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**FP-AO-200**

## FP-20xx FieldPoint Quick Start Guide

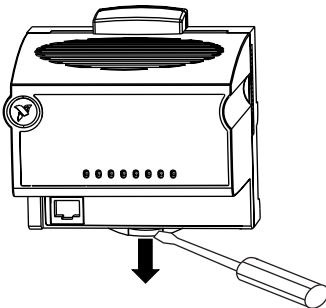
### **What You Need to Get Set Up**

- FP-20xx LabVIEW RT controller
- 35 mm DIN rail
- Two DIN rail locks (included)
- Terminal base(s)
- I/O module(s)
- 11–30 VDC power supply
- Accessories: Ethernet cable, flathead screwdriver
- PC running Windows
- National Instruments FieldPoint Software CD
- LabVIEW RT

### **1 Install the Network Module**

Mount the module on a DIN rail.

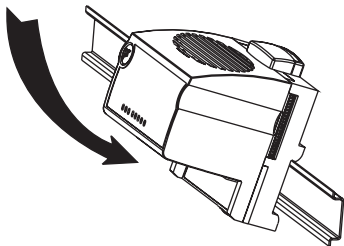
A. Unlock rail clip.



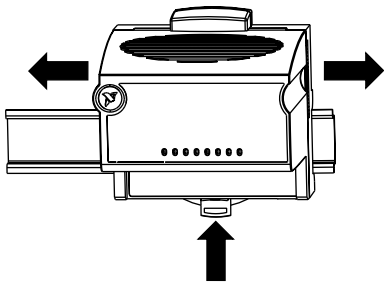


**NOTE** Do not use spliced DIN rails. Use only a single DIN rail.

- 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.

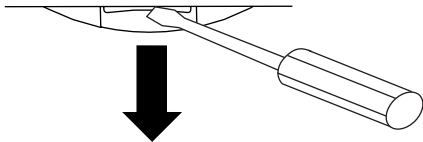


## 2 Install the Terminal Base(s)

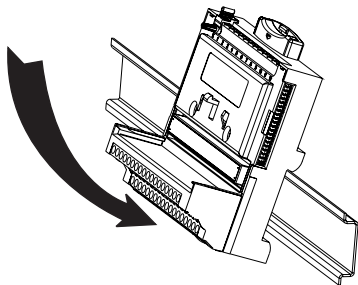


**CAUTION** Terminal bases must be connected to the network module before applying power to the module. Do *not* connect or disconnect terminal bases while power is applied to the network module.

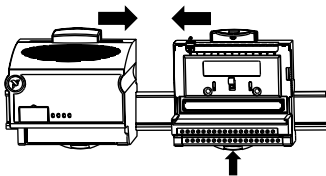
A. Unlock rail clip.



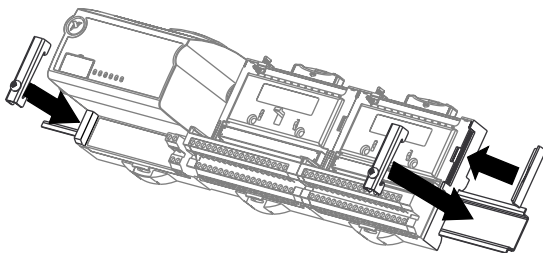
B. Press base onto rail.



- C. Slide base into position and lock 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. Make sure there are no gaps between terminal bases.
- E. You *must* install DIN rail locks at each end of the bank to ensure reliable connections between terminal bases and network module. Two rail locks are included with each network module. Place protective cover on last base.



### 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.

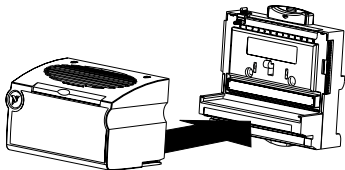


**CAUTION** Cascading power defeats isolation.

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

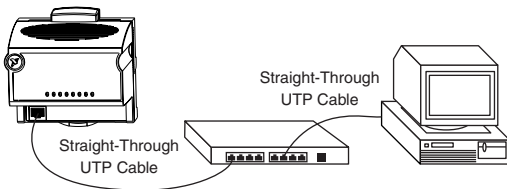
A. Align slots on module with guide rails on base, and press module onto base until terminal base latch locks module in place.

B. Repeat for each I/O module.

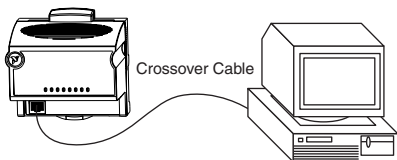


### 4 Connect the FP-20xx to the Network

Connect the FP-20xx to an Ethernet network by connecting the RJ-45 Ethernet port of the FP-20xx to an Ethernet hub using a standard Category 5 Ethernet cable.



Optionally, you can connect an FP-20xx directly to a computer using an Ethernet crossover cable.



Do not use a cable longer than 100 m.

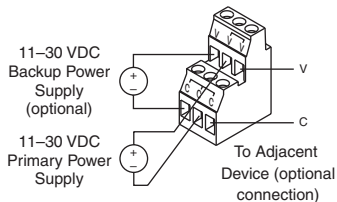
If you are using a 100 Mbps Ethernet,

National Instruments recommends using a Category 5 shielded twisted-pair cable.

If you need to build your own cable, refer to the *FP-20xx User Manual* specifications section for cabling details.

## 5 Wire Power to the FieldPoint System

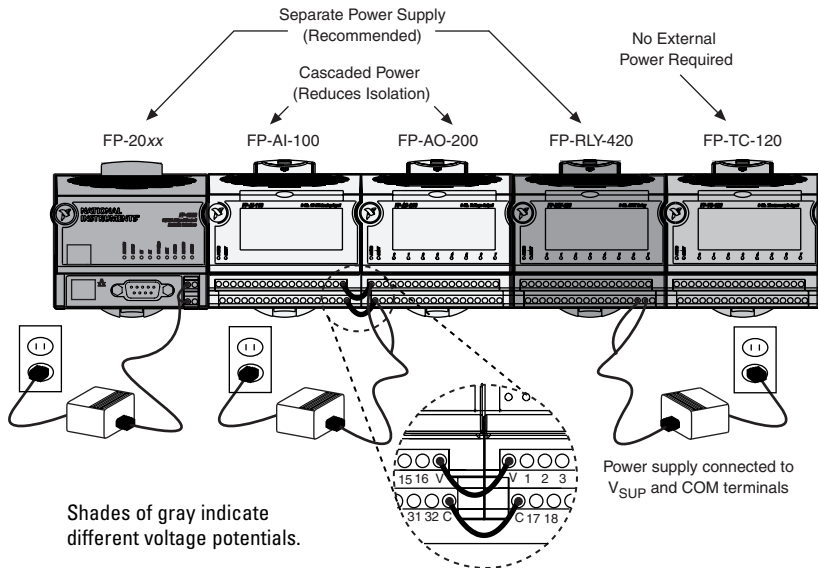
- A. Connect power supply leads to the V and C terminals of the network module. Use an 11–30 VDC, 15 W minimum power supply such as the NI FP-PS-4. Refer to the I/O module operating instructions for the power requirements of each module. Refer to the *Specifications* section of this document for instructions on calculating the power requirement of the FieldPoint bank.



- B. Connect power to the I/O modules that require external power for outputs (examples include output, counter, relay, PWM, PG, and QUAD modules). It is generally best to power each such module by connecting an external power supply to the  $V_{SUP}$  and COM terminals. Refer to the I/O module operating instructions for power requirements, detailed wiring diagrams, and safe wiring practices.



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



**CAUTION** Cascading power defeats isolation.



## 6 Connect to Field Devices

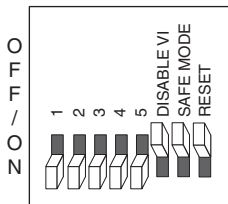
Use the operating instructions for each I/O module to help you connect field devices.

## 7 Power Up the FieldPoint System



**CAUTION** Terminal bases must be connected to the FP-20xx before power is applied to the FP-20xx.

Make sure the RESET DIP switch is not on. Plug in each power supply to the FieldPoint bank. You should see the **POWER** and **STATUS** LEDs come on. After about 5 seconds, the **STATUS** LED begins flashing, one flash at a time. This indicates that the FP-20xx is ready to be configured. (If the **STATUS** LED turns off, and the **A**, **B**, **C**, and **D** LEDs come on, the FP-20xx has been configured and LabVIEW RT is starting up.) If the LEDs do not follow this sequence, refer to the *FP-20xx User Manual* troubleshooting appendix.



## 8 Install Software on the Host PC

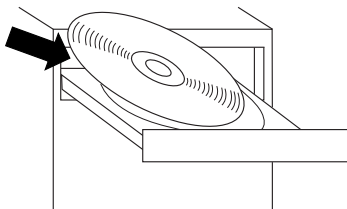
- A. Install the software packages you plan to use, such as LabVIEW, LabVIEW RT, Measurement Studio, VI Logger, or LabWindows™/CVI™, before you install the FieldPoint software. The FieldPoint software installation installs the LabVIEW VIs and examples, and LabWindows/CVI instrument driver only if it finds the corresponding development software installed.
- B. Close all other applications.
- C. Insert the National Instruments FieldPoint Software CD into the CD-ROM drive of your computer.
- D. Follow the onscreen instructions to complete the installation.



**NOTE** If the setup does not launch automatically, select **Start»Run** from Windows, enter `d:\setup`, where `d` is the letter of the CD-ROM drive, and select **OK**.

## 9 Configure the FP-20xx

Launch NI Measurement & Automation Explorer (MAX) to configure the FP-20xx. For information about configuring the FP-20xx in software, refer to the *Measurement & Automation Explorer Help for FieldPoint* (**Start»Programs»National Instruments»FieldPoint»FieldPoint Help**).



## Specifications

### Network

Network interface	10BaseT and 100BaseTX Ethernet
Compatibility	IEEE802.3
Communication rates	10 Mbps, 100 Mbps, auto-negotiated
Maximum cabling distance	100 m/segment
Maximum power supplied to terminal bases	9 W
Maximum number of banks	Determined by network topology

### Memory

FP-2000	16 MB nonvolatile 16 MB DRAM
FP-2010	32 MB nonvolatile 32 MB DRAM
FP-2015	512 MB nonvolatile 32 MB DRAM

For information about the memory used by the LabVIEW RT module and the operating system, go to [ni.com/info](http://ni.com/info) and enter `rdfpec`.

### Power Requirements

Power supply range	11–30 VDC
Recommended power supply	
FP-20xx with up to 5 modules	15 W (FP-PS-4 or equivalent)
FP-20xx with 6 to 9 modules	20 W
Power consumption	4.5 W + 1.1(I/O module power requirements)

## Physical Characteristics

Screw-terminal wiring	16–26 AWG copper conductor wire with 7 mm (0.28 in.) of insulation stripped from the end
Torque for screw terminals	0.5–0.6 N · m (4.4–5.3 lb · in.)
Weight	278 g (9.8 oz)

## Environmental

FieldPoint modules are intended for indoor use only. For outdoor use, they must be installed in a suitable sealed enclosure.

Operating temperature	–25 to 55 °C
Storage temperature	–55 to 85 °C
Humidity	10 to 90% RH, noncondensing
Maximum altitude	2,000 m
Pollution Degree	2

## Safety

The FP-20xx 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, UL 61010C-1
- CAN/CSA C22.2 No. 1010.1



**NOTE** For UL and other safety certifications, refer to the product label or to [ni.com](http://ni.com).

## Electromagnetic Compatibility

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

Emissions . . . . . EN 55011 Class A at 10 m FCC Part 15A above  
1 GHz

Immunity . . . . . EN 61326: 1997+A2: 2001, Table 1



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

## CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE Marking, as follows:

Low-Voltage Directive (safety) . . . . . 73/23/EEC

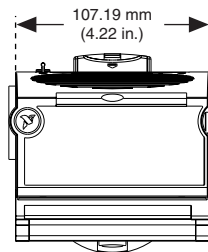
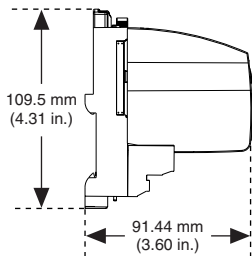
Electromagnetic Compatibility

Directive (EMC) . . . . . 89/336/EEC



**NOTE** Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, click **Declarations of Conformity Information** at [ni.com/hardref.nsf/](http://ni.com/hardref.nsf/).

## Mechanical Dimensions





Go to [ni.com/support](http://ni.com/support) for the most current manuals, examples, and troubleshooting information. For telephone support in the United States, create your service request at [ni.com/ask](http://ni.com/ask) and follow the calling instructions or dial 512 795 8248. For telephone support outside the United States, contact your local branch office:

Australia 02 612 9672 8846, Austria 43 0 662 45 79 90 0, Belgium 32 0 2 757 00 20, Brazil 55 11 3262 3599, Canada (Calgary) 403 274 9391, Canada (Montreal) 514 288 5722, Canada (Ottawa) 613 233 5949, Canada (Québec) 514 694 8521, Canada (Toronto) 905 785 0085, Canada (Vancouver) 514 685 7530, China 86 21 6555 7838, Czech Republic 420 2 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, India 91 80 51190000, Israel 972 0 3 6393737, Italy 39 02 413091, Japan 81 3 5472 2970, Korea 82 02 3451 3400, Malaysia 603 9131 0918, 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 6226 5886, Slovenia 386 3 425 4200, South Africa 27 0 11 805 8197, Spain 34 91 640 0085, Sweden 46 0 8 587 895 00, Switzerland 41 56 200 51 51, Taiwan 886 2 2528 7227, Thailand 662 992 7519, United Kingdom 44 0 1635 523545

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