

INSTALLATION INSTRUCTIONS

NI TB-2640B

1-Wire 4 x 128 Matrix Terminal Block for the NI PXI/PXIe-2532B

This document describes how to install and connect signals to the NI TB-2640B terminal block.

You can use the NI TB-2640B terminal block to configure the NI PXI/PXIe-2532B (NI 2532B) as a 1-wire 4 x 128 matrix. This terminal block has ribbon cable headers to connect signals to the switch. This terminal block provides optional isolation resistors to protect the reed relays from capacitive loads. This terminal block is a shielded accessory.

The NI TB-2640B terminal block is designed for use with the NI 2532B and is not compatible with the NI PXI/PXIe-2532.

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Unpacking the Terminal Block

To avoid damage when you handle the terminal block, take the following precautions:

1. Ground yourself using a grounding strap or by touching a grounded object.
2. Touch the antistatic package to a metal part of the chassis before you remove the terminal block from the package.

3. Remove the terminal block from the package and inspect the terminal block for loose components or any sign of damage.



Caution Never touch the exposed pins of connectors.

Notify NI if the terminal block appears damaged in any way. Do not install a damaged terminal block on a switch module.

4. Store the terminal block in the antistatic package when not in use.

What You Need to Get Started

You need the following items to install and use the NI TB-2640B terminal block:

- NI TB-2640B terminal block
- PXI or PXI Express chassis
- NI 2532B switch module
- #1 Phillips screwdriver
- Four 2 mm jumpers
- Four 34-conductor, 0.050 in. pitch ribbon cable assemblies (not included)
- One 16-conductor, 0.050 in. pitch ribbon cable assembly (not included)

Related Information

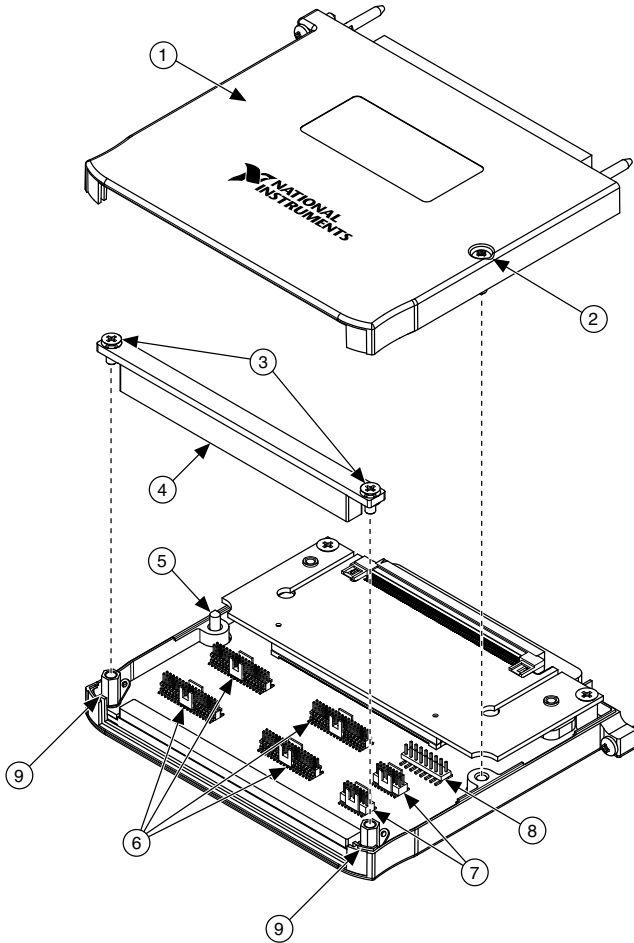
[Accessories](#) on page 8

Connecting the Ribbon Cables

To connect ribbon cables to the terminal block, complete the following steps:

1. Loosen the top cover and bottom cover screws. The screws remain in the enclosure.
2. Gently remove the top cover from the terminal block.
3. Loosen the two screws on the strain-relief assembly and remove the strain-relief bar.

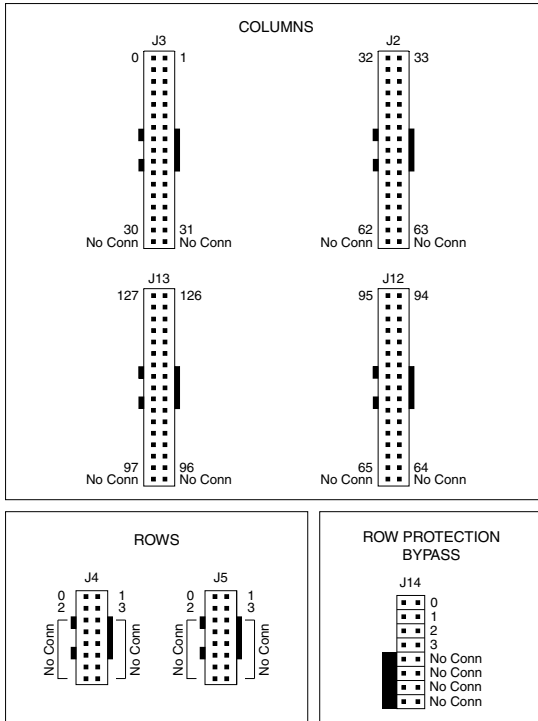
Figure 1. NI TB-2640B Terminal Block



-
- | | |
|-------------------------|--------------------------|
| 1. Top Cover | 6. Column Headers |
| 2. Top Cover Screw | 7. Row Headers |
| 3. Strain-Relief Screws | 8. Row Protection Bypass |
| 4. Strain-Relief Bar | 9. Ground Lugs |
| 5. Bottom Cover Screw | |
-

4. Connect each ribbon cable to the appropriate header. Refer to the following figure for signal connections.

Figure 2. NI TB-2640B Terminal Block Signal Connections



- Optional: Bypass the row protection resistors. The row ribbon cable headers are isolated from the reed relays through 100 Ω resistors. To bypass these resistors, install a 2 mm jumper (included) in the appropriate position of the row protection bypass header (J14) on the terminal block. Refer to the following table for possible jumper locations.

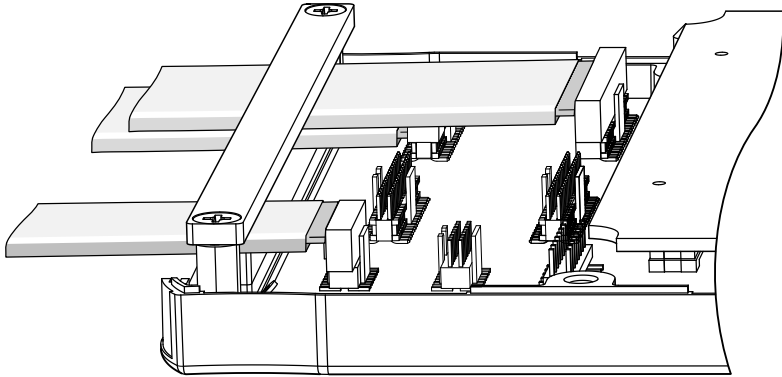
Table 1. NI TB-2640B Jumper Locations

Pin Connected	Bypassed Row
1-2	R0
3-4	R1
5-6	R2
7-8	R3

- Reassemble the strain-relief assembly above the ribbon cables.

If using cable accessories with a protective outer jacket, ensure that the outer jacket of the cable is captured by the strain relief assembly as shown in the following figure.

Figure 3. Ribbon Cable Placement in Strain-Relief Assembly



Note This figure shows ribbon cable placement for the NI TB-2640B. Connector quantity and location may vary for different terminal block models.

7. Reassemble the terminal block enclosure.

You can expand the matrices of the NI 2532B by increasing the number of columns in the matrix. To expand the number of columns, use ribbon cables to connect rows on adjacent terminal blocks.

Related Information

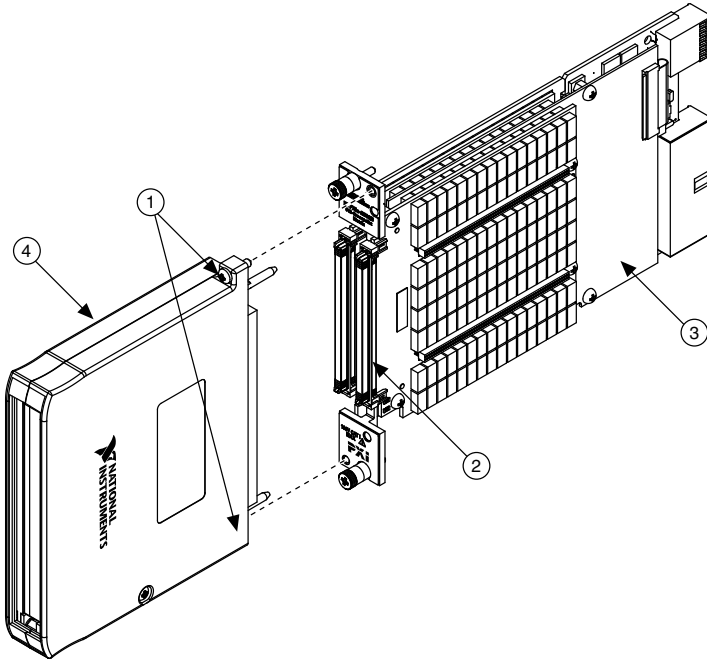
Refer to the [NI Switches Help](#) for information about protection resistance and matrix expansion.

Connecting the Terminal Block

To connect the NI TB-2640B terminal block to the NI 2532B front panel, complete the following steps:

1. Ensure that the NI 2532B is already installed in a PXI/PXI Express chassis.
2. Attach the NI TB-2640B to the front connector of the NI 2532B as shown in the following figure.
3. Tighten the top and bottom chassis screws on the back of the terminal block rear panel to hold it securely in place.

Figure 4. Installing the NI TB-2640B Terminal Block



-
- | | |
|--------------------|-------------------|
| 1. Chassis Screws | 3. NI 2532B |
| 2. Front Connector | 4. Terminal Block |
-

Specifications

All input characteristics are DC, AC_{pk}, or a combination unless otherwise specified. All specifications reflect the accessory and attached NI 2532B module.

Input Characteristics

Maximum switching voltage

- | | |
|-------------------------|--------------|
| Channel-to-channel..... | 100 V |
| Channel-to-ground..... | 100 V, CAT I |



Caution This terminal block is rated for Measurement Category I and intended to carry signal voltages no greater than 100 V. This terminal block can withstand up to 500 V impulse voltage. Do not use this terminal block for connections to signals or for measurements within Categories II, III, or IV. Do not connect to MAINS supply circuits (for example, wall outlets) of 115 or 230 VAC. Refer to the *Read Me First*:

Safety and Electromagnetic Compatibility document for more information about measurement categories.



Caution When hazardous voltages ($>42.4 V_{pk}/60 \text{ VDC}$) are present on any relay terminal, safety low-voltage ($\leq 42.4 V_{pk}/60 \text{ VDC}$) cannot be connected to any other relay terminal.

Maximum current (per channel).....0.5 A



Caution Maximum current listed is when protection resistors are not used. When using row and column protection resistors, limit the current so that the resistor does not exceed its maximum power specification.

DC path resistance..... $<2.0 \Omega$

Row and column protection resistors..... 100Ω , 0.1 W max
(when used)

Bandwidth (-3 dB, 50Ω termination)..... $\geq 10 \text{ MHz}$, typical
1-wire row/column

Crosstalk, typical (50Ω termination) channel-
to-channel

10 kHz..... $<-75 \text{ dBV}$

100 kHz..... $<-55 \text{ dBV}$

1 MHz..... $<-35 \text{ dBV}$

Physical Characteristics

I/O headers.....34 pos (column), 16 pos (row) Samtec FTSH
Series

Dimensions

Overall (L \times W \times H)..... $10.72 \text{ cm} \times 2.03 \text{ cm} \times 11.58 \text{ cm}$
($4.22 \text{ in} \times 0.80 \text{ in} \times 4.56 \text{ in.}$)

Extending from NI 2532B (L)..... 10.16 cm (4.00 in.)

Weight.....332 g (0.73 lb)

Accessories

Table 2. NI TB-2640B 100 V Accessories

Accessory	Manufacturer	Part Number
Row and column cable kit for the NI TB-264XB terminal blocks (100 V, 0.5 A)	National Instruments	782427-01
Row connection cable for matrix expansion (100 V, 0.5 A)	National Instruments	782426-01



Note The 100 V accessories are approved for use in all installations appropriate for the NI 2532B.

Table 3. NI TB-2640B 60 VDC Accessories

Accessory	Manufacturer	Part Number
Row and column cable kit for the NI TB-264XB terminal blocks (60 VDC, 0.5 A)	National Instruments	779346-01
Row connection cable for matrix expansion (60 VDC, 0.5 A)	National Instruments	779325-01
NI SCB-264X screw terminal block (60 VDC, 0.5 A)	National Instruments	779341-01



Caution The 60 VDC accessories are approved for where the maximum applied voltage is 60 VDC or less.



Caution The 60 VDC, 0.5 A cables are limited to no more than 2.5 A fault current.



Caution To ensure the specified EMC performance, operate this product only with cables less than 3 meters in length.

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
- AS/NZS CISPR 11: Group 1, 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:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

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 not only to the environment but also 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 products must be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste Electrical and Electronic Equipment, visit ni.com/environment/weee.htm.

电子信息产品污染控制管理办法（中国 RoHS）



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