

## INSTALLATION GUIDE

# TB-37F-37CP Crimp & Poke Accessory

This guide describes how to properly assemble and install the TB-37F-37CP Crimp & Poke custom cabling accessory for use with National Instruments data acquisition (DAQ) devices.

You can use the TB-37F-37CP Crimp & Poke accessory with low-voltage or high-voltage products. When hazardous voltages ( $>42.4 V_{pk}/60 \text{ VDC}$ ) are present on any terminal, safety low voltage ( $\leq 42.4 V_{pk}/60 \text{ VDC}$ ) cannot be connected to any other terminal.



**Caution** The TB-37F-37CP accessory can be used with voltages up to 150 VAC/VDC. Some devices that can be physically connected to this accessory are not rated for hazardous voltages ( $>30 \text{ Vrms}$ ,  $42.4 V_{pk}$ ,  $60 \text{ VDC}$ ). The

maximum voltage of the accessory is limited by the rating of the device or 150 V, whichever is less. Refer to the device specifications for your product for maximum voltage ratings.



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

## Getting Started

---

Ensure that the following items are all present in TB-37F-37CP Crimp & Poke cabling accessory kit.

- 37-pin D-SUB connector
- Cable assembly backshells (2)
- Rubber compression strain relief grommets (6)

- Metal socket contacts (37, connected to carrier strip)
- #4-40 7/16 in. machine screws (2)
- #4-40 hex nuts (2)
- #4-40 1/2 in. captive screws (2)
- Saddle washers (2)

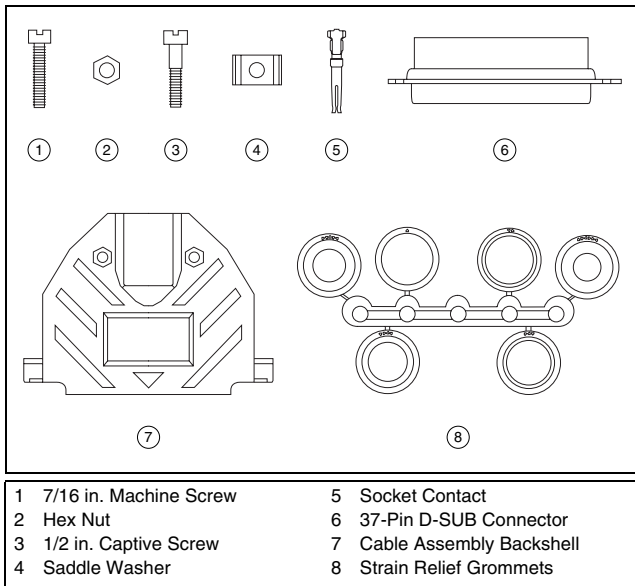
You must supply 20–24 AWG stranded conductor wire to complete the construction of the TB-37F-37CP accessory.



**Caution** If your accessory will be used in high-voltage applications ( $>42.4 V_{pk}/60 \text{ VDC}$ ), you *must* use UL-style 2464 approved insulated cable or UL listed 150 V, 80 °C wire.



**Note** If your accessory will be used only in low-voltage applications, the use of UL-style 2464 approved insulated cable or UL listed 150 V, 80 °C wire is unnecessary.



**Figure 1.** Crimp & Poke Cabling Accessory Components

# Installation Instructions

---



**Caution** Failure to connect the accessory to the high-voltage NI device using the following precautionary steps can result in electrical shock or death.



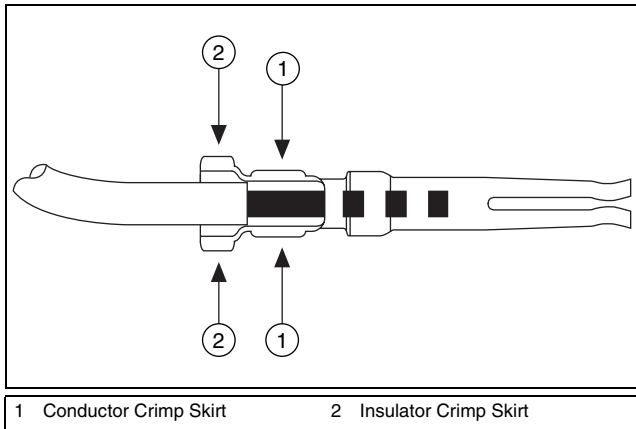
**Caution** Before you begin installation, ensure that no high-voltage signals are present on the accessory wiring.



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

1. Using wire strippers, carefully remove the insulation from each (20–24 AWG) wire to be connected to the 37-pin D-SUB connector. The length of stripped insulation should be 0.17 in.–0.18 in. (4.32 mm–4.57 mm).
2. Insert each stripped wire into the open end of the metal socket contact, ensuring that the insulation is firmly up against the conductor crimp skirt, as shown in Figure 2.

3. Using a crimping tool, needle-nose pliers, or the crimping section of most standard wire strippers, firmly crimp the first crimp skirt onto the exposed conductor wires. Crimp the second crimp skirt around the insulation of the wire, as shown in Figure 2.



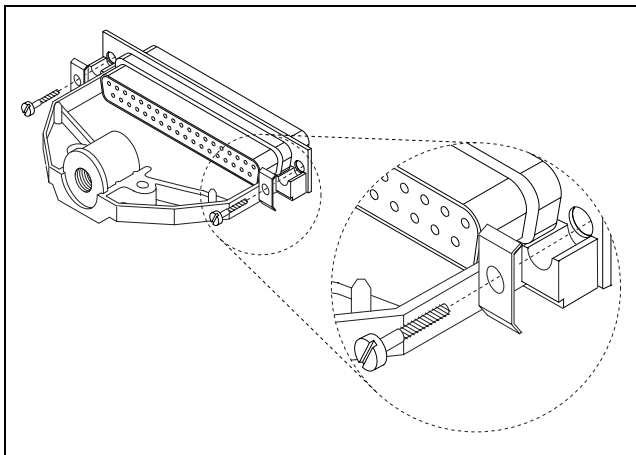
**Figure 2.** Socket Contact Positioning

4. Repeat steps 2 through 3 for all remaining conductor wires.
5. Select the appropriate size strain relief grommet. Thread the conductor wires through the selected strain relief grommet.
6. Insert each individual socket contact into the 37-pin D-SUB connector, repeating until all conductor wires have been added.



**Tip** Each socket on the D-SUB connector socket is labeled with an individual number from 1 to 37.

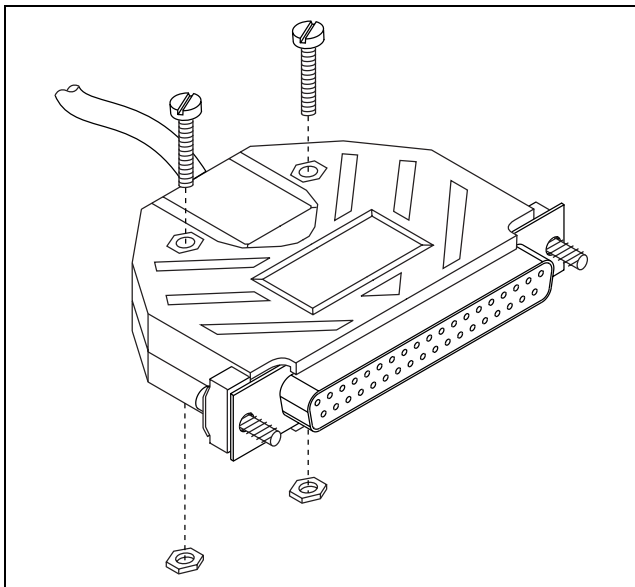
7. Lay the populated D-SUB connector onto the bottom of the first half of the backshell. Align the strain relief grommet into the wiring conduit, being sure to align the lip of the grommet with the topmost strain groove, as shown in the Figure 3.
8. Insert a 7/16 in. captive screw into the top of a saddle washer.
9. Lay the assembled captive screw along the groove on the side of the backshell and insert it through the aligning hole on the side of the D-SUB connector, as shown in Figure 3.



**Figure 3.** Open Assembled Backshell View



10. Repeat steps 8 through 9 for the other side of the backshell and D-SUB connector.
11. Place the second half of the assembly backshell onto the first half, enclosing the D-SUB connector and strain relief grommet. The saddle washers should remain aligned lengthwise to the sides of the backshell and on top of the protruding captive screw assembly.
12. Insert the hex nuts into one side of the top joining holes and run the 1/2 in. machine screws through the holes on the opposite side of the backshell assembly, as shown in Figure 4.
13. Affix both backshell halves together by tightening the machine screws into the hex nuts.



**Figure 4.** Assembled Cable Accessory



## Maximum Working Voltage

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

Channel-to-earth ..... 150 V, Measurement<sup>1</sup>  
Category II

## 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

---

<sup>1</sup> *Measurement Category* is also referred to as *Installation Category*.

National Instruments, NI, ni.com, and LabVIEW are trademarks of National Instruments Corporation. Refer to the *Terms of Use* section on [ni.com/legal](http://ni.com/legal) for more information about National Instruments trademarks. Other product and company names mentioned herein are trademarks or trade names of their respective companies. For patents covering National Instruments products, refer to the appropriate location: **Help»Patents** in your software, the `patents.txt` file on your CD, or [ni.com/patents](http://ni.com/patents).

© 2005 National Instruments Corp. All rights reserved.