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Find the *National Instruments CB-37F-HVD* at our website: ***Click HERE***

INSTALLATION GUIDE

NI CB-37F-HVD

High-Voltage DIN Rail Screw Terminal Block for Rack Mount Users

This guide describes how to install and use the National Instruments CB-37F-HVD 37-pin D-SUB high-voltage (150 V) DIN rail terminal block. The CB-37F-HVD has screw terminals for connecting up to 37 I/O signals. Use 12–30 AWG wire to connect to the CB-37F-HVD screw terminals.

Using the Terminal Block Safely with High Voltage Signals

The CB-37F-HVD is UL recognized. You can use the CB-37F-HVD terminal block with low-voltage or high-voltage products up to 150 V. When hazardous voltages (>30 Vrms, 42.4 V_{pk}, 60 VDC) are present on any terminal, all terminals must be considered hazardous. Ensure that external wiring or any circuits connected to the device are properly insulated from human contact.

Caution Failure to adhere to the following precautionary steps when connecting the cable to a high-voltage NI device can result in electrical shock or death.

Caution Before you begin installation, ensure that no high-voltage signals are connected to your accessory.

Caution Signal connections should be made by a qualified technician or service personnel.

Caution When using this product with UL listed high-voltage PCI or PXI devices, the connecting cable must be keyed for hazardous voltage (>30 Vrms, 42.4 V_{pk}, 60 VDC) using the 37-Pin High-Voltage Accessory Kit. This kit is provided with the PCI/PXI device or can be ordered separately for replacement (part number 779445-01). Refer to the *37-Pin High-Voltage Accessory Safety Kit Installation Guide* provided in the kit for installation instructions.

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When using the CB-37F-HVD with hazardous voltages (>30 Vrms, 42.4 V_{pk}, 60 VDC), it is required that all signal wires must be strain relieved, and the CB-37F-HVD must be placed in a UL listed, suitably-rated NEMA or IP enclosure, shown in Figure 1, which is grounded to a safety earth ground. The enclosure must be entirely enclosed and none of the parts should be accessible to the user when the system is running.

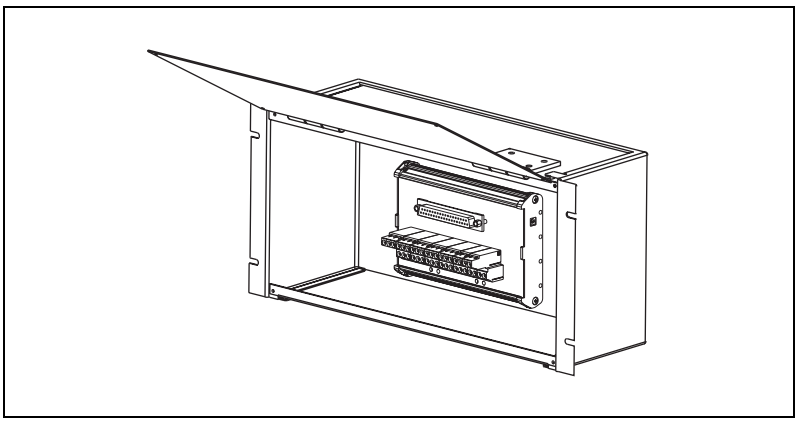


Figure 1. CB-37F-HVD and UL Listed Enclosure

What You Need to Get Started

The following items are necessary for setting up and using the CB-37F-HVD terminal block:

- ❑ Hardware
  - CB-37F-HVD terminal block
  - DAQ device
  - SH37F-37M-*x* 37-pin female-to-male shielded I/O cable or other 37-pin cable rated to 150 V
  - Cabling and sensors as required for your application
  - 37-Pin High-Voltage Accessory Safety Kit (supplied with high-voltage devices)
  - DIN Rail (and DIN rail mounting kit)
  - Zip ties
  - UL listed industrial enclosure[1], electrical cabinet, or rack-mount cabinet

[1] National Instruments sells two UL listed industrial enclosures: FP-ENC1 industrial enclosure with polycarbonate window (part number 777596-01) and NI FP-ENC1 industrial enclosure with solid metal door (part number 777596-02).

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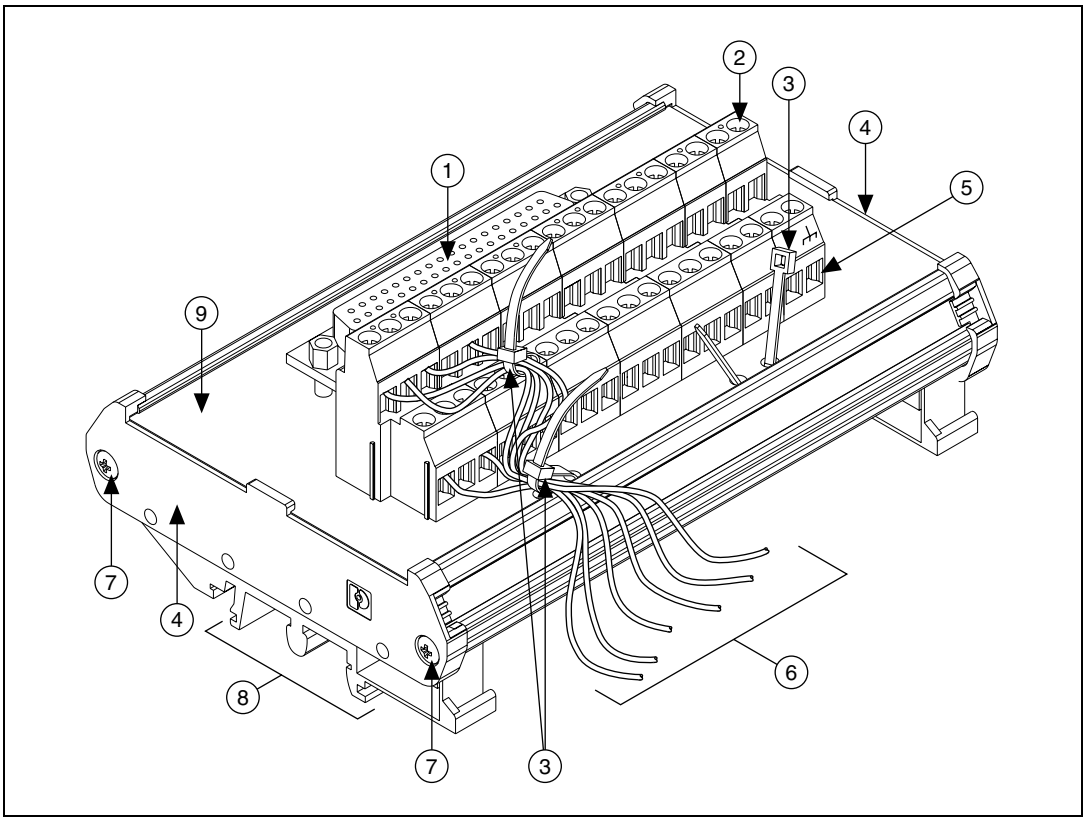
- ❑ Documentation (available at `ni.com/manuals`)
  - – *Read Me First: Safety and Radio-Frequency Interference*
  - – *DAQ Getting Started Guide*
  - – Documentation for your DAQ device
  - – *37-Pin High-Voltage Accessory Safety Kit Installation Guide* (supplied with the 37-Pin High-Voltage Accessory Safety Kit)
- ❑ Tools
  - – 1/8 in. flathead screwdriver
  - – Wire insulation stripper

Connecting the Signals

To connect signals to the CB-37F-HVD terminal block, refer to Figure 2 while completing the following steps.

Note Refer to the *Read Me First: Safety and Radio-Frequency Interference* document before removing equipment covers or connecting or disconnecting any signal wires.

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1	D-SUB Connector	4	End Piece	7	Screw
2	Screw Terminals	5	Chassis Gnd (⏚)	8	DIN Rail Clip
3	Zip Ties	6	Signal Wires	9	PCB

Figure 2. CB-37F-HVD Parts Locator Diagram

1. Ensure no voltage is present on the signal wires.
2. Mount the CB-37F-HVD onto the DIN rail.
3. Prepare the 12–30 AWG signal wire by stripping the insulation no more than 4.0 mm (0.16 in.).
4. Insert the stripped ends of the signal wires into the screw terminals. Make sure no bare wire extends from the terminal.
5. Tighten the screws to a torque of 0.3 N · m (2.7 lb - in.).
6. Tighten the zip ties securely around the signal wires for strain relief. For additional strain relief, you should securely tighten additional zip ties around signal wires from the top row of screw terminals.

Note To replace the zip ties, remove one of the end pieces from the CB-37F-HVD. Slide the PCB out and guide the zip tie through the holes on the PCB. Replace the PCB, end piece, and screws.

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Cabling to the Terminal Block

You *must* install the DAQ device in a PC or PXI chassis, as described in the *DAQ Getting Started Guide*, before cabling the device to the terminal block. Complete the following steps to connect the terminal block to the DAQ device D-SUB connector.

1. Connect the DAQ device to the terminal block with the 37-pin cable.
2. Tighten the two cable thumbscrews to a torque of 0.3 N · m (2.7 lb - in.) on each end of the cable.

Specifications

All specifications are typical at 25 °C unless otherwise specified.

Electrical

Coupling ..... DC[1]

Terminal wire size ..... 12 to 30 AWG

Field-wiring connectors

- Signal screw terminals 37
- Earth-ground screw terminal ..... 1 (⏚, for shielding only, not a safety ground)
- Strain relief ..... Zip ties through holes in PCB

Maximum current ..... 2 A per conductor

Mechanical

Dimensions ..... 13.75 cm × 9.0 cm × 6.5 cm (5.5 in. × 3.55 in. × 2.5 in.)

Weight ..... 210 g (7.5 oz)

Maximum Voltage

Maximum voltage refers to the signal voltage plus the common-mode voltage.

Channel-to-ground ..... 150 V

[1] In instrumentation terminology, *DC coupling* means that both DC and AC signals are passed.

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Environmental

Operating temperature .....0 to 50 °C

Storage temperature.....–20 to 70 °C

Humidity.....10 to 90% RH, noncondensing

Maximum altitude.....2,000 meters

Pollution Degree (indoor use only) 2

Safety

The CB-37F-HVD terminal block is UL recognized and meets the requirements of the following standards for industrial control:

- EN 50178
- UL 508
- CAN/CSA-C22.2 No. 14

Note For the UL certification, refer to the product label or visit `ni.com/certification`, search by model number or product line, and click the appropriate link in the Certification column.

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