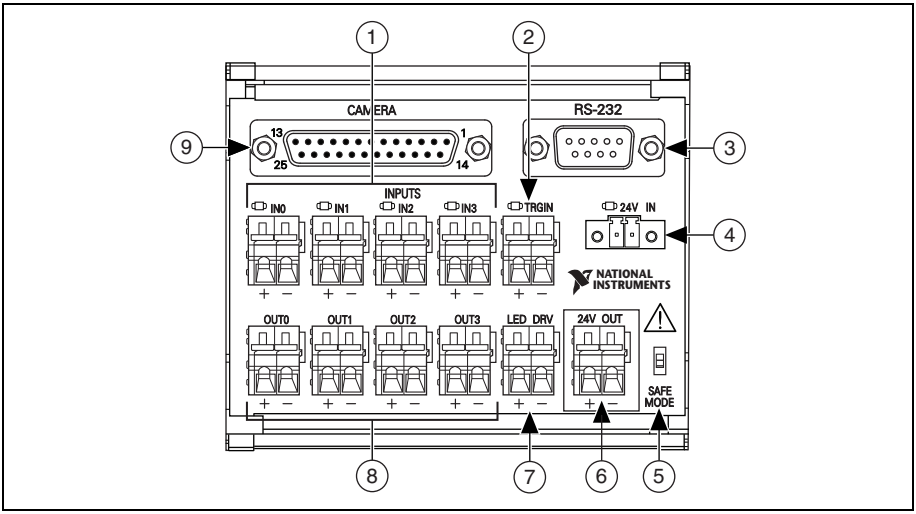
## USER GUIDE

# 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.




| | | | | | |
|---|---|---|---|---|---|
| 1 | IN0–IN3 connectors | 4 | 24V IN connector | 7 | LED DRV connector |
| 2 | TRGIN connector | 5 | SAFE MODE switch | 8 | OUT0–OUT3 connectors |
| 3 | RS-232 connector | 6 | 24V OUT connector | 9 | CAMERA connector |

**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

NATIONAL INSTRUMENTS

- 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.

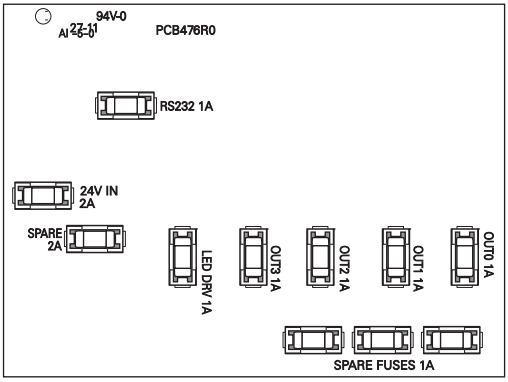



**Figure 2.** Fuse Locations

**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 ouput signal 0.<br>Provides an exposure signal generated using exposure timer 1 or trigger signal bypass. |
| OUT1 | Open collector output signal 1.<br>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. | |

# 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 *NI and the Environment* 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 and Electronic Equipment, visit `ni.com/environment/weee`.

## 电子信息产品污染控制管理办法 （中国 RoHS）

**中国客户** National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 `ni.com/environment/rohs_china`。(For information about China RoHS compliance, go to `ni.com/environment/rohs_china`.)



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