

# INSTALLATION INSTRUCTIONS

# NI SCXI™-1378

## Terminal Block for the NI SCXI-1130

このドキュメントには、日本語ページも含まれています。

This guide describes how to install and connect signals to the National Instruments SCXI-1378 terminal block to configure the SCXI-1130 as a:

- 4x64, 1-wire matrix
- 4x32, 2-wire matrix

The SCXI-1378 terminal block installs in front of the SCXI-1130 switch module. The SCXI-1378 has screw terminals available to connect signals and trigger input and trigger output signals to the terminal block.

Refer to the *NI Switches Getting Started Guide* to determine when to install the terminal block.

## Conventions

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The following conventions are used in this guide:

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The » symbol leads you through nested menu items and dialog box options to a final action. The sequence **File»Page Setup»Options** directs you to pull down the **File** menu, select the **Page Setup** item, and select **Options** from the last dialog box.



This icon denotes a tip, which alerts you to advisory information.



This icon denotes a note, which alerts you to important information.



This icon denotes a caution, which advises you of precautions to take to avoid injury, data loss, or a system crash.

<b>bold</b>	Bold text denotes items that you must select or click in the software, such as menu items and dialog box options. Bold text also denotes parameter names.
<i>italic</i>	Italic text denotes variables, emphasis, a cross reference, or an introduction to a key concept. This font also denotes text that is a placeholder for a word or value that you must supply.
monospace	Text in this font denotes text or characters that you should enter from the keyboard, sections of code, programming examples, and syntax examples. This font is also used for the proper names of disk drives, paths, directories, programs, subprograms, subroutines, device names, functions, operations, variables, filenames and extensions, and code excerpts.

## 1. Unpack the Terminal Block

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



**Caution** *Never* touch the exposed pins of connectors.

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

Remove the terminal block from the package and inspect the terminal block for loose components or any sign of damage. Notify NI if the terminal block appears damaged in any way. Do *not* install a damaged terminal block onto a switch module.

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

## 2. Verify the Components

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Make sure that you have the following items:

- SCXI-1378 terminal block
- SCXI chassis
- SCXI-1130 switch module
- 1/8 inch flathead screwdriver
- Phillips screwdriver

- Wire cutter
- Wire insulation stripper
- Matrix expansion cable (to expand the columns of a matrix)
- Matrix expansion plug (to expand the rows of a matrix)



**Tip** NI recommends using 28 AWG wire (ribbon or discrete) for use with the SCXI-1378 terminal block.

## 3. Connect Signals

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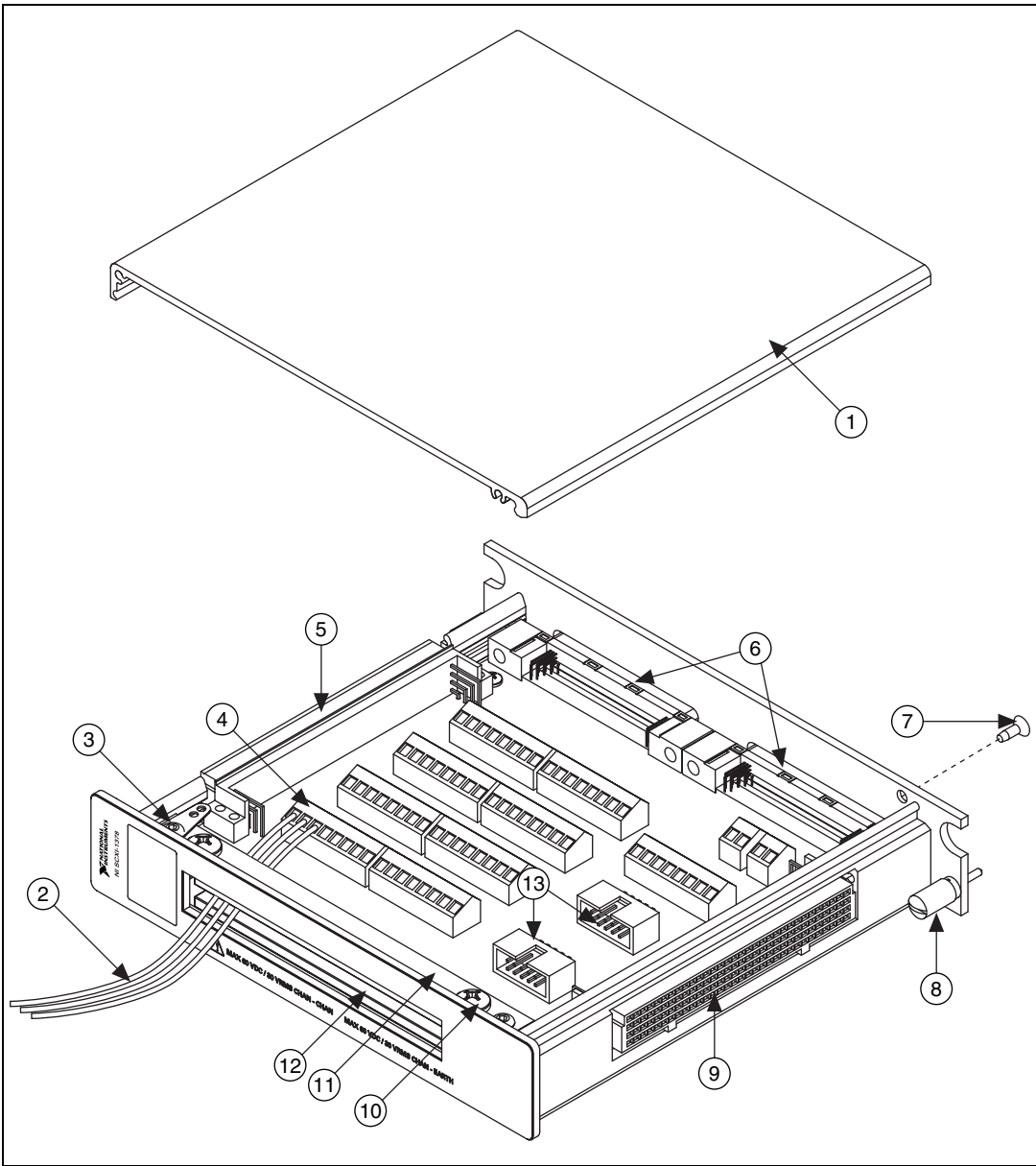
To connect signals to the terminal block, refer to Figures 1 and 2 while completing the following steps:

1. Prepare the signal wire by stripping the insulation no more than 7 mm.
2. Remove the top cover screw.
3. Unsnap and remove the top cover.
4. Loosen the two strain-relief screws on the strain-relief assembly.
5. Run the signal wires through the strain-relief opening.
6. Insert the stripped end of the wire fully into the terminal. Secure the wire by tightening the screw of the terminal. No bare wire should extend past the spring terminal. Exposed wire increases the risk of a short-circuit causing a failure.



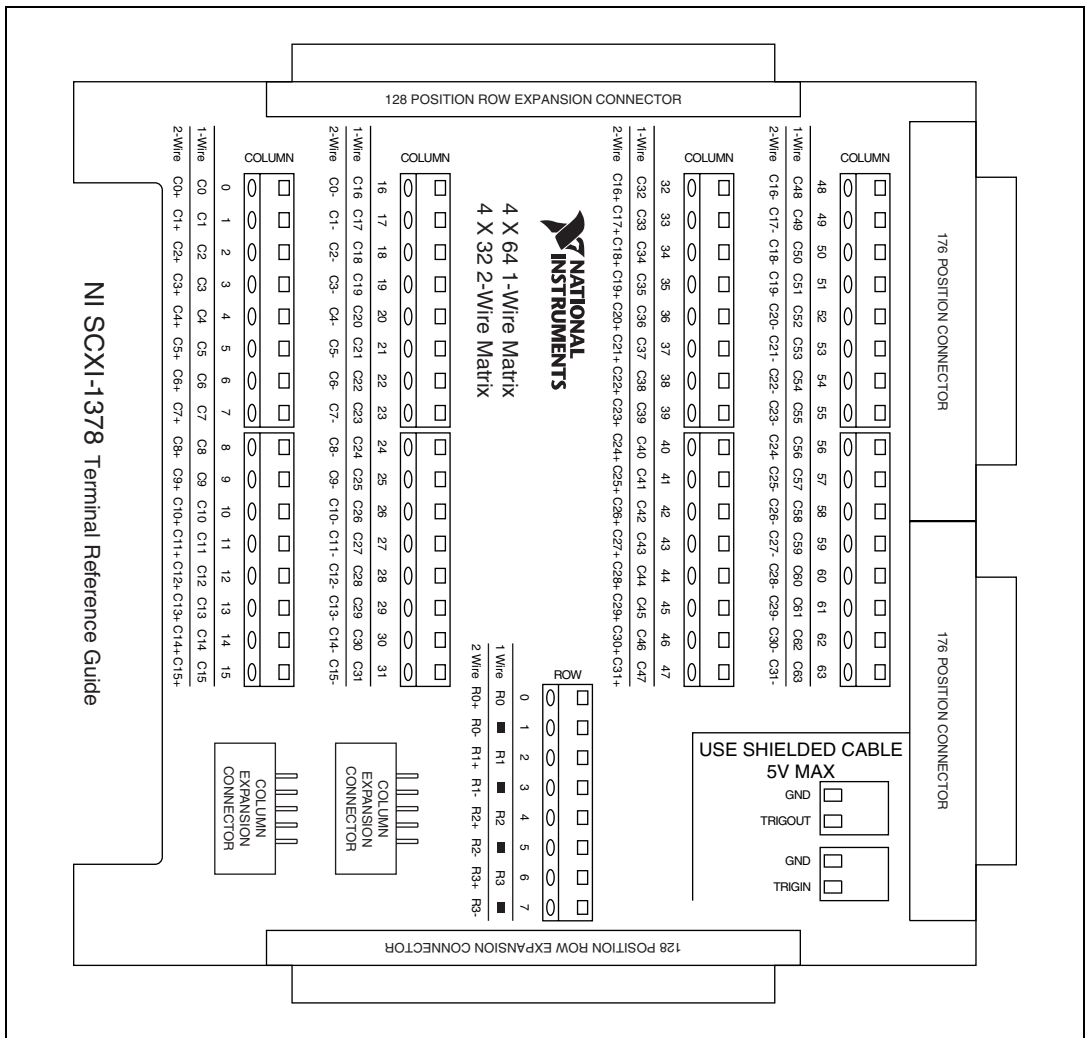
**Note** When connecting wires to the SCXI-1378, refer to Tables 1 and 2 to determine terminal mapping for the chosen topology.

7. Tighten the two screws on the strain-relief assembly to secure the cables.
8. Reinstall the top cover.
9. Replace the top cover screw.



- |                            |                          |
|----------------------------|--------------------------|
| 1 Terminal Block Top Cover | 8 Thumbscrew             |
| 2 Signal Wires             | 9 Column Connector       |
| 3 Safety Ground Lug        | 10 Strain-Relief Screw   |
| 4 Screw Terminals          | 11 Strain-Relief Bar     |
| 5 Column Connector         | 12 Strain-Relief Opening |
| 6 Rear Connectors          | 13 Row Connector         |
| 7 Top Cover Screw          |                          |

**Figure 1.** SCXI-1378 Terminal Block



**Figure 2. SCXI-1378 Terminal Block Signal Connections**

**Table 1. 4x64, 1-Wire Matrix Topology Mapping**

<b>Software</b>	<b>Hardware</b>	<b>Software</b>	<b>Hardware</b>	<b>Software</b>	<b>Hardware</b>
r0	ROW 0	c19	COLUMN 19	c42	COLUMN 42
r1	ROW 2	c20	COLUMN 20	c43	COLUMN 43
r2	ROW 4	c21	COLUMN 21	c44	COLUMN 44
r3	ROW 6	c22	COLUMN 22	c45	COLUMN 45
c0	COLUMN 0	c23	COLUMN 23	c46	COLUMN 46
c1	COLUMN 1	c24	COLUMN 24	c47	COLUMN 47
c2	COLUMN 2	c25	COLUMN 25	c48	COLUMN 48
c3	COLUMN 3	c26	COLUMN 26	c49	COLUMN 49
c4	COLUMN 4	c27	COLUMN 27	c50	COLUMN 50
c5	COLUMN 5	c28	COLUMN 28	c51	COLUMN 51
c6	COLUMN 6	c29	COLUMN 29	c52	COLUMN 52
c7	COLUMN 7	c30	COLUMN 30	c53	COLUMN 53
c8	COLUMN 8	c31	COLUMN 31	c54	COLUMN 54
c9	COLUMN 9	c32	COLUMN 32	c55	COLUMN 55
c10	COLUMN 10	c33	COLUMN 33	c56	COLUMN 56
c11	COLUMN 11	c34	COLUMN 34	c57	COLUMN 57
c12	COLUMN 12	c35	COLUMN 35	c58	COLUMN 58
c13	COLUMN 13	c36	COLUMN 36	c59	COLUMN 59
c14	COLUMN 14	c37	COLUMN 37	c60	COLUMN 60
c15	COLUMN 15	c38	COLUMN 38	c61	COLUMN 61
c16	COLUMN 16	c39	COLUMN 39	c62	COLUMN 62
c17	COLUMN 17	c40	COLUMN 40	c63	COLUMN 63
c18	COLUMN 18	c41	COLUMN 41		

**Table 2.** 4x32, 2-Wire Matrix Topology Mapping

Software	Hardware	
	+	-
r0	ROW 0	ROW 1
r1	ROW 2	ROW 3
r2	ROW 4	ROW 5
r3	ROW 6	ROW 7
c0	COLUMN 0	COLUMN 16
c1	COLUMN 1	COLUMN 17
c2	COLUMN 2	COLUMN 18
c3	COLUMN 3	COLUMN 19
c4	COLUMN 4	COLUMN 20
c5	COLUMN 5	COLUMN 21
c6	COLUMN 6	COLUMN 22
c7	COLUMN 7	COLUMN 23
c8	COLUMN 8	COLUMN 24
c9	COLUMN 9	COLUMN 25
c10	COLUMN 10	COLUMN 26
c11	COLUMN 11	COLUMN 27
c12	COLUMN 12	COLUMN 28
c13	COLUMN 13	COLUMN 29

Software	Hardware	
	+	-
c14	COLUMN 14	COLUMN 30
c15	COLUMN 15	COLUMN 31
c16	COLUMN 32	COLUMN 48
c17	COLUMN 33	COLUMN 49
c18	COLUMN 34	COLUMN 50
c19	COLUMN 35	COLUMN 51
c20	COLUMN 36	COLUMN 52
c21	COLUMN 37	COLUMN 53
c22	COLUMN 38	COLUMN 54
c23	COLUMN 39	COLUMN 55
c24	COLUMN 40	COLUMN 56
c25	COLUMN 41	COLUMN 57
c26	COLUMN 42	COLUMN 58
c27	COLUMN 43	COLUMN 59
c28	COLUMN 44	COLUMN 60
c29	COLUMN 45	COLUMN 61
c30	COLUMN 46	COLUMN 62
c31	COLUMN 47	COLUMN 63

## 4. Expanding Rows & Columns

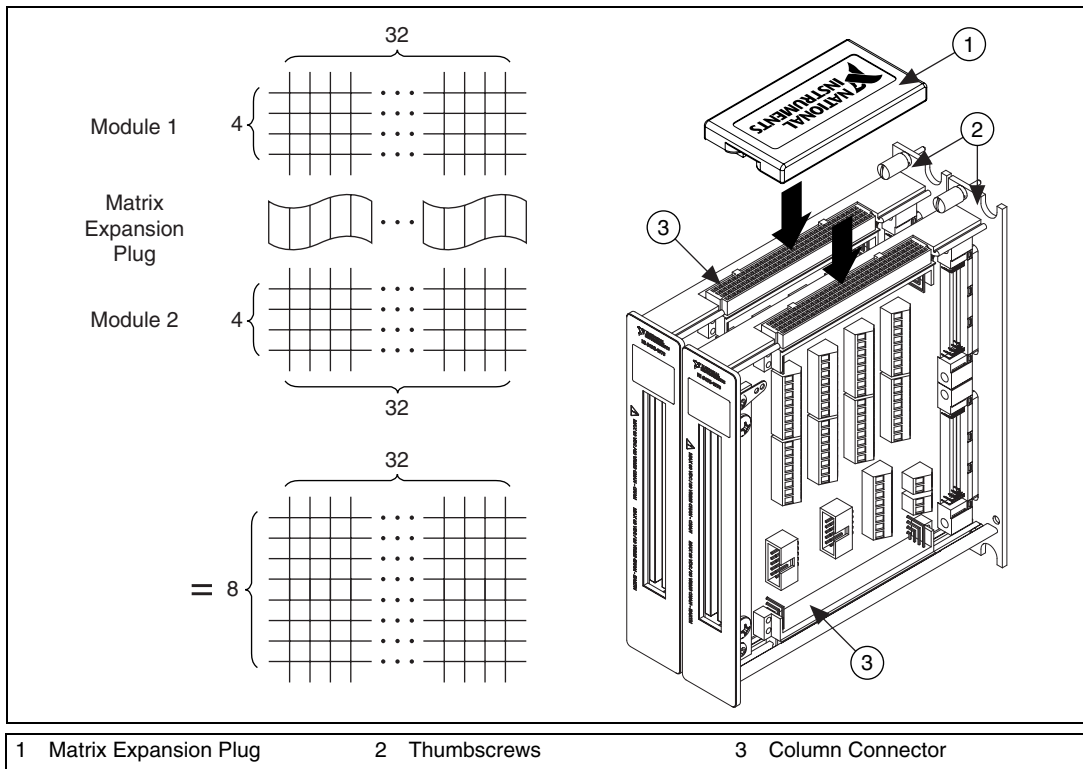
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The SCXI-1378 terminal blocks offers convenient methods for expanding the rows and/or columns of a matrix using two or more SCXI-1378 terminal blocks. If you are not expanding the rows or columns of the matrix, skip to the *Install the Terminal Block* section. For more information about expanding matrices, refer to the *NI Switches Help*.

# Row Expansion

Figure 3 shows how to expand the rows of a 4x32 matrix using a matrix expansion plug. The matrix expansion plug connects columns to expand the rows. To expand the rows of a matrix, complete the following steps:

1. Connect two SCXI-1378 terminal blocks to the front connectors of two adjacent SCXI-1130 modules.
2. Tighten the top and bottom chassis screws on the back of the terminal block rear panels to hold them securely in place.
3. Connect a matrix expansion plug to the top or bottom column connectors of the two SCXI-1378 terminal blocks.



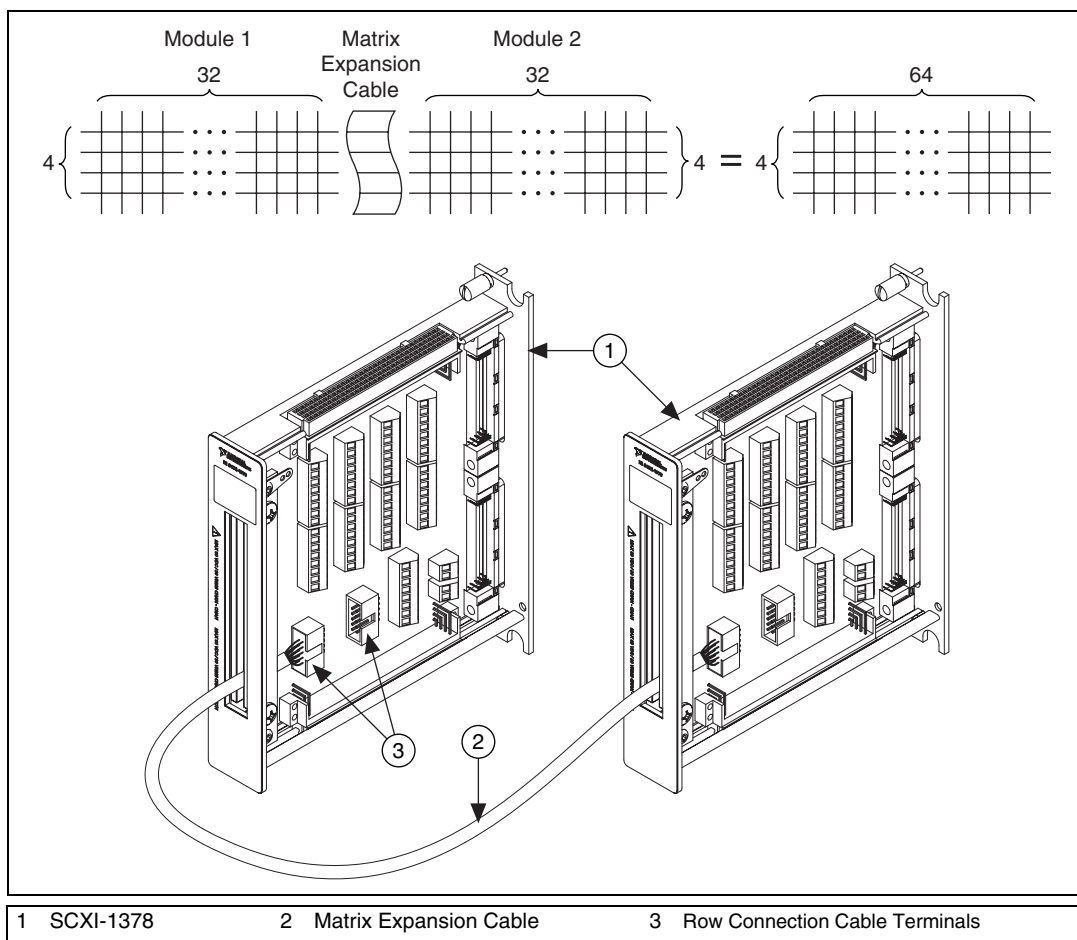
**Figure 3.** Row Expansion with the SCXI-1378



## Column Expansion

Figure 4 shows how to expand the columns of a 4x32 matrix using a matrix expansion cable. The matrix expansion cable connects rows to expand the columns. To expand the columns of a matrix, complete the following steps:

1. Connect one end of the matrix expansion cable to one of the ROW CONNECTION CABLE terminals in one of the SCXI-1378 terminal blocks.
2. Connect the other end of the matrix expansion cable to one of the ROW CONNECTION CABLE terminals in another SCXI-1378.
3. Connect the two SCXI-1378 terminal blocks to the front connectors of the two SCXI-1130 modules.
4. Tighten the top and bottom chassis screws on the back of the terminal block rear panels to hold them securely in place.

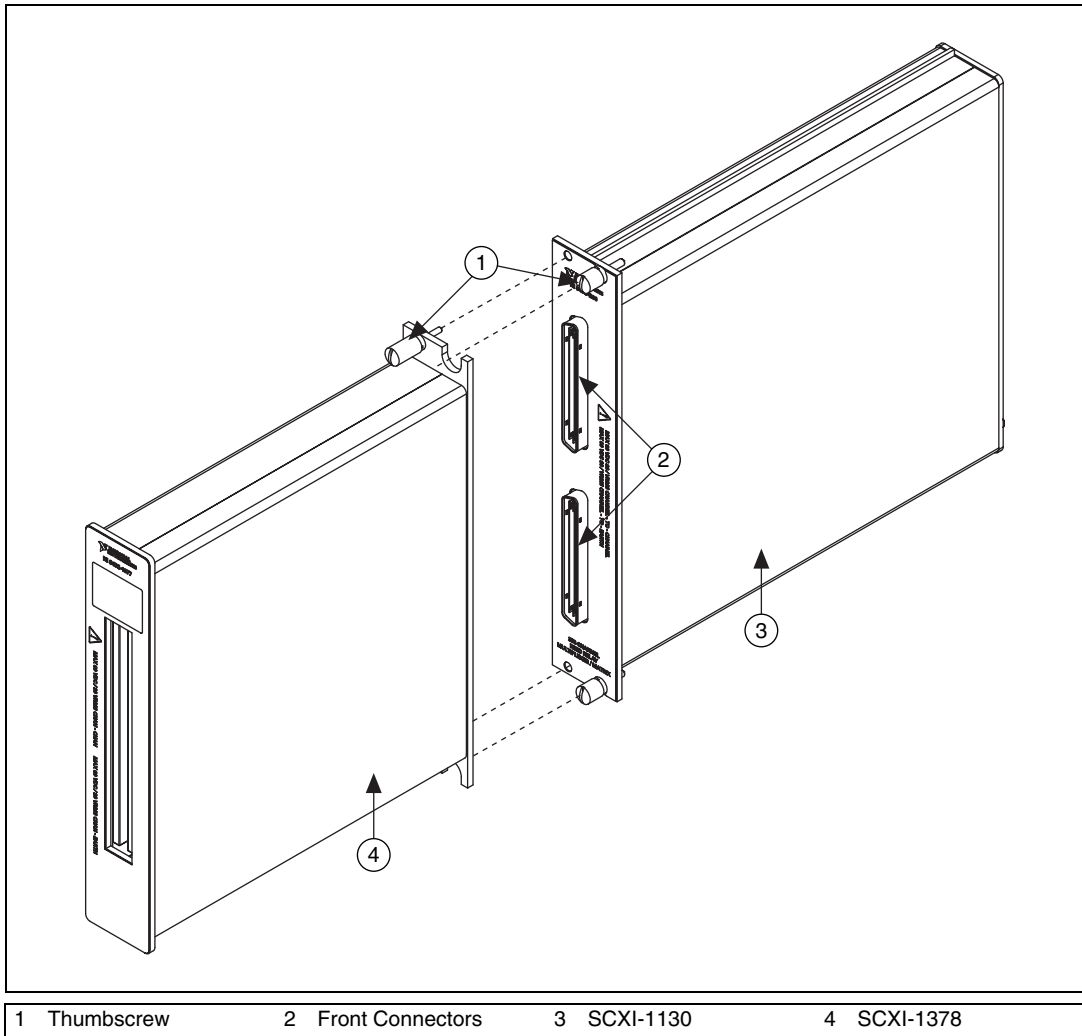


**Figure 4.** Column Expansion with the SCXI-1378

## 5. Install the Terminal Block

To connect the SCXI-1378 terminal block to the SCXI-1130 front panel, refer to Figure 5 and complete the following steps (the SCXI-1130 should already be installed in an SCXI chassis):

1. Plug the SCXI-1378 onto the front connectors of the SCXI-1130.
2. Tighten the top and bottom thumbscrews on the back of the terminal block rear panel to hold it securely in place.



**Figure 5.** Installing the SCXI-1378 Terminal Block

# Compliance and Certifications

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## Safety

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

- IEC 61010-1, EN 61010-1
- UL 3111-1, UL 61010B-1
- CAN/CSA C22.2 No. 1010.1



**Note** For UL and other safety certifications, refer to the product label, or visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## Electromagnetic Compatibility

Emissions .....	EN 55011 Class A at 10 m FCC Part 15A above 1 GHz
Immunity .....	EN 61326:1997 + A2:2001, Table 1
EMC/EMI.....	CE, C-Tick, and FCC Part 15 (Class A) Compliant



**Note** For EMC compliance, you *must* operate this device with shielded cabling.

## CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

Low-Voltage Directive (safety) .....	73/23/EEC
Electromagnetic Compatibility Directive (EMC) .....	89/336/EEC



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

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