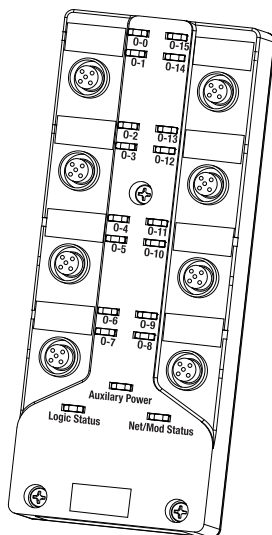




Installation Instructions

ArmorBlock MaXum 16 Sinking Output Module Series B

(Cat. No. 1792D-0VT16E)



42047

This ArmorBlock MaXum™ I/O module (Cat. No. 1792D-0VT16E) 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 16 sinking outputs accessed through Y splitter cables. Outputs are self-protected 24V dc and provide up to 0.3A each. 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:

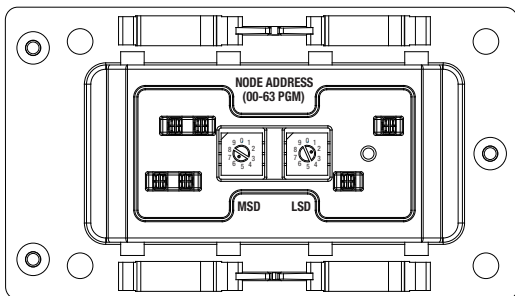
- MSD (most significant digit)
- LSD (least significant digit)

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.

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Refer to the illustration of the node address below.



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 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:

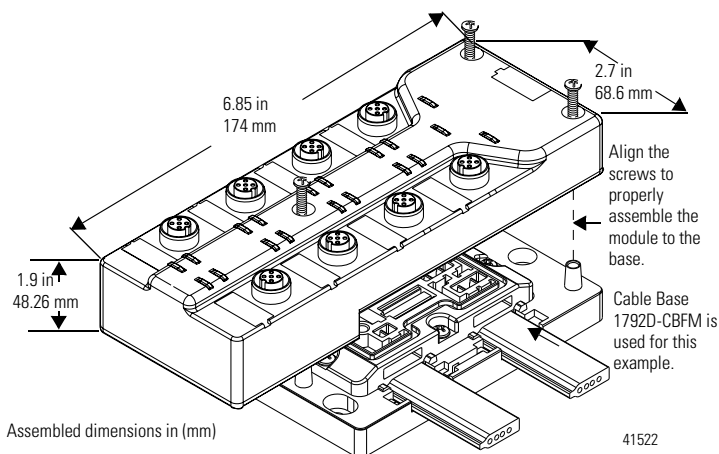
IMPORTANT

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.

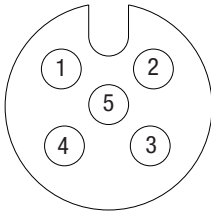


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Connect the Output Cord Sets to the MaXum Module

This module uses 5 pin micro (12mm) style PCB mounted connectors. Eight micro caps cover the connectors on your module. Remove the caps and connect your cord sets to the appropriate ports. This product has two outputs per connector. Use a “Y” splitter cable for access to all output connections.

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 Auxiliary +24V dc
Pin 2 Output B
Pin 3 Not used
Pin 4 Output A
Pin 5 Not Used

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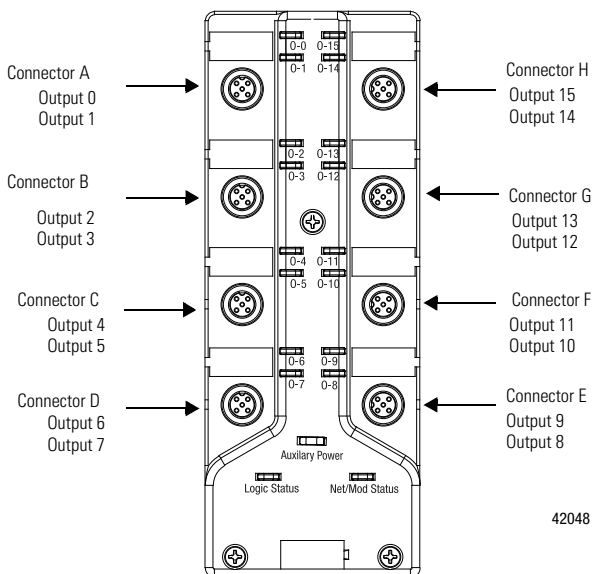
Please refer to publication 889-5.0 for Rockwell Automation cables and cord sets offerings.

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, output cable return wires must be properly terminated. When 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.



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

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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 consumes and produces output data as follows:

Type of I/O Connections	Consumes	Produces
Cyclic	2 Bytes	1 Byte
Polled	2 Bytes	1 Byte
Change-of-State	2 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 16 output module consumes the message, updates outputs, and produces a response. The response has output data, 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. Consumption occurs when data changes and the master produces new output data to the I/O block.

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	RSVD	RSVD	RSVD	RSVD
Consumes 0	07	06	05	04	03	02	01	00
Consumes 1	015	014	013	012	011	010	09	08

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

Byte	Bit	Description
Produces 0	00-05	Reserved
	06	OPWR = Output Power Fault, when the bit is set, Auxiliary Power is not present.
	07	Reserved
Consumes 0	00-07	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, bit 04 corresponds to output 4, bit 05 corresponds to output 5, bit 06 corresponds to output 6, and bit 07 corresponds to output 7
Consumes 1	00-07	Output bits: When the bit is set (1), the output will be turned on. Bit 00 corresponds to output 8, bit 01 corresponds to output 9, bit 02 corresponds to output 10, bit 03 corresponds to output 11, bit 04 corresponds to output 12, bit 05 corresponds to output 13, bit 06 corresponds to output 14, and bit 07 corresponds to output 15

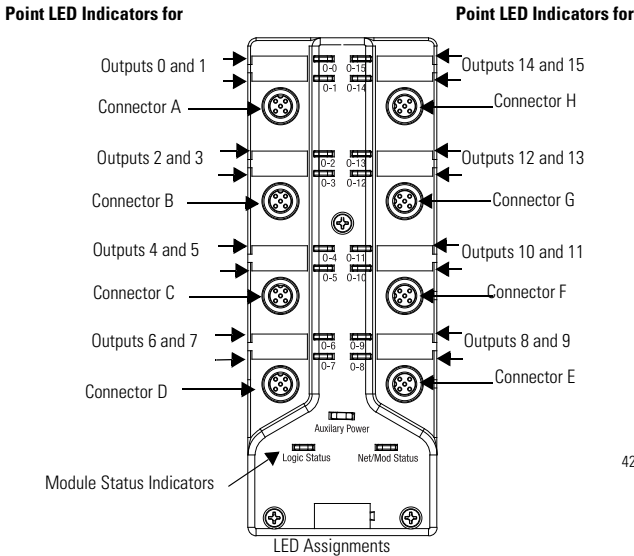
The DeviceNet Network uses advanced network technology, producer/consumer communication, to increase network functionality and throughput. Visit our web site at <http://www.ab.com/networks> for producer/consumer technology information and updates.

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Troubleshoot with the Indicators

This module has the following indicators:

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



42048

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

Net/Mod Status Indicator (continued)

Indicator	Status
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

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

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Specifications

16 Output Module - Cat. No. 1792D-OVT16E			
		Max.	Min.
Outputs per block		16 sinking outputs labeled 00 through 15	
Output Auxiliary Voltage		30V	10V
On-state Voltage Drop		1V	-
On-state Current		0.3A	-
Off-state Leakage		1.5mA	-
Module Current (all outputs)		4.0A	-
Surge Current - for 10 ms, repeatable every 2s		0.6A	-
Indicators		Net/Mod Status - red/green Auxiliary Power - green Logic Status - red/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 125mA	11V dc min 250mA
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	
Environmental Conditions		-25 to 60°C (-13 to 140 °F)	
Operational Temperature		-25 to 80°C (-13 to 176 °F)	
Storage Temperature		Up to 100%	
Relative Humidity		30g peak acceleration, 11 (+1) ms pulse width	
Shock Operating		50g peak acceleration, 11 (+1) ms pulse width	
Non-operating		Tested 10g @ 10-500 Hz per IEC 68-2-6	
Vibration			
Conductors		Publication DN-6.7.2	

16 Output Module - Cat. No. 1792D-OVT16E

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

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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.

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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.

www.rockwellautomation.com

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