FieldPoint™

FP-1300 FieldPoint Quick Start Guide

What You Need
to Get Set Up

- FP-1300 network module
- DIN rail mounting hardware
- Terminal base(s) and I/O module(s)
- 10–30 VDC power supply to power the CAN bus
- 11–30 VDC power supply to power the FieldPoint bus

- Accessories: shielded twisted-pair cable, Combicon-style connector, flathead screwdriver
- Optional accessories: two 120 Ω resistors
- Installed and configured NI-CAN card

1 **Install the Network Module**

Mount the module on a DIN rail.

A. Unlock rail clip.
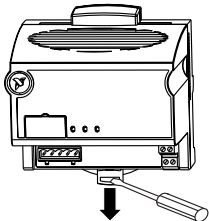
NOTE Do not use spliced DIN rails. Use only a single DIN rail.

B. Hook lip on back of module onto top of DIN rail, press down, and snap into place.
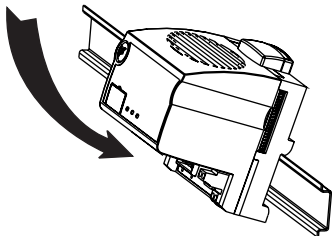
C. Slide module into position and lock rail clip.
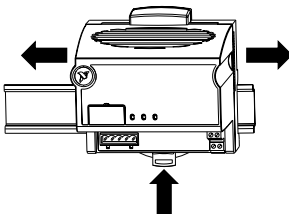
2 **Install the Terminal Base(s)**

⚠ **CAUTION** Connect the terminal bases to the network module before applying power to the module. Do not connect or disconnect terminal bases while power is applied to the network module.

A. Unlock rail clip.
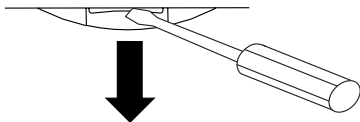
B. Press base onto rail.
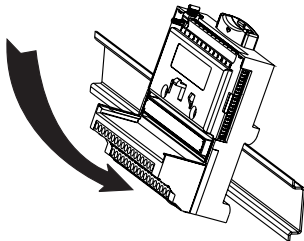
C. Slide into position and lock the rail clip. Be careful not to bend any pins.
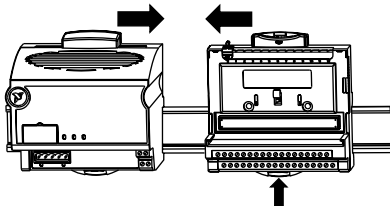
D. Repeat for each terminal base, up to nine for each network module in most cases. You can use one or two extender cables (which you can order separately) if the FieldPoint bank is too long for the available space.

E. Place protective cover on last base, and install rail locks at each end.
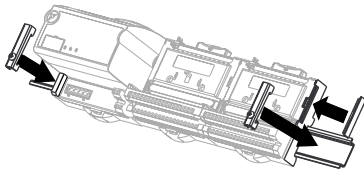
3 **Install the I/O Module(s)**

It does not matter where you install each I/O module, except in the following cases:

• If you plan to cascade power between any I/O modules using the V and C terminals, those modules should be grouped together.

⚠ **CAUTION** Cascading power defeats isolation.

• For more accurate measurements, place thermocouple modules away from heat sources, including network modules or relay modules.

A. Align slots on the module with the guide rails on the base, and press the module onto base until the terminal base latch locks the module in place.

B. Repeat for each I/O module.
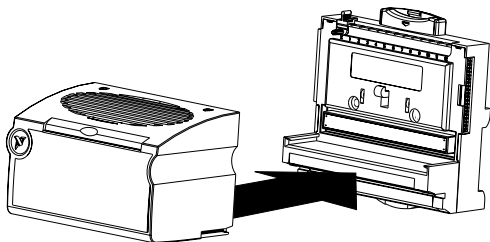
4 **Configure the Arbitration ID**

The FP-1300 ships with the standard base arbitration ID 0x0. The FP-1300 sequentially allocates the I/O channel arbitration IDs from the base arbitration ID of the FP-1300. If you are not using the FP-1300 software and need to configure a different base arbitration ID, use the DIP switches on the FP-1300 module. For more information about using DIP switches to configure the arbitration ID, refer to the *FP-1300 User Manual.*

5 **Connect the FP-1300 to the CAN Network**

⚠ **CAUTION** Before you connect the FP-1300 to a CAN network, make sure the baud rates of the FP-1300 and the CAN network are the same. The default baud rate of the FP-1300 is 500 Kbps. If you are configuring the FP-1300 for the first time and the CAN network is operating at a baud rate other than 500 Kbps, configure the FP-1300 to operate at the appropriate baud rate before you install it on the CAN network. If you do not, CAN network errors can occur, and other CAN devices on the network can go into an error state. For more information, refer to the *Configuring the Baud Rate* section of the *FP-1300 Configuration Utility Help.*

Connecting the CAN Cable to the FP-1300

To connect an FP-1300 bank to the CAN network, complete the following steps.

A. Plug the Combicon-style connector into the CAN port.

B. Connect a shielded twisted-pair cable to the C_H and C_L terminals. Connect the shield of this cable to the SH terminal. Refer to ISO 11898-2 for the maximum cable length between the FP-1300 and the CAN network. C_H and C_L carry the data on the CAN network. For noise immunity, solidly ground the shield of the cable as closely as possible to the FP-1300.

C. Connect a 10–30 VDC power supply to the V+ and V– terminals. V+ and V– supply power to the CAN transceivers on the FP-1300.

D. Connect the other end of the CAN cable to a connector on the CAN network.

Terminating the CAN Network

If you connect the FP-1300 to a multiple-device CAN network that is already terminated, go to the *Wire Power to the FieldPoint System* section next. If you connect the FP-1300 to a single-device CAN network, you need to terminate the network. To terminate the CAN network, follow these steps:

A. Install a 120 Ω resistor between the C_H and C_L terminals on the FP-1300. The typical resistance is 120 Ω. The maximum resistance is 130 Ω. The minimum allowable resistance is 100 Ω.

> **NOTE** The Combicon-style connector and the CAN cable must have a nominal impedance of 120 Ω. For more information, refer to ISO 11898-2.

B. Install another 120 Ω resistor at the other end of the CAN cable between the C_H and C_L terminals.

When you terminate the CAN network, the effective resistance between C_H and C_L is 60 Ω.

6 **Wire Power to the FieldPoint System**

A. Connect 11–30 VDC power supply leads to either set of the V and C terminals on the network module. If you want to verify that the power supply is sufficient for the modules and devices, refer to the FieldPoint hardware documents for instructions on calculating power requirements.

B. Connect power to the FieldPoint modules that require external power for outputs (output modules, counter modules, PWM, PG, QUAD). Refer to the I/O module operating instructions for power consumption details. You can power a module by connecting the V and C inputs on its terminal base to a separate power supply, connecting the V and C outputs of a neighboring terminal base or network module, or using a combination of both methods.

⚠ **CAUTION** Cascading power defeats isolation between the cascaded modules.

⚠ **CAUTION** Cascading power from neighboring bases or network modules defeats isolation between cascaded modules.

Separate Power Supply
(Recommended)

Cascaded Power
(Eliminates Isolation)

No External
Power Required

FP-1300   FP-AI-110   FP-AO-200   FP-RLY-420   FP-TC-120

Shades of gray indicate different voltage potentials.

⚠ **CAUTION** Cascading power defeats isolation.

15 16 V   V 1 2 3
31 32 C   C 17 18
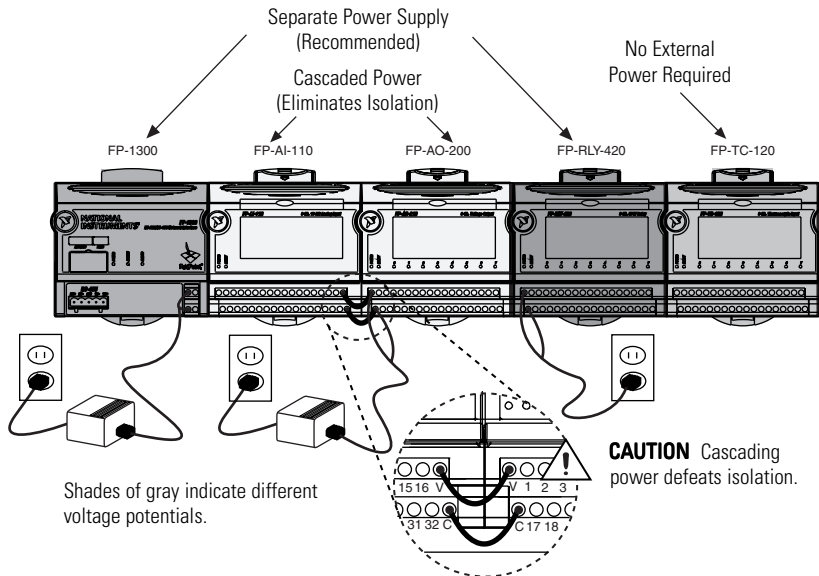
7 **Connect to Field Devices**

Refer to the operating instructions for each I/O module or the diagram under the module label for help in connecting field devices.

NOTE Either the self-powered sensor or the power supply should be floating (not connected to earth ground).

8 **Power On the FieldPoint System**

⚠️ **CAUTION** Terminal bases must be connected to the FP-1300 before power is applied to the FP-1300.

Plug in each power supply to the FieldPoint bank. You should see the FP-1300 **POWER** LED turn on. After about 5 seconds, the **MODULE STATUS** and **CAN STATUS** LEDs flash green, then red, and then turn solid green, indicating that the FP-1300 is transmitting messages. In default mode, the FP-1300 transmits CAN messages at a periodic rate of 500 ms. If the LEDs do not follow this sequence, refer to the *FP-1300 User Manual* for troubleshooting instructions.
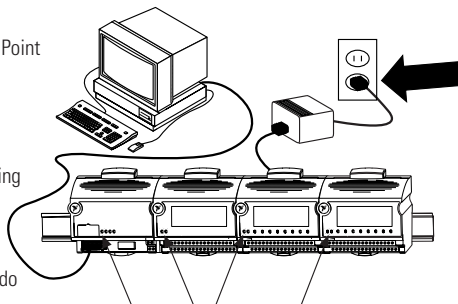
POWER and READY LEDs Stay Lit

📝 **NOTE** The module status LED may blink red if the saved I/O configuration does not match the modules currently connected to the FP-1300.

After the hardware is installed, you should verify communication, configure the modules, configure the power-up states and watchdog settings, and configure the CAN messages.

📝 **NOTE** If you are not using an NI-CAN card when configuring the FP-1300, you cannot use the FP-1300 software and the installation is complete.

9 Install the FP-1300 Software

The host computer must be running Windows 2000/NT/XP/Me/9*x*. Windows NT must be version 4.0 service pack 3.0 or later. Follow these steps to install the FP-1300 software on the host computer:

A. Close all other applications.

B. Insert the FP-1300 Software CD into the CD-ROM drive on the host computer.

Follow the onscreen instructions to complete the installation.
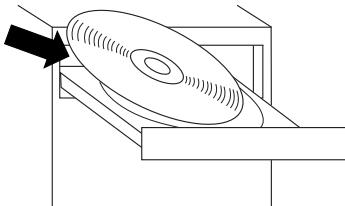
NOTE If the setup does not launch automatically, select **Start»Run** from Windows, enter **x:\setup,** where **x** is the letter of the CD-ROM drive, and select **OK.**

NOTE The FP-1300 software requires NI-CAN 2.0 (for configuration) which is included on the CD and is installed during the installation process.

10 **Configure the FP-1300 Using the FP-1300 Software**

Follow these steps to configure the FP-1300 using the FP-1300 software.

A. Select **Start»Programs»National Instruments»Measurement & Automation** to launch MAX.

B. In the MAX configuration tree, right-click the CAN port to which the FP-1300 connects and select **FP-1300 Config**.

Refer to the *FP-1300 Configuration Utility Help* and complete the following steps:

A. Configure the baud rate.

B. Configure the arbitration ID.

C. Configure the I/O module attributes and settings.

D. Configure the CAN messages.

E. Save the configuration.

11 **Where to Go from Here**

Refer to the *FP-1300 User Manual* and *FP-1300 Configuration Utility Help* for information about features, configuration, and troubleshooting. You can find the *FP-1300 User Manual* and online help on the FP-1300 Software CD.

FP-1300 LED Indications

LED	Solid Green	Flashing Green	Solid Red	Flashing Red
POWER	Power is applied to the FP-1300.	—	—	—
MODULE STATUS	The FP-1300 is operating normally.	I/O data has stopped because the FP-1300 is communicating with the configuration utility.	The FP-1300 has had an unrecoverable fault. Cycle the power.	The FP-1300 has had a recoverable fault. Try using the FP-1300 configuration utility to resolve the issue.
CAN STATUS	The CAN bus is operating normally.	—	There is an error on the CAN bus and the CAN communication has stopped.	There is a message overflow on the FP-1300 CAN controller. In the configuration utility, select **Reset»Cycle Power.**

NOTE Refer to the *FP-1300 User Manual* for more information on the FP-1300 LED indicators.

FP-1300 Specifications

Installation

Terminal wiring.	16–26 AWG copper conductor wire with 7 mm (0.275 in.) strip length
Torque for screw terminals	0.5–0.6 N • m (4.4–5.3 lb • in.)

Network

Network interface.	CAN
Compatibility	ISO 11898
Communication rates	Up to 1 Mbps
Maximum cabling distance at 1 Mbps	See ISO 11898-2
CAN bus power supply range	10 to 30 VDC
CAN bus power consumption	
Typical.	0.72 W (30 mA at 24 VDC)
Maximum	3 W
CAN bus isolation.	250 V_{rms} operational, 2,500 V_{rms} breakdown
FieldPoint bank power supply range . . .	11 to 30 VDC
FieldPoint bank power consumption . . .	1 W + 1.1 (Total power consumption of all I/O modules)
Maximum terminal bases per bank. . . .	9
Maximum number of banks	Determined by network topology
Weight	254 g (8.96 oz)

Isolation Voltage

For isolation voltage ratings, refer to the I/O module specifications and labels.

Environmental

FieldPoint modules are intended for indoor use only. For outdoor use, FieldPoint modules must be mounted inside a sealed enclosure.

Operating temperature	–40 to 70 °C
Storage temperature.	–55 to 85 °C
Humidity	10 to 90% RH, noncondensing

Maximum altitude . . . . 2,000 m; at higher altitudes the isolation voltage ratings must be lowered

Pollution Degree. 2

Safety

The FP-1300 is designed to meet the requirements of the following standards for safety and electrical equipment for measurement, control, and laboratory use:

• EN 61010-1, IEC 61010-1
• UL 3121-1

NOTE For UL and other safety certifications, refer to the product label or ni.com.

• CAN/CSA C22.2 No. 1010.1

Electromagnetic Compatibility

CE, C-Tick and FCC Part 15 (Class A) compliant

Emissions . . . . EN 55011, Class A @ 10 m

FCC Part 15A above 1 GHz

NOTE For EMC compliance, operate this device with shielded cabling.

Immunity. . . . . EN 61326-1:1997 + A1:1998, Table 1

CE Compliance

The FP-1300 meets the following essential requirements of applicable European Directives as amended for CE Marking:

Low-Voltage Directive (safety) 73/23/EEC
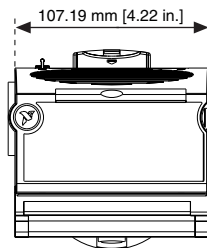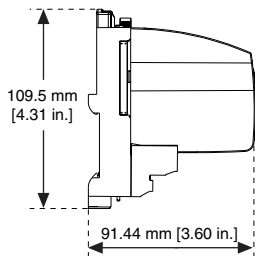
Electromagnetic Compatibility

Directive (EMC). 89/336/EEC

NOTE Refer to the Declaration of Conformity (DoC) for any additional compliance information. To obtain the DoC for an NI product, click **Declarations of Conformity Information** at ni.com/hardref.nsf/.

Mechanical Dimensions

NATIONAL INSTRUMENTS™

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Australia 61 2 9672 8846, Austria 43 0 662 45 79 90 0, Belgium 32 0 2 757 00 20, Brazil 55 11 3262 3599,
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China 86 21 6555 7838, Czech Republic 42 02 2423 5774, Denmark 45 45 76 26 00, Finland 385 0 9 725 725 11,
France 33 0 1 48 14 24 24, Germany 49 0 89 741 31 30, Greece 30 2 10 42 96 427, Hong Kong 2645 3186,
India 91 80 4190000, Israel 972 0 3 6393737, Italy 39 02 413091, Japan 81 3 5472 2970, Korea 82 02 3451 3400,
Malaysia 603 9059 6711, Mexico 001 800 010 0793, Netherlands 31 0 348 433 466, New Zealand 64 09 914 0488,
Norway 47 0 32 27 73 00, Poland 48 0 22 3390 150, Portugal 351 210 311 210, Russia 7 095 238 7139,
Singapore 65 6 226 5886, Slovenia 386 3 425 4200, South Africa 27 0 11 805 8197, Spain 34 91 640 0085, Sweden
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323250B-01   Dec02