



AC (24V) Output Module

Cat. No. 1771-OND

Installation Instructions

To The Installer

This document provides information on:

- important pre-installation considerations
- power supply requirements
- installing the module
- setting the fault mode
- using the indicators for troubleshooting
- replacing the fuses
- module specifications

Pre-installation Considerations

This module must be used with a 1771-A1B thru -A4B or later I/O chassis. If you are using a 1771-ASB remote I/O adapter you may use any combination of I/O modules. Otherwise, make sure no other output module or single card block transfer module is placed in the same I/O group.

Power Requirements

Your module receives its power through the 1771 I/O chassis backplane from the chassis power supply. The module requires 700mA 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 ac output 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 set the fault mode selection plug, key your I/O chassis, install your module and make your wiring connections.

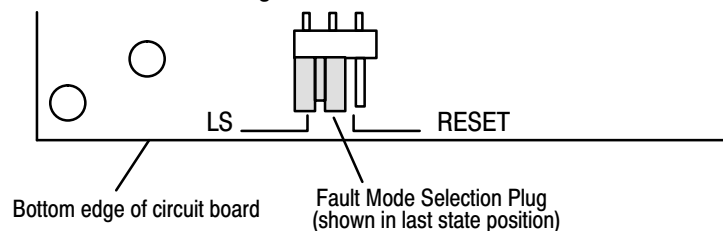
Fault Mode Selection

You may select one of two output-failure configurations (last state or reset) by positioning a configuration plug on the bottom edge of the printed circuit board. This configuration plug is independent of the last state switch on the I/O chassis backplane.

To set the fault mode selection, proceed as follows:

1. Locate the fault mode selection plug at the bottom edge of the module circuit board (Figure 1).

Figure 1
Fault Mode Selection Plug



10673-1

2. Using your finger, slide the plug off the two posts.,
3. Carefully position the plug on two of the three posts that correspond to your requirement.

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 20 and 22
- Between 32 and 34

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

Installing the Output Module

To install the ac output 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.

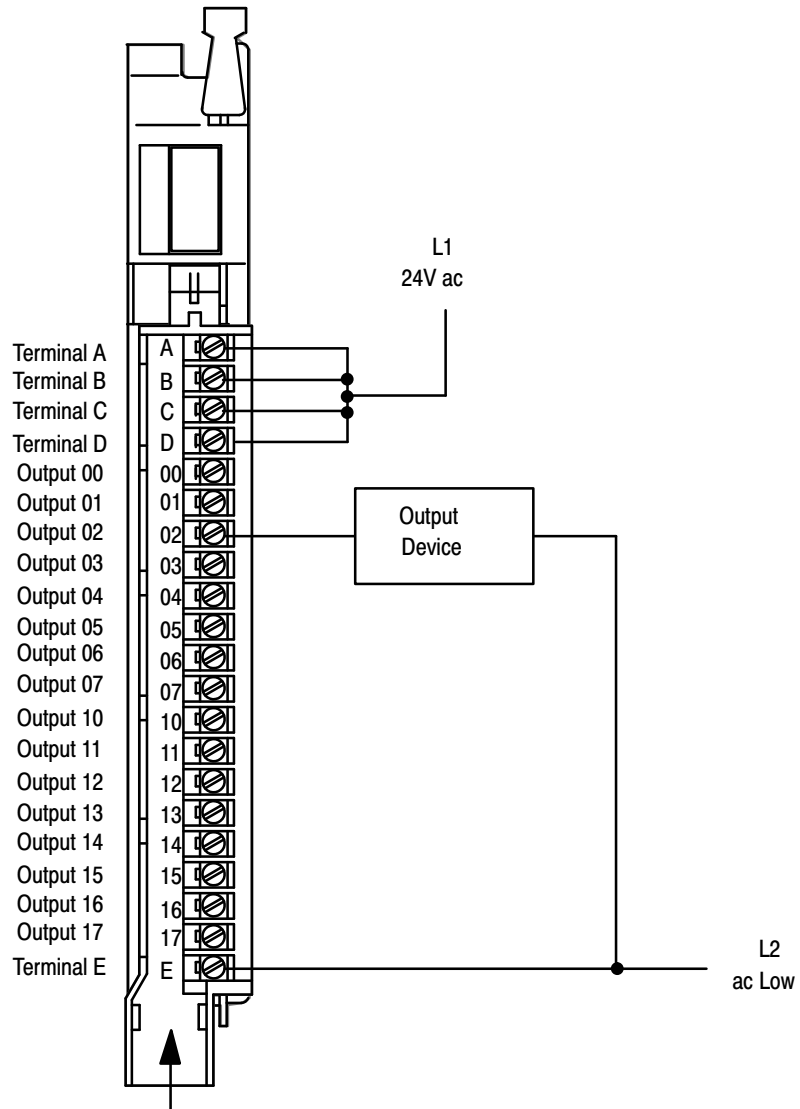
-
1. Turn off power to the I/O chassis.
 2. Place the module in the plastic tracks on the top and bottom of the slot that guides the module into position.
 3. Do not force the module into its backplane connector. Apply firm, even pressure on the module to seat it properly.
 4. Snap the chassis latch over the top of the module to secure its position.
 5. Connect the wiring arm to the module.
 6. Make wiring connections to the field wiring arm as indicated in

Connecting Wiring to the Output Module

Connections to the output module are made to the field wiring arm (cat. no. 1771-WH) shipped with the module. An optional fused wiring arm is available (cat. no. 1771-WHF) which provides individual fusing for each circuit. 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.

You must supply ac (L1) at terminals A through D on the wiring arm. You need four ac connections to accommodate the total required surge rating on the module without overstressing any single connection on the field wiring arm. Jumper all ac (L1) connections together to prevent module damage.

Figure 2
Connection Diagram

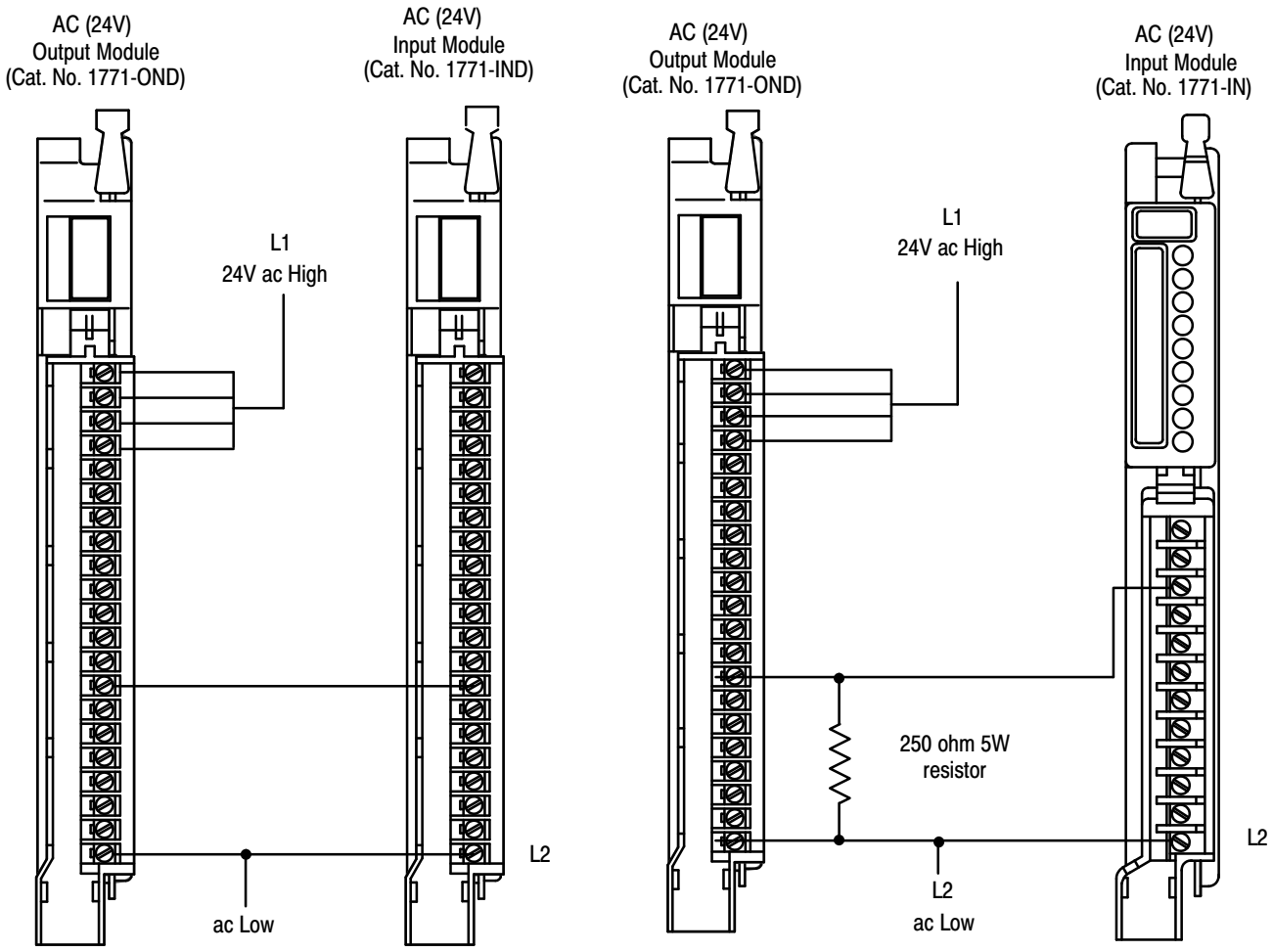


(Actual wiring runs in this direction.)

10674-I

Important: You can use an AC (24V) Output Module (cat. no. 1771-OND) to directly drive terminals on an AC (24V) Input Module (cat. no. 1771-IND) (Figure 3). You can also use a 1771-OND Output module to drive an AC (24V) Input Module (cat. no. 1771-IN) but you must connect a 250 ohm, 5W resistor between the output terminal and L2 (common) as shown in Figure 3. Use the same ac power source to power both modules to ensure proper phasing and prevent module damage.

Figure 3
Driving an Input Module with an Output Module



Note: 1771-OND output voltage range is 10-60V ac. However, the on-state voltage range of the 1771-IND is 19-29V ac.

Note: 1771-OND output voltage range is 10-60V ac. However, the on-state voltage range of the 1771-IN is 12-28V ac.

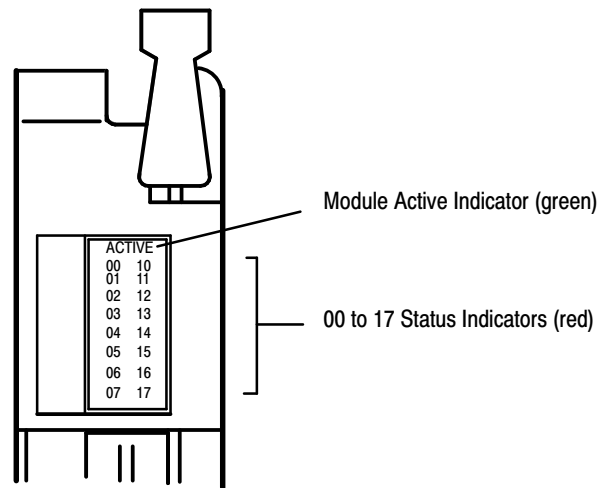
10675-1

Interpreting the Status Indicators

The front panel of your module contains one green, module active indicator, and 16 red status indicators (Figure 4). The 1771-OND performs diagnostics in a handshaking mode when first powered up. Upon successful completion of the diagnostics, the green module active indicator lights. It turns off if a fault occurs in the data paths or the opto-isolators.

The red status indicators are provided for system logic side indication of individual inputs. When a red indicator lights, voltage is present on the terminal. The module transfers this information to the backplane for the processor to read.

Figure 4
Status Indicators



10676-1

Replacing the Fuse

The module's output circuitry is protected from overload or shorts by a fuse. You can replace the fuse as outlined below.

1. Turn off all power to the I/O chassis and all output device power to the field wiring arm.



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

- Failure to remove power from the backplane or field 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.

-
2. Pivot the wiring arm away from the module and remove the module from the chassis.
 3. Replace the blown fuse with a 10A, 250V rectifier fuse (1/4 x 1-1/4 inch), Littelfuse part number 322010.
 4. Replace the module in the chassis and attach the field wiring arm.

Troubleshooting

If a problem occurs, follow the procedure listed below.

Modules with Internal Fuses Only

1. Turn off all power to the I/O chassis and all output device power to the field wiring arm.



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

- Failure to remove power from the backplane or field 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.
-

Installation Instructions

AC (24V) Output Module

Cat. No. 1771-OND

2. Pivot the wiring arm away from the module and remove the module from the chassis.
3. Replace the blown fuse with a 10A, 250V rectifier fuse (1/4 x 1-1/4 inch), Littelfuse part number 322010.
4. Replace the module in the chassis and attach the field wiring arm.
5. Turn OFF all outputs to the module.
6. Turn ON power to the I/O chassis only.
7. Check that the red status indicators on the front of the module () are off (no outputs on). Make sure the red fuse blown indicator is off.
8. Turn on output device power to the field wiring arm.
9. Start with bit 00 and turn on individual outputs one at a time. Turn off the previous output before turning on the next output.
10. If the red fuse blown indicator turns on, note which output is faulty and trace the output wiring to the faulty device.

After correcting the fault problem, return to step 1 and begin again. If you cannot locate a faulty output, return to step 9 and turn on 2 or more outputs at the same time. Total output current should not exceed 2A per output, or 8A total per module.

Modules with External Fuses Only

1. Turn off all power to the I/O chassis and all output device power to the field wiring arm.
2. Pivot the wiring arm away from the module.
3. Use a continuity checker (meter in low ohms setting) to check fuses for an open (high resistance) reading.
4. Note if fuse is open and trace the output wiring back to the output device.
5. Check the remaining fuses (refer to step 3).
6. After all faulty fuses are replaced and any wiring problems solved, reposition the wiring arm on the module.
7. Turn off all outputs to the module.
8. Turn on power to the I/O chassis.

Installation Instructions

AC (24V) Output Module

Cat. No. 1771-OND

9. Check that the red status indicators on the front of the module are off (no outputs on). Make sure the red fuse blown indicator is off.
10. Turn on output device power to the wiring arm.
11. Start with bit 00 and turn on individual outputs one at a time. Turn off last output before turning on the next output.
12. If the red fuse blown indicator lights, note which output is faulty and trace the output wiring to the faulty device.

After correcting the fault problem, return to step 1 and begin again. If you cannot locate a faulty output, return to step 8 and turn on 2 or more outputs at the same time. Total output current should not exceed 2A per output, or 8A per module.

Installation Instructions

AC (24V) Output Module

Cat. No. 1771-OND

Installation Instructions

AC (24V) Output Module

Cat. No. 1771-OND

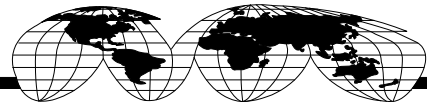
Specifications

Outputs per Module	16
Module Location	17711-A1B thru -A4B or later I/O chassis; 1771-AM1, -AM2
Output Voltage Range	10 to 60V ac @ 47 - 63Hz
Output Current Rating	2A per output - not to exceed 8A per module
Surge Current (maximum)	25A per output for 100ms, repeatable every 1 second 25A per module for 100ms, repeatable every 1 second
Minimum Load Current	50mA per output @ 24V ac, 60Hz
On State Voltage Drop (max.)	1.6V at 2A
Off State Leakage Current (max.)	3mA per output @ 24V ac
Signal Delay Off to On On to Off	1.0ms; 8.3 to 9.1ms @ 60Hz
Power Dissipation	16.5 Watts (max.), 3.7 Watts (min.)
Thermal Dissipation	56.2 BTU/hr (max.), 12.6 BTU/hr (min.)
Backplane Current	700mA @ 5V dc \pm 5%
Isolation Voltage	Tested at 1500V ac (rms) for 1s
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 stranded maximum 3/64 inch insulation maximum 1 ¹
Keying	Between 20 and 22 Between 32 and 34
Fuse	10A, 250V rectifier fuse (1/4 x 1-1/4 inch), Littelfuse PN 322010
Field Wiring Arm Standard Optional	Catalog Number 1771-WH Catalog Number 1771-WHF (fused)
Wiring Arm Screw Torque	7-9 inch-pounds

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



Allen-Bradley has been helping its customers improve productivity and quality for 90 years. A-B designs, manufactures and supports a broad range of control and automation products worldwide. They include logic processors, power and motion control devices, man-machine interfaces and sensors. Allen-Bradley is a subsidiary of Rockwell International, one of the world's leading technology companies.



With major offices worldwide.

Algeria • Argentina • Australia • Austria • Bahrain • Belgium • Brazil • Bulgaria • Canada • Chile • China, PRC • Colombia • Costa Rica • Croatia • Cyprus • Czech Republic • Denmark • Ecuador • Egypt • El Salvador • Finland • France • Germany • Greece • Guatemala • Honduras • Hong Kong • Hungary • Iceland • India • Indonesia • Israel • Italy • Jamaica • Japan • Jordan • Korea • Kuwait • Lebanon • Malaysia • Mexico • New Zealand • Norway • Oman • Pakistan • Peru • Philippines • Poland • Portugal • Puerto Rico • Qatar • Romania • Russia-CIS • Saudi Arabia • Singapore • Slovakia • Slovenia • South Africa, Republic • Spain • Switzerland • Taiwan • Thailand • The Netherlands • Turkey • United Arab Emirates • United Kingdom • United States • Uruguay • Venezuela • Yugoslavia

World Headquarters, Allen-Bradley, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414 382-2000 Fax: (1) 414 382-4444