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ALLEN-BRADLEY

DC (10-30V) Output Module Cat. No. 1771-OBN

Installation Instructions

To The Installer

This document provides information on:

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

Pre-installation Considerations

The 1771-OBN dc output module is a source output and requires a sink input. A sink input provides a path to ground and a source output provides a positive voltage path.

Use this module in all 1771 I/O chassis **except** 1771-A1, -A2 and 1771-A4 chassis. Refer to the table below for processor compatibility.

Table A
Processor Compatibility Chart

System Type	Use with Processors:
Local	Mini-PLC-2/02® (cat. no. 1772-LZ, -LZP) Mini-PLC-2/16 (cat. no. 1772-LX, -LXP) Mini-PLC-2/17 (cat. no. 1772-LW, -LWP) PLC-5/15®, Series B and later (cat. no. 1785-LT)
Remote (with a 1771-ASB remote I/O adapter)	PLC-2/20® (cat. no. 1772-LP2) PLC-2/30 (cat. no. 1772-LP3) PLC-3® (cat. no. 1775-L1, -L2, -L3, -L4) PLC-3/10 (cat. no. 1775-LP4, -LP8) PLC-5/15, Series B and later (cat. no. 1785-LT)

Do not place this module in the same I/O chassis as the 1771-IX thermocouple module. You can use this module in the same chassis as the 1771-IXE thermocouple module.

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Power Supply Requirements

The controller or I/O chassis power supply, connected through the backplane of the I/O chassis, powers the logic circuitry of the output modules. The maximum current drawn from this supply is 330mA.

Installing Your Module

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

Initial Handling Procedures



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.

The output module contains components which can be damaged by electrostatic discharge. The module is shipped in an electrostatic shielded bag for protection. Follow the handling procedures outlined below to guard against damage to your module.

- 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-safe work station.
- When not in use, keep the module in its static-free shield bag.

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Keying the I/O Chassis

Use the plastic keying bands, shipped with each I/O chassis, to key your I/O slots to accept only this type of module. Place the keying bands on the chassis backplane between:

- 14 and 16
- 20 and 22

Slots on the rear edge of the circuit board are matched to these slots to allow insertion of this type of module. You can key any connector in an I/O chassis to receive this module except for the leftmost connector reserved for adapter or processor modules.

Inserting the Module Into the Chassis

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 edge of the module.

Connecting Wiring to the Module

You make connections to the module through the field wiring arm cat. no. 1771-WN. The arm pivots on the I/O chassis to connect with terminals on the front of the module and acts as a terminal strip. 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.

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I/O Module Groups

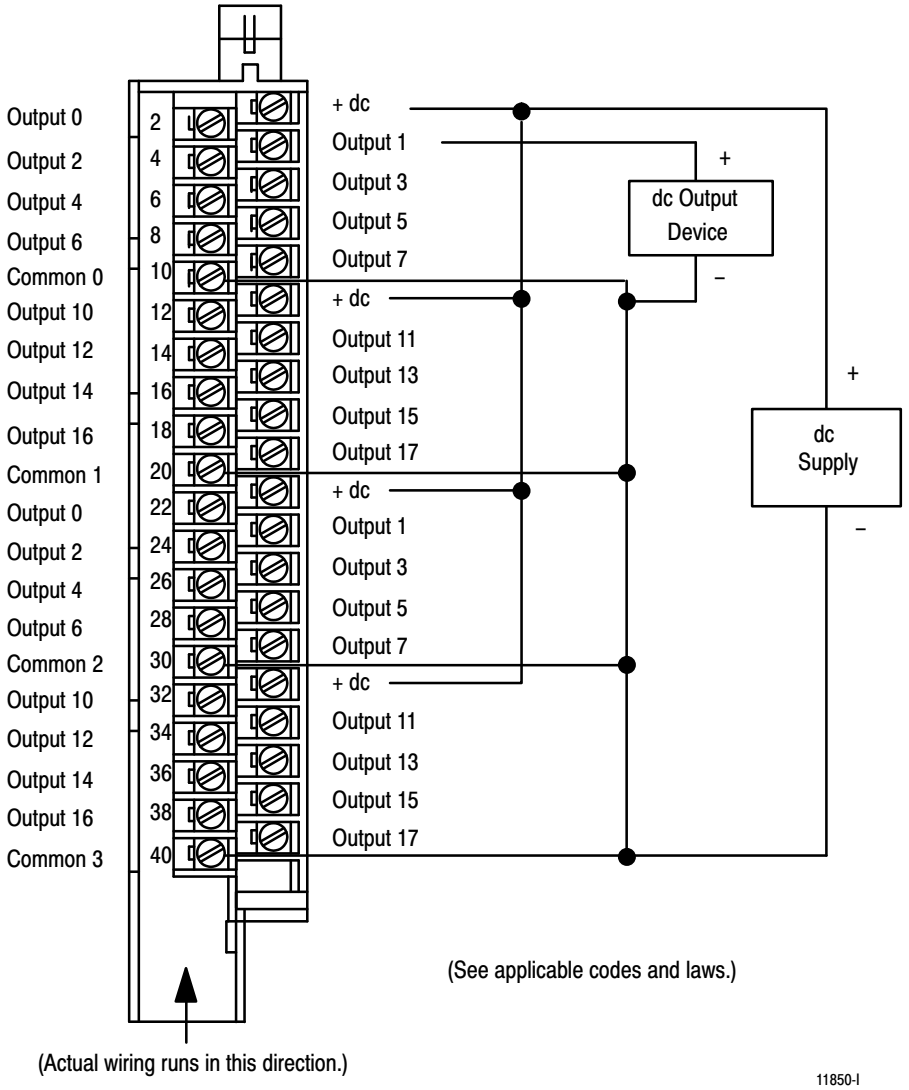
Each module condenses 2 full module groups (32 outputs) into each I/O chassis slot. For example:

- Module group 1 = outputs 00 through 17
- Module group 2 = outputs 00 through 17 (module group 2 represents the second set of outputs).

In Figure 1, terminals 1 through 20 represent module group 1. Terminals 21 through 40 represent module group 2. Terminals 10, 20, 30 and 40 are DC common and terminals 1, 11, 21 and 31 are DC power.

Figure 1
Connection Diagram for the 1771-OBN DC Output Module

Note: Terminals on the left are even numbered (2 thru 40) , and terminals on the right are odd numbered (1 thru 39).



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ATTENTION: Miswiring or shorting the output terminals will cause permanent damage to this module.

ATTENTION: Observe proper polarity with dc power connections. Reverse polarity, or application of ac voltage could damage the module.

Table B
Module Output Terminal Assignments

Terminal Number	Output Assignment	I/O program address	Terminal Number	Output Assignment	I/O program address
01	[1] 10 to 30V dc	-	21	[1] 10 to 30V dc	-
02	Output 00	0RG00	22	Output 00	0RG00
03	Output 01	0RG01	23	Output 01	0RG01
04	Output 02	0RG02	24	Output 02	0RG02
05	Output 03	0RG03	25	Output 03	0RG03
06	Output 04	0RG04	26	Output 04	0RG04
07	Output 05	0RG05	27	Output 05	0RG05
08	Output 06	0RG06	28	Output 06	0RG06
09	Output 07	0RG07	29	Output 07	0RG07
10	Common 0	-	30	Common 2	-
11	[1] 10 to 30V dc	-	31	[1] 10 to 30V dc	-
12	Output 10	0RG10	32	Output 10	0RG10
13	Output 11	0RG11	33	Output 11	0RG11
14	Output 12	0RG12	34	Output 12	0RG12
15	Output 13	0RG13	35	Output 13	0RG13
16	Output 14	0RG14	36	Output 14	0RG14
17	Output 15	0RG15	37	Output 15	0RG15
18	Output 16	0RG16	38	Output 16	0RG16
19	Output 17	0RG17	39	Output 17	0RG17
20	Common 1	-	40	Common 3	-

Where: R = rack number (1, 2, 3, etc.)
G = I/O group (0 - 7)

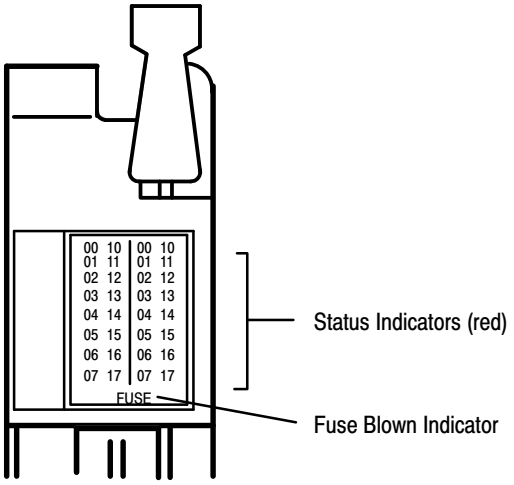
[1] You can connect a different power supply to each 10 to 30V dc terminal. They are not connected internally. Connect each common (0, 1, 2, 3) to the corresponding supply. Commons are not internally connected.

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Interpreting the Status Indicators

The module has 32 status indicators (Figure 2) on the module front plate. These represent the control status of the outputs. Each indicator is lit when its corresponding output is energized. An additional indicator is provided to indicate a blown fuse condition.

Figure 2
Status Indicators



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Replacing the Fuses

To replace a blown fuse, proceed as follows:



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 chassis.
2. Remove the module from the I/O chassis.
3. Remove the blown fuse from the fuse holder (accessible through the side cover), and replace with a 4A, 250V normal blow fuse.
4. Reinsert the module into chassis I/O chassis.
5. Turn on power to the chassis.

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Installation Instructions
DC (10 – 30V) Output Module
(Cat. No. 1771–OBN)

Specifications

Outputs per module		32 (4 groups of 8)
Module Location		1771-A1B thru -A4B or later I/O Chassis
Voltage Rating		10 to 30V dc
Maximum Output Current		0.5A per output (not to exceed 8A per module) 2A per output group
Maximum Surge Current		2A per output for 10msecond; repeatable every 2 seconds. 5A per output group for 10msec.;repeatable every 2 seconds. 20A per module for 10msec.; repeatable every 2 seconds.
Maximum On-state Voltage Drop		1.5V dc at 0.5A
Maximum Off-state Leakage Current		1.0mA @ 55°C
Maximum Power Rating		0.75W per output
Output Signal Delay	On to Off Off to On	2.0ms 0.1ms
Power Dissipation		13.7W (max); 1.7W (min)
Thermal Dissipation		46.7 BTU/hr (max); 5.7 BTU/hr (min)
Backplane Current		330mA @ 5V dc maximum
Isolation Voltage		1500V ac rms
Conductors	Wire Size Category	14 gauge stranded (max) 3/64 inch insulation (max) Category 1[1]
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)
Keying		Between 14 and 16 Between 20 and 22
Field Wiring Arm		Cat. No. 1771-WN
Field Wiring Arm Screw Torque		7-9 inch-pounds
Fuses		Four 4.0A, 250V normal blow fuses (1 per group)

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

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