

Isolated AC (120/220/240 V) Output Module

16 Discrete Outputs

Cat. No. 1771sc-OMI16

Installation Data

To The Installer

This document provides information on:

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

Throughout this document, we use the following symbol to make you aware of safety considerations:



This symbol identifies information about practices or circumstances that can lead to equipment damage, personal injury, or death. This symbol helps you identify a hazard, avoid the hazard, and recognize the consequences.

Please read all the information in this publication before installing this product. **Note:** This publication assumes a full working knowledge of the relevant programmable controller.

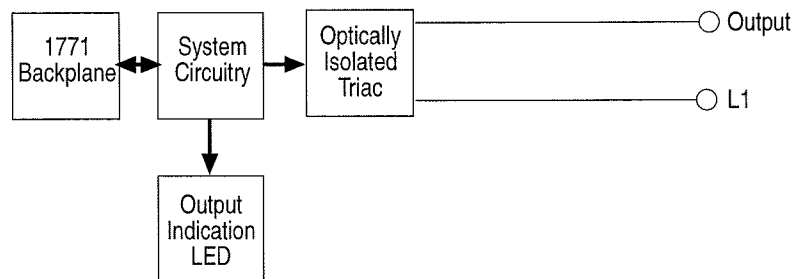
Important Pre-Installation Considerations

This module must be used with a 1771 Series B (or newer) I/O chassis.

The module is compatible with typical output devices such as solenoids, indicator lamps, and motor starters (up to Allen-Bradley size 5, provided its supply voltage does not drop below 92 V).

The module uses solid-state triac switching technology, so you can wire it in either a sinking or sourcing configuration, based on the load. A simplified schematic for this module appears in Figure 1.

Figure 1
Simplified Schematic (showing 1 of 16 channels)



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



CAUTION

ELECTROSTATICALLY SENSITIVE COMPONENTS

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 gold backplane connector or connector pins.
- If available, use a static-free work station.
- Keep the module in a static-shielded bag when not in use or during shipment.

Failure to observe these precautions can degrade performance or damage the module.

Power Supply Requirements

Your module receives its power from the chassis power supply through the 1771 I/O chassis backplane. From the output of this supply, the module requires 330 mA, maximum.

Add this to the requirements of all other modules in the I/O chassis to prevent overloading of the chassis backplane and/or backplane power supply.

Installing Your Module

In this section, you learn how to key your I/O chassis, set the fuse-blown mode jumper, insert your module into the chassis, and connect your wiring.

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. Place the keying bands between the following numbers on the backplane connector:

- 2 and 4
- 6 and 8

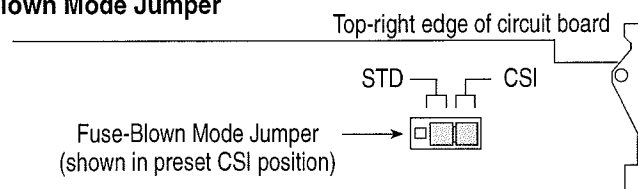
The module circuit board is slotted in three places on the rear edge to match these slots. You can key any connector in an I/O chassis to receive this module except for the left-most connector, which is reserved for adapter or processor modules.

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

Setting The Fuse-Blown Mode Jumper

Your module contains a jumper on the top-right edge of the circuit board, as shown in Figure 2. Use this jumper to control how your module indicates a blown fuse.

Figure 2
Fuse-Blown Mode Jumper



To indicate a blown fuse using ...

The Fuse-Blown LED and the input image table

The Fuse-Blown LED only

Set the jumper to...

CSI

STD

Setting the jumper to CSI lets your module control the input word allocated to the slot in which your module is residing. With the jumper set to CSI, each of the 16 bits in the input word corresponds to 1 of the 16 output fuses.

Note: when using your module in a complementary mode, do not set the jumper to CSI.

Inserting Your Module Into the Chassis

To insert the 1771sc-OMI16 into the 1771 I/O chassis, follow these steps:

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



WARNING

POSSIBLE EQUIPMENT DAMAGE AND OPERATION

Always remove power from the 1771 I/O chassis backplane and wiring arm before removing or installing an I/O module.

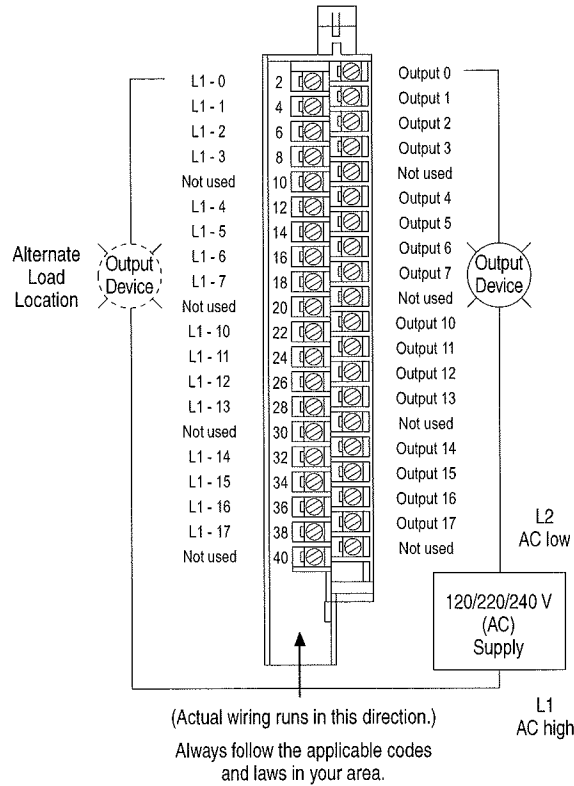
- Failure to remove power from the backplane or wiring arm can cause module damage, degraded performance, or injury
- Failure to remove power from the backplane can also cause injury or equipment damage due to possible unexpected operation.

Connecting Wiring To Your Output Module

Connect wiring to the 40-terminal field wiring arm (cat. no. 1771-WN) shipped with your module (Figure 3). Attach the wiring arm to the pivot bar on the bottom of the I/O chassis. The wiring arm pivots upward and connects with your module so you can install or remove your module without disconnecting the wires.

Each output channel has two terminals. Connect only one wire to a terminal. If you must connect more than one wire to a terminal, use an auxiliary terminal strip.

Figure 3
Connection Diagram



Terminal	Function *
1	Output
2	L1 - 0
3	Output 1
4	L1 - 1
5	Output 2
6	L1 - 2
7	Output 3
8	L1 - 3
9	Not used
10	Not used
11	Output 4
12	L1 - 4
13	Output 5
14	L1 - 5
15	Output 6
16	L1 - 6
17	Output 7
18	L1 - 7
19	Not used
20	Not used
21	Output 10
22	L1 - 10
23	Output 11
24	L1 - 11
25	Output 12
26	L1 - 12
27	Output 13
28	L1 - 13
29	Not used
30	Not used
31	Output 14
32	L1 - 14
33	Output 15
34	L1 - 15
35	Output 16
36	L1 - 16
37	Output 17
38	L1 - 17
39	Not used
40	Not used



WARNING

EXPLOSION HAZARD

Never connect or disconnect equipment while a circuit is live unless the area is known to be non-hazardous.

Failure to observe these precautions can cause equipment damage, personal injury or death.



WARNING

HIGH LEAKAGE CURRENT

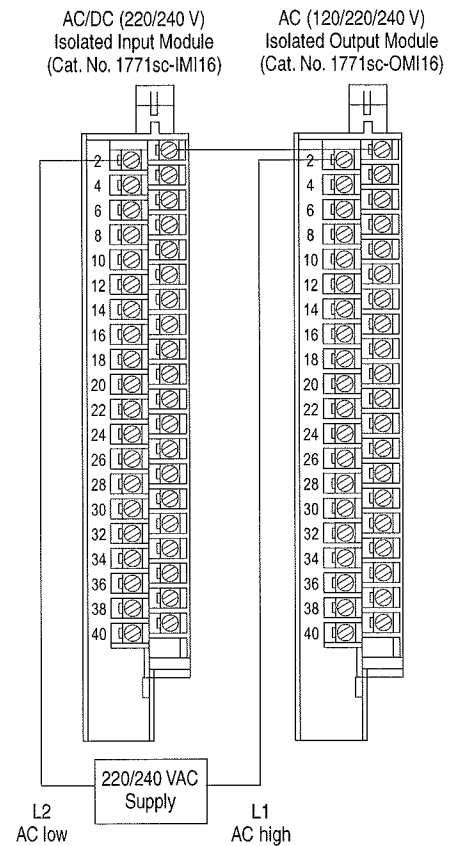
Before wiring field devices to your module, ensure that the PLC has been properly grounded.

Failure to observe these precautions can cause equipment damage or personal injury.

* Output numbers are shown in octal.

Important: Your output module can directly drive terminals on a 220 Vac/dc input module (catalog no. 1771sc-IMI16), as shown in Figure 4. **Use the same AC power source to power both modules to ensure proper phasing and prevent module damage.** (Note: the 1771sc-IMI16 is an isolated input module.)

Figure 4
Driving an Input with an Output



CE Compliance Requirements

For installations requiring CE compliance, you must do the following:

- Use a minimum wire size of 16 AWG.
- Observe the grounding guidelines provided in Allen-Bradley's 1771 Universal I/O Chassis Installation Data Sheet.
- Hard wire or permanently connect the PLC to the power main, or provide a pin and sleeve (IEC 309) connector for connection to the power main.

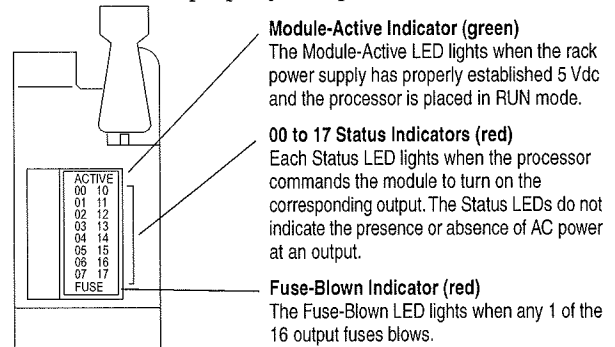
This equipment is intended for use in over-voltage category II installation (see IEC 364-4-443), where the rated mains supply voltage does not exceed 1 kVac (50/60 Hz) or 1.5 kVdc. If the input power is rated above these levels, ensure that your system is isolated from the power main by an isolation transformer (or equivalent over-voltage device) that has CE approval or approval from a European test agency.

You must also protect against electrical shock by installing the I/O chassis in an enclosure with an IP20 to IP29 rating per IEC 529. The enclosure should have warning labels (hazard symbol 417-IEC-5036) and/or a mechanical disconnect to minimize the risk of accidental shock during maintenance. Use an enclosure that can only be opened with a key or tool.

Using The LED Indicators For Troubleshooting

The front panel of your module contains 1 green module-active indicator, 16 red status indicators, and 1 red fuse-blown indicator (Figure 5). The Module-Active Indicator must be lit to properly interpret the status indicators.

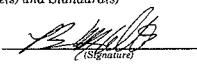

Figure 5
Status indicators



Except for 16 replaceable fuses (one for each output), the module contains no user-serviceable parts, and should be returned to the factory for repair if necessary.

Note that these modules contain electronic components which are susceptible to damage from electrostatic discharge (ESD). An electrostatic charge can accumulate on the surface of ordinary plastic wrapping or cushioning material. **In the likely event that a module should need to be returned to Spectrum Controls, please ensure that the unit is enclosed in approved ESD packaging (such as a static-shielding / metallized bag or black conductive container).** Spectrum Controls reserves the right to void the warranty on any unit that is improperly packaged for shipment.

For further information or assistance, please contact your local distributor, or call the Spectrum Controls Customer Satisfaction department at (425) 746-9481 from 8:00 A.M. to 5:00 P.M. Pacific Time.

<h2>Declaration of Conformity</h2>	
<i>Application of Council Directive(s)</i>	73/23/EEC Low Voltage Directive 89/336/EEC Electromagnetic Compatibility
<i>Standard(s) to which Conformity is Declared</i>	EN50081-2:1993, EN50082-2:1995 EN61010-1:1993, EN61131-2:1995
<i>Manufacturer's Name</i> <i>Manufacturer's Address</i>	Spectrum Controls Inc. 2700 Richards Road South East, Bellevue Washington, 98005 U.S.A.
<i>Importer's Name</i> <i>Importer's Address</i>	Spectrum Controls Inc. 2700 Richards Road South East, Bellevue Washington, 98005 U.S.A.
<i>Type Of Equipment</i>	Allen-Bradley PLC1771 Compatible I/O Modules
<i>Model No.</i>	1771sc-IMI16, 1771sc-OMI16
<i>I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s)</i>	
<i>Date Of Issue:</i> 5/23/97	 (Signature)
<i>Place:</i> Bellevue, Washington U.S.A.	Bruce M. Wanta (Name)
 SPECTRUM CONTROLS	Chairman (Position)
	<small>SPW 0300151-01 Rev. A.0</small>

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Cat. No. 1771sc-OMI16

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U.S.A. Headquarters

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Specifications

Outputs per Module	16 (isolated)
Module Location	1771 I/O chassis
Output Voltage Range	74 to 276 VAC @ 47 to 63 Hz
Output Current Rating	2 A per output—not to exceed 8 A per module
Surge Current (maximum)	25 A per output for 100 ms, repeatable every 1 s 25 A per module for 100 ms, repeatable every 1 s
Load Current (minimum)	5 mA per output
On-State Voltage Drop (maximum)	1.5 V @ 2 A
Off-State Leakage Current (max.)	2 mA @ 220 VAC
Signal Delay	
Off to On	Zero crossing: 8.3 ms @ 60 Hz; 10.0 ms @ 50 Hz
On to Off	Zero crossing: 8.3 ms @ 60 Hz; 10.0 ms @ 50 Hz
Power Dissipation	13.0 W maximum ① 0.1 W minimum ①
Thermal Dissipation	48.0 BTU/hr maximum ① 0.4 BTU/hr minimum ①
Backplane Current Required	330 mA maximum @ 5 VDC ±5%
Isolation Voltage	1500 VAC channel-to-channel 1500 VAC channel-to-backplane
Environmental Conditions	
Operational Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-40° to +85°C (-40° to 185°F)
Relative Humidity	5 to 95% (without condensation)
Certifications	CE per Council Directives 89/336/EEC for EMC and 73/23/EEC for Low Voltage
Conductors	
Wire Size	14 gage stranded maximum (18–22 gage typical) 3/64 inch insulation maximum
Category	1 ②
Keying	Between 2 and 4 Between 6 and 8
Fuses	2.5 A, 250 V, 2 AG SLO-BLO fuses (1 per output) Littelfuse 22902.5
Field Wiring Arm	A-B Catalog No. 1771-WN (included)
Wiring Arm Screw Torque	7 to 9 inch-pounds

① The maximum value is measured when the module is dissipating 8 A (100% duty cycle); the minimum value is measured with no outputs turned on.

② Use this conductor-category information for planning conductor routing as described in Allen-Bradley's system-level installation manual.

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