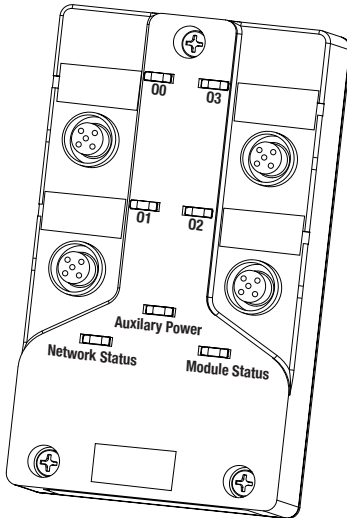




## *Installation Instructions*

# ArmorBlock MaXum 4 Output Module

(Cat. No. 1792D-0B4D)



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This ArmorBlock MaXum™ I/O module (Cat. No. 1792D-0B4D) is a stand-alone 24V dc I/O product which communicates via a DeviceNet™ network. The sealed housing of this module requires no enclosure.

This module has 4 outputs. Outputs are self-protected 24V dc and provide up to 2A each. Diagnostic features included are short circuit, and no load detection reported to the point level.

### **Package Contents**

Your package contains:

- 1 ArmorBlock MaXum Module
- Installation Instructions

**Important:** Cable bases are ordered and shipped separately.

## **European Communities (EC) Directive Compliance**

If this product has the CE mark it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

### **EMC Directive**

This product is tested to meet the Council Directive 89/336/EC Electromagnetic Compatibility (EMC) by applying the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2 EMC — Generic Emission Standard, Part 2 — Industrial Environment
- EN 50082-2 EMC — Generic Immunity Standard, Part 2 — Industrial Environment

This product is intended for use in an industrial environment.

### **Low Voltage Directive**

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 - Equipment Requirements and Tests.

For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as the Allen-Bradley publication Industrial Automation Wiring and Grounding Guidelines For Noise Immunity, publication 1770-4.1.

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

## **Install Your ArmorBlock MaXum I/O Module**

To install the module you must:

- Set the node address.
- Mount the module to the cable base.
- Connect the input/output cord sets to the MaXum module.
- Communicate with your ArmorBlock MaXum I/O module.

Each of these steps is discussed in detail in the following procedures.

## Set the Node Address

Valid node addresses are **00** to **63**.

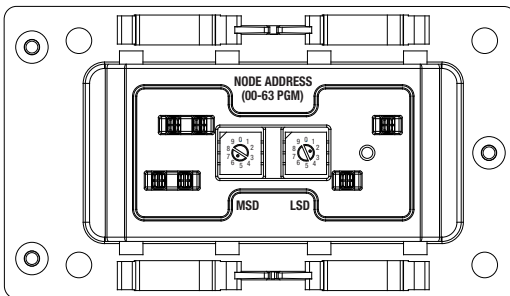
Set the node address using the rotary switches, DeviceNetManager™ software, or another software configuration tool. Setting the switches between **64** to **99** allows the software to have address control.

Each module is shipped with the node address set to **63**. The switches are located on the underside of the module. The two switches are:

- MSD (most significant digit)
- LSD (least significant digit)

To reset the node address, use a small blade screwdriver to rotate the switches. Line up the small black dot on the switch with the number setting you wish to use.

The rotary switches are read at module power up only. Settings between 64 and 99 cause the module to use the last valid node address stored internally. Example: The last setting was 40. If a change is made to 68, and then you power up, the address will default to 40.



Bottom View of Module

Example: Node Address is set at 62 (see small black dots).

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The module is equipped with AutoBaud detect. AutoBaud lets the module read the settings already in use on your DeviceNet network and automatically adjusts to follow those settings.

## Mount the Module to the Cable Base

This module mounts to the following cable bases:

- 1792D-CBFM for KwikLink flat media installation
- 1792D-CB12 for 12 mm drop cable installation
- 1792D-CB18P, -CB18PT for round media DeviceNet
- or other optional cable base assembly

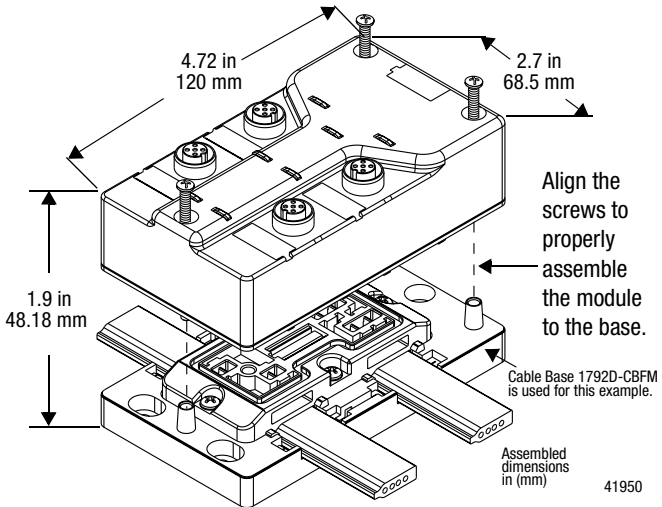
**Important:** The cable base should already be installed. See publications 1792D-5.9 (CBFM & CB12) or 1792D-5.36 (CB18, CB18P, CB18PT) to install the cable base.

To install the module:

**Important:** Proper alignment of the screws is necessary to complete the connections between the module contacts and cable contacts.

1. Position the module over the mounted cable base. Align the three captive screws in the module with the accepting receptacles in the base.
2. Tighten the screws with a torque of 8 inch-pounds to secure the module to the base.

**Important:** Dimensions change according to the cable base and module combination used.



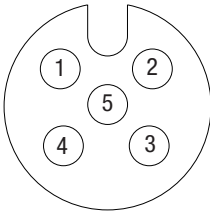
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## Connect the Input/Output Cord Sets to the MaXum Module

This module uses 5 pin micro (12mm) style PCB mounted connectors.

Four micro caps cover the connectors on your module. Remove the caps and connect your cord sets to the appropriate ports.

Use the micro caps to cover and seal unused ports. A pinout diagram for the connectors is shown next.



### Micro-Connector

(View into Sockets)

Pin 1 Not Used

Pin 2 Not used

Pin 3 Auxiliary Power Ground

Pin 4 Output

Pin 5 Not Used

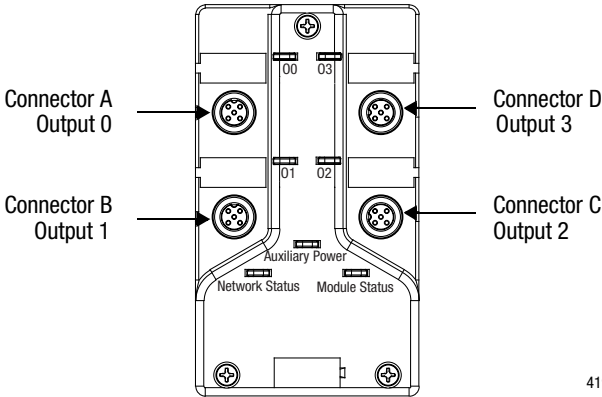
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### ATTENTION:

- Make sure all connectors and caps are securely tightened to properly seal the connections against leaks and maintain IP67 requirements.
  - For maximum noise immunity, input and output cable return wires must be properly terminated. When inputs and outputs are connected in loopback, return wires should be connected together.
  - I/O cable length should be less than 30 meters.
-

I/O connectors for this module are shown below.



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### DeviceNet Cable

DeviceNet cables are described in the installation publications for the cable base assembly of your choice. Refer to the following publications:

- 1792D-5.9 ArmorBlock MaXum Cable Base Installation Guide
- DN-6.7.2 DeviceNet Cable Planning and Installation Manual

### Communicate with Your ArmorBlock MaXum I/O Module

This ArmorBlock module's I/O is exchanged with the master through a poll, change of state, or cyclic connection.

The module produces input data as follows:

Type of I/O Connections	Consumes	Produces
Cyclic	1 Byte	1 Byte
Polled	1 Byte	1 Byte
Change of State	1 Byte	1 Byte

**Cyclic** - allows configuration of the block as an I/O client. The block will produce and consume its I/O cyclically at the rate configured.

**Polled** - a master initiates communication by sending its polled I/O message to the module. This 4 output module consumes the message, updates outputs, and produces a response. The response has output faults and the status of the Auxiliary power.

**Change of state** - productions occur when an input changes or a fault condition occurs. If no input or fault condition change occurs within the expected packet rate, a heartbeat production occurs. This heartbeat production tells the scanner the module is alive and ready to communicate.

Refer to the table below for the word/bit definitions.

Bit	07	06	05	04	03	02	01	00
<b>Produces 0</b>	RSVD	OPWR	RSVD	RSVD	OFLT3	OFLT2	OFLT1	OFLT0
<b>Consumes 0</b>	RSVD	RSVD	RSVD	RSVD	03	02	01	00

Where: RSVD = Reserved OPWR = Output Power (Auxiliary Power) OFLT = Output fault 0 = Output

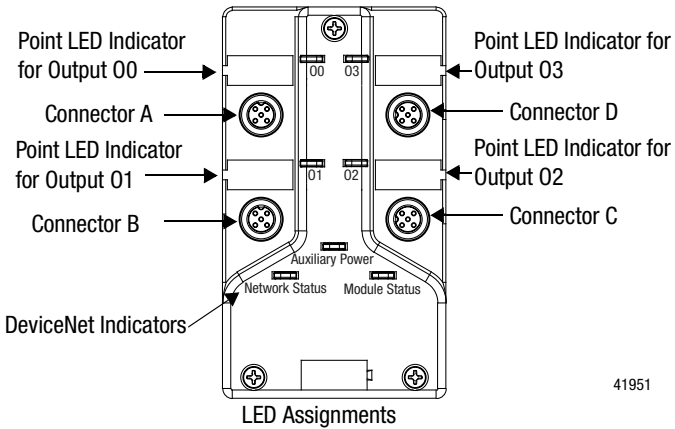
Byte	Bit	Description
<b>Produces 0</b>	00-03	Output no load or overload fault (OFLT): - When the bit is set (1), an output fault has occurred. OFLT0 corresponds to output 0, OFLT1 corresponds to output 1, OFLT2 corresponds to output 2, OFLT3 corresponds to output 3.
	04-05	Reserved
	06	Output Power Fault (OPWR): When the bit is set (1), Auxiliary Power is not present.
<b>Consumes 0</b>	07	Reserved
	00-03	Output bits: When the bit is set (1), the output will be turned on. Bit 00 corresponds to output 0, bit 01 corresponds to output 1, bit 02 corresponds to output 2, bit 03 corresponds to output 3
	04-07	Reserved

The DeviceNet Network uses advanced network technology, producer/consumer communication, to increase network functionality and throughput. Visit our web site at <http://www.ab.com/networks> for producer/consumer technology information and updates.

## Troubleshoot with the Indicators

This module has the following indicators:

- Network status indicator
- Module status indicator
- Individual point status indicators



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The following table describes the module status indicator.

Module Status Indicator	
Indication	Status
<b>None</b>	No Power
<b>Green</b> Blinking Solid	Needs Commissioning Operating Normal
<b>Red</b> Blinking Solid	Recoverable Fault Unrecoverable Fault



The following table describes the network status and Auxiliary power indicators.

<b>Network Status Indicator</b>	
<b>Indication</b>	<b>Status</b>
<b>None</b>	Not On line
<b>Green</b> Blinking Solid	On line/No Connections On line/Connected
<b>Red</b> Blink Solid	Connection Timed Out Failed Communication: A duplicate node address exists or module is at the wrong baud rate.
<b>Auxiliary Power</b>	
<b>Indication</b>	<b>Status</b>
<b>None</b>	No Auxiliary Power
<b>Green</b> Solid	Auxiliary Power Present

The following table describes I/O status indicators.

<b>I/O Status Indicators</b>			
<b>Function</b>	<b>Module Status Indicator</b>	<b>Point Indicator</b>	<b>Condition</b>
Outputs	Green	None	Output not energized
	Green	Yellow	Output energized
	Module Status blink red	Orange	Output shorted-auto restart
	Module Status blink red	Red	Output shorted-latching
	Module Status blink red	Orange	Output no load-auto restart
	Module Status blink red	Red	Output no load-latching

For more information on indications, see the Product Data, publication 1792-2.1.

## Specifications

<b>4 Output Module - Cat. No. 1792D-0B4D</b>			
		<b>Max</b>	<b>Min</b>
Outputs per block		4 sourcing outputs labeled 00, 01, 02, and 03	
Output Auxiliary Voltage		30V	10V
On-state Voltage Drop		1V	-
On-state Current		2A*	-
Off-state Leakage Module Current (all outputs)*		1.5mA 4.0A	- -
Surge Current - for 10 ms, repeatable every 2s		4.0A	-
No Load Sense Current (On-state)		0.18A	-
Indicators		Network Status - red/green Module Status - red/green Auxiliary Power - green Point LED - yellow/orange/red	
Communication Rate		<ul style="list-style-type: none"> <li>• 125Kbps @ 500 meters (1600 feet) for thick cable, flat media length 375 meters (1230 feet)</li> <li>• 250Kbps @ 200 meters (600 feet) for thick cable, flat media length 150 meters (492 feet)</li> <li>• 500Kbps @ 100 meters (330 feet) for thick cable, flat media length 75 meters (246 feet)</li> </ul>	
DeviceNet Power:	Voltage Current	25V dc max 75mA	11V dc min 150mA
Auxiliary Power:	Voltage Current	30V dc 4A	10V dc 4A
Dimensions (assembled to base) inches - (millimeters)		1.9H x 2.7W x 4.72D (48.18)H x (68.5)W x (120)D	
Environmental Conditions			
Operational Temperature		-25 to 60°C (-13 to 140°F)	
Storage Temperature		-25 to 80°C (-13 to 176°F)	
Relative Humidity		Up to 100%	
Shock Operating		30g peak acceleration, 11 (+1) ms pulse width	
Non-operating		50g peak acceleration, 11 (+1) ms pulse width	
Vibration		Tested 10g @ 10-500 Hz per IEC 68-2-6	
Conductors		Publication DN-6.7.2	

**4 Output Module - Cat. No. 1792D-OB4D**

Enclosure	Meets or exceeds IP67
Agency Certification (when product is marked)	<ul style="list-style-type: none"><li>• CSA certified</li><li>• CSA Class 1, Division 2, Groups A, B, C, D certified</li><li>• UL listed</li><li>• CE marked for all applicable directives</li></ul>
Product Data (user information)	Publication 1792-2.1

This product has been tested at an Open DeviceNet Vendor Association, Inc. (ODVA) authorized independent test laboratory and found to comply with ODVA Conformance Test Software Composite Test Version 11.

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