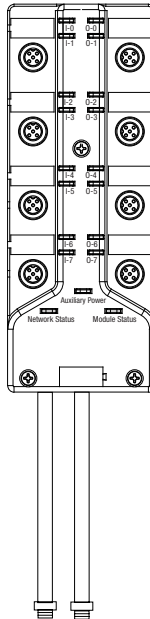




Installation Instructions

ArmorBlock LP2 8 Sinking Input/ 8 Output Module

(Cat. No. 1792D-8BT8LP)



41953

This ArmorBlock LP2™ I/O module (Cat. No. 1792D-8BT8LP) 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 8 sinking inputs and 8 sourcing outputs accessed through Y splitter cables. Eight self-protected 24V dc outputs can provide up to 300mA each.

Package Contents

Your package contains:

- 1 ArmorBlock LP2 Module
- Installation Instructions

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 LP2 I/O Module

To install the module you must:

- Set the node address and baud rate.
- Mount the module.
- Connect the input/output cord sets to the LP2 module.
- Communicate with your ArmorBlock LP2 I/O module.

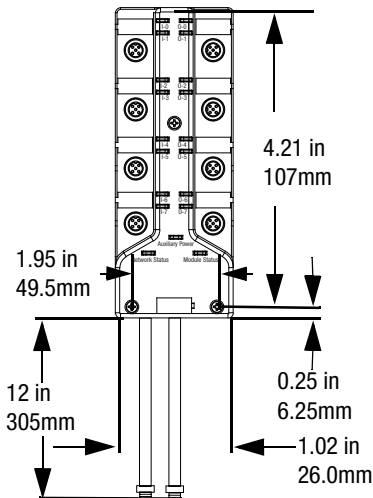
Each of these steps is discussed in detail in the following procedures.

Set the Node Address and Baud Rate

Set the node address using RSNetWorx for DeviceNet™ software, DeviceNetManager™ software, or another software configuration tool. 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

1. Attach the module using the dimensions shown below.



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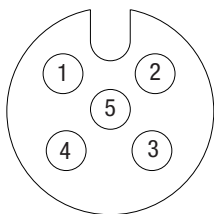
2. Connect the grey DeviceNet cable to the DeviceNet trunk. Use the 1485P-P1R5-MN5R1 T-Port tap to connect to round media. Use the 1485P-P1E4-R5 to connect to the Kwik Link flat media system.

Connect the Input/Output Cord Sets to the LP2 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 input or outputs per I/O connector. Use a “Y” splitter cable for access to all I/O connections. For more information on these cables, see the Product Data guide, publication 1792-2.1.

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



Input Micro-Connector

(View into Sockets)

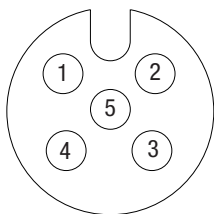
Pin 1 Sensor Source Voltage

Pin 2 Input B

Pin 3 Return Logic Ground¹

Pin 4 Input A

Pin 5 Not Used



Output Micro-Connector

(View into Sockets)

Pin 1 Not Used

Pin 2 Output B

Pin 3 Auxiliary Power Ground

Pin 4 Output A

Pin 5 Not Used

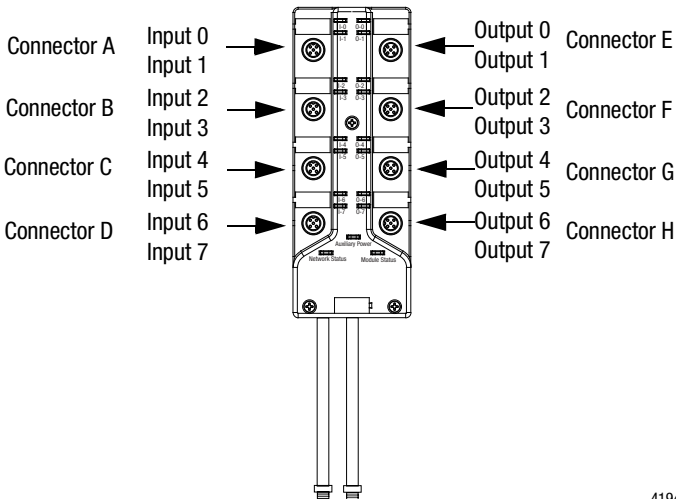
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¹. Logic Ground is approximately 0.4V above DeviceNet V-measured at the module.

**ATTENTION:**

- Make sure to connect the proper color coded cables together. DeviceNet cables should connect with DeviceNet cables and auxiliary outputs should match auxiliary outputs.
- 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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Output Power and DeviceNet Cable

Refer to the DeviceNet Cable System Planning and Installation Manual, publication DN-6.7.2, for more information on output power and DeviceNet cables for your application.

Communicate with Your ArmorBlock LP2 I/O Module

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

The module consumes and produces I/O data as follows:

Type of I/O Connections	Consumes	Produces
Cyclic	1 Byte	2 Bytes
Polled	1 Byte	2 Bytes
Change of State	1 Byte	2 Bytes

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. The 8 input/8 output module consumes the message, updates outputs, and produces a response. The response has input data and the status of the Auxiliary power.

Change of state - productions occur when an input changes. If no input change occurs within the expected packet rate, a heartbeat production occurs. This heartbeat production tells the scanner 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 module.

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

Bit	07	06	05	04	03	02	01	00
Produces 0	I7	I6	I5	I4	I3	I2	I1	I0
Produces 1	ISC	OPWR	RSVD	RSVD	RSVD	RSVD	RSVD	RSVD
Consumes 0	O7	O6	O5	O4	O3	O2	O1	O0

Where: I = Input, ISC = Input Short Circuit, OPWR = Output Power (Auxiliary Power), RSVD = Reserved, O = Output,

Refer to the table below for byte/bit descriptions.

Byte	Bit	Description
Produces 0	00-07	Input Status bits: When the bit is set (1), the input is on. Bit 00 corresponds to input 0, bit 01 corresponds to input 1, bit 02 corresponds to input 2, bit 03 corresponds in input 3.
Produces 1	00-05 06 07	Reserved Output Power (OPWR) Fault: When the bit is set (1) auxiliary power is not present. Input Short Circuit (ISC).
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 to output 2, bit 03 to output 3, bit 04 to output 4, bit 05 to output 5, bit 06 to output 6, and bit 07 to output 7.

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

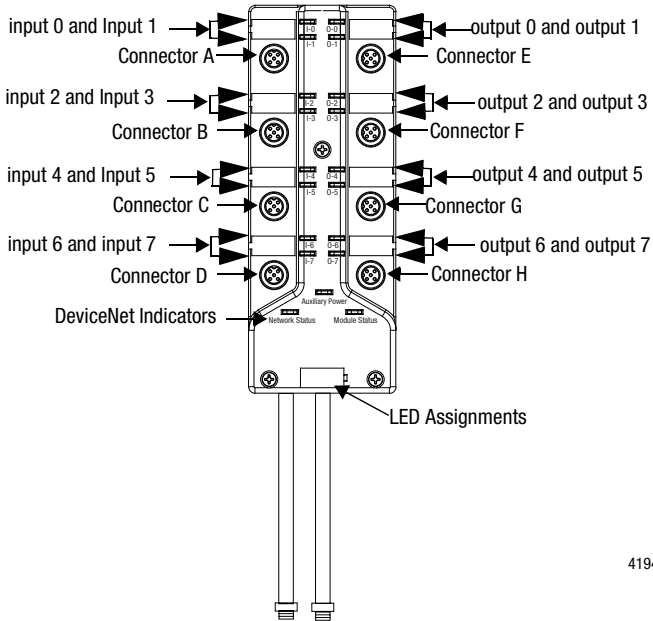
This module has the following indicators:

- Network status indicator
- Module status indicator
- Auxiliary Power indicator
- Individual point status indicators for inputs 0 through 7 and outputs 0 through 7

The following illustration describes module status indicators.

Input Point indicators and Connectors

Output Point indicators and Connectors



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The following table describes the module status indicator.

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

The following table describes the network status indicator and auxiliary power.

Network Status Indicator	
Indication	Status
None	Not On line
Green Blinking Solid	On line/No Connections On line/Connected
Red Blink Solid	Connection Timed Out Failed Communication: A duplicate node address exists or module is at the wrong baud rate.
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
Inputs	Green	None	No valid input
	Green	Yellow	Valid input
	Module Status blink red		None

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

Specifications

8 Input / 8 Output Module - Cat. No. 1792D-8BT8LP		
Sinking Input Specifications	Max	Min
Inputs per block	8- 3 wire or dry contact PNP devices or 4 -4 wire PNP devices	
Sensor Source Current (per input)	50mA	-
On-state Voltage	25V dc	10V dc
On-state Current	10mA	2mA
Off-state Voltage	5V dc	-
Off-state Current	-	1.5mA
Sourcing Output Specifications	Max	Min
Outputs per block	8 sourcing outputs labeled O0, O1, O2, and O3	
Output Auxiliary Voltage	30V	10V
On-state Voltage Drop	1V	-
On-state Current	0.3A	-
Off-state Leakage	1.5mA	-
Module Current (all outputs)	2.4A	-
Surge Current - for 10 ms, repeatable every 2s	0.6A	-
General Specifications		
Indicators	Network Status - red/green Module Status - red/green Auxiliary Power - green Point LED - yellow	
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 (no sensors) 500mA (full load)	11V dc min

8 Input / 8 Output Module - Cat. No. 1792D-8BT8LP**General Specifications Continued**

Auxiliary Power:	Voltage Current	30V dc 2.4A max	10V dc 2.4A min
Dimensions (assembled to base) inches - (millimeters)	1.023H x 2.7W x 6.85D (26)H x (68.5)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		
Enclosure	Meets or exceeds IP67		
Agency Certification (when product is marked)	<ul style="list-style-type: none"> CE marked for all applicable directives 		
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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