

Connector Kit for PXIe-415x and PXIe-405x

Safety, Environmental, and Regulatory Information

Use the Connector Kit for PXIe-415x and PXIe-405x to secure signal wires to your connector. Read this document before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Contents

This kit includes the following items:

1. Backshell Kit
2. AUX I/O Connector
3. Channel I/O Connector
4. Strain relief cable tie

NI Services





Visit ni.com/support to

- Find downloads and self-help resources for troubleshooting and application development, including tutorials and examples.
- Find documentation about your product, including specifications, pinouts, and instructions for connecting, installing, and configuring your system.
- Learn about NI service offerings such as calibration options, repair, and replacement.
- Register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

NI corporate headquarters is located at 11500 N Mopac Expwy, Austin, TX, 78759-3504, USA.

Icons

Refer to the following descriptions if one of these icons is marked on your product or used in this guide.

Icon	Description
	Notice — Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the product.
	Caution — Take precautions to avoid injury. Consult the product documentation for cautionary statements when you see this icon printed on the product. Cautionary statements are localized into French for compliance with Canadian requirements.
	Caution: Possibility of Electric Shock — Take precautions to avoid electrical shock.
	Functional Earth Terminal — Indicates a terminal, including measuring earth terminals, bonded to the PE terminal, that allows a connection which is independent from the connection of the protective conductor.



Safety Guidelines



CAUTION

Observe all instructions and cautions in the user documentation. Using the product in a manner not specified can damage the product and compromise the built-in safety protection.

ATTENTION

Suivez toutes les instructions et respectez toutes les mises en garde de la documentation d'utilisation. L'utilisation du produit de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée.

Safety Guidelines for Hazardous Voltages

If hazardous voltages are connected to the product, take the following precautions. A hazardous voltage is a voltage greater than 30 V RMS, 42.4 V peak, or 60 V DC in DRY LOCATIONS



CAUTION: POSSIBILITY OF ELECTRIC SHOCK

Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.

ATTENTION : POSSIBILITÉ DE CHOC ÉLECTRIQUE

S'assurer que le câblage à tension dangereuse est effectué par du personnel qualifié respectant les normes électriques locales.



CAUTION: POSSIBILITY OF ELECTRIC SHOCK

When product terminals are hazardous voltage LIVE, you must ensure that devices and circuits connected to the product are properly insulated from human contact.

ATTENTION : POSSIBILITÉ DE CHOC ÉLECTRIQUE

Lorsqu'une haute tension dangereuse est appliquée aux bornes du produit, vous devez vous assurer que les appareils et les circuits auxquels il est connecté sont correctement isolés de tout contact humain.



CAUTION: POSSIBILITY OF ELECTRIC SHOCK

All wiring must be insulated for the highest voltage used.

ATTENTION : POSSIBILITÉ DE CHOC ÉLECTRIQUE

Tout le câblage doit être isolé pour la plus haute tension utilisée.

Safety Voltages

Overvoltages

Product has been designed to withstand overvoltages as specified below. Voltages beyond these levels may cause permanent damage.

HI to LO, HS to LS	60 VDC
All AUX I/O Pins to GND	5 VDC

Isolation Voltages

Working Voltage	The highest RMS value of the AC or DC voltage across the insulation that can continuously occur when the equipment is supplied at rated voltage.
Transient Overvoltage	An overvoltage condition of a relatively short duration, a few milliseconds or less, oscillatory or non-oscillatory, usually highly damped.

Channel I/O (HI, LO, HI Sense, LO Sense) to earth ground	Maximum working voltage	150 VDC, CAT I
	Transient overvoltage	800 Vpk

Measurement Category

This product is rated for Measurement Category I.



CAUTION

Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV.

ATTENTION

Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour effectuer des mesures dans ces catégories.



CAUTION: POSSIBILITY OF ELECTRIC SHOCK

Do not connect the product to signals or use for measurements within Measurement Categories II, III, or IV, or for measurements on MAINS circuits or on circuits derived from Overvoltage Category II, III, or IV which may have transient overvoltages above what the product can withstand. The product must not be connected to circuits that have a maximum voltage above the continuous working voltage, relative to earth or to other channels, or this could damage and defeat the insulation. The product can only withstand transients up to the transient overvoltage rating without breakdown or damage to the insulation. An analysis of the working voltages, loop impedances, temporary overvoltages, and transient overvoltages in the system must be conducted prior to making measurements.

ATTENTION : POSSIBILITÉ DE CHOC ÉLECTRIQUE

Ne pas connecter le produit à des signaux dans les catégories de mesure II, III ou IV et ne pas l'utiliser pour des mesures dans ces catégories, ou des mesures sur secteur ou sur des circuits dérivés de surtensions de catégorie II, III ou IV pouvant présenter des surtensions transitoires supérieures à ce que le produit peut supporter. Le produit ne doit pas être raccordé à des

circuits ayant une tension maximale supérieure à la tension de fonctionnement continu, par rapport à la terre ou à d'autres voies, sous peine d'endommager et de compromettre l'isolation. Le produit peut tomber en panne et son isolation risque d'être endommagée si les tensions transitoires dépassent la surtension transitoire nominale. Une analyse des tensions de fonctionnement, des impédances de boucle, des surtensions temporaires et des surtensions transitoires dans le système doit être effectuée avant de procéder à des mesures.

Measurement Category I is for measurements performed on circuits not directly connected to the electrical distribution system referred to as MAINS voltage. MAINS is a hazardous live electrical supply system that powers equipment. This category is for measurements of voltages from specially protected secondary circuits. Such voltage measurements include signal levels, special equipment, limited-energy parts of equipment, circuits powered by regulated low-voltage sources, and electronics.



NOTE

Measurement Categories CAT I and CAT O are equivalent. These test and measurement circuits are for other circuits not intended for direct connection to the MAINS building installations of Measurement Categories CAT II, CAT III, or CAT IV.

Current Ratings

Maximum continuous current	HI and LO	40 A at 300 W maximum
	All AUX I/O Pins	60 mA

Safety Compliance Standards

This product is designed to meet the requirements of the following electrical equipment safety standards for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA C22.2 No. 61010-1



NOTE

For safety certifications, refer to the product label or the *Product Certifications and Declarations* section.

Environmental Guidelines



NOTICE

This product is intended for use in indoor applications only.



NOTICE

All cabling should be strain-relieved near input connectors. Take care not to directionally bias cable connectors within input connectors when applying strain relief.

Environmental Characteristics

Temperature	Operating	0 °C to 55 °C
	Storage	-40 °C to 71 °C
Humidity	Operating	10% RH to 90% RH, noncondensing
	Storage	5% RH to 95% RH, noncondensing
Pollution Degree		2
Maximum altitude		2000 m
Shock and vibration	Operating vibration	5 Hz to 500 Hz, 0.3 g RMS
	Non-operating vibration	5 Hz to 500 Hz, 2.4 g RMS
	Operating shock	30 g, half-sine, 11 ms pulse

Physical Characteristics

Dimensions and Weight

Dimensions (without plug)	47.1 mm x 26.2 mm x 60.5 mm
Dimensions (with plug)	47.1 mm x 26.2 mm x 74.8 mm
Weight (without plug)	21 g
Weight (with plug)	45 g
Weight (AUX I/O)	2.2 g

Field Wiring Specifications

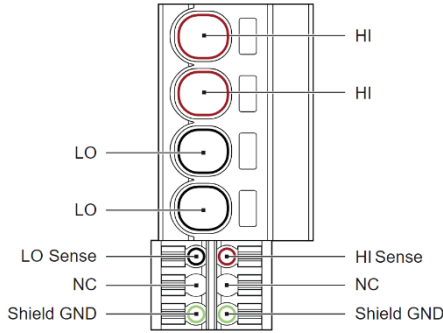
Gauge	HI & LO Terminals	8 - 24 AWG
	HI Sense, LO Sense, Shield Terminals	18 - 26 AWG
	AUX I/O Terminals	20 - 26 AWG
Wire strip length	HI & LO Terminals	12 ± 1 mm
	HI Sense, LO Sense, Shield Terminals	8 ± 1 mm
	AUX I/O Terminals	7 ± 1 mm
Wires per terminal	1	
Ferrules	HI & LO Terminals	0.5 - 10.0 mm ²
	HI Sense, LO Sense, Shield Terminals	0.25 - 1.5 mm ²
	AUX I/O Terminals	0.25 - 0.34 mm ²
Connector securement type	HI & LO Terminals	Push-in connection
	HI Sense, LO Sense, Shield Terminals	
	AUX I/O Terminals	



NOTE

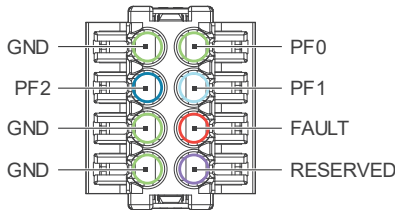
All wiring must be copper and rated at a minimum of 150 V and 90 °C. For additional wiring guidance, refer to the user manual for your device.

Input Connector Pinout



Signal Name	Description
HI	Primary channel input terminal capable of sinking a DC current (DC current in).
LO	Primary channel input terminal referenced to circuit common (DC current return).
HI Sense	Use these terminals when remote sense is enabled to compensate for voltage drops due to resistance in cables and switches. HI Sense compensates for HI and LO Sense for LO.
LO Sense	
Shield GND	Chassis grounding.

AUX I/O Connector Pinout

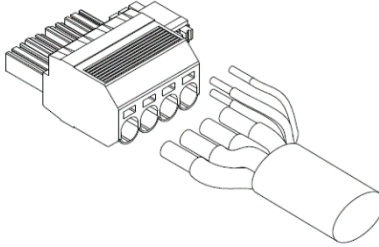


Signal Name	Description
GND	Ground reference for signals.
PFI <0, 1, 2>	Programmable Function Interface for use with triggers or events.
FAULT	Device fault status output.
RESERVED	Reserved for future use.

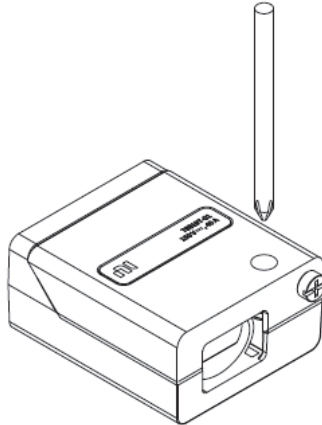
Preparing the Backshell Assembly

Prepare the output connector and cable to ensure proper grounding and install the output connector assembly onto your device.

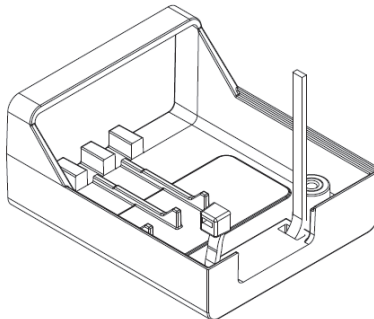
1. Insert a HI, LO, Hi Sense, LO Sense, and Drain Wire cable into the appropriate terminals. For more information on proper wiring, refer to the device user manual.



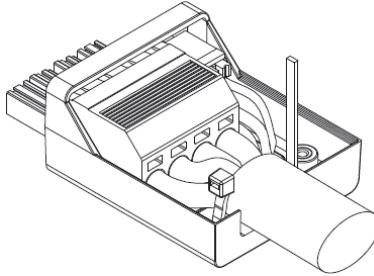
2. Open the backshell assembly by removing the cover screw.



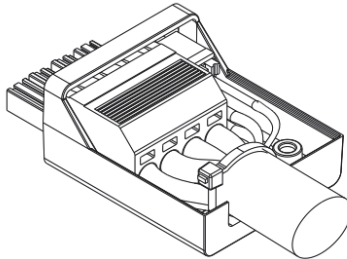
3. Remove the backshell top cover and insert a cable tie to the backshell bottom cover.



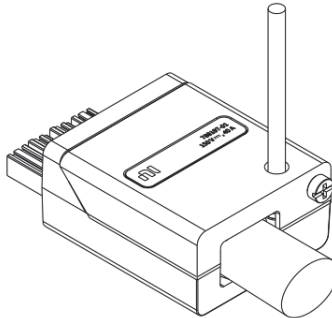
4. Place the assembled Input plug into the backshell.



5. Tighten the cable tie.



6. Reinstall the top cover and tighten the captive top-cover screws to a torque of $0.3 \text{ N} \cdot \text{m}$ (2.7 lb. · in.).



7. Insert the backshell assembly into the connector on the front panel.
8. Fasten the backshell to the device by tightening the jackscrew on the output connector assembly to a torque of $0.3 \text{ N} \cdot \text{m}$ (2.7 lb. · in.).

Export Compliance

This product is subject to control under the U.S. Export Administration Regulations (15 CFR Part 730 et. seq.) administered by the U.S. Department of Commerce's Bureau of Industry and Security (BIS) (www.bis.doc.gov) and other applicable U.S. export control laws and sanctions regulations. This product may also be subject to additional license requirements of other countries' regulations.

Additionally, this product may also require export licensing before being returned to NI. The issuance of a Return Material Authorization (RMA) by NI does not constitute export authorization. The user must comply with all applicable export laws prior to exporting or re-exporting this product. See ni.com/legal/export-compliance for more information and to request relevant import classification codes (e.g. HTS), export classification codes (e.g. ECCN), and other import/export data.

Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the Engineering a Healthy Planet web page at ni.com/environment. This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

EU and UK Customers



Waste Electrical and Electronic Equipment (WEEE) —At the end of the product life cycle, all NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

Product Certifications and Declarations

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for NI products, visit ni.com/product-certifications, search by model number, and click the appropriate link.

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