ALLEN-BRADLEY

Isolated AC/DC (120V) Input Module Cat. No. 1771-ID

Installation Instructions

To The Installer

This document provides information on:

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

Pre-installation Considerations

This module contains 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; 10±4ms for turning dc inputs on, and 20±9ms for turning dc inputs off.

This module is designed to operate with limit switches, float switches, selector switches, and pushbutton switches.

Power Requirements

Your module receives its power through the 1771 I/O chassis backplane from the chassis power supply. The module requires 74mA 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.

Initial Handling

The isolated input module is shipped in a static-shielded bag to guard against electrostatic discharge damage. Observe the following precautions when handling the module.

Electrostatic Discharge Damage

ATTENTION: Under some conditions, electrostatic discharge can degrade performance or damage the module. Observe the following precautions to guard against electrostatic damage.

- Wear an approved wrist strap grounding device, or touch a grounded object to discharge yourself before handling the module.
- Do not touch the backplane connector or connector pins.
- If you configure or replace internal components, do not touch other circuit components inside the module. If available, use a static-free work station.
- When not in use, keep the module in a static-shielded bag.

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 Module

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 28 and 30

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.

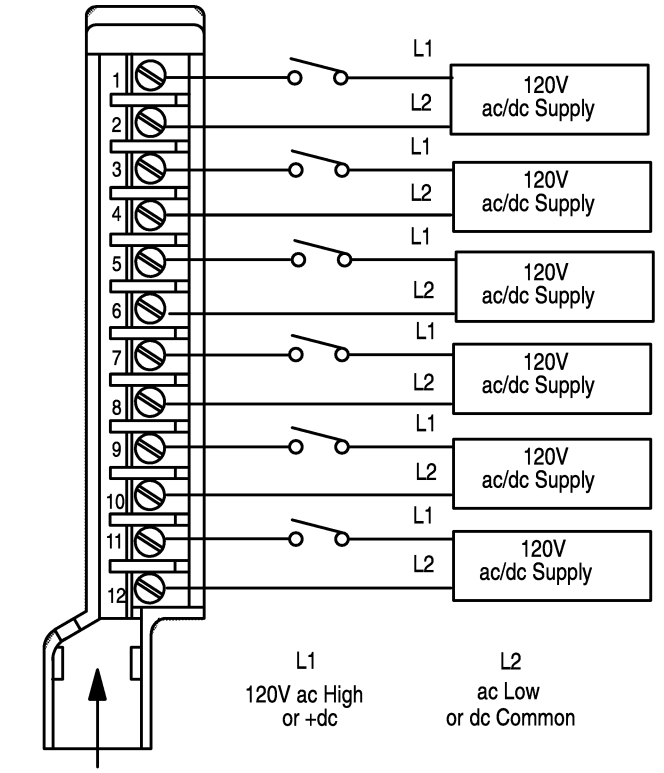
Connecting Wiring to the Module

Connections to the input module are made to the field wiring arm (cat. no. 1771-WD) shipped with the module (Figure 1). Attach the wiring arm to the pivot bar on the bottom of the I/O chassis. The wiring arm pivots upward and connects with the module so you can install or remove the module without disconnecting the wires.

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 for the AC/DC Isolated Input Module, Cat. No. 1771-ID



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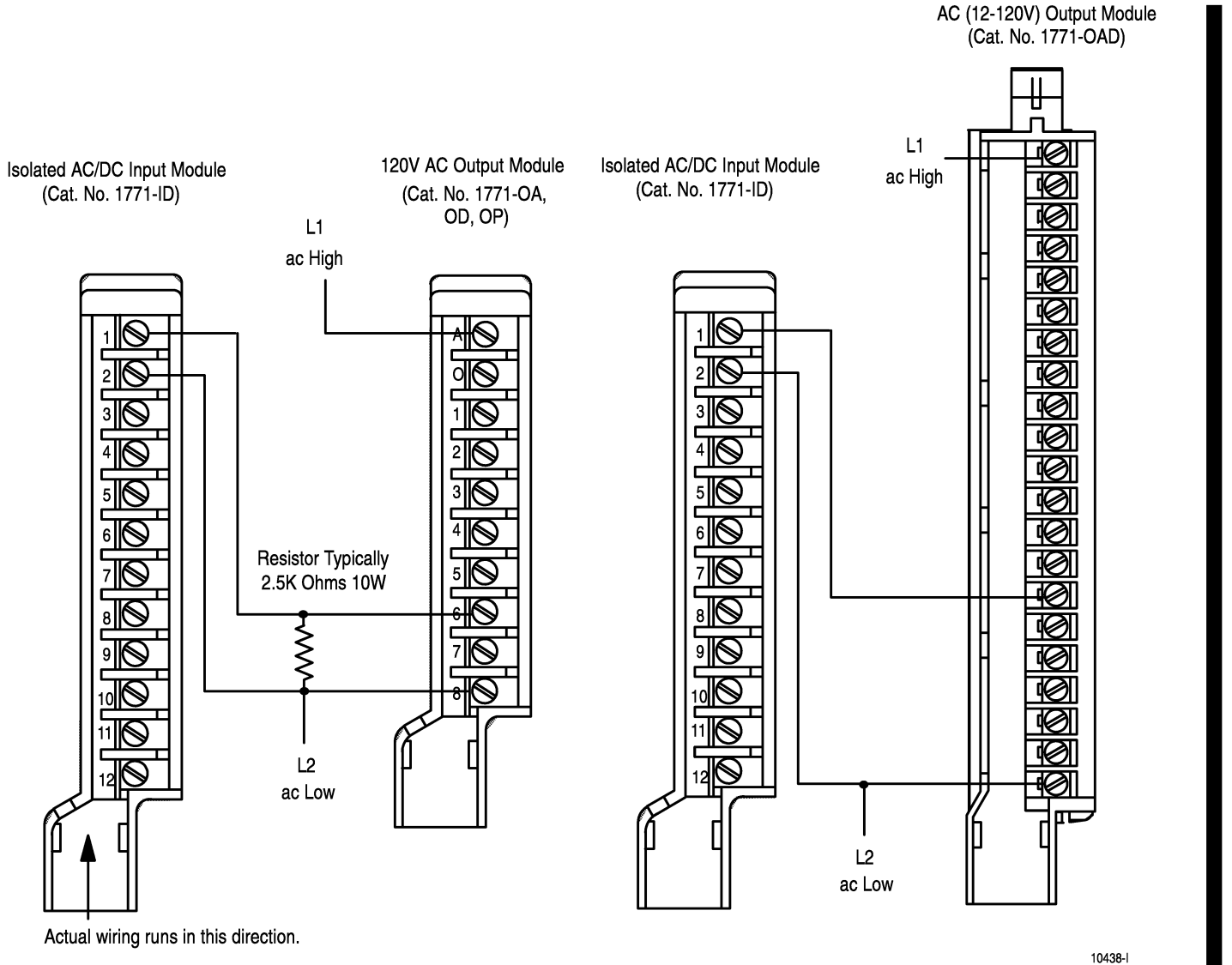
4. Use two wires per input. Connect only one wire to a terminal. When multiple connections to a terminal are required, use an auxiliary terminal strip. Use stranded 14 or 16 gauge wire to minimize the voltage drop over long cable distances.

Important: You can use an AC (120V) Output Module (cat. no. 1771-OA, 1771-OD or 1771-OP) to directly drive terminals on an AC/DC (120V) Input Module (cat. no. 1771-ID) (Figure 2), but you must connect a 2.5K ohm, 10W resistor between the output terminal and L2 (common) as shown in Figure 2. You can use an AC (12-120V) output module (1771-OAD) to drive the 1771-ID module without using a resistor.

Use the same ac power source to power both modules to ensure proper phasing and prevent module damage.

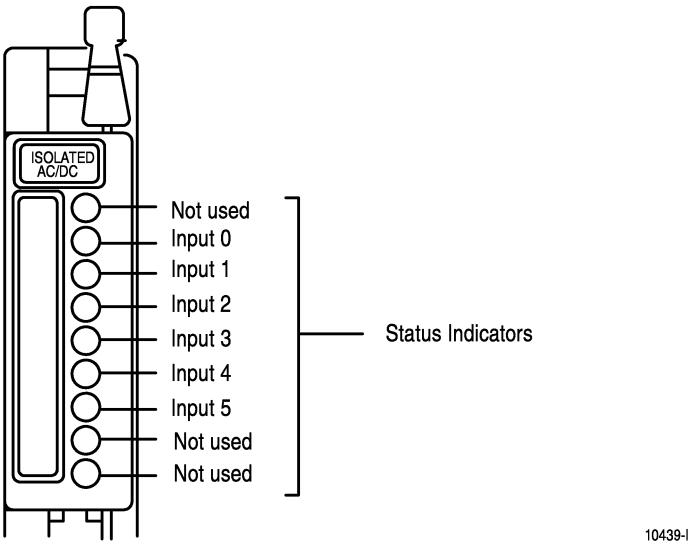
Figure 2
Driving an Input with an Output



Interpreting the Status Indicators

The front panel of your module contains six red status indicators (Figure 3). The red status indicators are on when the associated input is on.

Figure 3
Status Indicators



Installation Instructions
AC/DC (120V) Isolated Input Module
Cat. No. 1771–ID

Specifications

Inputs per Module	6
Module Location	1771 I/O chassis
Input Voltage Range	92-138V ac/dc, 47-63Hz
Nominal Input Current	8mA @ 120V ac 8mA @ 120V dc
Input Signal Delay	24±10ms, on or off for ac 10±4ms for turning on dc 20±9ms for turning off dc
Maximum Off-state Current	1.7mA
Maximum Off-state Voltage	45V ac peak; 55V dc peak
Power Dissipation	4.4 Watts (max.), 0.4 Watts (min.)
Thermal Dissipation	15.0 BTU/hr (max.), 1.3 BTU/hr (min.)
Backplane Current	74mA
Opto-electrical Isolation	1500V ac (rms)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity	 0º to 60ºC (32º to 140ºF) -40º to 85ºC (-40º to 185ºF) 5 to 95% (without condensation)
Conductors Wire Size Category	14 gauge stranded maximum 3/64 inch insulation maximum 1[1]
Keying	Between 4 and 6 Between 28 and 30
Wiring Arm	Catalog Number 1771-WD
Wiring Arm Screw Torque	7-9 inch-pounds

[1] Refer to publication 1770-4.1, "Programmable Controller Wiring and Grounding Guidelines."

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