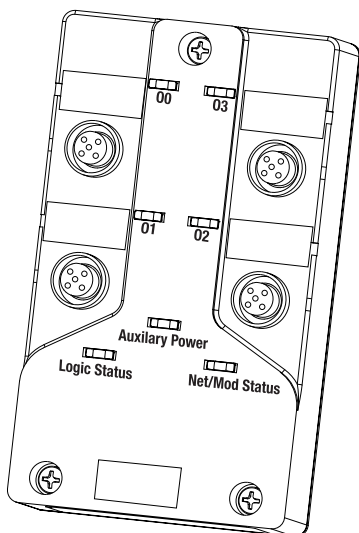




Installation Instructions

ArmorBlock MaXum 4 Output Module Series B

(Cat. No. 1792D-0B4D)



41525

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. Diagnostics features included are short circuit and no load detection reported to the point level. Local logic control has been added to the Series B version of this product.

Package Contents

Your package contains:

- 1 ArmorBlock MaXum Module
- Installation Instructions

Please note that 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.

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 output cord sets to the MaXum module
- Communicate with your ArmorBlock MaXum I/O module

Each of these steps is discussed 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, RSNetWorx for DeviceNet™ software, or another software configuration tool. Setting the switches between **64** to **99** lets the software have address control.

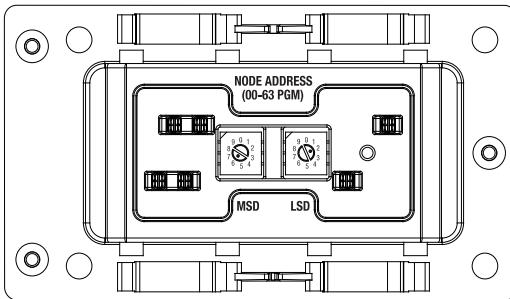
Each module is shipped with the node address set to **63**. The switches are located on the underside of the module. The two switches are:

- 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.

Refer to the illustration of the node address below.



Bottom View of Module

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

30703

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 12mm drop cable installation
- 1792D-CB18P for round media DeviceNet
- or other optional cable base assembly

IMPORTANT

The cable base should already be installed. See publications 1792D-IN009B-EN-P (CBFM & CB12) or 1792D-IN036B-EN-P (CB18, CB18P, CB18PT) for more information on how to install the cable base.

To install the module:

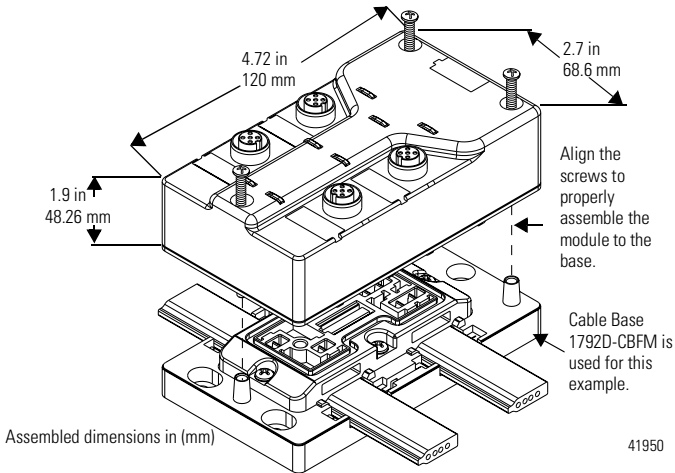
IMPORTANT

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

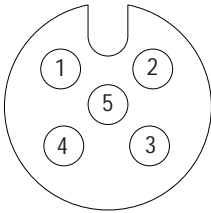
Dimensions change according to the cable base and module combination used.



Connect the 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 below.



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

41452

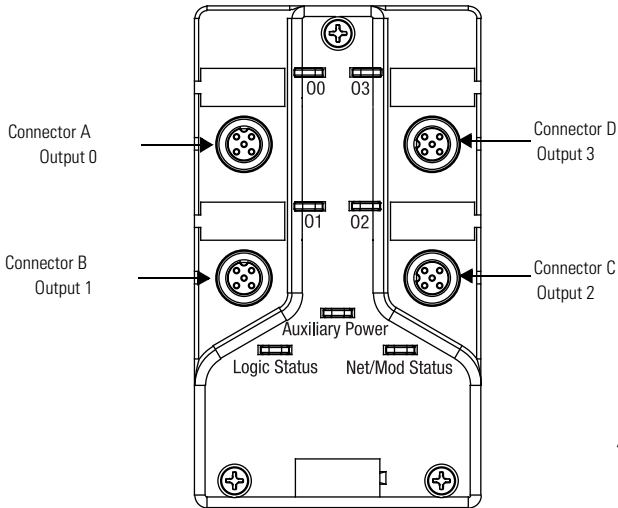
Please refer to publication 889-5.0 for Rockwell Automation cables and cord sets offerings.

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.



41951

DeviceNet Cable

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

- 1792D-IN009B-EN-P 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 cyclic, poll, or change-of-state connection.

The module consumes and produces output data as follows:

Type of I/O Connections	Consumes	Produces
Cyclic	1 Bytes	1 Byte
Polled	1 Bytes	1 Byte
Change-of-State	1 Bytes	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 contains the status of the Auxiliary power.

Change-of-State - productions occur when an output changes or a fault condition occurs. If no output or fault condition change occurs within the expected packet rate, a heartbeat production occurs. This heartbeat production tells the scanner module that the I/O 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
Produces 0	RSVD	OPWR	RSVD	RSVD	OFLT3	OFLT2	OFLT1	OFLT0
Consumes 0	RSVD	RSVD	RSVD	RSVD	03	02	01	00

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

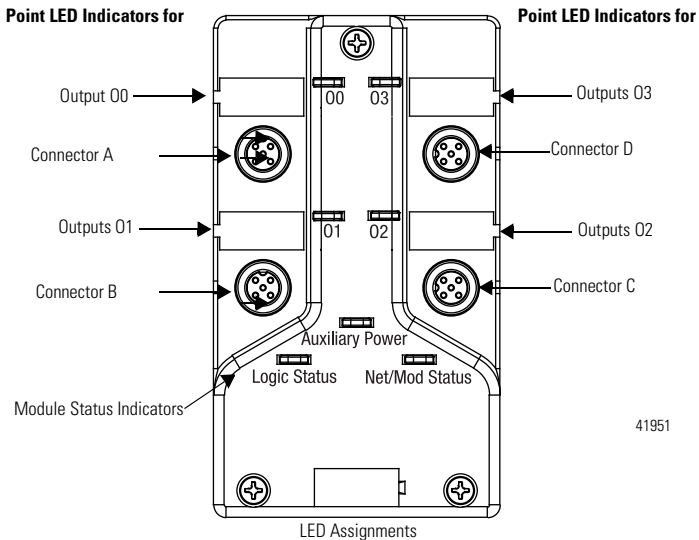
Byte	Bit	Description
Produces 0	00-03	Output no load or overload fault (OFLT): - When the bit is set (1), an output fault has occurred. OFLT0=output 0, OFLT1=output 1, OFLT2=output 2, OFLT3=output 3.
	04-05, 07 06	Reserved Output Power Fault (OPWR): When the bit is set (1), Auxiliary Power is not present.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

- Net/Mod status indicator
- Logic status indicator
- Auxiliary power
- Individual point status indicators



Status indicator information follows. For more information on indications, see the Technical Data, publication 1792-TD001B-EN-P.

The following table describes network and module status indicators.

Net/Mod Status Indicator

Indicator	Status
Off	No power or auto bauding
Flashing Green/Off	On line but not connected
Solid Green	On line, link OK, connected
Flashing Red	Recoverable fault - module configuration error
	I/O connection fault - one or more I/O connections in the timed-out state
Solid Red	Unrecoverable fault
	Communication failure - duplicate node address present or incorrect baud rate
Green to Red to Off	At powerup only - LED test

The following table describes logic status indicators.

Logic Status Indicators

State	Status
Off	Logic is disabled
Solid Green	Logic is enabled
Flashing Green	Local forces are applied and local logic is enabled

The following table describes Auxiliary power indicator.

Auxiliary Power

Indication	Status
None	No Auxiliary Power
Green Solid	Auxiliary Power Present

The following table describes I/O status indicators.

I/O Status Indicators

Function	Module Status Indicator	Point Indicator	Condition
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

Specifications

4 Output Module - Cat. No. 1792D-OB4D			
		Max.	Min.
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		1.5mA	-
Module Current (all outputs)		4.0A	-
Surge Current - for 10 ms, repeatable every 2s		4.0A	-
No Load Sense Current (On-state)		0.18A	-
Indicators		Net/Mod Status - red/green Logic Status - red/green Auxiliary Power - green Point LED - yellow/orange/red	
Communication Rate		<ul style="list-style-type: none"> • 125Kbps @ 500 meters (1600 feet) for thick cable, flat media length 375 meters (1230 feet) • 250Kbps @ 200 meters (600 feet) for thick cable, flat media length 150 meters (492 feet) • 500Kbps @ 100 meters (330 feet) for thick cable, flat media length 75 meters (246 feet) 	
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 6.85D (48.26)H x (68.6)W x (174)D	

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

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
Enclosure	Meets or exceeds IP67
Agency Certification (when product is marked)	<ul style="list-style-type: none"> • CSA certified • CSA Class 1, Division 2, Groups A, B, C, D certified • UL listed • CE marked for all applicable directives
Technical Data (user information)	Publication 1792-TD001B-EN-P

Hazardous Location Approval

The following information applies only to products marked with Hazardous Location Approval, when operating in hazardous locations:

Products marked “CL I, DIV 2, GP A, B, C, D” are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest “T” number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.

WARNING**EXPLOSION HAZARD -**

- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
 - Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
 - Substitution of components may impair suitability for Class I, Division 2.
 - If this product contains batteries, they must only be changed in an area known to be nonhazardous.
-

WARNING

Use supply wires suitable for 30°C above surrounding ambient.

WARNING



When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.

Les informations suivantes ne concernent que les produits marqués pour une utilisation en environnements dangereux :

Les produits marqués « CL I, DIV 2, GP A, B, C, D » ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.

AVERTISSEMENT



RISQUE D'EXPLOSION -

- Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.
 - Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit.
 - La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.
 - S'assurer que l'environnement est classé non dangereux avant de changer les piles.
-

AVERTISSEMENT

Utiliser des fils d'alimentation qui conviennent à une température de 30°C au-dessus de la température ambiante.

AVERTISSEMENT

Pour une utilisation en environnement de classe I, division 2 dangereux, cet équipement doit être monté dans un boîtier avec un câblage approprié conforme aux normes électriques en vigueur.

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. Please contact the ODVA website (<http://www.odva.org>) for listing of products tested by ODVA independent test labs for further details.

ArmorBlock, ArmorBlock MaXum and KwikLink are trademarks of Rockwell Automation.
DeviceNet is a trademark of Open DeviceNet Vendor Association.
DeviceNetManager is a trademark of Rockwell Automation Allen-Bradley, Inc.
RSNetWorx for DeviceNet is a trademark of Rockwell Software, Inc.

Reach us now at www.rockwellautomation.com

Wherever you need us, Rockwell Automation brings together leading brands in industrial automation including Allen-Bradley controls, Reliance Electric power transmission products, Dodge mechanical power transmission components, and Rockwell Software. Rockwell Automation's unique, flexible approach to helping customers achieve a competitive advantage is supported by thousands of authorized partners, distributors and system integrators around the world.

Americas Headquarters, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444
European Headquarters SA/AV, avenue Hermann Diebroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 663 06 00, Fax: (32) 2 663 06 40
Asia Pacific Headquarters, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2387 4788, Fax: (852) 2508 1846

