



**Model 691M156**

**TERMINATION BOX**

**Installation and Operating Manual**

**For assistance with the operation of this product,  
contact the PCB Piezotronics, Inc.**

**Toll-free: 800-959-4464**

**24-hour SensorLine: 716-684-0001**

**Fax: 716-684-3823**

**E-mail: [imi@pcb.com](mailto:imi@pcb.com)**

**Web: [www.imi-sensors.com](http://www.imi-sensors.com)**



## Repair and Maintenance

PCB guarantees Total Customer Satisfaction through its “Lifetime Warranty Plus” on all Platinum Stock Products sold by PCB and through its limited warranties on all other PCB Stock, Standard and Special products. Due to the sophisticated nature of our sensors and associated instrumentation, **field servicing and repair is not recommended and, if attempted, will void the factory warranty.**

Beyond routine calibration and battery replacements where applicable, our products require no user maintenance. Clean electrical connectors, housings, and mounting surfaces with solutions and techniques that will not harm the material of construction. Observe caution when using liquids near devices that are not hermetically sealed. Such devices should only be wiped with a dampened cloth—never saturated or submerged.

In the event that equipment becomes damaged or ceases to operate, our Application Engineers are here to support your troubleshooting efforts 24 hours a day, 7 days a week. Call or email with model and serial number as well as a brief description of the problem.

## Calibration

Routine calibration of sensors and associated instrumentation is necessary to maintain measurement accuracy. We recommend calibrating on an annual basis, after exposure to any extreme environmental influence, or prior to any critical test.

PCB Piezotronics is an ISO-9001 certified company whose calibration services are accredited by A2LA to ISO/IEC 17025, with full traceability to SI through N.I.S.T. In addition to our standard calibration services, we also offer specialized tests, including: sensitivity at elevated or cryogenic temperatures, phase response, extended high or low frequency response, extended range, leak testing, hydrostatic pressure testing, and others. For more information, contact your local PCB Piezotronics distributor, sales representative, or factory customer service representative.

## Returning Equipment

If factory repair is required, our representatives will provide you with a Return Material Authorization (RMA) number, which we use to reference any information you have already provided and expedite the repair process. This number should be clearly marked on the outside of all returned package(s) and on any packing list(s) accompanying the shipment.

## Contact Information

PCB Piezotronics, Inc.  
3425 Walden Ave.  
Depew, NY14043 USA  
Toll-free: (800) 828-8840  
24-hour SensorLine: (716) 684-0001  
General inquiries: [info@pcb.com](mailto:info@pcb.com)  
Repair inquiries: [rma@pcb.com](mailto:rma@pcb.com)

For a complete list of distributors, global offices and sales representatives, visit our website, [www.pcb.com](http://www.pcb.com).

## Safety Considerations

This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the precautions required to avoid injury. While our equipment is designed with user safety in mind, the protection provided by the equipment may be impaired if equipment is used in a manner not specified by this manual.

Discontinue use and contact our 24-Hour Sensorline if:

- Assistance is needed to safely operate equipment
- Damage is visible or suspected
- Equipment fails or malfunctions

For complete equipment ratings, refer to the enclosed specification sheet for your product.

## Definition of Terms and Symbols

The following symbols may be used in this manual:



### DANGER

Indicates an immediate hazardous situation, which, if not avoided, may result in death or serious injury.

**CAUTION**

Refers to hazards that could damage the instrument.

**NOTE**

Indicates tips, recommendations and important information. The notes simplify processes and contain additional information on particular operating steps.

**The following symbols may be found on the equipment described in this manual:**



This symbol on the unit indicates that high voltage may be present. Use standard safety precautions to avoid personal contact with this voltage.



This symbol on the unit indicates that the user should refer to the operating instructions located in the manual.



This symbol indicates safety, earth ground.



PCB工业监视和测量设备 - 中国RoHS2公布表

PCB Industrial Monitoring and Measuring Equipment - China RoHS 2 Disclosure Table

部件名称	有害物质					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
住房	0	0	0	0	0	0
PCB板	X	0	0	0	0	0
电气连接器	0	0	0	0	0	0
压电晶体	X	0	0	0	0	0
环氧	0	0	0	0	0	0
铁氟龙	0	0	0	0	0	0
电子	0	0	0	0	0	0
厚膜基板	0	0	X	0	0	0
电线	0	0	0	0	0	0
电缆	X	0	0	0	0	0
塑料	0	0	0	0	0	0
焊接	X	0	0	0	0	0
铜合金/黄铜	X	0	0	0	0	0
本表格依据 SJ/T 11364 的规定编制。						
0：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。						
X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。						
铅是欧洲RoHS指令2011/65/ EU附件三和附件四目前由于允许的豁免。						

CHINA RoHS COMPLIANCE

Component Name	Hazardous Substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Chromium VI Compounds (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
PCB Board	X	O	O	O	O	O
Electrical Connectors	O	O	O	O	O	O
Piezoelectric Crystals	X	O	O	O	O	O
Epoxy	O	O	O	O	O	O
Teflon	O	O	O	O	O	O
Electronics	O	O	O	O	O	O
Thick Film Substrate	O	O	X	O	O	O
Wires	O	O	O	O	O	O
Cables	X	O	O	O	O	O
Plastic	O	O	O	O	O	O
Solder	X	O	O	O	O	O
Copper Alloy/Brass	X	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.

O: Indicates that said hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

X: Indicates that said hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement of GB/T 26572.

Lead is present due to allowed exemption in Annex III or Annex IV of the European RoHS Directive 2011/65/EU.

**Models 691M156 and 691M157**  
**Termination Boxes for Triaxial ICP® Accelerometers**

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***Operating Guide with Enclosed Warranty Information***

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**3425 Walden Avenue, Depew, New York 14043-2495**

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**Toll Free Line 1-800-959-4IMI**

MANUAL NUMBER: 66865  
MANUAL REVISION: NR  
ECO 46608

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**Introduction**

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The termination boxes for triaxial ICP® accelerometers (Models 691M156 and 691M157) provide terminal strip inputs with the convenience of 4-pin bayonet connector outputs. They are used in conjunction with commercially available data collectors and analyzers. A few specifications are listed below for easy reference.

**Specifications**

691M56.....	<b>1 Channel</b>
691M57.....	<b>2 Channels</b>
Input Connectors.....	<b>4-Socket Terminal Strip</b>
Output Connector(s) .....	<b>4-Pin Bayonet</b>
Enclosure Type.....	<b>NEMA 4X [IP67]</b>
Size.....	<b>4.72 x 3.14 x 2.16 in [120 x 80 x 55 mm]</b>
Weight.....	<b>0.72 lbs [327 g]</b>

**Installation**

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Establish an easily accessible location for installation, keeping in mind the cabling will be coming from the bottom panel of the enclosure. Use the supplied mounting feet and hardware to install the unit.

*Note: The unit has one or two 4-pin Bayonet connector(s) that can be easily contaminated. Install the unit away from sprays, cleaning fluids, steam, excess temperature (above 212 °F) and other contaminants. Always leave the dust cap on the connector when not taking data. This will protect the contacts. Do not use the unit outdoors unless it is protected from the environment.*



**Wiring**

Remove outer cover of the enclosure by loosening the four screws located in each corner of the front panel. Strip cables back approximately 1/8" to 3/16". Note the length of the conductor as not to short any neighboring cables. Feed cables through cable grips.

To connect cable, push down on the top spring-loaded terminal strip connector with a flat head screwdriver. Push the conductor into the connector front and then remove the screwdriver. This will clamp the cable conductor onto the terminal strip. Pull gently on the conductor to make sure that it was installed correctly. Tighten the cable clamp nut located on the outside of the enclosure. This will hold the cable jacket and also protect the internal connections from environmental contaminants.

**Figure 1 – Typical Input Channel Wiring**

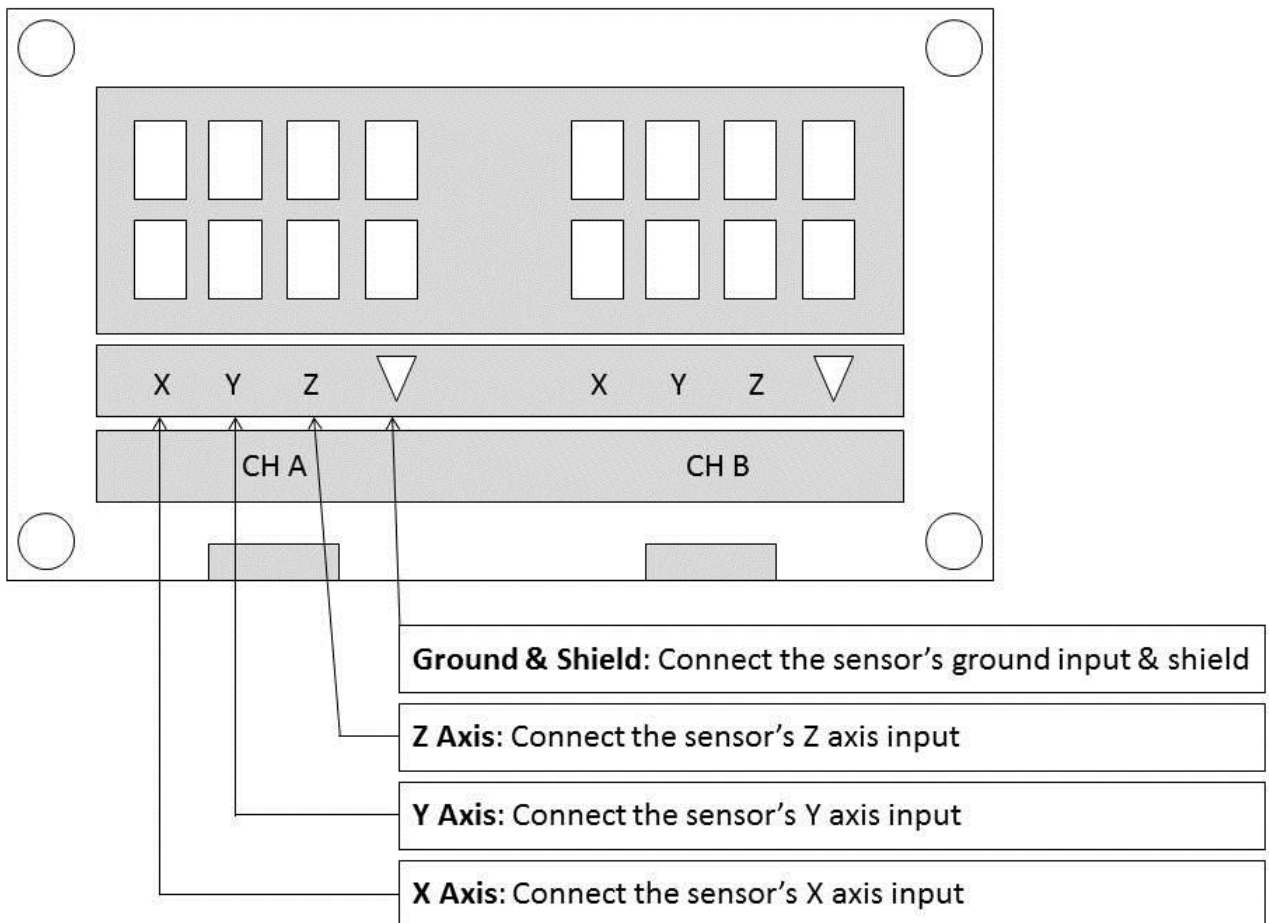
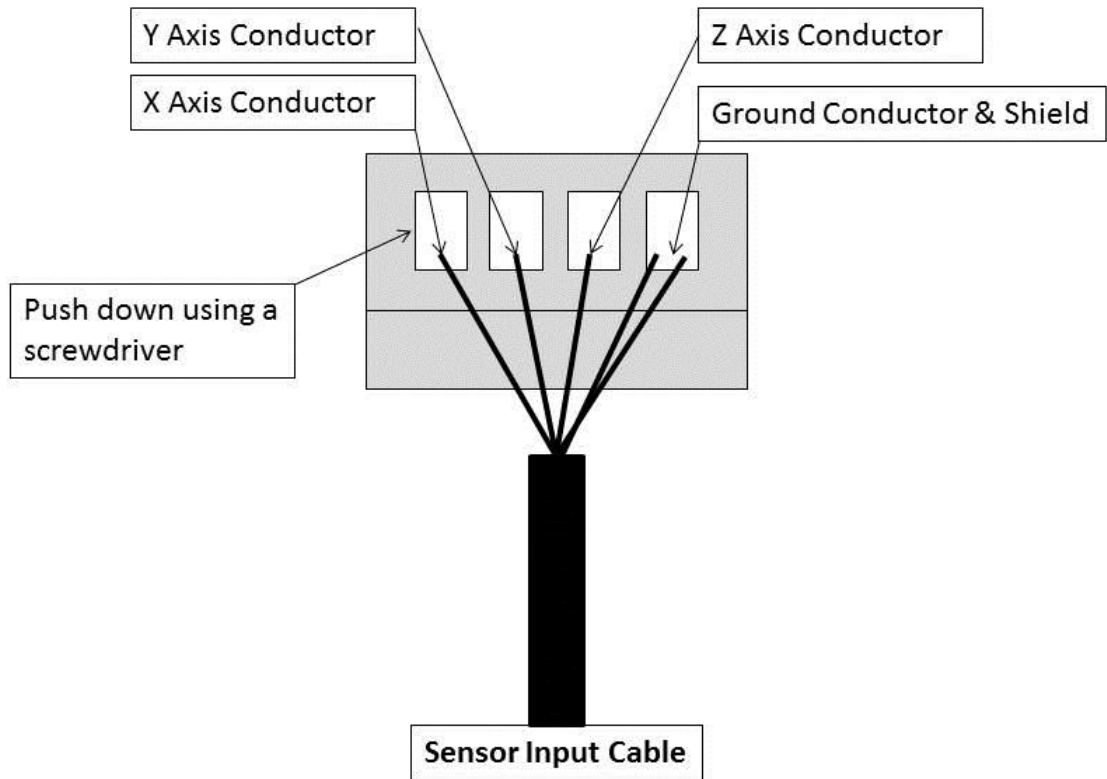


Figure 1 – Typical Input Channel Wiring (Continued)



**Calibration**

The termination boxes do not need any calibration. If there are any questions concerning these products, please contact the factory.

**Warning 1 – ESD Sensitivity**

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**The power supply/signal conditioner should not be opened by anyone other than qualified service personnel.** This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid injury.

**Warning 2 – ESD Sensitivity**

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This equipment is designed with user safety in mind; however, the protection provided by the equipment may be impaired if the equipment is used in a manner not specified by PCB Piezotronics, Inc.

**Caution 1 – ESD Sensitivity**

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**Cables can kill your equipment.** High voltage electrostatic discharge (ESD) can damage electrical devices. Similar to a capacitor, a cable can hold a charge caused by triboelectric transfer, such as that which occurs in the following:

- *Laying on and moving across a rug,*
- *Any movement through air,*
- *The action of rolling out a cable, and/or*
- *Contact with a non-grounded person.*

**The PCB solution for product safety:**

- *Connect the cables only with the AC power off.*
- *Temporarily “short” the end of the cable before attaching it to any signal input or output.*

**Caution 2 – ESD Sensitivity**

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**ESD considerations should be made prior to performing any internal adjustments on the equipment.** Any piece of electronic equipment is vulnerable to ESD when opened for adjustments. Internal adjustments should therefore be done ONLY at an ESD-safe work area. Many products have ESD protection, but the level of protection may be exceeded by extremely high voltage.

### **Warranty**

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IMI instrumentation is warranted against defective material and workmanship for 1 year unless otherwise expressly specified. Damage to instruments caused by incorrect power or misapplication, is not covered by warranty. *If there are any questions regarding power, intended application, or general usage, please consult with your local sales contact or distributor.* Batteries and other expendable hardware items are not covered by warranty.

### **Service**

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Because of the sophisticated nature of IMI instrumentation, field repair is typically **NOT** recommended and may void any warranty. If factory service is required, return the instrumentation according to the "Return Procedure" stated below. *A repair and/or replacement quotation will be provided prior to servicing at no charge.* Before returning the unit, please consult a factory IMI applications engineer concerning the situation as certain problems can often be corrected with simple on-site procedures.

### **Return Procedure**

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*To expedite returned instrumentation, contact a factory IMI applications engineer for a RETURN MATERIAL AUTHORIZATION (RMA) NUMBER.* Please have information available such as model and serial number. Also, to insure efficient service, *provide a written description of the symptoms and problems with the equipment to a local sales representative or distributor, or contact IMI if none are located in your area.*

Customers outside the U.S. should consult their local IMI distributor for information on returning equipment. For exceptions, please contact the International Sales department at IMI to request shipping instructions and an RMA. For assistance, please call (716) 684-0003, or fax us at (716) 684-3823. You may also receive assistance via e-mail at [imi@pcb.com](mailto:imi@pcb.com) or visit our web site at [www.pcb.com](http://www.pcb.com).

### **Customer Service**

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IMI, a division of PCB Piezotronics, guarantees **Total Customer Satisfaction**. If, at any time, for any reason, you are not completely satisfied with any IMI product, IMI will repair, replace, or exchange it at no charge. You may also choose, within the warranty period, to have your purchase price refunded.

IMI offers to all customers, at no charge, 24-hour phone support. This service makes product or application support available to our customers, day or night, seven days a week. When unforeseen problems or emergency situations arise, call the **IMI Hot Line at (716) 684-0003**, and an application specialist will assist you.



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**ICP® is a registered trademark of PCB Piezotronics, Incorporated,  
which uniquely identifies PCB sensors that incorporate built-in microelectronics.**

Model Number <b>691M156</b>	<h1>TERMINATION BOX</h1>			Revision: NR ECN #: 46608										
<b>Performance</b> Channels(Tri-Ax) <b>Environmental</b> Enclosure Rating <b>Physical</b> Electrical Connector(Input) Electrical Connector(Output) Cable Input Housing Material Size (Height x Width x Depth) Weight <i>All specifications are at room temperature unless otherwise specified.          In the interest of constant product improvement, we reserve the right to change specifications without notice.</i>	<u>ENGLISH</u> 1  Nema 4X  Terminal Block 4-Pin Bayonet PGME07 Fiberglass 4.33 in x 2.95 in x 2.16 in 1.1 lb	<u>SI</u> 1  IP66  Terminal Block 4-Pin Bayonet PGME07 Fiberglass 110 mm x 80 mm x 55 mm .50 kg	<p style="text-align: center;"><b>OPTIONAL VERSIONS</b></p> <p style="text-align: center;">Optional versions have identical specifications and accessories as listed for the standard model except where noted below. More than one option may be used.</p>											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Entered: LK</td> <td style="width: 15%;">Engineer: gs</td> <td style="width: 15%;">Sales: MC</td> <td style="width: 15%;">Approved: BAM</td> <td style="width: 40%;">Spec Number:</td> </tr> <tr> <td>Date: 6/30/2017</td> <td>Date: 6/30/2017</td> <td>Date: 6/30/2017</td> <td>Date: 6/30/2017</td> <td style="text-align: center;"><b>66863</b></td> </tr> </table>					Entered: LK	Engineer: gs	Sales: MC	Approved: BAM	Spec Number:	Date: 6/30/2017	Date: 6/30/2017	Date: 6/30/2017	Date: 6/30/2017	<b>66863</b>
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<table style="width: 100%;"> <tr> <td style="width: 60%; text-align: center;">   <b>IMI SENSORS</b>            A PCB PIEZOTRONICS DIV.            3425 Walden Avenue, Depew, NY 14043         </td> <td style="width: 40%; text-align: right;"> <b>Phone: 800-959-4464</b>  <b>Fax: 716-684-3823</b>  <b>E-Mail: imi@pcb.com</b> </td> </tr> </table>					 <b>IMI SENSORS</b> A PCB PIEZOTRONICS DIV. 3425 Walden Avenue, Depew, NY 14043	<b>Phone: 800-959-4464</b> <b>Fax: 716-684-3823</b> <b>E-Mail: imi@pcb.com</b>								
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2

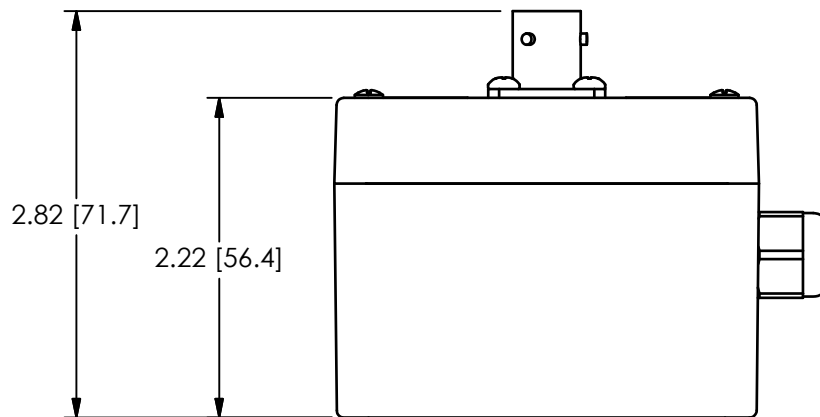
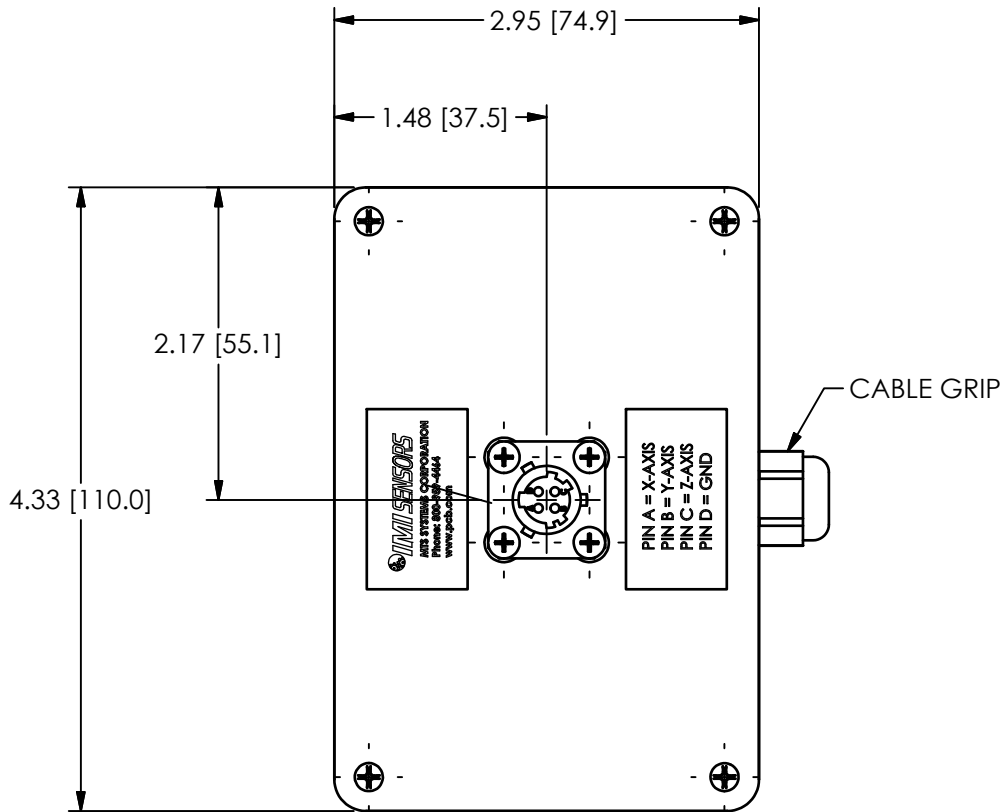
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REVISIONS

REV	DESCRIPTION	DIN
NR	RELEASED TO DRAFTING	46608

66864



UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DRAWN		CHECKED		ENGINEER	
KRM	6/30/17	JDM	6/30/17	GGG	6/30/17



3425 WALDEN AVE. DEPEW, NY 14043  
(716) 684-0001 E-MAIL: sales@pcb.com

CODE IDENT. NO. 52681	DWG. NO. 66864
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SCALE: .75X SHEET 1 OF 1

TITLE  
OUTLINE DRAWING  
MODEL 691M156  
BNC TERMINATION BOX

DIMENSIONS IN INCHES  
DECIMALS XX ±.03  
XXX ±.010  
ANGLES ± 2 DEGREES

DIMENSIONS IN MILLIMETERS [ IN BRACKETS ]  
DECIMALS X ± 0.8  
XX ± 0.25  
ANGLES ± 2 DEGREES

FILLETS AND RADII  
.003 - .005

FILLETS AND RADII  
0.07 - 0.13

2

1

B

B

A

A