

INSTALLATION GUIDE AND SPECIFICATIONS

NI SA-413T

NI System SMU Triaxial Adapter



Note Before you begin, install your NI PXIe-4138/4139 source measure unit.

This document explains how to install the NI SA-413T (NI 413T). The NI 413T is a system SMU triaxial adapter designed to enable triaxial cable connectivity for the NI PXIe-4138/4139.

To access NI 413T documentation, navigate to **Start»All Programs»National Instruments»NI-DCPower»Documentation**.



Caution You can impair the protection provided by the NI 413T if you use it in a manner not described in this document.

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Electromagnetic Compatibility Guidelines

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) stated in the product specifications. These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by National Instruments could void your authority to operate it under your local regulatory rules.



Caution To ensure the specified EMC performance, the length of all I/O cables must be no longer than 3 m (10 ft).



Caution To ensure the specified EMC performance, operate this product only with shielded cables and accessories. Connect only a multiconductor cable with an overall braid shield ($\geq 85\%$ coverage) such as Belden 83321E to the Output LO and Sense LO terminals.

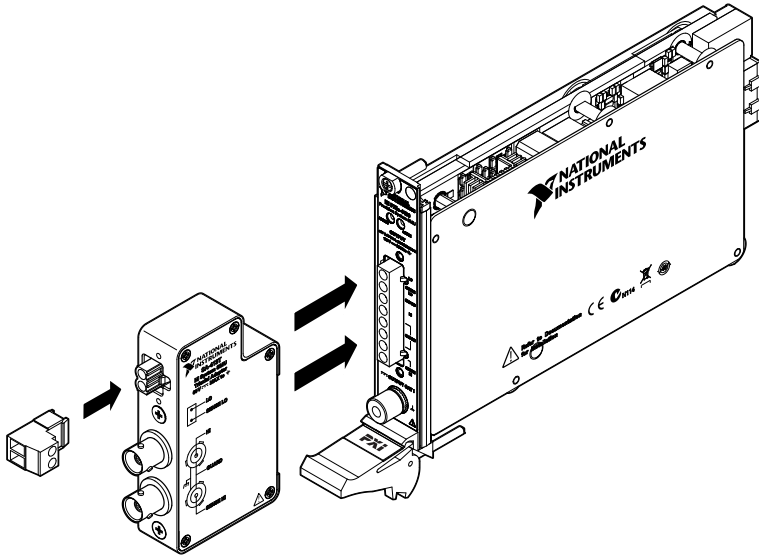
Installing the NI 413T



Caution The NI 413T is not rated for use >60 VDC or >42 Vrms with respect to earth ground. When using the NI 413T with an NI PXIe-4138/4139, do not float an output >60 VDC or >42 Vrms with respect to earth ground.

1. Install your NI 4138/4139 device in your chassis. Refer to the *NI PXIe-4138/4139 Getting Started Guide* for installation instructions.
2. Ensure the AC power source is connected to the chassis before installing the adapter.
The AC power cord grounds the chassis and protects it from electrical damage.
3. Power off the chassis.
4. Touch any metal part of the chassis to discharge static electricity.
5. Slide the accessory into the output connector on the front panel of the NI 4138/4139 until it is fully inserted.

Figure 1. Accessory Installation



6. Using a Phillips screwdriver, tighten the mounting screws to secure the accessory to the NI 4138/4139 front panel.
7. Attach triaxial cables to the triaxial cable connectors on the accessory.
8. Power on the chassis.

Specifications

Maximum Voltage and Current Limit Characteristics

Voltage between any two terminals	60 VDC
Voltage to earth ground	60 VDC
HI/LO current	3 A



Caution Applying levels beyond the ratings specified in this section can result in permanent damage to the device.



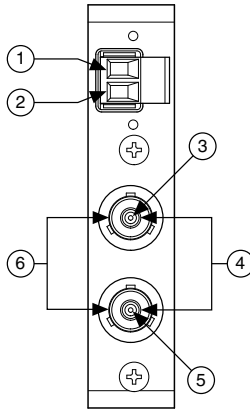
Caution Connect only voltages that are within these limits.

Physical Characteristics

Dimensions	7.4 cm × 8.9 cm × 1.9 cm (2.90 in. × 3.50 in. × 0.75 in.)
Weight	119 g (4.2 oz)
Connectors	Triaxial (MIL-STD-348A) and 5.08 mm (2 position)

NI 413T Front Panel

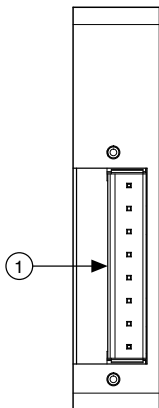
Figure 2. NI 413T Front Panel



Item		Description
1	Output connector, terminal 0	Output LO
2	Output connector, terminal 1	Sense LO
3	Triaxial connector pin	Output HI
4	Triaxial connector inner shield	Guard
5	Triaxial connector pin	Sense HI
6	Triaxial connector outer shield	Chassis ground

NI 413T Back Panel

Figure 3. NI 413T Back Panel



Item		Description
1	Connector	Connects to output connector of NI 4138/4139

Cleaning Statement



Caution Clean the hardware with a soft, nonmetallic brush. Make sure that the hardware is completely dry and free from contaminants before returning it to service.

Environment

Maximum altitude 2,000 m (800 mbar) (at 25 °C ambient temperature)

Pollution Degree 2

Indoor use only.

Operating Environment

Ambient temperature range	0 °C to 55 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2. Meets MIL-PRF-28800F Class 3 low temperature limit and MIL-PRF-28800F Class 2 high temperature limit.)
Relative humidity range	10% to 90%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Storage Environment

Ambient temperature range	-40 °C to 71 °C (Tested in accordance with IEC 60068-2-1 and IEC 60068-2-2. Meets MIL-PRF-28800F Class 3 limits.)
Relative humidity range	5% to 95%, noncondensing (Tested in accordance with IEC 60068-2-56.)

Shock and Vibration

Operating shock	30 g peak, half-sine, 11 ms pulse (Tested in accordance with IEC 60068-2-27. Meets MIL-PRF-28800F Class 2 limits.)
Random vibration	
Operating	5 Hz to 500 Hz, 0.3 g _{rms}
Nonoperating	5 Hz to 500 Hz, 2.4 g _{rms} (Tested in accordance with IEC 60068-2-64. Nonoperating test profile exceeds the requirements of MIL-PRF-28800F, Class 3.)

Compliance and Certifications

Safety

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 61010-1



Note For UL and other safety certifications, refer to the product label or the [Online Product Certification](#) section.

Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



Note In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia, and New Zealand (per CISPR 11), Class A equipment is intended for use only in heavy-industrial locations.



Note Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.



Note For EMC declarations, certifications, and additional information, refer to the [Online Product Certification](#) section.

CE Compliance

This product meets the essential requirements of applicable European Directives, as follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

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 *Minimize Our Environmental Impact* 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.

Waste Electrical and Electronic Equipment (WEEE)



EU Customers 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.

电子信息产品污染控制管理办法（中国 RoHS）



中国客户 National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 ni.com/environment/rohs_china。(For information about China RoHS compliance, go to ni.com/environment/rohs_china.)

Worldwide Support and Services

The NI website is your complete resource for technical support. At ni.com/support, you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit ni.com/services for NI Factory Installation Services, repairs, extended warranty, and other services.

Visit ni.com/register to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

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375134B-01 Mar16