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Find the *National Instruments FP-1600* at our website: *Click HERE*

OPERATING INSTRUCTIONS

FP-1600

FieldPoint 10/100 Ethernet Network Module

These operating instructions describe the installation, features, and characteristics of the FP-1600. For more detailed information on using the network module, refer to the FP-1600 user manual.

Features

The FP-1600 is a FieldPoint network module with the following features:

- Autonegotiating 10/100 Ethernet network interface
- Built-in high efficiency power supply powers I/O modules
- Network watchdog timer
- SnapShot capability and programmable power-up state
- –40 to +55 °C operation
- Connects to an Ethernet network using the TCP/IP protocol
- Supports up to nine I/O modules
- Runs on 11 to 30 VDC power

Kit Contents and Optional Equipment

Your kit contains the following items:

- FP-1600 network module
- Accessories: protective connector cover, two DIN rail stops, Device Description diskette

You can order the following optional equipment from National Instruments:

- Panel mount accessory, part number 777609-01

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- Terminal bases and I/O modules, complete list of terminal bases and I/O modules in the National Instruments online catalog at `www.natinst.com`
- Cables
- 24 VDC power supply

Installation

Caution To avoid damaging the FP-1600 and the terminal bases, make sure that power is not applied to the FP-1600 while you install or remove terminal bases.

Follow these steps to install the FP-1600:

1. Use a flat-bladed screwdriver to open the DIN rail clip to the unlocked position, as shown in Figure 1.

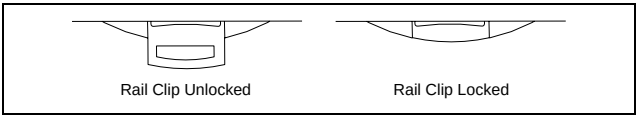


Figure 1. DIN Rail Clip

Note Write down the serial number from the back of your FP-1600 before you mount your FP-1600. You will need this information when you configure the FP-1600.

2. Mount the FP-1600 onto a 35 mm DIN rail or onto a panel mount accessory.
   - Installing onto a DIN rail:
     a. Hook the lip on the rear of the FP-1600 onto the top of a 35 mm DIN rail and press the FP-1600 down onto the DIN rail, as shown in Figure 2.

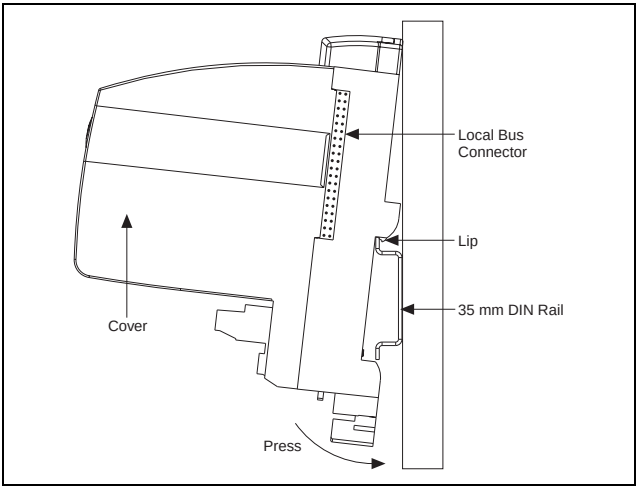


Figure 2. Mounting the FP-1600 onto a DIN Rail

b. Slide the FP-1600 to the desired position along the DIN rail.

c. Lock the FP-1600 to the DIN rail by pushing the rail clip to the locked position.

- Installing onto a panel mount accessory, which you can order separately from National Instruments:

  a. Snap the panel mount accessory onto the module, as shown in Figure 3.

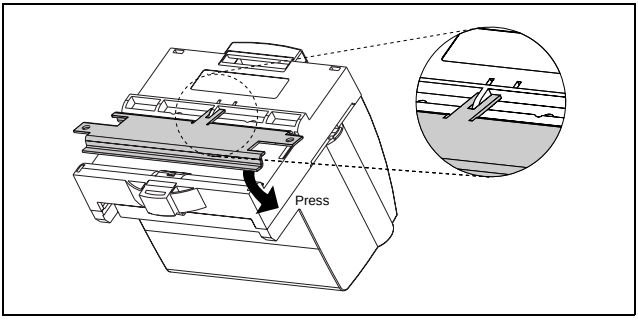


Figure 3. Mounting the FP-1600 onto a Panel Mount Accessory

b. Lock the panel mount accessory into place by pushing the rail clip to the locked position.

c. Mount the FP-1600 and panel mount accessory onto the desired surface. You can drill pilot holes using the directions in the *FieldPoint Network Module Panel Mount Accessory* installation guide.

3. Add terminal bases with their local bus connectors firmly mated to the FP-1600 local bus connector.
4. Place the protective cover over the local bus connector of the last terminal base in the bank. Figure 4 shows an installed FP-1600 network module on a DIN rail.

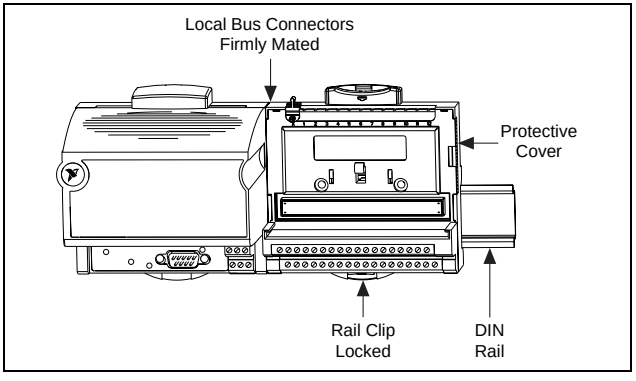


Figure 4. Installed Network Module

Network Connection

Connect the FP-1600 to an Ethernet network using the RJ-45 Ethernet port on the FP-1600. Connect the RJ-45 Ethernet port of the FP-1600 to an Ethernet hub using a standard Category 5 Ethernet cable. You can also connect an FP-1600 directly to a computer using an Ethernet crossover cable. Do not use a cable longer than 100 m. Figure 5 shows the power and Ethernet connectors on the FP-1600.

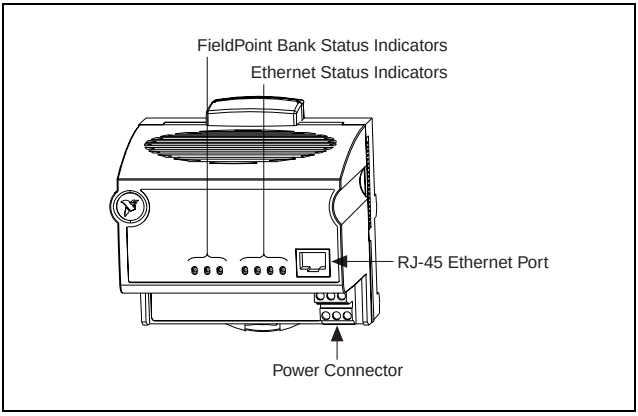


Figure 5. Power and Ethernet Connectors on the FP-1600

Cabling

If you need to build your own cables, the following table shows the standard ethernet cable wiring connections for both normal and crossover cables.

Table 1. Ethernet Cable Wiring Connections

Pin	Connector 1	Connector 2 (Normal)	Connector 2 (Crossover)
1	white/orange	white/orange	white/green
2	orange/white	orange/white	green/white
3	white/green	white/green	white/orange
4	blue/white	blue/white	blue/white
5	white/blue	white/blue	white/blue
6	green/white	green/white	orange/white
7	white/brown	white/brown	white/brown
8	brown/white	brown/white	brown/white

Figure 6 shows the connector pinouts for FieldPoint Ethernet cables.

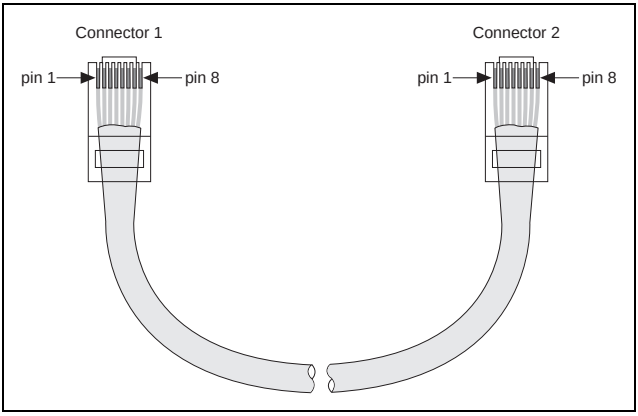


Figure 6. Ethernet Cable

Powering the FP-1600

Caution Connect the FP-1600 to the terminal base before applying power to the FP-1600 to avoid damaging the FP-1600 or a terminal base.

Each FP-1600 on your network requires an 11–30 VDC power supply. The FP-1600 filters and regulates this supplied power and provides power for all the I/O modules in the bank. Therefore, you do not need to provide power separately to each FieldPoint I/O module in the bank. If your field I/O devices need to be powered separately, you can use the terminals provided on each terminal base for such power supply connections.

The power connector is a 6-pin screw terminal connector whose pinout is shown in Figure 7.

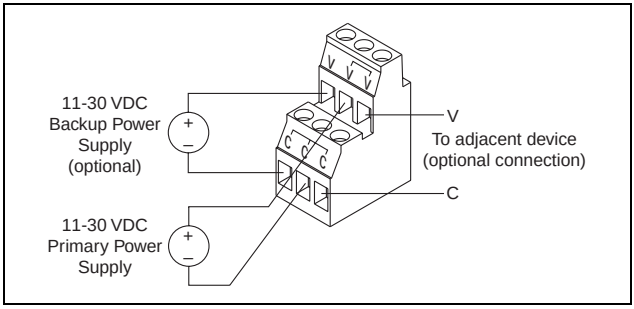


Figure 7. FP-1600 Power Connector Pinout

Connect the primary power supply to the center V and C pair. You can connect an optional backup power supply to the left V and C pair. The right V and C pair provides a convenient means of connecting power to the V and C terminals of a terminal base. Figure 7 shows this optional connection.

Specifications

Network interface	10BaseT and 100BaseTX Ethernet
Compatibility	IEEE 802.3
Communications rate	10 Mbps, 100 Mbps, autonegotiated
Cabling distance	100 m
Power supply range	11 to 30 VDC
Power consumption	7 W + 1.15 * ∑(I/O module power requirements)
Maximum terminal bases per bank	9
Maximum number of banks	determined by network topology
Operating temperature	–40 to +55 °C
Storage temperature	–55 to +85 °C
Relative humidity	5% to 90% non-condensing
Weight	250 g (8.7 oz.)

Compliance

Electrical safety ..... designed to meet IEC 1010

EMI emissions/immunity..... CISPR 11

CE Mark Compliance

This product meets applicable EU directive(s) as follows:

EMC directive

Immunity ..... EN 50082–1:1994

Emissions ..... EN 55011:1991 Group I
Class A at 10 meters

Mechanical Dimensions

Figure 8 shows the mechanical dimensions of the FP-1600. Dimensions are given in inches [millimeters].

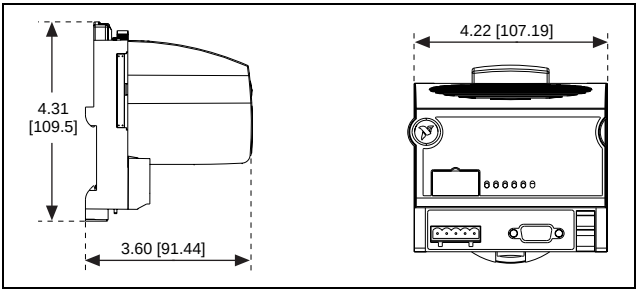


Figure 8. Mechanical Dimensions

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