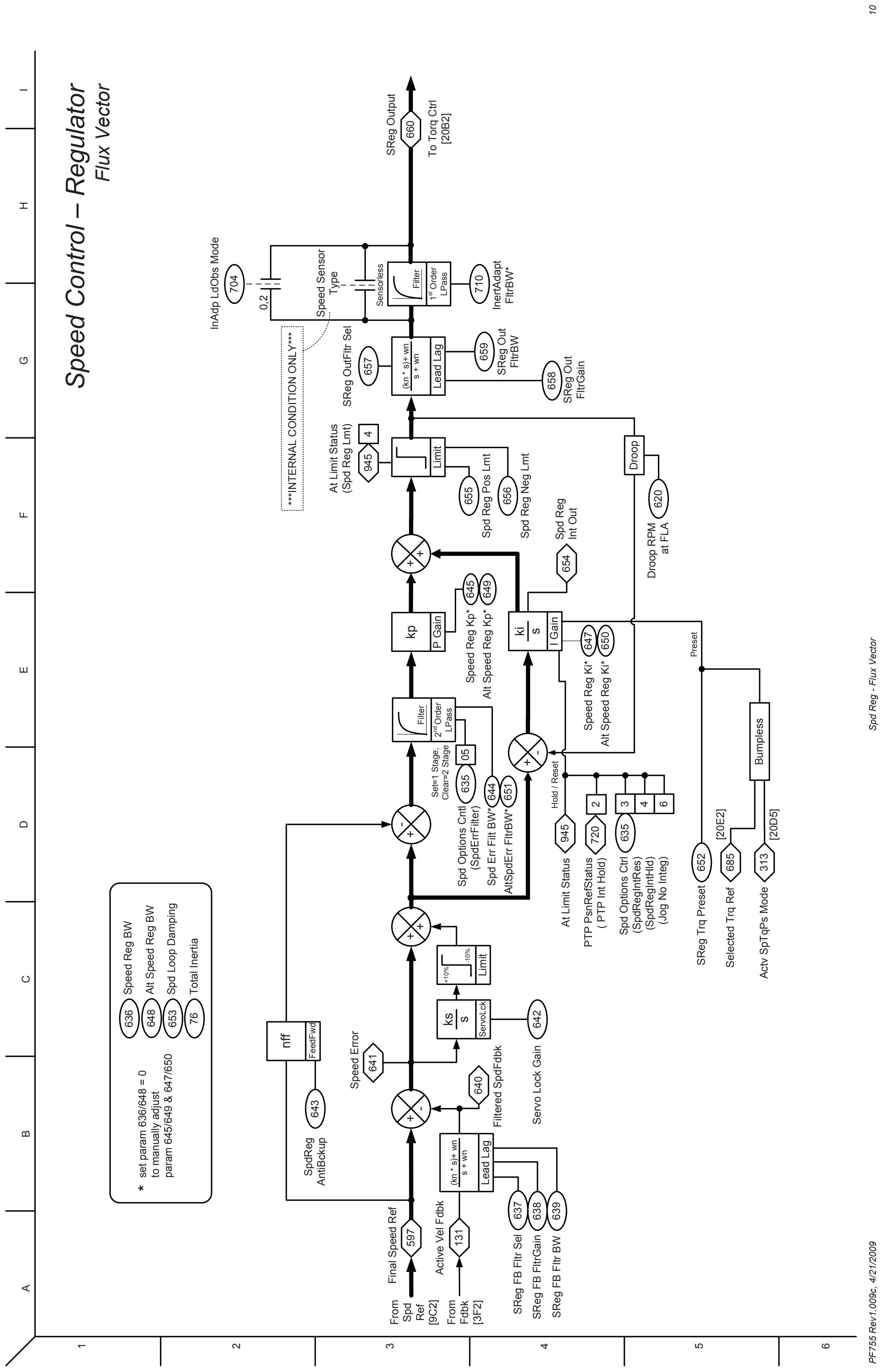
Speed Control – Reference (3)

Flux Vector

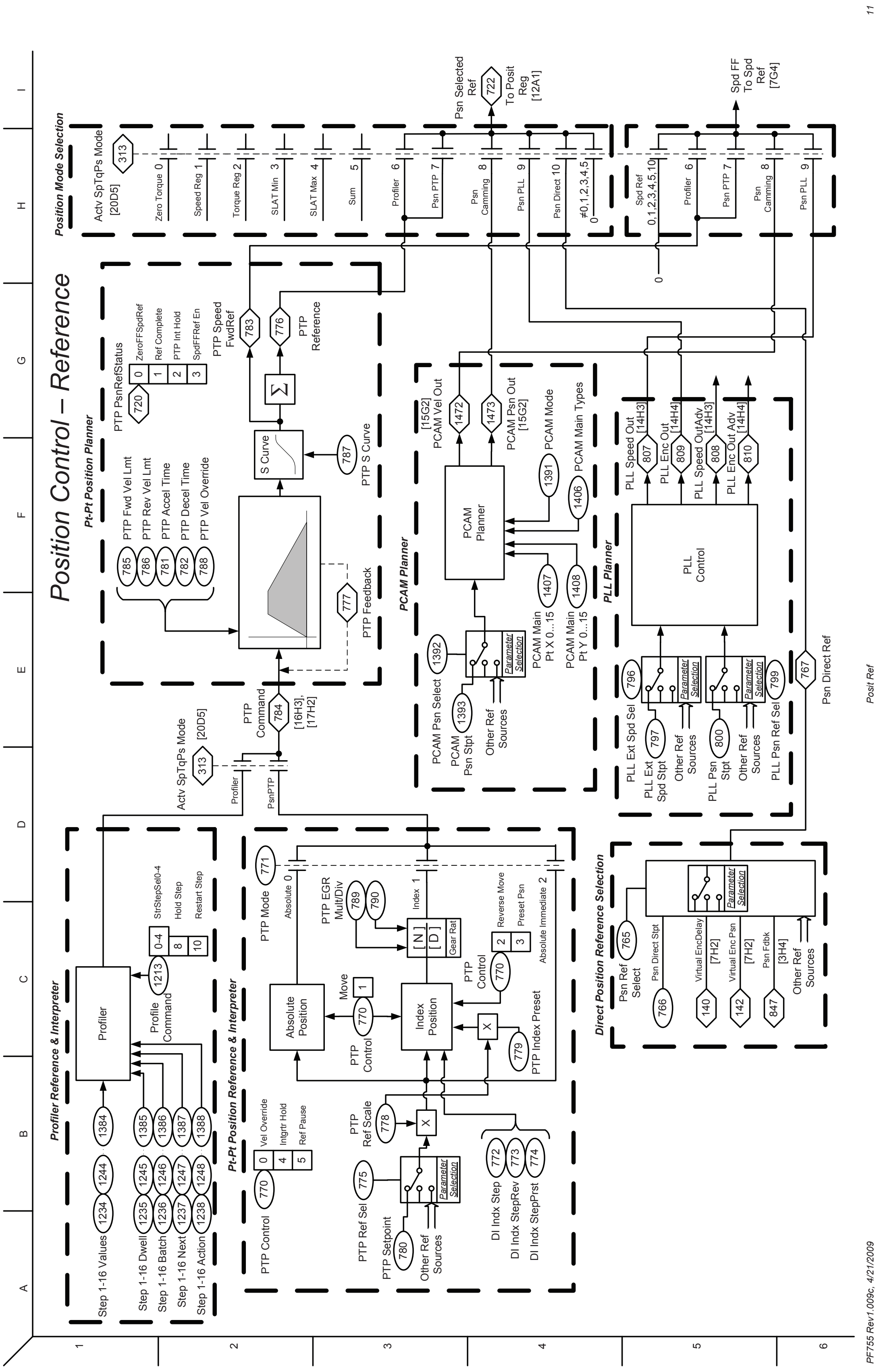



8
Speed Control – Reference (4)
VF (V/Hz), SV
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
[6H4]
Limited Spd Ref
593
Skip Bands
Skip Bands
1
0
935
17
Drive Status 1
(Jogging)
526
527
528
529
Skip Speed 1
Skip Speed 2
Skip Speed 3
Skip Speed Band
Commanded
SpdRef
2
Start/Stop
Drive Status 1
(Stopping)
935
18
0
1
Not Stopping
and Active
Stopping
or Not Active
Drive Status 1
(Running)
935
16
936
9
Drive Status 2
(Autotuning)
OR
1
0
Ramp Input
[9E4]
V/F Ramp and Rate Select
Spd Options Ctrl
(Ramp Disable)
635
1
(StpNoSCrvAcc)
635
2
Spd Options Ctrl
(Ramp Hold)
635
0
Accel Time 1
535
Accel Time 2
536
1,0
0,1
[29H3]
Drive Logic Rslt
(Accel Time 1, 2)
879
8
9
Decel Time 1
537
Decel Time 2
538
1,0
0,1
[29H3]
Drive Logic Rslt
(Decel Time 1, 2)
879
10
11
Jog Acc Dec Time
539
S Curve Accel, Decel
540
541
Ramp
S Curve
Ramped Spd Ref
594
[9A2], [25C2]
Ramp Rate
[9E4]
Previous
Scan
[9E5]
Speed Control
Final Speed Ref Limits
Max Speed
Limits
Limit
Max Fwd Speed
520
Max Rev Speed
521
Spd Ref After
Final Limit
[8A2]
+
+
PI Speed Trim
From
Process Ctrl
[25E3]
1093
PID Output Meter
2
≠2
0
1079
PID Output Sel
(Speed Trim)
0
1
0
935
17
Drive Status 1
(Jogging)
Spd Ref (4) - VF(V/Hz), SV
PF755 Rev1.009c, 4/21/2009


Speed Control – Reference (5)
Motor Control Object
Torque Ref
Torque Control
Velocity Regulator
Torque Reference
Final Speed Ref
597
To Spd Reg
[10A3]
Motor Cntl Mode
35
Flux Vector (3,6)
VF or SV (0-2,4,5,7,8)
Spd Ref After Final Limit
[7I5] OR [8H4]
594
Ramped Spd Ref
[8G2]
Limit
Max Fwd/Rev Speed Limit
OR
At Limit Status (MaxSpeed Lmt)
945
2
Final Speed Ref To Fdbk
597
[3B5]
(Max Fwd/Rev + Overspeed Limit) Speed Limit
At Limit Status
945
3
(OverSpd Lmt)
Limited Speed Adder
Limited Freq Adder (Hz)
621
Slip RPM at FLA
1.5
X
RPM
Hz
1
[NP Spd]
1
[NP Freq]
*Poles
120
Filtered (100 R/S) Iq Feedback (pu)
620
Droop RPM at FLA
VHzSV Spd Reg Kp
663
PI
664
VHzSV Spd Reg Ki
VF, SV Speed Regulator
Active Vel Fdbk
131
From Fdbk
[3F2]
Speed Fdbk with Sensor
0
Open Loop Speed Fdbk
1
Speed Sensor Type
INTERNAL CONDITION ONLY
VHzSV SpdTrimReg
623
Slip Comp BW
622
LPF
Iq Feedback (pu)
Slip RPM at FLA
621
[NP Spd]*Poles
120
Speed to Freq Scaling
Ramp Input
[8E2]
Ramp Rate
[8I1]
Interrupt Time Scaling
Motor Freq To Ramp Integrator
[8G1]
1
Speed to Freq Scaling
Previous Ramped Spd Ref
[8I2]
Reverse Prevention
(Max Fwd/Rev + Overspeed Limit) Freq Limit
Selected Freq Ref (Hz)
Ramp Rate (Motor Ctrl Interrupt) (Hz / Sec)
Motor Freq (Hz)
Bus/Current Limiter (Freq Ramp)
Freq Integral (Hz)
Freq Limit High (Hz)
Freq Limit Low (Hz)
Output Frequency
1
[3D5], [24E4], [24H3]
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Spd Ref (5)
PF755 Rev1.009c, 4/21/2009



Speed Control – Regulator
Flux Vector


Position Control – Reference
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
11
Profiler Reference & Interpreter
Step 1-16 Values
1234
1244
1384
Step 1-16 Dwell
Step 1-16 Batch
Step 1-16 Next
Step 1-16 Action
1235
1236
1237
1238
1245
1246
1247
1248
1385
1386
1387
1388
Profiler
1213
Profile Command
0-4 StrStepSel0-4
8 Hold Step
10 Restart Step
Pt-Pt Position Reference & Interpreter
PTP Control
770
0 Vel Override
4 Intgrtr Hold
5 Ref Pause
PTP Ref Sel
775
PTP Setpoint
780
Other Ref Sources
Parameter Selection
PTP Ref Scale
778
X
DI Indx Step
DI Indx StepRev
DI Indx StepPrst
772
773
774
Absolute Position
PTP Control
770
Move
1
Index Position
X
779
PTP Index Preset
PTP EGR Mult/Div
789
790
[N]
[D]
Gear Rat
PTP Control
770
2 Reverse Move
3 Preset Psn
PTP Mode
771
Absolute 0
Index 1
Absolute Immediate 2
Actv SpTqPs Mode
313
[20D5]
Profiler
PsnPTP
PTP Command
784
[16H3], [17H2]
Pt-Pt Position Planner
785 PTP Fwd Vel Lmt
786 PTP Rev Vel Lmt
781 PTP Accel Time
782 PTP Decel Time
788 PTP Vel Override
777
PTP Feedback
S Curve
787
PTP S Curve
Σ
PTP PsnRefStatus
720
0 ZeroFFSpdRef
1 Ref Complete
2 PTP Int Hold
3 SpdFFRef En
783
PTP Speed FwdRef
776
PTP Reference
PCAM Planner
PCAM Psn Select
1392
PCAM Psn Stpt
1393
Other Ref Sources
Parameter Selection
PCAM Main Pt X 0...15
1407
PCAM Main Pt Y 0...15
1408
PCAM Planner
1391 PCAM Mode
1406 PCAM Main Types
1472
PCAM Vel Out
[15G2]
1473
PCAM Psn Out
[15G2]
PLL Planner
PLL Ext Spd Sel
796
PLL Ext Spd Stpt
797
Other Ref Sources
Parameter Selection
PLL Psn Stpt
800
Other Ref Sources
PLL Psn Ref Sel
799
PLL Control
807 PLL Speed Out [14H3]
809 PLL Enc Out [14H4]
808 PLL Speed OutAdv [14H3]
810 PLL Enc Out Adv [14H4]
767
Psn Direct Ref
Direct Position Reference Selection
Psn Ref Select
765
766 Psn Direct Stpt
140 Virtual EncDelay [7H2]
142 Virtual Enc Psn [7H2]
847 Psn Fdbk [3H4]
Other Ref Sources
Parameter Selection
Position Mode Selection
Actv SpTqPs Mode
[20D5]
313
Zero Torque 0
Speed Reg 1
Torque Reg 2
SLAT Min 3
SLAT Max 4
Sum 5
Profiler 6
Psn PTP 7
Psn Camming 8
Psn PLL 9
Psn Direct 10
≠0,1,2,3,4,5
0
722
Psn Selected Ref
To Posit Reg [12A1]
Spd Ref 0,1,2,3,4,5,10
0
Profiler 6
Psn PTP 7
Psn Camming 8
Psn PLL 9
Spd FF To Spd Ref [7G4]
Posit Ref
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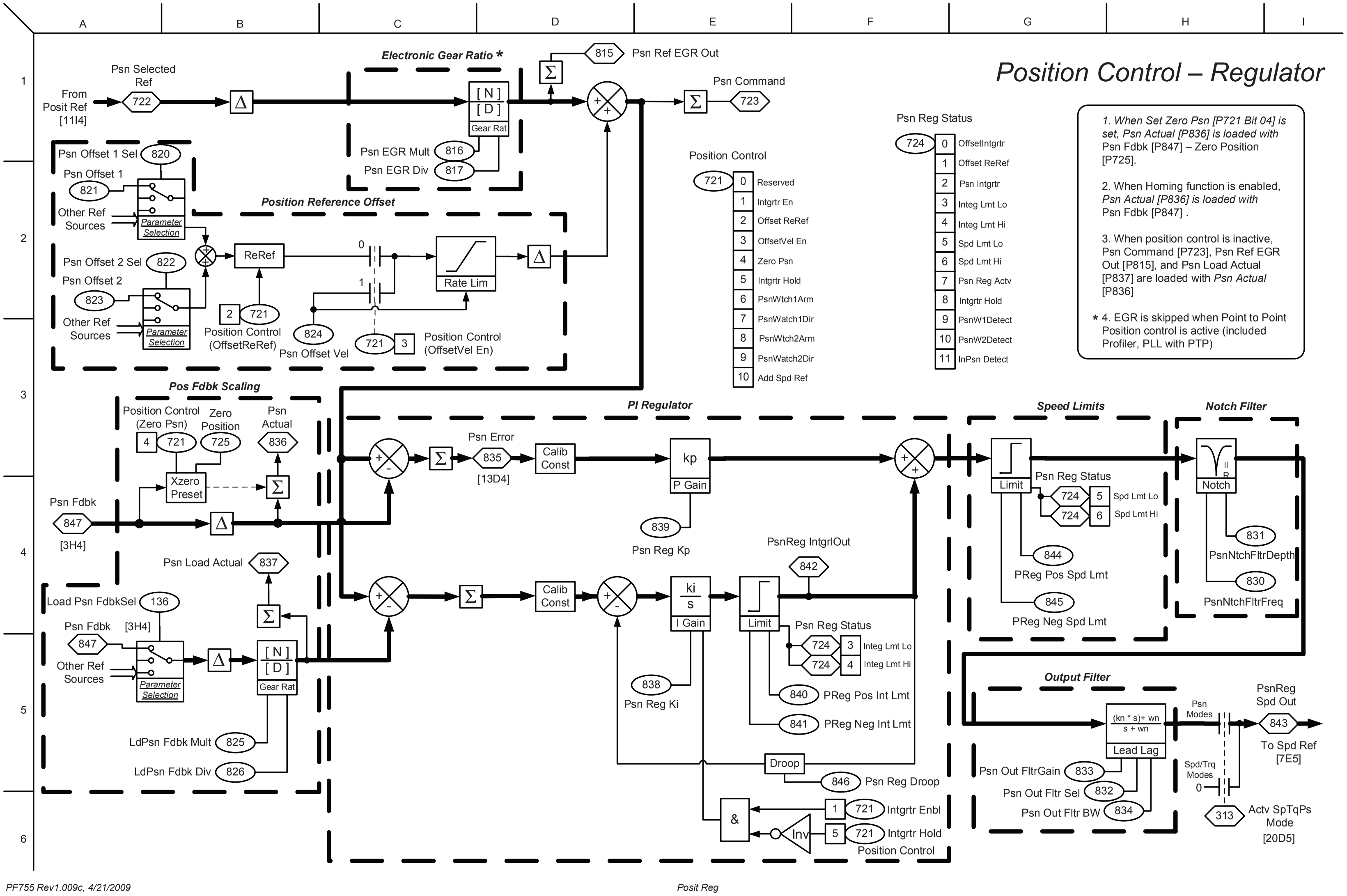
Position Control – Regulator



Position Control

721	
0	Reserved
1	Intgrtr En
2	Offset ReRef
3	OffsetVel En
4	Zero Psn
5	Intgrtr Hold
6	PsnWtch1Arm
7	PsnWatch1Dir
8	PsnWtch2Arm
9	PsnWatch2Dir
10	Add Spd Ref

Psn Reg Status

724	
0	OffsetIntgrtr
1	Offset ReRef
2	Psn Intgrtr
3	Integ Lmt Lo
4	Integ Lmt Hi
5	Spd Lmt Lo
6	Spd Lmt Hi
7	Psn Reg Actv
8	Intgrtr Hold
9	PsnW1Detect
10	PsnW2Detect
11	InPsn Detect

1. *When Set Zero Psn [P721 Bit 04] is set, Psn Actual [P836] is loaded with* Psn Fdbk [P847] – Zero Position [P725].

2. When Homing function is enabled, *Psn Actual [P836] is loaded with* Psn Fdbk [P847] .

3. When position control is inactive, Psn Command [P723], Psn Ref EGR Out [P815], and Psn Load Actual [P837] are loaded with *Psn Actual* [P836]

* 4. EGR is skipped when Point to Point Position control is active (included Profiler, PLL with PTP)

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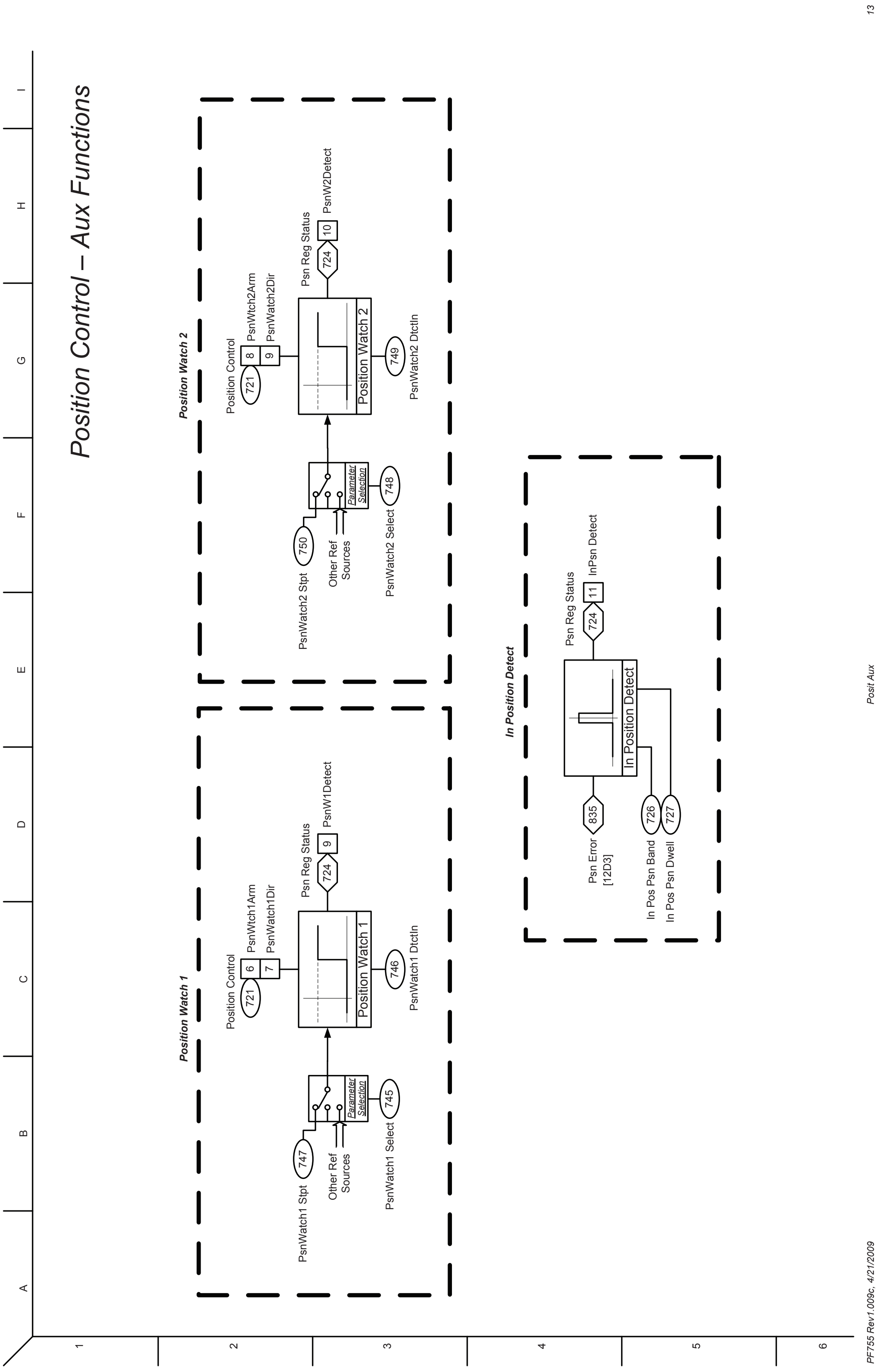
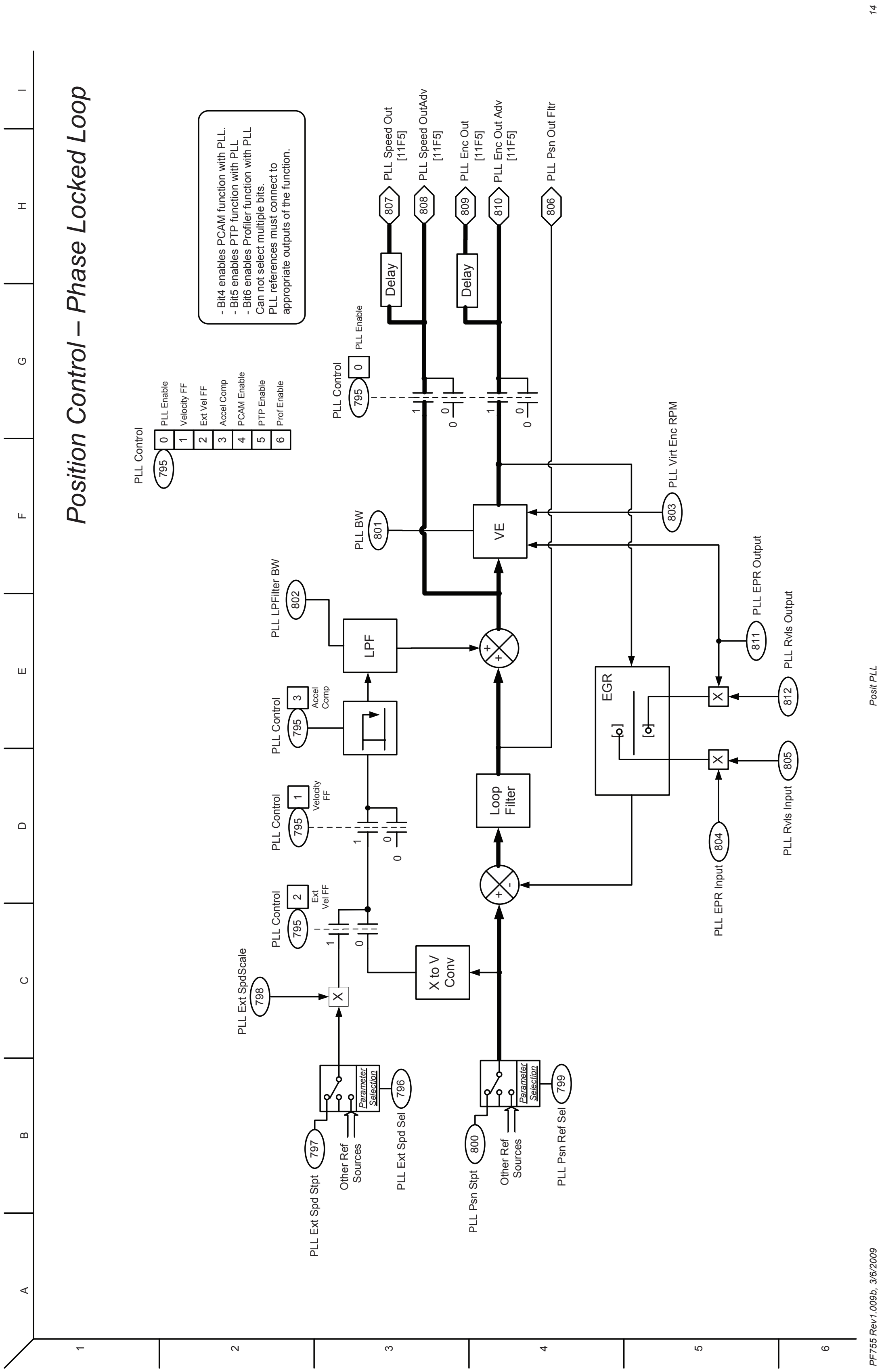
Posit Reg

12

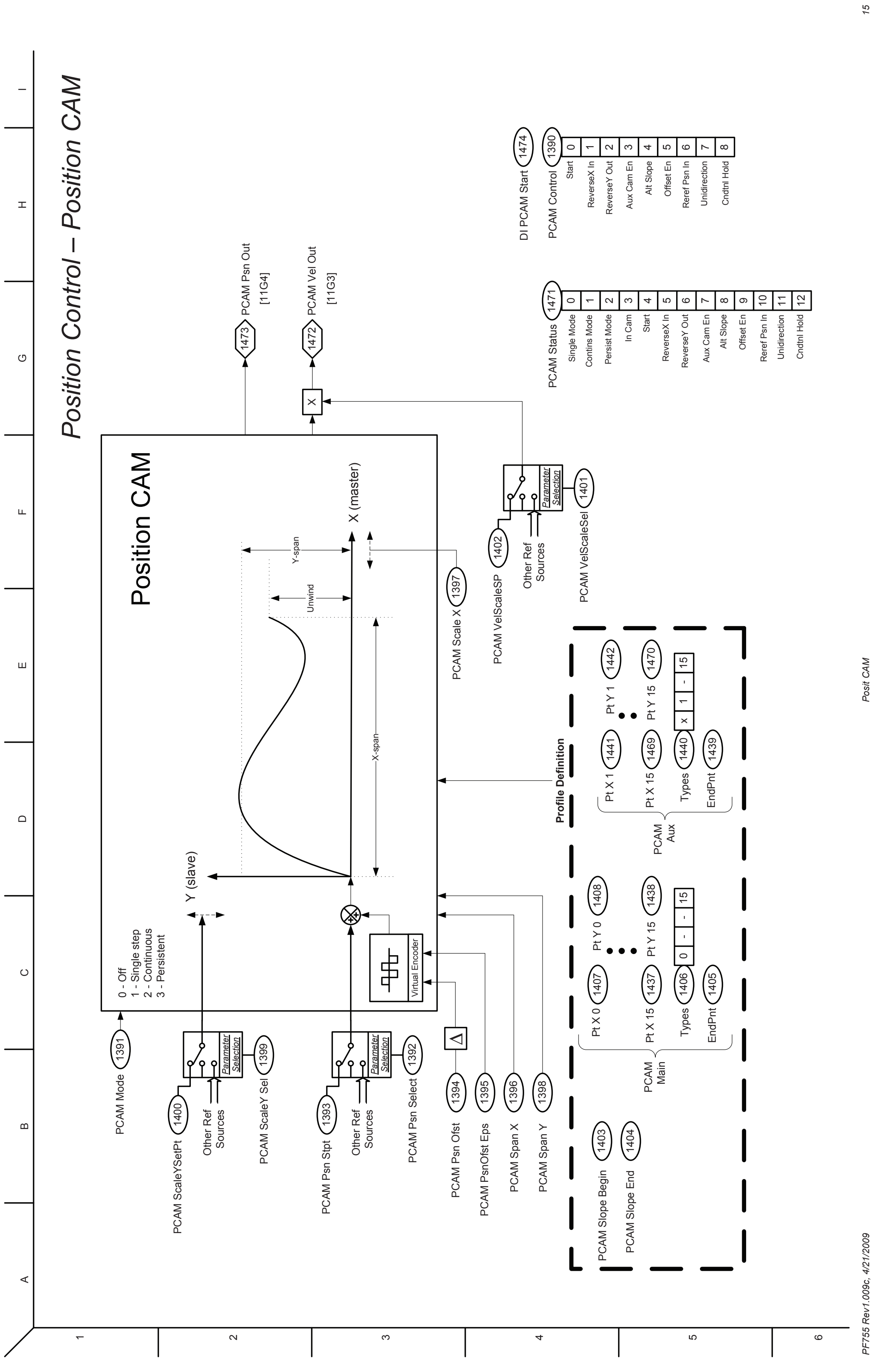


Position Control – Aux Functions



Position Control – Phase Locked Loop

- Bit4 enables PCAM function with PLL.
- Bit5 enables PTP function with PLL.
- Bit6 enables Profiler function with PLL
Can not select multiple bits.
PLL references must connect to appropriate outputs of the function.


Position Control – Position CAM
Position CAM
0 - Off
1 - Single step
2 - Continuous
3 - Persistent
PCAM Mode 1391
PCAM ScaleYSetPt 1400
Other Ref Sources
Parameter Selection
PCAM ScaleY Sel 1399
PCAM Psn Stpt 1393
Other Ref Sources
Parameter Selection
PCAM Psn Select 1392
PCAM Psn Ofst 1394
Δ
PCAM PsnOfst Eps 1395
PCAM Span X 1396
PCAM Span Y 1398
Virtual Encoder
Y (slave)
X (master)
X-span
Y-span
Unwind
PCAM Scale X 1397
PCAM VelScaleSP 1402
Other Ref Sources
Parameter Selection
PCAM VelScaleSel 1401
X
1473 PCAM Psn Out [11G4]
1472 PCAM Vel Out [11G3]
Profile Definition
PCAM Slope Begin 1403
PCAM Slope End 1404
PCAM Main
Pt X 0 1407
Pt Y 0 1408
Pt X 15 1437
Pt Y 15 1438
Types 1406
0 - - 15
EndPnt 1405
PCAM Aux
Pt X 1 1441
Pt Y 1 1442
Pt X 15 1469
Pt Y 15 1470
Types 1440
x 1 - 15
EndPnt 1439
PCAM Status 1471
0 Single Mode
1 Contins Mode
2 Persist Mode
3 In Cam
4 Start
5 ReverseX In
6 ReverseY Out
7 Aux Cam En
8 Alt Slope
9 Offset En
10 Reref Psn In
11 Unidirection
12 Cndtnl Hold
DI PCAM Start 1474
PCAM Control 1390
0 Start
1 ReverseX In
2 ReverseY Out
3 Aux Cam En
4 Alt Slope
5 Offset En
6 Reref Psn In
7 Unidirection
8 Cndtnl Hold
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Posit CAM
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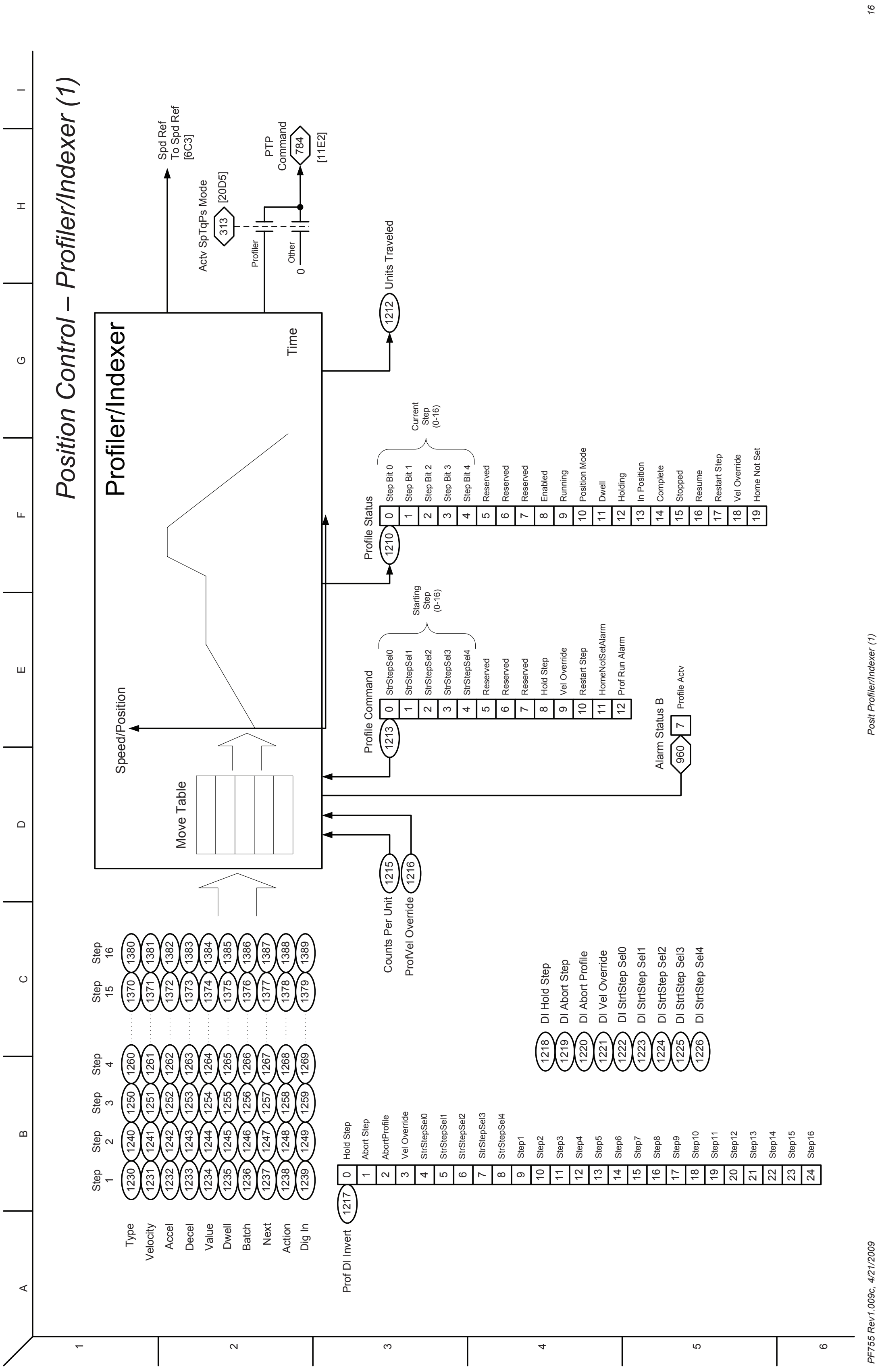
Position Control – Profiler/Indexer (1)



Position Control – Profiler/Indexer (2)

Type = Position Absolute (Posit Abs)

Action	Posit Blend	Time Blend	Param Blend	Digin Blend	(+/-) Wait Digin	Step to Next	End
Velocity	Move vel	N/A	N/A	N/A	Move vel	Move vel	N/A
Accel	Move accel	N/A	N/A	N/A	Move accel	Move accel	N/A
Decel	Move decel	N/A	N/A	N/A	Move decel	Move decel	N/A
Value	Absolute Target pos	N/A	N/A	N/A	Absolute Target pos	Absolute Target pos	N/A
Dwell	N/A	N/A	N/A	N/A	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Next	Next Step	N/A	N/A	N/A	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	N/A	N/A	N/A	DigIn transition	Position > **Value**	Restart Indexer
DigIn #	N/A	N/A	N/A	N/A	Digin #	N/A	N/A

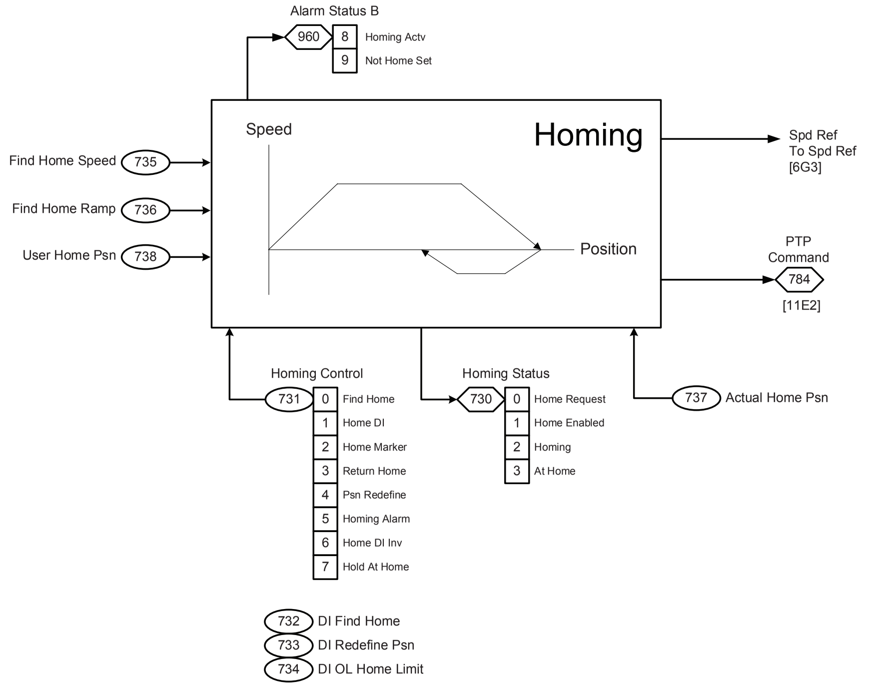
Type = Position Incremental (Posit Incr)

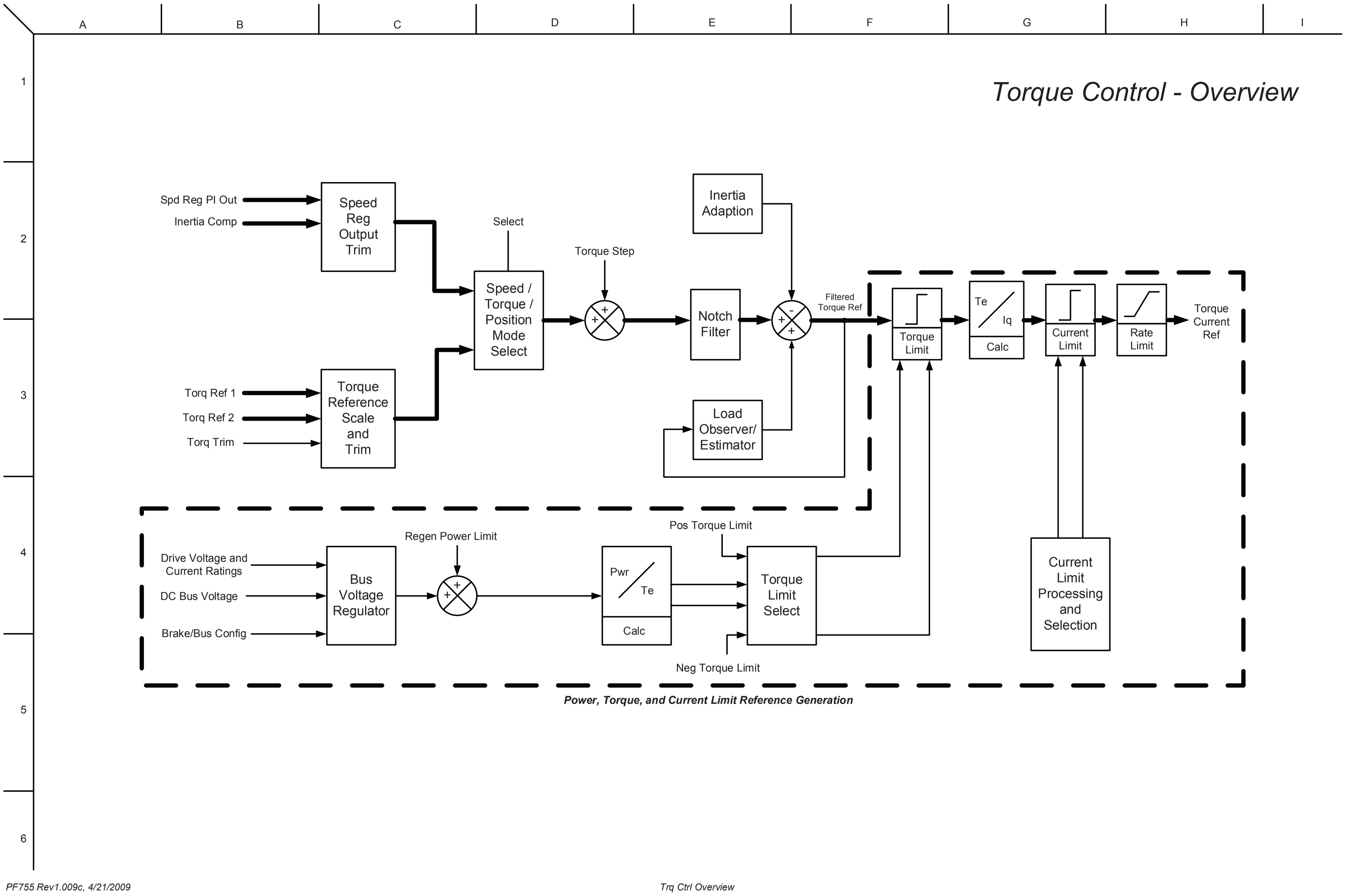
Action	Posit Blend	Time Blend	Param Blend	Digin Blend	(+/-) Wait Digin	Step to Next	End
Velocity	Move vel	N/A	N/A	N/A	Move vel	Move vel	N/A
Accel	Move accel	N/A	N/A	N/A	Move accel	Move accel	N/A
Decel	Move decel	N/A	N/A	N/A	Move decel	Move decel	N/A
Value	Incremental Target pos	N/A	N/A	N/A	Incremental Target pos	Incremental Target pos	N/A
Dwell	N/A	N/A	N/A	N/A	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	N/A	Batch #	Batch #	N/A
Next	Next Step	N/A	N/A	N/A	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	N/A	N/A	N/A	DigIn transition	Position > **Value**	Restart Indexer
DigIn #	N/A	N/A	N/A	N/A	Digin #	N/A	N/A

Type = Speed Profile

Action	Posit Blend	Time Blend	Param Blend	Digin Blend	(+/-) Wait Digin	Step to Next	End
Velocity	Move vel	Move vel	Move vel	Move Vel	Move vel	Move vel	N/A
Accel	Move accel	Move accel	Move accel	Move accel	Move accel	Move accel	N/A
Decel	Move decel	Move decel	Move decel	Move decel	Move decel	Move decel	N/A
Value	Incremental Target pos	Total Time	Compare Param # (+/-)	N/A	Total Time	Total Time	N/A
Dwell	N/A	N/A	Compare Param #	Dwell Time	Dwell Time	Dwell Time	Dwell Time
Batch	N/A	N/A	N/A	Batch #	Batch #	Batch #	N/A
Next	Next Step	Next Step	Next Step	Next Step	Next Step	Next Step	N/A
Next Step Condition	Position > **Value**	Time > **Value**	Param[**Value**] Compare to Param[**Dwell**]	Digin [**Value**] transition	Digin transition	Time > **Value**	Restart Profile
DigIn #	N/A	N/A	N/A	Digin #	Digin #	N/A	N/A

Position Control – Homing




A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
Torque Control - Overview
Spd Reg PI Out
Inertia Comp
Speed Reg Output Trim
Torq Ref 1
Torq Ref 2
Torq Trim
Torque Reference Scale and Trim
Select
Speed / Torque / Position Mode Select
Torque Step
+
+
Notch Filter
Inertia Adaption
Load Observer/ Estimator
-
+
+
Filtered Torque Ref
Torque Limit
Te
Iq
Calc
Current Limit
Rate Limit
Torque Current Ref
Current Limit Processing and Selection
Drive Voltage and Current Ratings
DC Bus Voltage
Brake/Bus Config
Bus Voltage Regulator
Regen Power Limit
+
+
Pwr
Te
Calc
Pos Torque Limit
Torque Limit Select
Neg Torque Limit
Power, Torque, and Current Limit Reference Generation
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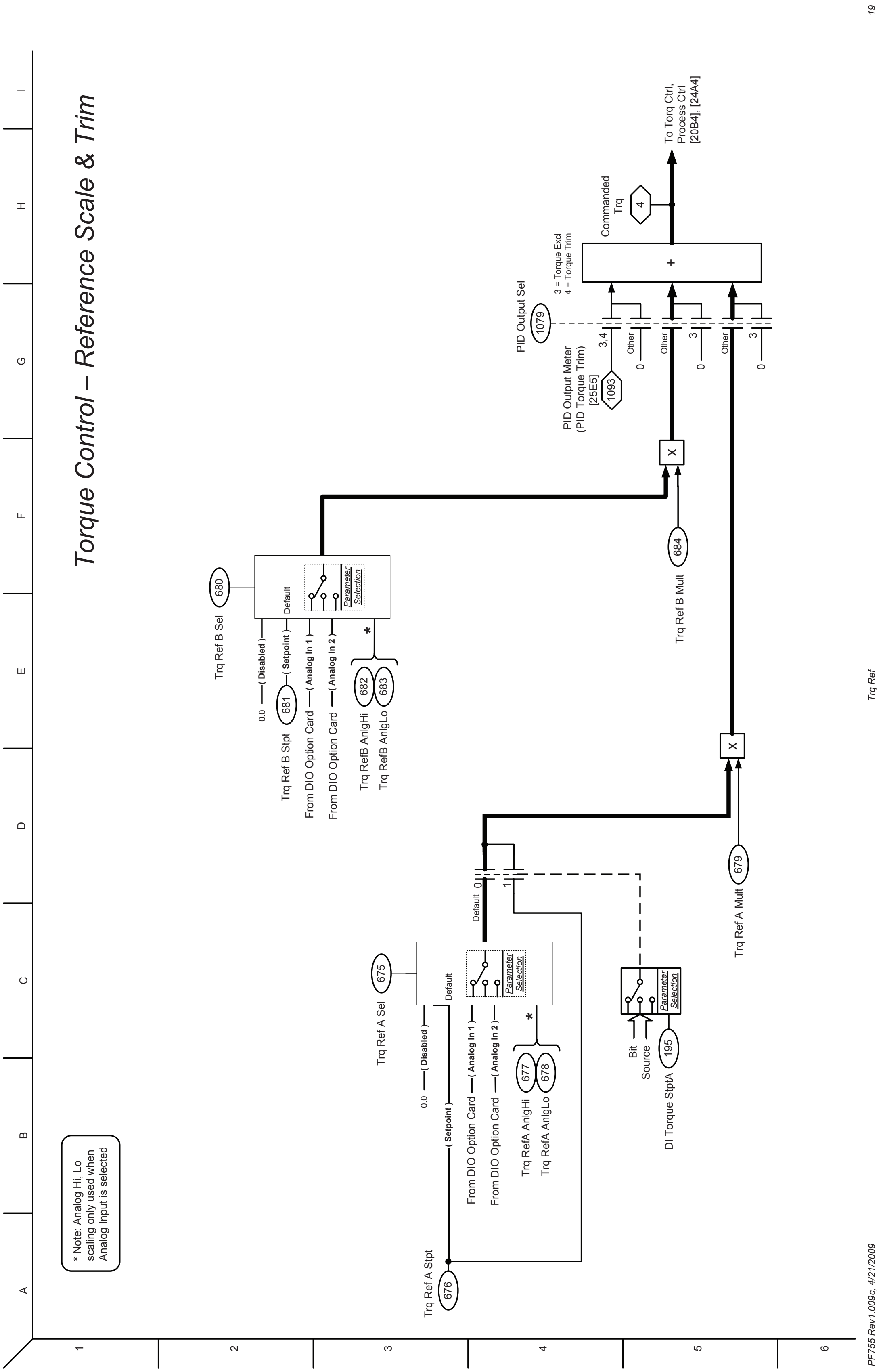
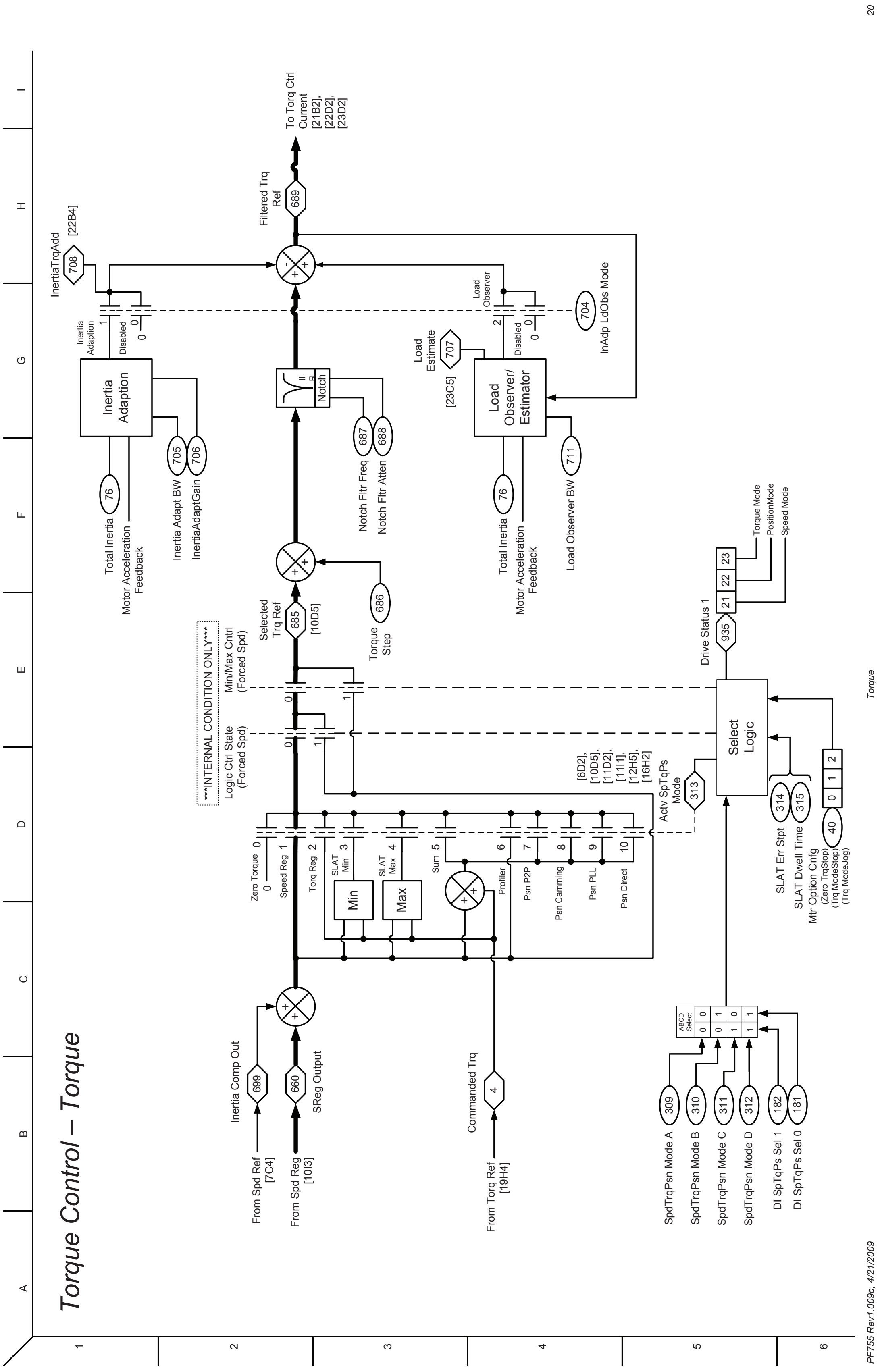
Trq Ctrl Overview
18

Torque Control – Reference Scale & Trim




Torque Control – Torque
1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
20
From Spd Ref
[7C4]
Inertia Comp Out
699
From Spd Reg
[10I3]
660
SReg Output
From Torq Ref
[19H4]
Commanded Trq
4
Zero Torque 0
0
Speed Reg 1
Torq Reg 2
SLAT Min 3
SLAT Max 4
Min
Max
Sum 5
Profiler 6
Psn P2P 7
Psn Camming 8
Psn PLL 9
Psn Direct 10
INTERNAL CONDITION ONLY
Logic Ctrl State
(Forced Spd)
Min/Max Cntrl
(Forced Spd)
0
1
Selected
Trq Ref
685
[10D5]
Torque
Step
686
Notch Fltr Freq
687
Notch Fltr Atten
688
Notch
Filtered Trq
Ref
689
To Torq Ctrl
Current
[21B2],
[22D2],
[23D2]
InertiaTrqAdd
708
[22B4]
Inertia
Adaption
Disabled
0
1
Total Inertia
76
Motor Acceleration
Feedback
Inertia Adapt BW
705
InertiaAdaptGain
706
Load
Estimate
707
[23C5]
Load
Observer/
Estimator
Load
Observer
Disabled
0
2
Total Inertia
76
Motor Acceleration
Feedback
Load Observer BW
711
704
InAdp LdObs Mode
Drive Status 1
935
21
22
23
Torque Mode
PositionMode
Speed Mode
Select
Logic
[6D2],
[10D5],
[11D2],
[11I1],
[12H5],
[16H2]
Actv SpTqPs
Mode
313
SLAT Err Stpt
314
SLAT Dwell Time
315
Mtr Option Cnfg
(Zero TrqStop)
(Trq ModeStop)
(Trq ModeJog)
40
0
1
2
SpdTrqPsn Mode A
309
SpdTrqPsn Mode B
310
SpdTrqPsn Mode C
311
SpdTrqPsn Mode D
312
DI SpTqPs Sel 1
182
DI SpTqPs Sel 0
181
ABCD
Select
0 0
0 1
1 0
1 1
Torque
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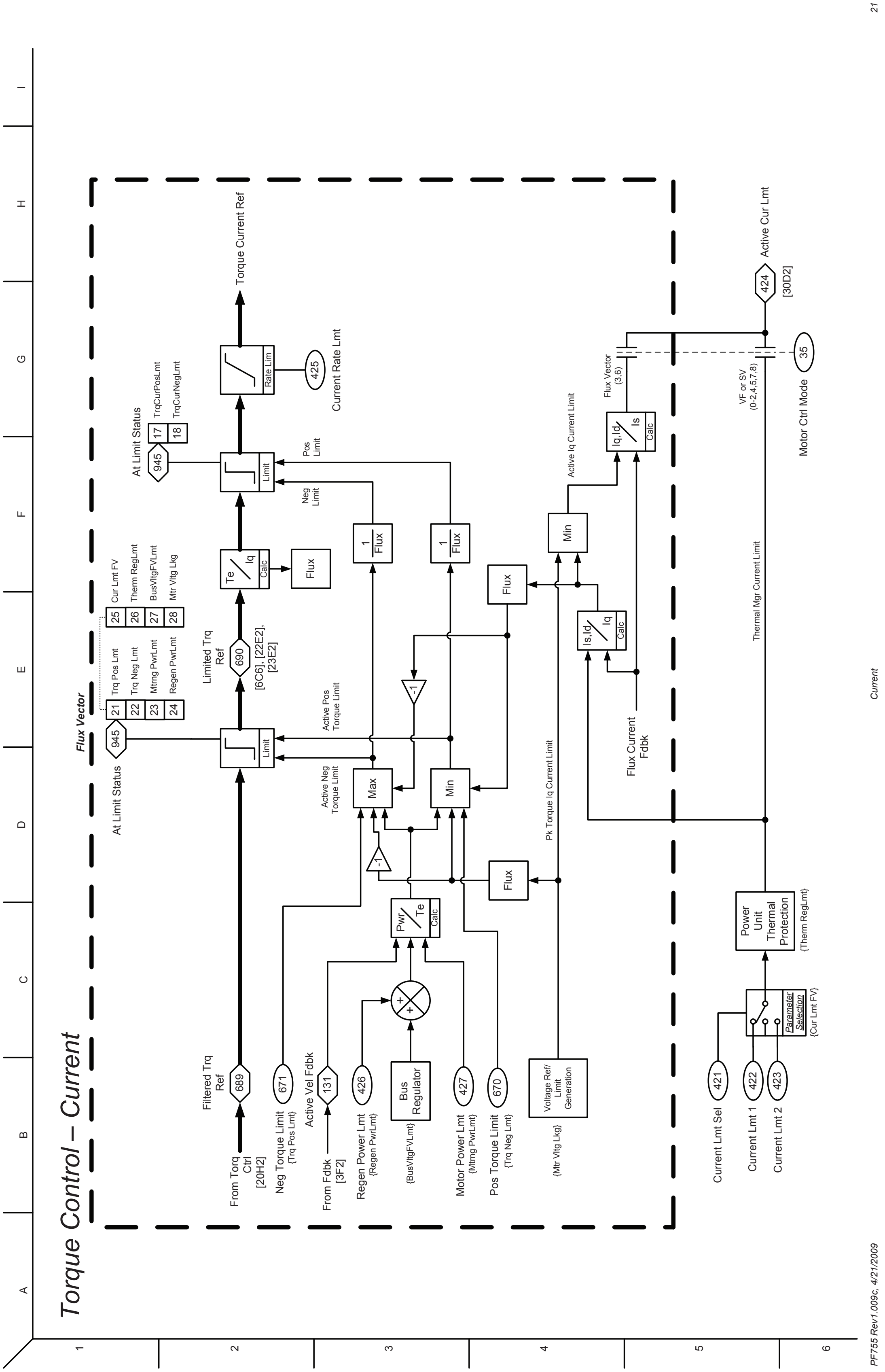
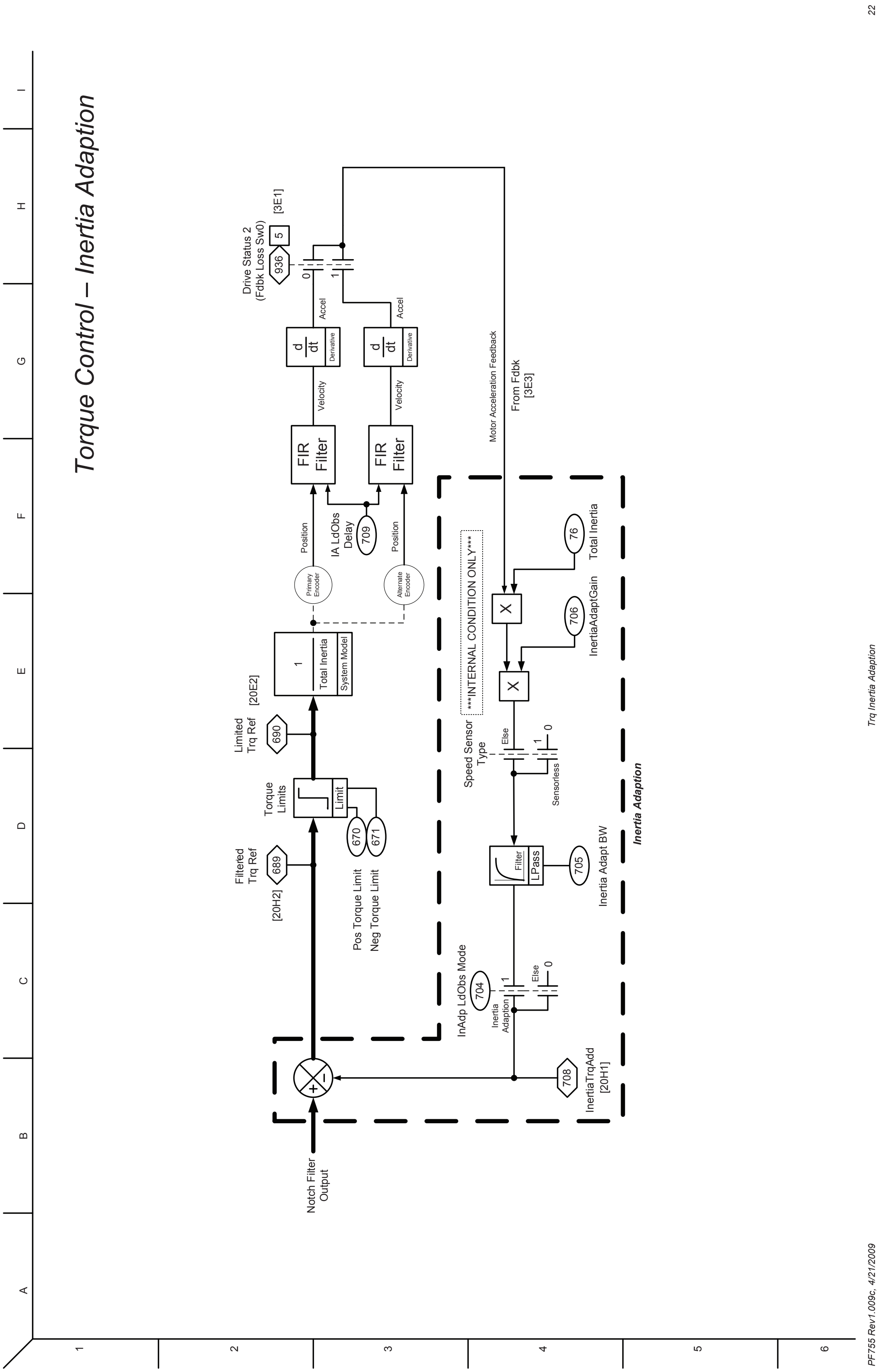
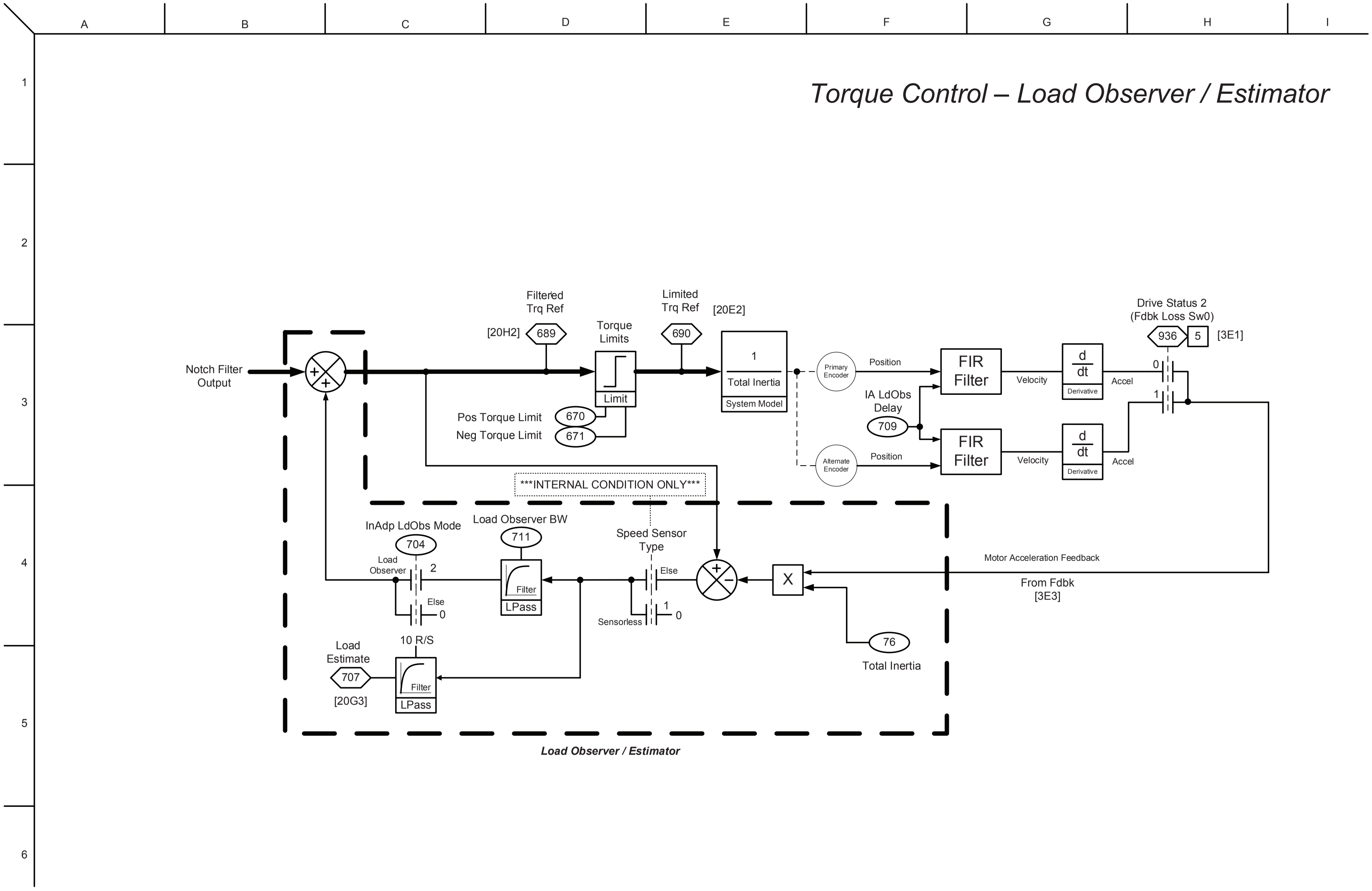
Torque Control – Current



Torque Control – Inertia Adaption



Torque Control – Load Observer / Estimator



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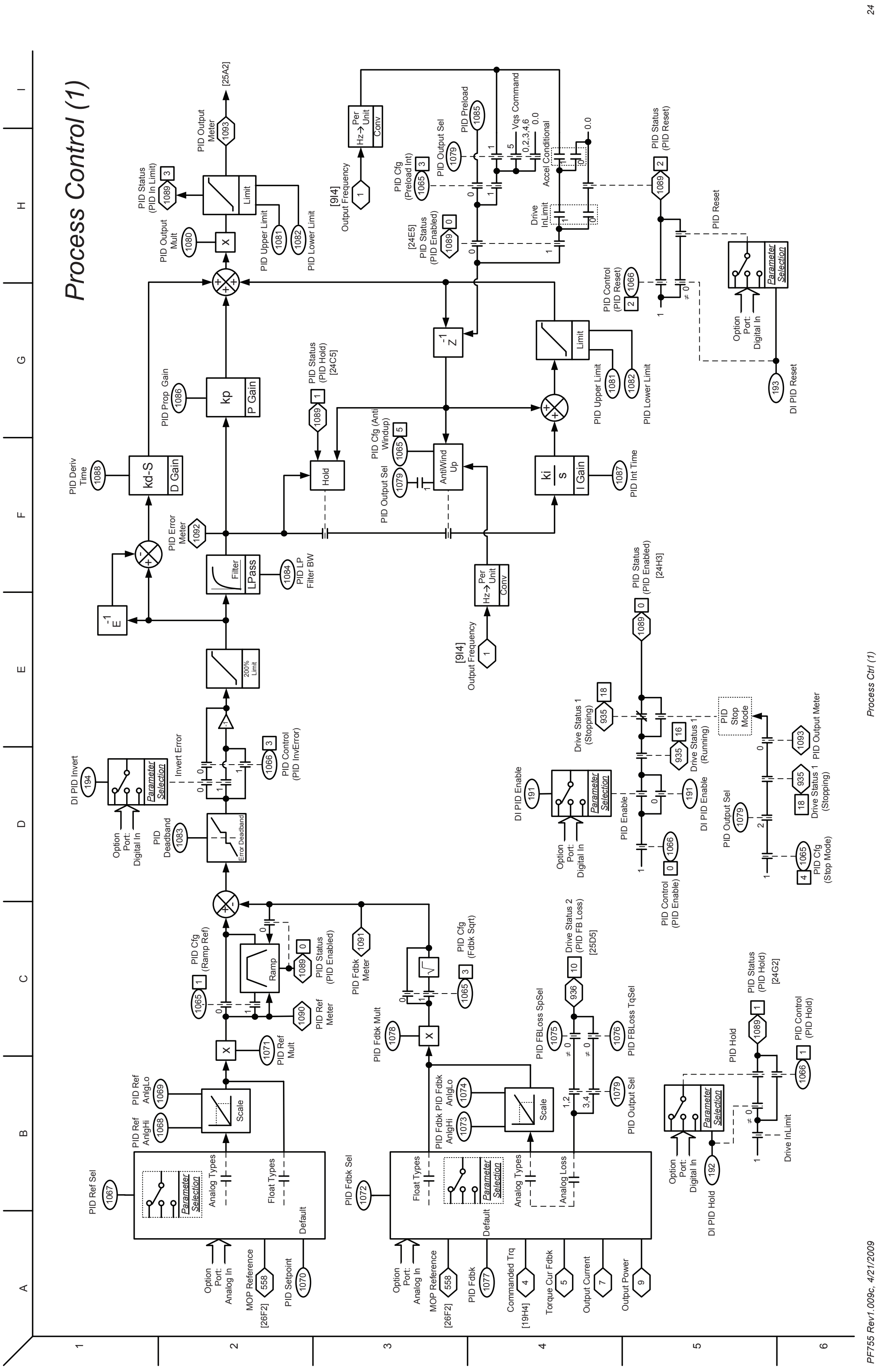
Trq Load Observer/Estimator

23


Process Control (1)
24
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
PID Ref Sel
1067
Parameter Selection
Analog Types
Float Types
Default
Option Port: Analog In
MOP Reference
558
[26F2]
PID Setpoint
1070
PID Ref AnlgHi
1068
PID Ref AnlgLo
1069
Scale
X
1071
PID Ref Mult
PID Cfg (Ramp Ref)
1065
1
Ramp
1089
0
PID Status (PID Enabled)
1090
PID Ref Meter
PID Fdbk Meter
1091
PID Fdbk Sel
1072
Float Types
Analog Types
Analog Loss
Default
MOP Reference
[26F2]
PID Fdbk
1077
Commanded Trq
4
[19H4]
Torque Cur Fdbk
5
Output Current
7
Output Power
9
PID Fdbk AnlgHi
1073
PID Fdbk AnlgLo
1074
PID Fdbk Mult
1078
PID Cfg (Fdbk Sqrt)
1065
3
PID FBLoss SpSel
1075
PID FBLoss TqSel
1076
1079
PID Output Sel
1,2
3,4
≠ 0
936
10
Drive Status 2 (PID FB Loss)
[25D5]
DI PID Hold
192
Option Port: Digital In
Drive InLimit
PID Hold
1089
1
PID Status (PID Hold)
[24G2]
1066
1
PID Control (PID Hold)
DI PID Invert
194
Option Port: Digital In
PID Deadband
1083
Error Deadband
Invert Error
1066
3
PID Control (PID InvError)
200% Limit
-1
E
Filter
LPass
1084
PID LP Filter BW
PID Error Meter
1092
PID Deriv Time
1088
kd-S
D Gain
kp
P Gain
PID Prop Gain
1086
Hold
1089
1
PID Status (PID Hold)
[24C5]
PID Output Sel
1079
AntiWind Up
PID Cfg (Anti Windup)
1065
5
ki/s
I Gain
1087
PID Int Time
Per Unit Conv
Hz→
[9I4]
Output Frequency
1
Z -1
Limit
PID Upper Limit
1081
PID Lower Limit
1082
X
PID Output Mult
1080
PID Status (PID In Limit)
1089
3
PID Output Meter
1093
[25A2]
[24E5]
PID Status (PID Enabled)
1089
0
PID Cfg (Preload Int)
1065
3
PID Output Sel
1079
PID Preload
1085
Vqs Command
0,2,3,4,6
0.0
Accel Conditional
Drive InLimit
0.0
1089
2
PID Status (PID Reset)
PID Reset
PID Control (PID Reset)
2
1066
Option Port: Digital In
193
DI PID Reset
1089
0
PID Status (PID Enabled)
[24H3]
DI PID Enable
191
Option Port: Digital In
PID Enable
1066
0
PID Control (PID Enable)
DI PID Enable
191
935
18
Drive Status 1 (Stopping)
935
16
Drive Status 1 (Running)
PID Stop Mode
PID Output Sel
1079
1093
PID Output Meter
935
18
Drive Status 1 (Stopping)
4
1065
PID Cfg (Stop Mode)
Process Ctrl (1)
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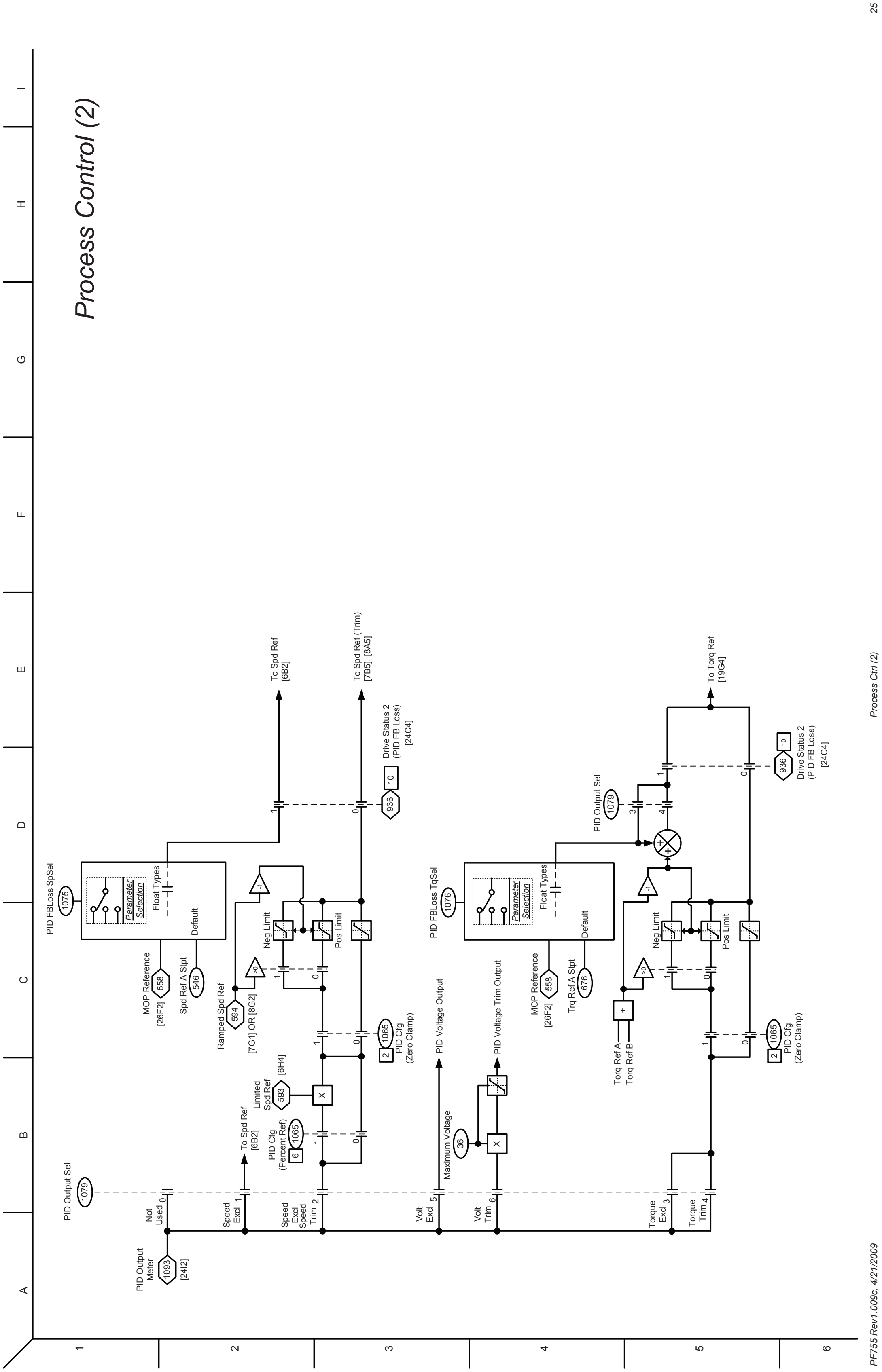
25
Process Control (2)
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
PID Output Meter
1093
[24I2]
PID Output Sel
1079
Not Used 0
Speed Excl 1
Speed Excl Speed Trim 2
Volt Excl 5
Volt Trim 6
Torque Excl 3
Torque Trim 4
To Spd Ref [6B2]
PID Cfg (Percent Ref)
6
1065
1
0
Limited Spd Ref
593
[6H4]
X
1
0
2
1065
PID Cfg (Zero Clamp)
Ramped Spd Ref
594
[7G1] OR [8G2]
>0
-1
1
0
Neg Limit
Pos Limit
MOP Reference
558
[26F2]
Spd Ref A Stpt
546
PID FBLoss SpSel
1075
Parameter Selection
Float Types
Default
1
0
936
10
Drive Status 2 (PID FB Loss) [24C4]
To Spd Ref [6B2]
To Spd Ref (Trim) [7B5], [8A5]
Maximum Voltage
36
X
PID Voltage Output
PID Voltage Trim Output
PID FBLoss TqSel
1076
Parameter Selection
Float Types
Default
MOP Reference
558
[26F2]
Trq Ref A Stpt
676
Torq Ref A
Torq Ref B
+
>0
-1
1
0
Neg Limit
Pos Limit
1
0
2
1065
PID Cfg (Zero Clamp)
PID Output Sel
1079
3
4
+
+
1
0
936
10
Drive Status 2 (PID FB Loss) [24C4]
To Torq Ref [19G4]
Process Ctrl (2)
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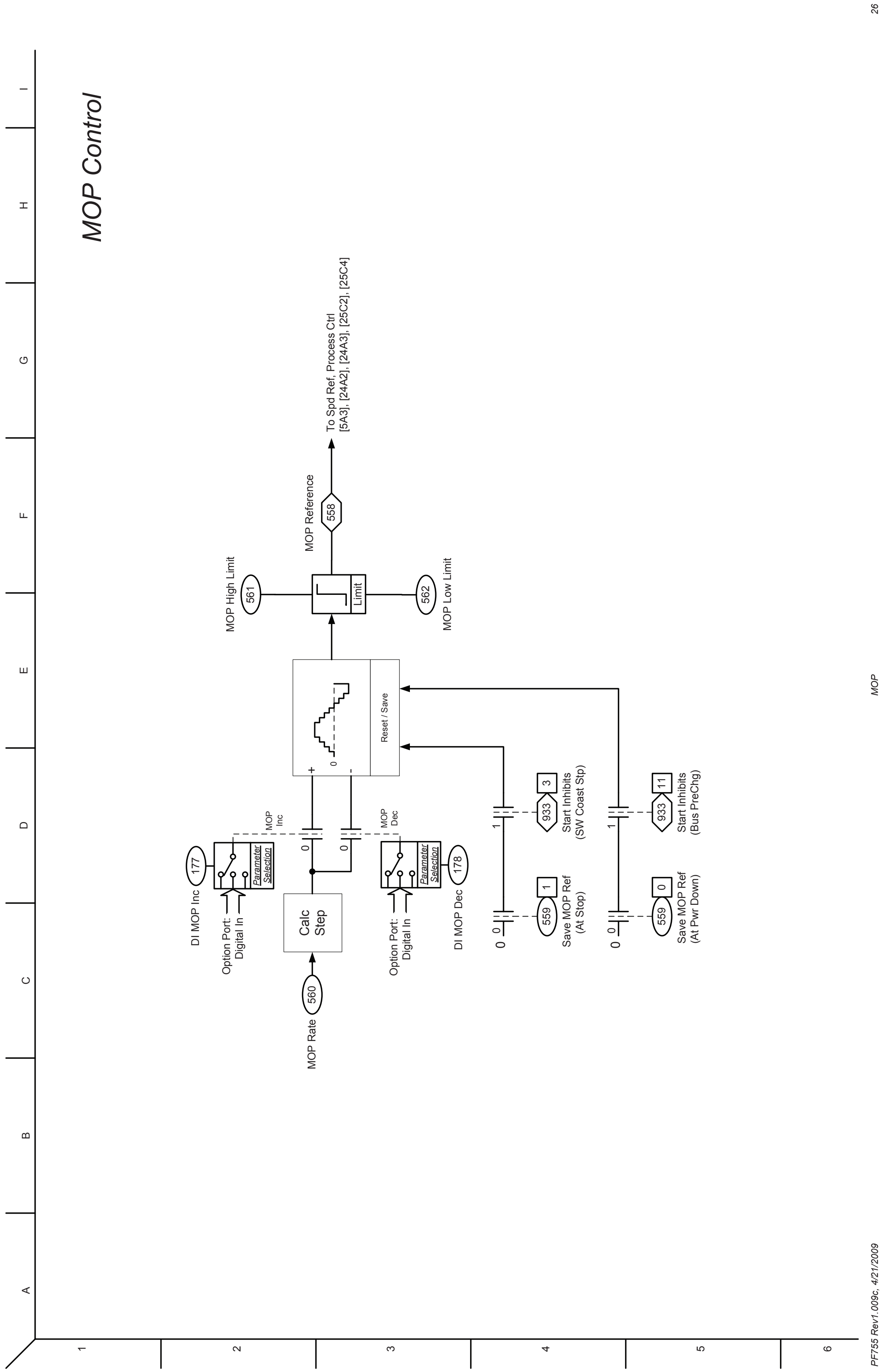
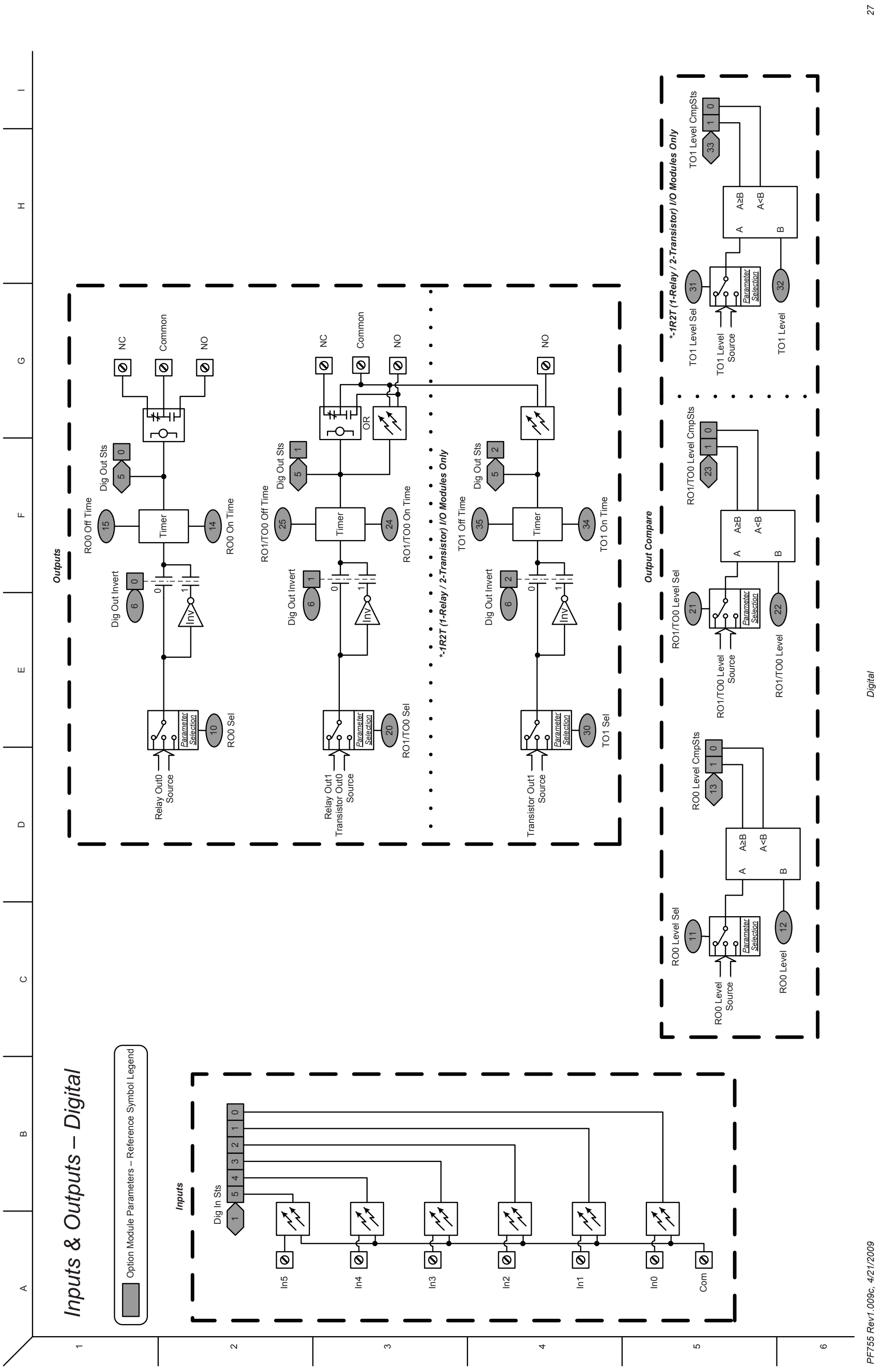
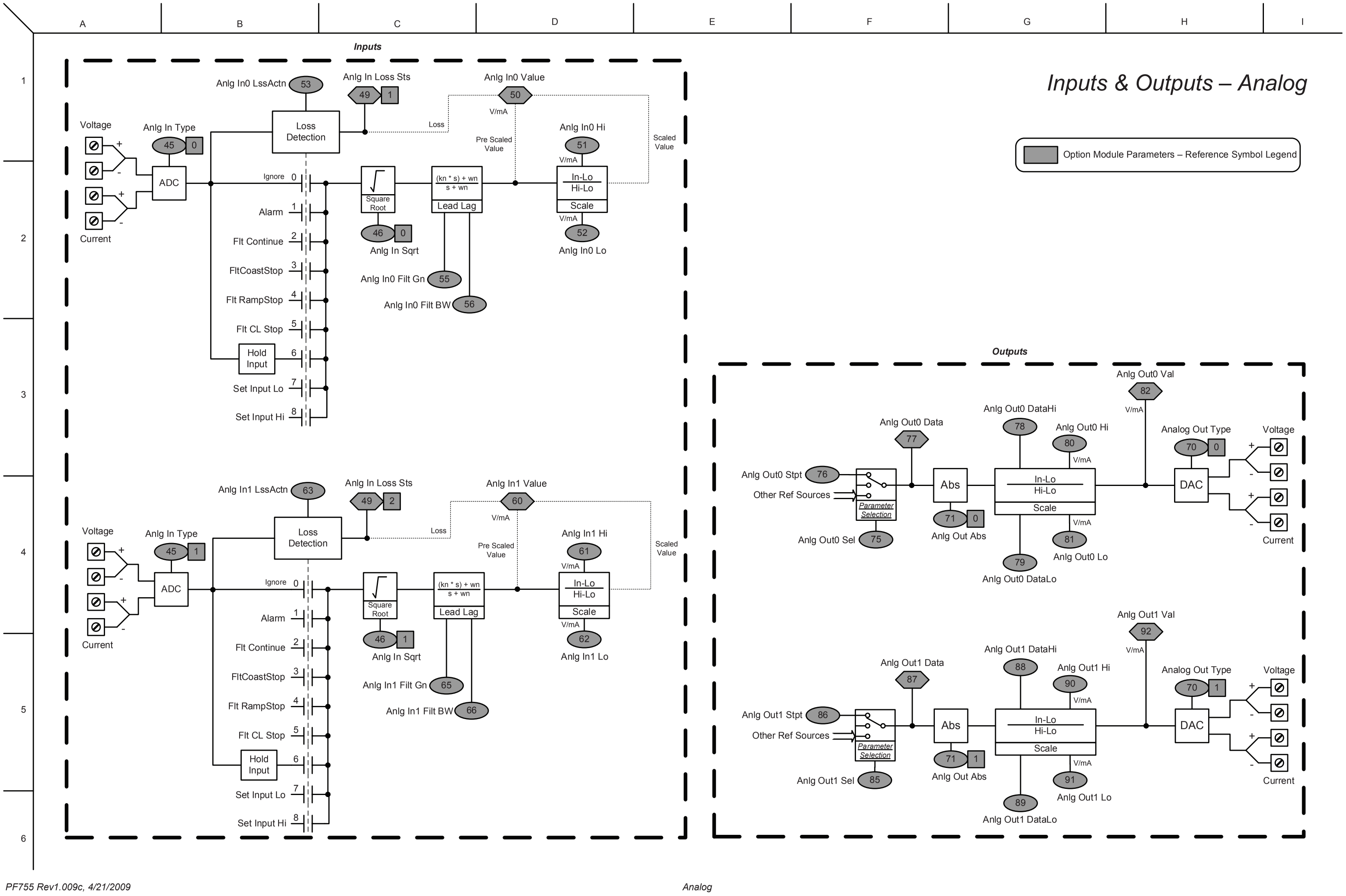
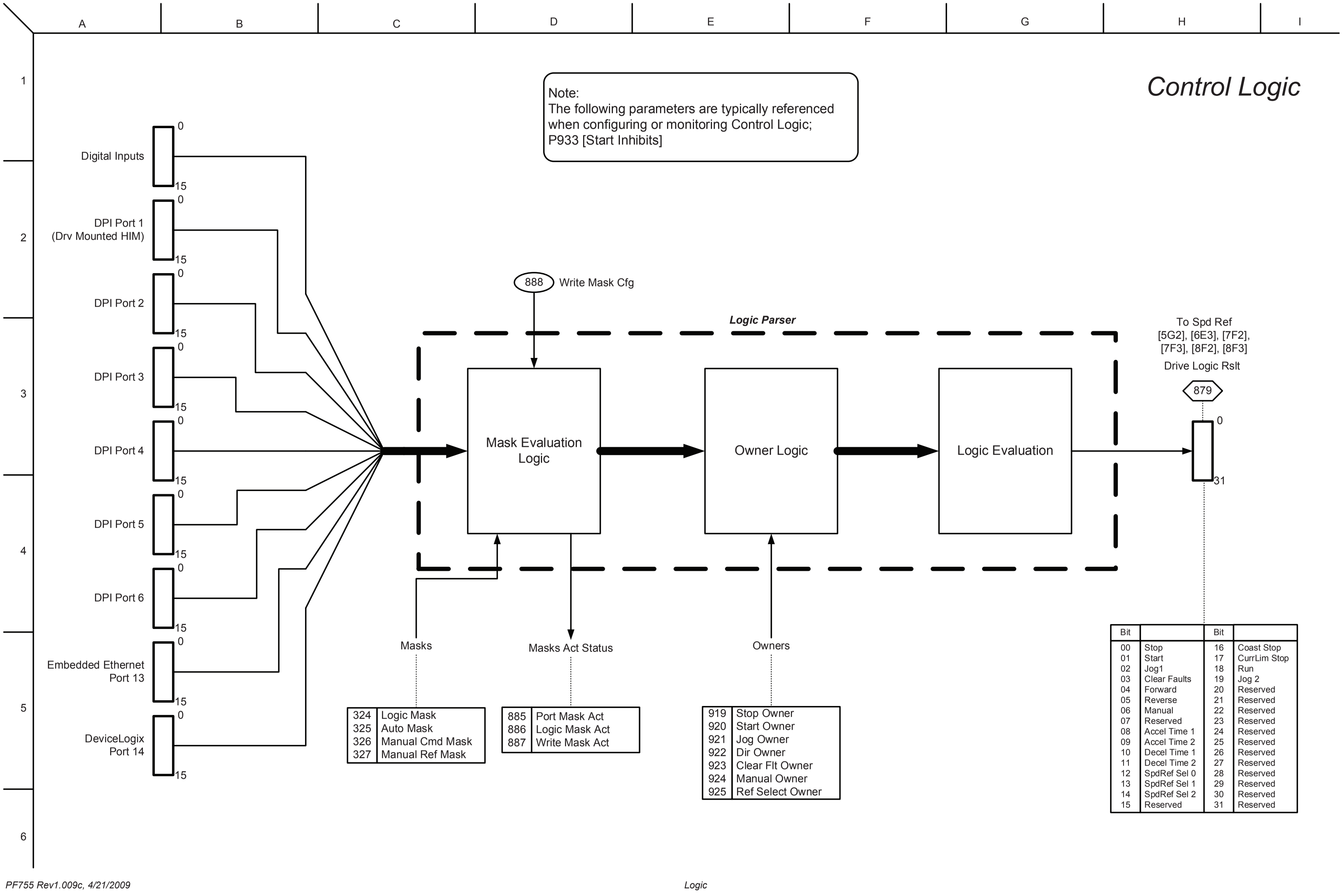

MOP Control
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
26
MOP
PF755 Rev1.009c, 4/21/2009
DI MOP Inc
177
Option Port:
Digital In
Parameter
Selection
MOP
Inc
Calc
Step
MOP Rate
560
Option Port:
Digital In
DI MOP Dec
178
MOP
Dec
0
0
+
0
-
Reset / Save
MOP High Limit
561
Limit
MOP Low Limit
562
MOP Reference
558
To Spd Ref, Process Ctrl
[5A3], [24A2], [24A3], [25C2], [25C4]
0
0
559
1
Save MOP Ref
(At Stop)
1
933
3
Start Inhibits
(SW Coast Stp)
0
0
559
0
Save MOP Ref
(At Pwr Down)
1
933
11
Start Inhibits
(Bus PreChg)


Inputs & Outputs – Digital
Option Module Parameters – Reference Symbol Legend
Inputs
Dig In Sts
1
5 4 3 2 1 0
In5
In4
In3
In2
In1
In0
Com
Outputs
Relay Out0 Source
Parameter Selection
10 RO0 Sel
Dig Out Invert 6 0
Inv
0 1
15 RO0 Off Time
Timer
14 RO0 On Time
Dig Out Sts 5 0
NC
Common
NO
Relay Out1 Transistor Out0 Source
20 RO1/TO0 Sel
Dig Out Invert 6 1
25 RO1/TO0 Off Time
24 RO1/TO0 On Time
Dig Out Sts 5 1
OR
*-1R2T (1-Relay / 2-Transistor) I/O Modules Only
Transistor Out1 Source
30 TO1 Sel
Dig Out Invert 6 2
35 TO1 Off Time
34 TO1 On Time
Dig Out Sts 5 2
Output Compare
RO0 Level Source
11 RO0 Level Sel
12 RO0 Level
A A≥B
A<B
B
13 RO0 Level CmpSts 1 0
RO1/TO0 Level Source
21 RO1/TO0 Level Sel
22 RO1/TO0 Level
23 RO1/TO0 Level CmpSts 1 0
TO1 Level Source
31 TO1 Level Sel
32 TO1 Level
33 TO1 Level CmpSts 1 0
*-1R2T (1-Relay / 2-Transistor) I/O Modules Only
A B C D E F G H I
1 2 3 4 5 6
27
Digital
PF755 Rev1.009c, 4/21/2009

Inputs & Outputs – Analog

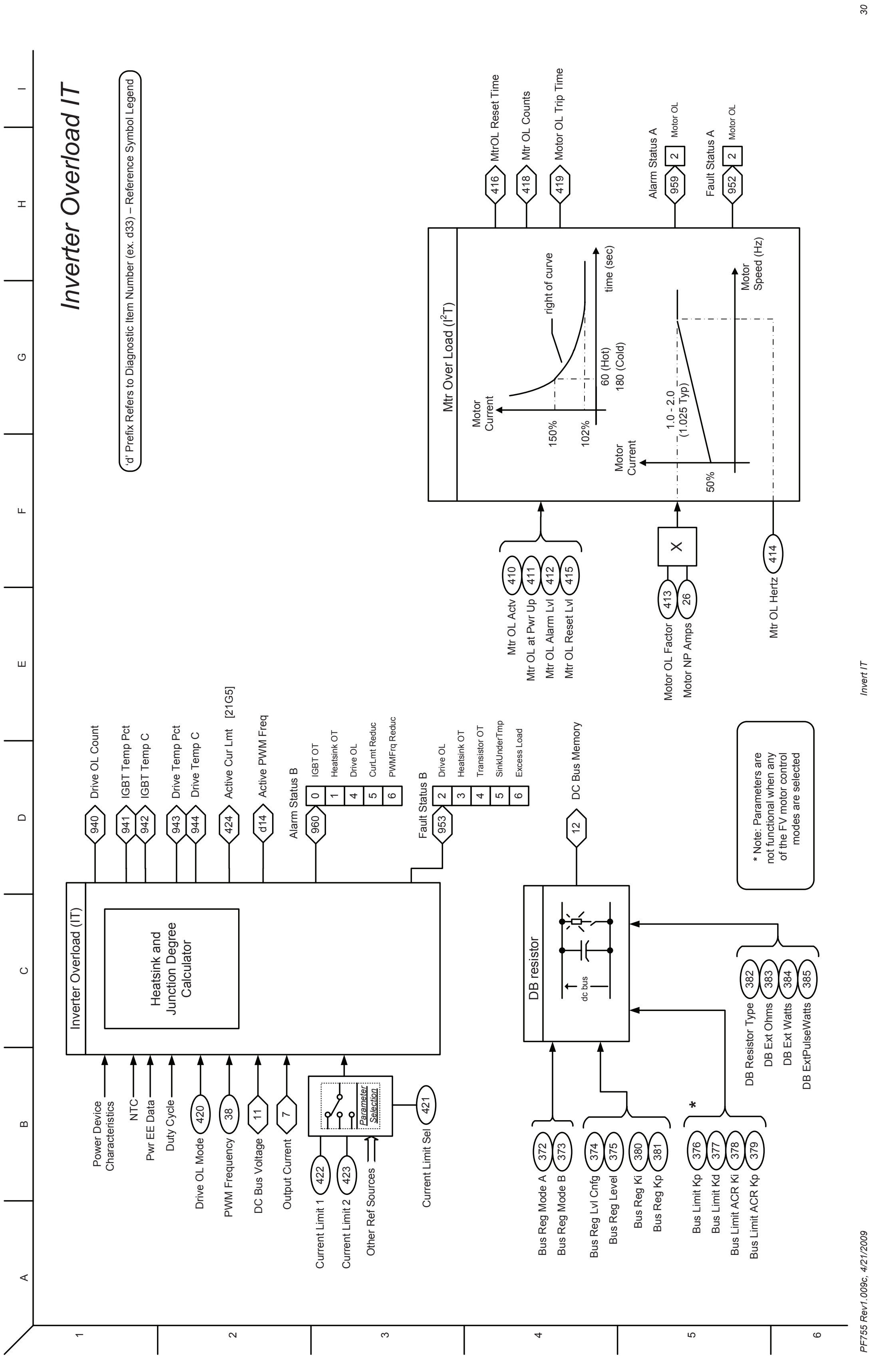


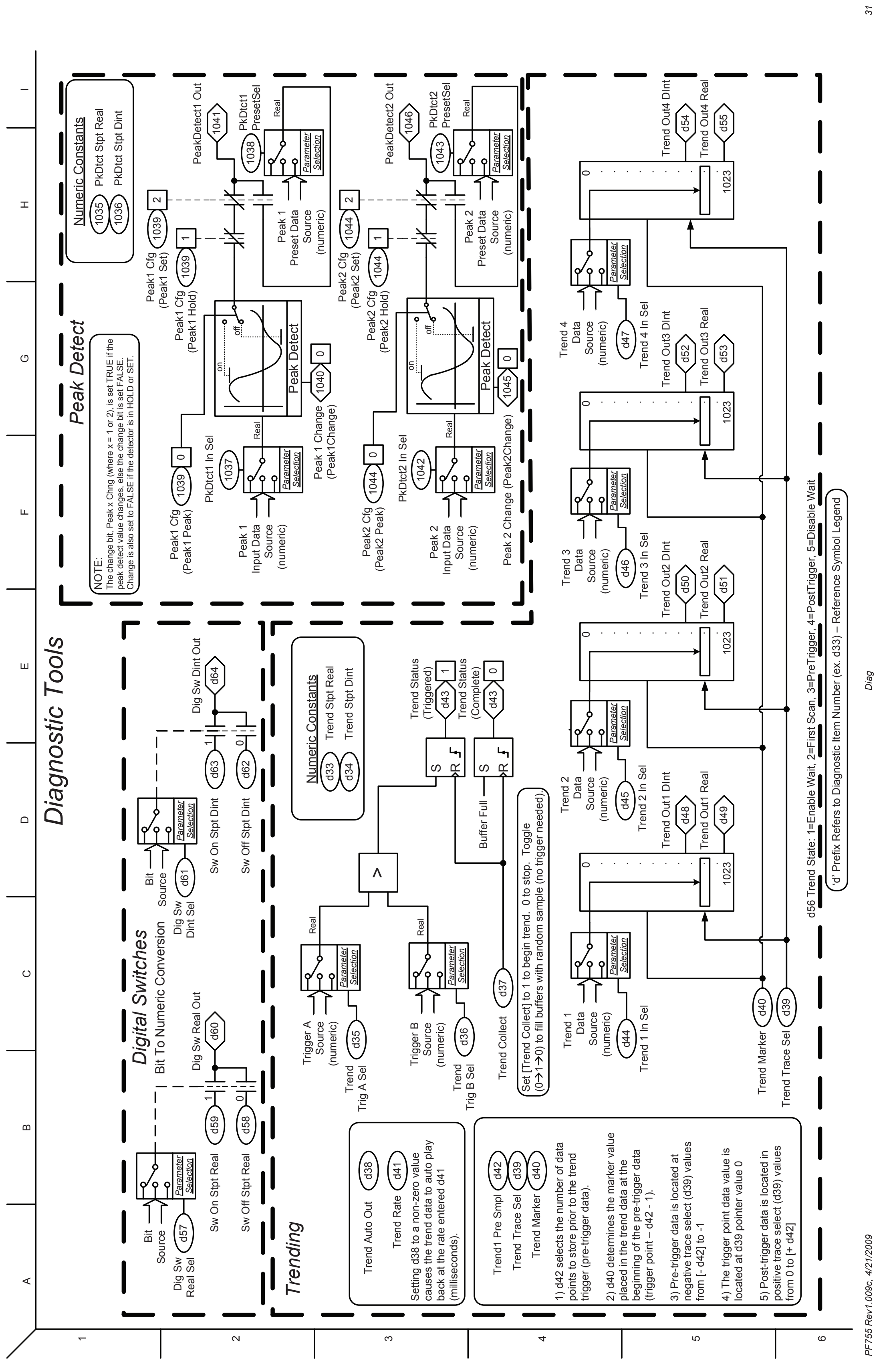


Control Logic

Note:
The following parameters are typically referenced when configuring or monitoring Control Logic;
P933 [Start Inhibits]

Bit		Bit	
00	Stop	16	Coast Stop
01	Start	17	CurrLim Stop
02	Jog1	18	Run
03	Clear Faults	19	Jog 2
04	Forward	20	Reserved
05	Reverse	21	Reserved
06	Manual	22	Reserved
07	Reserved	23	Reserved
08	Accel Time 1	24	Reserved
09	Accel Time 2	25	Reserved
10	Decel Time 1	26	Reserved
11	Decel Time 2	27	Reserved
12	SpdRef Sel 0	28	Reserved
13	SpdRef Sel 1	29	Reserved
14	SpdRef Sel 2	30	Reserved
15	Reserved	31	Reserved


Inverter Overload IT
'd' Prefix Refers to Diagnostic Item Number (ex. d33) – Reference Symbol Legend
Inverter Overload (IT)
Heatsink and Junction Degree Calculator
Power Device Characteristics
NTC
Pwr EE Data
Duty Cycle
Drive OL Mode 420
PWM Frequency 38
DC Bus Voltage 11
Output Current 7
Current Limit 1 422
Current Limit 2 423
Other Ref Sources
Parameter Selection
Current Limit Sel 421
940 Drive OL Count
941 IGBT Temp Pct
942 IGBT Temp C
943 Drive Temp Pct
944 Drive Temp C
424 Active Cur Lmt [21G5]
d14 Active PWM Freq
Alarm Status B
960
0 IGBT OT
1 Heatsink OT
4 Drive OL
5 CurLmt Reduc
6 PWMFrq Reduc
Fault Status B
953
2 Drive OL
3 Heatsink OT
4 Transistor OT
5 SinkUnderTmp
6 Excess Load
12 DC Bus Memory
DB resistor
dc bus
Bus Reg Mode A 372
Bus Reg Mode B 373
Bus Reg Lvl Cnfg 374
Bus Reg Level 375
Bus Reg Ki 380
Bus Reg Kp 381
*
Bus Limit Kp 376
Bus Limit Kd 377
Bus Limit ACR Ki 378
Bus Limit ACR Kp 379
DB Resistor Type 382
DB Ext Ohms 383
DB Ext Watts 384
DB ExtPulseWatts 385
* Note: Parameters are not functional when any of the FV motor control modes are selected
Mtr OL Actv 410
Mtr OL at Pwr Up 411
Mtr OL Alarm Lvl 412
Mtr OL Reset Lvl 415
Motor OL Factor 413
Motor NP Amps 26
X
Mtr OL Hertz 414
Mtr Over Load (I^2T)
Motor Current
150%
102%
right of curve
60 (Hot)
180 (Cold)
time (sec)
Motor Current
1.0 - 2.0
(1.025 Typ)
50%
Motor Speed (Hz)
416 MtrOL Reset Time
418 Mtr OL Counts
419 Motor OL Trip Time
Alarm Status A
959
2 Motor OL
Fault Status A
952
2 Motor OL
A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
30
Invert IT
PF755 Rev1.009c, 4/21/2009



NOTE: The change bit, Peak x Chng (where x = 1 or 2), is set TRUE if the peak detect value changes, else the change bit is set FALSE. Change is also set to FALSE if the detector is in HOLD or SET.

Setting d38 to a non-zero value causes the trend data to auto play back at the rate entered d41 (milliseconds).

1) d42 selects the number of data points to store prior to the trend trigger (pre-trigger data).

2) d40 determines the marker value placed in the trend data at the beginning of the pre-trigger data (trigger point – d42 - 1).

3) Pre-trigger data is located at negative trace select (d39) values from [- d42] to -1

4) The trigger point data value is located at d39 pointer value 0

5) Post-trigger data is located in positive trace select (d39) values from 0 to [+ d42]

Set [Trend Collect] to 1 to begin trend. 0 to stop. Toggle (0→1→0) to fill buffers with random sample (no trigger needed).

d56 Trend State: 1=Enable Wait, 2=First Scan, 3=PreTrigger, 4=PostTrigger, 5=Disable Wait

'd' Prefix Refers to Diagnostic Item Number (ex. d33) – Reference Symbol Legend

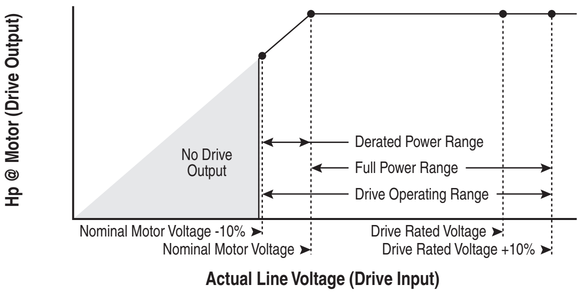
Appendix C

Application Notes

Voltage Tolerance

Drive Rating	Nominal Line Voltage	Nominal Motor Voltage	Drive Full Power Range	Drive Operating Range
380…400	380	380	380…528	342…528
	400	400	400…528	
	480	460	460…528	

Drive Full Power Range =	Nominal Motor Voltage to Drive Rated Voltage + 10%. Rated current is available across the entire Drive Full Power Range
Drive Operating Range =	Lowest Nominal Motor Voltage - 10% to Drive Rated Voltage + 10%. Drive Output is linearly derated when Actual Line Voltage is less than the Nominal Motor Voltage

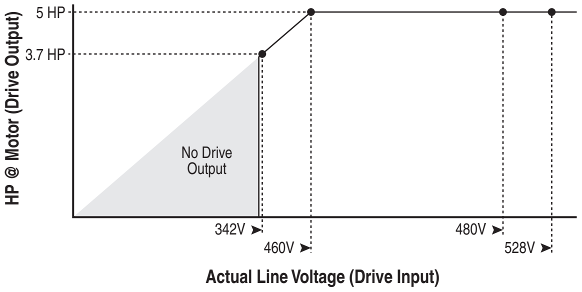


Example:

Calculate the maximum power of a 5 Hp, 460V motor connected to a 480V rated drive supplied with 342V Actual Line Voltage input.

- Actual Line Voltage / Nominal Motor Voltage = 74.3%
- 74.3% × 5 HP = 3.7 HP
- 74.3% × 60 Hz = 44.6 Hz

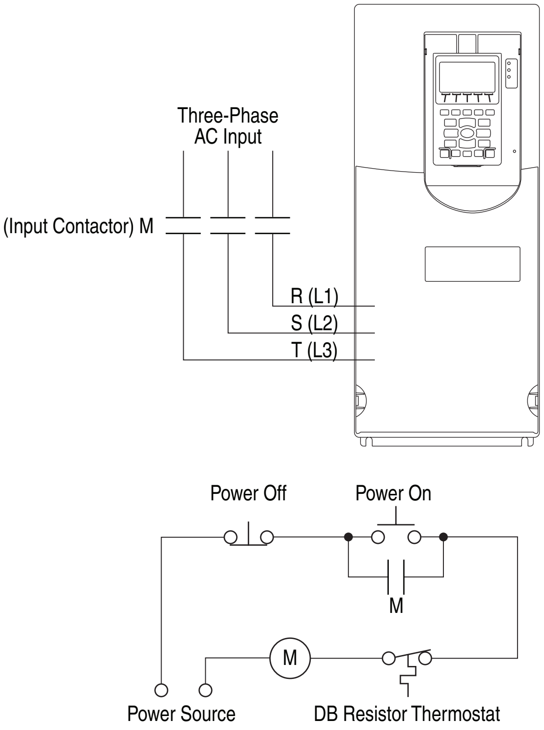
At 342V Actual Line Voltage, the maximum power the 5 HP, 460V motor can produce is 3.7 HP at 44.6 Hz.



External Brake Resistor

ATTENTION: The drive does not offer protection for externally mounted brake resistors. A risk of fire exists if external braking resistors are not protected. External resistor packages must be self-protected from over temperature or a circuit equivalent to the one shown below must be supplied.

Figure C.1 External Brake Resistor Circuitry



Lifting/Torque Proving

The TorqProve™ feature of PowerFlex 750-Series drives is intended for applications where proper coordination between motor control and a mechanical brake is required. Prior to releasing a mechanical brake, the drive will check motor output phase continuity and verify proper motor control (torque proving). The drive will also verify that the mechanical brake has control of the load prior to releasing drive control (brake proving). After the drive sets the brake, motor movement is monitored to ensure the brakes ability to hold the load.

ATTENTION: Loss of control in suspended load applications can cause personal injury and/or equipment damage. Loads must always be controlled by the drive or a mechanical brake. Parameters 1100…1113 are designed for lifting/torque proving applications. It is the responsibility of the engineer and/or end user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards.

TorqProve can be operated with an encoder or encoderless. See “Attention” on page C-4 prior to the use of TorqProve with no encoder.

TorqProve functionality with an encoder includes:

- Torque Proving (includes flux up and last torque measurement)
- Brake Proving
- Brake Slip (feature slowly lowers load if brake slips/fails)
- Float Capability (ability to hold full torque at zero speed)
- Micro-Positioning
- Fast Stop
- Speed Deviation Fault, Output Phase Loss Fault, Encoder Loss Fault.

Encoderless TorqProve functionality includes:

- Torque Proving (includes flux up and last torque measurement)
- Micro-Positioning
- Fast Stop
- Speed Deviation Fault, Output Phase Loss Fault.

Important: Brake Slip detection and Float capability (ability to hold load at zero speed) are not available in encoderless TorqProve.

ATTENTION: User must read the following prior to the use of TorqProve with no encoder.

Encoderless TorqProve must be limited to lifting applications where personal safety is not a concern. Encoders offer additional protection and must be used where personal safety is a concern. Encoderless TorqProve cannot hold a load at zero speed without a mechanical brake and does not offer additional protection if the brake slips/fails. Loss of control in suspended load applications can cause personal injury and/or equipment damage.

It is the responsibility of the engineer and/or user to configure drive parameters, test any lifting functionality and meet safety requirements in accordance with all applicable codes and standards. If encoderless TorqProve is desired, the user must certify the safety of the application. To acknowledge that the end user has read this “Attention” and properly certified their encoderless application, bit 3 (“EnclsTrqProv”) of [Mtr Options Cnfg], parameter 40 must be changed to a “1.” This will remove Alarm 28, “TP Encls Config” and allow bit 1 of Parameter 1100 to be changed to a “1” enabling encoderless TorqProve.

Tuning The Motor For Torque Prove Applications

It is possible to use the Start-Up routine (See page 2-3) to tune the motor. However, it is recommended that the motor be disconnected from the hoist/ crane equipment during the routine

ATTENTION: To guard against personal injury and/or equipment damage caused by unexpected brake release, verify that the digital output used for brake connections and/or programming. The PowerFlex 750-Series drive **will not control the mechanical brake until TorqProve is enabled**. If the brake is connected to a digital output, it could be released. If necessary, **disconnect the digital output until wiring/programming can be completed and verified**.

Appendix D

Human Interface Module (HIM) Overview

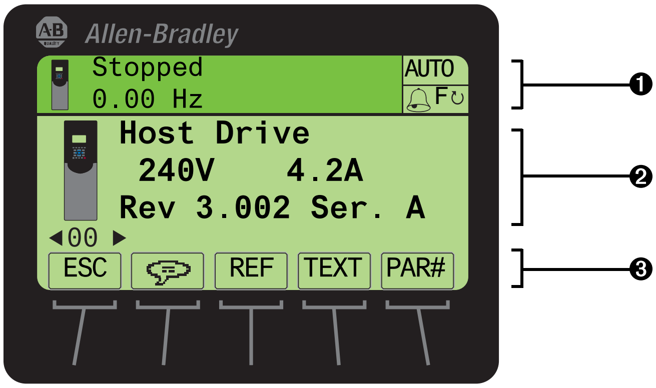
Complete information about using the HIM (Catalog Numbers 20-HIM-A6 and 20-HIM-C6S) to configure and monitor your drive is provided in the Enhanced PowerFlex 7-Class Human Interface Module (HIM) User Manual, publication 20HIM-UM001.

LCD Display Elements

The HIM display is divided into three zones:

❶ Status Bar
❷ Data Area
❸ Soft Key Labels

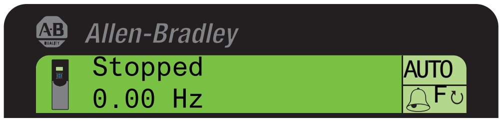
Figure D.1 HIM Display Zones



Status Bar

The Status Bar provides information about the operating condition of the Host Drive.

Figure D.2 Status Bar on the Display Screen

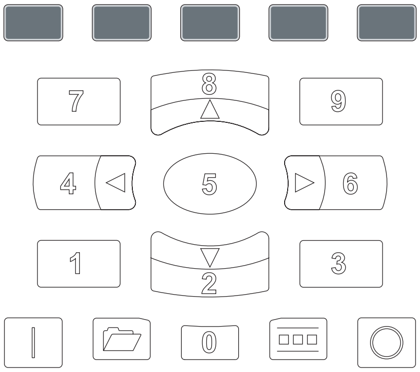


Element		Description
	Host Icon	A small image of the connected Host Drive.
`Stopped`	Status Text	Indicates current Host Drive operating status. Text flashes when a fault is present.
`0.00 Hz`	Feedback	Indicates drive output feedback (for example, Hz, RPM, amps, etc.)
`AUTO / MAN`	Mode Indication	Indicates Auto or Manual HIM status.
🔔	Alarm Indication	Bell icon indicates that an alarm is present.
F↻ R↺	Rotation Indication	Indicates direction of Host Drive operation.

Soft Keys

Up to five dynamic *soft keys* (shown shaded in Figure D.3) may be available. A *soft key* changes its function/name based on the HIM screen or data entry mode. When a *soft key* is active, its present function is shown on the LCD screen in its corresponding Soft Key Label (item 3 in Figure D.1).

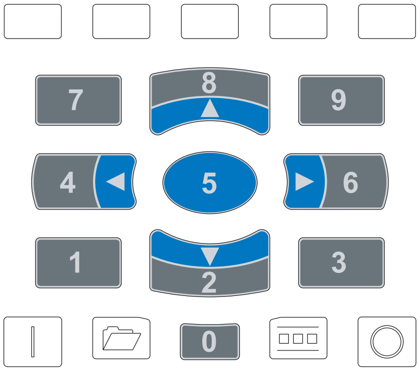
Figure D.3 Soft Keys



Navigation and Number Keys

The five blue multi-function keys shown in Figure D.4 are used to scroll menus/screens, perform corresponding functions displayed in the Data Area (item 2 in Figure D.1) or enter numeric values. The five gray number keys (0, 1, 3, 7, and 9) are used only to enter their respective numeric value.

Figure D.4 Navigation and Number Keys.

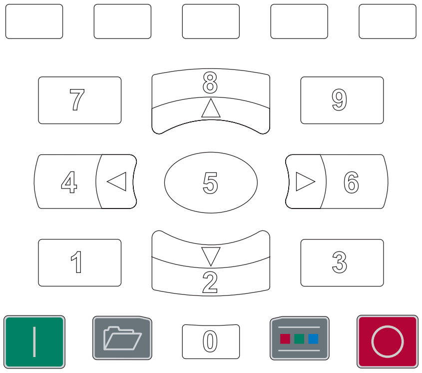


Key	Name	Description
	2/Down Arrow	• Enters the numeric value “2.” • Scrolls down to select an item.
	4/Left Arrow	• Enters the numeric value “4.” • Scrolls left to select an item.
	5/Enter	• Enters the numeric value “5.” • Displays the next level of a selected menu item. • Enters new values. • Performs intended actions.
	6/Right Arrow	• Enters the numeric value “6.” • Scrolls right to select an item.
	8/Up Arrow	• Enters the numeric value “8.” • Scrolls up to select an item.

Single Function Keys

Each of the four single-function keys shown in Figure D.5 always performs only its dedicated function.

Figure D.5 Single Function Keys



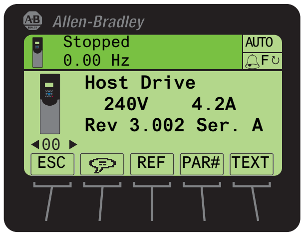
Key	Name	Description
|	Start	Start the drive.
📂	Folder	Access parameters, diagnostics, memory functions, preferences, and other tasks such as Start-Up.
🟥🟩🟦	Control Bar	Access jog, direction, auto/manual, and other control functions.
○	Stop	Used to stop the drive or clear a fault. This key is always active. Controlled by parameter 370 [Stop Mode A].

Navigate to Start-Up Menu Using the HIM

1. To access the Start-Up menu after the initial drive power-up, apply power to the drive.

   Upon a subsequent power up, the Status screen for Port 00 (Host Drive) is shown by default.

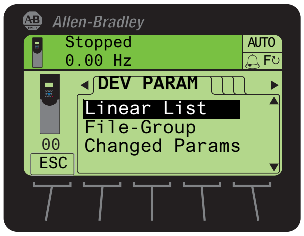
Figure D.6 Status Screen



Allen-Bradley
Stopped
0.00 Hz
AUTO
F
Host Drive
240V 4.2A
Rev 3.002 Ser. A
◄00 ►
ESC | REF | PAR# | TEXT

2. Press the 🗁 (Folders) key to access the Folder screen.

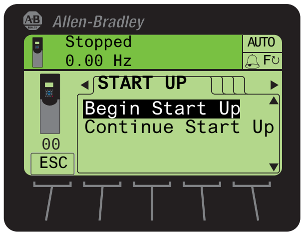
Figure D.7 Folder Screen



Allen-Bradley
Stopped
0.00 Hz
AUTO
F
◄ DEV PARAM ►
Linear List
File-Group
Changed Params
00
ESC

3. Use the 4 ◄ or ► 6 key to scroll to the START UP folder screen.

Figure D.8 Start Up Screen



Allen-Bradley
Stopped
0.00 Hz
AUTO
F
◄ START UP ►
Begin Start Up
Continue Start Up
00
ESC

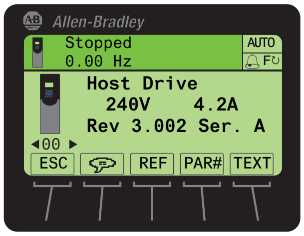
4. Use the ▼ 2 or 8 ▲ key to select one of the start up options.

Select A Device

1. Access the Status Screen.

When the drive is powered up, the Status screen for Port 00 (Host Drive) is shown by default.

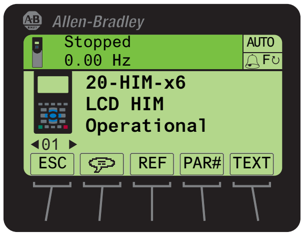
Figure D.9 Status Screen Displaying Port 00 (Host Drive)



Stopped
0.00 Hz
Host Drive
240V 4.2A
Rev 3.002 Ser. A

2. Use the 4 ◀ or ▶ 6 key to scroll to the desired port.

Figure D.10 Status Screen Displaying Port 01 (HIM Installed In Cradle)



Stopped
0.00 Hz
20-HIM-x6
LCD HIM
Operational

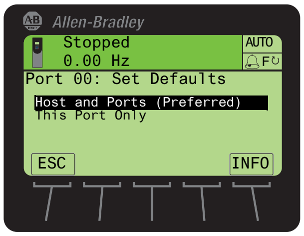
3. Press the PAR# soft key or the 🗀 (Folders) key to access parameters.

Setting Factory Defaults

Setting PowerFlex 750-Series Drives to Factory Defaults

1. Access the Status screen (Figure D.6).
2. Use the 4◄ or ►6 key to scroll to the Port 00 for the Host Drive whose settings you want to reset to factory defaults.
3. Press the 🗀 key to display its last-viewed folder.
4. Use the 4◄ or ►6 key to scroll to the MEMORY folder.
5. Use the ▼2 or 8▲ key to select **Set Defaults**.
6. Press the 5 (Enter) key to display the Set Defaults pop-up box.

Figure D.11 Set Defaults Pop-Up Box for PowerFlex 750-Series Drives



```
Stopped
0.00 Hz
Port 00: Set Defaults
Host and Ports (Preferred)
This Port Only
```

7. Use the ▼2 or 8▲ key to select the appropriate action.
   - – Host and Ports (Preferred): Selects the Host device and all ports for a factory default action.
   - – This Port Only: Selects only this port for a factory default action.

▶ **TIP:** For a description of a selected menu item, press the INFO *soft key*.

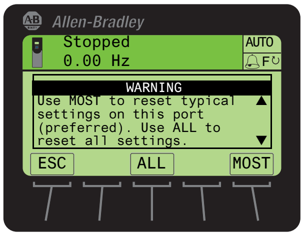
8. Press the 5 (Enter) key to display the warning pop-up box to reset defaults.

Figure D.12 Host and Ports (Preferred) Pop-Up Box

```
Stopped
0.00 Hz
WARNING
Sets most parameters in the
Host device and all ports to
factory defaults. Continue?
```

Press the ENTER *soft key* to affirm and set most parameters for the Host Drive and port devices to factory defaults. In this case, refer to Table D.A for the settings that will NOT be restored. Or press the ESC *soft key* to cancel.

Figure D.13 This Port Only Pop-Up Box



```
Stopped
0.00 Hz
WARNING
Use MOST to reset typical   ▲
settings on this port
(preferred). Use ALL to
reset all settings.         ▼
```

Press the MOST *soft key* to set MOST settings for the selected port device to factory defaults. In this case, refer to Table D.A for the settings that will NOT be restored. Press the ALL *soft key* to set ALL settings for the selected port device to factory defaults. Or press the ESC *soft key* to cancel.

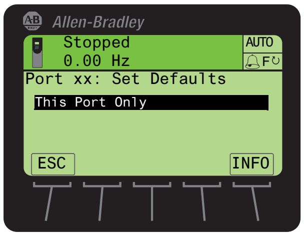
Table D.A Parameters Unaffected By Reset Option Most

Device	Parameter
Drive Main Control Board	300 [Speed Units] 301 [Access Level] 302 [Language] 305 [Voltage Class] 306 [Duty Rating] 471 [PrdMntRst Enable] 472 [Pred Maint Reset]
I/O Module	105 [RO0 LifeEvntActn]
Incremental Encoder Modules	None
Safe Speed Monitor Module	None
Universal Feedback Module	None
Embedded EtherNet/IP	36 [BOOTP] 38 [IP Addr Cfg 1]…41 [IP Addr Cfg 4] 42 [Subnet Cfg 1]…45 [Subnet Cfg 4] 46 [Gateway Cfg 1]…49 [Gateway Cfg 4] 50 [Net Rate Cfg]

Setting PowerFlex 750-Series Peripherals to Factory Defaults

1. Access the Status screen (Figure D.6).
2. Use the 4 ◄ or ► 6 key to scroll to the Port of the device whose parameters you want to set to factory defaults (for example, Port 13, which is dedicated for the embedded EtherNet/IP communication adapter on the main control board in PowerFlex 755 drives).
3. Press the 🗀 key to display its last-viewed folder.
4. Use the 4 ◄ or ► 6 key to scroll to the MEMORY folder.
5. Use the ▼ 2 or 8 ▲ key to select **Set Defaults**.
6. Press the 5 (Enter) key to display the Set Defaults pop-up box.

Figure D.14 Set Defaults Pop-Up Box for PowerFlex 750-Series Peripherals



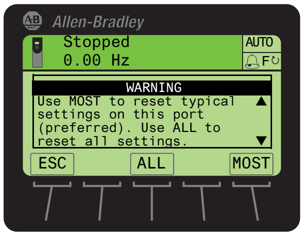
Stopped
0.00 Hz
Port xx: Set Defaults
This Port Only
ESC
INFO

- This Port Only: Selects only this port for a factory default action.

▶ **TIP:** For a description of a selected menu item, press the INFO *soft key*.

7. Press the 5 (Enter) key to display the warning pop-up box to reset defaults.

Figure D.15 Warning Pop-Up Box to Reset Factory Defaults



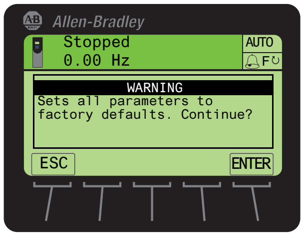
Stopped
0.00 Hz
WARNING
Use MOST to reset typical settings on this port (preferred). Use ALL to reset all settings.
ESC
ALL
MOST

8. Press the MOST *soft key* to set MOST settings for the selected port device to factory defaults. In this case, refer to the port device User Manuals for the settings that will NOT be restored. Press the ALL *soft key* to set ALL settings for the selected port device to factory defaults. Or press the ESC *soft key* to cancel.

Setting PowerFlex 7-Class Drives/Peripherals to Factory Defaults

1. Access the Status screen (Figure D.6).
2. Use the 4 ◄ or ► 6 key to scroll to the Port of the device whose parameters you want to set to factory defaults (for example, Port 00 for the Host Drive).
3. Press the 🗁 key to display its last-viewed folder.
4. Use the 4 ◄ or ► 6 key to scroll to the MEMORY folder.
5. Use the ▼ 2 or 8 ▲ key to select **Set Defaults**.
6. Press the 5 (Enter) key to display the Set Defaults pop-up box.

Figure D.16 Set Defaults Pop-Up Box



```
Stopped
0.00 Hz
WARNING
Sets all parameters to
factory defaults. Continue?
```

7. Press the ENTER *soft key* to affirm and set all device parameter values to factory defaults. Or press the ESC *soft key* to cancel.

Notes:

Appendix E

Universal Feedback Encoder Option Module

Specifications

Important: The Universal Feedback Encoder can only be used with PowerFlex 755 drives.

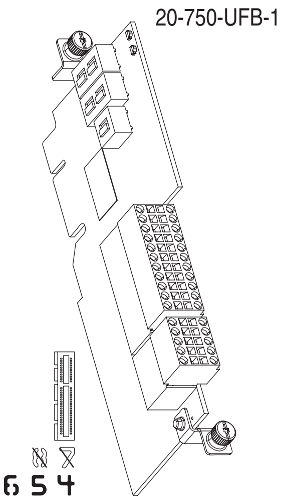


Table E.A Universal Feedback Option Module LED Indication

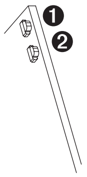
	LED	Name	Color	State	Description
	❶	Board	Unlit	Off	Not powered.
			Green	Flashing	Initializing, not active. Communication lost, attempting to reconnect.
				Steady	Operational, no faults are present.
			Red	Flashing	Module error. • Check P1 [Module Sts]
				Steady	Normal operation.
					Module is booting.
					Fatal module error. • Cycle power • Flash update module firmware • Replace module
			Yellow	Flashing	A type 2 alarm condition exists. • Check P1 [Module Sts]
				Steady	A type 1 alarm condition exists. • Check P1 [Module Sts]
			Yellow / Green	Flashing Alternately	Module is flash updating.
	❷	DPI	Unlit	Off	Not powered. Not communicating.
			Green	Flashing	Module is attempting to communicate with the DPI host.
				Steady	• Properly connected and communicating. • Module is flash updating.
			Red	Flashing	Module is not communicating with the DPI host.
				Steady	DPI communication failure such as invalid port.
			Yellow	Flashing	Normal operation.
				Steady	Peripheral is connected to a SCANport product and does not support a SCANport compatibility mode.

Table E.B Universal Feedback Option Module DIP Switch Settings (Safety Application)

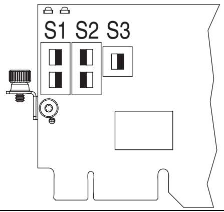
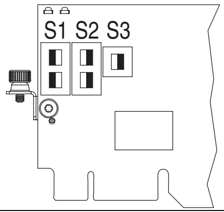
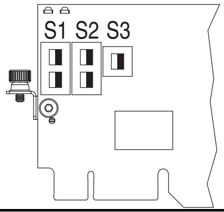
Safety Channel Selection	DIP Switch Settings
Primary Safety Channel To connect feedback signals to the Primary Safety Channel, set: S1 sliders to ON S2 sliders to OFF S3 slider to ON	
Secondary Safety Channel To connect feedback signals to the Secondary Safety Channel, set: S1 sliders to OFF S2 sliders to ON S3 slider to ON	
Primary and Secondary Safety Channels To connect feedback signals to both the Primary and Secondary Safety Channels, set: S1 sliders to ON S2 sliders to ON S3 slider to ON	

Table E.C Universal Feedback Incremental AquadB Encoder

Consideration	Description
Input	Differential or Single Ended operation, Constant Current Sink operation ~10 mA
	3.5V DC minimum to 7.5V DC maximum sourcing 10 mA minimum high state voltage of 3.5V DC maximum low state voltage of 0.4V DC
Maximum Cable Length:	30 m (100 ft) @ 5V, 183 m (600 ft) @ 12V
Maximum Input Frequency	250 kHz

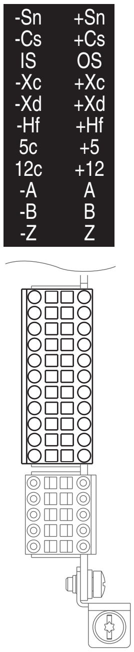
Table E.D Supported Encoders

Consideration	Heidenhain (EnDat)	SSI	Stegmann (Hiperface)	BiSS	Stahl (linear)	Temposonics (linear)
Encoder Voltage Supply	5V @ 250 mA	10.5V @ 250 mA	10.5V @ 250 mA	10.5V @ 250 mA	External Supplied 24V	External Supplied 24V
High-Resolution Signal	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	Sine/Cosine 1V P-P	n/a	n/a
Maximum Cable Length	100 m	100 m	90 m	100 m	100 m	100 m
Update Rate(1)	102.4 µs	102.4 µs	102.4 µs	102.4 µs	0.5/1.0/1.5/2.0 ms	0.5/1.0/1.5/2.0 ms
Maximum Input Frequency	163.8 kHz	163.8 kHz	163.8 kHz	163.8 kHz	n/a	n/a

(1) The Universal Feedback Encoder Option Module will acquire the position with the update rates displayed.

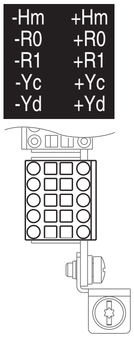
Terminal Block Designations

Table E.E Universal Feedback Encoder Option Module TB1 Terminal Designations



Terminal	Name	Description
-Sn	Sine (–)	Negative Sine signal
+Sn	Sine (+)	Positive Sine signal
-Cs	Cosine (–)	Negative Cosine signal
+Cs	Cosine (+)	Positive Cosine signal
Is	Inner Shield	Heidenhain inner shield terminal
Os	Outer Shield	Cable shield terminal
-Xc	Channel X Clock (–)	Negative clock terminal (Channel X)
+Xc	Channel X Clock (+)	Positive clock terminal (Channel X)
-Xd	Channel X Data (–)	Negative data terminal (Channel X)
+Xd	Channel X Data (+)	Positive data terminal (Channel X)
-Hf	Heidenhain Supply Feedback (–)	For incremental feedback applications, tie terminal -Hf to 5c and terminal +Hf to +5 for proper voltage regulation.
+Hf	Heidenhain Supply Feedback (+)	
5c	Common	+5V Common
+5	+5 Volt DC Power	Power supply for encoder 250 mA
12c	Common	+12V Common
+12	+12 Volt DC Power	Power supply for encoder (10.5V @ 250 mA)
-A	Encoder A (NOT)	Single channel or quadrature A input or encoder output.
A	Encoder A	
-B	Encoder B (NOT)	Quadrature B input or encoder output.
B	Encoder B	
-Z	Encoder Z (NOT)	Pulse, marker or registration input or encoder output.
Z	Encoder Z	

Table E.F Universal Feedback Encoder Option Module TB2 Terminal Designations



Terminal	Name	Description
-Hm	Home Input (–)	12V DC @ 9 mA to 24V DC @ 40 mA
+Hm	Home Input (+)	
-R0	Registration Input 0 (–)	Positive and negative encoder registration terminals. 12V DC @ 9 mA to 24V DC @ 40 mA
+R0	Registration Input 0 (+)	
-R1	Registration Input 1 (–)	
+R1	Registration Input 1 (+)	
-Yc	Channel Y Clock (–)	Negative clock terminal (Channel Y)
+Yc	Channel Y Clock (+)	Positive clock terminal (Channel Y)
-Yd	Channel Y Data (–)	Negative data terminal (Channel Y)
+Yd	Channel Y Data (+)	Positive data terminal (Channel Y)

Important: Only one linear feedback device can be connected to the option module. Wire the device to either Channel X on TB1 or Channel Y on TB2.

Parameter Access

Refer to Select A Device on page D-5 for instructions on how to access parameters on an option module.

Parameter Descriptions

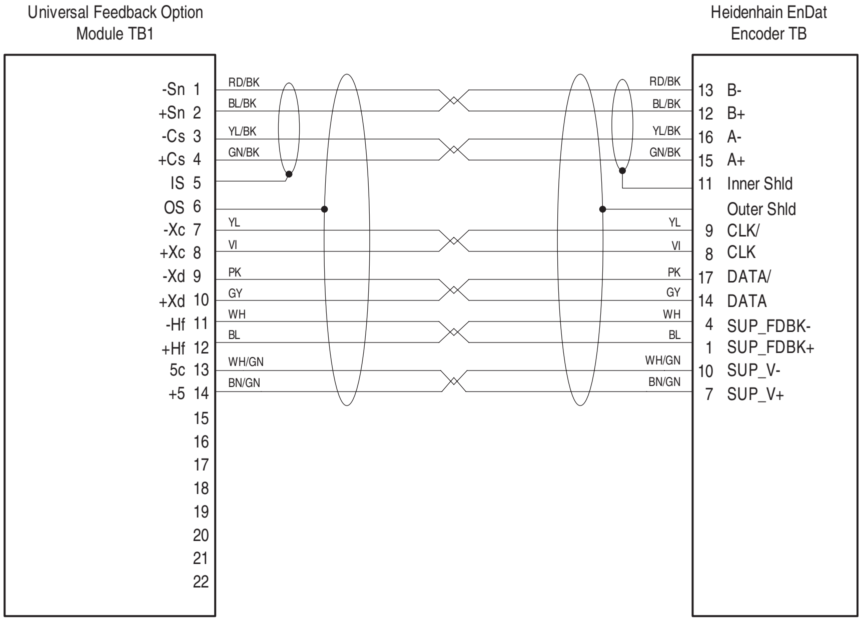
Universal Feedback option module parameter descriptions begin on page page 3-166.

Wiring Examples

The following table includes a list of motor, feedback device and cable wiring examples.

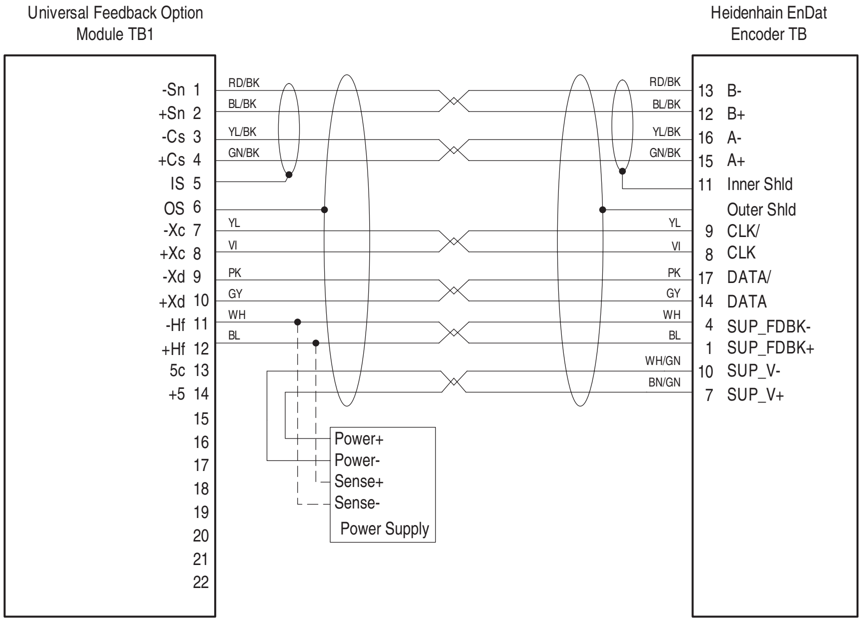
If you are using this motor and/or feedback device…	and this cable…	See this wiring example…
Heidenhain EnDat angle encoder (e.g., RCN729/829) with internal power supply	supplied with encoder	Figure E.1 on page E-5
Heidenhain EnDat angle encoder with external power supply	supplied with encoder	Figure E.2 on page E-5
Heidenhain Non-EnDat rotary encoder with internal power supply	PUR cable supplied with encoder	Figure E.3 on page E-6
Heidenhain EnDat rotary encoder (ECN 412 EnDat01) with internal power supply	supplied with encoder	Figure E.4 on page E-6
Heidenhain EnDat rotary encoder (ECN 412 EnDat01) with internal power supply	PUR cable supplied with encoder	Figure E.5 on page E-7
460V MP series motor and Stegmann rotary encoder	2090-CDNFDMP-SXX	Figure E.6 on page E-7
	2090-XXNFMP-SXX	Figure E.7 on page E-8
Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2l or -S2KXL motor and Stegmann rotary encoder	2090-CDNFDMP-SXX	Figure E.6 on page E-7
	2090-XXNFMP-SXX	Figure E.7 on page E-8
230V MP series motor and a Stegmann rotary encoder	2090-UXNFDMP-SXX	Figure E.8 on page E-8
	2090-XXNFMP-SXX	Figure E.9 on page E-9
Stegmann rotary encoder	1326-CECU-XXL-XXX	Figure E.10 on page E-9
	Pre-attached, shielded, twisted pair	Figure E.11 on page E-10
	Shielded, twisted pair cable with an 8-pin Berg style connector	Figure E.12 on page E-10
	Shielded, twisted pair cable with a 10-pin MS style connector	Figure E.13 on page E-11
	Shielded, twisted pair cable with a 12-pin DIN style connector	Figure E.14 on page E-11
460V MP series motor and a rotary encoder	2090-CDNFDMP-SXX	Figure E.15 on page E-12
	2090-XXNFMP-SXX	Figure E.15 on page E-12
Allen-Bradley 1326AB-BXXXX-M2L, -S2l or -S2KXL motor and a rotary encoder	2090-XXNFMP-SXX	Figure E.15 on page E-12
230V MP series motor and a rotary encoder	2090-UXNFDMP-SXX	Figure E.16 on page E-12
	2090-XXNFMP-SXX	Figure E.16 on page E-12
Linear sensor	MDI RG Connector	Figure E.17 on page E-13
	P Integral Cable	Figure E.17 on page E-13
Registration sensor	supplied with sensor	Figure E.18 on page E-14
Simulated Incremental encoder output	customer supplied	Figure E.19 on page E-15

Figure E.1 Heidenhain EnDat Angle Encoder with Internal Power Supply



Note: Refer to Installation Instructions supplied with encoder for additional information.

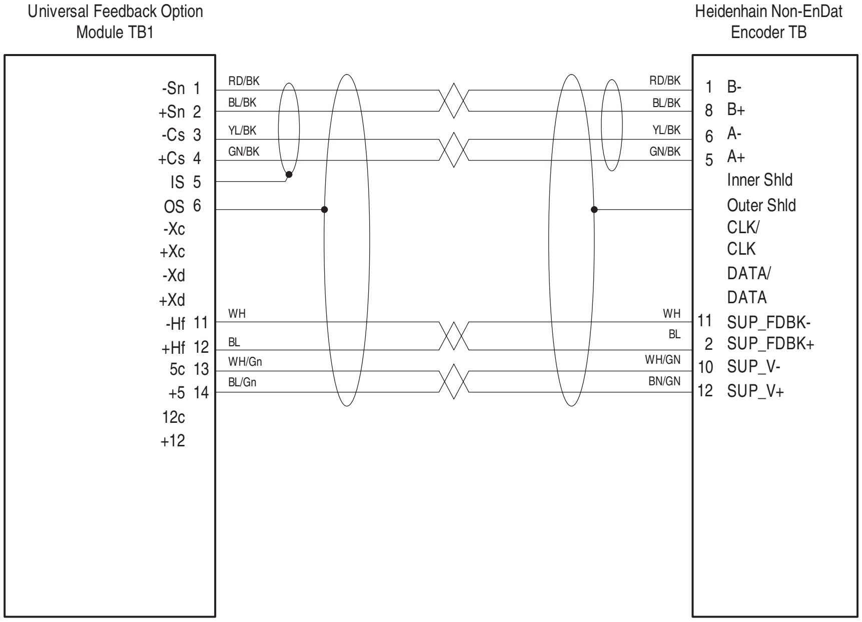
Figure E.2 Heidenhain EnDat Angle Encoder with External Power Supply



Notes: Refer to Installation Instructions supplied with encoder for additional information. The external power supply must be 3.6V to 5.25V, max. 350mA.

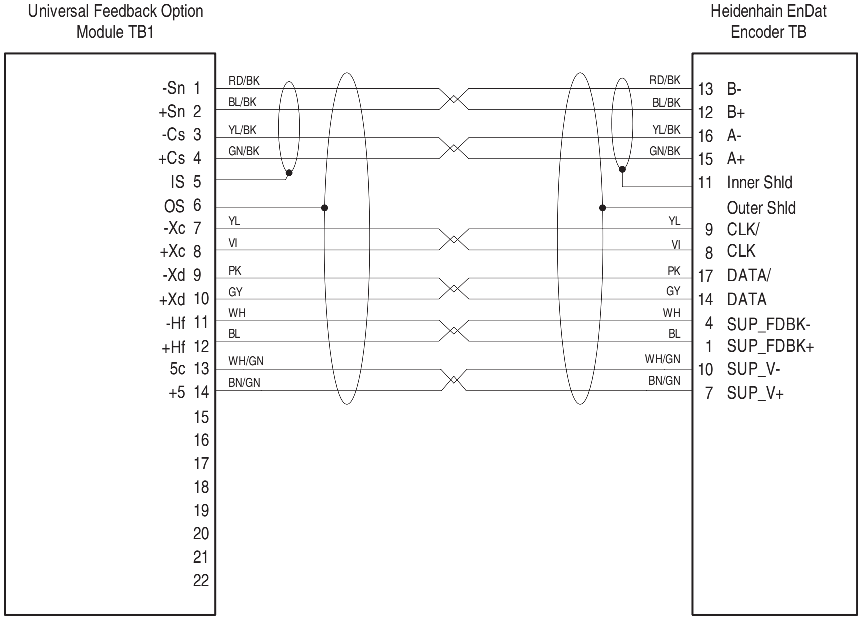
TB1-14 (Power+) and TB1-13 (Power-) must not be connected to the encoder. The brown/green and white/green conductors must be connected to the external power supply. If the external power supply does not have sense connections, the supply feedback (sense) connections should still be made from the encoder to the universal board (TB1-11,12).

Figure E.3 Heidenhain Non-EnDat Rotary Encoder with Internal Power Supply



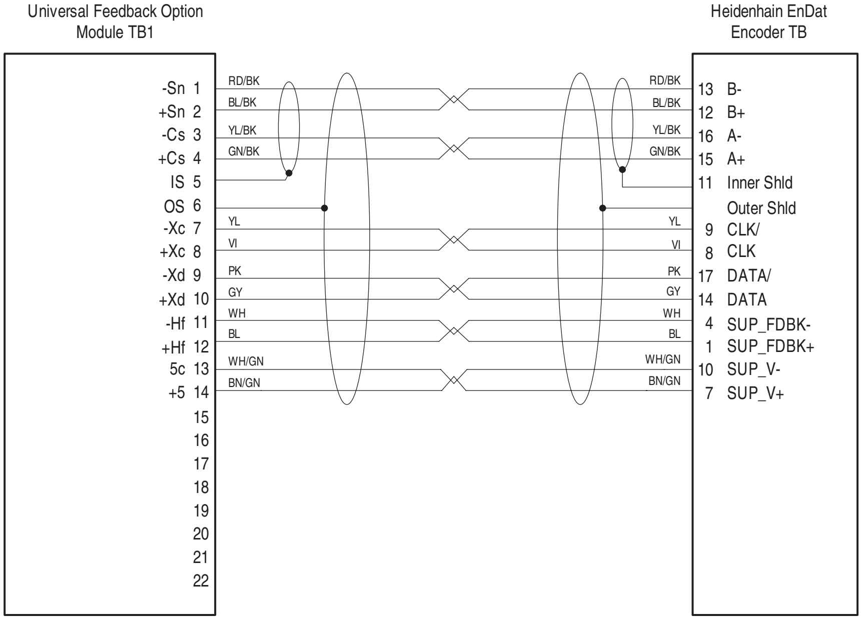
Note: Refer to Installation Instructions supplied with encoder for additional information.

Figure E.4 Heidenhain EnDat Rotary Encoder (ECN 412 EnDat01) with Internal Power Supply



Note: Refer to Installation Instructions supplied with encoder for additional information.

Figure E.5 Heidenhain EnDat Rotary Encoder (ECN 412 EnDat01) with Internal Power Supply



Note: Refer to Installation Instructions supplied with encoder for additional information.

Figure E.6 460V MP Series or Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2I or -S2KXL Motor and a Stegmann Rotary Encoder connected via a 2090-CDNFDMP-SXX Cable

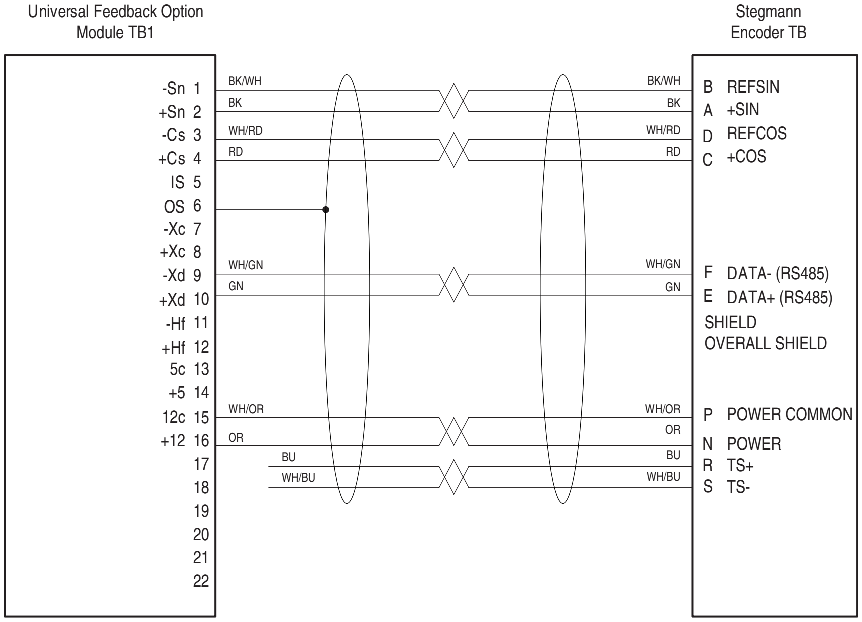
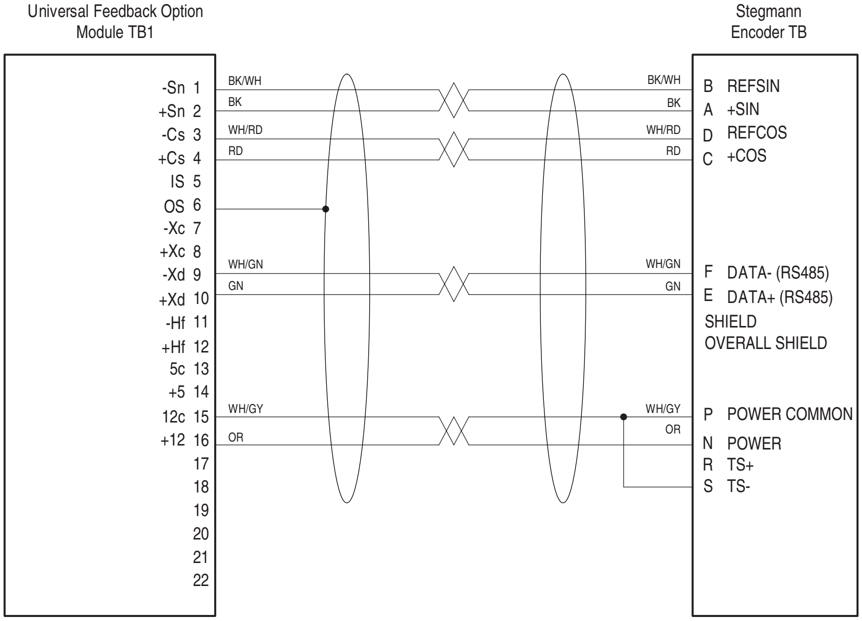


Figure E.7 460V MP Series or Allen-Bradley 1326AB-BXXXX-M2L, -M2KXL, -S2I or -S2KXL Motor and a Stegmann Rotary Encoder connected via a 2090-XXNFMP-SXX Cable



Note: The Thermal Switch cannot be accessed using the 2090-XXNFMP-SXX cable.

Figure E.8 230V MP Series Motor and a Stegmann Rotary Encoder connected via a 2090-UXNFDMP-SXX Cable

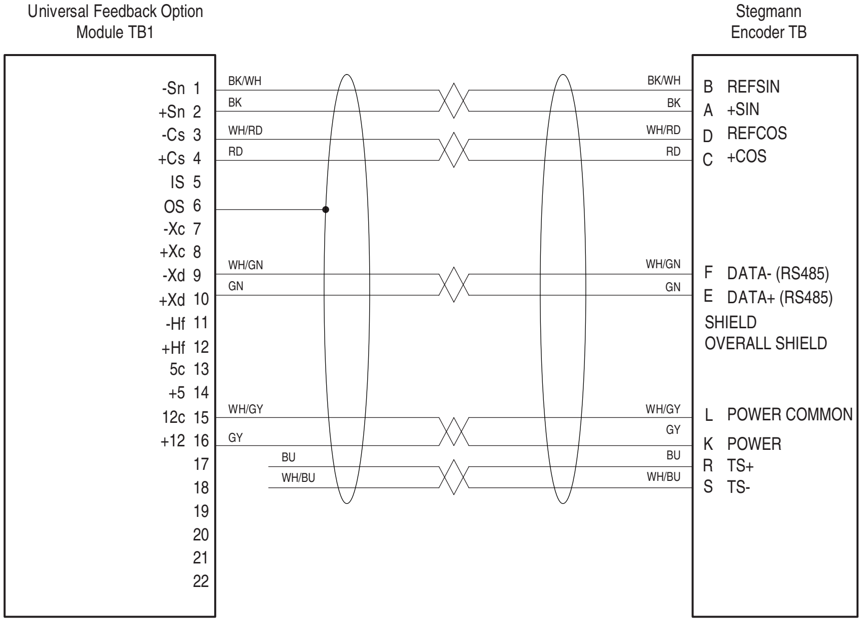
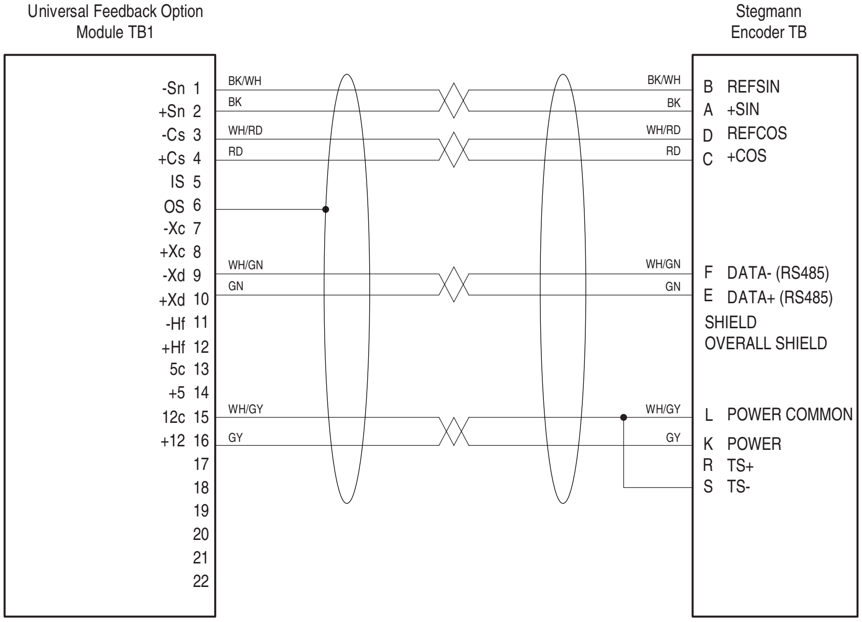


Figure E.9 230V MP Series Motor and a Stegmann Rotary Encoder connected via a 2090-XXNFMP-SXX Cable



Note: The Thermal Switch cannot be accessed using the 2090-XXNFMP-SXX cable.

Figure E.10 Stegmann Rotary Encoder connected via a 1326-CECU-XXL-XXX Cable

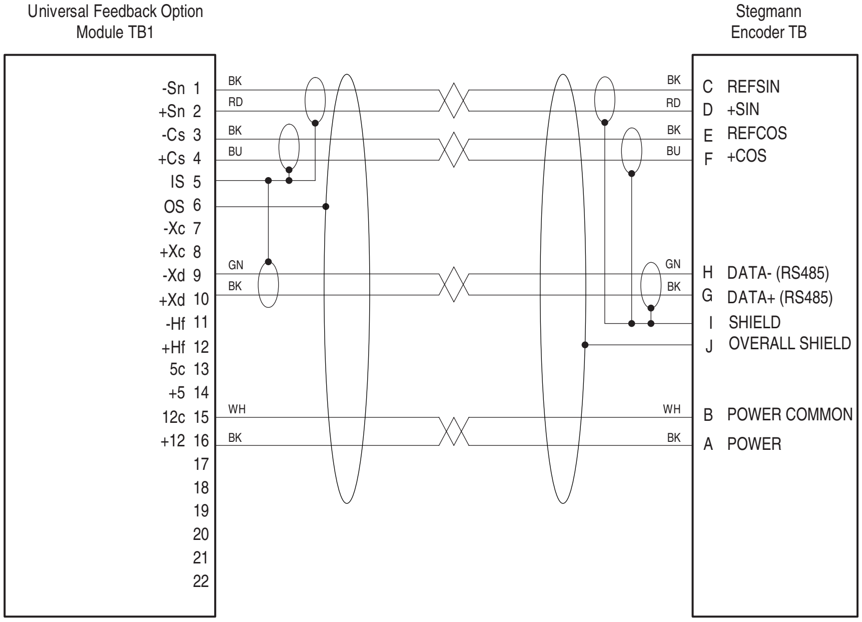


Figure E.11 Stegmann Rotary Encoder connected via a Pre-Attached, Shielded, Twisted Pair Cable

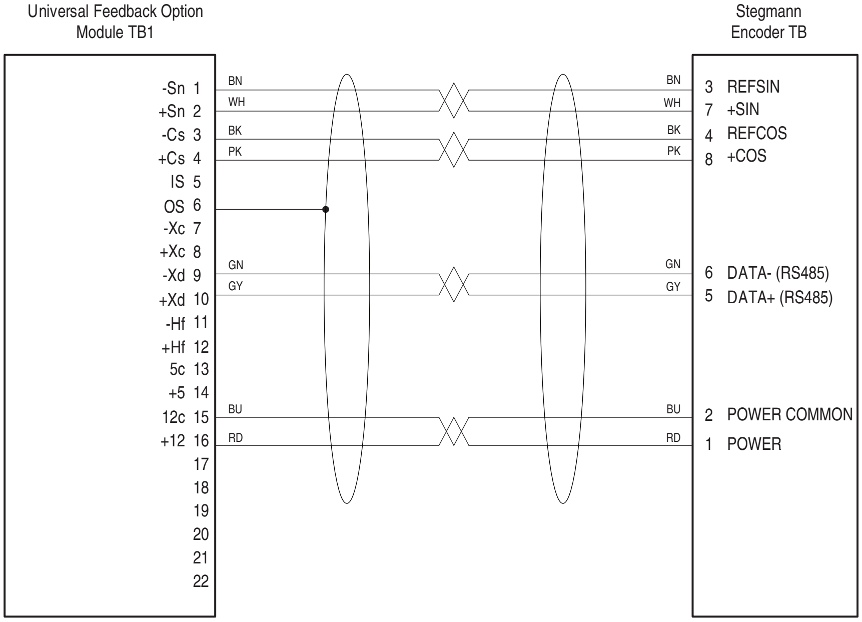


Figure E.12 Stegmann Rotary Encoder Connected via a Shielded, Twisted Pair Cable with an 8-pin Berg Style Connector

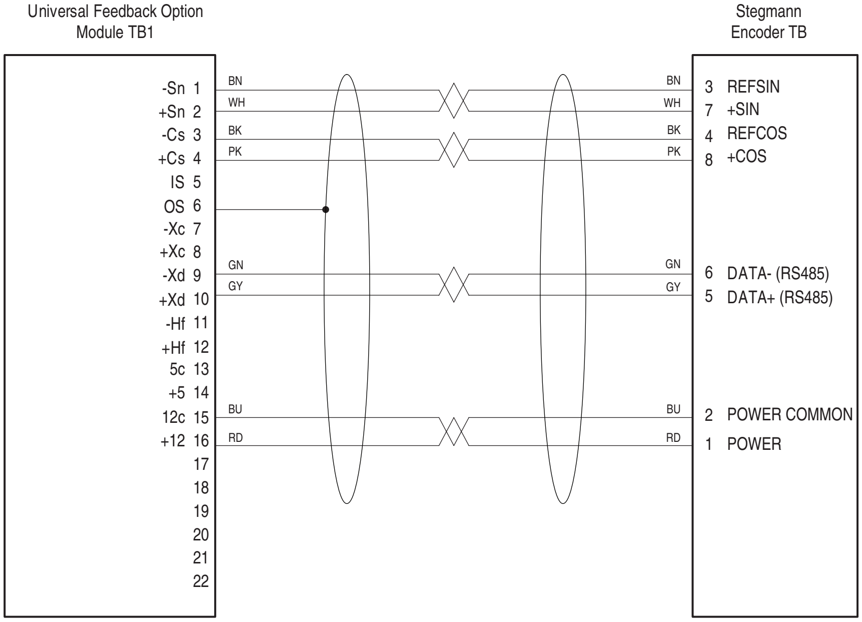


Figure E.13 Stegmann Rotary Encoder Connected via a Shielded, Twisted Pair Cable with a 10-pin MS Style Connector

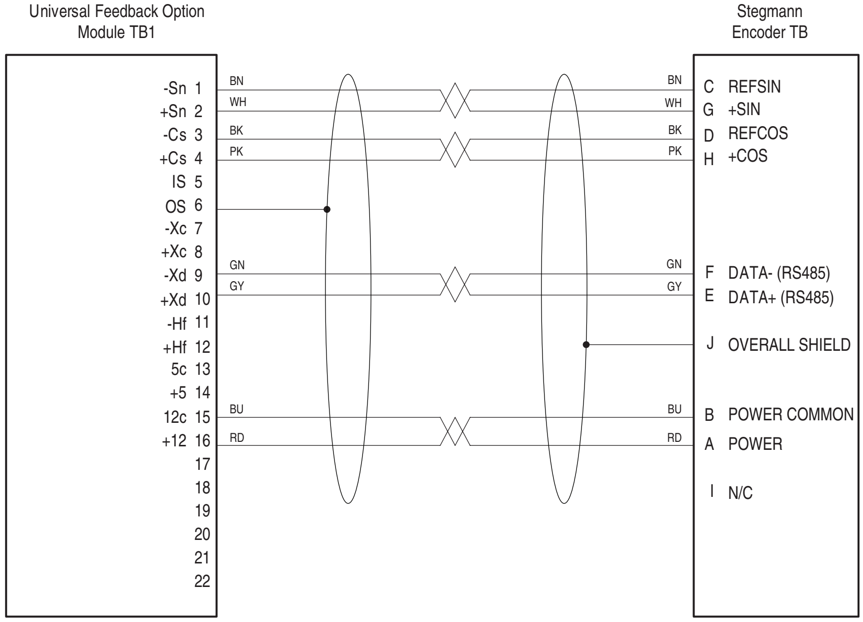


Figure E.14 Stegmann Rotary Encoder Connected via a Shielded, Twisted Pair Cable with a 12-pin DIN Style Connector

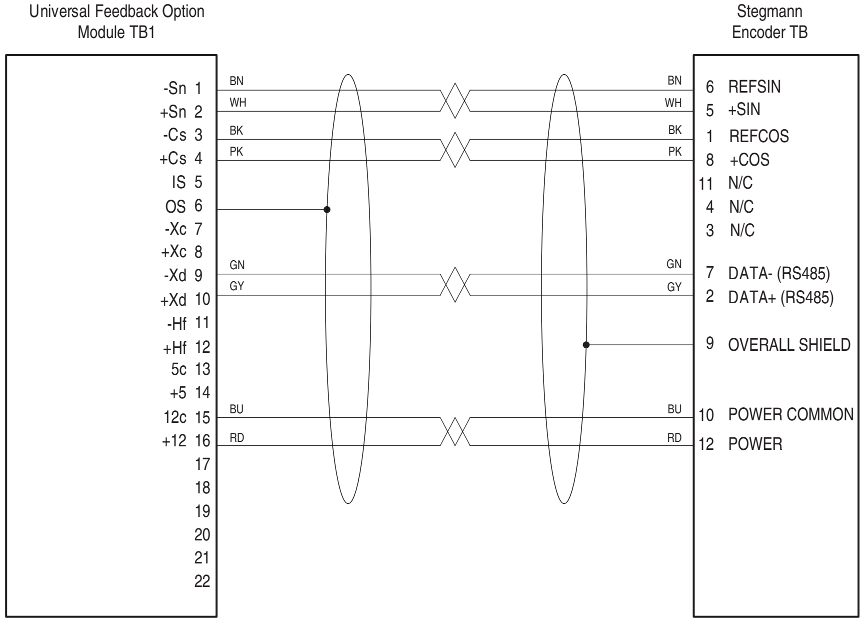


Figure E.15 460V MP Series Motor and a Rotary Encoder Connected via a 2090-CDNFDMP-SXX or 2090-XXNFMP-SXX Cable or Allen-Bradley 1326AB-BXXXX-M2L, -S2I or -S2KXL Motor and a Rotary Encoder Connected via a 2090-XXNFMP-SXX Cable

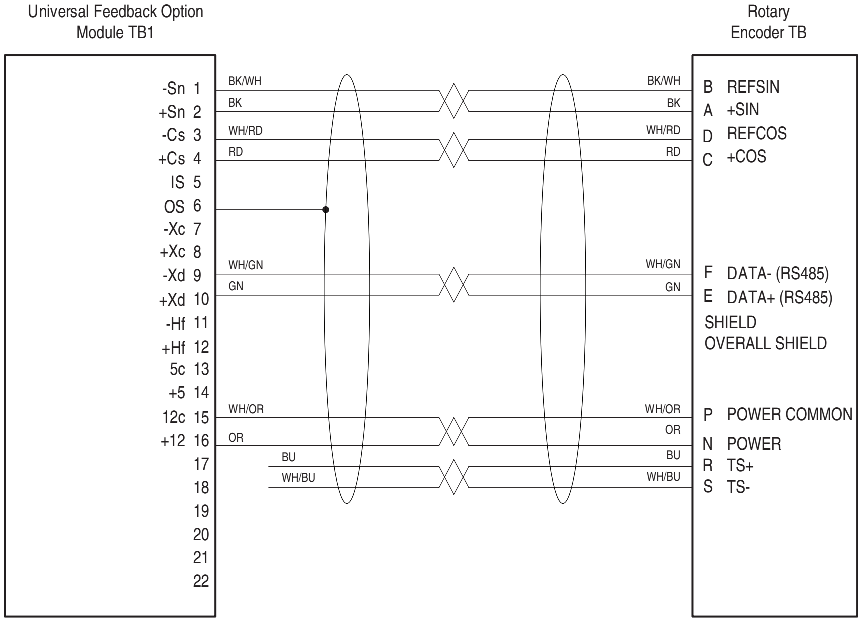


Figure E.16 230V MP Series Motor and a Rotary Encoder Connected via a 2090-UXNFDMP-SXX or 2090-XXNFMP-SXX Cable

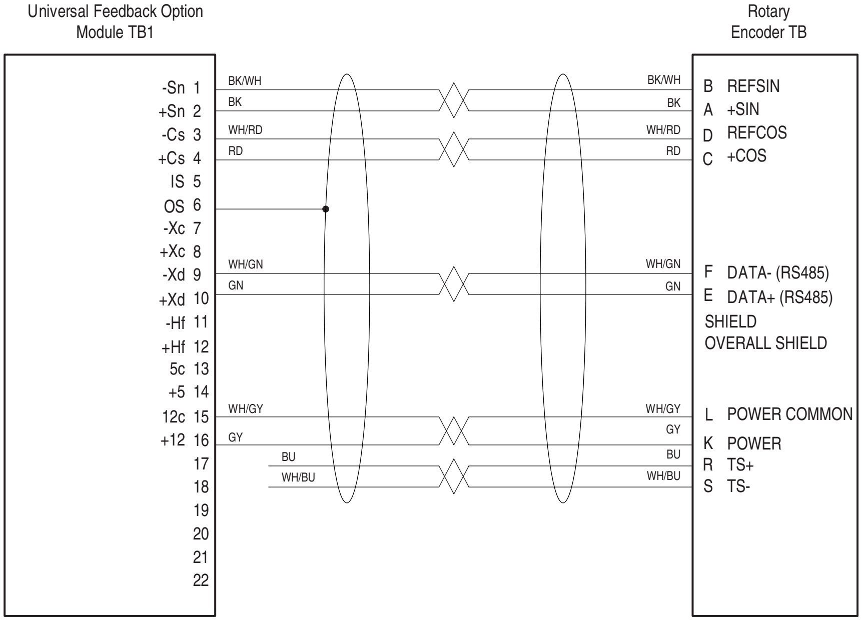


Figure E.17 Linear Sensor with MDI RG Connector or P Integral Cable

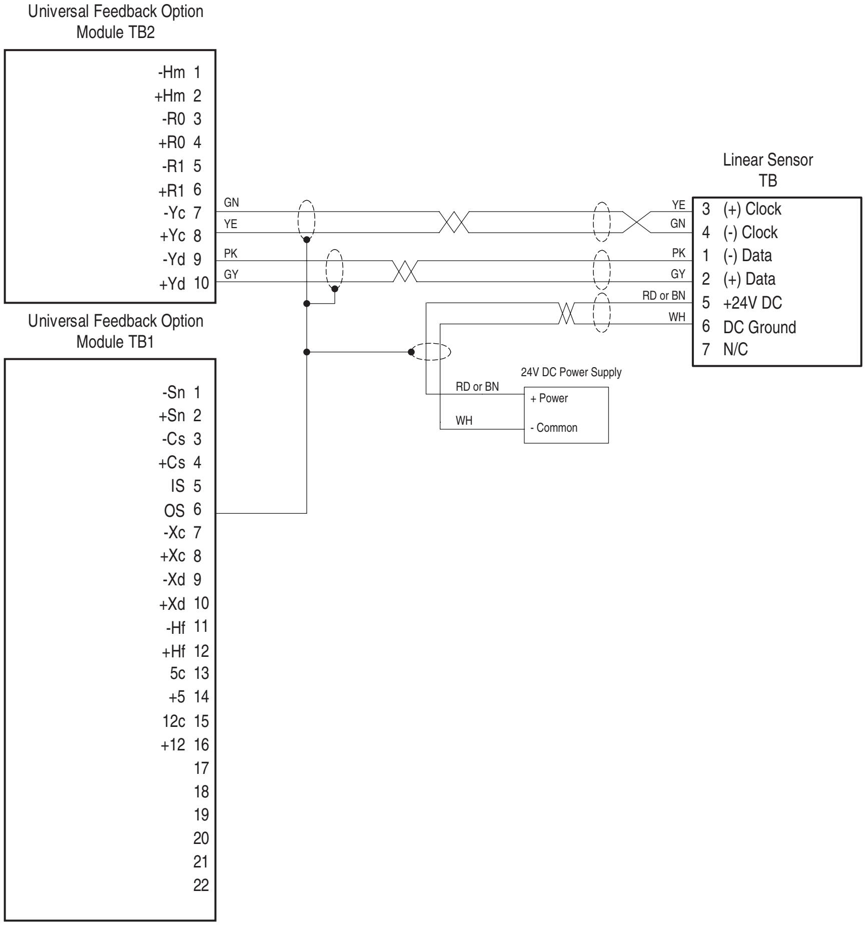


Figure E.18 Registration Sensor

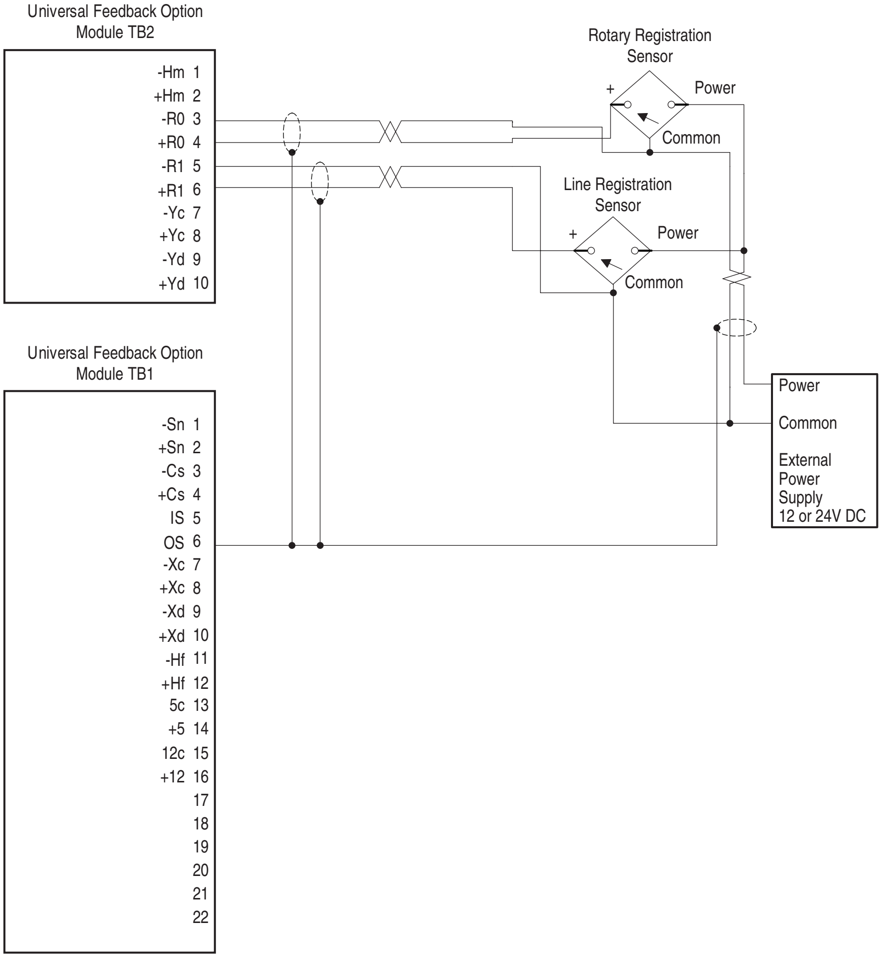
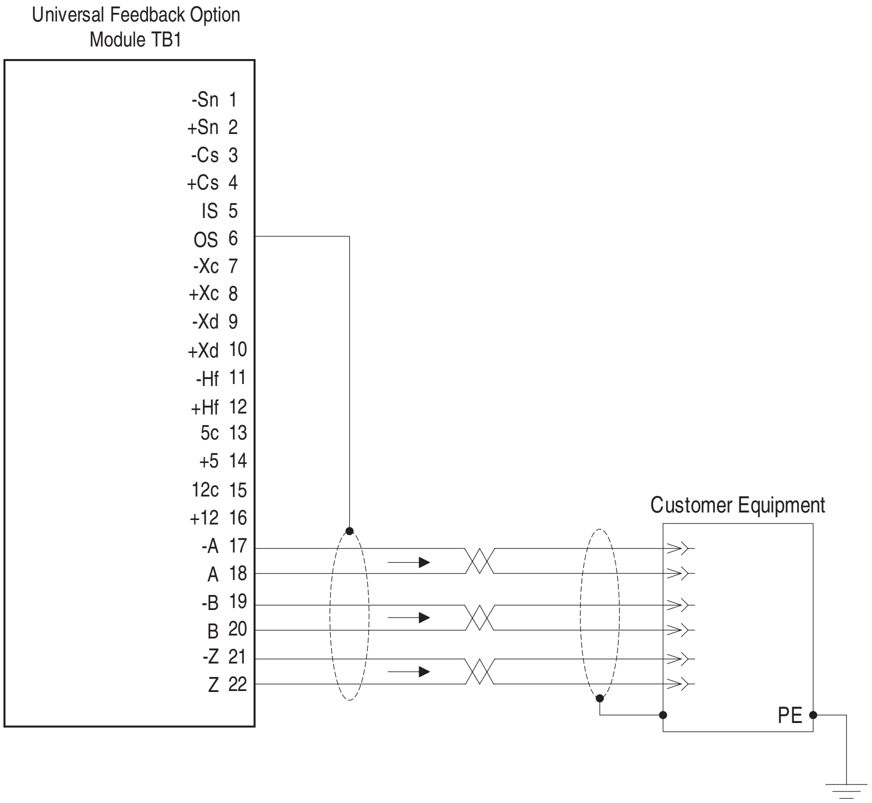


Figure E.19 Simulated Incremental Encoder Output



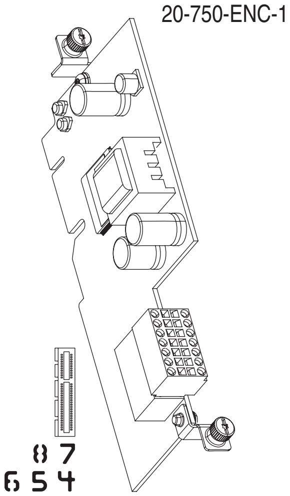
Notes:

Appendix F

Incremental Encoder Option Modules

For information on . .	See page . .
Specifications	F-1
Wiring Examples	F-3

Specifications

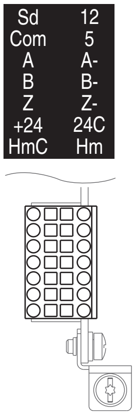


Single Incremental Encoder

Table F.A Single Incremental Encoder Specifications

Consideration	Description
Input	Differential or Single Ended operation, Constant Current Sink operation ~10 mA
	5V DC minimum to 15V DC maximum sourcing 10 mA minimum high state voltage of 3.5V DC maximum low state voltage of 0.4V DC
Maximum Cable Length	30 m (100 ft) @ 5V, 183 m (600 ft) @ 12V
Maximum Input Frequency	250 kHz

Table F.B TB1 Terminal Designations



Terminal	Name	Description
Sd	Shield	Terminating point for wire shields when an EMC plate or conduit box is not installed.
12	+12 Volt DC Power	Power supply for encoder 250 mA.
Com	Common	+12V and +5V Common
5	+5 Volt DC Power	Power supply for encoder 250 mA.
A	Encoder A	Single channel or quadrature A input.
A-	Encoder A (NOT)	
B	Encoder B	Quadrature B input.
B-	Encoder B (NOT)	
Z	Encoder Z	Pulse, marker or registration input.
Z-	Encoder Z (NOT)	
+24	+24 Volt	Power source for homing input.
24C	Common	
HmC	Homing Input Common	Captures the AB edge counter.
Hm	Homing Input	

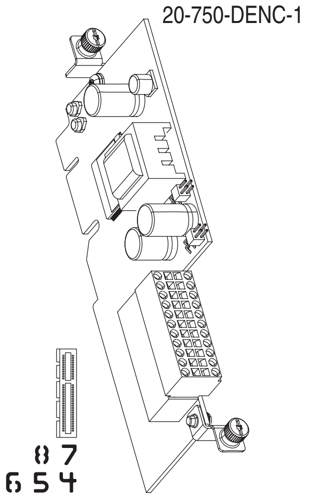
Parameter Access

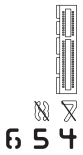
Refer to Select A Device on page D-5 for instructions on how to access parameters on an option module.

Parameter Descriptions

Single Incremental Encoder option module parameter descriptions begin on page page 3-159.

Dual Incremental Encoder





See **Important** statement on page 1-45.

Table F.C Dual Incremental Encoder Jumper Settings

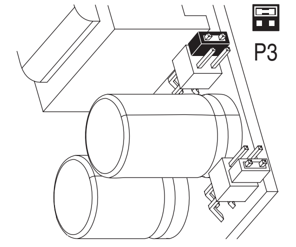
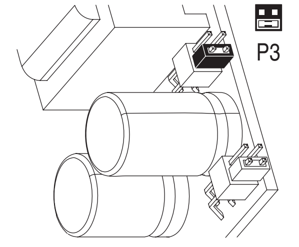
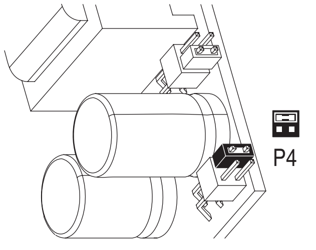
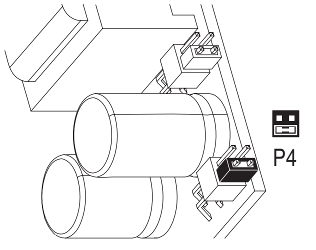
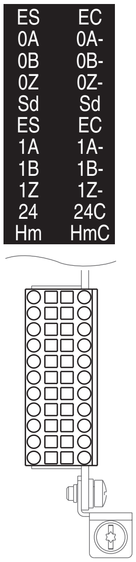
Jumper	Enabled Position	Storage Position
P3 - Safety Jumper Enables use with speed monitoring safety option (20-750-S1).		
P4 - 12V Jumper Enables use with 12 volt supply in "Enabled" position and 5 volt supply in "Storage" position.		

Table F.D Dual Incremental Encoder Specifications

Consideration	Description
Input	Differential or Single Ended operation, Constant Current Sink operation ~10 mA
	5V DC minimum to 15V DC maximum sourcing 10 mA minimum high state voltage of 3.5V DC maximum low state voltage of 0.4V DC
Maximum Cable Length	30 m (100 ft) @ 5V, 183 m (600 ft) @ 12V
Maximum Input Frequency	250 kHz

Table F.E Dual Incremental Encoder Terminal Designations



Terminal	Name	Description
ES	+12 or +5 Volt DC Power	Power supply for Encoder 0, 10 mA.
EC	Common	+12V and +5V Encoder 0, common
0A	Encoder 0: A	Single channel or quadrature A input.
0A-	Encoder 0: A (NOT)	
0B	Encoder 0: B	Quadrature B input.
0B-	Encoder 0: B (NOT)	
0Z	Encoder 0: Z	Pulse, marker or registration input.
0Z-	Encoder 0: Z (NOT)	
Sd	Encoder Shield	Terminating point for wire shields when an EMC plate or conduit box is not installed.
Sd	Encoder Shield	
ES	+12 or +5 Volt DC Power	Power supply for Encoder 1
EC	Common	+12V and +5V Encoder 1, common
1A	Encoder 1: A	Single channel or quadrature A input.
1A-	Encoder 1: A (NOT)	
1B	Encoder 1: B	Quadrature B input.
1B-	Encoder 1: B (NOT)	
1Z	Encoder 1: Z	Pulse, marker or registration input.
1Z-	Encoder 1: Z (NOT)	
24	+24 Volt	Power source for homing input.
24C	Common	
Hm	Homing Input	Captures the AB edge counter.
HmC	Homing Input Common	

Parameter Access

Refer to Select A Device on page D-5 for instructions on how to access parameters on an option module.

Parameter Descriptions

Dual Incremental Encoder option module parameter descriptions begin on page page 3-161.

Wiring Examples

Single Incremental Encoder Option Module Connections

Figure F.1 Differential Dual Channel with Z Channel I

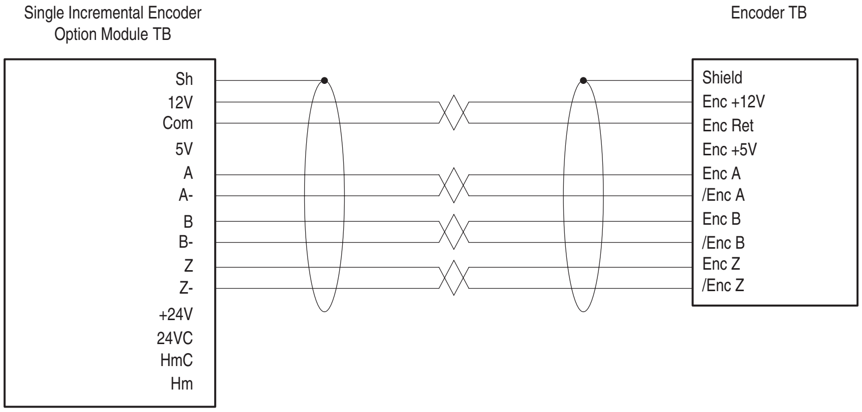


Figure F.2 Differential Dual Channel without Z Channel

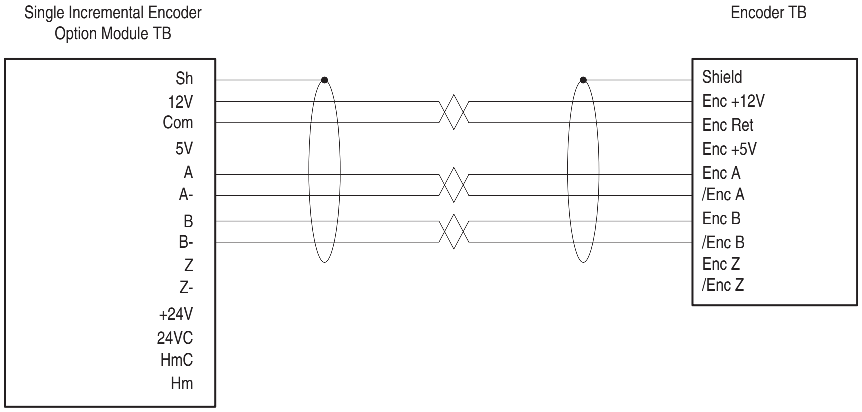


Figure F.3 Differential Dual Channel with Z Channel with External Power Supply

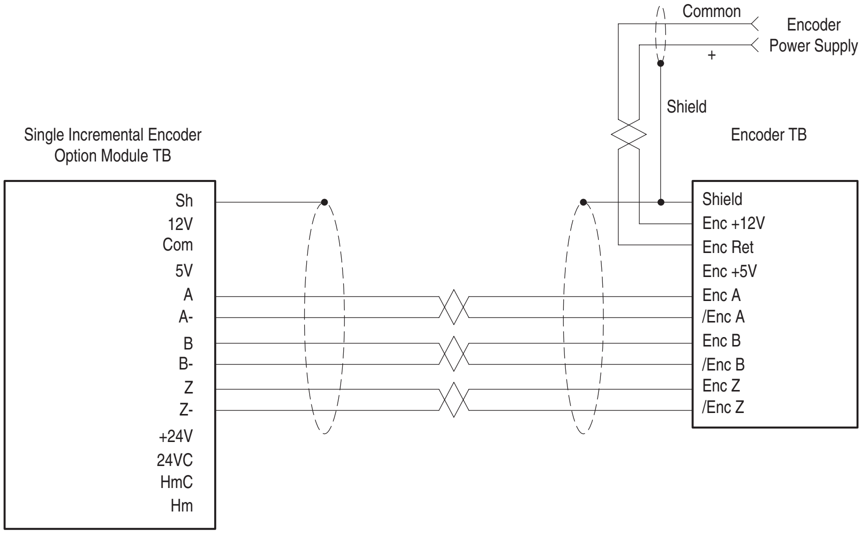
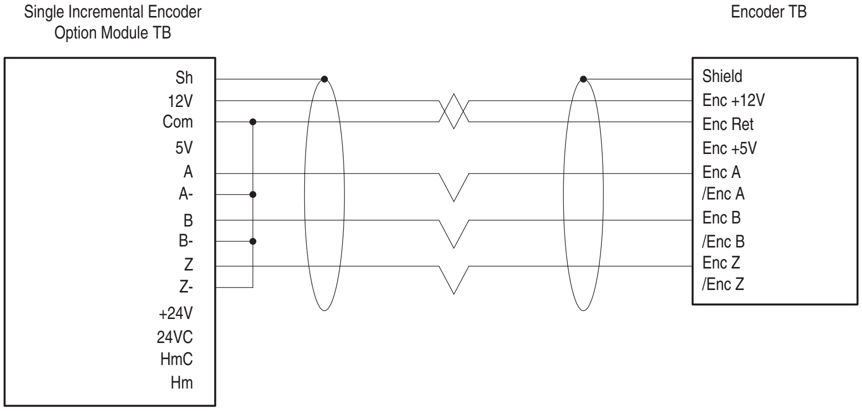
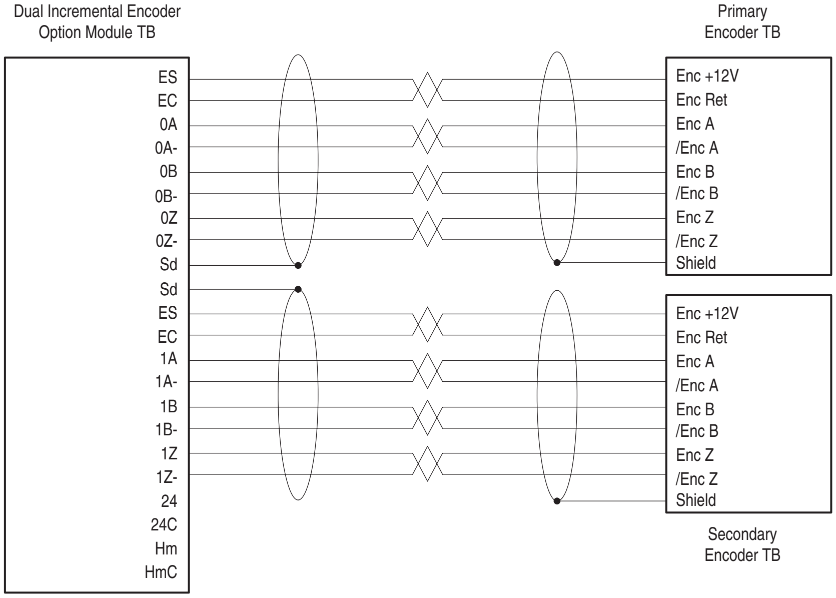


Figure F.4 Single-Ended, Dual Channel



Dual Incremental Encoder Option Module Connections

Figure F.5 Differential Dual Channel with Z Channel



Notes:

Using DeviceLogix

Introduction

DeviceLogix (DLX) is an embedded component located in Port 14 of PowerFlex 750-Series drives. It is used to control outputs and manage status information locally within the drive. It can function stand-alone or complimentary to supervisory control.

DeviceLogix programming for PowerFlex 750-Series drives is accomplished through a DeviceLogix Editor component (Lx icon), which is incorporated in the following versions of drive software:

Drive Software Tool	PowerFlex 755 v1.xx	PowerFlex 753 v1.xx PowerFlex 755 v2.xx
DriveExplorer	v6.01 (and higher)	v6.0**2** (and higher)
DriveTools SP / DriveExecutive	v5.01 (and higher)	v5.0**2** (and higher)
DeviceLogix 5000 Drive Add-On Profiles	v2.01 (and higher)	v2.0**2** (and higher)

Only the drive software tools listed above can be used to program the DeviceLogix component in PowerFlex 750-Series drives. Other DeviceLogix Editors, such as RSNetWorx for DeviceNet, cannot be used.

Note the following feature differences between the drive firmware releases:

	PowerFlex 755 v1.xx	PowerFlex 753 v1.xx PowerFlex 755 v2.xx
DeviceLogix Library	Version 3	Version 4
Maximum number of function blocks	90	225
Program update time per number of blocks used	5 ms (fixed): 1…45 blocks 10 ms (fixed): 46…90 blocks	5 ms (fixed): 1…45 blocks 10 ms (fixed): 46…90 blocks 15 ms (fixed): 91…135 blocks 20 ms (fixed): 136…180 blocks 25 ms (fixed): 181…225 blocks

Version 3 of the DeviceLogix library introduced the following new features:

- Analog instructions (compute, math, compare, etc.)
- Multiple I/O enable line object support
- Cut and Paste capability
- Screen format retention
- Online Help / Bit tool tip

Version 4 of the DeviceLogix library added the following new features:

- Macro Block instruction – a custom function block element that contains other function blocks programmed by the user to perform a specific task(s)
- PID instruction

Note: PowerFlex 755 v1.xxx drives can be flash updated to v2.xxx to take advantage of the new features in the Version 4 release of the DeviceLogix library and the increased number of function blocks.

The PowerFlex 750-Series DeviceLogix can provide basic logic capability for applications that can allow a 5…25 ms scan time depending on program size, plus the time it takes to update the I/O. It can be used in both networked and stand-alone environments. It can also operate autonomous of the drive. For example, it can continue executing if the drive is faulted, or disconnected from AC input power (requires PowerFlex 750-Series 24 VDC auxiliary power supply option, catalog number 20-750-APS).

Parameters

The following are the DeviceLogix parameters (located in Port 14).

File	Group	No.	Name Description	Values		Read-Write	Data Type
HOST GROUPS	Analog Outputs	1 Thru 14	**DLX Out 01** **DLX Out 14** Fourteen floating point outputs that can be controlled by the DeviceLogix program. These are typically mapped to a parameter to write its value. It can also be mapped to the Reference Command.	Default: Min/Max:	0 0 / 159999	RW	Real
		15 16	**DLX Out 15** **DLX Out 16** Two unsigned 32-bit integer outputs that can be controlled by the DeviceLogix program. These are typically mapped to a parameter to write its value.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
	Analog Inputs	17 Thru 30	**DLX In 01** **DLX In 14** Fourteen floating point inputs that can be read by the DeviceLogix program. These are typically mapped to a parameter to read its value. It can also be mapped to Common Feedback.	Default: Min/Max:	0 0 / 159999	RW	Real
		31 32	**DLX In 15** **DLX In 16** Two unsigned 32-bit integer inputs that can be read by the DeviceLogix program. These are typically mapped to a parameter to read its value. It can also be mapped to Real Time Clock values.	Default: Min/Max:	0 0 / 159999	RW	32-bit Integer
	Digital Inputs	33 Thru 48	**DLX DIP 01** **DLX DIP 16** Sixteen digital inputs that can be read by the DeviceLogix program. These are typically mapped to an input point in an I/O option module or to Logic Status bits.	Default: Min/Max:	0.00 0 / 159999.15	RW	32-bit Integer
	Status & Cntl	49	**DLX DigIn Sts** Provides the individual on/off status of the 16 DLX DIP's.				
		50	**DLX DigOut Sts** Provides the individual on/off status of the DLX Logic Command word bits.				
		51	**DLX DigOut Sts2** Provides the individual on/off status of the 16 DLX DOPs.				

Options	DLX DIPVal16	DLX DIPVal15	DLX DIPVal14	DLX DIPVal13	DLX DIPVal12	DLX DIPVal11	DLX DIPVal10	DLX DIPVal9	DLX DIPVal8	DLX DIPVal7	DLX DIPVal6	DLX DIPVal5	DLX DIPVal4	DLX DIPVal3	DLX DIPVal2	DLX DIPVal1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

Options	DLX CmdSts16	DLX CmdSts15	DLX CmdSts14	DLX CmdSts13	DLX CmdSts12	DLX CmdSts11	DLX CmdSts10	DLX CmdSts9	DLX CmdSts8	DLX CmdSts7	DLX CmdSts6	DLX CmdSts5	DLX CmdSts4	DLX CmdSts3	DLX CmdSts2	DLX CmdSts1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

Options	DLX DOPSts16	DLX DOPSts15	DLX DOPSts14	DLX DOPSts13	DLX DOPSts12	DLX DOPSts11	DLX DOPSts10	DLX DOPSts9	DLX DOPSts8	DLX DOPSts7	DLX DOPSts6	DLX DOPSts5	DLX DOPSts4	DLX DOPSts3	DLX DOPSts2	DLX DOPSts1
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Name Description	Values		Read-Write	Data Type
Host Groups	Status & Cntl	**52**	**DLX Prog Cond** Defines the action that will be taken when the DLX logic is disabled. "Fault" (0) – Drive is faulted and stopped. "Stop" (1) – Drive is stopped, but not faulted. "Zero Data" (2) – Output data sent to the drive from DLX is zeroed (does not command a stop). "Hold Last" (3) – Drive continues in its present state.	Default: Options:	0 = "Fault" 0 = "Fault" 1 = "Stop" 2 = "Zero Data" 3 = "Hold Last"	RW	32-bit Integer
		53	**DLX Operation** Contains both operation commands as well as status information.	Default: Options:	5 = "Logic Disabled" 0 = "Enable Logic" 1 = "Disable Logic" 2 = "Reset Program" 3 = "Save Program" 4 = "Load Program" 5 = "Logic Disabled" 6 = "Logic Enabled"	RW	32-bit Integer
	Internal Regs	**54** Thru **69**	**DLX Real SP1** **DLX Real SP16** Sixteen 32-bit Real scratchpad registers for DLX program use.	Default: Min/Max:	0 –/+220000000	RW	Real
		70 Thru **77**	**DLX DINT SP1** **DLX DINT SP8** Eight 32-bit Integer scratchpad registers for DLX program use.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		78 Thru **81**	**DLX Bool SP1** **DLX Bool SP4** Four 32-bit Boolean scratchpad registers (128 bits total) for DLX program use.				

Options	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Default	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bit	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0

0 = Condition Off
1 = Condition On

File	Group	No.	Name Description	Values		Read-Write	Data Type
Host Groups	Internal Regs	**82** Thru **89**	**DLX Real InSP1** **DLX Real InSP8** Eight 32-bit Real scratchpad registers for DLX program input use.	Default: Min/Max:	0 –/+220000000	RW	Real
		90 Thru **97**	**DLX Real OutSP1** **DLX Real OutSP8** Eight 32-bit Real scratchpad registers for DLX program output use.	Default: Min/Max:	0 –/+220000000	RW	Real
		98 Thru **101**	**DLX DINT InSP1** **DLX DINT InSP4** Four 32-bit Integer scratchpad registers for DLX program input use.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer
		102 Thru **105**	**DLX DINT OutSP1** **DLX DINT OutSP4** Four 32-bit Integer scratchpad registers for DLX program output use.	Default: Min/Max:	0 –2147483648 / 2147483647	RW	32-bit Integer

Function Block Elements

The following function block elements are available:

Bit and Analog I/O[1]	▷ ◁ ⬡ ⬡
Process	ALM TDG PID
Filter	LPF
Select/Limit	SEL HLL
Statistical	MAVE
Timer/Counter	TONR TOFR PULR CTU CTUD
Compare	MEQ EQU NEQ LES GRT LEQ GEQ
Compute/Math	ADD SUB MUL DIV MOD SQR NEG ABS XPY
Move/Logical	BAND BOR BXOR BNOT BNAND BNOR BXNOR SETD RSTD
Macro Block[2]	

(1) Bit and Analog I/O do not count against the Function Block total. All other elements count, with each instance counting as one Function Block.

(2) Macro Blocks are created by the user. The selections will be empty until a Macro Block gets created. The icon text associated with each Macro Block is also created by the user.

The DeviceLogix Editor provides a graphical interface for configuring Function Blocks to provide local control within the drive. DeviceLogix Editor navigation and programming basics is not covered in this manual. Refer to the DeviceLogix User Manual, publication RA-UM003A for additional information. It can be found on the RA Literature Library web site at: http://www.rockwellautomation.com/literature.

Bit and Analog I/O Points

▷ ◁ ⬡ ⬡

The DeviceLogix controller in Port 14 uses (48) bit inputs, (48) bit outputs, (24) analog inputs, and (17) analog outputs to interact with the other ports in the drive (both drive and peripheral parameters).

Bit Inputs ▷

Available bit inputs to the DeviceLogix program include:

Bit Inputs	Description
(16) Hardware Boolean Inputs • DIP1 to DIP 16	These correlate with DeviceLogix Port 14 parameters P33 [DLX DIP 01] to P48 [DLX DIP 16]
(32) Network Boolean Inputs • Ready, Active, Alarm, Faulted, etc.	These correlate with the DeviceLogix Logic Status word for the drive. Refer to page A-10 for details on the Logic Status word bits.

Bit inputs are used to connect to real-world input devices (push buttons, photoeyes, etc.) that are wired to an I/O option module in the drive, monitor drive status, or to read a bit in a bit-enumerated parameter.

Bit Outputs

Available bit outputs from the DeviceLogix program include:

Bit Outputs	Description
(16) Hardware Boolean Outputs • DOP1 to DOP 16	These correlate with the bits in DeviceLogix Port 14 parameter P51 [DLX DigOut Sts2]
(32) Network Boolean Outputs • Stop, Start, Jog1, Clear Faults, etc.	These correlate with the DeviceLogix Logic Command word for the drive. Refer to page A-9 for details on the Logic Command word bits. These bits can also be monitored in DeviceLogix Port 14 parameter P50 [DLX DigOut Sts].

Bit Outputs are used to connect to real-world output devices (pilot lights, relays, etc.) that are wired to an I/O option module in the drive, to directly control the drive via Logic Command bits, or to write a bit in a bit-enumerated parameter.

Analog Inputs

Available analog inputs to the DeviceLogix program include:

Analog Inputs	Description
(12) Hardware Analog Inputs • DLX Real InSP1 to DLX Real InSP8 (Real) • DLX DINT InSP1 to DLX DINT InSP4 (DINT)	Scratchpad registers for DLX program input use.
(17) Network Analog Inputs • Common Feedback (Real) • DLX In 01 to DLX In 14 (Real) • DLX In 15 to DLX In 16 (DINT)	The Common Feedback correlates with the Feedback word for the drive. The DLX In's correlate with DeviceLogix Port 14 parameters P17 [DLX In 01] to Pr.32 [DLX In 16]
(7) Miscellaneous Analog Inputs • Real Time Clock data	Year, Month, Day, DayofWeek, Hour, Minute, and Second from the Real Time Clock in the drive

Analog Inputs are typically used to connect to real-world input devices (sensor, potentiometer, etc.) that are wired to an I/O option module in the drive, monitor drive Feedback, read the real Time Clock, or to read a drive / peripheral parameter.

Note: Hardware Analog Inputs are available in the PowerFlex 753 and v2.xxx (and higher) PowerFlex 755 drives.

Analog Outputs

Available analog outputs from the DeviceLogix program include:

Analog Outputs	Description
(12) Hardware Analog Outputs • DLX Real OutSP1 to DLX Real OutSP8 (Real) • DLX DINT OutSP1 to DLX DINT OutSP4 (DINT)	Scratchpad registers for DLX program output use.
(17) Network Analog Outputs • Reference Command (Real) • DLX Out 01 to DLX Out 14 (Real) • DLX Out 15 to DLX Out 16 (DINT)	The Reference Command correlates with the Reference word for the drive. The DLX Out's correlate with DeviceLogix Port 14 parameters P1 [DLX Out 01] to Pr.16 [DLX Out 16]

Analog Outputs are typically used to connect to real-world output devices (meter panel, valve, etc.) that are wired to an I/O option module in the drive, control the Reference to the drive, or to write a drive / peripheral parameter.

Note: Hardware Analog Outputs are available in the PowerFlex 753 and v2.xxx (and higher) PowerFlex 755 drives.

Tips

Data types

Note that different data types are supported by the DeviceLogix Analog In/Out parameters. For example, P17 [DLX In 01] is a Real whereas P32 [DLX In 16] is a DINT. Be sure to assign a DLX In / Out to a parameter that has the same data type.

Function Block elements also support different data types. Click on the Properties Button ⋯ in the upper right-hand corner of each element to display the Function Block's properties. The Function Data Type field displays the supported data types. Note that if Real DLX Ins are used with a Function Block element configured for DINT (typical default), the fraction will be truncated.

PowerFlex 755 v1.xxx Firmware
Datalinks and internal DeviceLogix scratchpad registers (P54…P81)

DLX In's and DLX Out's are Datalinks and can not be directly mapped to each other or another Datalink, such as a Datalink in the Port 13 Embedded Ethernet. Use the DeviceLogix internal scratchpad registers to pass data between the Datalinks.

Example 1 – Reading data from the network

A value from the network is input to DLX Real SP 1.

N:P.P#	Name	Value
[11: 13.1]	DL From Net 01	Port 14: DLX Real SP1

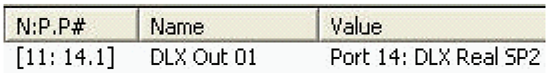
DLX Real SP1 is read by DLX In 01 and can now be used as an Analog Input in the DeviceLogix program.

N:P.P#	Name	Value
[11: 14.17]	DLX In 01	Port 14: DLX Real SP1

DLX Real SP1 is the intermediary register that allows the two Datalinks to work together.

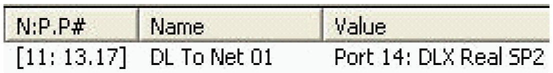
Example 2 – Writing data to the network

The DeviceLogix program controls an Analog Output value in DLX Out 01 which is written to DLX Real SP2.



N:P.P#	Name	Value
[11: 14.1]	DLX Out 01	Port 14: DLX Real SP2

The DLX Real SP2 value is output to the network.



N:P.P#	Name	Value
[11: 13.17]	DL To Net 01	Port 14: DLX Real SP2

DLX Real SP2 is the intermediary register that allows the two Datalinks to work together.

PowerFlex 753 (all) and PowerFlex 755 v2.xxx (and higher) Datalinks and internal DeviceLogix scratchpad registers (P82…P105)

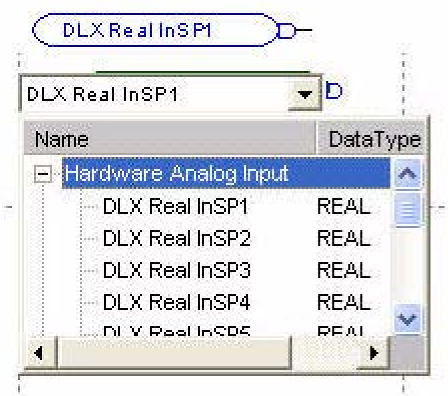
DLX In's and DLX Out's are Datalinks and can not be directly mapped to each other or another Datalink, such as a Datalink in the Port 13 Embedded Ethernet. Although the same method used with PowerFlex 755 v1.xxx firmware can be employed, there is a more efficient method that does not require a DeviceLogix Datalink to be used.

Example 1 – Reading data from the network

A value from the network is input to DLX Real InSP1.

Drive	Datalink	Value
753	Port 0 P895 [Data In A1]	Port 14: DLX Real InSP1
755	Port 13 P1 [DL From Net 01]	

DLX Real InSP1 can now be used as a Hardware Analog Input and used directly with a Function Block (a DeviceLogix Datalink is not required).



DLX Real InSP1

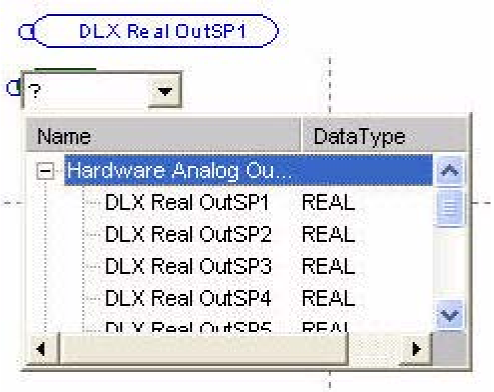
Name	DataType
Hardware Analog Input	
DLX Real InSP1	REAL
DLX Real InSP2	REAL
DLX Real InSP3	REAL
DLX Real InSP4	REAL

Example 2 – Writing data to the network

The DeviceLogix program controls an Analog Output value which is written to DLX Real OutSP1.

Drive	Datalink	Value
753	Port 0 P905 [Data Out A1]	Port 14: DLX Real OutSP1
755	Port 13 P17 [DL To Net 01]	

DLX Real OutSP1 can now be used as a Hardware Analog Output and used directly with a Function Block (a DeviceLogix Datalink is not required).



Program Examples

Example 1: Selector Switch Operation

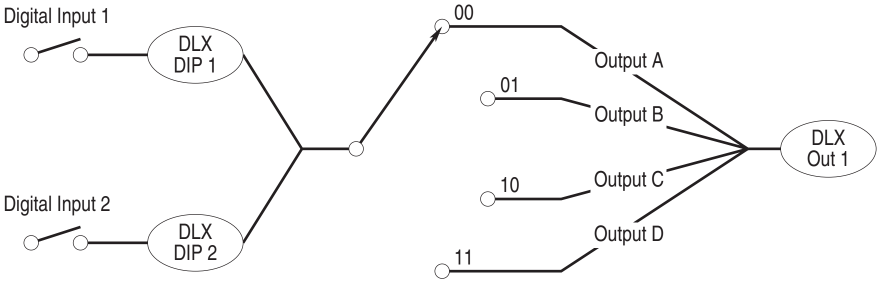
This example demonstrates how a selector switch operation similar to the feature in the PowerFlex 700S can be achieved through the embedded DeviceLogix in the PowerFlex 750-Series drive. A Selector switch is simulated in the drive using a combination of inputs to produce multiple outputs. Digital inputs in the drive are used to output configurable multiple preset speeds (75 Hz, 85Hz, 95Hz, and 105Hz) to P571 [Preset Speed 1]. It is assumed that the 750-Series drive has an I/O module installed in Port 4.

The truth table below represents the inputs and outputs for a 4 position selector switch.

Inputs		Outputs	
Input 1	Input 2	Binary Output	Selector Switch Output
0	0	0	Output A
0	1	1	Output B
1	0	2	Output C
1	1	3	Output D

The Logic Map below offers a high level explanation of how the above outputs are achieved.

Figure G.1 Two Input Four Position Selector Switch Logic Map



Discrete Inputs in the Drive are used for Inputs 1 and Input 2. Output A, B, C, and D are linked to DeviceLogix Scratchpad Registers. This allows further flexibility to modify the values of these outputs.

The resulting output can be linked to a parameter and used in supporting drive applications, such as configuring multiple preset speeds, point to point positioning, etc. In this example, it controls Preset Speed 1.

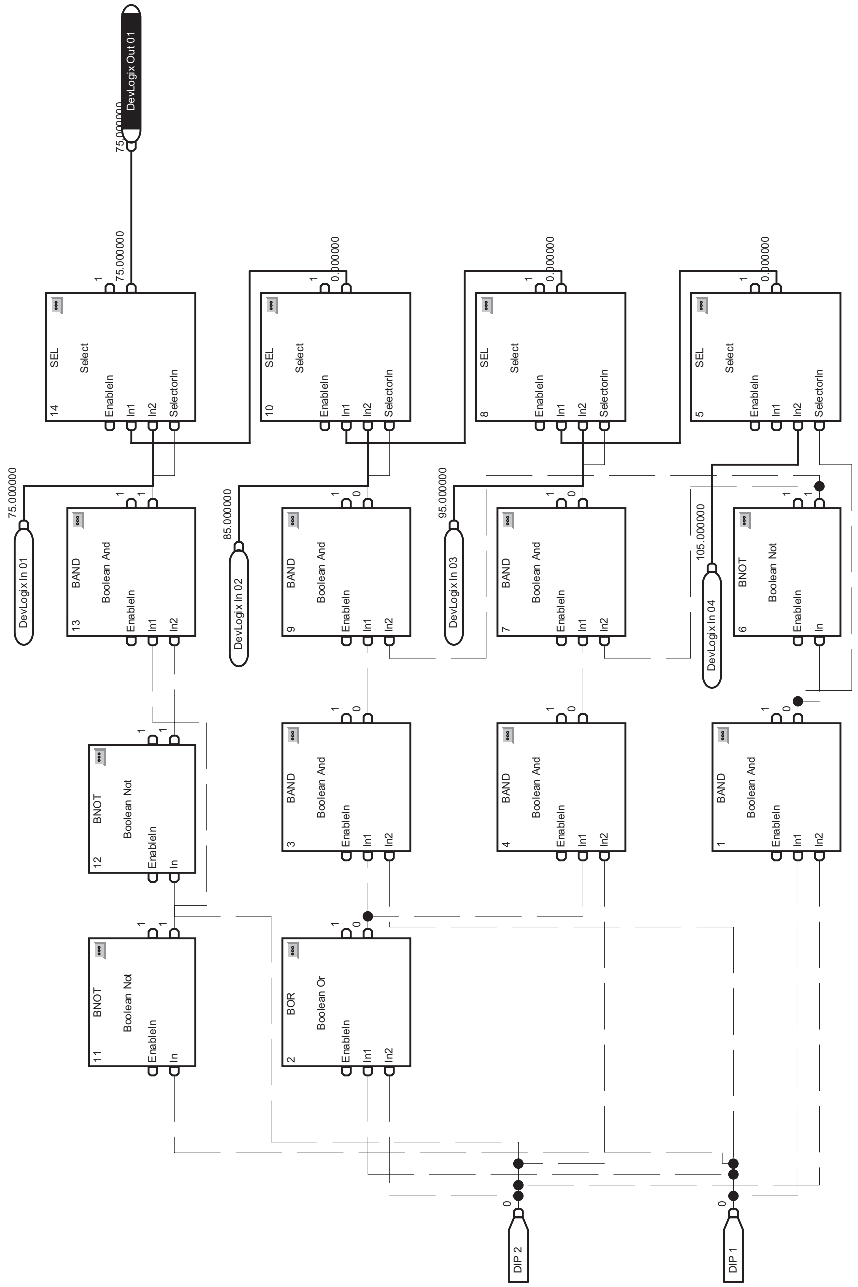
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
14.1	DLX Out 01	Port 0:Preset Speed 1	
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Digital input 1 from Selector Switch
14.34	DLX DIP 2	Port 4: Dig In Status.Input 2	Digital input 2 from Selector Switch
14.17	DLX In 01	Port 14: DLX Real SP1	Output A
14.18	DLX In 02	Port 14: DLX Real SP2	Output B
14.19	DLX In 03	Port 14: DLX Real SP3	Output C
14.20	DLX In 04	Port 14: DLX Real SP4	Output D
14.54	DLX Real SP1	75.00	Output A Preset Speed
14.55	DLX Real SP2	85.00	Output B Preset Speed
14.56	DLX Real SP3	95.00	Output C Preset Speed
14.57	DLX Real SP4	105.00	Output D Preset Speed
0.571	Preset Speed 1	varies	Resulting output from Selector Switch

Functional Block Programming

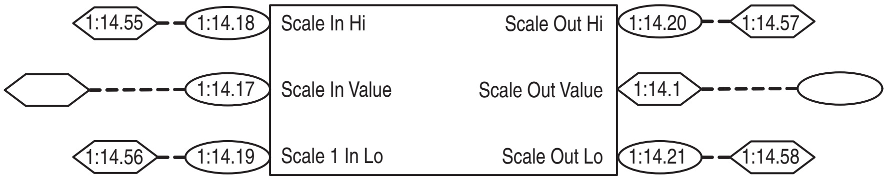
The Selector Switch Operation example consists of 14 blocks that are shown below.



Example 2: Scale Block Operation

This example demonstrates how a scale block operation similar to the feature in the PowerFlex 700VC can be achieved through the embedded DeviceLogix in the PowerFlex 750-Series drive. A Scale Block scales a parameter value and the input of the block is linked to a parameter that is desired to be scaled. The scale block also has both input and output high limits and low limit parameters.

Figure G.2 Scale Block High Level View



Scale In Hi determines the high value for the input to the scale block.

Scale Out Hi determines the corresponding high value for the output of the scale block.

Scale In Low determines the low value for the input to the scale block.

Scale Out Lo determines the corresponding low value for the output of the scale block.

Scale Out Value of the block is then available for user to link to any parameter that accepts links.

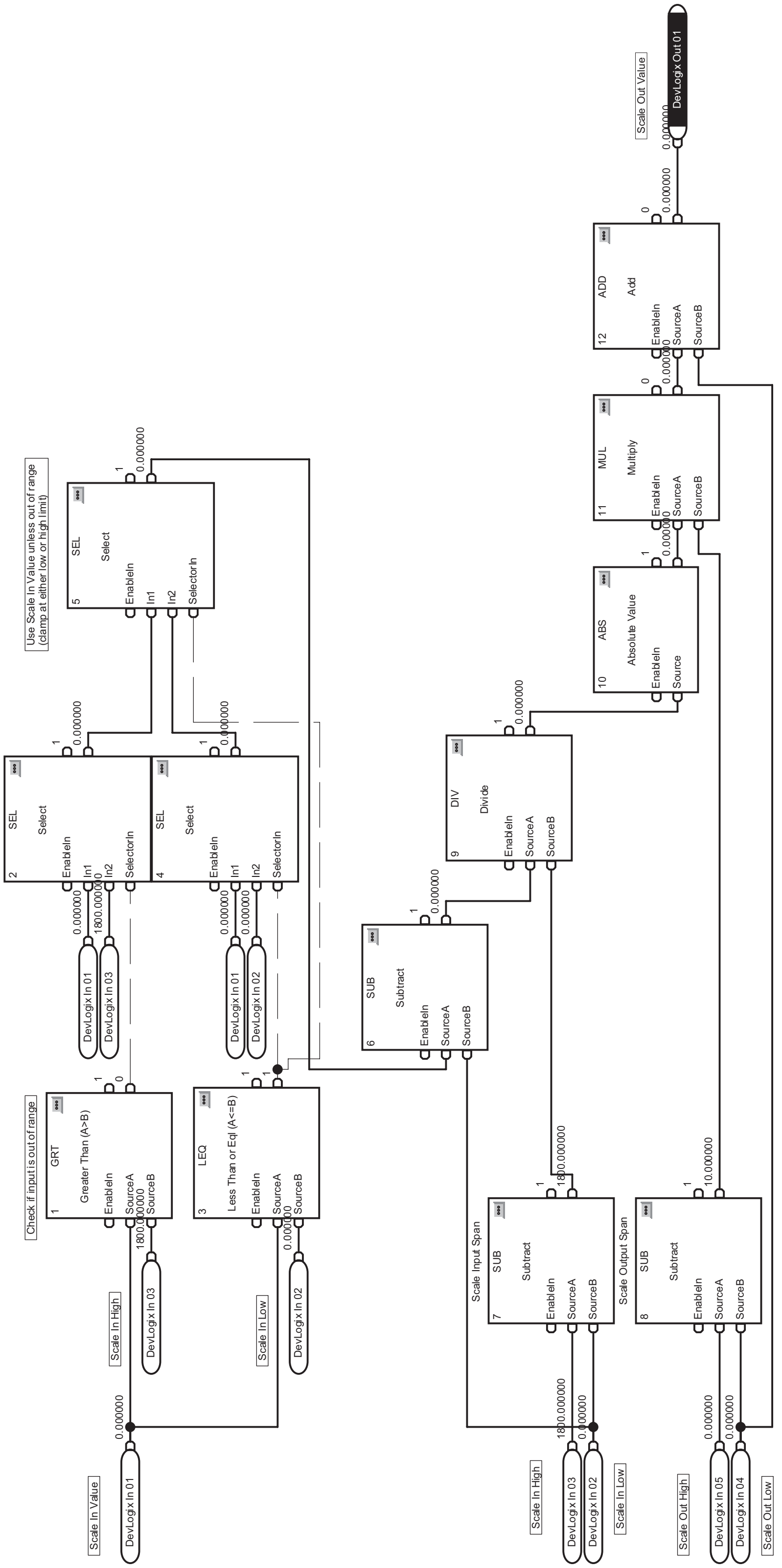
Parameter Configuration

The following DeviceLogix parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
14.1	DLX Out 01	* Set this to where the Scale Output value should go *	
14.17	DLX In 01	* Set this to your Scale Input value source *	
14.18	DLX In 02	Port 14: DLX Real SP2	Scale In Low
14.19	DLX In 03	Port 14: DLX Real SP3	Scale In High
14.20	DLX In 04	Port 14: DLX Real SP4	Scale Out Low
14.21	DLX In 05	Port 14: DLX Real SP5	Scale Out High
14.55	DLX Real SP2	0.0	Scale In Low value
14.56	DLX Real SP3	1800.00	Scale In High value
14.57	DLX Real SP4	0.000	Scale Out Low value
14.58	DLX Real SP5	10.00	Scale Out High value

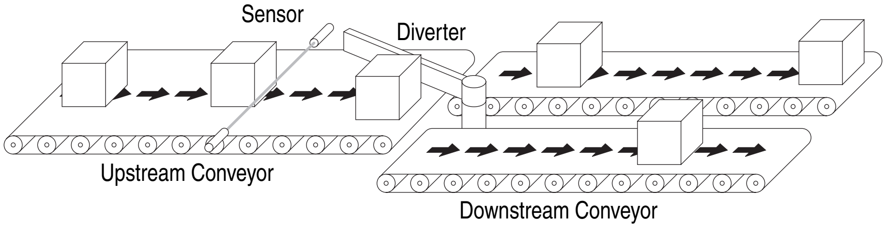
Functional Block Programming

The Scale Block Operation example consists of 12 blocks that are shown below.



Example 3: Diverter Operation

This example demonstrates basic control logic to operate a diverter in a conveyor system. The diverter directs parts from an upstream conveyor to one of two downstream conveyors. It alternately sends 'x' parts down each downstream conveyor.



The application consists of the following discrete I/O:

Type	Name	Description
Inputs	Part Present Sensor	Identifies that a part is present
Outputs	Diverter Actuator	Controls the diverter actuator to direct the flow of parts

Example logic requirements:

- If Part Present Sensor is ON, then increment the parts counter
- If parts counter preset is reached, reset the counter and alternately set or reset the Diverter Actuator

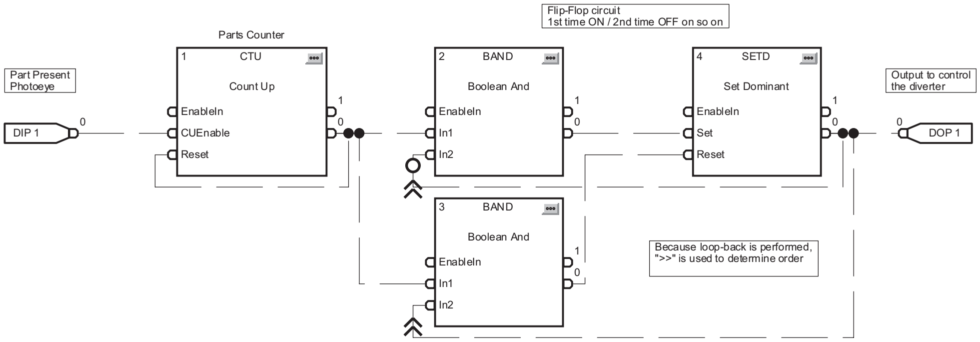
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
4.20	TO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts0	Output on I/O module in Port 4
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Part Present Sensor input (I/O module in Port 4)
14.51	DLX DigOut Sts2		Diverter Actuator output

Functional Block Programming

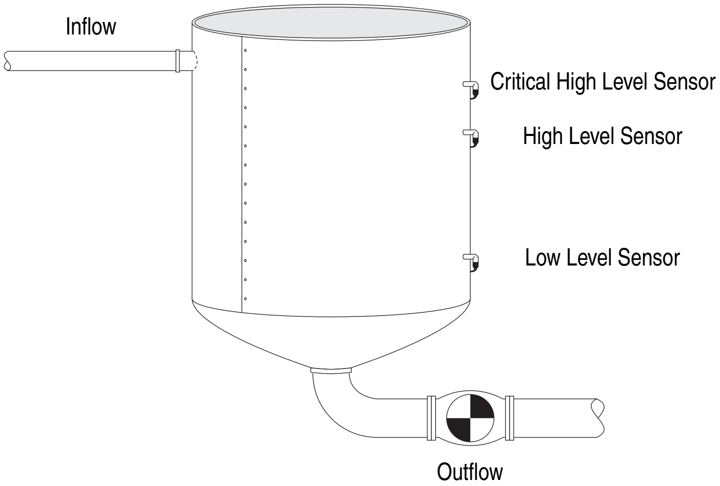
This example consists of 4 blocks that are shown below.



Example 4: Wet Well Operation

This example demonstrates how basic control logic can be used for simple applications. It is assumed that the PowerFlex 755 has an I/O module installed in Port 4.

Figure G.3 Wet Well



The application consists of the following discrete I/O:

Type	Name	Description
Inputs	Fault Reset pushbutton	Used to reset any faults or alarms
	Critical High Level sensor	Indicates a critically high level. It is normally a backup to the High Level sensor and is also used to detect if the High Level sensor is faulty. When ON, the drive will operate at an even higher output frequency in case it is due to a high inflow.
	High Level sensor	Indicates the well is at a high level and it is time to start pumping (normal operation). The drive operates at a 'normal' rate unless the Critical High Level was reached.
	Low Level sensor	When OFF, it is used to indicate that the well is empty (as long as the High and Critical High Level sensors are also OFF). The drive stops operating (end of pumping cycle).
Outputs	Sensor Fault pilot light	Indicates that there is a problem with either the High Level or Low Level sensors
	Too Much Time Alarm pilot light	If the drive operates for more than the normal amount of time it takes to empty the well, there may be increased inflow or perhaps the Low Level sensor is stuck ON. An alarm indication is made and the drive continues to operate.
	Critical High Fault flashing light / alarm horn	Indicates a critically high level that requires immediate attention.

Example logic requirements:

- If Critical High Level or High Level sensor is ON, then start the drive.
  - If Critical High Level sensor is ON, then switch to higher rate (90Hz) for the rest of the pumping cycle. Else run at the normal rate (60Hz)
  - Run until all three level sensors are OFF
  - Pump should run at least ‘x’ minutes at a minimum. If the Low Level sensor fails, this prevents the High Level sensor from cycling the pump On/Off too quickly.
- Annunciate a Sensor Fault condition
  - The Low Level sensor should never be OFF when either the High Level or Critical High Level sensors are ON
  - The High Level sensor should never be OFF when the Critical High Level sensor is ON
  - The Critical High Level sensor should never be ON when either the High Level or Low Level sensors are OFF
- Annunciate a Critical High Level condition
  - The Critical High Level output should never be ON
- Annunciate if pumping cycle time is longer than normal (‘y’ minutes)
  - Monitor the amount of time a pump cycle takes by timing how long the drive is operating.
  - If greater than ‘y’ minutes, energize the Too Much Time Alarm output
- Reset alarms / faults with a Reset pushbutton input

Parameter Configuration

The following parameters are configured for this example.

The following DeviceLogix parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
0.520	Max Fwd Speed	90.00	
0.545	Speed Ref A Sel	Port 0: Preset Speed 1	
0.571	Preset Speed 1	60.00	Normal pumping rate (60Hz)
0.573	Preset Speed 3	90.00	High speed pumping rate (90Hz)
4.10	RO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts0	Sensor Fault output
4.20	TO0 Select	Port 14: DLX DigOut Sts2.DLX DOPSts1	Critical High Level Fault output
4.30	TO1 Select	Port 14: DLX DigOut Sts2.DLX DOPSts2	Too Much Time Alarm output
14.33	DLX DIP 1	Port 4: Dig In Status.Input 1	Critical High Level Sensor input
14.34	DLX DIP 2	Port 4: Dig In Status.Input 2	High Level Sensor input
14.35	DLX DIP 3	Port 4: Dig In Status.Input 3	Low Level Sensor input
14.36	DLX DIP 4	Port 4: Dig In Status.Input 4	Alarm / Fault Reset pushbutton input

Functional Block Programming

This example consists of 16 blocks that are shown below.

Figure G.4 Control Circuit

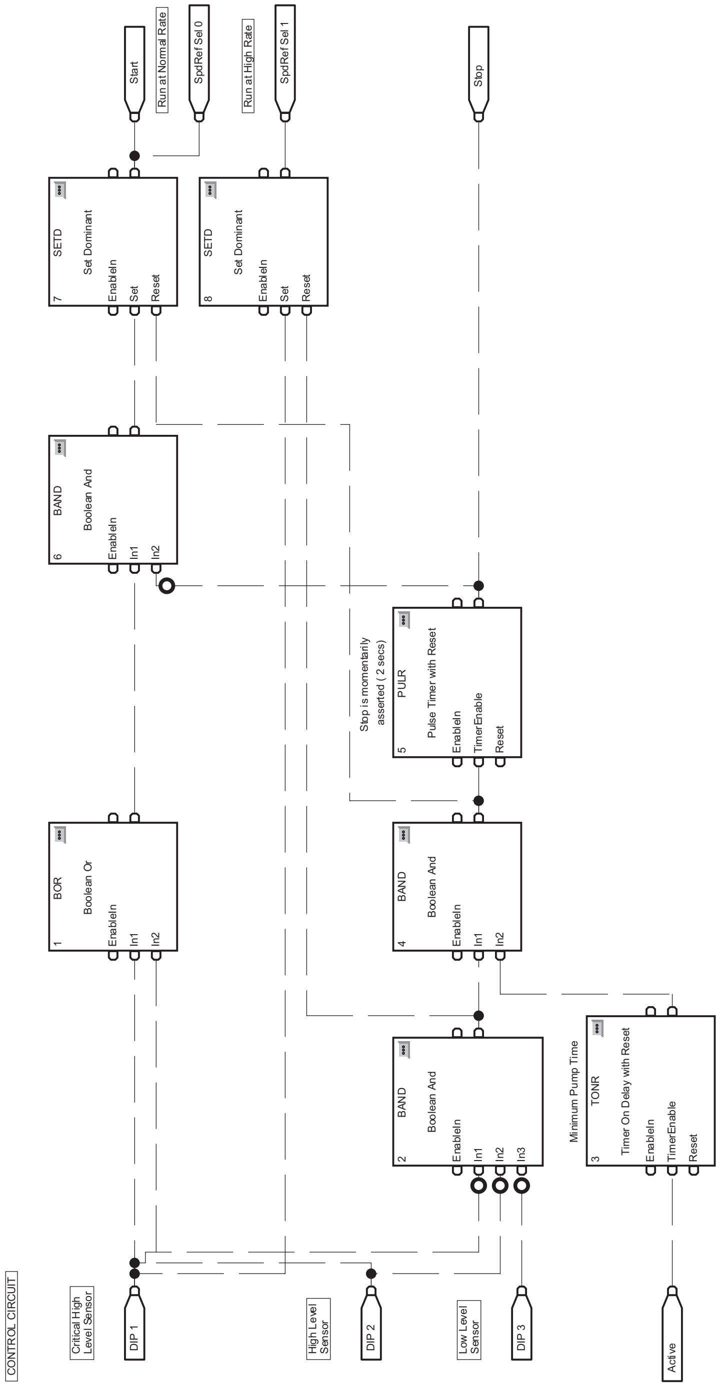
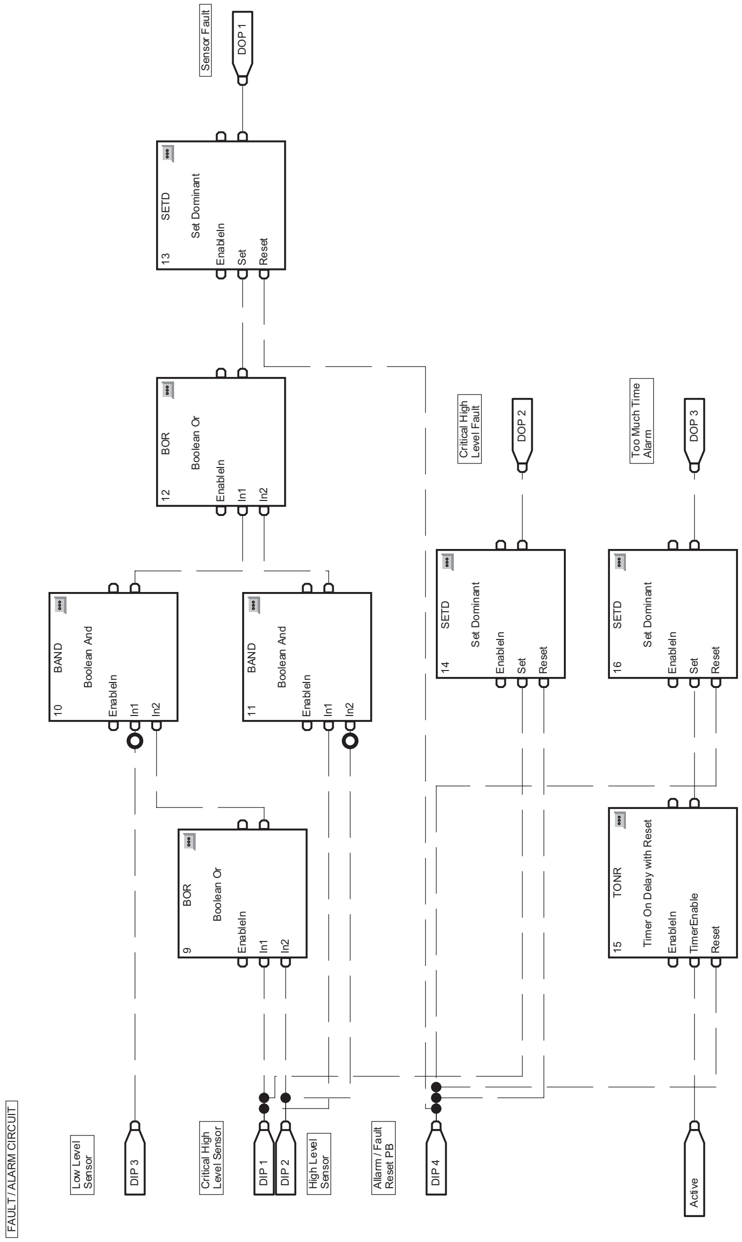


Figure G.5 Fault/Alarm Circuit



Example 5: Utilizing the Real Time Clock

This example demonstrates how to utilize the PowerFlex 750-Series drive Real Time Clock in a DeviceLogix program.

Example logic requirements:

- Run the drive Monday through Friday between 7:45AM and 5:15PM

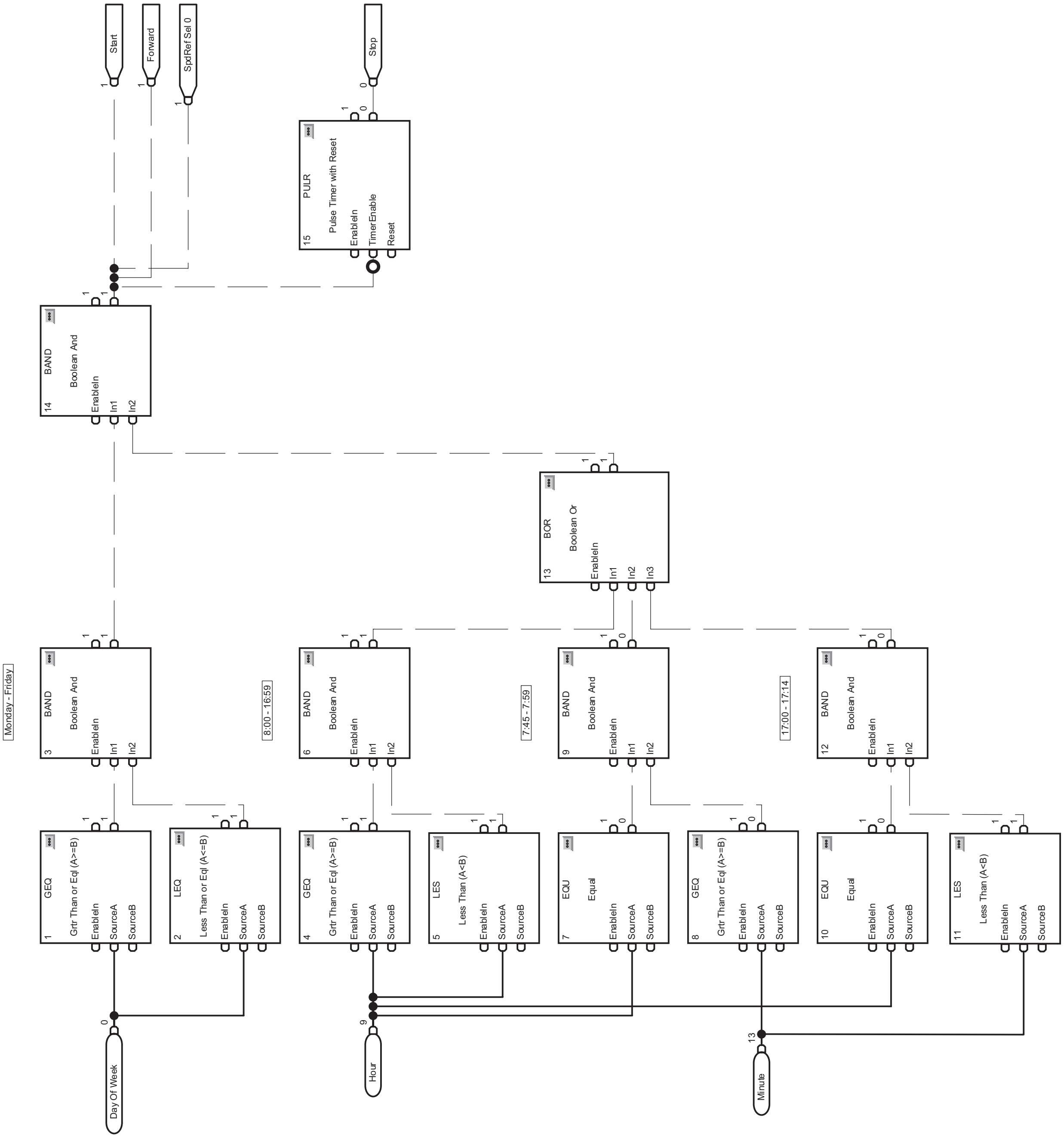
Parameter Configuration

The following parameters are configured for this example:

Port Parameter No.	Parameter	Value	Description
0.545	Speed Ref A Sel	Port 0: Preset Speed 1	
0.571	Preset Speed 1	60.00	Operating speed of drive

Functional Block Programming

This example consists of 15 blocks that are shown below.



Notes:

Appendix H

Permanent Magnet Motors

Compatible Allen-Bradley Servo Motors

The following table contains a list of specifications for Allen-Bradley servo motors compatible with PowerFlex 750-Series drives. This list primarily includes 460V rated MP and 1326 Series Allen-Bradley servo motors. This information is provided to help configure PowerFlex 750-Series drive with the appropriate servo motor data. For information regarding compatibility and configuration of any Allen-Bradley servo motors and third party PM motors not listed here, contact Allen-Bradley Drives Technical Support.

Table H.A Motor Name Plate and Rating Specifications

Model Number	Motor NP Volts (line to line V rms)	Motor NP Amps (A rms)	Motor NP Hertz (Hz)	Motor NP RPM (oper. rpm)	Motor NP Power (kW)	Motor Poles	Current peak (A rms)	System Cont. Stall Torque (N•m)	Motor Max RPM (rpm)
MPL-B4530K	460	7.8	200.7	3010	2.60	8	19.1	8.25	4000
MPL-B4560F	460	8.3	144.7	2170	3.20	8	25.5	14.10	3000
MPL-B520K	460	8.1	208.0	3120	3.50	8	23.3	10.70	4000
MPL-B540K	460	14.5	177.3	2660	5.40	8	42.4	19.40	4000
MPL-B560F	460	14.5	130.7	1960	5.50	8	42.4	26.80	3000
MPL-B580F	460	18.4	132.7	1990	7.10	8	66.5	34.00	3000
MPL-B580J	460	22.6	148.0	2220	7.90	8	66.5	34.00	3800
MPL-B640F	460	22.7	106.0	1590	6.11	8	46.0	36.70	3000
MPL-B660F	460	27.2	81.3	1220	6.15	8	67.9	48.00	3000
MPL-B680D	460	24.0	94.0	1410	9.30	8	66.5	62.80	2000
MPL-B680F	460	33.9	79.3	1190	7.50	8	67.9	60.00	3000
MPL-B860D	460	33.6	96.0	1440	12.50	8	67.5	83.10	2000
MPL-B880C	460	33.6	72.7	1090	12.60	8	69.0	110.00	1500
MPL-B880D	460	40.3	86.7	1300	15.00	8	113.2	110.00	2000
MPL-B960B	460	29.7	62.0	930	12.70	8	63.6	130.00	1200
MPL-B960C	460	38.9	76.0	1140	14.80	8	88.4	124.30	1500
MPL-B960D	460	50.2	76.7	1150	15.00	8	102.5	124.30	2000
MPL-B980B	460	31.8	59.3	890	15.02	8	70.7	162.70	1000
MPL-B980C	460	48.2	67.3	1010	16.80	8	99.0	158.20	1500
MPL-B980D	460	63.6	74.7	1120	18.60	8	141.4	158.20	2000
MPG-B050-031	460	16.3	92.0	920	1.20	12	32.5	12.40	2510
MPG-B110-031	460	12.9	112.0	1120	2.00	12	31.1	17.00	2420
MPG-B110-091	460	10.6	184.0	1840	1.60	12	20.5	8.30	3500
1326AB-B515G	460	9.5	88.7	2660	2.90	4	28.5	10.40	5000
1326AB-B520F	460	8.8	70.3	2110	2.90	4	26.4	13.10	3500
1326AB-B530E	460	9.5	74.3	2230	4.20	4	28.5	18.00	3000
1326AB-B720E	460	17.5	70.0	2100	6.80	4	52.5	30.90	3500
1326AB-B720F	460	27.5	117.0	3510	11.70	4	66.5	31.80	5000
1326AB-B730E	460	22.8	78.3	2350	9.60	4	66.5	39.00	3350
1326AB-B740C	460	20.9	52.3	1570	8.70	4	62.7	53.00	2200
1326AB-B740E	460	32.0	79.7	2390	12.70	4	66.5	50.80	3400
1326AS-B630F	460	7.8	142.7	2140	2.40	8	18.5	10.70	4500
1326AS-B660E	460	11.8	100.7	1510	3.40	8	29.8	21.50	3000
1326AS-B690E	460	19.0	87.3	1310	5.00	8	41.3	36.40	3000
1326AS-B840E	460	21.2	79.3	1190	4.70	8	39.5	37.60	3000
1326AS-B860C	460	17.6	77.3	1160	6.00	8	44.4	49.30	2000
3050R-7	390	66.0	50.0	500	30.00	12	132.0	-	500
11050R-7	390	218.0	50.0	500	110.00	12	436.0	-	500

Notes:

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