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# INSTALLATION OPERATION & MAINTENANCE SHEET



## Series 8146/2

FRP Terminal Boxes  
For Intrinsically Safe Circuits

Please read this entire document before beginning any work.

### 1. Safety Instructions

Installation and maintenance of these terminal boxes should only be performed by skilled and experienced personnel in accordance with regulations which relate to explosive gas atmospheres or hazardous (classified) locations. The applicable codes for different areas are as follows:

United States	NEC NFPA 70 Article 504 or ISA-RP 12.6
Canada	CEC Part 1, Appendix F
IEC Countries	IEC 79-14

These terminal boxes are installed with blue terminals which clearly identify the I.S. circuits in order to prevent unintentional interference with non-intrinsically safe circuits during testing and service.

**CAUTION:**

- No conduit seals are required. Exception see NEC 504-70
- Use wiring methods for the location with the associate cable fittings or conduit hubs. Reference NEC, NFPA 70 Article 504-20.
- Keep enclosures clean and undamaged while in service.

### 2. Technical Data

**Suitable for:**

NEC & CEC Class I, II and III with I.S. circuits Zone 1 & 2 for which they have been approved.



II 2 G EEx ia/ib IIA, IIB, IIC T6  
PTB 01 ATEX 1016

**Environmental Protection:**

IP 66 / Type 3, 4, 4X (depending on entry type)

**Ambient Temperature:**

40°C (104°F) max. to -20°C (-5°F) min.

### 3. Directions for Installation

#### 3.1 Opening the enclosure

Fully loosen the cover screws using a screwdriver. Do not remove these captive screws from the cover.

#### 3.2 Enclosure Mounting

Mounting slots are provided in the enclosure which will accept up to 1/4" (6mm) screws. The mounting hole dimensions are molded on the back of the enclosure.

### 3.3 Electrical Installation

There are two types of installation methods: Conduit installation or cable installation.

If the enclosure is complete with entry hardware, proceed to section 4.

If the enclosure does not include entry hardware, install the appropriate hubs or cable connector that are for the application.

Proceed to section 3.4 and reference section 5.3 for accessories.

### 3.4 Installation of conduit hubs or cable connector

**CAUTION:**

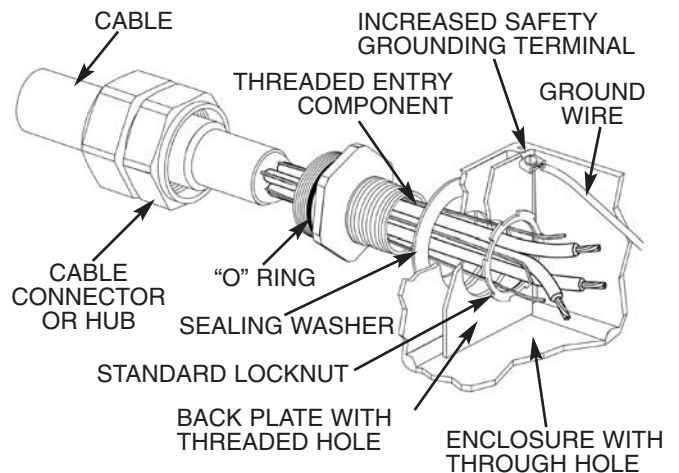
**FIELD INSTALLED OPENINGS:**

Drilling, milling or sanding these fiberglass reinforced polyester (FRP) enclosures is not recommended! For field-installed openings, use a hand punch or pneumatic type punch. Always wear safety glasses and protective clothing when working with fiberglass material. If fiber glass powder or particles contact the skin, flush the affected area with cool water, then wash with soap.

### 3.5 Conduit/Cable Installation

These non-metallic enclosures make it necessary for the metal cable connector and conduit hubs to be bonded to the ground system. This can be accomplished by installing them either to method 1 on page 1 or method 2 on page 2.

**Method 1:** Installation using a hole "through the enclosure" with a factory installed metal plate with a threaded opening and increased safety ground terminal.

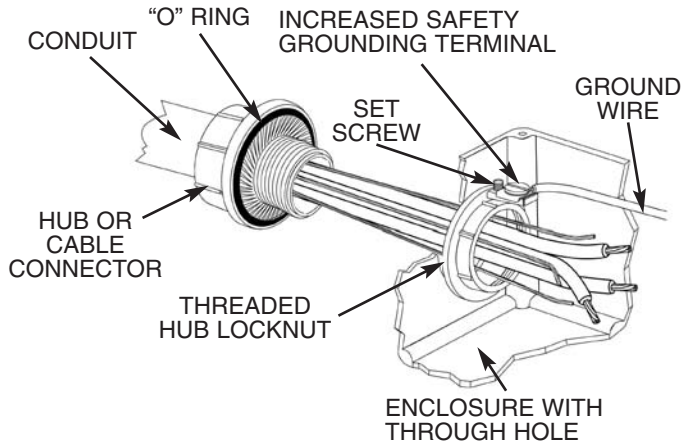


Metal Plate(s) must be connected to internal grounding system using jumper wires.



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**Method 2:** Installation using a hole "through the enclosure" with a grounding locknut instead of a metal backplate.



These locknuts must be bonded between each other and to the grounding system using a jumper wire. After the entry hardware is installed connect the appropriate conduit or cable.

**Note:**

All unused enclosure openings must be closed using approved close-up plugs with standard locknuts. (see section 5.3.2 for NPT close-up plugs).

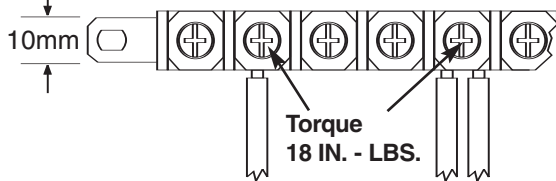
## 4. Wiring

**IMPORTANT:** When connecting conductors:

- Strip the wire so that the insulation covers the wire up to the terminal.
- Make sure that all wires are connected to the correct terminals.

### 4.1 P04 Bar for solid and stranded wire 16-10 AWG

One or two conductors can be terminated as shown. When connecting two conductors under the same terminal, it is mandatory that both conductors be identical. They must both be solid or stranded, and must be the same size and type. It is important to torque all terminal screws, including unused to 18 in. - lbs.



### 4.2 Closing the Enclosure Cover

Before closing the cover, ensure that:

- The cover, gasket and mating surface is clear of debris.
- The cover is oriented correctly.

Place the cover on the enclosure and then tighten all screws.

**Note:**

The nature of these instructions is only informative and does not cover all of the details, variations or combinations in which this equipment may be used, its storage, delivery, installation, safe operation and maintenance. Since conditions of use of the product are outside of the care, custody and control of the manufacturer, the purchaser should determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith.

## 5. Maintenance

### 5.1. Cleaning

Use only a damp cloth to clean the enclosure. A solvent-free household detergent can be added to the cleaning water.

### 5.2. Repairs and Maintenance

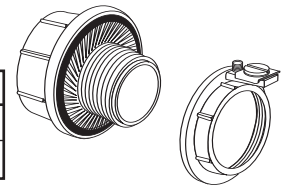
Only authorized and trained personnel should perform repairs and maintenance work on hazardous location equipment.

### 5.3. Accessories

Use only the following accessories.

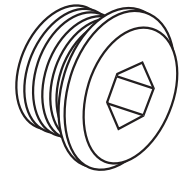
#### 5.3.1 Conduit Hubs with Ground Terminal

Size	Ordering Code
1/2"	8166/11 01-NE
3/4"	8166/11-02-NE



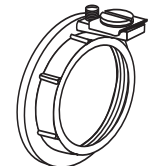
#### 5.3.2 NPT Close-up Plugs AEx e

Size	Ordering Code
1/2"	PD-E-4-0-29-00
3/4"	PD-E-4-0-30-00



#### 5.3.3 Cable Connector Locknuts AEx e with Ground Terminal

Size	Ordering Code
1/2"	8166/11-01-E
3/4"	8166/11-02-E
1"	8166/11-03-E
1-1/4"	8166/11-04-E
1-1/2"	8166/11-05-E
2"	8166/11-06-E
2-1/2"	8166/11-07-E
3	8166/11-08-E



#### 5.3.4 Cable Connectors and Sealing Rings

Size	MCR Series Connector Ordering Code	Sealing Ring Ordering Code
1/2"	MCR050	NCS1
3/4"	MCR075	NCS2
1"	MCR100	NCS3
1-1/4"	MCR125	NCS4
1-1/2"	MCR150	NCS5
2"	MCR20S or MCR200	NCS6
2-1/2"	MCR250	NCS7
3	MCR300	NCS8

