



DC Output Driver Module (Catalog Number 1771-OC)

To The Installer

This document provides information on:

To	See page
↓ Important User Information	1
↓ Pre-installation Considerations	3
↓ Calculate Power Requirements	4
↓ Determine Module Placement	4
↓ Prevent Electrostatic Discharge	4
↓ Key the Backplane Connector	5
↓ Install the Module and Field Wiring Arm	6
↓ Connect Wiring to the Module	7
For this reference information	See page
➡ Interpreting the Status Indicators	9
➡ Replacing a Fuse	10
➡ Specifications	11

Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of these products must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards. In no event will Rockwell Automation be responsible or liable for indirect or consequential damage resulting from the use or application of these products.

Any illustrations, charts, sample programs, and layout examples shown in this publication are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Rockwell Automation does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, Safety Guidelines for Application, Installation, and Maintenance of Solid-State Control (available from your local Rockwell Automation office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this publication, notes may be used to make you aware of safety considerations. The following annotations and their accompanying statements help you to identify a potential hazard, avoid a potential hazard, and recognize the consequences of a potential hazard.

WARNING

Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.

ATTENTION

Identifies information about practices or circumstances that may lead to personal injury or death, property damage, or economic loss.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

ATTENTION**Environment and Enclosure**

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as “open type” equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present, and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1, (“Industrial Automation Wiring and Grounding Guidelines”), for additional installation requirements pertaining to this equipment.

Pre-installation Considerations

This module contains the circuitry necessary to control the on/off status of eight user devices. The devices can be:

- dc motor starters
- indicators
- solenoids

An output can drive an Allen-Bradley Size 4 motor starter, provided its supply voltage does not drop below 92V ac. The maximum load current the module can deliver is 1.5A per channel, not to exceed 8A total per module.

Calculate Power Requirements

The output module is powered by the power supply connected to the I/O chassis backplane. The module requires a maximum current of 165mA 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.

Determine Module Placement

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 and rack controllers to minimize adverse heat effects.

ATTENTION



Preventing Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, keep modules in appropriate static-safe packaging.

The 1771-OC module is a modular component of the 1771 I/O system requiring a properly installed system chassis. Refer to publication 1771-IN075 for detailed information on acceptable chassis, proper installation and grounding requirements. Limit the maximum adjacent slot power dissipation to 10W maximum.

Key the Backplane Connector

Place your module in any slot in the chassis except the leftmost slot which is reserved for processors or adapters.

ATTENTION

Observe the following precautions when inserting or removing keys:



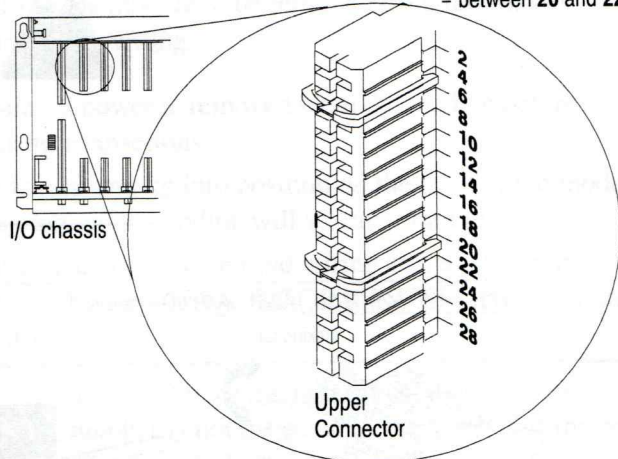
- insert or remove keys with your fingers
- make sure that key placement is correct

Incorrect keying or the use of a tool can result in damage to the backplane connector and possible system faults.

Position the keying bands in the backplane connectors to correspond to the key slots on the module.

Place the keying bands:

- between 4 and 6
- between 20 and 22



You can change the position of these bands if subsequent system design and rewiring makes insertion of a different type of module necessary.

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Install the Module and Field Wiring Arm

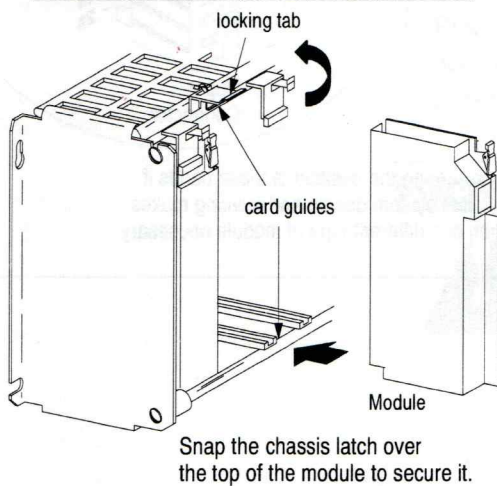
ATTENTION



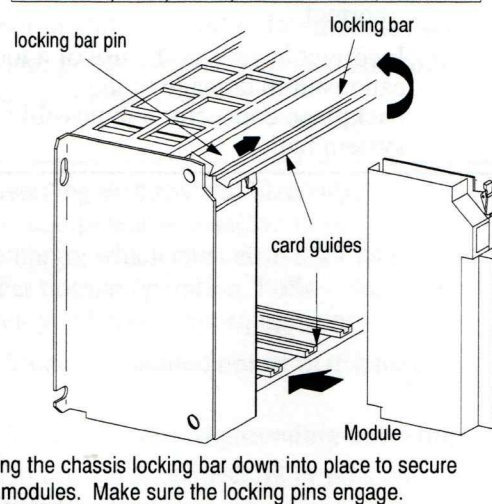
Remove power from the 1771 I/O chassis backplane and wiring arm before removing or installing an I/O module.

- 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.

1771-A1B, -A2B, -A3B, -A3B1, -A4B I/O chassis



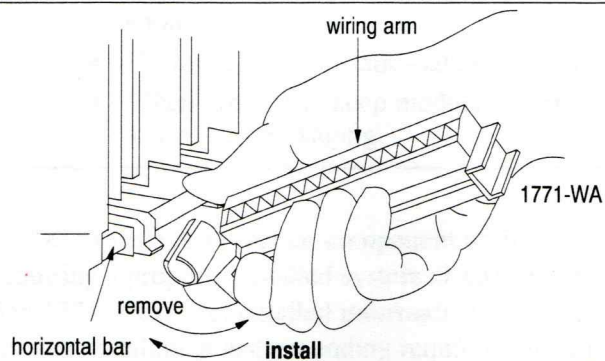
1771-A1B, -A2B, -A3B1, -A4B Series B I/O chassis



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Attach the wiring arm (1771-WA) to the horizontal bar at 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.



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Connect 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 8 terminals on the front of the module. The wiring arm allows the module to be removed from the chassis without disconnecting wiring.

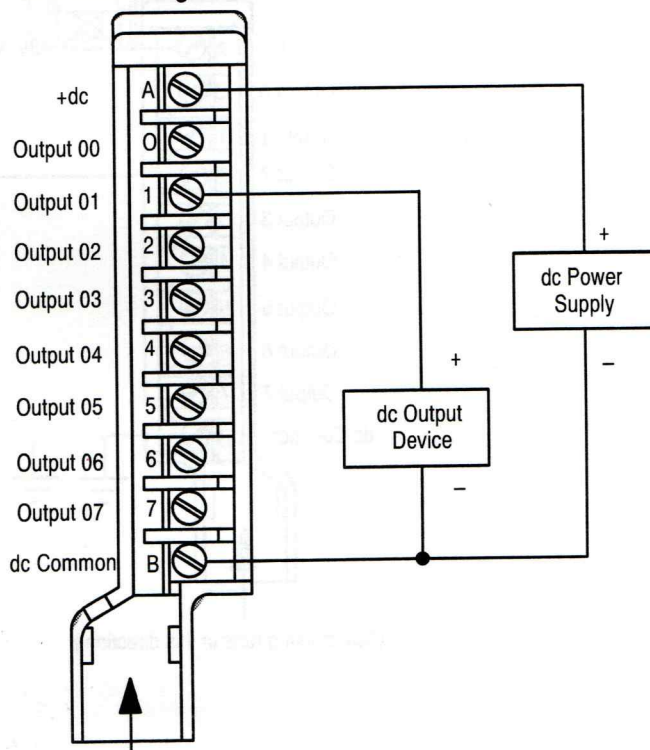
1. Make certain all power is removed from the module before making wiring connections.
2. Swing the wiring arm up into position on the front of the module. The locking tab on the module will secure it into place.
3. Make your connections to the field wiring arm as shown in Figure 1. (Use the label on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

IMPORTANT

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.

Figure 1
Connection Diagram



(Actual wiring runs in this direction.)

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You must supply dc voltage to terminal A on the field wiring arm. Supply dc common to output devices and terminal B on the field wiring arm.

ATTENTION

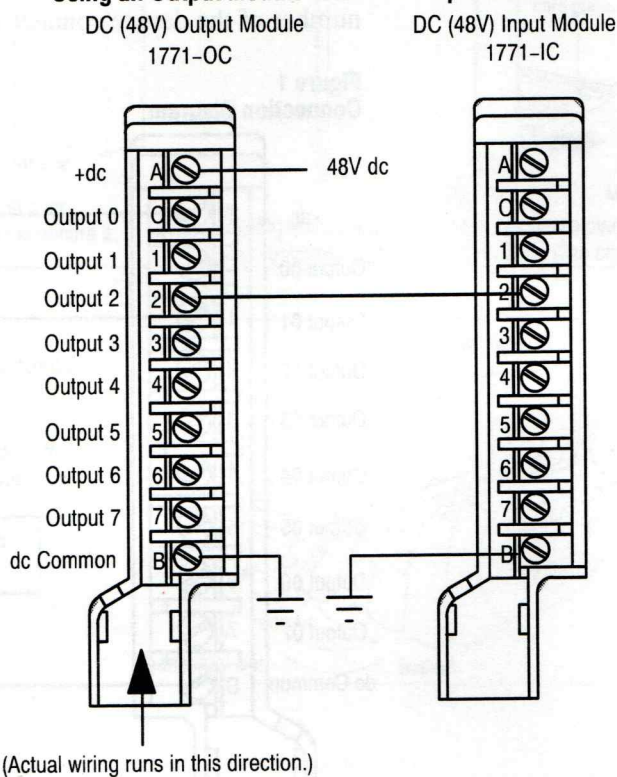
Proper polarity, as indicated in the connection diagram, must be observed with dc power connections. Reverse polarity, or application of a voltage outside the product ratings may cause damage to the module.

You can use an output of the 1771-OC module to drive an input of a DC (48V) input module (1771-IC) to indicate status, such as the turning on a motor starter (Figure 2).

IMPORTANT

Use the same dc power source to power both modules to ensure that ground is at the same potential.

Figure 2
Using an Output Module to drive an Input Module

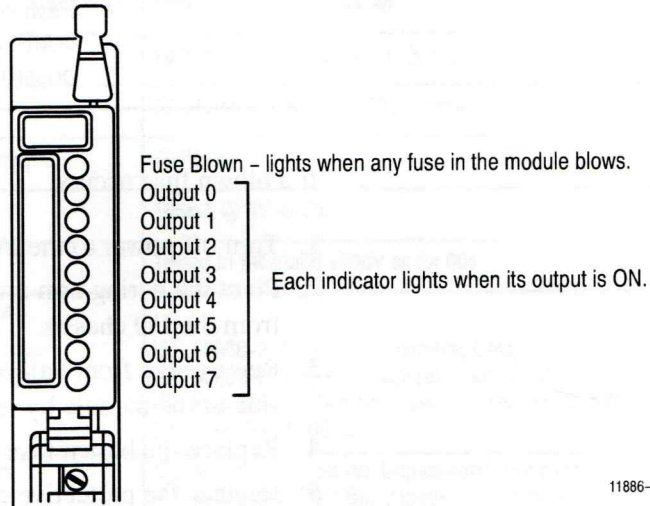


Interpreting the Status Indicators

The module has eight neon status indicators (Figure 3) that show the state of each output. These indicators light when their corresponding outputs are energized.

The module also has an indicator that displays a blown-fuse condition at the respective output regardless of the state of the output. This indicator is driven by your field device power supply.

Figure 3
Status Indicators



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Replacing a Fuse

Each module output is individually fused. You can easily access the module fuses by removing the front component-side cover.

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.

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 with a 2A, 250V 8AG normal blow 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	8
Module Location	1771 I/O chassis
Output Voltage Range (user)	42 to 50V dc
Output Current Rating	1.5A per output – not to exceed 8A per module
Surge Current (maximum)	4A for 1ms, repeatable every 1s
On State Voltage Drop	2V dc (maximum)
Off State Leakage Current (max.)	5mA per output @ 120V ac
Power Dissipation	16.9 Watts (max.), 0.9 Watts (min.)
Thermal Dissipation	57.6 BTU/hr (max.), 3.0 BTU/hr (min.)
Adjacent Slot Power Dissipation	10 Watts
Backplane Current	165mA @ 5V dc 5%
Opto-electrical Isolation	Tested to withstand 1000V ac for 60s
Environmental Conditions	
Operational Temperature	IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock) 32 to 140°F (0 to 60°C)
Storage Temperature	IEC 60068-2-1 (Test Ab, Unpackaged, Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged, Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged, Nonoperating Thermal Shock) -40 to 185°F (-40 to 85°C)
Relative Humidity	IEC 60068-2-30 (Test Db, Unpackaged, Nonoperating Damp Heat) 5 to 95% noncondensing
Shock Operating Nonoperating	IEC 60068-2-27 (Test Ea, Unpackaged Shock) 30g 50g
Vibration	IEC 60068-2-6 (Test Fc, Operating) 2g @ 10-500Hz
Enclosure Type Rating	None (open style)
Keying	Between 4 and 6 Between 20 and 22
Fuses	2A, 250V Bussman AGC2 fuse
Field Wiring Arm	Cat. No. 1771-WA
Field Wiring Arm Screw Torque	7-9 pound-inches (0.8-1.0Nm)
Conductors	Wire Size 14-22AWG (2.5-0.25mm ²) stranded copper wire rated at 75°C or greater ¹ 3/64 inch (1.2mm) insulation (max) Category 1 ²

Certifications (when product is marked)	UL	UL Listed Industrial Control Equipment
	CSA	CSA Certified Process Control Equipment
	CE ³	European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2, Industrial Immunity EN 61000-6-2, Industrial Immunity EN 61000-6-4, Industrial Emissions
	C-Tick ³	Australian Radiocommunications Act, compliant with: AS/NZS 2064, Industrial Emissions

¹ One or two 14-22 AWG solid or stranded copper wires per terminal. Must be same size. Do not intermix solid and stranded wires.

Use copper wire only.

² Use this conductor category information for planning conductor routing. Refer to publication 1770-4.1, "Industrial Automation Wiring and Grounding Guidelines."

³ See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates and other certification details

www.rockwellautomation.com

Corporate Headquarters

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433

Europe/Middle East/Africa: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 1774

Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733