

## TX-I/O Power Supply and Bus Modules

### Product Description

The TX-I/O™ product range includes Power Supply, Bus Connection, and Island Bus Expansion modules.

### Power Supply Module

The TX-I/O Power Supply bridges communication and power from one DIN rail to another and generates 28.8 W (1.2A at 24 Vdc) to power TX-I/O modules and peripheral devices.

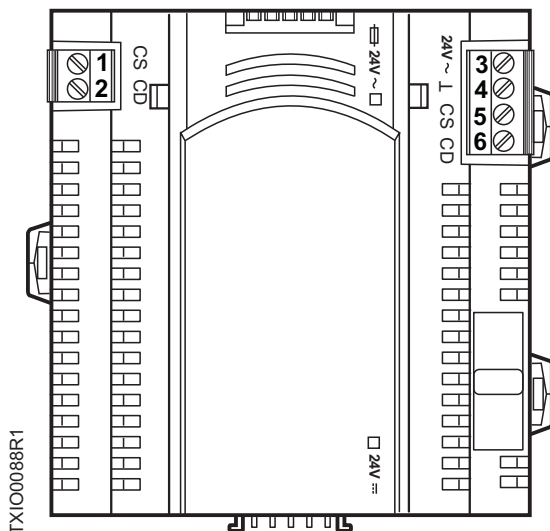


Figure 1. Power Supply Module.

### Bus Connection Module

The Bus Connection Module bridges communication and power from one DIN rail to another. It provides the bus signal, module supply voltage, and field device supply voltage to TX-I/O modules on an additional DIN.

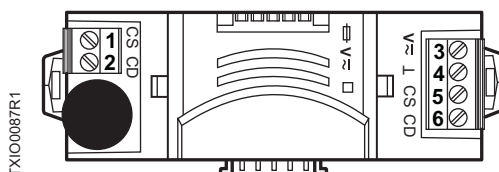


Figure 2. Bus Connection Module.

### Island Bus Expansion Module

The TX-I/O Island Bus Expansion (IBE) module increases the distance between the primary field panel enclosure and expansion field panel enclosures on the island bus. Each IBE supports two segments of up to 200 ft (50 m) each.

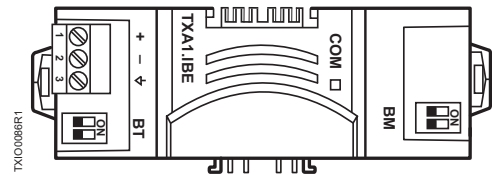


Figure 3. Island Bus Expansion Module.

### Product Numbers

|           |  |
|-----------|--|
| TXS1.12F4 | TX-I/O Power Supply                      |
| TXS1.EF4  | Bus Connection Module                    |
| TXA1.IBE  | Expansion module with RS-485 connection. |

### Warning/Caution Notation

|                 |  |   |
|-----------------|--|---|
| <b>WARNING</b>  |  | Personal injury or property damage may occur if you do not follow a procedure as specified. |
| <b>CAUTION:</b> |  | Equipment damage or loss of data may occur if you do not follow a procedure as specified.   |

### Required Tools and Materials

- Wire stripper/side cutter
- Small flat-blade screwdriver
- Digital multimeter (DMM)

### Expected Installation Time

7 minutes

## Prerequisites



### CAUTION:

No power wiring is connected to the field panel controller or other TX-I/O components at this time.



### CAUTION:

The TX-I/O island bus must be mounted on a DIN rail (1.38" x 0.3" x 0.04" (35 mm x 7.5 mm x 1 mm)).

- For energy management installations, NEMA Type 1 or better enclosure with DIN rails and source of 24 Vac.
- For smoke control installations, PX Series enclosures and service boxes. See the *PX Series Service Box Installation Instructions* (553-131).
- TX-I/O™ Power Supply or Bus Connection Module.
- If mounting in an enclosure:
  - Enclosure is installed.
  - The power source is installed, as applicable.
  - The power is OFF.
- All necessary wiring is pulled and terminated per the layout drawing.
- Power and communication wiring is terminated to the removable plugs supplied with the devices.

## Power Requirements

1. One of the following power sources is pulled to the enclosure:
  - 120 Vac, 60 Hz and terminated at the 115V PX Series Service Box.
  - 230 Vac, 50/60 Hz and terminated at the 230V PX Series Service Box.
  - 24 Vac, 50/60 Hz Class 1 power limited from a third-party transformer and connected to a terminal block.
2. If powering a TX-I/O expansion panel, power wiring is run from the transformer in the primary panel to the expansion panel, if needed.



### CAUTION:

For information on extending the TX-I/O island bus outside the enclosure, see the *APOGEE Wiring Guidelines for Field Panels and Equipment Controllers* (125-3002).

**NOTE:** Depending on the module types and point configurations used, one service box transformer may have insufficient power for more than two TX-I/O Power Supplies. More power may be required if using a Modular Series with the maximum number of TX-I/O modules.

## General Installation Requirements



### CAUTION:

All devices not isolated by a Trunk Isolator/Extender (TIE) or isolation transformer must be connected to the same grounding point.



### CAUTION:

Do not connect TX-I/O components to a floating system neutral. Otherwise, equipment damage will occur.

- System Neutral (⌚) must be continuous throughout the TX-I/O Bus.
- System Neutral must be connected to building approved earth-ground (⌚) at a single point only at the 24 Vac transformer.

## Installation



### WARNING:

Turn OFF AC power at the ON/OFF switch in the Service Box or transformer enclosure.



### CAUTION:

UL Listings require NEC Class I and Class II wiring be kept separate from each other. Use separate conduit and cable tie bars to separate Class I Digital Output (DO) wires from all other Class II wiring.



### CAUTION:

The TX-I/O™ island bus must extend from the male bus connector of the TX-I/O Power Supply or Bus Connection Module.

- The TX-I/O Power Supply and Bus Connection Module only supply 24 Vac to I/O modules on the male bus connector.
- I/O modules on the female bus connector of the TX-I/O Power Supply or Bus Connection Module do not receive power and have a fault condition.



### CAUTION:

Only insert or remove the field panel controller, TX-I/O Power Supply, and Bus Connection Module when the power is OFF.



This device includes electrical and electronic components and must not be disposed of as domestic waste. Product recovery and disposal must comply with all national and local regulations.

## Basic Steps for Connecting Devices to the DIN Rail

The island bus establishes its own connection when TX-I/O™ devices are plugged into one another on a DIN rail.

1. Slide out the mounting tabs.
2. Align the channel on the back of the device with the DIN rail.

3. Using a flat blade screwdriver, push in each mounting tab until it clips onto the DIN rail.
4. Align an I/O module with the Power Supply or Bus Connection Module, and slide the I/O module down over the TX-I/O island bus connector.
5. Push in each mounting tab until it clips onto the DIN rail.

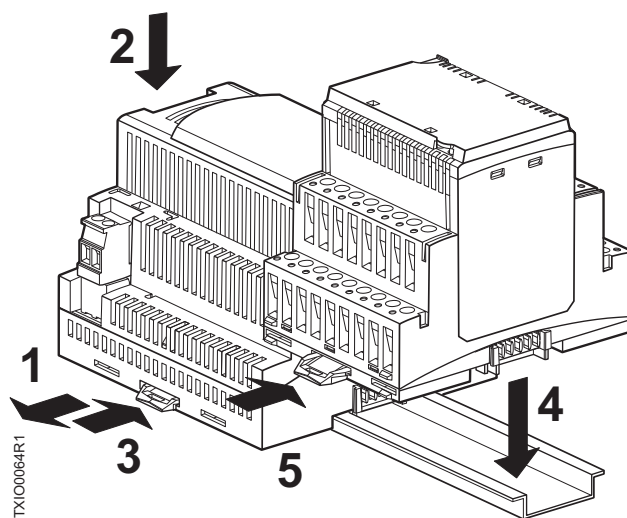


Figure 3. Connecting Devices to the TX-I/O Island Bus.

## Completing the Installation



### CAUTION:

For RS-485 ALN or FLN, terminate only one end of the shield wire on the enclosure earth ground.

For a 3-wire system, ↓ terminal is connected to reference wire. Protective ground terminal may be connected to earth ground.

For a 2-wire system, ↓ terminal is not connected. Protective ground terminal must be connected to earth ground.

**NOTE:** Do not connect the power or network communication cable until instructed to do so during start-up.

1. Terminate power wiring to the 24 Vac removable plug.
2. If necessary, terminate wires to the communications terminals (CS and CD).

The installation is now complete.

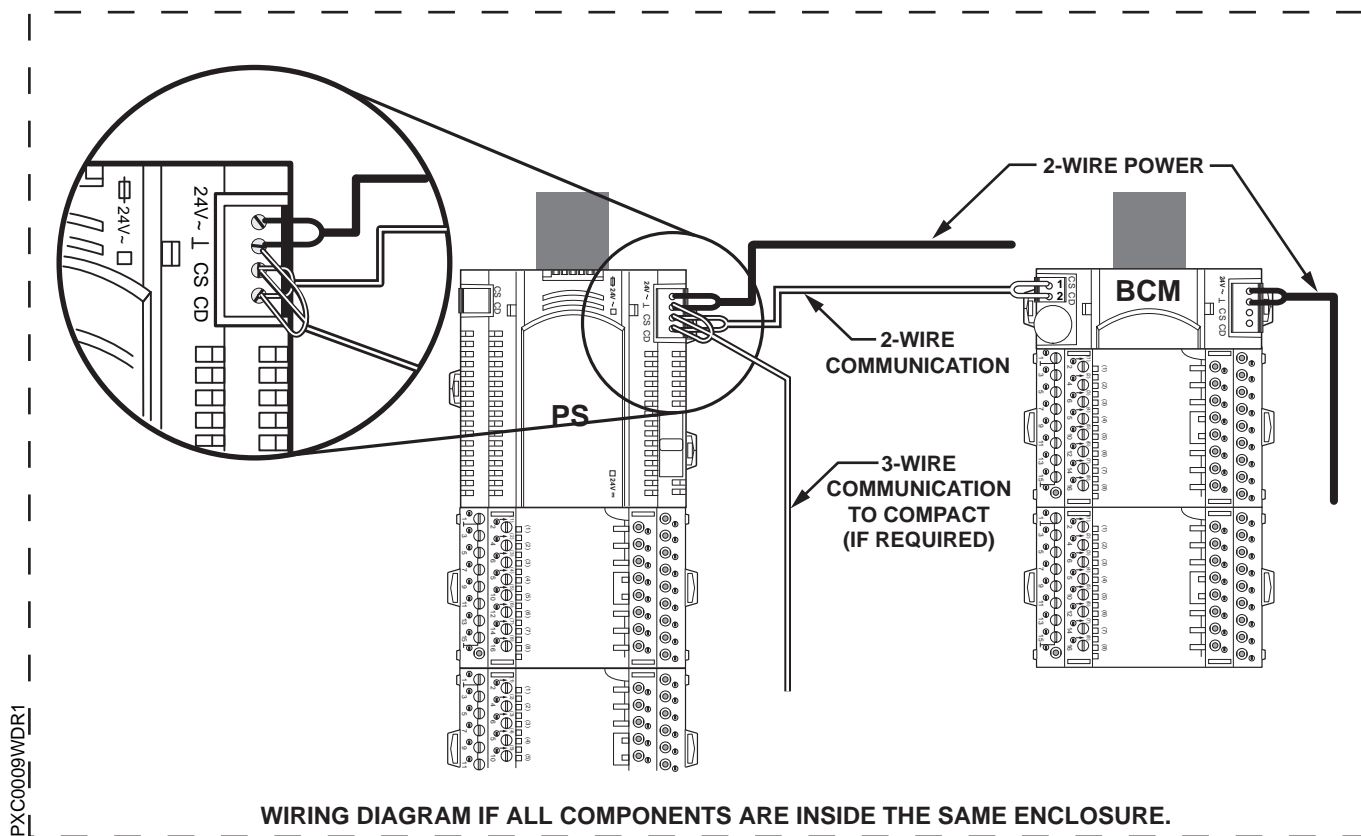


Figure 5. TX-I/O Power Supply to Bus Connection Module Wiring.

Information in this document is based on specifications believed correct at the time of publication. The right is reserved to make changes as design improvements are introduced. APOGEE and Insight® are registered trademarks of Siemens Industry, Inc. Other product or company names mentioned herein may be the trademarks of their respective owners. © 2010 Siemens Industry, Inc.

**Siemens Industry, Inc.**  
 Building Technologies Division  
 1000 Deerfield Parkway  
 Buffalo Grove, IL 60089-4513  
 U.S.A

Your feedback is important to us. If you have comments about this document, please send them to [SBT\\_technical.editor.us.sbt@siemens.com](mailto:SBT_technical.editor.us.sbt@siemens.com).

Document No.  
 Printed in the USA  
**Page 4 of 4**