

## EMC

Special consideration must be given to installations in member states of the European Union regarding noise suppression and immunity. According to IEC 1800-3 (EN61800-3) the drive units are classified as Basic Drive Modules (BDM) only for professional assemblers and for the industrial environment. Although CE Marking is made against the EMC Directive, application of EN 61800-3 means that no RF emission limits apply. The drive manufacturer is responsible for the provision of installation guidelines. The resulting EMC behaviour is the responsibility of the manufacturer of the system or installation. The units are also subject to the LOW VOLTAGE DIRECTIVE 73/23/EEC and are CE marked accordingly.

Following the procedures outlined will normally be required for the drive system to comply with the European regulations; some systems may require different measures.

Installers must have a level of technical competence to correctly install. Although the drive unit itself does not require control of RF emissions, it has been designed and tested to comply with the most stringent emissions and immunity requirements on all ports.

### Power supply port

The power supply port is subject to alternative guidelines, as described below. Compliance with emissions limits on this port may or may not be required depending on the environment. If required then compliance can be achieved by fitting a separate filter unit, contact supplier for details.

EN61800-3 specifies 2 alternative operating environments. These are the domestic (1<sup>st</sup> environment) and industrial (2<sup>nd</sup> environment). There are no limits specified for conducted or radiated emissions in the industrial environment, hence it is usual for the filter to be omitted in industrial systems.

Definition of an industrial environment: Includes all establishments other than those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.


In order to meet mains conducted emissions limits on this port for the 1<sup>st</sup> environment, a separate AC supply filter is required. The filter is inserted between the incoming AC supply and the drive unit AC supply inputs.

### Installation guidelines **WARNING Safety earthing always takes precedence over EMC earthing.**

- 1) Keep parallel runs of power and control cables at least 0.3m apart. Crossovers must be at right angles.
- 2) Keep sensitive components at least 0.3m from the drive and power cables.
- 3) Control signals must be filtered or suppressed. E. g. Control relay coils, current carrying contacts.
- 4) The drive units have built in filters on signal outputs.
- 5) Linear control signal cables must be screened with the screen earthed at the enclosure end only.
- 6) The motor cable must be screened or armoured with 360-degree screen terminations at each end.  
The cable must have an internal earth wire and the screen must extend into the enclosure and motor terminal box to form a Faraday cage without gaps. The internal earth wire must be earthed at each end.
- 7) The incoming earth must be effective at RF.
- 8) Some drive units possess a chassis earth. Please refer to the product manual for further wiring details.

### Guidelines when using filters

- 1) The AC connections from the filter to the drive must be less than 0.3m or if longer, correctly screened.
- 2) The AC supply filter and motor cable screen should connect directly to the metal of the cabinet.
- 3) Do not run filtered and unfiltered AC supply cables together.
- 4) The AC supply filter has earth leakage currents. RCD devices may need to be set at 5% of rated current.
- 5) The AC supply filter must have a good earth connection to the enclosure back plane. Take care with painted metal. Remove paint and ensure good connection.

<b>IMPORTANT SAFETY WARNINGS</b>		
	<p>The AC supply filters must not be used on supplies that are un-balanced or float with respect to earth</p>	<p>The AC supply filter must only be used with a permanent earth connection. No plugs/sockets are allowed in the AC supply</p>
		<p>The AC supply filter contains high voltage capacitors and should not be touched for a period of 20 seconds after the removal of the AC supply</p>