

CE Filter Kits for the VSM500 Integrated Drive/Motor

Model Numbers
VSM-CE-1I, VSM-CE-3I, VSM-CE-1E, and VSM-CE-3E

Instruction Manual D2-3464



ATTENTION: Only qualified personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, and/or service this equipment. Read and understand this instruction manual in its entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

ATTENTION: The CE filter connects between the incoming AC supply line and the drive input terminals. The filter must be installed by qualified personnel familiar with the drive and associated machinery. Failure to observe this precaution could result in bodily injury and/or equipment damage.

ATTENTION: An incorrectly applied or installed CE filter can result in component damage or a reduction in product life. Wiring or application errors, such as incorrect wiring layout, incorrect or inadequate AC supply or excessive ambient temperatures may result in malfunction of the system. Failure to observe this precaution could result in damage to, or destruction of, equipment.

Product Description

CE filter options are designed to be used with the VSM500 Integrated Drive/Motor. The main function of the CE filter is to reduce the radio frequency conducted emissions into the main supply lines and ground wiring. This instruction manual provides the steps needed to install the filter.

Important: Declarations of Conformity (DOC) to the European Union Directives are available for Reliance Electric AC drive products. Please contact the Rockwell AutoFax service at 216-646-7777 for copies of the Declaration of Conformity.

Verifying Kit Contents

Table 1 lists the available CE filter kits. Verify that your CE filter kit is rated for use with your VSM500 Integrated Drive/Motor.

Table 1 – CE Filter Kit Contents

Kit Model Number	Version	Rating	Item	Qty
VSM-CE-1I	1.0	115/230 VAC, 1 Ph., 14 A	Internal Mount CE Filter	1
			M4 x 8 TT Screw	5
			M4 Internal Tooth Lock Washer	5
VSM-CE-3I	1.0	230/460 VAC, 3 Ph., 9 A	Internal Mount CE Filter	1
			M4 x 8 TT Screw	5
			M4 Internal Tooth Lock Washer	5
VSM-CE-1E	1.0	115/230 VAC, 1 Ph., 14 A	External Mount CE Filter	1
VSM-CE-3E	1.0	230/460 VAC, 3 Ph., 9 A	External Mount CE Filter	1

Installing the Internal Mount CE Filter Kit



ATTENTION: To prevent electrical shock, disconnect the power source before installing or servicing the unit. Failure to observe these precautions could result in severe bodily injury or loss of life.

ATTENTION: After disconnecting input power, wait five minutes and check with voltmeter to assure that DC bus capacitors are discharged. The voltmeter should read zero volts. Failure to observe these precautions could result in severe bodily injury or loss of life.

Step 1. Remove the cover of the VSM500 unit by loosening the four cover screws. The display ribbon cable is designed to disconnect from the main unit when the cover is removed.

Step 2. Mount the CE filter as shown in figure 1 below using the screws and lock washers provided.

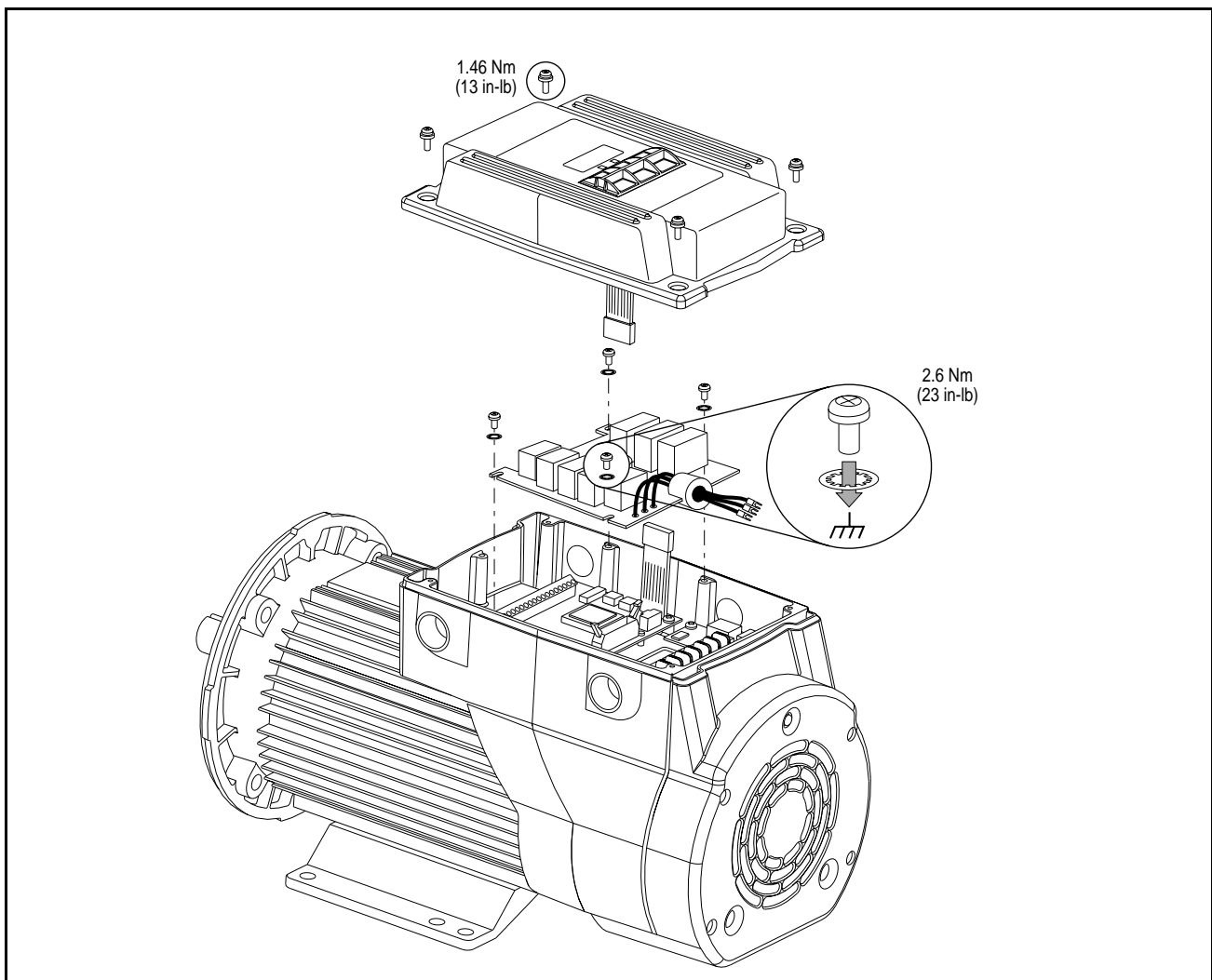


Figure 1 – Mounting the Internal CE Filter Kit

Step 3. Connect the incoming AC supply line to the CE filter as shown in figure 2 and figure 3.

Important: The filter may cause ground leakage currents. Therefore, a solid ground connection must be provided as shown in figure 2.



ATTENTION: RFI filters can only be used with AC supplies that are nominally balanced with respect to ground. In some installations, three-phase supplies are occasionally connected in a 3-wire configuration with one phase grounded (Grounded Delta). The filter must not be used in Grounded Delta supplies. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

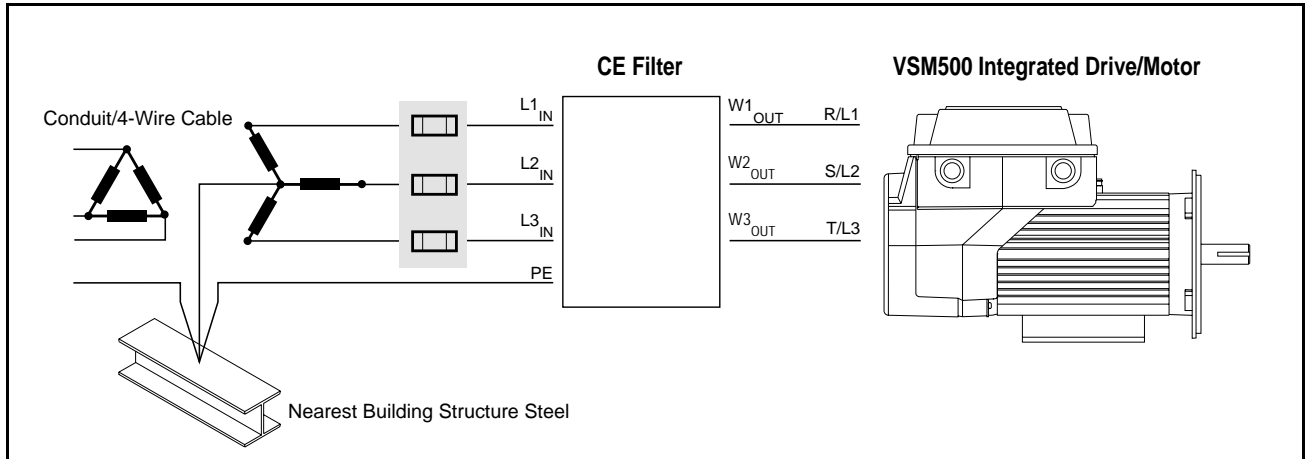


Figure 2 – Wiring the Internal Mount CE Kit

Step 4. Connect the power wires from the CE filter to the VSM500 unit as shown in figure 3 (three-phase unit shown).

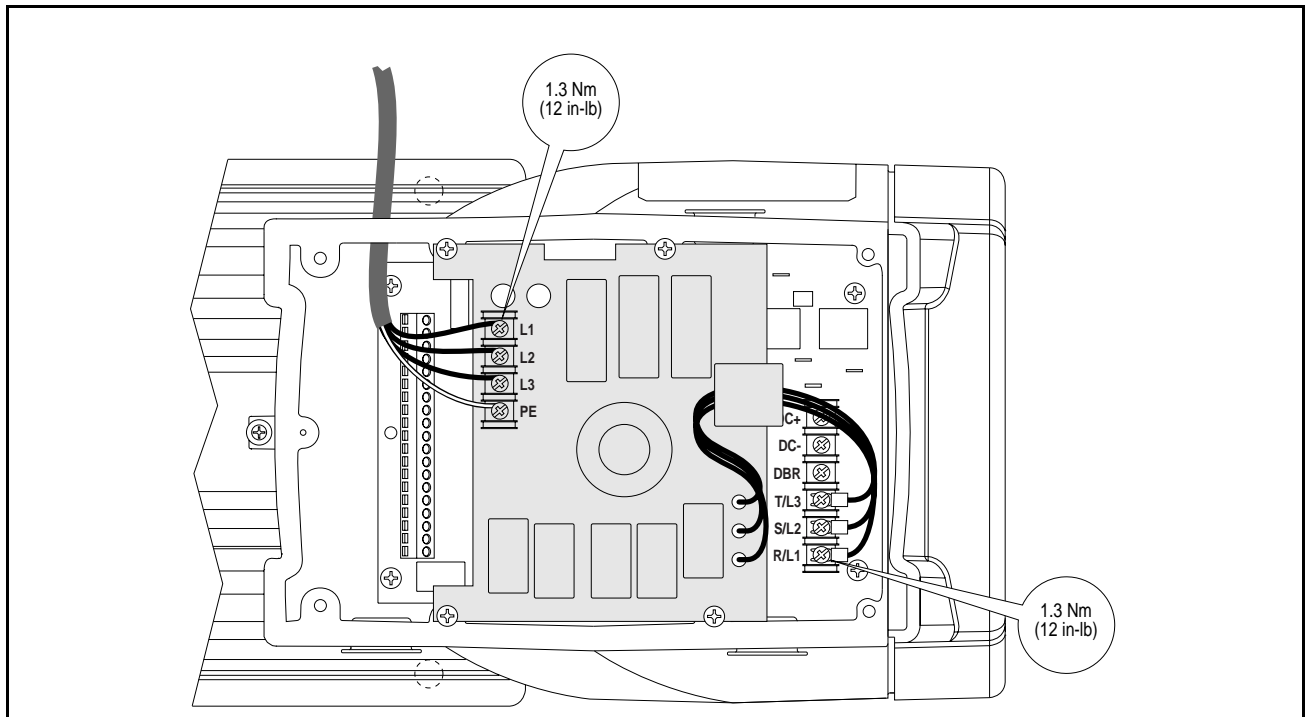


Figure 3 – Wiring the CE Filter to the VSM500 Drive/Motor



ATTENTION: The cover screws must be securely tightened in order to properly ground the cover. Verify that all four cover screws are tight before applying power to the unit. Failure to observe this precaution could result in severe bodily injury or loss of life.

Step 5. Reconnect the display ribbon cable and reinstall the unit cover.

Installing the External Mount CE Filter Kit

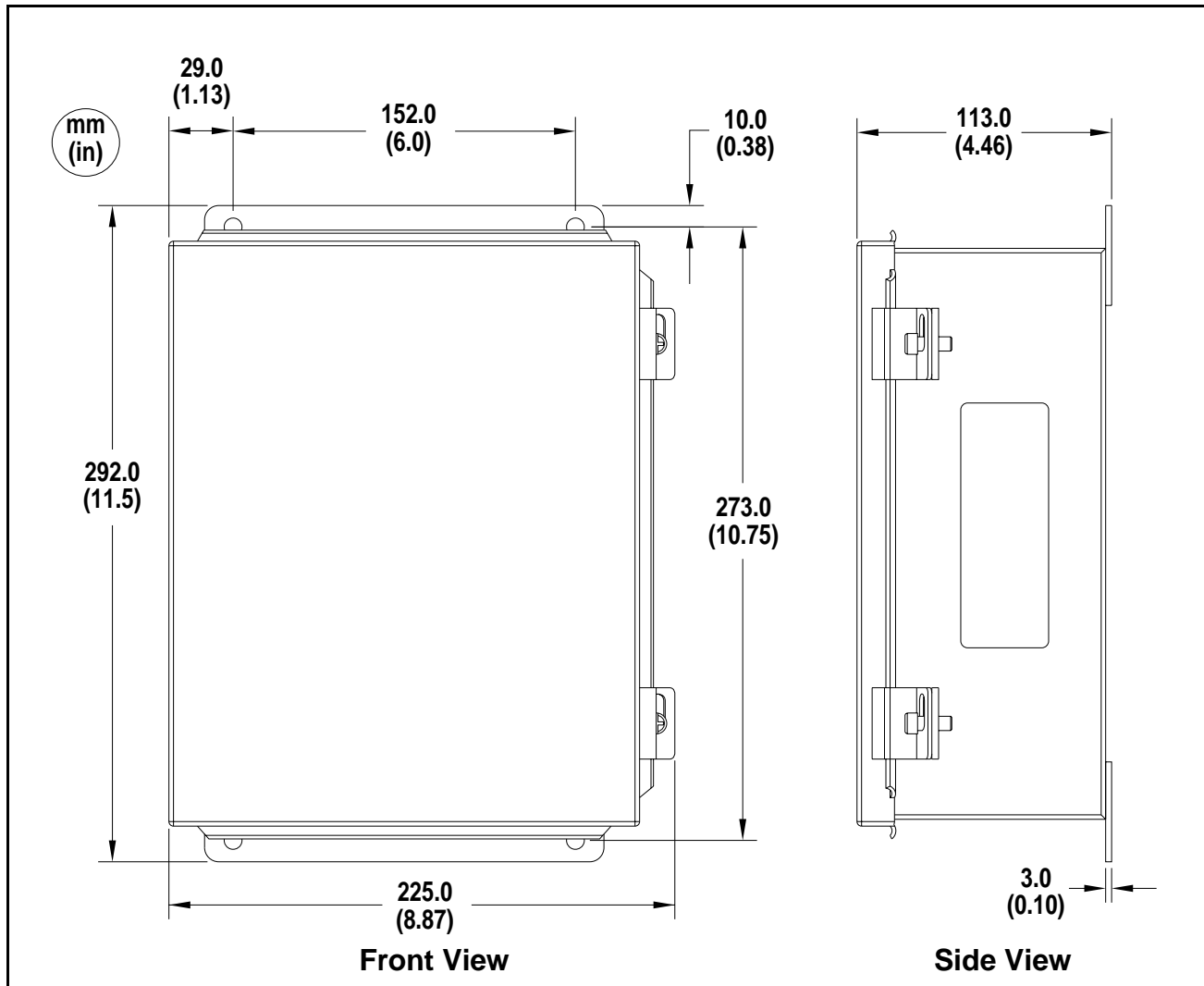


ATTENTION: To prevent electrical shock, disconnect the power source before installing or servicing the unit.

ATTENTION: The National Codes and standards (NEC, VDE, 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.

Step 1. Mount the enclosed CE filter as shown in figure 4.

The cable length from the filter to the drive/motor must be less than 3 meters (10 feet).



Step 2. Connect the filter between the incoming AC supply line and the drive input terminals as shown in figure 5 and figure 6.

Important: The filter may cause ground leakage currents. Therefore, a solid ground connection must be provided as shown in figure 5.



ATTENTION: RFI filters can only be used with AC supplies that are nominally balanced with respect to ground. In some installations, three-phase supplies are occasionally connected in a 3-wire configuration with one phase grounded (Grounded Delta). The filter must not be used in Grounded Delta supplies. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

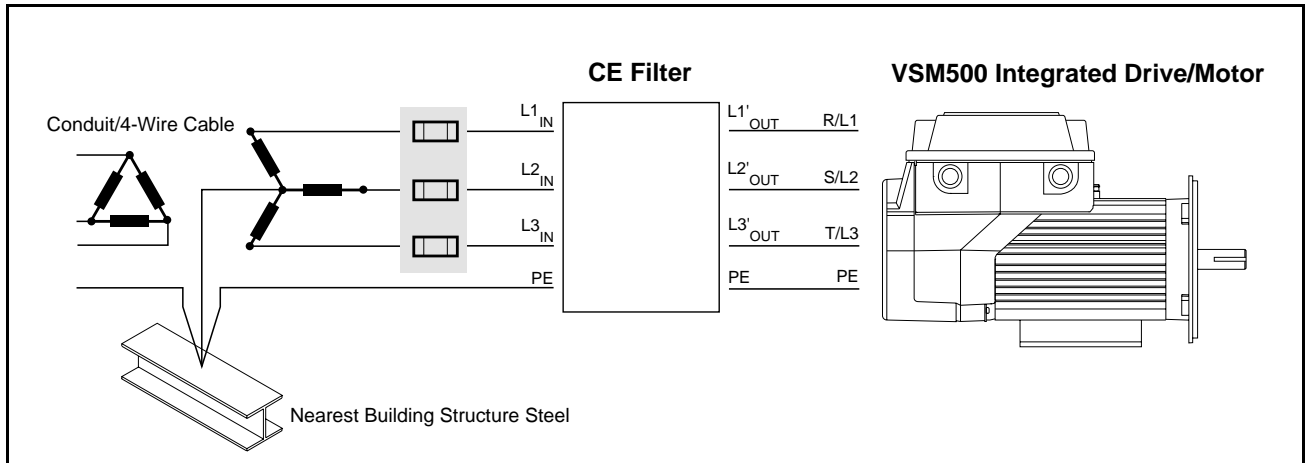


Figure 5 – Wiring the External Mount CE Filter

Step 3. Connect the input power wires to the CE filter as shown in figure 6 (three-phase unit shown).

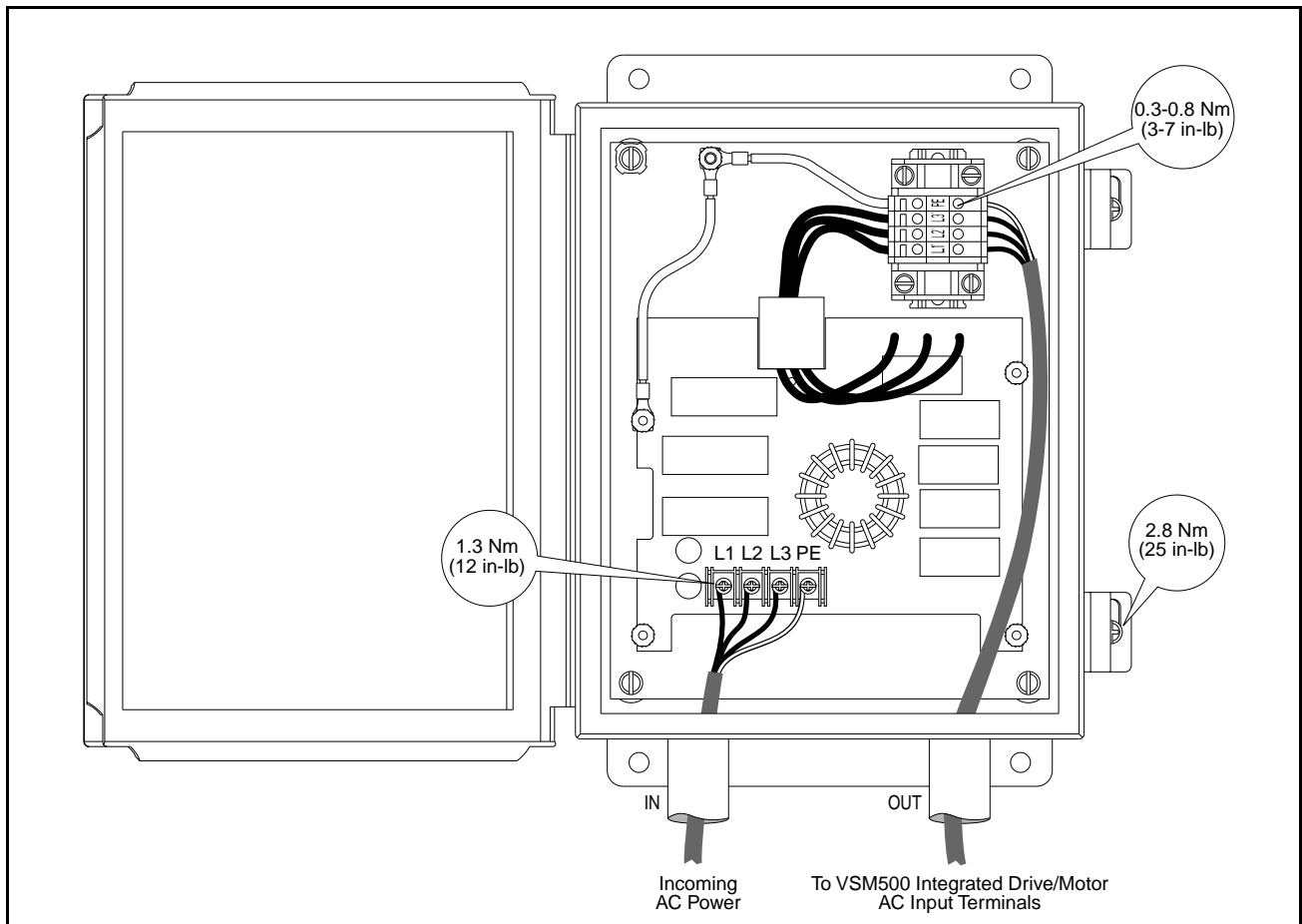


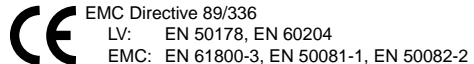


Figure 6 – Wiring the Input Power Leads to the CE Filter

VSM500 Integrated Drive/Motor CE Filter Option Specifications

	VSM-CE-1I	VSM-CE-3I	VSM-CE-1E	VSM-CE-3E
Input Voltage	115/230 VAC	230/460 VAC	115/230 VAC	230/460 VAC
Input Phases	Single Phase	Three Phase	Single Phase	Three Phase
Frequency	50/60 Hz			
Rated Current	14 amps	9 amps	14 amps	9 amps
Power Dissipation	5 watts			
Leakage Current (Worst Case)	0.5 mA			
Weight	0.33 Kg (0.73 lb)	0.45 Kg (0.99 lb)	4.72 Kg (10.41 lb)	4.89 Kg (10.78 lb)
Enclosure	Internal		NEMA 12/IP 65	
Operating Temperature	0° to 40°C (32° to 104°F)			
Storage Temperature	-40° to 85°C (-40° to 185°F)			
Relative Humidity	5% to 95%, non-condensing			
Vibration	1 G operational, 2.5 G non-operational			
Shock	15 G operational, 30 G non-operational			
Altitude	1000 meters (3300 feet) without derating. For every 91.4 meters (300 feet) above 1000 meters, derate current by 1%. Above 3000 meters (10,000 feet), consult your Reliance Electric Sales Office.			
International Standards and Approvals	  			

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