

USER MANUAL

NI CVS I/O Accessory

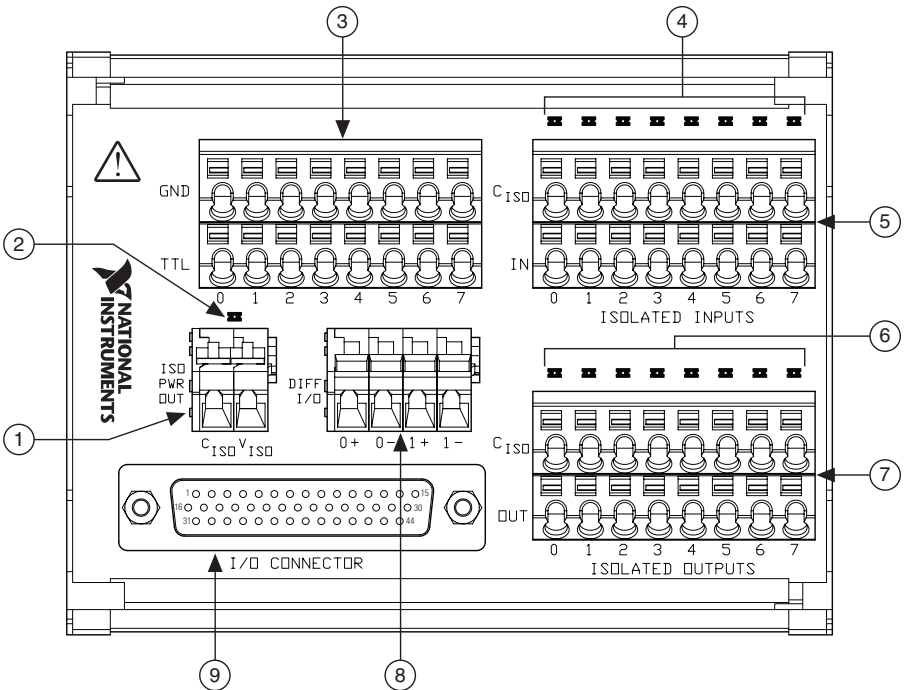
The I/O Accessory for NI Compact Vision Systems (I/O Accessory) is a terminal block that simplifies power and I/O signal configuration for NI Compact Vision Systems (NI CVS).



Note The I/O Accessory is not compatible with the NI CVS-1454, NI CVS-1455, or NI CVS-1456.

This document describes features, what you need to get started, installation and operation instructions, and related documentation for the I/O Accessory.

Figure 1. I/O Accessory for NI CVS



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| <ol style="list-style-type: none"> 1 ISO PWR OUT outputs a voltage reference from the ISO power connector on the NI CVS 2 Power status LED illuminates to indicate ISO power through the NI CVS 3 TTL I/O connectors 4 Isolated input LEDs illuminate to indicate an input channel is on | <ol style="list-style-type: none"> 5 Isolated input connectors 6 Isolated output LEDs illuminate to indicate an output channel is on 7 Isolated output connectors 8 Differential input/output connectors 9 44-Pin Digital I/O D-SUB connector to NI CVS |
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Features

- 44-pin male D-SUB connector
- Spring terminals for each NI CVS I/O signal
- Replaceable fuse for the isolated power from the NI CVS (V_{ISO})
- Isolated I/O status LEDs
- Built-in DIN rail clips for easy mounting
- Compact dimensions ($4.4 \times 3.35 \times 1.7$ in., $112 \times 85 \times 43$ mm)

What You Need to Get Started

- I/O Accessory kit, including the accessory and male-to-female 44-pin D-SUB cable
- A compatible NI Compact Vision System
- 14-28 AWG Wire
- Wire cutter
- Wire insulation stripper

Related Documentation

The following documents contain additional information you may find helpful as you set up and use the I/O Accessory.

- *NI CVS-1457RT Getting Started Guide*—Explains how to install and configure the NI CVS-1457RT.
- *NI CVS-1457RT Specifications*—Contains detailed specifications for the NI CVS-1457RT.
- *NI CVS-1457RT User Manual*—Contains connector pinouts, configuration information, mounting information, and answers to common troubleshooting questions for the NI CVS-1457RT.

Installing the I/O Accessory

1. Install the NI CVS per the instructions in the device documentation. Refer to the [Related Documentation](#) section for a list of documents that contain installation information.
2. Connect the female end of the D-SUB cable to the I/O connector on the I/O Accessory, and the male end of the D-SUB cable to the Digital I/O connector on the NI CVS.
3. Connect signal wires to the spring terminals on the I/O Accessory:
 - a. Strip 1/4 in. of insulation from the signal wire.
 - b. Depress the lever or push the button on the spring terminal.
 - c. Insert the wire into the terminal.

Refer to the [Signal Descriptions](#) section for a description of each signal.

4. If using isolated outputs, connect a power supply to the ISO power connector on the NI CVS. Supply voltage range for V_{ISO} is 5 VDC to 24 VDC.



Caution Do not connect voltages greater than 24 VDC to the isolated inputs on the I/O Accessory. Input voltages greater than 24 VDC can damage the accessory, all devices connected to it, and the NI CVS. National Instruments is *not* liable for damage or injury resulting from such misuse.

Testing and Replacing the Fuse

The I/O Accessory has a replaceable fuse on the rear of the board. If this fuse is blown, replace it with a Littelfuse part number 0453003. The Littelfuse 0453003 is a 3 A, 125 V Very Fast-Acting Nano² subminiature ceramic fuse measuring 6.10×2.69 mm.

You can use a handheld DMM to verify the continuity of a fuse.

Complete the following steps to replace a blown fuse:

1. Disconnect all power to the NI CVS, and all power to any equipment connected to the NI CVS or I/O Accessory.
2. Remove all signal wires and cables from the I/O Accessory.
3. Remove a side panel. Use a Phillips head screwdriver to remove the 2 retaining screws.
4. Slide the circuit board out.
5. Replace the blown fuse with an equivalent replacement fuse.

Signal Descriptions

Refer to the NI CVS device documentation for pin location and definition on the NI CVS Digital I/O connector.

Table 1. I/O Connector Signals

Connector	Signal Name	Description
ISO PWR OUT	C _{ISO}	Common ground reference for isolated inputs and outputs*
	V _{ISO}	Isolated power voltage reference output
TTL	GND	Digital ground reference for TTL and differential I/O
	TTL 0 to 7	Bidirectional TTL input/output signals 0 to 7
DIFF I/O	0+	RS-422 differential input or output 0 (positive side) or quadrature encoder phase A+
	0-	RS-422 differential input or output 0 (negative side) or quadrature encoder phase A-
	1+	RS-422 differential input or output 1 (positive side) or quadrature encoder phase B+
	1-	RS-422 differential input or output 1 (negative side) or quadrature encoder phase B-
ISOLATED INPUTS	C _{ISO} 0 to 7	Common ground reference for isolated inputs and outputs*
	IN 0 to 7	General purpose isolated input signals 0 to 7
ISOLATED OUTPUTS	C _{ISO} 0 to 7	Common ground reference for isolated inputs and outputs*
	OUT 0 to 7	General purpose isolated output signals 0 to 7
* All C _{ISO} signals on the I/O Accessory board are connected together.		

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