



Protected AC (120V) Output Module Cat. No. 1771-OP

Installation Instructions

To The Installer

This document provides information on:

- important pre-installation considerations
- power supply requirements
- installing the module
- connecting the wiring
- using the indicators for troubleshooting
- replacing fuses
- module specifications

Pre-installation Considerations

An output can drive an Allen-Bradley Size 5 motor starter, provided its supply voltage does not drop below 92V ac. The maximum load current the module can deliver is 2A per channel, not to exceed 6A total per module.



ATTENTION: When using a remote I/O system with a PLC processor, use only the 1771-AS or 1771-AR remote I/O adapter module which is series B or later. These remote I/O adapters add additional capability for shorted data bus detection. Failure to use series B or later remote I/O adapters may result in damage to equipment and/or personal injury.

Power Supply Requirements

The output module is powered by the power supply connected to the I/O chassis backplane. The module requires a maximum current of 350mA from the +5V dc output of this supply. Total the current requirements of this module with the other modules in the I/O chassis to avoid overloading the supply or the I/O chassis backplane.

Installing the Module

In this section, we tell you how to install your module, key your I/O chassis and make your wiring connections.

Module Location in the I/O Chassis

Group your modules to minimize adverse effects from radiated electrical noise and/or heat. We recommend the following.

- Group analog input and low voltage dc modules away from ac modules or high voltage dc modules to minimize electrical noise interference.
- Place analog input modules and other I/O modules sensitive to heat away from slot power supplies to minimize adverse heat effects.

Initial Handling



ATTENTION: Remove power from the 1771 I/O chassis backplane and wiring arm before removing or installing an I/O module.

- Failure to remove power from the backplane or wiring arm could cause module damage, degradation of performance, or injury.
 - Failure to remove power from the backplane could cause injury or equipment damage due to possible unexpected operation.
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- Touch a grounded object to rid yourself of charge before handling the module.
 - Do not touch the backplane connector or connector pins.
 - When you configure or replace internal components, do not touch other circuit components inside the module. If available, use a static-safe work station.
 - When not in use, keep the module in its static-shield bag.

Keying the I/O Chassis

Use the plastic keying bands, shipped with each I/O chassis, to key your I/O slots to accept only this type of module. Place keying bands between these numbers labeled on the backplane connector:

- between 6 and 8
- between 26 and 28

Slots on the rear edge of the circuit board are matched to these slots to allow insertion of the module. You can key any connector in an I/O chassis to receive this module except for the left-most connector reserved for adapter or processor modules.



ATTENTION: A module inserted into a wrong slot could be damaged by improper voltages connected through the wiring arm. Use keying bands to prevent damage to the module.

Inserting the module into the I/O Chassis

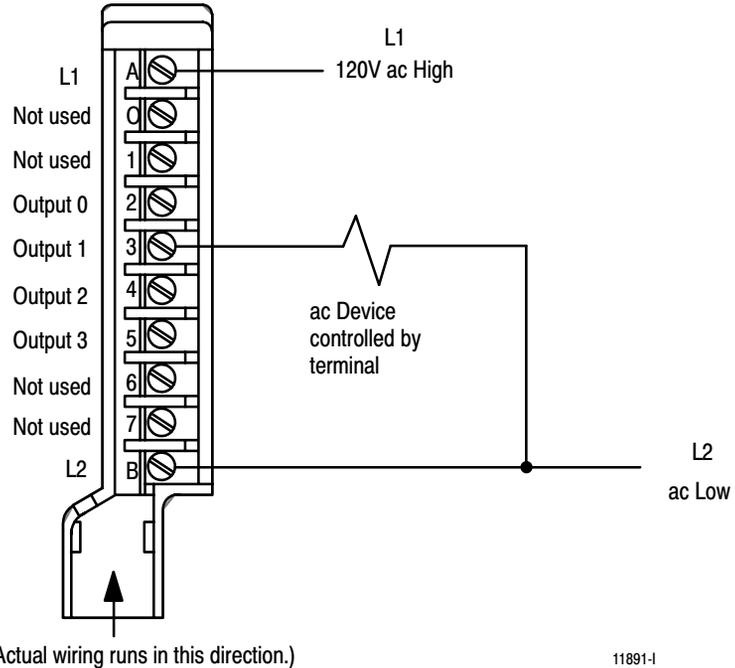
1. Position the module so that the circuit board on the rear of the module lines up with the top and bottom card guides in the chassis.
2. Slide the module into the chassis.
3. Press firmly to seat the module in the chassis backplane connector.
4. Swing the module locking latch down into place over the front of the module.

Connecting Wiring to the Module

You make connections to the module through the 1771-WA field wiring arm shipped with the module. The arm pivots on the chassis to connect with the terminals on the front of the module. The wiring arm allows the module to be removed from the chassis without disconnecting wiring.

1. Make certain all power is removed from the module before making wiring connections.
2. Swing the wiring arm up into position on the front of the module. The locking tab on the module will secure it into place.
3. Make your connections to the field wiring arm as shown in .
(Use the label on the front of the wiring arm to identify your wiring.)

Figure 1
Connection Diagram



Connect the high side of incoming power to the L1 terminal, and the low side to the L2 terminal (Figure 1).



ATTENTION: Do not configure the module so that outputs are paralleled and 120V ac is fed back into the output of the module. Failure to observe this caution may result in damage to the module circuitry.

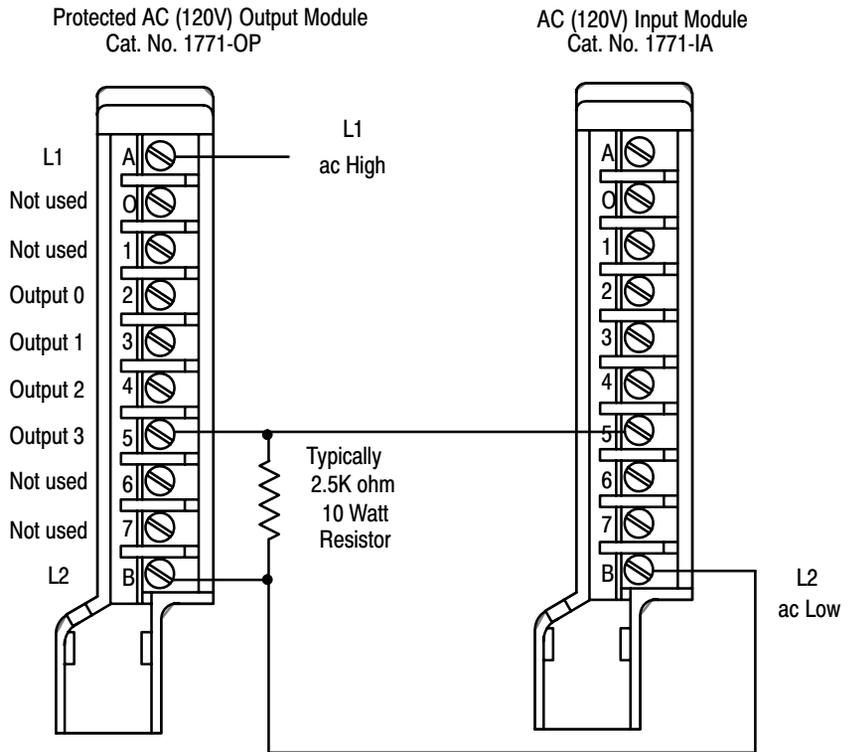


ATTENTION: The field wiring arm terminal identification number is not the same as the number of the bit which controls that output.

You should identify the labels on the wiring arm with the name or number of the device connected at each terminal.

You can use an output of the 1771-OP module to drive an input of a 120V ac input module (1771-IA, -IA2, -IAD, -ID) to indicate status of turning on a motor starter, for example (). For proper phase relationship of the ac voltage waveform, both modules must be powered by the same ac source. In addition, you must add an external resistor between the output terminal and the common (L2) (). Typically, this is a 2.5K ohm, 10W resistor.

Figure 2
Using an Output Module to drive an Input Module



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ATTENTION: Do not apply two different phases of one power source to the same 1771-OP module, or to a 1771-OP module and a 1771-IA module being driven by that 1771-OP module.

Interpreting the Status Indicators

The module has 6 status indicators (Figure 3). The indicators and condition represented are shown in Table A.

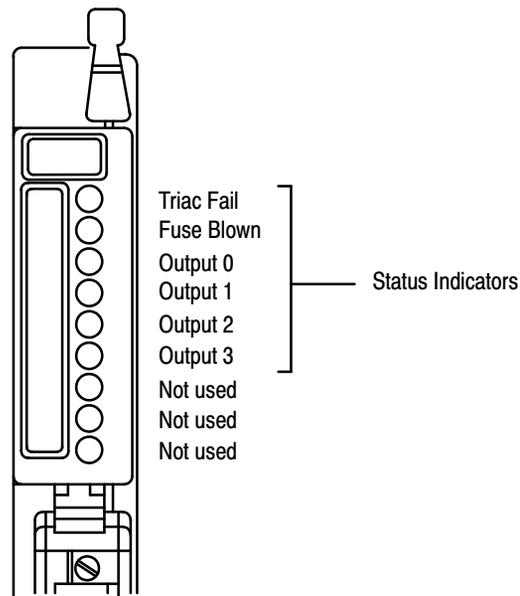
Table A
Module Indicators

Indicator	Color	Explanation	Condition
TRIAC FAIL	Red	Illuminates when one of the output triacs has failed shorted and causes the output fuse to open.	Normally off
FUSE BLOWN	Red	Illuminates when an output fuse has opened.	Normally off
OUTPUT (4 total; one per output)	Red	Show on/off state of outputs. When output is on, associated indicator is on.	On or off, as determined by state of output



ATTENTION: If the TRIAC FAIL indicator is on, the module should be returned to Allen-Bradley for repair. Do not attempt to operate the module after the TRIAC FAIL indicator has illuminated.

Figure 3
Status Indicators



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Replacing a Fuse

The output of this module is fused to open the output circuit under an overload or a shorted output triac condition. You can easily access the module fuse by removing the front component-side cover.



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- Failure to remove power from the backplane could cause injury or equipment damage due to possible unexpected operation.
 - Failure to remove power from the backplane or wiring arm could cause module damage, degradation of performance, or injury.
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If a blown fuse occurs:

1. Turn off power to the I/O chassis backplane.
2. Pivot the wiring arm away from the module and pull the module from the I/O chassis.
3. Remove the front half of the protective cover from the unlabeled side of the module by removing the two slotted screws.
4. Replace the blown fuse.
5. Replace the protective cover and install the module in the I/O chassis.
6. Reposition the wiring arm.
7. Restart system power.

Specifications

Outputs per Module	4
Module Location	1771 I/O chassis
Output Voltage Range	92 to 138V ac @ 47 - 63Hz
Output Current Rating	2A per output - not to exceed 6A per module
Surge Current (maximum)	20A per output for 60ms
Minimum Load Current	80mA per output @ 120V ac, 60Hz
On State Voltage Drop (max.)	2V ac at 100mA
Off State Leakage Current (max.)	6mA per output @ 120V ac
Signal Delay	1.0ms on; 8.3ms off
Power Dissipation	13.9 Watts (max.), 1.8 Watts (min.)
Thermal Dissipation	47.2 BTU/hr (max.), 6.1 BTU/hr (min.)
Backplane Current	350mA @ 5V dc 5%
Isolation Voltage	1500V ac (rms)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity	0° to 60°C (32° to 140°F) -40° to 85°C (-40° to 185°F) 5 to 95% (without condensation)
Conductors Wire Size Category	14 gauge (2mm ²) stranded maximum 3/64 inch (1.2mm) insulation maximum 1 ¹
Keying	Between 6 and 8 Between 26 and 28
Fuse	0.5A Bussmann Type GLD 5A Bussmann Type MTH
Wiring Arm	Catalog Number 1771-WA

¹ Refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.



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