

Chapter 3

INSTALLATION PROCEDURE

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Chapter 3 INSTALLATION PROCEDURE

INTRODUCTION

This chapter contains the procedures required to install a 620 Vector Drive.

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 620 Vector Drive, the following points must be considered.

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

MECHANICAL INSTALLATION

Mounting

Mounting dimensions and suitable fixing bolts are shown in Figure 3.1.

The 620 Vector Drive must be mounted vertically on a cool, solid, flat vertical surface. It must be fixed using 4 bolts or screws of the correct size through the 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.

Ventilation

In normal operation the drive dissipates heat and must be mounted to allow the free flow of air vertically through the unit. Care must be taken to ensure that the mounting surface is cool and that any heat generated by adjacent equipment is not transmitted to the 620 Vector Drive. Similarly, ensure that the heat generated by the drive will not adversely affect any other equipment or cabling.

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

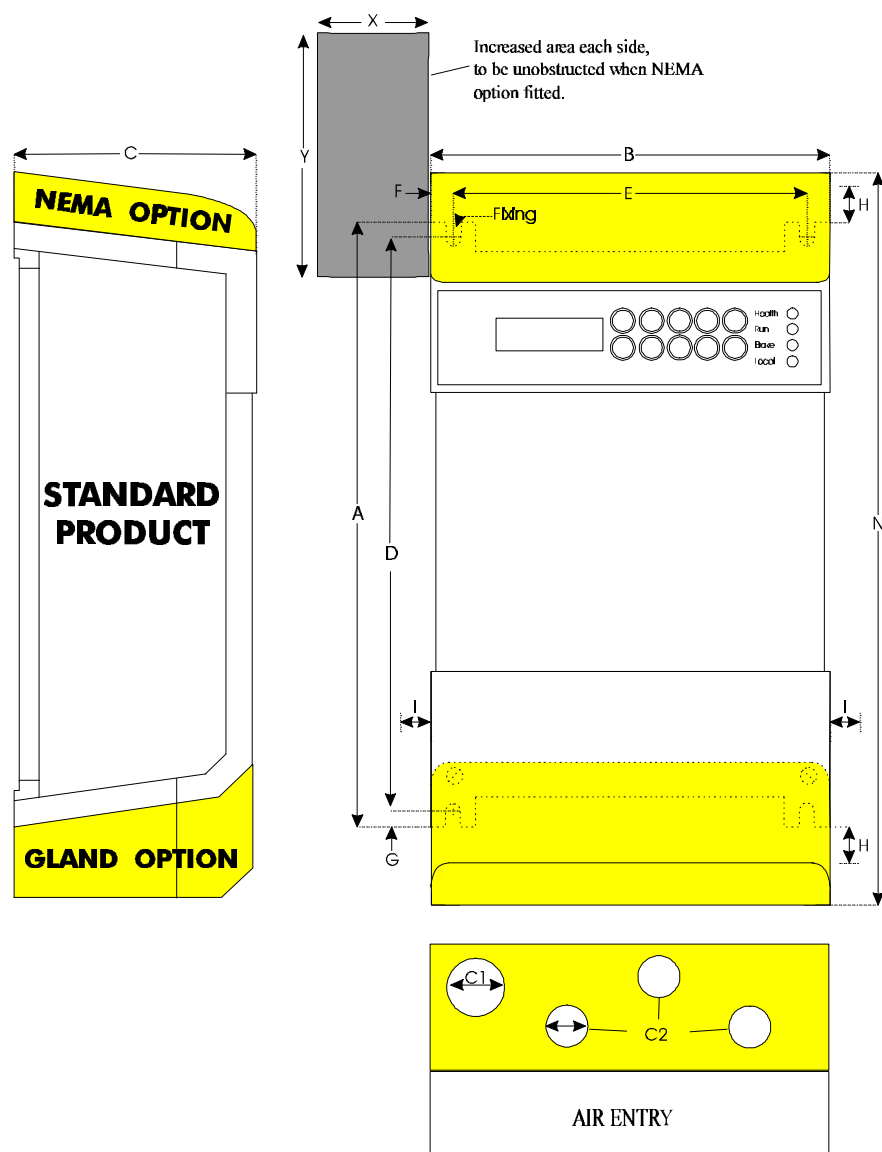


Figure 3.1 Mechanical Outline Drawings

Model	Outside Dimensions (mm)			Fixing Centres (mm)				Fixing Size	OPTIONS						
									Cooling air clearance (mm)	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 - 620 Mounting Arrangements

* Full details of through panel mounting of type 7 not available at time of going to press. Please contact Eurotherm Drives Engineering department.

ELECTRICAL INSTALLATION

The following instructions describe the wiring requirements for operation of the 620 as basic speed controller. 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.

Observe all national standards and local electricity supply company regulations while installing the 620 Vector drive.

The following considerations apply to all installations.

- 1) Power cables must be rated at a minimum of 110% of the expected supply current.
- 2) 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.
- 3) The motor supply cables should be screened to avoid causing undue interference to other equipment in the area.
- 4) The mains power supply must be 3-phase and within the voltage tolerances specified in "**ELECTRICAL RATINGS - Power Circuit**" in Chapter 1 of this manual. The supply must be connected to power board terminals L1, L2 and L3 of the 620 Vector drive.

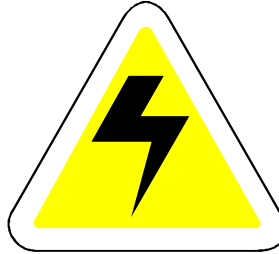
Minimum Cable Diameters and Supply Protection

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)	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	3.5	4
11	5.5	32	5.5	6
15	7.5	40	8.5	10
18	-	50	12.5	16
22	11	63	18	16
30	15	100	37	35
37	18	100	37	35
45	22	125	50	50
55	30	160	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.

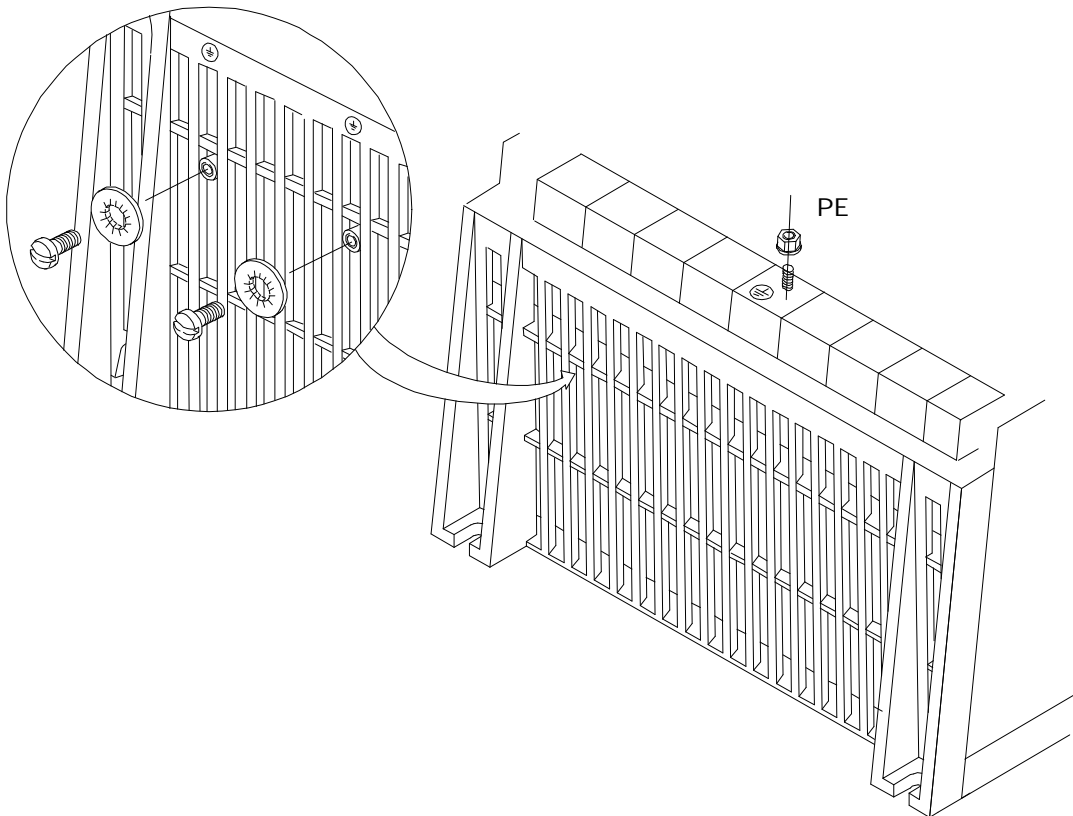
ALL FREQUENCY CONVERTERS MUST BE PERMANENTLY EARTHED

MODEL 620 TYPE 4 AND TYPE 5 SERIES

Cubicle-Mounted (IP20) Models

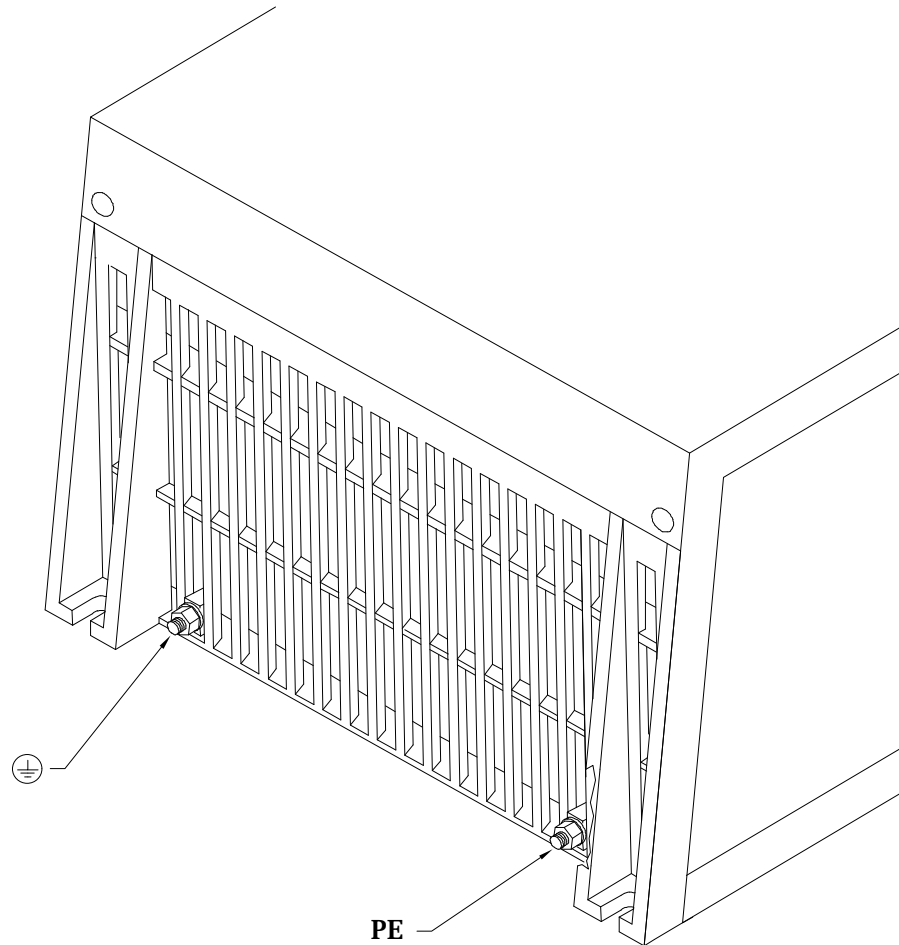
Model 620 Type 4 Series

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. The incoming protective conductor shall be connected to the terminal marked “PE” whilst the motor protective conductor shall be connected to either earth terminal located on the lower face of the drive identified with the symbol \oplus only.



Model 620 Type 5 Series

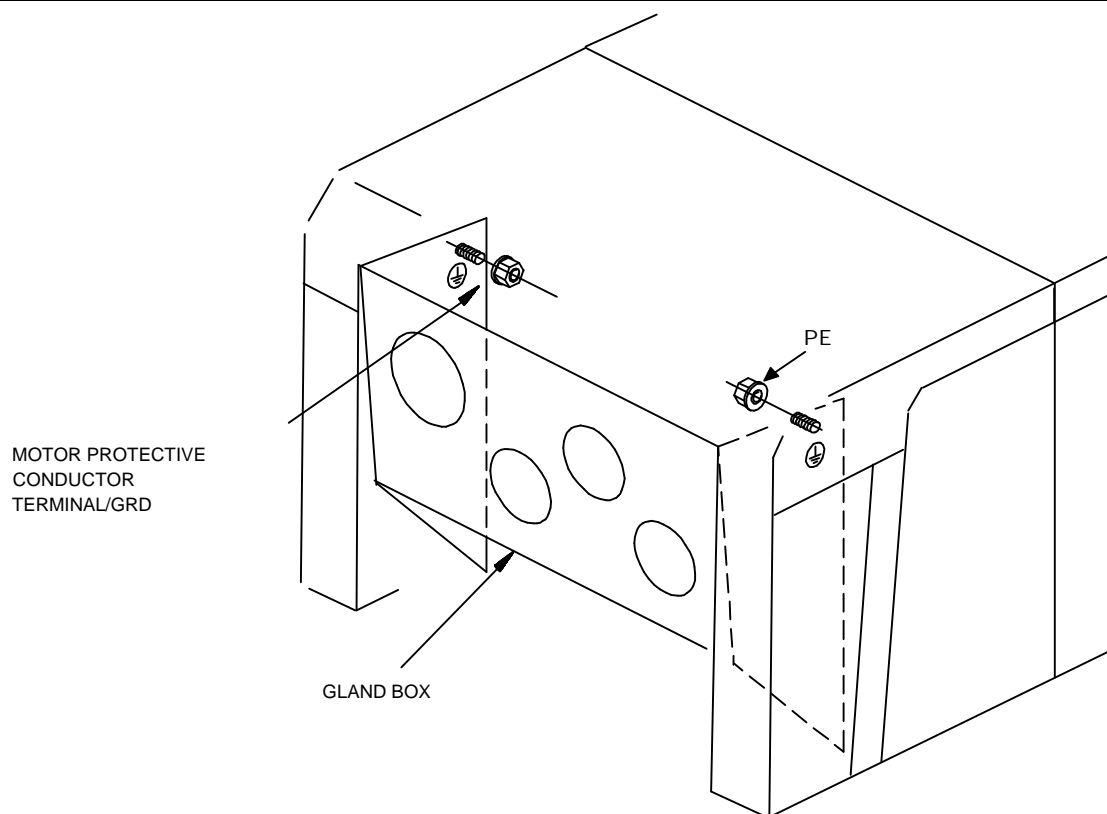
Protective earthing arrangements for these models are provided by two size M5 diameter terminals located on the lower face of the drive, as shown in the drawing below. The terminals are identified with the symbol \oplus (IEC 417, Symbol 5019) and are intended to be used with protective conductors terminated with compression terminations sized to accept the M5 diameter bolt fitted and the conductor size selected. The incoming protective conductor shall 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 620 Type 4 and Type 5 Series

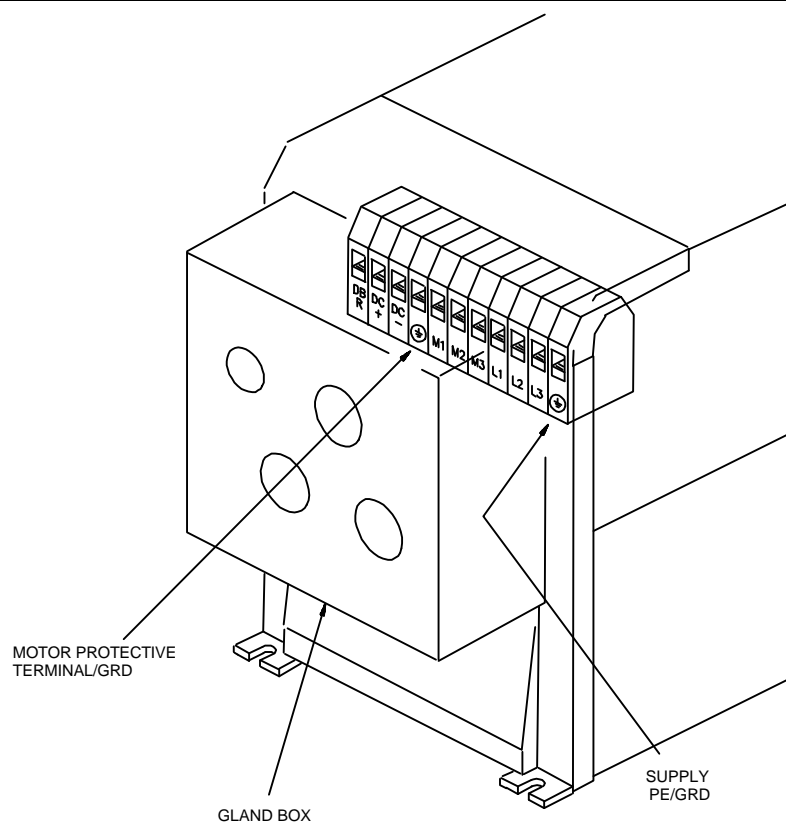
Protective earthing arrangements for wall-mounted models are provided by two size M5 diameter terminals mounted on either side of the internal faces of the sideplates of the conduit gland box as shown in the accompanying drawing. Both terminals are identified with the symbol \oplus (IEC 417, Symbol 5019) 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 incoming protective conductor shall 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 within the gland box.



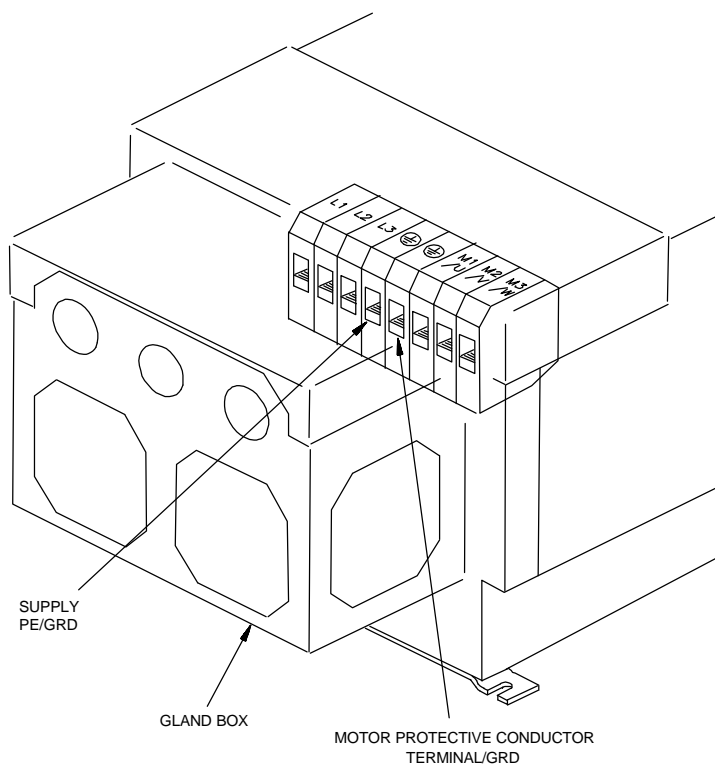
DIRECT WALL-MOUNTING PE/GRD CONNECTIONS
620 TYPES 4 & 5

MODEL 620 TYPE 6 AND TYPE 7 SERIES

The protective earthing arrangements for these models consist of two green-yellow coloured terminal blocks located as part of the power terminal array, as shown in the accompanying drawings. The incoming protective conductor of suitable size shall be connected to the terminal marked “PE” as shown in the drawing below, whilst an adequately rated motor protective conductor shall be connected to the remaining earth terminal block.



CUBICLE AND WALL MOUNTING PE/GRD CONNECTIONS
620 TYPE 6



CUBICLE AND WALL MOUNTING PE/GRD CONNECTIONS
620 TYPE 7