

USER GUIDE

Power and I/O Accessory

For NI 177x Smart Cameras

The Power and I/O Accessory for NI 177x Smart Cameras (Power and I/O Accessory) is a terminal block that simplifies power and I/O signal configuration for the NI 177x Smart Camera.

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

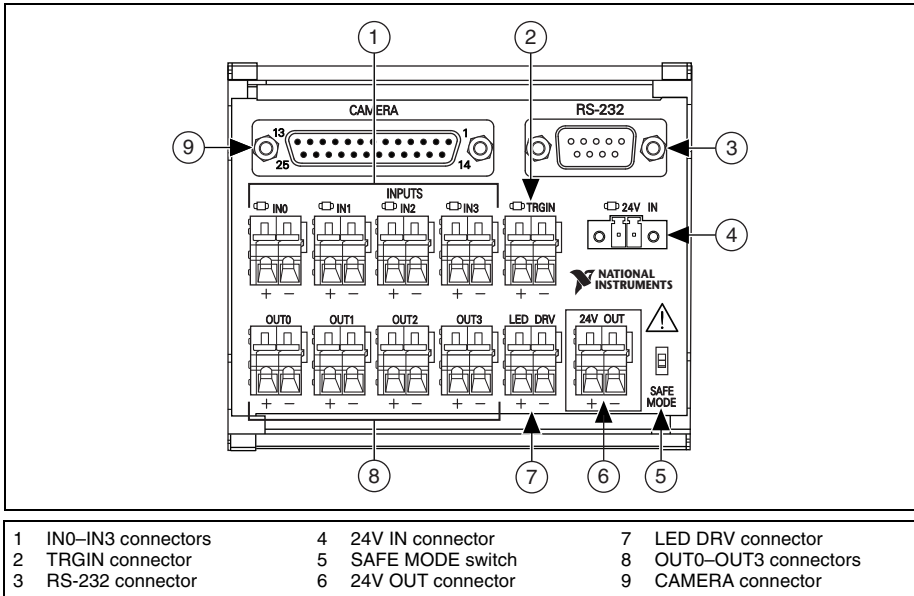


Figure 1. Power and I/O Accessory for NI 177x Smart Cameras

The Power and I/O Accessory has the following features:

- 25-pin D-SUB connector and a 17-pin M12 to 25-pin D-SUB cable
- Spring terminals for each NI 177x Smart Camera I/O signal
- Spring terminal for 24 V output
- Safe mode switch
- User-replaceable fuses for open collector and current controlled outputs, RS-232, and accessory power

- RS-232 connector for serial communication
- Built-in DIN rail clips for easy mounting

What You Need to Get Started

- Power and I/O Accessory kit, including the accessory and 17-pin M12 to 25-pin D-SUB cable
- NI 177x Smart Camera
- NI 177x Smart Camera power supply (782032-01)
- (Optional) NI 9-pin female D-SUB to 9-pin female D-SUB null modem RS-232 cable (part number 182238-xx)
- 12–28 AWG wire
- Wire cutter
- Wire insulation stripper

Related Documentation

The *NI 177x Smart Camera User Manual*, available from ni.com/manuals, contains information you may find helpful as you set up and use the Power and I/O Accessory.

Installing the Power and I/O Accessory

Complete the following steps to install the Power and I/O Accessory:

1. Install the NI 177x Smart Camera and required software.



Caution Never touch the exposed pins of connectors.

2. Connect the included cable to the CAMERA connector on the Power and I/O Accessory and the I/O connector on the NI 177x Smart Camera.
3. Connect signal wires to the spring terminals on the Power and I/O Accessory:
 - a. Strip 1/4 in. of insulation from the signal wire.
 - b. Depress the lever of the spring terminal.
 - c. Insert the wire into the terminal.

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



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

4. Connect the power supply to the 24 V IN connector on the Power and I/O Accessory.
5. Connect the power supply to a power source.

Testing and Replacing Fuses

The Power and I/O Accessory has seven replaceable fuses. For fuse and spare fuse locations, refer to Figure 2. For a description of the included fuses, refer to Table 1.

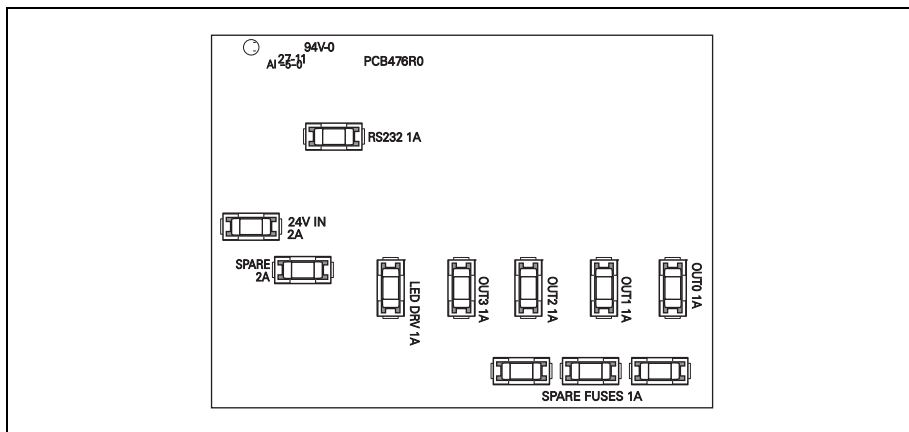


Figure 2. Fuse Locations

Table 1. Power and I/O Accessory Fuses

Protected Signal	Replacement Fuse Quantity	Littelfuse Part Number	Fuse Description
24 V IN	1	0448002.MR	2 A, 125V lead-free very fast-acting NANO ² subminiature ceramic surface mount fuse, 6.10 × 2.69 mm
RS232, LED DRV, OUT0, OUT1, OUT2, OUT3	3	0448001.MR	1 A, 125V lead-free very fast-acting NANO ² subminiature ceramic surface mount fuse, 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. Unplug the power supply.
2. Remove all signal wires and cables from the Power and 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 any blown fuses with an equivalent replacement fuse. Replacement fuses are labelled as SPARE on the circuit board.

Signal Descriptions

Refer to the *NI 177x Smart Camera User Manual* for detailed signal descriptions.

Table 2. I/O Connector Signals

Signal Name	Function
IN0	Opto-coupled auxiliary input signal 0.*
IN1	Opto-coupled auxiliary input signal 1.*
IN2	Opto-coupled auxiliary input signal 2.*
IN3	Opto-coupled auxiliary input signal 3.*
TRIGIN	Opto-isolated trigger input signal.
24 V IN	Supplies power to the accessory and smart camera.
OUT0	Open collector output signal 0. Provides an exposure signal generated using exposure timer 1 or trigger signal bypass.
OUT1	Open collector output signal 1. Provides an exposure signal, trigger signal bypass, or programmable unmodulated strobe signal generated using exposure timer 2.
OUT2	Open collector output signal 2.
OUT3	Open collector output signal 3.
LED DRV	Controlled-current output, designed to be connected to a LED lighting device (0 to 500 mA, generated using exposure timer 2).
24 V OUT	Power supply output.
SAFE MODE	Initializes the camera in safe mode.
* The negative component of this signal is internally connected to the power supply GND.	

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