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ALLEN-BRADLEY

AC/DC (120V) Input Module
Cat. No. 1771–IA, –IA2

Installation Data

To The Installer

This document provides information on:

- important pre–installation considerations
- power supply requirements
- installing the module
- using the indicators for troubleshooting
- module specifications

Pre–installation Considerations

These modules contain input filtering to limit the effects of voltage transients caused by contact bounce and/or radiated electrical noise. The delay due to filtering is nominally 24±10ms for turning ac inputs on or off; and 10±4ms for turning dc inputs on, 20±9ms for turning dc inputs off.

These modules are designed to operate with ac proximity switches such as Allen–Bradley Bulletin 871P and other input devices with an off–state leakage current less than 2.8mA.

Power Requirements

Your module receives its power through the 1771 I/O chassis backplane from the chassis power supply. The module requires 75mA from the output of this supply. Add this to the requirements of all other modules in the I/O chassis to prevent overloading the chassis backplane and/or backplane power supply.

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Installing Your Module

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

Keying Your I/O Chassis

Use the plastic keying bands, shipped with each I/O chassis, to key the I/O slots to accept only this type of module.

The module circuit board is slotted in two places on the rear edge. The position of the keying bands on the backplane connector must correspond 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. Place keying bands between the following numbers labeled on the backplane connector:

- Between 4 and 6
- Between 10 and 12

You can change the position of these keys if system redesign and rewiring makes insertion of a different module necessary.

Installing the Input Module

To install the AC/DC input module in your 1771 I/O chassis, follow the steps listed below.



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.

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.

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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.

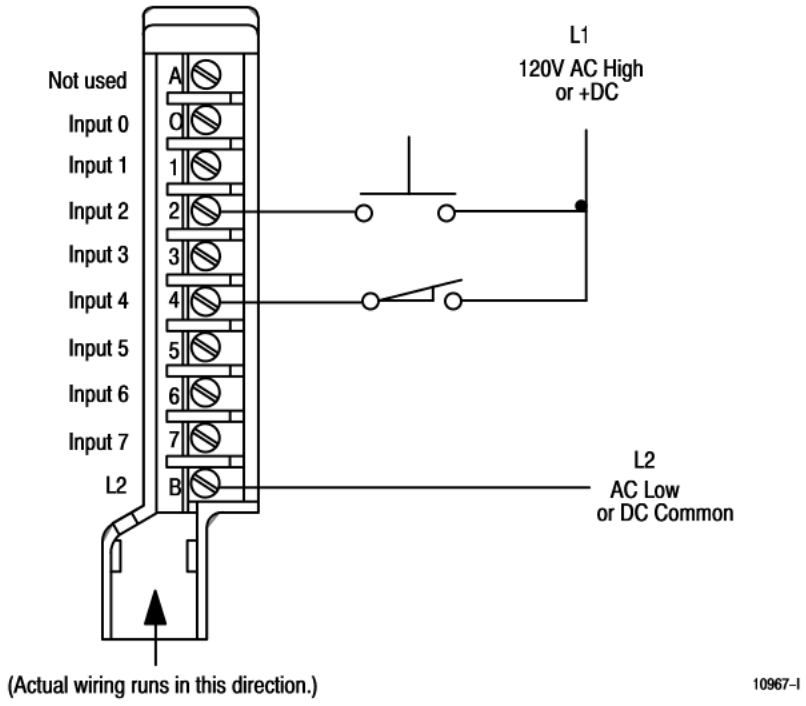
1. Make certain all power is removed from the module before making wiring connections.

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 Figure 1. (Use the label on the front of the wiring arm to identify your wiring.)

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

Figure 1
Connection Diagram



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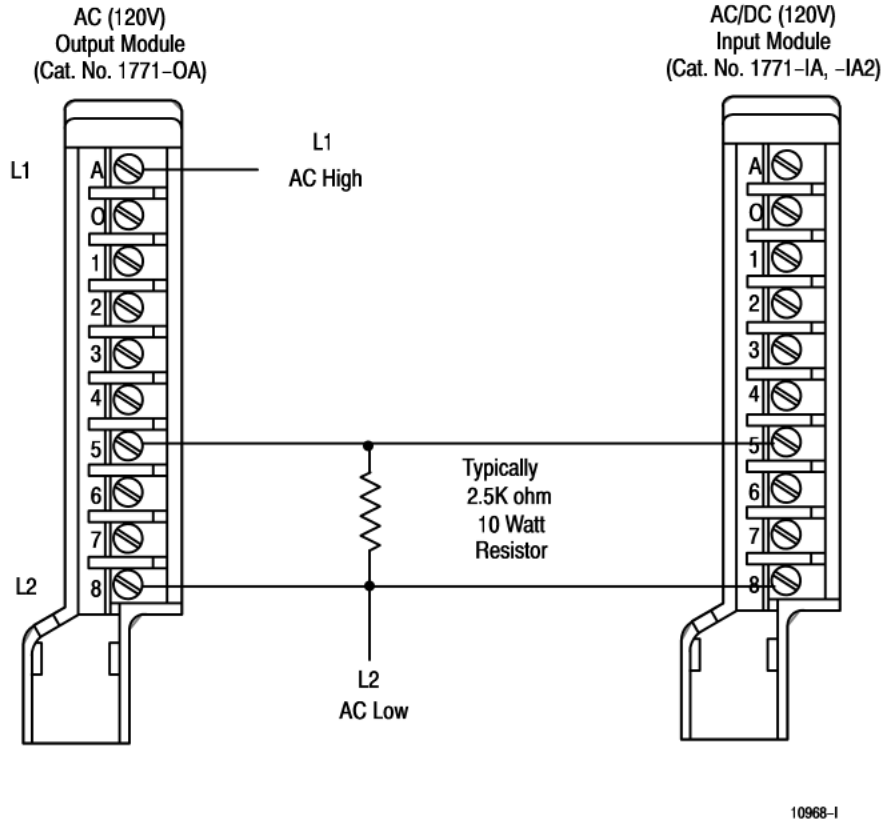
4. Connect one terminal of your 2–wire input device to terminals 0 thru 7 (Figure 1).

5. Connect terminal B to the L2 (low) ac return or dc common. Terminal A is not used.

6. Connect L1 (high) ac line or +dc line to the other terminal of your input devices. Use stranded 14 or 16 gauge wire to minimize the voltage drop over long cable distances.

Important: You can use an AC (120V) Output Module (cat. no. 1771–OA) to directly drive terminals on an AC/DC (120V) Input Module (cat. no. 1771–IA, –IA2) (Figure 2), but you must connect a 2.5K ohm, 10W resistor between the output terminal and L2 (common) as shown in Figure 2. **Use the same ac power source to power both modules to ensure proper phasing and prevent module damage.**

Figure 2
Driving an Input with an Output

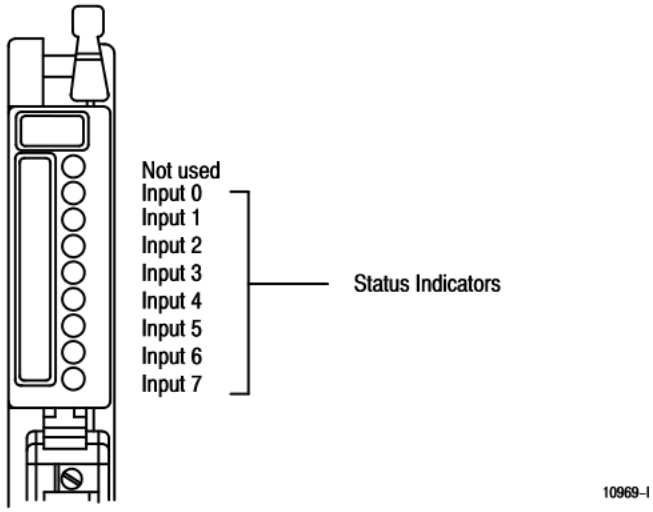


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Interpreting the Status Indicators

The front panel of your module contains 8 orange neon status indicators (Figure 3). The orange status indicators are provided for system logic side indication of individual inputs. When an orange neon indicator lights, voltage is present on the terminal. The module transfers this information to the backplane for the processor to read.

Figure 3
Status Indicators



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Installation Data
AC/DC (120V) Input Module
Cat. No. 1771–IA, –IA2

Specifications

Inputs per Module	8
Module Location	1771 I/O chassis
Nominal Input Voltage	120V ac @ 47 – 63Hz 125V dc
Nominal Input Current	4.5mA @ 87V ac 5.0mA @ 92V ac 12.0mA @ 138V ac 7.4mA @ 125V dc
On–state Voltage Range	87V AC to 138V ac 97V DC to 138V dc
Maximum Off–state Voltage	46V ac peak 57V dc
Maximum Off–state Current	2.8mA ac peak or dc
Input Signal Delay	24±10ms, on or off for ac 10±4ms for turning on dc 20±9ms for turning off dc
Power Dissipation	10.7 Watts (max.), 0.4 Watts (min.)
Thermal Dissipation	36.5 BTU/hr (max.), 1.4 BTU/hr (min.)
Backplane Current	75mA
Opto–electrical Isolation	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 gage stranded maximum 3/64 inch insulation maximum 1[1]
Keying	Between 4 and 6 Between 10 and 12
Wiring Arm	Catalog Number 1771–WA

[1] Refer to Publication 1770–4.1, Programmable Controller Wiring and Grounding Guidelines.

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