SF320, HF320 & HF430 Adjustable Frequency Drives Family

1/4 to 75 HP, 200-230 VAC
1/2 to 75 HP, 380-460 VAC

AC DRIVES

THE AVAILABLE SOLUTION, WORLDWIDE.

SUMITOMO
MACHINERY CORPORATION OF AMERICA

Catalog
10.082.50.001

CONTENTS

GENERAL INFORMATION

AC Drive Family – Quick Comparison

Contents

FEATURE/RATING	SF320	HF320	HF430
The new Sumitomo AC Drive family allows you to choose the most cost-effective solution for your application requirements.			
HP Range (230V, 3ϕ In)	1/4 - 10	1/4 - 10	1/2 - 20 (stocked) 30 – 75 (6 weeks)
HP Range (230V, 1ϕ In)	1/4 - 3 HP	1/4 - 3 HP	Consult Factory
HP Range (460V, 3ϕ In)	1/2 - 10	1/2 - 10	1 – 75
Enclosure Type (IEC)	IP20	IP20	IP20
Enclosure Type (NEMA)	Open Chassis	Open Chassis	NEMA 1
Conduit Entry Provisions	No	No	Yes
DB Optional	No	Yes	Yes
3-Wire Control	No (ext. relay)	No (ext. relay)	Yes
Volts per Hertz Control	Yes	Yes	Yes
Sensorless Vector Control	No	Yes	Yes
Closed Loop Vector Control	No	No	Optional
Constant Torque Speed Range	10:1	60:1 (SLV)	120:1 (SLV) 1000:1 (CLV)
Starting Torque	< 150%	170% - 200%	> 200%
Digital Frequency Resolution	0.1 Hz	0.1 Hz	0.01 Hz
A/D Converter Resolution	10 bits	10 bits	12 bits
Accel/Decel Time	0.1 – 3000 S	0.1 – 3000 S	0.01 – 3600 S
Speed Regulation	Motor Slip	Motor Slip (V/F) ±0.5% (SLV)	Motor Slip (V/F) ±0.5% (SLV) ±0.04% (CLV)
Carrier Frequency (see Note 1)	Adjustable (0.5 – 16 kHz)	Adjustable (0.5 – 16 kHz)	Adjustable (0.5 – 15 kHz)
Ambient Temperature (see Note 2)	-10°C – 50°C (14°F - 122°F)	-10°C – 50°C (14°F - 122°F)	-10°C – 50°C (14°F - 122°F)
Digital Inputs	5 (Active High) All Programmable	6 (Active High) All Programmable	9 (Selectable) 1 Fixed, 8-Prog.
Digital Outputs	2 – OC (prog.) 1 – Form C (fault)	2 – OC (prog.) 1 – Form C (prog.)	2 – OC (prog.) 1 – Form C (prog.)
Analog Inputs	0 – 10 V, 4 – 20 mA	0 – 10 V, 4 – 20 mA	0 – 10 V, 4 – 20 mA -10 to 0 to +10 V
Analog Outputs	1:10 VDC PWM (for remote meter)	1:10 VDC PWM (for remote meter)	1:10 VDC PWM 1:0 – 10 VDC 1:4 – 20 mADC
Motor Brake Relay Control	No	No	Yes

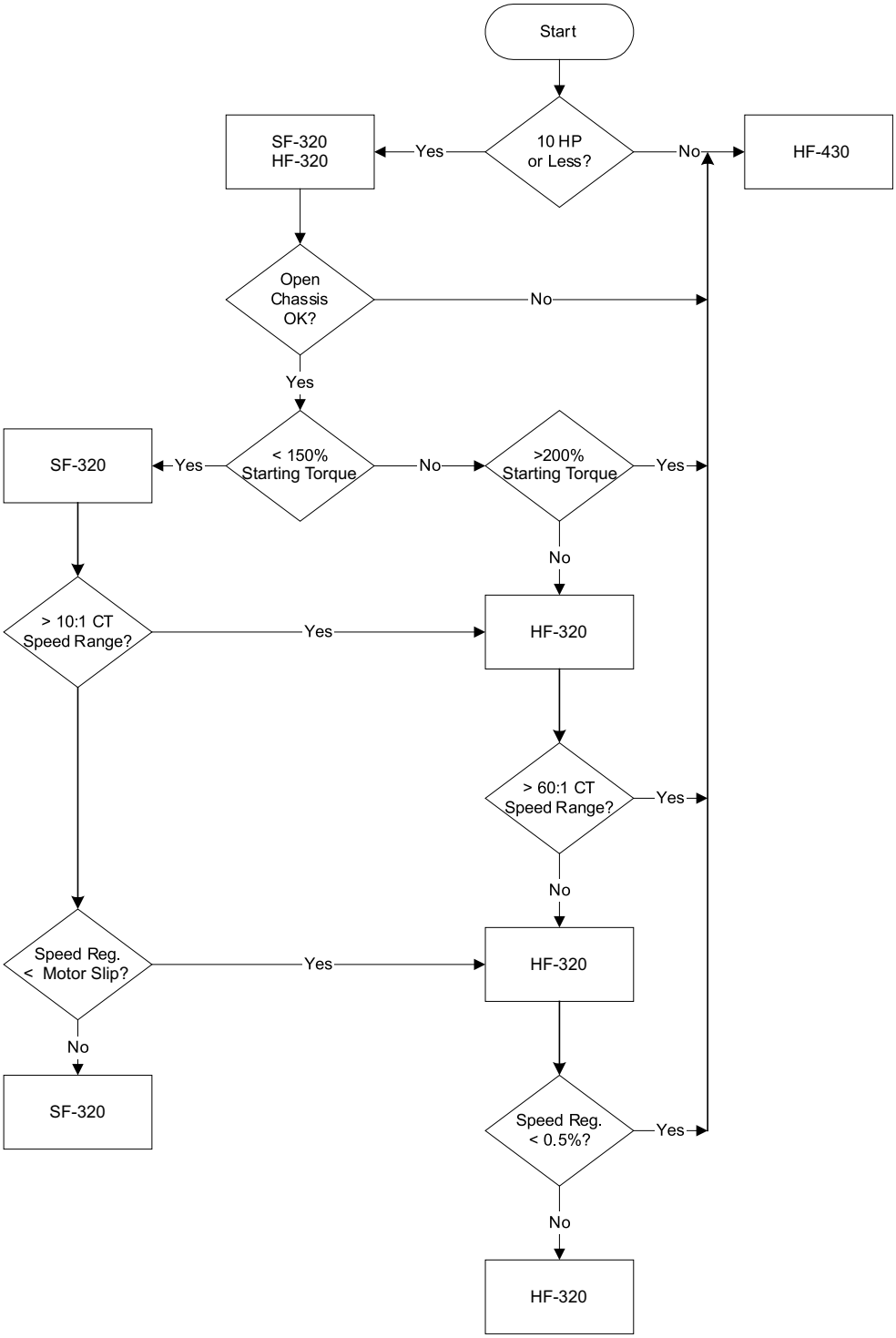
Notes: V/F = Volts/Hertz, SLV = Sensorless Vector, CLV = Closed-Loop Vector (option card required)
1: Derating required if the carrier frequency is set above 12 kHz.
2: Above 40°C (104°F) Maximum Carrier Frequency = 5 kHz and derate 2%/°C.

GENERAL INFORMATION

AC Drive Selection Flow Chart

Contents

Use the following flow chart as a quick guide to choose the drive best suited to your application requirements.



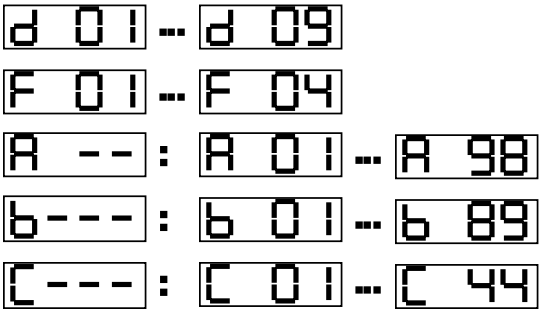
AC Drive Family Parameter Structure

Contents

Members of the Sumitomo AC drive family share a common parameter configuration scheme. SF320 drives include the base parameter set as shown below.

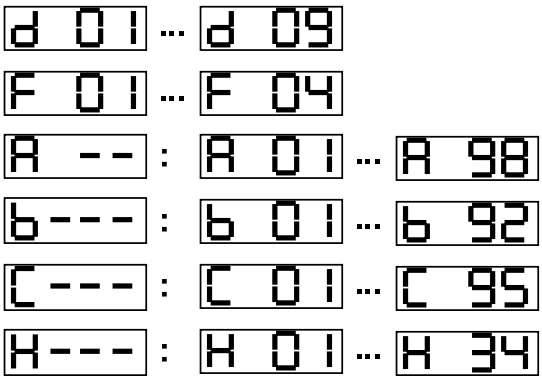
Each subsequent member adds additional parameters and groups to support the increased functionality.

SF320 Parameter Groups



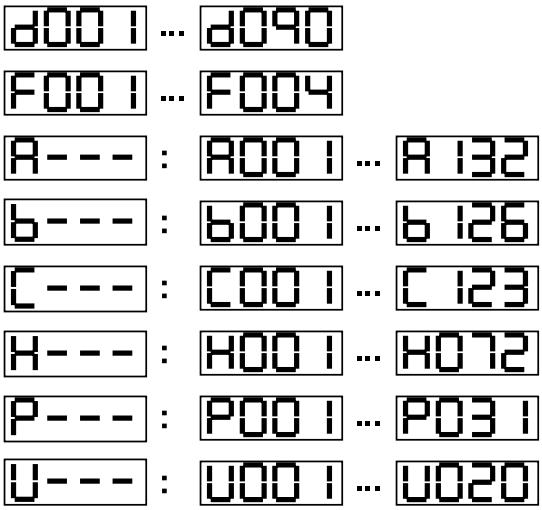
- Display parameters (D01 – D09) monitor drive performance.
- Basic parameters (F01 – F04) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.

HF320 Parameter Groups



- Display parameters (D01 – D09) monitor drive performance.
- Basic parameters (F01 – F04) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.
- H group parameters configure vector operation.

HF430 Parameter Groups



Note that HF430 drives use 3 numeric characters in the parameter number.

- Display parameters (D001 – D090) monitor drive performance.
- Basic parameters (F001 – F004) include frequently used parameters.
- A, B & C group extended parameters allow customization of drive operation.
- H group parameters configure vector operation.
- P group parameters configure options.
- U group is a special group that can be used by an OEM to limit user changes.

GENERAL INFORMATION

Monitoring and Troubleshooting Features

Contents

The Sumitomo AC drive family provides many features that assist in monitoring drive, and associated equipment, operation. These features also assist in troubleshooting should something go wrong with the installation.

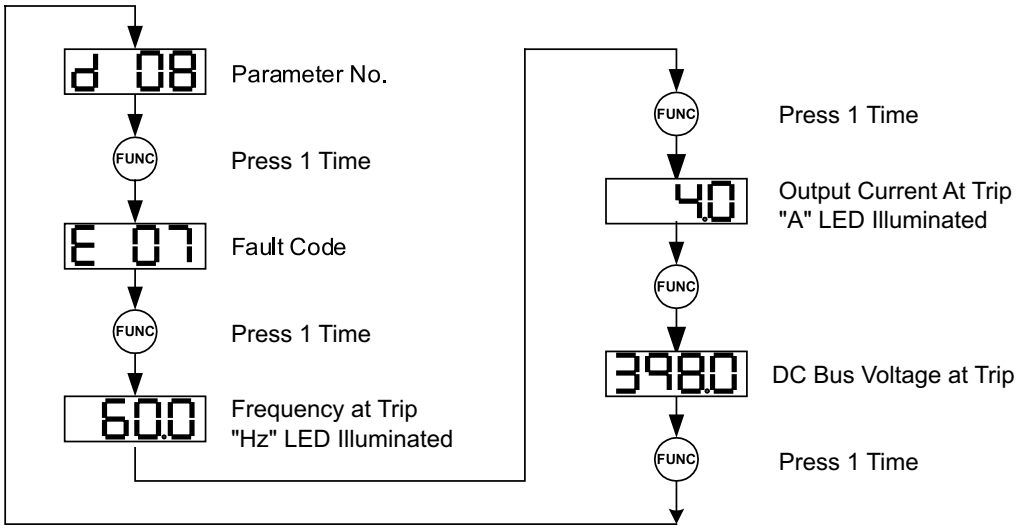
Trip	Cause	Display	Applies To
Over-current	Output short circuit, sudden heavy load or jam. At Constant Speed During Acceleration During Deceleration Other	 E01 E02 E03 E04	All
Overload	Motor current is above the rating for a period of time.	E05	All
DBR OL	The DB resistor duty cycle is too high.	E06	HF320, HF430
Over Voltage	The DC bus voltage has exceeded a preset level.	E07	All
EEPROM Error	Possible severe electrical noise or temperature too high.	E08	All
Under Voltage	The DC bus voltage has dropped below a preset level.	E09	All
CT Error	Electrical noise or problem with Current Transformer.	E10	HF320, HF430
CPU Err.	Problem with the drive CPU.	E11	All
External Trip	A programmable terminal set for External Trip is activated.	E12	All
USP	Power was applied while FR or RR was active.	E13	All
Ground Fault	Excessive current is flowing between an inverter output terminal and ground. **(For Equipment Protection Only)**	E14	All
Input Over Volt	Input voltage is over a preset limit for a preset time.	E15	All
Temp. Pwr Loss	Power loss lasting for less than 15 ms which will allow restart.	E16	HF430
Thermal	Inverter module is over the allowed maximum temperature.	E21	All
Gate Array Err.	Communication problem between CPU and gate array.	E23	HF430
Phase Loss	One of the input phases has been lost.	E24	HF430
Overload 2	An overload has occurred when the output frequency is under 0.2 Hz.	E25	HF430
IGBT Err.	An instantaneous over-current (short) is detected on the output terminals.	E30	HF430
PTC Error	If a PTC thermistor is used to protect the motor, the temperature (resistance) is too high.	E35	HF320, HF430
Abnormal Brake	A problem in sequencing a motor brake.	E36	HF430
Option 1	An error on option board 1.	E60-E69	HF430
Option 2	An error on option board 2.	E70-E79	HF430
UV Wait	The inverter is waiting for auto restart after an under voltage trip.	–	HF430

Fault Condition Monitoring

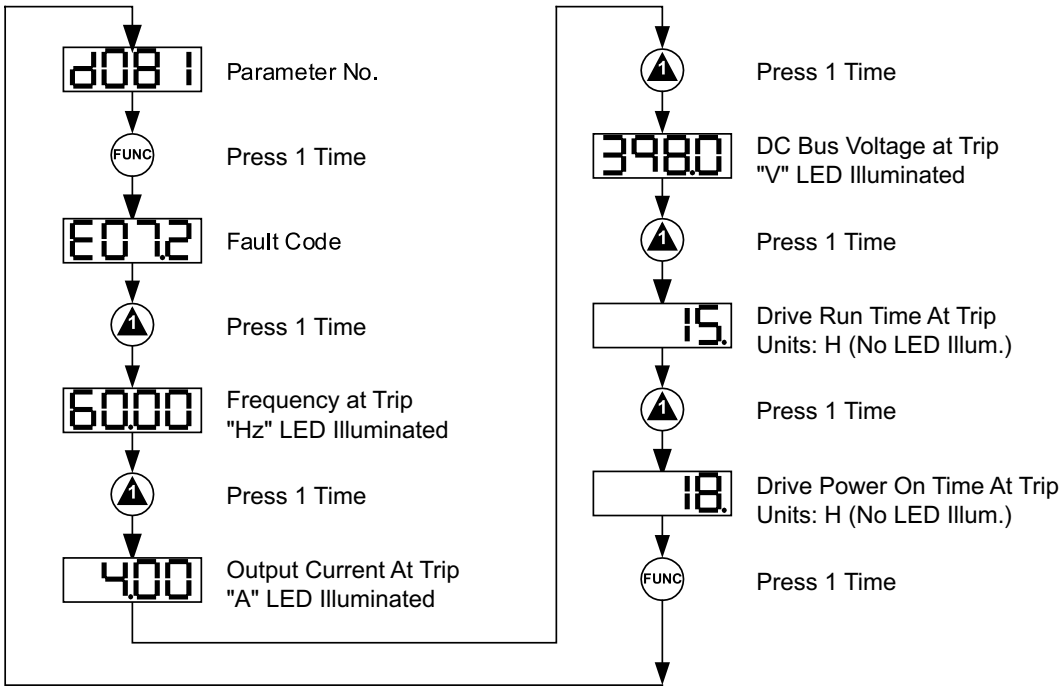
Contents

When a fault trip occurs, the Sumitomo drive family provides additional information about the drive operating condition at the time of the fault. This information is stored in the non-volatile fault history memory.

SF320 and HF320 Drives



HF430 Drives



SF320 OPEN CHASSIS AC MICRO DRIVES

Contents

SF3202-A20-W
1/4 HP, 230V

Digital Operator Panel (DOP):

- Local Digital Operator – Standard
  - Digital Frequency Setting with Resolution to 0.1 Hz
  - Run and Stop Keys
  - Function and Store Keys for Programming
  - Increase and Decrease Keys
    - Set Frequency (local mode)
    - Drive Programming
  - Speed Potentiometer
    - Standard (All Sizes)
- Optional Deluxe Keypad with Parameter Copy & Parameter Download Capability

SF320 FEATURES:

- Simple V/F Operation
- Compact Size
- Standard Digital Operator Panel (DOP)
- Built-In PID (Setpoint) Control
- Optional Enhanced DOP with Parameter Copy (for remote mounting only)
- Conforms to Global Standards (UL, cUL, CE)
- Serial Communications (RS-422 standard)

SF320 SPECIFICATIONS:

Input Voltage: 200-240V (+5%, -10%), 1 or 3-Phase, 50/60 Hz (±5%)

SF3202-	A20-W	A40-W	A75-W	1A5-W	2A2-W	3A7-W	5A5-W	7A5-W
HP	0.25	0.5	1	2	3	5	7.5	10
kW	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
In Phase	Single or Three Phase					Three Phase		
Output A	1.4	2.6	4.0	7.1	10.0	15.9	24	32
Wgt. (kg)	0.85	0.85	1.3	2.3	2.8	2.8	5.5	5.7
Losses (W)	17	29	41	70	97	166	216	288

Input Voltage: 380-460V (±10%), 3-Phase, 50/60 Hz (±5%)

SF3204-	A40-W	A75-W	1A5-W	2A2-W	4A0-W	5A5-W	7A5-W
HP	0.5	1	2	3	5	7.5	10
kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5
Current	1.5	2.5	3.8	5.5	8.6	13	16
Wgt. (kg)	1.3	1.7	1.7	2.8	2.8	5.5	5.7
Losses (W)	32	44	65	92	151	219	261

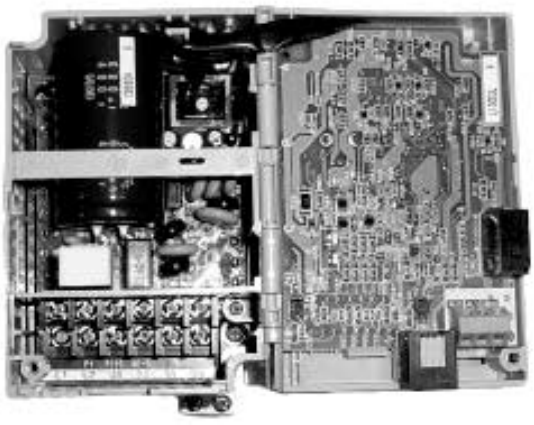
SF320 Specifications (continued)

Contents

General:

Control Method	Sinusoidal PWM
Output Frequency Range	0.5 to 360.0 Hz
Frequency Resolution	Digital: 0.1 Hz, Analog: Max. Frequency/1024
Speed Regulation	Depends on Motor Slip
Accel/Decel Time	2 settings for each – 0.1 to 3600 Sec
Accel/Decel Mode	Linear and S-Curve
Overload Capacity	150% for 60 Seconds
Starting Torque	150% or Less
Analog Inputs	2 Total: 10 bit resolution (Max. Frequency/1024) 0 to 10 VDC (Input Impedance – 10 kΩ) 4 to 20 mADC (Input Impedance – 250 Ω)
Digital Inputs	5 Total: Programmable (Sourcing Only)
Analog Outputs	1: 10 VDC PWM, 1 mA max. (for driving remote meter)
Digital Outputs	1 Form C Relay (Alarm) 250 VAC, 2.5A resistive, 0.2A inductive 30 VDC, 3.0A resistive, 0.7A inductive 2 Open Collector Transistors (programmable) 27 VDC, 50 mA
Carrier Frequency	Programmable 0.5 to 16 kHz
Enclosure	IP20 (NEMA Open Chassis)
Operating Environment	-10°C to 50°C (14°F to 122°F) Derate 2%/degree over 40°C (104°F) Not subjected to corrosive or conductive atmospheres, spraying or splashing liquids.
Storage Environment	-20°C to 65°C (-4°F to 149°F) Not subjected to corrosive or conductive atmospheres, dripping liquids or excessive vibration.
Vibration	0.6 G (5.9 m/s^2) from 10 to 55 Hz
Elevation	1000 m (3300 ft) Derate 1% per 100 m above 1000 m (4000 m max.)
Communication Ports	Standard: RS-422 for Remote Keypad or Remote Control

Control Cover Open Showing Programming Keys & Control Terminals

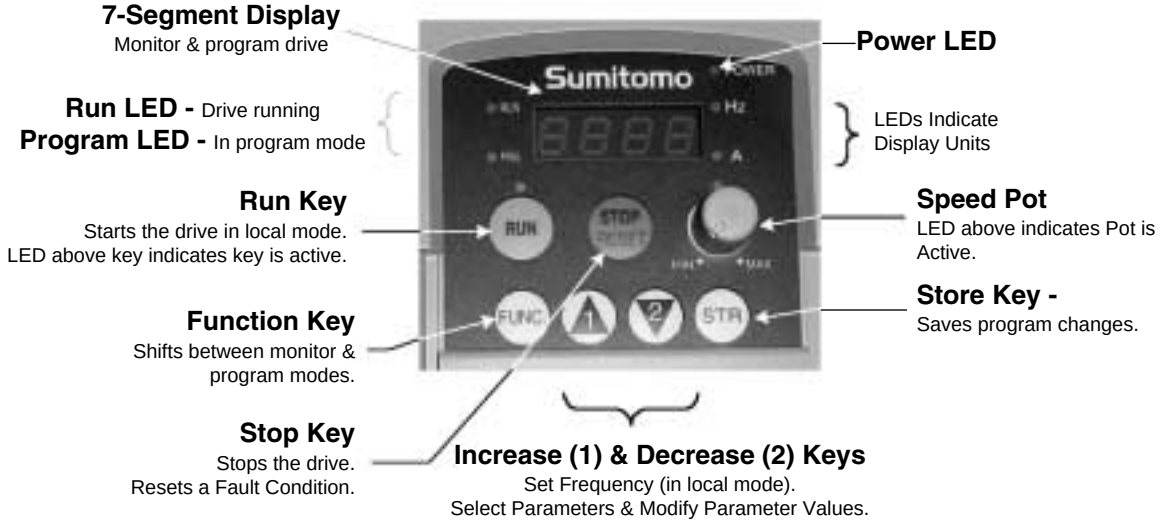


Main Cover Open Showing Power & Alarm Relay Terminals

SF320 OPEN CHASSIS AC MICRO DRIVES

SF320 Digital Operator Panel

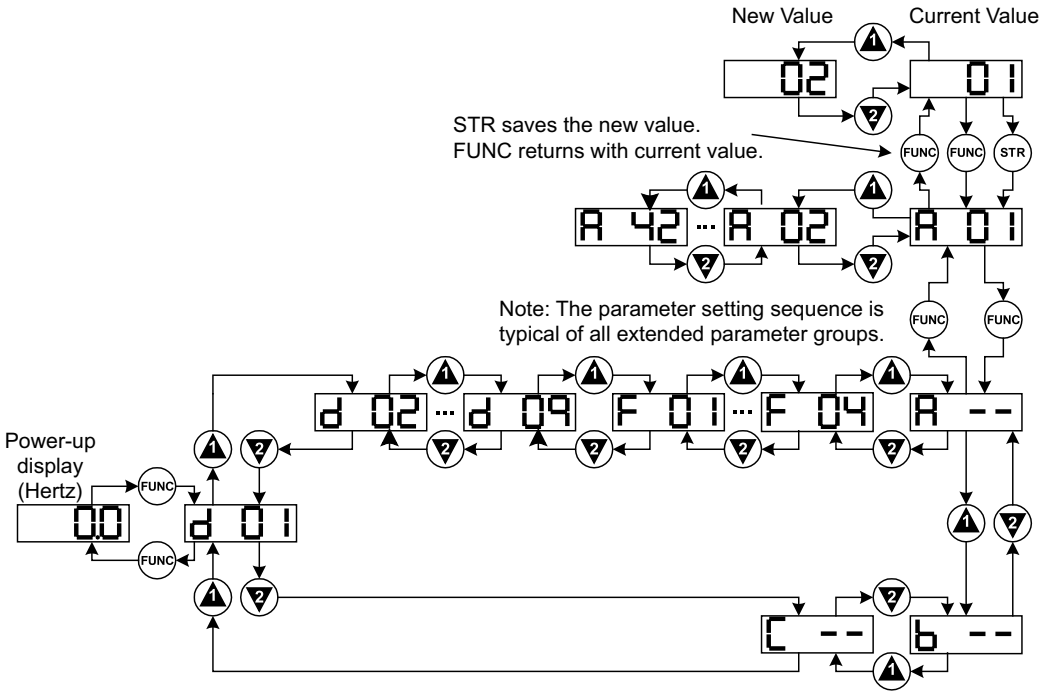
Contents



Digital Operator Panel (DOP) Shown With Control Cover Open

SF320 Parameter Access

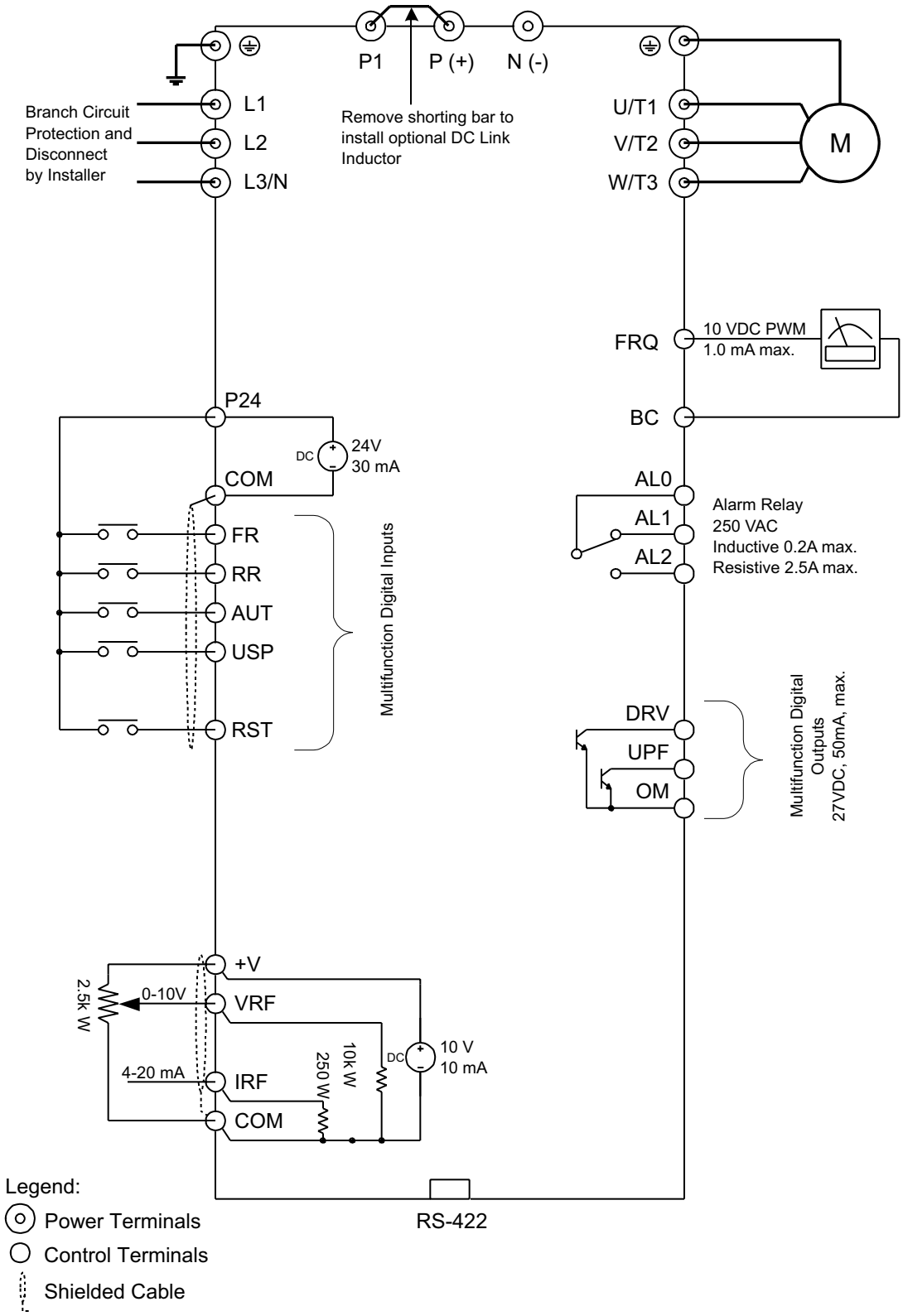
Contents



Parameter access is similar for all three members of the family. The SF320 parameter set is the base level and consists of the Display parameters D01 – D09 followed by the Basic parameters F01 – F04. Three Extended parameter groups A, B and C allow further customization to the application requirements.

SF320 Connection Diagram

Contents

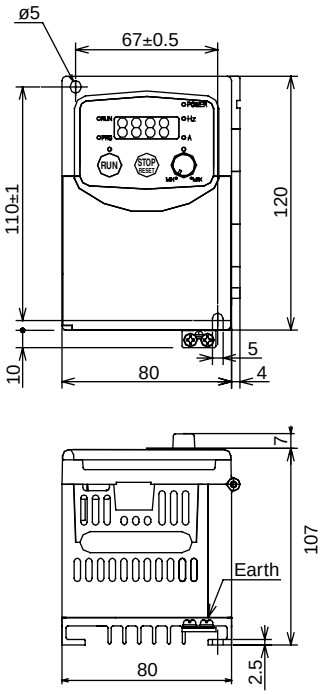


SF320 OPEN CHASSIS AC MICRO DRIVES

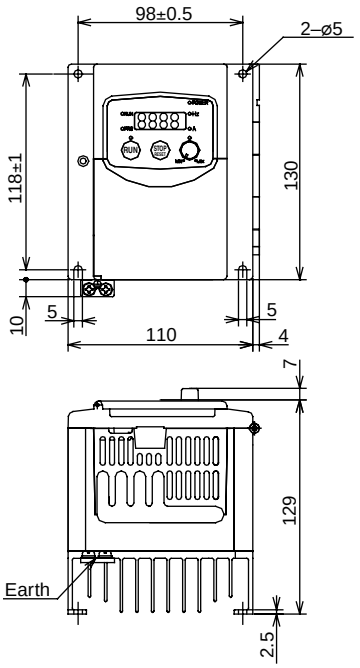
SF320 Dimensions (All dimensions in mm)

Contents

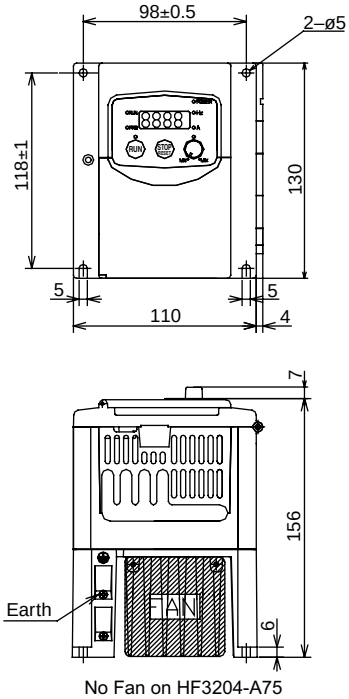
SF3202-A20-W, -A40-W



SF3202-A75-W, SF3204-A40-W



SF3204-A75-W, -1A5-W

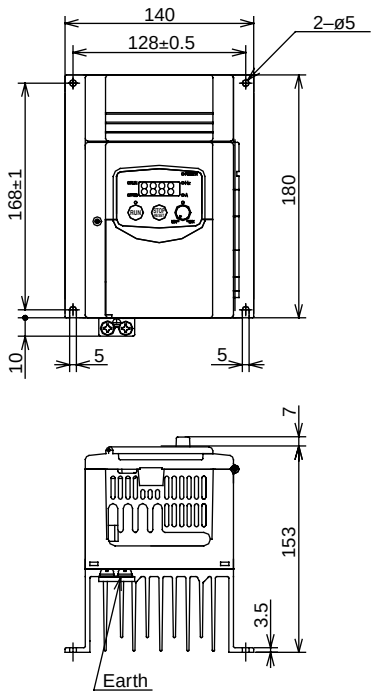


No Fan on HF3204-A75

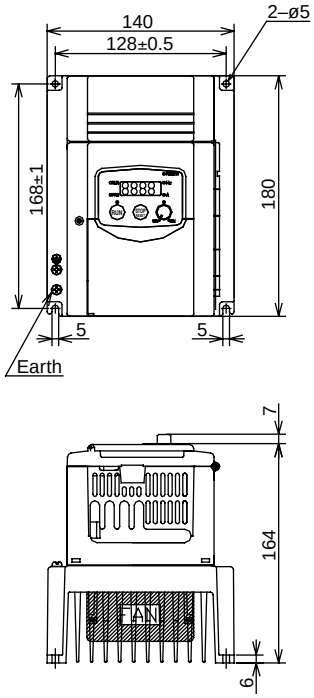
SF320 Dimensions (continued)

Contents

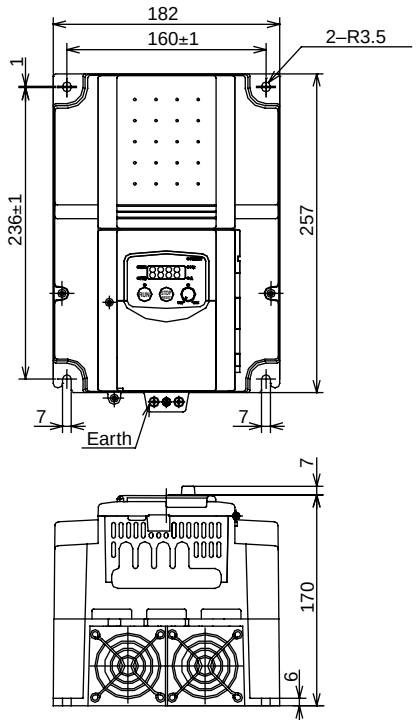
SF3202-1A5-W



SF3202-2A2-W, -3A7-W SF3204-2A2, -4A0-W



SF3202-5A5-W, -7A5-W
SF3204-5A5-W, -7A5-W



HF320 SENSORLESS VECTOR MICRO DRIVE

HF3202-A20-W
1/4 HP, 230V

Contents

Digital Operator Panel (DOP):

- Local Digital Operator – Standard
  - Digital Frequency Setting with Resolution to 0.1 Hz
  - Run and Stop Keys
  - Function and Store Keys for Programming
  - Increase and Decrease Keys
    - Set Frequency (local mode)
    - Drive Programming
  - Speed Potentiometer
    - Standard (All Sizes)
- Optional Deluxe Keypad with Parameter Copy & Parameter Download Capability

HF320 FEATURES:

- V/F or Sensorless Vector (SLV) Operation
- 60:1 (1 to 60 Hz) Constant Torque Speed Range in SLV Mode
- Compact Size
- Built-In PID (Setpoint) Control
- Optional Enhanced DOP with Parameter Copy (for remote mounting only)
- Conforms to Global Standards (UL, cUL, CE)
- Serial Communications (RS-422 standard)

HF320 SPECIFICATIONS:

Input Voltage: 200-240V (+5%, -10%), 1 or 3-Phase, 50/60 Hz (±5%)

HF3202-	A20-W	A40-W	A75-W	1A5-W	2A2-W	3A7-W	5A5-W	7A5-W
HP	0.25	0.5	1	2	3	5	7.5	10
kW	0.2	0.4	0.75	1.5	2.2	3.7	5.5	7.5
In Phase	Single or Three Phase					Three Phase		
Current	1.6	2.6	4.0	8.0	11.0	17.5	24	32
Wgt. (kg)	0.87	0.85	1.3	2.2	2.8	2.8	5.5	5.7
Losses (W)	19	29	41	79	107	181	216	288

Input Voltage: 380-460V (±10%), 3-Phase, 50/60 Hz (±5%)

SF3204-	A40-W	A75-W	1A5-W	2A2-W	4A0-W	5A5-W	7A5-W
HP	0.5	1	2	3	5	7.5	10
kW	0.4	0.75	1.5	2.2	4.0	5.5	7.5
Current	1.5	2.5	3.8	5.5	8.6	13	16
Wgt. (kg)	1.3	1.7	1.7	2.8	2.8	5.5	5.7
Losses (W)	32	44	65	92	151	219	261

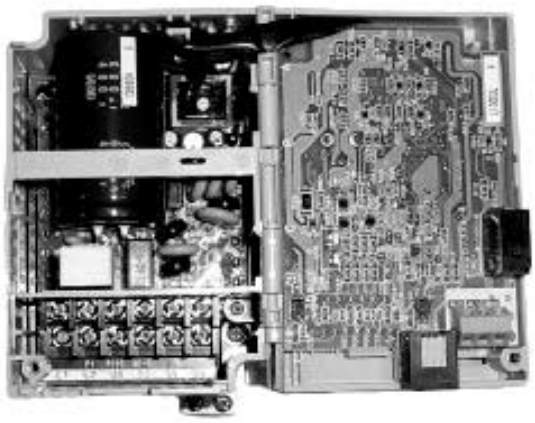
HF320 Specifications (continued)

Contents

General:

Control Method	Sinusoidal PWM
Output Frequency Range	0.5 to 360.0 Hz
Frequency Resolution	Digital: 0.1 Hz, Analog: Max. Frequency/1024
Speed Regulation	Depends on Motor Slip
Accel/Decel Time	2 settings for each – 0.1 to 3600 Sec
Accel/Decel Mode	Linear and S-Curve
Overload Capacity	150% for 60 Seconds
Starting Torque	170% to 200%
Analog Inputs	2 Total: 10 bit resolution (Max. Frequency / 1024) 0 to 10 VDC (Input Impedance – 10 kΩ) 4 to 20 mADC (Input Impedance – 250 Ω)
Digital Inputs	6 Total: Programmable (Sourcing Only)
Analog Outputs	1: 10 VDC PWM, 1 mA max. (for driving remote meter)
Digital Outputs	1 Form C Relay (Alarm) 250 VAC, 2.5A resistive, 0.2A inductive 30 VDC, 3.0A resistive, 0.7A inductive 2 Open Collector Transistors (programmable) 27 VDC, 50 mA
Carrier Frequency	Programmable 0.5 to 16 kHz
Enclosure	IP20 (NEMA Open Chassis)
Operating Environment	-10°C to 50°C (14°F to 122°F) Derate 2%/degree over 40°C (104°F) Not subjected to corrosive or conductive atmospheres, spraying or splashing liquids.
Storage Environment	-20°C to 65°C (-4°F to 149°F) Not subjected to corrosive or conductive atmospheres, dripping liquids or excessive vibration.
Vibration	0.6 G (5.9 m/s^2) from 10 to 55 Hz
Elevation	1000 m (3300 ft) Derate 1% per 100 m above 1000 m (4000 m max.)
Communication Ports	Standard: RS-422 for Remote Keypad or Remote Control

Control Cover Open Showing Programming Keys & Control Terminals

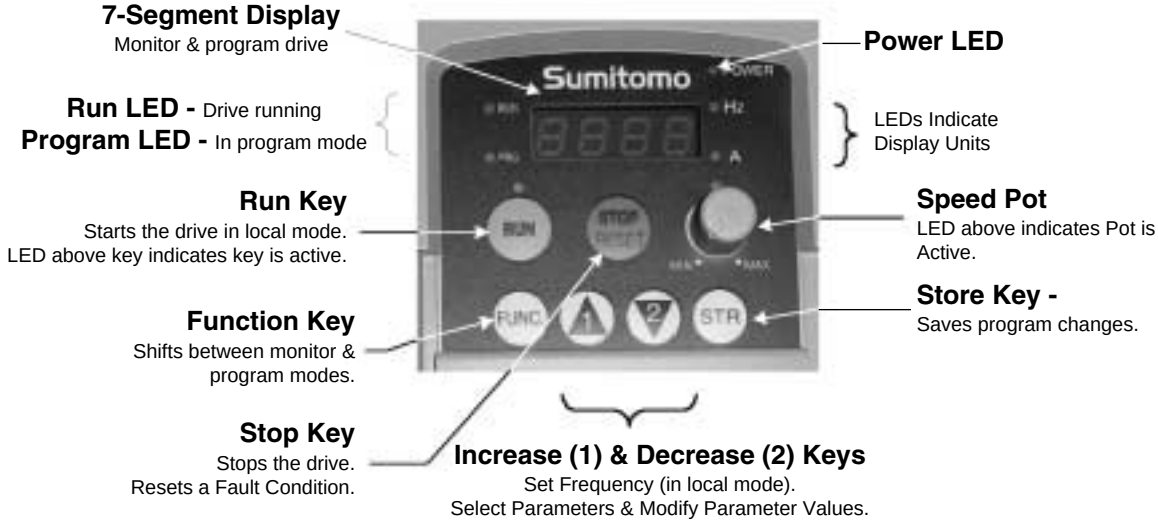


Main Cover Open Showing Power & Relay Terminals

HF320 SENSORLESS VECTOR MICRO DRIVE

HF320 Digital Operator Panel

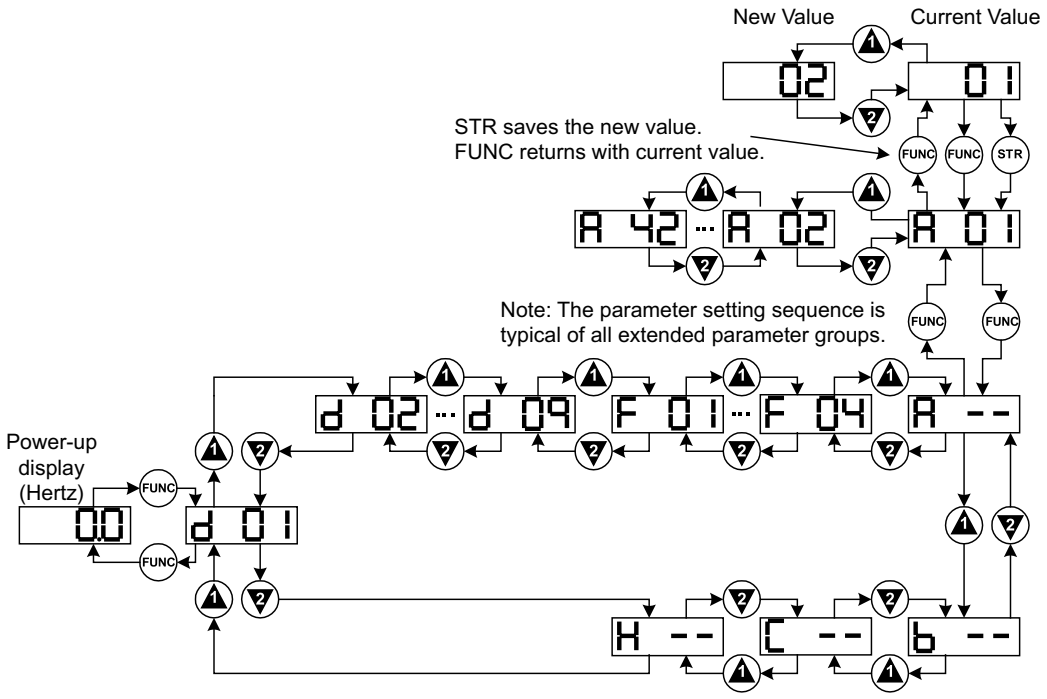
Contents



Digital Operator Panel (DOP) Shown With Control Cover Open

HF320 Parameter Access

Contents

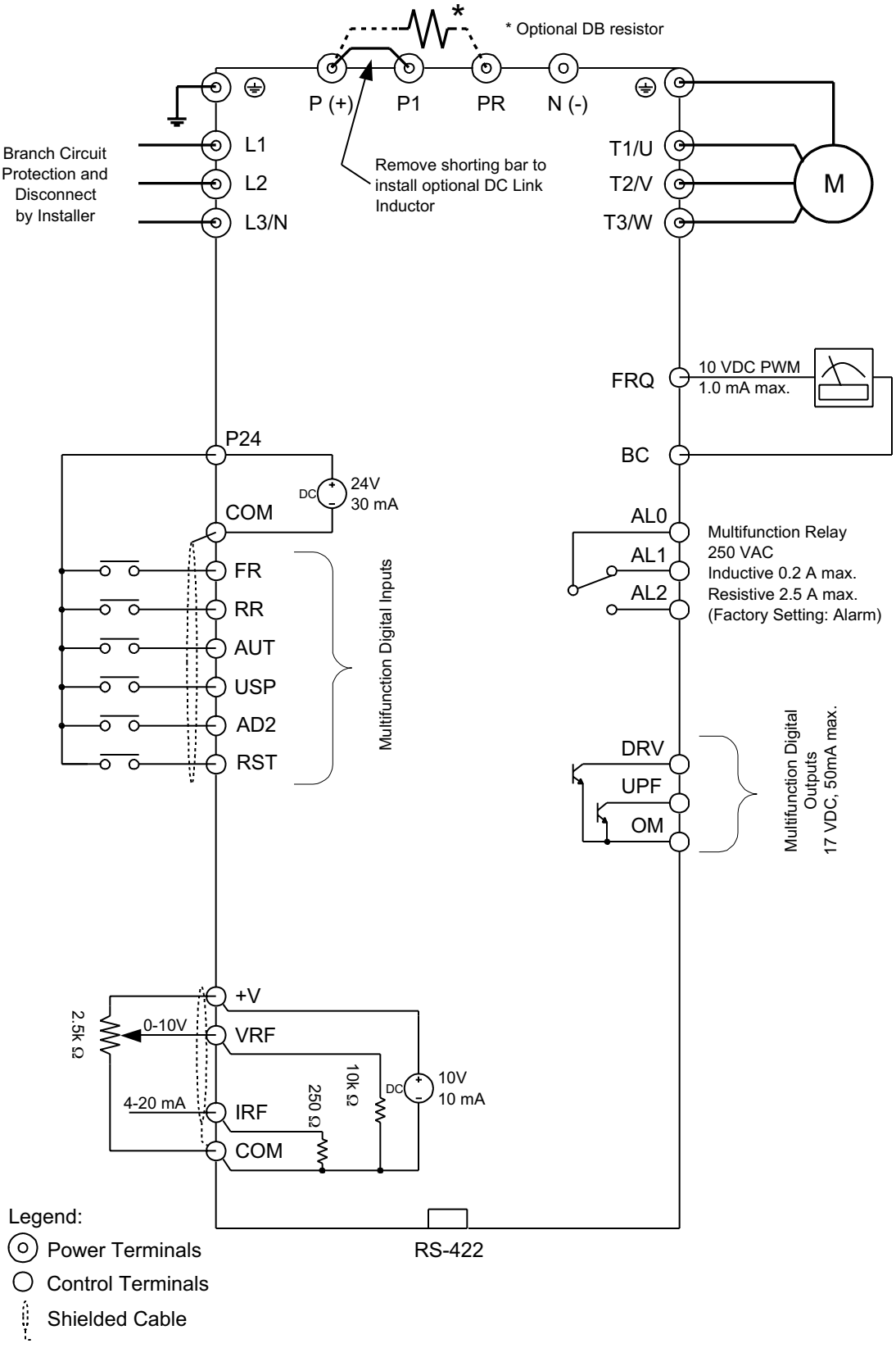


Note the addition of the “H” parameter group used for sensorless vector configuration.

The HF320 parameter set adds one additional Extended parameter group. The “H” group allows configuration of the sensorless vector mode of operation. Other extended groups contain more parameters to configure the additional features included with the HF320 series.

HF320 Connection Diagram

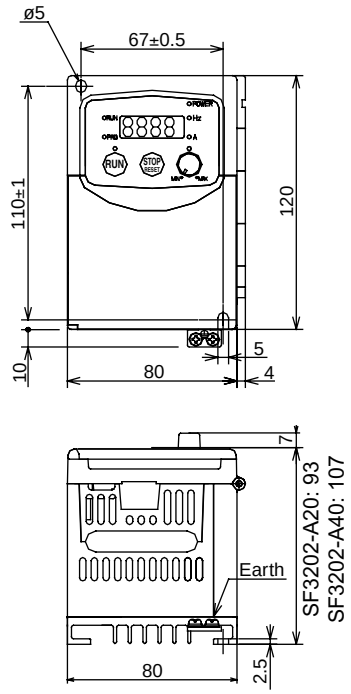
Contents



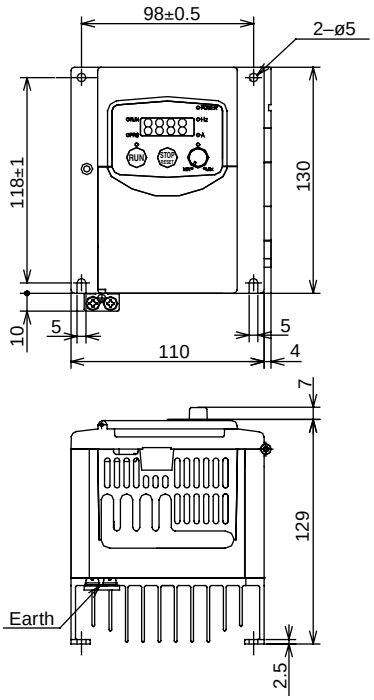
HF320 Dimensions (All dimensions in mm)

Contents

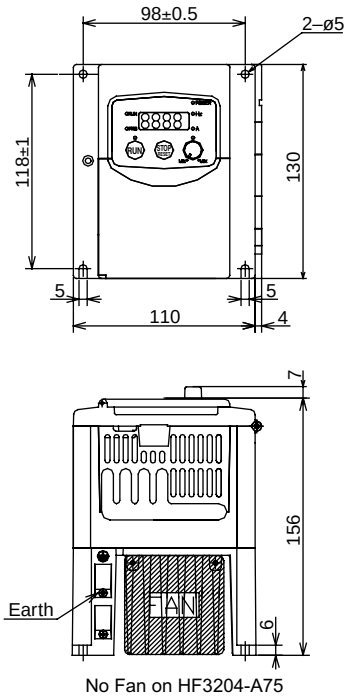
HF3202-A20-W, -A40-W



HF3202-A75-W, HF3204-A40-W



HF3204-A75-W, -1A5-W, -2A2-W

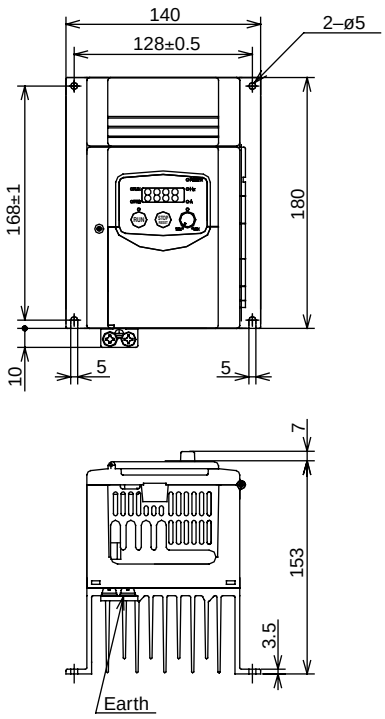


No Fan on HF3204-A75

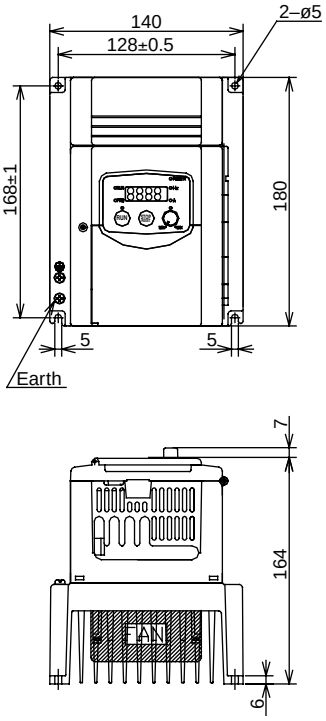
HF320 Dimensions (continued)

Contents

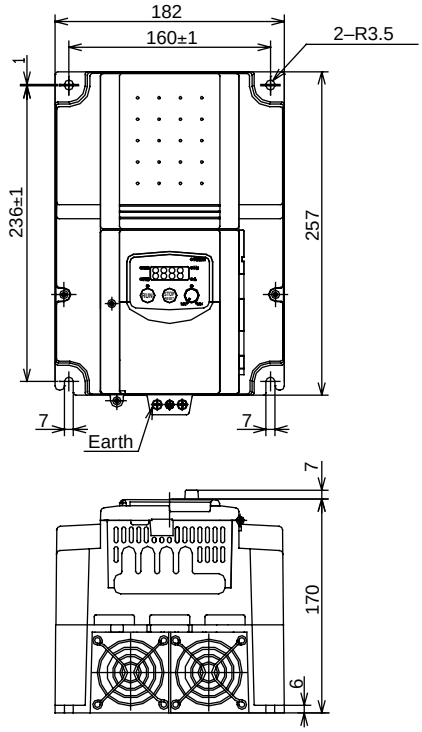
HF3202-1A5-W



HF3202-2A2-W, -3A7-W HF3204-4A0-W



HF3202-5A5-W, - 7A5-W
HF3204-5A5-W, -7A5-W



HF430 AC FLUX VECTOR DRIVES

(V/F, Sensorless Vector and Closed-Loop Vector)

Contents

HF4304-A75-W
1 HP, 460V

Digital Operator Panel (DOP):

- Local Digital Operator – Standard
  - Removable
  - Remote Mountable
    - NEMA 12 Rated
  - Digital Frequency Setting with Resolution to 0.01 Hz
  - Run and Stop Keys
  - Function and Store Keys for Programming
  - Increase and Decrease Keys
    - Set Frequency (local mode)
    - Drive Programming
  - Speed Potentiometer
    - Standard (5 HP and under)
    - Optional (over 5 HP)
  - Optional Deluxe Keypad with Parameter Copy & Parameter Download Capability

FEATURES:

- 3 Operating Modes Provide Application Flexibility:
  - V/F (Volts-per-Hertz)
  - Sensorless Vector (SLV)
  - Closed-Loop Vector (CLV) (requires encoder feedback option)
- Space-Saving Compact Size
- Easy Maintenance of Cooling Fan(s) and DC Bus Capacitors
- Conforms to Global Standards (UL, cUL, CE)
- Serial Communications (RS-485 standard, DeviceNet & Profibus optional)
- High Starting Torque - 200% or Greater (in SLV or CLV control modes)
- Constant Torque Speed Range to Fit Application Requirements
  - (10:1 in V/F Mode, 120:1 in SLV mode and 1000:1 in CLV mode)
- Simultaneously Accommodates 2 Option Cards (Encoder Feedback & Communication)
- IP 20 (NEMA 1 Enclosure)

HF430 Specifications

Contents

Input Voltage: 200-240V (±10%), 3-Phase, 50/60 Hz

HF4302-	A40-W	A75-W	1A5-W	2A2-W	3A7-W	5A5	7A5	011	015	022	030	037	045	055
HP	0.5	1	2	3	5	7.5	10	15	20	30	40	50	60	75
kW	0.4	.75	1.5	2.2	3.7	5.5	7.5	11	15	22	30	37	45	55
Current	3.0	5.0	7.5	10.5	16.5	24	32	46	64	95	121	145	182	220
Wgt. (lb)	7.7	7.7	7.7	7.7	7.7	7.7	11	11	26.4	26.4	44	66	66	110
Loss (W)	70	88	125	160	235	325	425	600	800	1150	1550	1900	2300	2800

Input Voltage: 380-480V (±10%), 3-Phase, 50/60 Hz

HF4304-	A75-W	1A5-W	2A2-W	3A7-W	5A5	7A5	011	015	022	030	037	045	055
HP	1	2	3	5	7.5	10	15	20	30	40	50	60	75
kW	.75	1.5	2.2	3.7	5.5	7.5	11	15	22	30	37	45	55
Current	2.5	3.8	5.3	8.6	12	16	23	32	48	58	75	90	110
Wgt. (lb)	7.7	7.7	7.7	7.7	7.7	11	11	26.4	26.4	44	66	66	66
Loss (W)	88	125	160	235	325	425	600	800	1150	1550	1900	2300	2800

General:

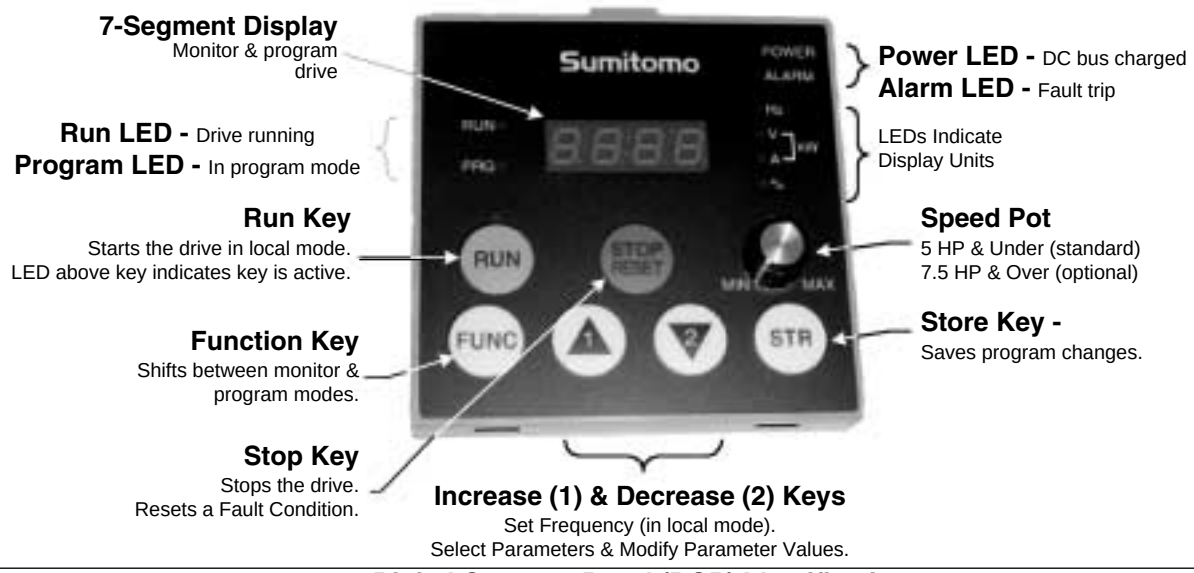
Control Method	Sinusoidal PWM
Output Freq. Range	0.1 to 400.0 Hz
Frequency Resolution	Digital: 0.01 Hz, Analog: Max. Frequency/4096
Speed Regulation	V/F Mode: Motor Slip Sensorless Vector Mode: ±0.5% of Base Speed Closed Loop Vector Mode: ±0.04% of Base Speed
Accel/Decel Time	2 settings for each – 0.01 to 3600 Sec
Accel/Decel Mode	Linear, S-Curve or U-Curve
Overload Capacity	150% for 60 Seconds, 200% for 0.5 Second
Starting Torque	200% or better (in Vector Mode)
Analog Inputs	3 Total: 12 bit resolution (Max. Frequency/4096) (0 to 10 VDC, -10 to +10 VDC, 4 to 20 mADC)
Digital Inputs	9 Total: 1 Fixed, 8 Programmable (Selectable Sinking or Sourcing)
Analog Outputs	2 Total: (0 to 10 VDC, 4 to 20 mADC)
Meter Output	10 VDC PWM or Pulse Train at Output Frequency
Digital Outputs	6 Total: 1 Form C Relay, 5 Open Collector Transistors
Carrier Frequency	Programmable 0.5 to 15 kHz (5 kHz max. if ambient over 40°C)
Enclosure	IP20 (NEMA 1)
Operating Environment	-10°C to 50°C (14°F to 122°F) Derate 2%/degree over 40°C (104°F) Not subjected to corrosive or conductive atmospheres, spraying or splashing liquids.
Storage Environment	-20°C to 65°C (-4°F to 149°F) Not subjected to corrosive or conductive atmospheres, dripping liquids or excessive vibration.
Vibration	10 – 55 Hz, ≤ 30 HP; 0.6G (5.9m/s^2), > 30 HP: 0.3G (2.95 m/s^2)
Elevation	1000 m (3300 ft) Derate 1% per 100 m above 1000 m to 4000 m max.
Communication Ports	Standard: RS-485 & RS-422 for Local Keypad Optional: DeviceNet, Profibus
Encoder Feedback	Option Board: Accepts 128 to 65000 PPR Encoder

HF430 AC FLUX VECTOR DRIVES

HF430 Operation and Programming

Contents

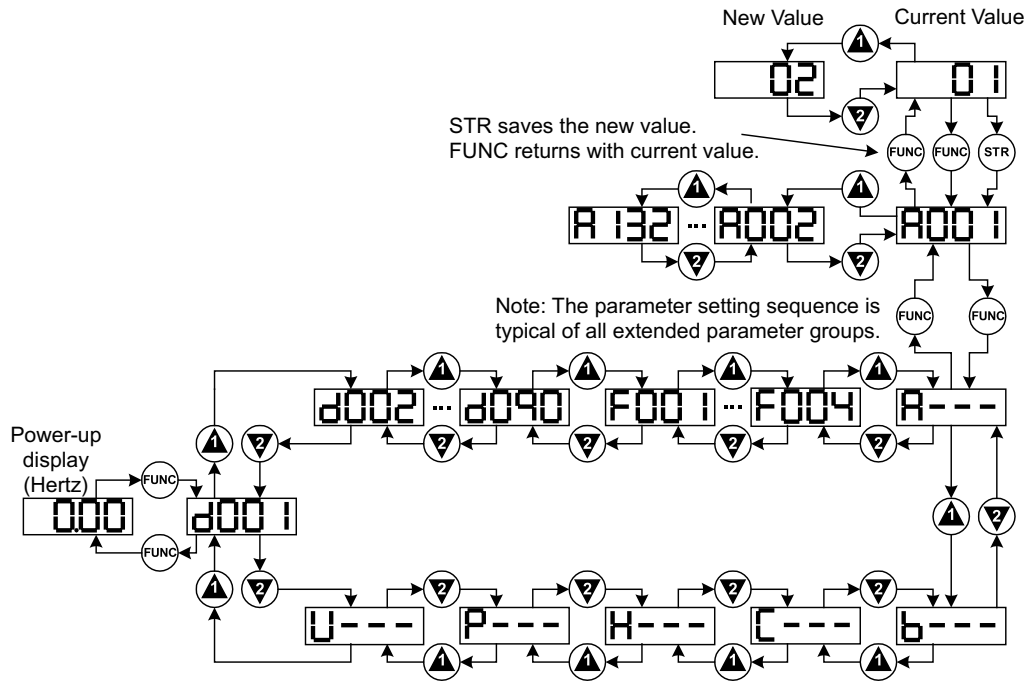
Operation and programming is accomplished using the included Digital Operator Panel (DOP) as shown below.



Digital Operator Panel (DOP) Identification

HF430 Parameter Access

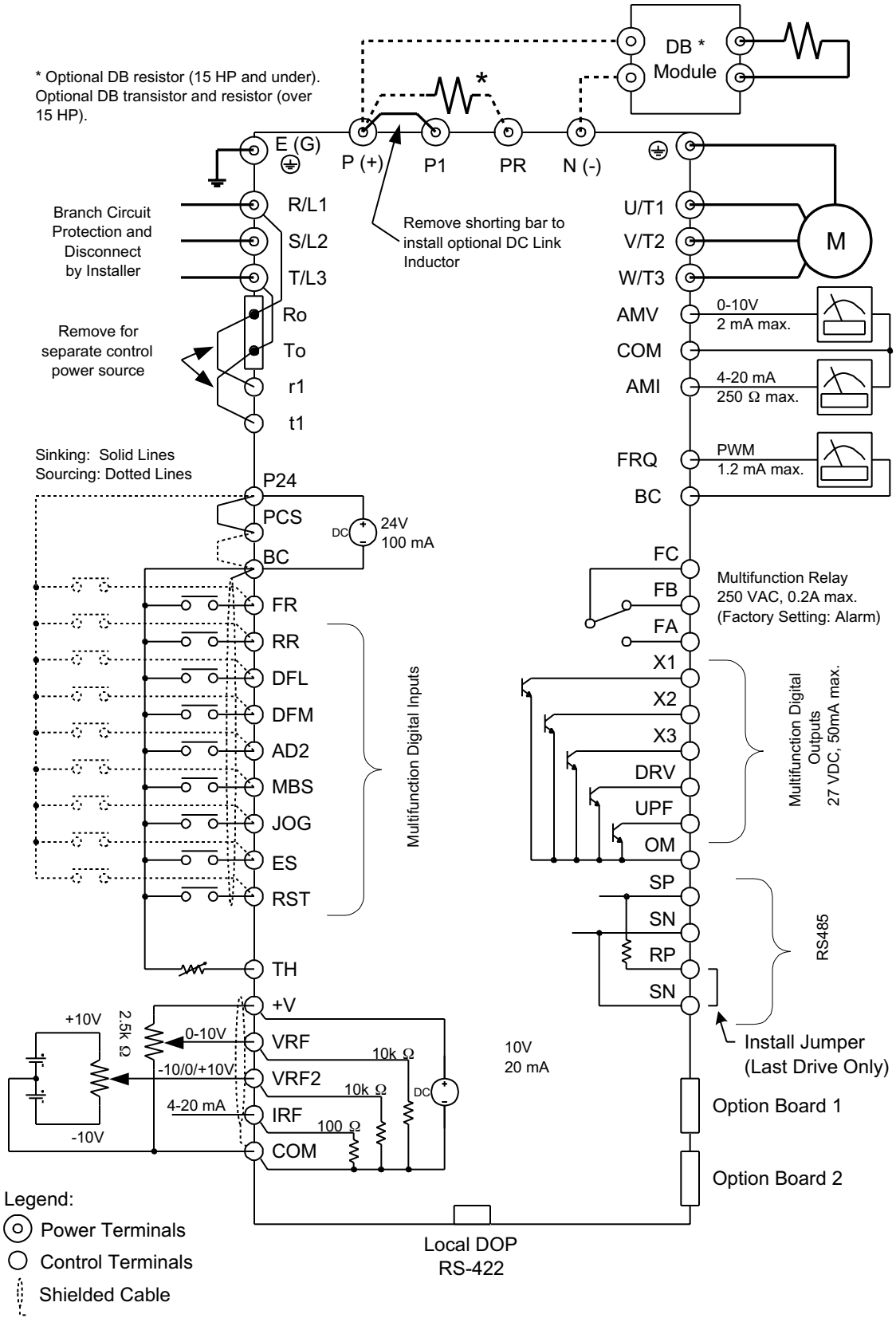
Contents



Note the addition of the “P” parameter group used for option configuration and the “U” parameter group used for access of selected parameters when parameter lock is enabled.

HF430 Connection Diagram

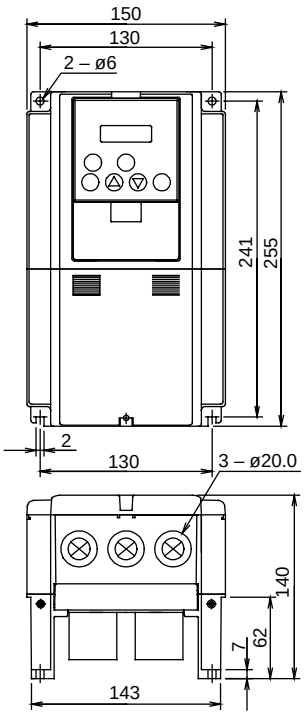
Contents



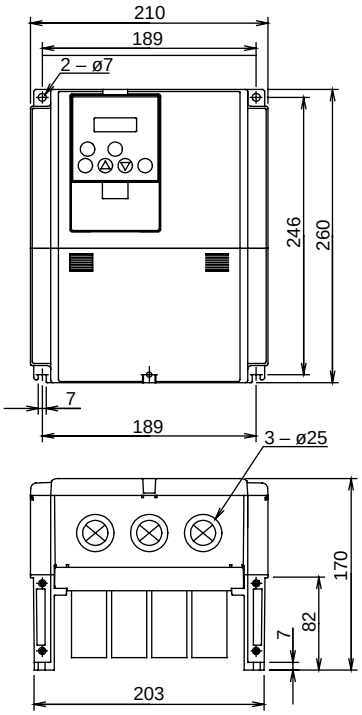
HF430 Dimensions (All dimensions in mm)

Contents

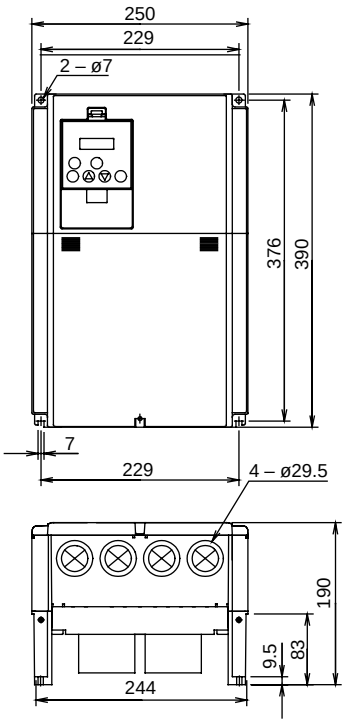
HF430-A40…-5A5



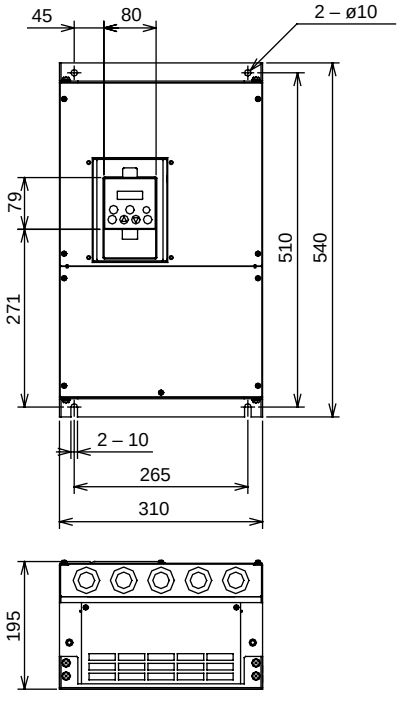
HF430-7A5, -011



HF430-015, -022



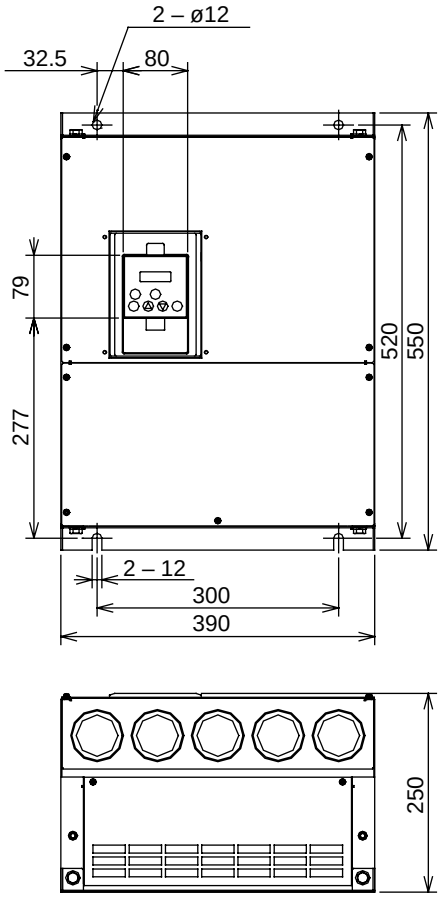
HF430-030



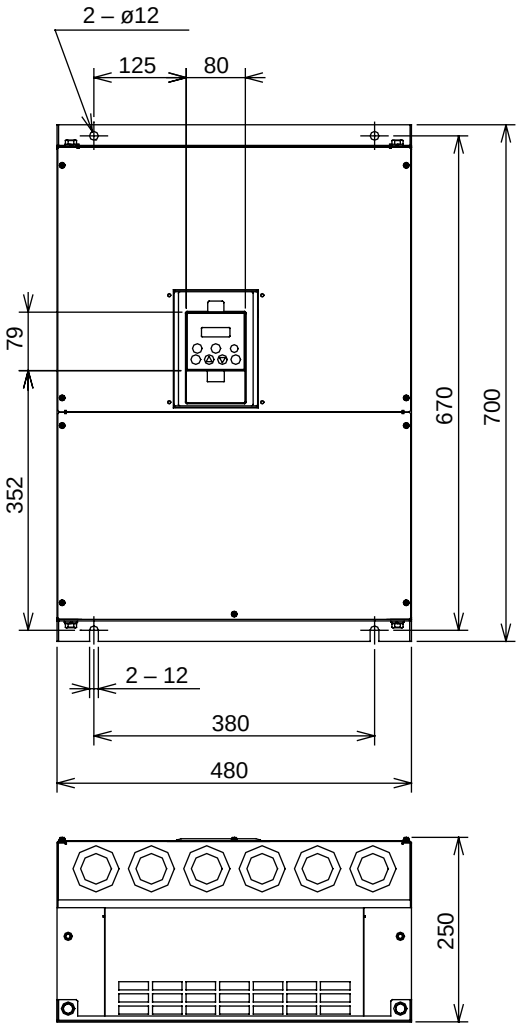
HF430 Dimensions (continued)

Contents

HF430-037, -045, HF4304-055



HF4302-055



AC DRIVE OPTIONS

Contents

General Options (not HP dependent)

Description	Part No.	Use With	
OS-41 Operator Panel/Parameter Copy Unit	V071A012-DR41	All*	
OS-42 Operator Panel w/Speed Potentiometer	V071A012-DR42	HF430	
RC-2 2-Meter Remote Mounting Cable	V071A012-RC2	All	
PG-1 Encoder Feedback Board	V071A012-PG1	HF430	
DN-1 DeviceNet Interface Board	V071A012-DN1	HF430	
PB-1 Profibus Interface Board	V071A012-PB1	HF430	
PS-1 Prog. Software w/RS232 to RS485 converter	V071A012-PS1	All	OS-41

*For remote mounting only when used with SF320 and HF320 drives.

Dynamic Braking Options (HF320 & HF430 Only)

Contents

HF320 – 230V (100% Braking Torque, 10% Duty Cycle)

HP	Drive Model	DBR Model	Part Number	Figure	Dimensions H x W x D (mm)
1/4	HF3202-A20-W	DBR200-200E1	V060A031	1	102 x 254 x 127
1/2	HF3202-A40-W	DBR200-200E1	V060A031	1	102 x 254 x 127
1	HF3202-A75-W	DBR80-300E1	V060A032-01	1	102 x 254 x 127
2	HF3202-1A5-W	DBR80-300E1	V060A032-01	1	102 x 254 x 127
3	HF3202-2A2-W	DBR40-600E	AEPA1469	1	102 x 508 x 127
5	HF3202-3A7-W	DBR40-600E	AEPA1469	1	102 x 508 x 127
7.5	HF3202-5A5-W	DBR20-1300E	AEPA3902-01	2	127 x 356 x 330
10	HF3202-7A5-W	DBR20-1300E	AEPA3902-01	2	127 x 356 x 330

HF320 – 460V (100% Braking Torque, 10% Duty Cycle)

HP	Drive Model	DBR Model	Part Number	Figure	Dimensions H x W x D (mm)
1/2	HF3204-A40-W	DBR750-200E1	V060A033	1	102 x 406 x 127
1	HF3204-A75-W	DBR750-200E1	V060A033	1	102 x 406 x 127
2	HF3204-1A5-W	DBR250-400E2	V060A032-02	1	102 x 254 x 127
3	HF3204-2A2-W	DBR160-600E2	V060A032-06	1	254 x 356 x 127
5	HF3204-3A7-W	DBR160-600E2	V060A032-06	1	254 x 356 x 127
7.5	HF3204-5A5-W	DBR75-1300E	V0600004-9	2	127 x 356 x 330
10	HF3204-7A5-W	DBR75-1300E	V0600004-9	2	127 x 356 x 330

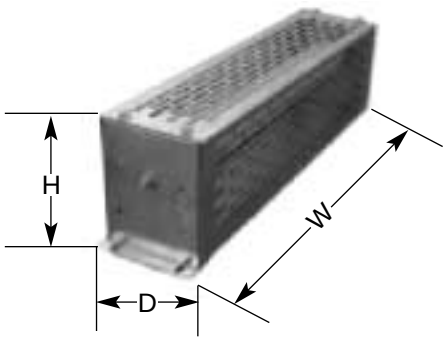


Figure 1

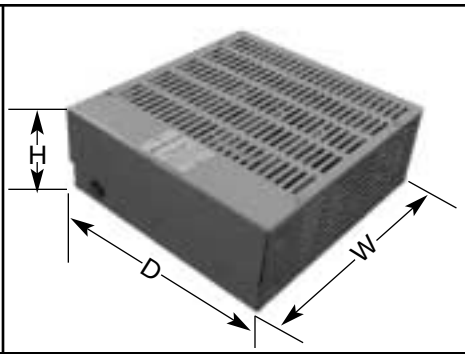


Figure 2

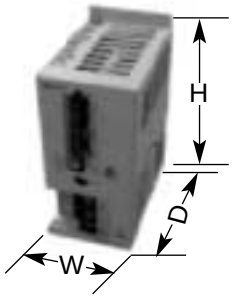


Figure 3

HF430 (100% Braking Torque, 10% Duty Cycle)

HP	Volts	Description	Model No.	Part No.	Figure	Dimensions H x W x D (mm)
0.5	230	Resistor Only	DBR80-300E1	V060A032-01	1	102 x 356 x 127
1	230	Resistor Only	DBR80-300E1	V060A032-01	1	102 x 356 x 127
2	230	Resistor Only	DBR80-300E1	V060A032-01	1	102 x 356 x 127
3	230	Resistor Only	DBR40-600E	AEPA1469	1	102 x 356 x 127
5	230	Resistor Only	DBR40-600E	AEPA1469	1	102 x 356 x 127
7.5	230	Resistor Only	DBR20-1300E	AEPA3902-01	2	127 x 356 x 330
10	230	Resisor Only	DBR20-1300E	AEPA3902-01	2	127 x 356 x 330
15	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-011 DBR15-1350E DU-201S	V000A084-2011	 2 3	 127 x 356 x 254 241 x 102 x 178
20	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-015 DBR10-2025E DU-202S	V000A084-2015	 2 3	 127 x 533 x 254 241 x 102 x 178
30	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-022 DBR7-2700E DU-204S	V000A084-2022	 2 3	 127 x 533 x 254 241 x 102 x 178
40	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-030 DBR5.2-4500E DU-205S	V000A084-2030	 2 3	 127 x 533 x 330 241 x 102 x 178
50-60	230	DB Kit w/ 2-Resistors 2-Transistors	DBK-02-045 DBR7-2700E DU-204S	V000A084-2045	 2 3	 127 x 533 x 254 241 x 102 x 178
75	230	DB Kit w/ 3-Resistors 3-Transistors	DBK-02-055 DBR5.2-4500E DU-205S	V000A084-2055	 2 3	 127 x 533 x 330 241 x 102 x 178
1	460	Resistor Only	DBR250-400E2	V060A032-02	1	102 x 356 x 127
2	460	Resistor Only	DBR250-400E2	V060A032-02	1	102 x 356 x 127
3	460	Resistor Only	DBR250-400E2	V060A032-02	1	102 x 356 x 127
5	460	Resistor Only	DBR160-600E2	V060A032-06	1	254 x 356 x 127
7.5	460	Resistor Only	DBR75-1300E	V0600004-9	2	127 x 356 x 330
10	460	Resistor Only	DBR75-1300E	V0600004-9	2	127 x 356 x 330
15	460	No Selection	See 150% Table			
20-30	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-022 DBR25-2600E DU-403S	V000A084-4022	 2 3	 127 x 533 x 330 241 x 102 x 178
40-50	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-037 DBR18-4500E DU-405S	V000A084-4037	 2 3	 127 x 711 x 330 241 x 102 x 178
60	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-045 DBR15-5400E DU-406S	V000A084-4045	 2 3	 127 x 711 x 330 241 x 102 x 178
75	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-055 DBR12-7000E DU-407S	V000A084-4055	 2 3	 178 x 737 x 457 241 x 102 x 178

Notes: 1: DB Resistor (DBR) supplied in ventilated sheet metal enclosure for separate mounting.
2: DB Kit includes DBR as described in note 1 plus a DB Transistor (DBT) module in an open chassis configuration for mounting in an enclosure by the installer.
3: See page 24 for referenced figures.

AC DRIVE OPTIONS

HF430 (150% Braking Torque, 10% Duty Cycle)

Contents

HP	Volts	Description	Model No.	Part No.	Figure	Dimensions H x W x D (mm)
0.5	230	Resistor Only	DBR80-300E1	V060A032-01	1	102 x 356 x 127
1	230	Resistor Only	DBR80-300E1	V060A032-01	1	102 x 356 x 127
2	230	Resistor Only	DBR70-400E1	V060A032-03	1	102 x 356 x 127
3	230	Resistor Only	DBR40-600E	AEPA1469	1	102 x 356 x 127
5	230	No Selection				
7.5	230	Resistor Only	DBR20-1300E	AEPA3902-01	2	127 x 356 x 330
10	230	No Selection				
15	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-015 DBR10-2025E DU-202S	V000A084-2015	 2 3	 127 x 533 x 254 241 x 102 x 178
20	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-022 DBR7-2700E DU-204S	V000A084-2022	 2 3	 127 x 533 x 254 241 x 102 x 178
30	230	DB Kit w/ 1-Resistor 1-Transistor	DBK-02-022 DBR5.2-4500E DU-205S	V000A084-2030	 2 3	 127 x 533 x 330 241 x 102 x 178
40	230	DB Kit w/ 2-Resistors 2-Transistors	DBK-02-045 DBR7-2700E DU-204S	V000A084-2045	 2 3	 127 x 533 x 254 241 x 102 x 178
50-60	230	DB Kit w/ 2-Resistors 2-Transistors	DBK-02-055 DBR5.2-4500E DU-205S	V000A084-2055	 2 3	 127 x 533 x 330 241 x 102 x 178
75	230	DB Kit w/ 3-Resistors 3-Transistors	DBK-02-090 DBR5.2-4500E DU-205S	V000A084-2090	 2 3	 127 x 533 x 330 241 x 102 x 178
1	460	Resistor Only	DBR250-400E2	V060A032-02	1	102 x 356 x 127
2	460	Resistor Only	DBR250-400E2	V060A032-02	1	102 x 356 x 127
3	460	Resistor Only	DBR160-600E2	V060A032-06	1	254 x 356 x 127
5	460	Resistor Only	DBR120-600E2	V060A032-05	1	127 x 356 x 178
7.5	460	Resistor Only	DBR75-1300E	V0600004-9	2	127 x 356 x 330
10	460	Resistor Only	DBR75-1300E	V0600004-9	2	127 x 356 x 330
15-20	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-022 DBR25-2600E DU-403S	V000A084-4022	 2 3	 127 x 533 x 330 241 x 102 x 178
30	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-037 DBR18-4500E DU-405S	V000A084-4037	 2 3	 127 x 711 x 330 241 x 102 x 178
40	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-045 DBR15-5400E DU-406S	V000A084-4045	 2 3	 127 x 711 x 330 241 x 102 x 178
50	460	DB Kit w/ 1-Resistor 1-Transistor	DBK-04-055 DBR12-7000E DU-407S	V000A084-4055	 2 3	 178 x 737 x 457 241 x 102 x 178
60	460	DB Kit w/ 2-Resistors 2-Transistors	DBK-04-075 DBR18-4500E DU-405S	V000A084-4075	 2 3	 127 x 711 x 330 241 x 102 x 178
70	460	DB Kit w/ 2-Resistors 2-Transistors	DBK-04-090 DBR15-5400E DU-406S	V000A084-4090	 2 3	 127 x 711 x 330 241 x 102 x 178

See page 25 for notes and page 24 for referenced figures.

AC Line Reactors

Contents

AC input line reactors can be used to limit available fault current at the drive to a value that is compatible with the drive short-circuit rating. **Input line reactors must be used if the available short-circuit current at the point of drive connection to the power source exceeds 5,000 RMS symmetrical amperes.**

AC line reactors also minimize the harmonic distortion on the power supply resulting from the operation of the AC drives and may be required if the specifications require that the harmonic distortion resulting from operation of the drive is within the limits set by IEEE-519.

230V Single-Phase Input

HP	AMP	Open		NEMA 1 Enclosed	
		Part Number	Dimensions H x W x D (mm)	Part Number	Dimensions H x W x D (mm)
0.25	3	AEPA4819-T02	102 x 127 x 102	AEPA4852-T02	165 x 203 x 152
0.5	4	AEPA4819-T03	102 x 127 x 102	AEPA4852-T03	165 x 203 x 152
1	8	AEPA4819-T05	102 x 127 x 102	AEPA4852-T05	165 x 203 x 152
2	16	AEPA4819-T07	127 x 152 x 102	AEPA4852-T07	165 x 203 x 152
3	18	AEPA4819-T08	152 x 178 x 102	AEPA4852-T08	191 x 254 x 178

See typical outline drawings on page 28.

230V Three-Phase Input

HP	AMP	Open		NEMA 1 Enclosed	
		Part Number	Dimensions H x W x D (mm)	Part Number	Dimensions H x W x D (mm)
0.25	2	AEPA4819-T01	102 x 127 x 102	AEPA4852-T01	165 x 203 x 152
0.5	2	AEPA4819-T01	102 x 127 x 102	AEPA4852-T01	165 x 203 x 152
1	4	AEPA4819-T03	102 x 127 x 102	AEPA4852-T03	165 x 203 x 152
2	8	AEPA4819-T05	102 x 127 x 102	AEPA4852-T05	165 x 203 x 152
3	12	AEPA4819-T06	102 x 127 x 102	AEPA4852-T06	165 x 203 x 152
5	16	AEPA4819-T07	127 x 152 x 102	AEPA4852-T07	165 x 203 x 152
7.5	25	AEPA4819-T10	152 x 178 x 102	AEPA4852-T10	191 x 254 x 178
10	35	AEPA4819-T12	152 x 178 x 102	AEPA4852-T12	191 x 254 x 178
15	45	AEPA4819-T13	146 x 203 x 127	AEPA4852-T13	191 x 254 x 178
20	55	AEPA4819-T14	178 x 229 x 152	AEPA4852-T14	191 x 254 x 178
30	80	AEPA4819-T15	178 x 229 x 152	AEPA4852-T15	229 x 305 x 203
40	110	AEPA4819-C16	178 x 254 x 178	AEPA4852-C16	229 x 305 x 203
50	130	AEPA4819-C17	229 x 279 x 178	AEPA4852-C17	406 x 381 x 330
60	160	AEPA4819-C18	229 x 279 x 178	AEPA4852-C18	406 x 381 x 330
75	200	AEPA4819-C19	229 x 279 x 178	AEPA4852-C19	406 x 381 x 330

See typical outline drawings on page 28.

AC DRIVE OPTIONS

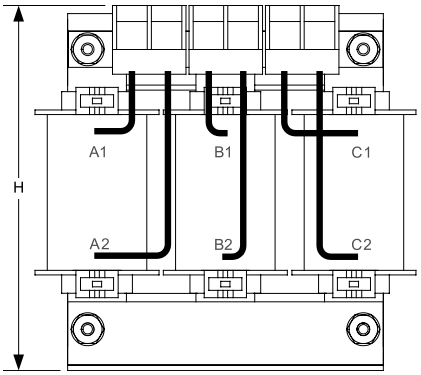
AC Line Reactors (continued)

Contents

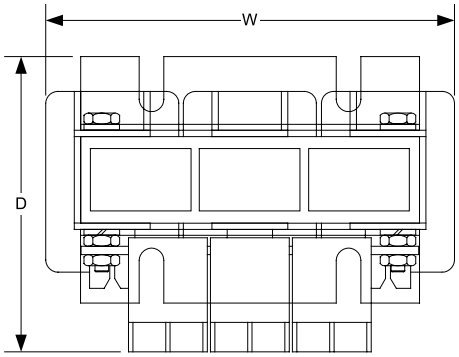
460V Three-Phase Input

HP	AMP	Open		NEMA 1 Enclosed	
		Part Number	Dimensions H x W x D (mm)	Part Number	Dimensions H x W x D (mm)
0.5	2	AEPA3899-T01	102 x 108 x 76	AEPA3901-T01	165 x 203 x 152
1	2	AEPA3899-T01	102 x 108 x 76	AEPA3901-T01	165 x 203 x 152
2	4	AEPA3899-T03	102 x 108 x 76	AEPA3901-T03	165 x 203 x 152
3	6	AEPA3899-T04	102 x 108 x 76	AEPA3901-T04	165 x 203 x 152
5	8	AEPA3899-T05	102 x 127 x 102	AEPA3901-T05	165 x 203 x 152
7.5	12	AEPA3899-T06	127 x 178 x 127	AEPA3901-T06	165 x 203 x 152
10	16	AEPA3899-T07	127 x 152 x 102	AEPA3901-T07	165 x 203 x 152
15	25	AEPA3899-T09	146 x 203 x 127	AEPA3901-T09	191 x 254 x 178
20	35	AEPA3899-T10	146 x 203 x 127	AEPA3901-T10	191 x 254 x 178
30	45	AEPA3899-T11	146 x 203 x 127	AEPA3901-T11	191 x 254 x 178
40	55	AEPA3899-T12	178 x 229 x 152	AEPA3901-T12	229 x 305 x 203
50	80	AEPA3899-T13	229 x 279 x 152	AEPA3901-T13	406 x 381 x 330
60	80	AEPA3899-T13	229 x 279 x 152	AEPA3901-T13	406 x 381 x 330
75	110	AEPA3899-C14	229 x 279 x 178	AEPA3901-C14	406 x 381 x 330

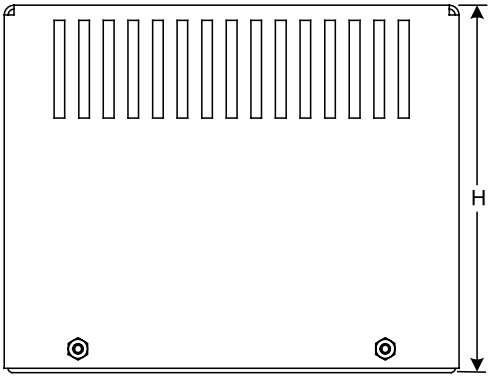
Line Reactor Outline Drawings



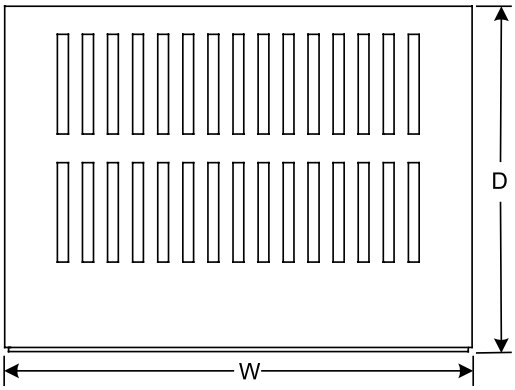
Open Style – Front View (typical)



Open Style – Top View (typical)



Enclosed – Front View (typical)



Enclosed – Top View (typical)

RFI/EMI Filters

Contents

Radio Frequency Interference/Electromagnetic Interference filters must be used when an installation must meet CE requirements. They may also be used when a drive is installed in a location where drive electrical noise may interfere with communications equipment or other sensitive electronic equipment. Filters listed below are open style for mounting in an enclosure with the drive.

HP	Volts	In ϕ	SF320 & HF320			HF430		
			Part Numer	Dimen. (mm) H x W x D	Fig.	Part Number	Dimen.(mm) H x W x D	Fig.
0.25-0.5	230	1	V062A011-SB3	205 x 80 x 40	1			
1	230	1	V062A011-SB5	205 x 110 x 40	1			
2-3	230	1	V062A011-SB11	225 x 140 x 45	1			
0.25	230	3	V062A011-LB3	205 x 80 x 40	1			
0.5	230	3	V062A011-LB3	205 x 80 x 40	1	V062A011-007	165 x 90 x 95	3
1	230	3	V062A011-HB6	205 x 110 x 40	1	V062A011-007	165 x 90 x 95	3
2	230	3	V062A011-HB11	225 x 140 x 45	1	V062A011-010	165 x 90 x 95	3
3	230	3	V062A011-HB11	225 x 140 x 45	1	V062A011-020	165 x 90 x 95	3
5	230	3	V062A011-HB17	225 x 140 x 45	1	V062A011-020	165 x 90 x 95	3
7.5	230	3	V062A011-HB32	182 x 335 x 60	2	V062A011-030	165 x 90 x 95	3
10	230	3	V062A011-HB32	182 x 335 x 60	2	V062A011-040	165 x 90 x 95	3
15	230	3				V062A011-060	120 x 217 x 115	4
20	230	3				V062A011-080	120 x 217 x 115	4
0.5-2	460	3	V062A011-HB6	205 x 110 x 40	1	V062A011-007	165 x 90 x 95	3
3	460	3	V062A011-HB11	225 x 140 x 45	1	V062A011-007	165 x 90 x 95	3
5	460	3	V062A011-HB11	225 x 140 x 45	1	V062A011-010	65 x 90 x 95	3
7.5-10	460	3	V062A011-HB32	182 x 335 x 60	2	V062A011-020	165 x 90 x 95	3
15	460	3				V062A011-030	165 x 90 x 95	3
20	460	3				V062A011-040	165 x 90 x 95	3
30	460	3				V062A011-060	120 x 217 x 115	4
40	460	3				V062A011-080	120 x 217 x 115	4
50	460	3				V062A011-100	150 x 254 x 115	4
60-75	460	3				V062A011-150	200 x 314 x 130	4

Note: Filters shown in figures 1 & 2 mount underneath the drive. Others mount separately.

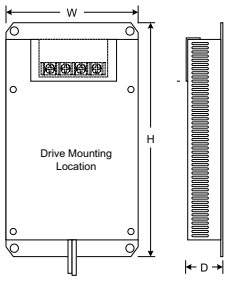


Figure 1

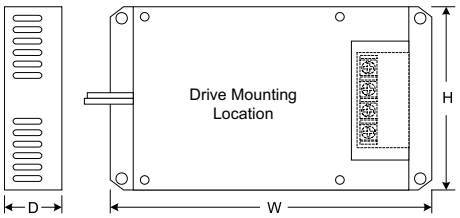


Figure 2

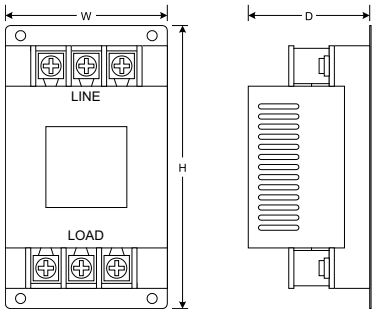


Figure 3

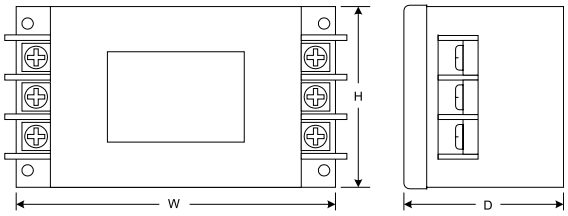


Figure 4

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