



Allen-Bradley 1792-IB16LP ArmorBlock-LP 16 Input Module Instruction Manual

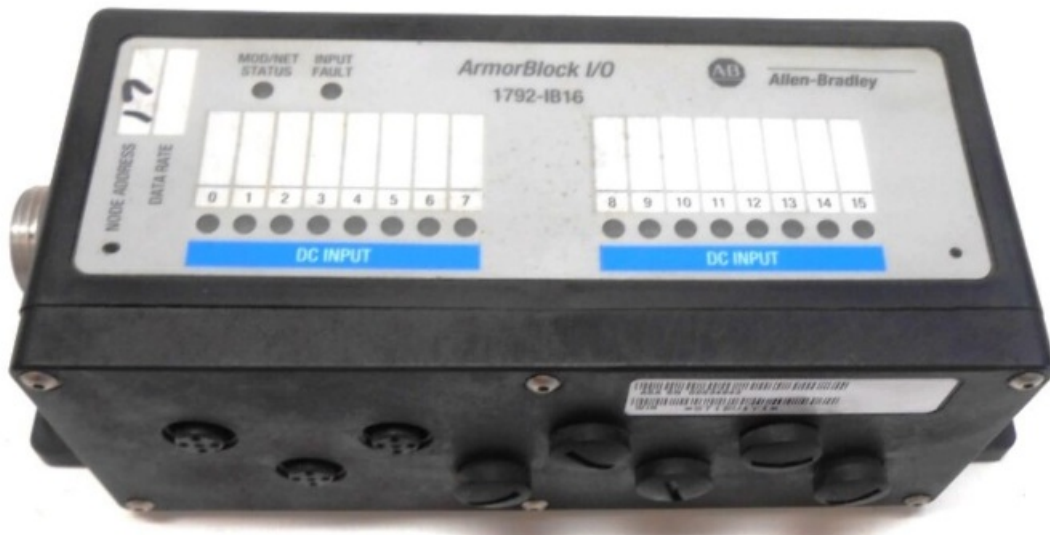
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Allen-Bradley

Allen-Bradley 1792-IB16LP ArmorBlock-LP 16 Input Module



Product Information

The ArmorBlockLP 16 Input Module (Cat. No. 1792-IB16LP) is an I/O block module that contains I/O circuits, a built-in power supply, and a built-in DeviceNet I/O adapter. It does not require an enclosure due to its sealed housing. It is compatible with PLC or SLC programmable controllers using Device Net scanners. The I/O values can be accessed from the PLC or SLC programmable controller data table. This module does not have any switches to set module parameters, instead, the parameters can be set using the Device Net Manager Software (Cat. No. 1787-MGR) or a similar configuration tool.

The product is compliant with the EMC Directive 89/336/EEC Electromagnetic Compatibility (EMC) and is intended for use in an industrial environment. The ArmorBlock-LP module is a trademark of Allen-Bradley Co. Inc.

Product Usage Instructions

1. Set the Node Address:

- Connect the 1770-KFD to your host computer.
- Set up a system with the following components: Power from a 9V dc power supply adapter 1770-KFD, RS-232 module, and a host computer with DeviceNet Manager software.
- Use the software to set the node address and communication rate of the ArmorBlock module to meet your system requirements.

2. Mount the ArmorBlock Module:

- Mount the block module directly to the machine or device using three #8 (4mm) screws.
- Refer to the provided mounting dimensions for proper installation.

3. Connect the Wiring to the ArmorBlock Module:

- Use the provided eight 5-pin Input Micro-connectors and a 5-pin Device Net Mini-connector for the wiring connections.
- Make sure to securely tighten all connectors to properly seal the connections against leaks and maintain IP67 requirements.
- Refer to the pinout diagrams for the proper connections of the input wiring to the micro-connectors on the front of the block.

Installation Instructions

- This 1792 ArmorBlockE I/O block module (Cat. No. 1792-IB16LP) contains I/O circuits, a built-in power supply, and a built-in DeviceNet I/O adapter. Because of its sealed housing, this 1792 I/O block requires no enclosure.

It is compatible with PLC or SLC programmable controllers using DeviceNet scanners. The I/O values are accessible from the PLC or SLC programmable controller data table.

- This ArmorBlock-LP module has no switches to set. You set module parameters using the DeviceNet Manager Software (cat. no. 1787-MGR) or similar configuration tool.

Contents

This box contains:

- 1 ArmorBlock-LP module
- Package containing 10 write-on indicator tabs, and 7 micro caps
- 1 DeviceNet right hand aluminum T-port tap (part number 97042401)
- Installation Instructions

European Union Directive Compliance

If this product is installed within the European Union or EEA regions and has the CE mark, the following regulations apply.

EMC Directive

- This apparatus is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC).
- The product described in this manual is intended for use in an industrial environment.

Low Voltage Directive

This apparatus is also designed 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 that the above norm requires, see the appropriate sections in this manual, as well as the following Allen-Bradley publications:

- Industrial Automation Wiring and Grounding Guidelines for Noise Immunity, publication 1770-4.1
- Automation Systems Catalog, publication B111

Install Your ArmorBlock Module

Installation of the ArmorBlock module consists of:

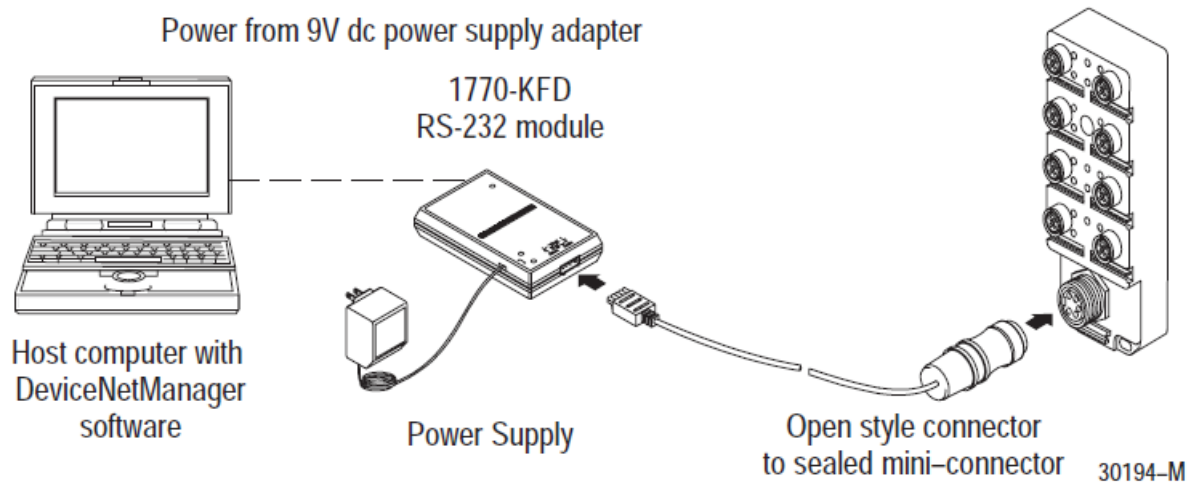
- setting the node address and communication rate in the ArmorBlock module
- mounting the ArmorBlock module
- connecting the wiring
- communicating with your module

Set the Node Address

Each ArmorBlock comes with its internal program set for node address 63 and a communication rate of 125Kbps. To set the node address and communication rate, you need the following

- host computer with DeviceNet Manager Software (or similar configuration software tool)
- 1770-KFD RS-232 module (or similar interface)
- suitable cables to connect the 1770-KFD to your module and to connect the 1770-KFD to your host computer

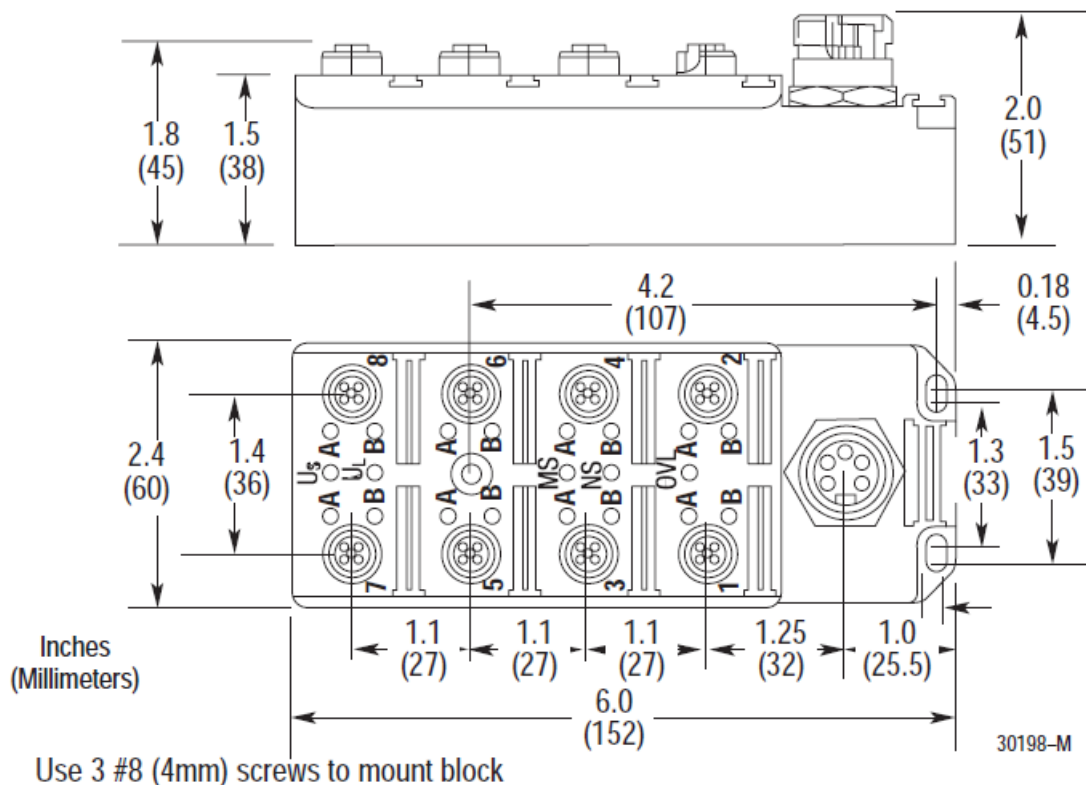
Set up a system (as shown below) to communicate with your ArmorBlock module to set the node address and communication rate to meet your system requirements.



Mount the ArmorBlock Module

Mount the block module directly to the machine or device. Complete mounting dimensions are shown below

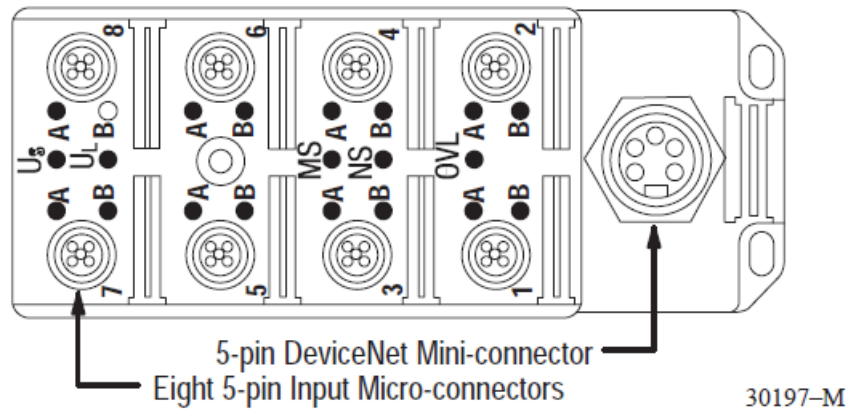
Mounting Dimensions



Connect the Wiring to the ArmorBlock Module

This module uses quick disconnect, screw-on style connectors for:

- I/O input wiring
- the DeviceNet connector



Seven micro plugs are included with your module. Use these plugs to cover and seal unused ports. Pinout diagrams for these connectors are shown below.

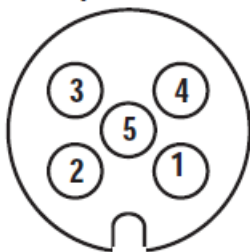
ATTENTION: Make sure all connectors are securely tightened to properly seal the connections against leaks and maintain IP67 requirements

Connecting the Input Wiring

Connect input wiring to the micro-connectors which screw into mating connectors on the front of the block

Make connections as shown below.

I/O Input Micro-Connector



(View into socket)

Pin 1 = Sensor Source Voltage Positive

Pin 2 = Signal B

Pin 3 = Negative/Return

Pin 4 = Signal A

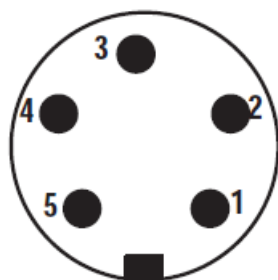
Pin 5 = Ground

Use a splitter cable (or “Y” cable) to access signal B.

Connecting the DeviceNet Wiring

Connect DeviceNet wiring to the 5-pin mini-connector on the end of the block. Connections are shown below

DeviceNet Mini-Connector



(View into pins)

Pin 1 = Drain (Bare)

Pin 2 = V+ (Red)

Pin 3 = V- (Black)

Pin 4 = CAN-HI (White)

Pin 5 CAN-LO (Blue)

Note: Colors are DeviceNet standard

Communicate with Your ArmorBlock Module

This ArmorBlock module's I/O is exchanged with the master through a poll, bit strobe or change of state connection. When set for Polled, Bit Strobe, or change of state, the module consumes and produces as follows

Type of I/O Connection	Consumes	Produces
Polled	0 Bytes	3 Bytes
Bit Strobe	0 Bytes	3 Bytes
Change of State	0 Bytes	3 Bytes

- Polled device – a master initiates communication by sending its polled I/O message to the ArmorBlock module. The 16 input module scans the inputs and fault bit producing a response that reflects their status.
- Change of state – productions occur when an input changes or an input source voltage fault occurs. If neither has occurred within the “expected packet rate,” a heartbeat production occurs. This heartbeat production tells the scanner module that the ArmorBlock module is alive and ready to communicate.
- Bit Strobe device – a master initiates communication by sending its bit strobe I/O message. All bit strobed devices then respond. The 16 input module scans the inputs and fault bits, producing a response that reflects their status.

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

Bit	07	06	05	04	03	02	01	00
Produces 1	I8A	I7A	I6A	I5A	I4A	I3A	I2A	I1A
Produces 2	I8B	I7B	I6B	I5B	I4B	I3B	I2B	I1B
Produces 3	IS	Reserved						

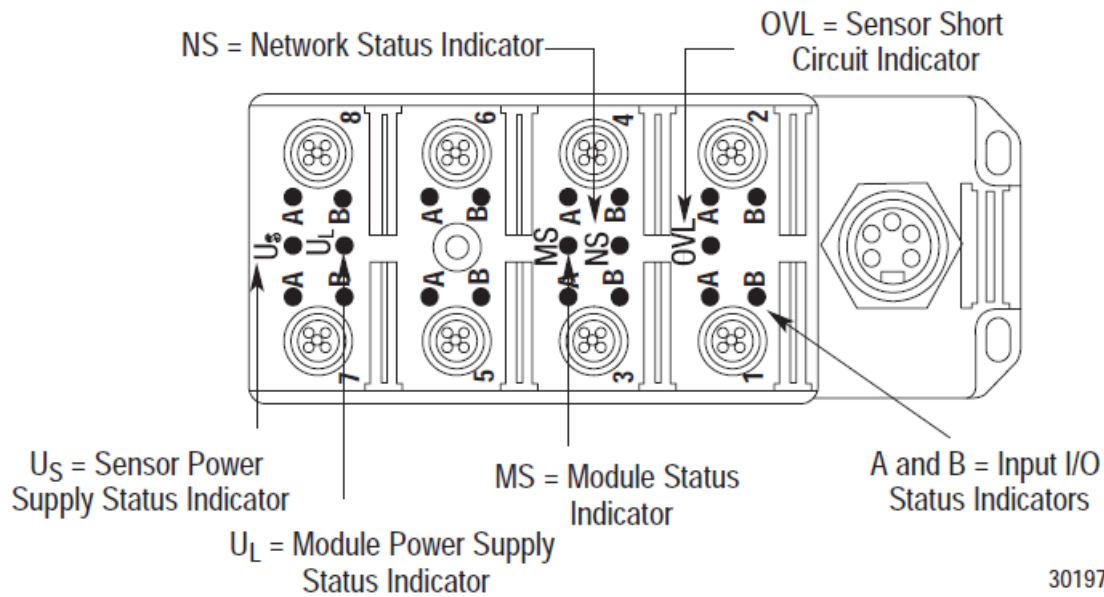
Where: I = Input
IS = Sensor source voltage fault

Word	Bit	Description
Produces 1	00–07	Input bits – bit 00 corresponds to input 1A, bit 01 to input 2A, and so on. 0 = input off; 1 = the input is on.
Produces 2	00–07	Input bits – bit 00 corresponds to input 1B, bit 01 to input 2B, and so on. 0 = input off; 1 = the input is on.
Produces 3	00–06	Reserved
	07	Sensor source voltage fault bit – this bit is set (1) when the sensor source voltage is faulted.

Troubleshoot with the Indicators

The ArmorBlock I/O module has the following indicators:

- Network status indicator (NS)
- Module status indicator (MS)
- Individual I/O status indicators (A, B)
- Power Status indicators
 - module power
 - sensor power
 - sensor short circuit



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Note: This module contains a circuit to protect the DeviceNet power supply from short circuits in an attached sensor or sensor cable. If you connect a sensor while the module is powered, the surge current produced by the sensor can cause the module to fault. This operation is normal.

Network Status Indicator NS	
Indication	Status
Flashing Green	On-line, not connected
Solid Green	Link OK, on-line connected
Flashing Red	At least 1 I/O connection is in the timed-out state
Solid Red	Incorrect baud rate, or a duplicate Mac ID exists
Module Status Indicator MS	
Indication	Status
OFF	No power, or no network access
Flashing Green/OFF	On-line but not connected
Solid Green	On-line, link okay, connected
Flashing Red	Recoverable fault
Solid Red	Critical failure
Sensor Short Circuit Indicator OVL	
Indication	Status
OFF	Sensor source voltage operating correctly
Solid Red	1 or more Sensor source voltage shorts
Input I/O Status Indicators A and B	
Indication	Status
Indication	Status
OFF	No valid input signal present
Yellow	Valid input signal present
Module and Sensor Power Supply Status Indicators U_S and U_L	
Indication	Status
OFF	Power supply is not functioning correctly
Green	Power Supply is operating

Specifications

16 Input Module – Cat. No. 1792-IB16LP

Input Specifications

Inputs per Block		16 sinking
On-state Voltage Range		12–30V dc
On-state Current	Maximum Minimum	15.0mA @ 30V dc 1.6mA @ 12V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	0.8mA
Transition Voltage		5–12.0V dc
Transition Current		0.8–2.2mA
Input Signal Delay Off to On or On to Off		1ms maximum
Sensor Source	Voltage Current	Minimum 13V dc @ 800mA out and DeviceNet power = 15V dc 50mA per point, 0.8A total per module
Indicators		Network Status – red/green Module Status – red/green Sensor Power Supply Status – green Module Power Supply Status – green Short Circuit Sensors – red I/O Status – yellow
Communication Rate in Baud		125k, 250k, 500k selectable

General Specifications

DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA (no powered sensors) 900mA (full sensor load)
Dimensions	Inches Millimeters	6.0H X 2.4W X 2.0D 152H X 60W X 51D
Environmental Conditions		
Operational Temperature		0 to 60°C (32 to 140°F)
Storage Temperature		–20 to 80°C (–40 to 176°F)
Relative Humidity		up to 100%
Shock	Operating Non-operating	30 g peak acceleration, 11(±1)ms pulse width 50 g peak acceleration, 11(±1)ms pulse width
Vibration		Tested 10 g @ 10–500Hz per IEC 68-2-6

Specifications continued on next page.

General Specifications	
Conductors	Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure	Meets or exceeds IP67
Agency Certification	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 Version FT 1.3/1.1.

Worldwide representation.

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Documents / Resources



Installation Instructions

ArmorBlock-LP 16 Input Module

Cat. No. 1792-IB16LP

This 16-channel I/O module enables Cat. No. 1792-IB16LP to connect 16 discrete inputs to your system, with built-in diagnostic features. Because of its flexibility, the 1792-IB16LP can be configured for a wide range of applications. The 1792-IB16LP can be configured for a wide range of applications. The 1792-IB16LP can be configured for a wide range of applications.

The 1792-IB16LP module has an integral 16-channel input module that can be configured for a wide range of applications. The 1792-IB16LP module has an integral 16-channel input module that can be configured for a wide range of applications.

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European Union Directive Compliance

If the product is installed in the European Union or EEA, the user must comply with the CE mark. For more information, see the CE mark.

Disclaimers

This document is provided as a guide only. It is not intended to be a substitute for the user manual. The user must read the user manual for more information.

[Allen-Bradley 1792-IB16LP ArmorBlock-LP 16 Input Module \[pdf\] Instruction Manual](#)

1792-IB16LP ArmorBlock-LP 16 Input Module, 1792-IB16LP, ArmorBlock-LP 16 Input Module, 16 Input Module, Input Module, Module

References

-  [All-guides – Innovative Search Service of Online Manuals](#)