SCB-8 Features

2022-07-11

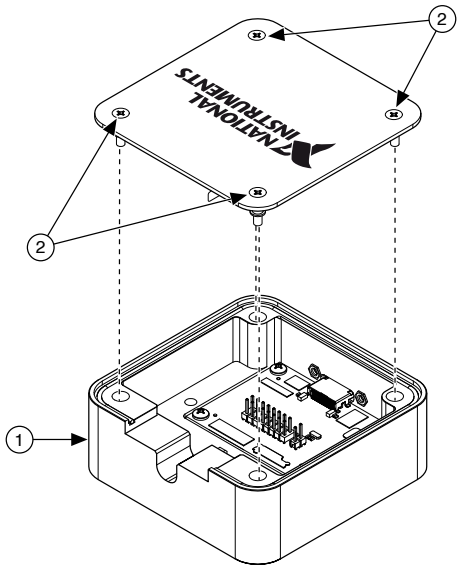
Contents

SCB-8 Purpose and Introduction

This document explains how to connect and use the SCB-8 with DIO connectors on National Instruments hardware.

Caution The protection provided by this product may be impaired if it is used in a manner not described in this document.

Figure 1. SCB-8 Connector Block

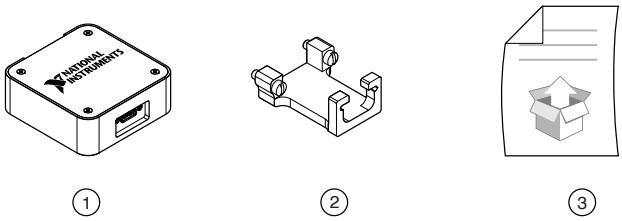


1. SCB-8
2. Cover Screws

Verifying the Kit Contents

Verify that the following components are in your kit.

Figure 2. Kit Contents for the SCB-8



1. SCB-8
2. Cable Retention Bracket
3. SCB-8 User Guide

Other Equipment

There are several items not included in your SCB-8 kit that you need to operate the SCB-8.

Required Items

- NI hardware with compatible Molex Nano-Pitch I/O connector
- OCuLink x4, 1 m cable (NI part number 785486-01)

> **Note** Using an OCuLink x4 cable supplied by another manufacturer is not recommended.

- Phillips #1 screwdriver
- 0.125 in. flathead screwdriver

Visit ni.com for more information about these additional items.

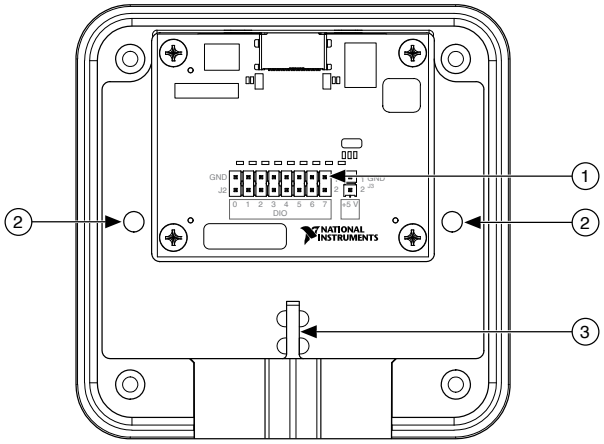
Optional Items

- Shielded, multiconductor cable with 14–30 AWG wire
- 16 position 0.1 inch dual row header
- Wire cutters
- Wire insulation stripper

SCB-8 Interior

Refer to the following figure for information about the interior of the SCB-8 when connecting the SCB-8.

Figure 3. Interior of the SCB-8



1. 0.1 inch dual row header
2. Wall mounting screw holes
3. Cable tie loops

Connecting the SCB-8

Complete the following steps to connect and use the SCB-8 with NI hardware.

Install your NI hardware in a chassis. Refer to the hardware documentation for your product(s) for installation instructions.

1. Remove the four cover screws with a Phillips #1 screwdriver and open the top cover, as shown in **Figure 1**.

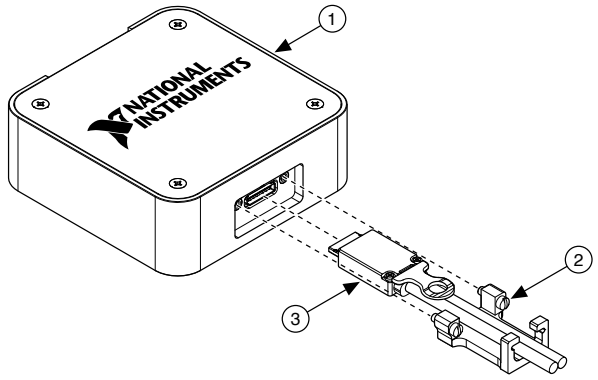
> **Caution** Refer to the documentation for the hardware you connect the SCB-8 to for maximum voltage specifications. Using voltages outside of the specified range could damage the SCB-8 and any instruments connected to it. NI is not liable for any damage resulting from using voltages outside of the recommended range.

2. Connect wires to the 0.1 inch dual row header pins either directly or with a user-supplied 0.1 inch dual row header.

> **Caution** To ensure the EMC performance specified for the connected hardware, any wires connected to screw terminals that exit the enclosure must be shielded. NI recommends using a multiconductor cable with an overall shield. Terminate the cable shield to one of the PCB mounting screws.

3. Close the top cover and tighten the four cover screws.
4. Remove the protective plastic cover from the Nano-Pitch I/O connector on the SCB-8, if present, and connect the OCuLink x4 cable to the connector.
5. Slide the included cable retention bracket around the cable assembly and tighten the screws to the SCB-8, as shown in the following figure.

Figure 4. SCB-8 Cable Connection



1. SCB-8
2. Cable retention bracket
3. Cable assembly

6. Connect the OCuLink x4 cable to the Nano-Pitch I/O connector on your NI hardware and secure with the appropriate retention bracket.

When you have finished using the SCB-8, power off any external signals connected to the SCB-8 before you power off your computer.

Notice 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.

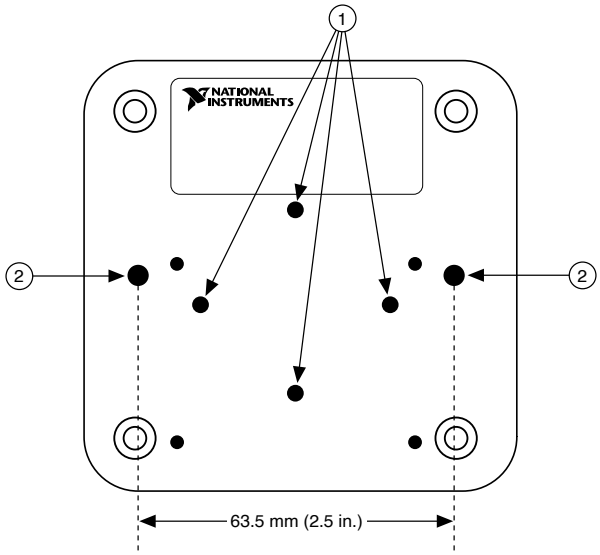
Mounting Holes

You can mount the SCB-8, either vertically or horizontally, on a DIN rail in an industrial environment.

You can purchase a compatible DIN rail kit from NI using the part number 781740-01.

The SCB-8 also has two screw holes for a generic wall mount. These wall mount holes are designed for use with a #4 or #6 panhead screw with a minimum length of 15.88 mm (0.625 in.).

Figure 5. SCB-8 Mounting Screw Holes



1. DIN rail mounting screw holes
2. Wall mounting screw holes

Specifications

Physical Characteristics

Dimensions	8.7 cm × 8.7 cm × 3.1 cm (3.4 in. × 3.4 in. × 1.2 in.)
Weight	355 g (12.5 oz)
Connector type	Nano-Pitch I/O 0.1 inch dual row header

Figure 6. OCuLink x4 Connector Pin Assignments

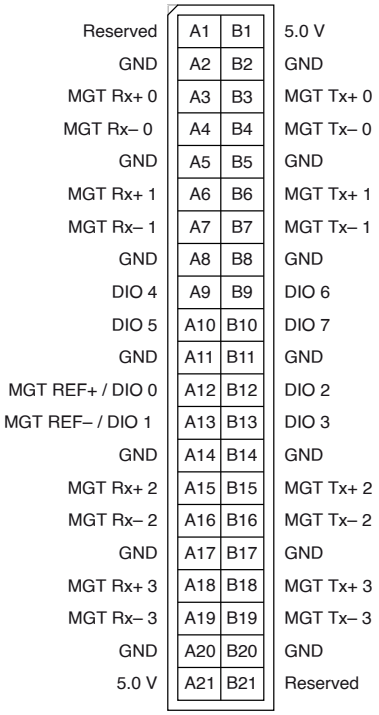
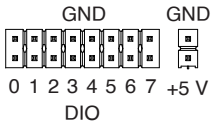


Figure 7. SCB-8 Pin Assignments



OCuLink Cable Pin Number	Description	0.1 Inch Header Connection
A1	Reserved	No Connection
A2	GND	GND
A3	MGT Rx+ 0†	No Connection
A3	MGT Rx- 0†	No Connection

OCuLink Cable Pin Number	Description	0.1 Inch Header Connection
A5	GND	GND
A6	MGT Rx+ 1†	No Connection
A7	MGT Rx- 1†	No Connection
A8	GND	GND
A9	DIO 4	DIO 4
A10	DIO 5	DIO 5
A11	GND	GND
A12	MGT REF+/DIO 0	DIO 0
A13	MGT REF-/DIO 1	DIO 1
A14	GND	GND
A15	MGT Rx+ 2†	No Connection
A16	MGT Rx- 2†	No Connection
A17	GND	GND
A18	MGT Rx+ 3†	No Connection
A19	MGT Rx- 3†	No Connection
A20	GND	GND
A21	5.0 V	5.0 V Output
B1	5.0 V	5.0 V Output
B2	GND	GND
B3	MGT Tx+ 0†	No Connection
B4	MGT Tx- 0†	No Connection
B5	GND	GND
B6	MGT Tx+ 1†	No Connection
B7	MGT Tx- 1†	No Connection
B8	GND	GND
B9	DIO 6	DIO 6
B10	DIO 7	DIO 7
B11	GND	GND
B12	DIO 2	DIO 2
B13	DIO 3	DIO 3

OCuLink Cable Pin Number	Description	0.1 Inch Header Connection
B14	GND	GND
B15	MGT Tx+ 2†	No Connection
B16	MGT Tx- 2†	No Connection
B17	GND	GND
B18	MGT Tx+ 3†	No Connection
B19	MGT Tx- 3†	No Connection
B20	GND	GND
B21	Reserved	No Connection
†MGT Rx+/- **n** and MGT Tx+/- **n** are connected on the SCB-8.		

Table 1. OCuLink x4 to 0.1 Inch Header Connector Signal Mapping

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
Relative humidity range	10% to 90%, noncondensing

Storage Environment

Ambient temperature range	-40 °C to 71 °C
Relative humidity range	5% to 95%, noncondensing

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.

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.

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- 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.

电子信息产品污染控制管理办法（中国 RoHS）

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