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PM100 HV Connection Manual

Revision 0.3



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Revision History

Version	Description of Versions / Changes	Responsible Party	Date
0.1	Initial version	Chris Brune	2/2/2011
0.2	Corrected the title in the document footer.	Azam Khan	4/8/2011
0.3	Added cable type for PM150 on page 3.	Azam Khan	2/22/2012

Table of Contents

1. INTRODUCTION.....	3
2. INSTALLATION PROCESS	4



1. Introduction

The PM100 has 5 High Voltage Connections (DC+, DC-, Phase A, Phase B, Phase C). Careful attention should be made to how these connections are made.

RMS recommends the use of shielded high voltage cable for these connections. The wire size may depend on the particular motor and application; however, we generally recommend the use of 2 AWG / 35 mm² for the PM100DX and DZ. For PM150, we recommend 2/0 AWG / 75 mm² cables. Several different manufacturers make this type of wire. RMS recommends the use of:

Champlain Cable Corporation
175 Hercules Drive
Colchester, Vermont 05446

Phone: 800.451.5162
Fax: 802.654.4224
E-mail: sales@champcable.com

EXRAD XLE Hybrid 1000V Shielded Cable 2AWG, EXRAD-XLX2X
<http://www.champcable.com/pdf/15.%20EXRAD%20XLE%20Hybrid.pdf>

This wire can be purchased directly from Rinehart Motion Systems if desired.

The PM100DX and PM100DZ use a cable gland to secure the HV cable to the unit. The cable gland provides several functions, environmental seal, cable strain relief, shield termination. The PM100DX and PM100DZ are designed to use a cable gland that has an M25-1.5 thread and does not penetrate more than 8 mm into the unit. The cable gland that is provided with the unit is:

Lapp Group / Lapp USA
29 Hanover Road
Florham Park, NJ 07932
Tel: 973-660-9700
Fax: 973-660-9330
SKINTOP® MS-SC-M
p/n 53112640

It is important to note that these cable glands should be considered ONE TIME USE only. Removal of the wire from an installation may damage the cable gland. Additional cable glands may be purchased from RMS.

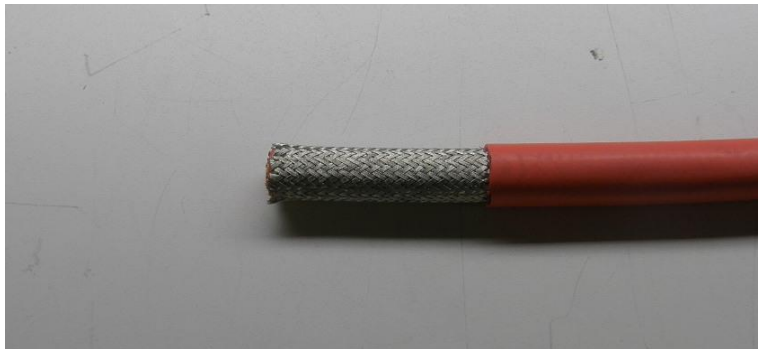


2. Installation Process

The installation process assumes that the above mentioned cable gland and wire are being used.

Step 1:

Strip the outer layer of insulation 42 mm from the end.



Step 2:

Apply 2 layers of ½ inch wide Copper tape about 1-2 mm away from the insulation.





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Step 3:

Trim the shield away about 1-2 mm from the Copper tape.



Step 4:

Trim the inner layer of insulation 17mm from the end.





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Step 5:

Place and crimp a ferrule to the inner conductor. A ferrule isn't absolutely necessary but it will keep the small strands of the wire from breaking off and getting loose inside the inverter. An example ferrule can be found from:

American Electrical Inc.
p/n 1218135 for 2AWG
Available from Allied Electronics, p/n 342-0110



Step 6:

Cut two pieces of 1/2" heatshrink with adhesive, each piece 15mm long. Place one piece over the outside insulation and approximately 1mm of the copper tape. Place the 2nd piece over the inner insulation, end of the ferrule and approximately 1 mm of the copper tape. Shrink the heatshrink into place with a heat gun.



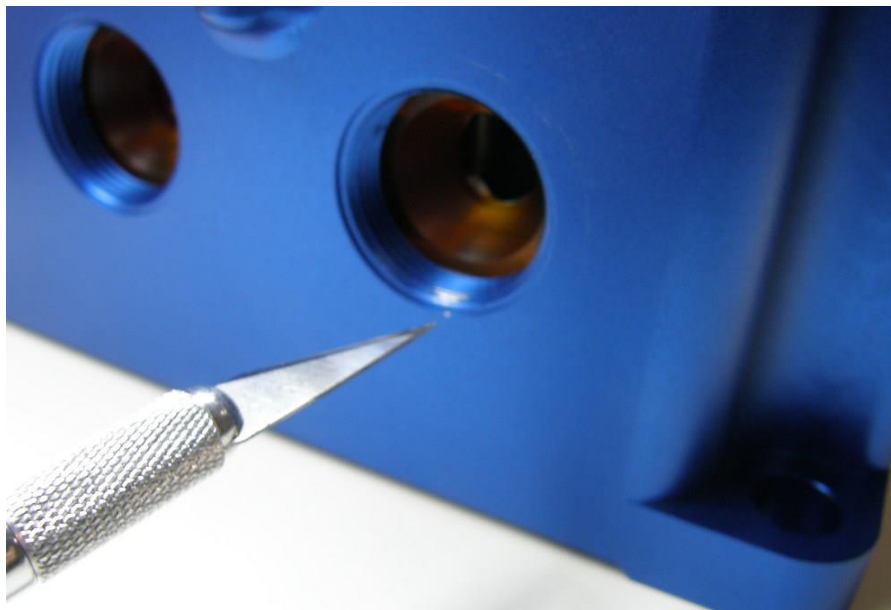


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Step 7:

On some units of the PM100 the threaded holes for the cable glands are anodized. The anodization is an electrical insulator and prevents the cable gland from making a good connection. On these units it is necessary to use an abrasive tool to clear enough of the anodization so that the cable gland will make good contact.





Step 8:

Remove the outer cap of the cable gland and slide onto the wire to be installed. Remove the red access plug from the PM100 unit for the wire to be installed. Use a 5mm Allen wrench to make sure that the two clamp screws accessed at the top of the unit are unscrewed enough that the clamp pieces are fully apart. **DO NOT** remove the screws completely from the clamps. It may be necessary to push down on the screws to get the clamp to open completely. Install the cable gland into the unit. Tighten with a wrench. **Verify** electrical conductivity of cable gland to case using an ohmmeter.



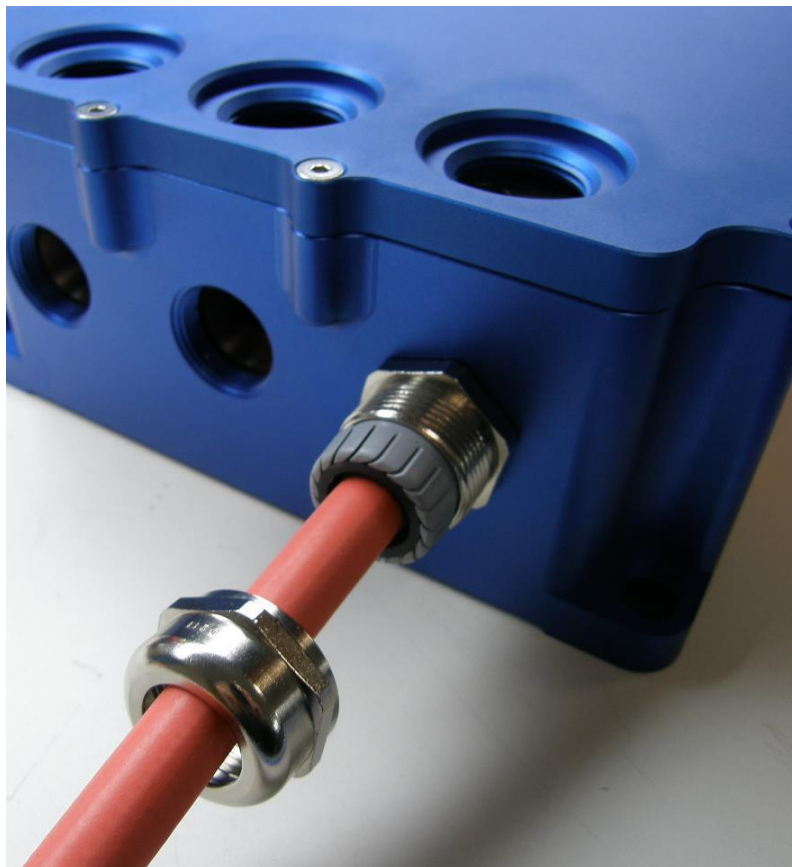


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Step 9:

Install wire into PM100 by pushing the wire through the cable gland into the PM100. Use the view port hole at the top of the PM100 to verify that the wire ferrule is completely within the clamps. The black heatshrink insulation should be visible through the viewing port at the top of the unit. Tighten the two clamp screws. Alternate tightening between each screw is performed until an ultimate torque of $6\text{Nm} \pm 1\text{Nm}$.



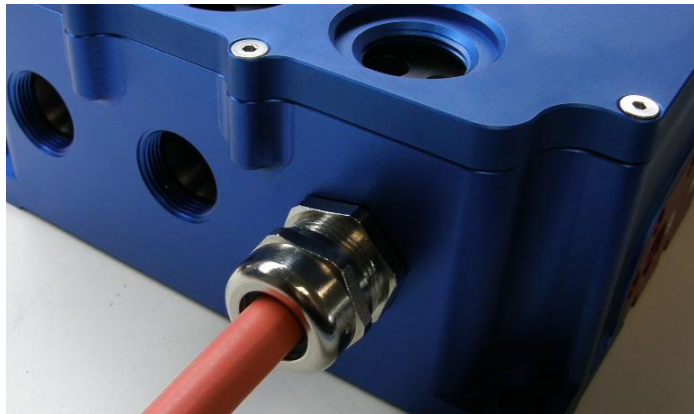


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Step 10:

Tighten cable gland cover until the seal is compressed on to the outer insulation of the cable.



Step 11:

Install the red access port plug.

