

Chapter 3

INSTALLATION PROCEDURE

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Chapter 3 **INSTALLATION PROCEDURE**

INSTALLATION PRECAUTIONS



Caution

This product conforms to IP20 protection. Due consideration should be given to environmental conditions of installation for safe and reliable operation.

When installing the 584S Vector Drive ensure that the following precautions are observed:

- 1) Mechanically secure fixings are used, as recommended in "**MOUNTING**".
- 2) The enclosure into which this product is mounted is suitable for the working environment.
- 3) The cooling and airflow around this product are as recommended in "**VENTILATION**".
- 4) The cables and wire terminations are as recommended and securely clamped.
- 5) The installation and commissioning of this equipment is carried out only by competent personnel in accordance with safe working practices.

MECHANICAL INSTALLATION

Mounting

The 584S should be mounted vertically on a solid flat vertical surface. It is fixed using 4 bolts or screws through fixing points provided at each corner at the rear of the unit. The fixing points are in the form of keyholes and slots to simplify fastening or removal. The overall dimensions of the unit and the positions of the fixing points are given in Figure 3.1 for all chassis types.

Ventilation

In normal operation the drive dissipates heat and must be mounted to allow the free flow of air vertically through the circuit board area over the fuses and heatsink. Care should be taken to ensure that the mounting surface is also cool and that any heat generated by adjacent equipment is not transmitted to the 584S.

For adequate natural ventilation of the Drive Controller, minimum clearance as defined in Figure 3.1 must be maintained. Side-by-side mounting of two or more Drive Controllers is permissible providing the ambient operating temperature is not exceeded.

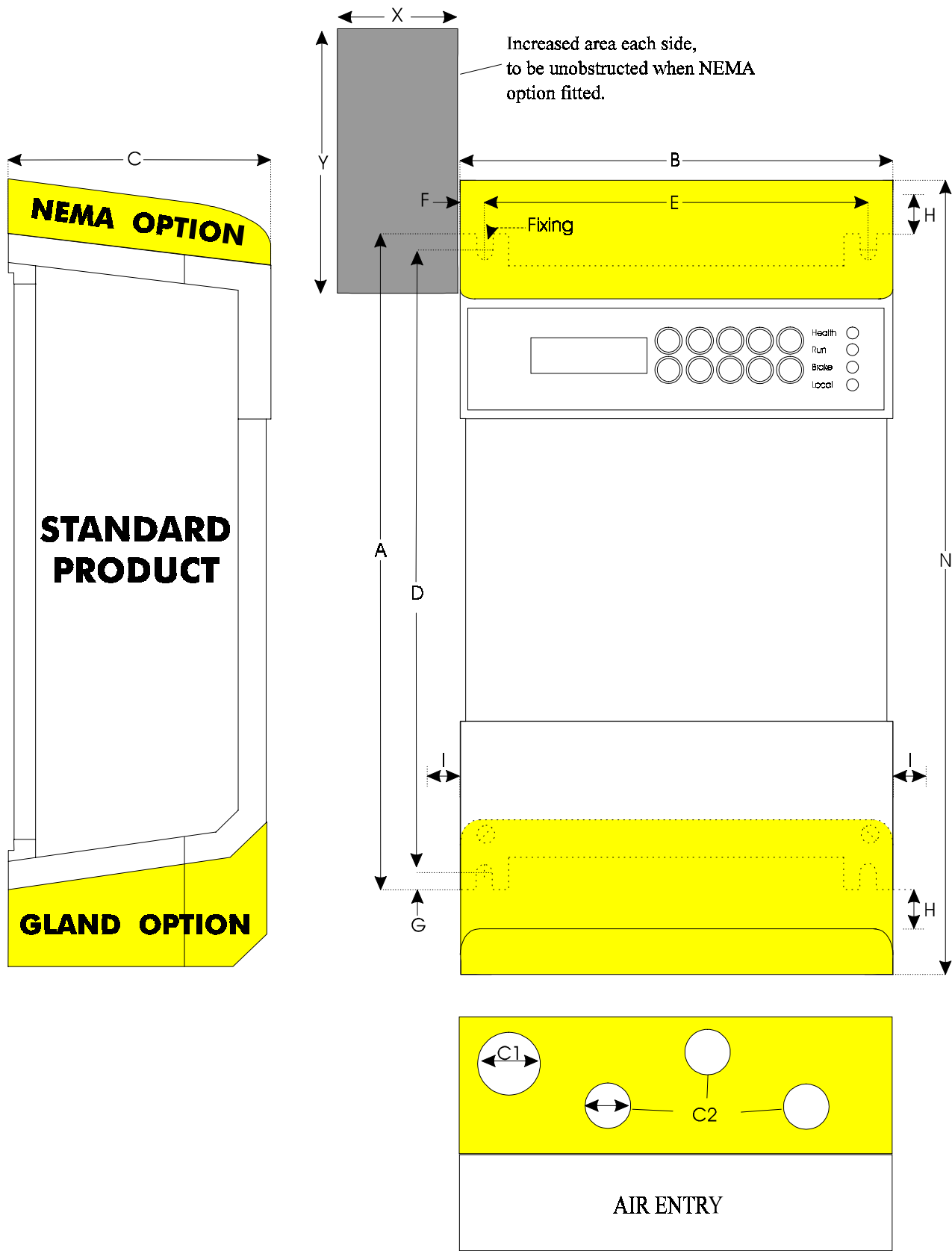


Figure 3.1 - 584S Mounting Arrangements

Model	Outside Dimensions (mm)			Fixing Centres (mm)				Fixing Size	Cooling air clearance (mm)		OPTIONS				
											Overall height (mm)	Exit air clearance (mm)		Conduit hole size (mm)	
	A	B	C	D	E	F	G		H	I	N	X	Y	C1	C2
Type 4	318	228	157	300	200	14	9	M6	80	10	385	40	130	32	20-32
Type 5	468	228	157	450	200	14	9	M6	80	10	535	40	130	32	20-32
Type 6	672	234	298	650	200	17	11	M8	100	40	775	40	130	20-40	32-40
Type 7*	838	398	336	800	370	14	19	M10	250	50	1125	120	300	-	44-76

Table 3.1 - 584S Mechanical Mounting Details

* Full mechanical details of type 7 including through panel mounting is provided in Appendix F Chapter 7.

Further mechanical details are also available from Eurotherm Drives Engineering department.

ELECTRICAL INSTALLATION

The following instructions describe the wiring requirements for operation of the 584S as basic speed controllers. The variety of specific drive applications precludes the inclusion of diagrams showing all wiring options.

Power Wiring



Caution

Never perform high voltage resistance checks on the wiring without first disconnecting the drive from the circuit being tested.

All relevant national standards and local electricity board regulations must be observed at installation.

Power cables must have a minimum rating of 1.1 x full load current.

Power cables (particularly 3-phase motor cables) must be routed well away from cables carrying setpoints or feedback signals, screened motor feedback cables, and cables from other electronic equipment in the same plant.

The main power supply should be 3-phase and within the voltage tolerances specified in "**ELECTRICAL RATINGS - Power Circuit**" in Chapter 1 of this manual. The supply should be connected to power board terminals L1, L2 and L3 of the 584S.

Access to the power terminals is obtained by removing terminal cover with a screwdriver, then prising off terminal strip.

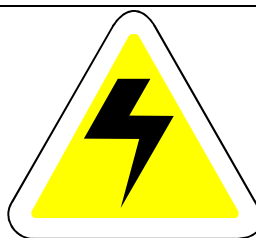
Protection

The incoming mains supply should be protected as shown below:

Controller Rating 380 - 460 Volts	Controller Rating 208 - 240 Volts	Fuse or Circuit Breaker (Amps) Constant Torque/ Quadratic Torque	Cable Diameter (mm ²)	
			MIN	NORMAL
0.75	-	10	1.5	1.5
1.1	-	10	1.5	1.5
1.5	0.75	10	1.5	1.5
2.2	1.1	10	1.5	1.5
4.0	1.5	20	3.5	4
5.5	2.2	20	3.5	4
7.5	4.0	20/32	3.5	4
11	5.5	32/40	5.5	6
15	7.5	40/50	8.5	10
18	-	50/63	12.5	16
22	11	63/100	18	16
30	15	100	37	35
37	18	100/125	37	35
45	22	125/160	50	50
55	30	160/200	65	70
75	37	200	85	95

* - Cable diameters listed assume the conductors are in free air. Fuses are standard type with slow-blow characteristic or a circuit breaker. NOTE: These are typical values only. If in doubt please observe your national standards or local electricity supply regulations. For installations requiring compliance with UL standards, refer to **Special Considerations** and **Electrical Ratings - Power Circuit** in chapter 1.

Earthing



WARNING!

THE MOTOR MUST BE CONNECTED TO AN APPROPRIATE SAFETY EARTH. FAILURE TO DO SO CONSTITUTES AN ELECTRICAL SHOCK HAZARD.

ALL FREQUENCY CONVERTERS MUST BE PERMANENTLY EARTHED

In accordance with the European Low Voltage Directive standards VDE 0160 (1994)/prEN50178 (1995) permanent earthing requires either:-

- i) The cross section of the protective conductor should be at least 10mm^2 (copper). (Note this minimum cross section was determined with regard to mechanical strength).
- ii) Laying of a second conductor through separate terminals and electrically parallel to the protective conductor. Earth conductor shall individually satisfy the requirements for a protective conductor (Note this ensures the equipment is still protectively earthed if one conductor is damaged).

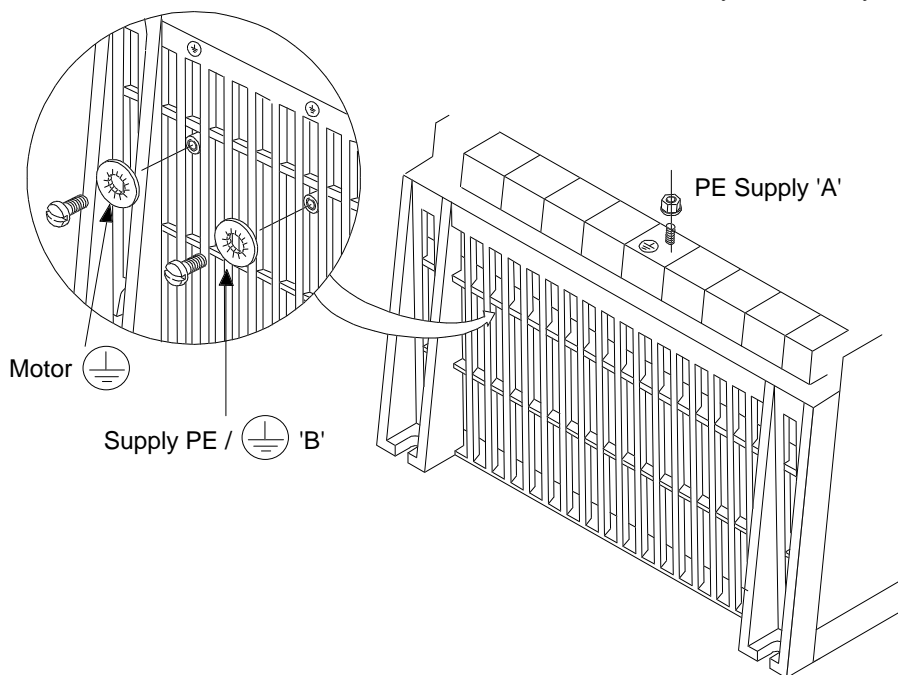
For normal installation the Type 4 series will require two individual incoming protective earth conductors ($<10\text{mm}^2$ cross section) and the Type 5, 6 and 7 one ($\bullet 10\text{mm}^2$ cross section).

MODEL 584S TYPE 4 AND TYPE 5 SERIES

Cubicle-Mounted (IP20) Models

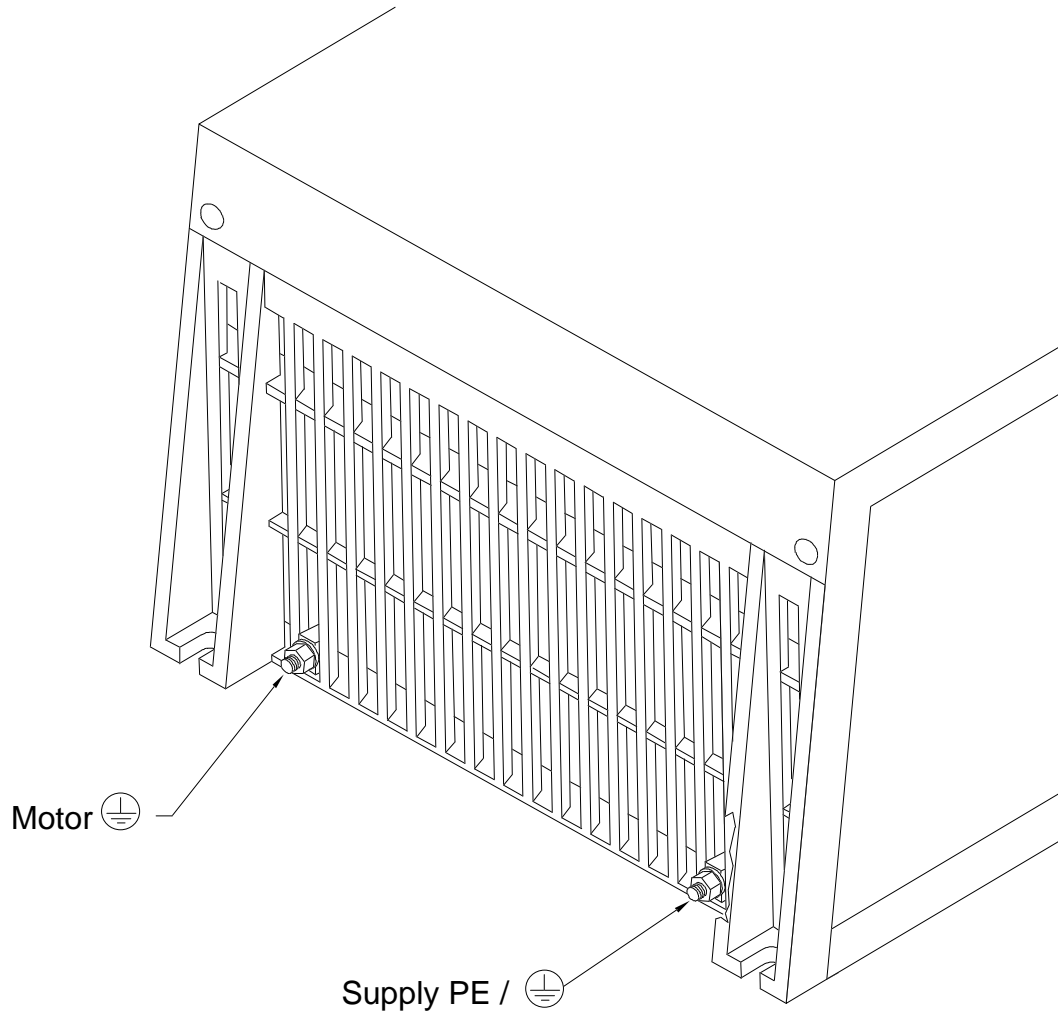
Model 584S Type 4 Series

Protective earthing arrangements for these models are provided by a single-size M4 diameter earth terminal located at the centre of the power terminal array, together with two further earth terminals consisting of size M4 diameter slot-head screws and washers located on the lower face of the drive, as shown in the drawing below. In all cases, the terminals are identified with the symbol \oplus (IEC 417, Symbol 5019) and are intended to be used with protective conductors terminated with compression terminations sized to accept the M4 diameter bolt fitted and the conductor size selected. In Europe two incoming protective conductors shall be used for permanent earthing, one connected to each of the terminals marked "PE" ('A' and 'B') whilst the motor protective conductor shall be connected to the remaining earth terminal located on the lower face of the drive identified with the symbol \oplus only.



Model 584S Type 5 Series

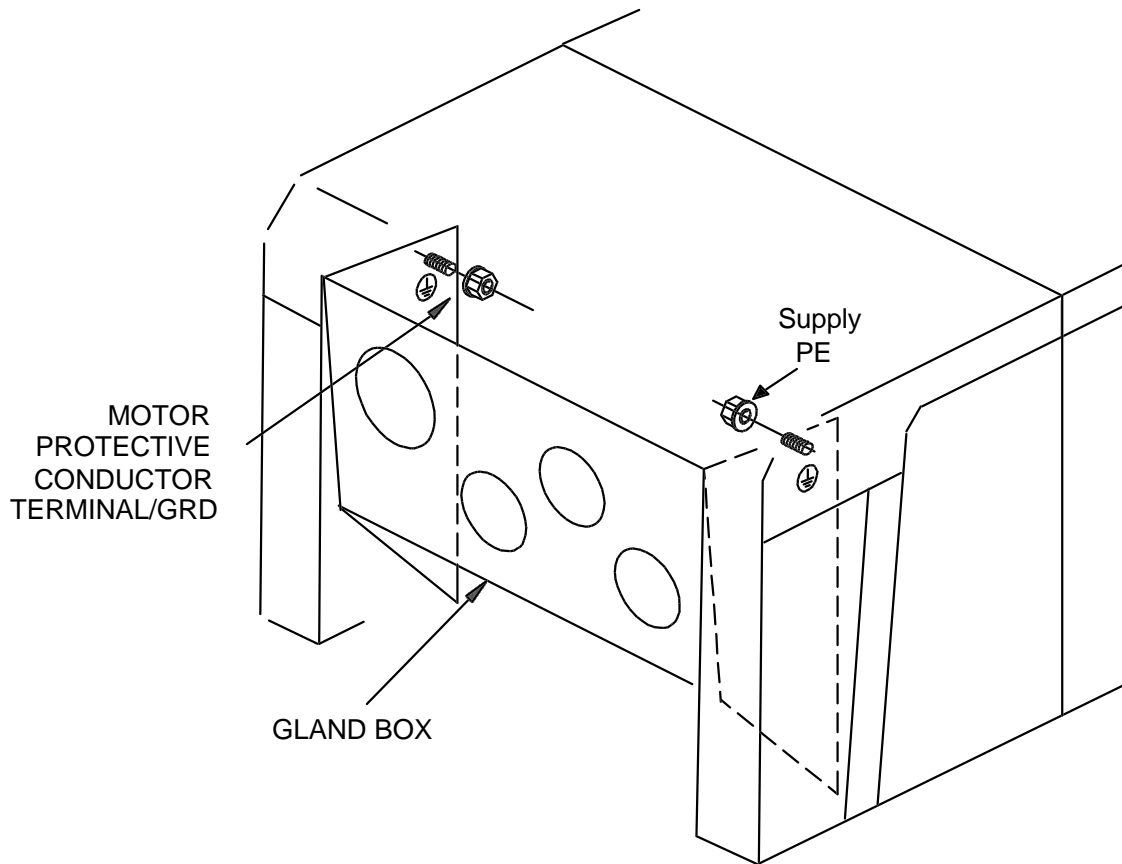
Protective earthing arrangements for these models are provided by two size M5 diameter terminals located on the lower face of the drive, as shown in the drawing below. The terminals are identified with the symbol \oplus (IEC 417, Symbol 5019) and are intended to be used with protective conductors terminated with compression terminations sized to accept the M5 diameter bolt fitted and the conductor size selected. The single incoming protective conductor shall be of 10mm² cross sections minimum (permanent earthing in Europe) and be connected to the terminal marked “PE”, as shown in the drawing below, whilst the motor protective conductor shall be connected to the remaining earth terminal located on the lower face of the drive.



Direct Wall-Mounted Models

Model 584S Type 4 and Type 5 Series

Protective earthing arrangements for wall-mounted models are provided by two size M5 diameter terminals mounted on either side of the internal faces of the sideplates of the conduit gland box as shown in the accompanying drawing. Both terminals are identified with the symbol \oplus (IEC 417, Symbol 5019) and are intended to be used with protective conductors terminated with compression terminations sized to accept the M5 diameter bolt fitted and the conductor size selected. The single incoming protective conductor shall be of 10mm² cross section minimum (for permanent earthing in Europe) connected to the terminal marked “PE”, as shown in the drawing below, whilst the motor protective conductor shall be connected to the remaining earth terminal within the gland box.



WALL MOUNTING PE/GRD CONNECTIONS
584S TYPES 4 and 5