



## ArmorBlock 2 Input/2 Output Module Cat. No. 1792-IB2XOB2E Series B

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This 1792 ArmorBlock™ I/O block module (Cat. No. 1792-IB2XOB2E) 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 module has no switches to set. You set module parameters using the DeviceNet Manager Software (cat. no. 1787-MGR) or similar configuration tool.

## 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) using a technical construction file and the following standards, in whole or in part:

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

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, publication 1770-4.1
- Automation Systems Catalog, publication B111

## Install Your ArmorBlock Module

Installation of the ArmorBlock module consists of:

- setting the node address in the ArmorBlock module
- mounting the ArmorBlock module
- connecting the wiring
- communicating with your module
- configuring the parameters

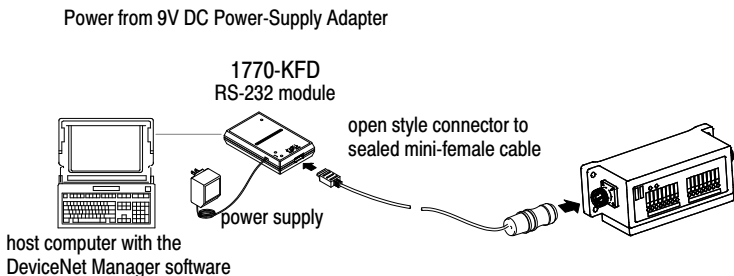
## Set the Node Address

Each ArmorBlock comes with its internal program set for node address 63. To set the node address, you need the following:

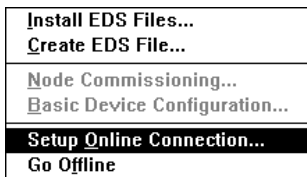
- host computer with DeviceNet Manager Software (or similar configuration software tool)
- 1770-KFD RS-232 module (or similar interface)
- suitable cables to connect the 1770-KFD to your module and to connect the 1770-KFD to your host computer

Set the node address to meet your system requirements as follows:

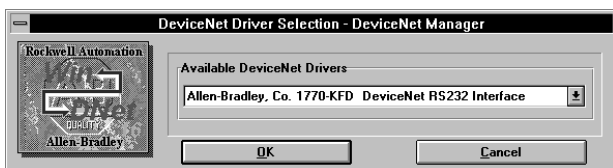
1. Set up a system (as shown below) to communicate with your ArmorBlock module.

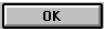


- Using DeviceNet Manager Software, go online using the “Setup Online Connection” selection on the utility pulldown menu.

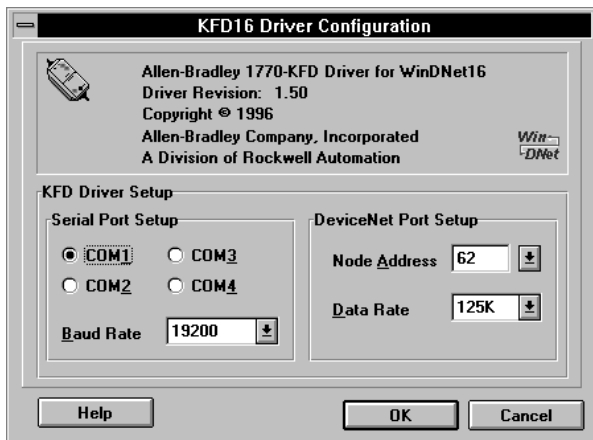


- The DeviceNet Driver selection screen appears.



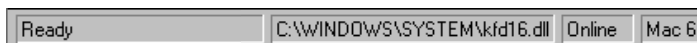
Select the driver for your application and click on .

- The Driver configuration screen lets you:
  - set the data rate
  - set the interface adapter node address
  - select the interface adapter serial port
  - set interface adapter baud rate

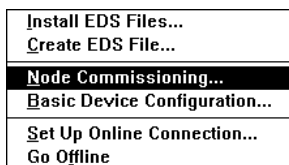


Click on  to go online.

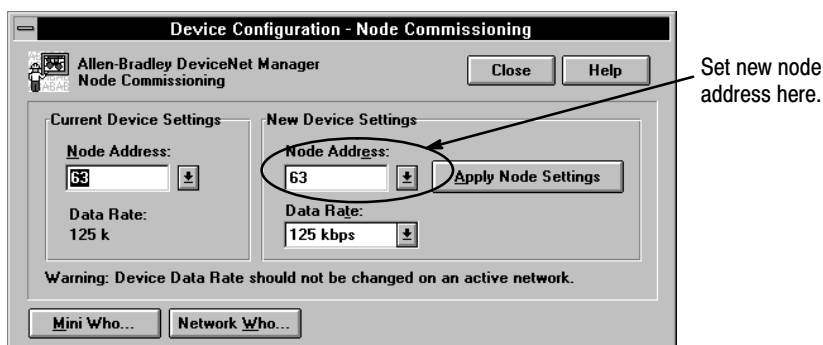
- The bar at the bottom of the screen will tell you when you go online.



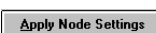
- At the utility pulldown, select “Node Commissioning.”



- You can set the node address on the “Device Configuration – Node Commissioning” screen. Note that the node address “out of the box” setting is 63. Set the desired node address per your system requirements.



You can also set the data rate on this screen, if required. However, your module is shipped with the “autobaud” parameter enabled. This assures that the module will be at the correct data rate for any network to which it is connected. To change the data rate, you must first disable autobaud on the parameter screen, then return to the “Device Configuration – Node Commissioning” screen and enter the new data rate.

- Click on  to apply the new node settings.
- Repeat the above procedure to set the node addresses of any additional ArmorBlock modules you want to install.

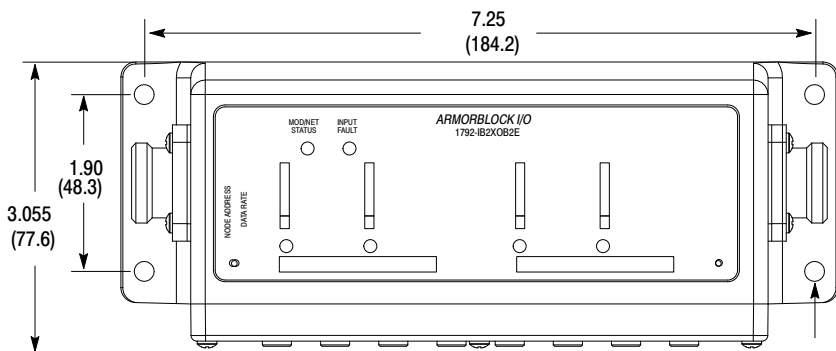
## Mount the ArmorBlock Module

Mount the block module directly to the machine or device. Complete mounting dimensions are shown below. Note that the block dimensions allow direct connection of a T-port tap (cat. no. 1485P-P1N5-□) to the DeviceNet connector. (Refer to publication 1485-6.7.1 for cabling details.)

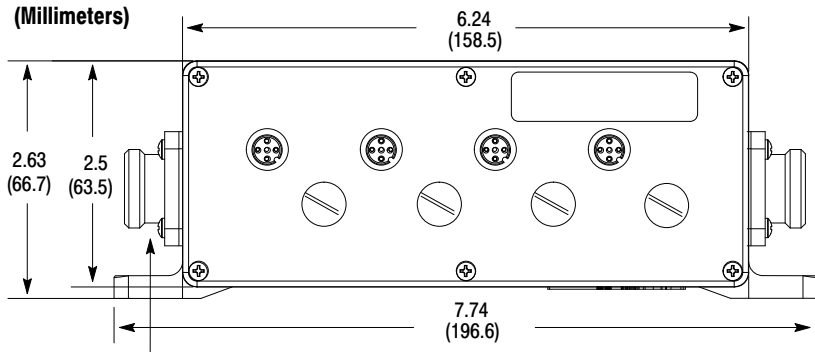
The ArmorBlock module has a sloping top and a gap at the rear to allow water or other liquids to run off during washdowns. The flow through the gap prevents buildup of debris under the block.

Preferred mounting position is with the microconnectors pointing down. However, the block can be mounted in any orientation.

## Mounting Dimensions



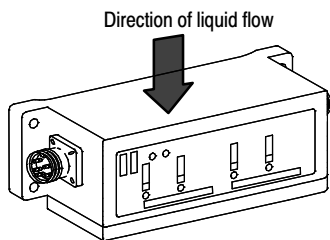
Inches  
(Millimeters)



4 mounting holes  
for #10 screws

Block dimensions allow T-port tap  
connection directly onto connector

For washdown installations,  
or excessively moist areas,  
mount block with micro  
connectors down.

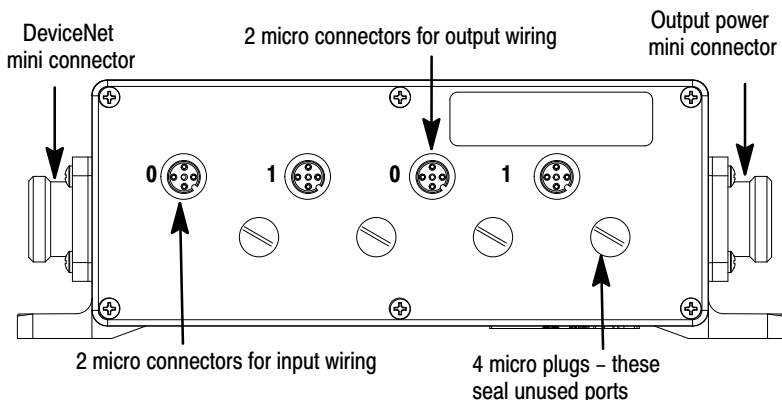


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## Connect the Wiring to the ArmorBlock Module

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

- I/O input wiring
- I/O output wiring
- power wiring for I/O outputs
- the DeviceNet connector



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:** All connectors must be securely tightened to properly seal the connections against leaks and maintain NEMA 4X and 6P requirements.

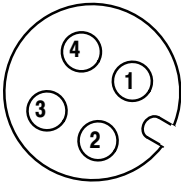


## Connecting the Input Wiring

Connect input wiring to the micro connectors which screw into mating connectors on the side of the block.

Make connections as shown below.

### I/O Input Micro Connector



(View into socket)

**Pin 1 = Sensor Source Voltage Positive**

**Pin 2 = Not used**

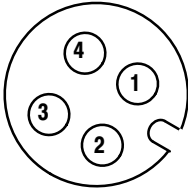
**Pin 3 = Negative/Return**

**Pin 4 = Signal**

## Connecting the Output Wiring

Connect individual output wiring to micro connectors which screw into mating connectors on the side of the block. Make connections as shown below.

### I/O Output Micro Connector



(View into socket)

**Pin 1 = Not used**

**Pin 2 = Not used**

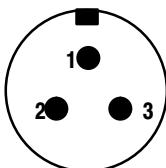
**Pin 3 = Negative**

**Pin 4 = Output**

Connect the output power wiring to the 3-pin mini connector on the end of the block.

**Important:** The outputs use electronic overcurrent fault protection. Make certain your output power supply can handle overcurrent events.

### Output Power Mini Connector



(View into pins)

**Pin 1 = Not used**

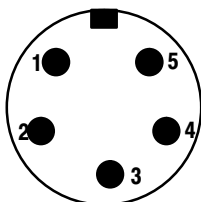
**Pin 2 = Positive**

**Pin 3 = Negative**

## 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 acts as a slave in a master/slave environment. It is both a “polled device” and a “change of state device.”

When configured as a polled device, a master initiates communication by sending its polled I/O message to the ArmorBlock module. The 2 input/2 output module scans the inputs and fault bits producing a response, and consumes the message, updates outputs, and produces a response that reflects their status.

When configured as a “change of state” device, productions occur when an input changes, or an output 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	07	06	05	04	03	02	01	00
Produces	IS	Reserved			OF1	OF0	I1	I0
Consumes	Reserved						O1	O0

Where: I = Input

IS = Sensor source voltage fault

O = Output

OF = Output fault

Word	Bit	Description
Produces	00-01	Input bits – bit 00 corresponds to input 0, bit 01 to input 1. When the bit is set (1), the input is on.
	02-03	Output fault bits – Shows fault status of each output. OS0 corresponds to output 0, and OS1 corresponds to output 1. When the bit is set (1), the output is faulted.
	04-06	Reserved
	07	Sensor source voltage fault bit – this bit is set (1) when the sensor source voltage is faulted.
Consumes	00-01	Output bits – Bit 00 corresponds to output 0, bit 01 corresponds to output 1. 0 = output off; 1 = output on
	02-07	Reserved


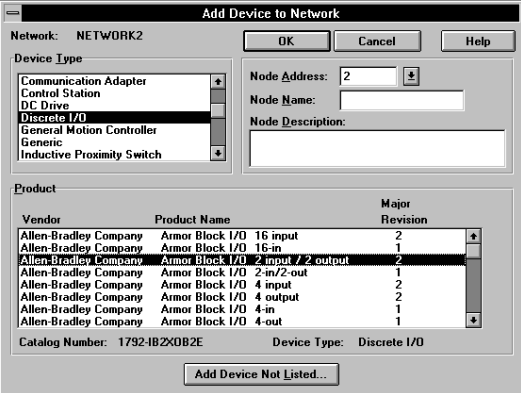
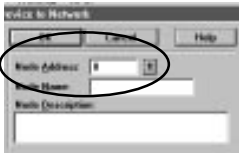

## Configure Your ArmorBlock Module Offline Using the DeviceNet Manager Configuration Tool

To configure your ArmorBlock module offline:

- add the device to the network
- set the parameters for the device
- save the parameters to a file

**Note:** You cannot actually configure your device offline. You can set and save the parameters to a file for downloading to the device when you go online.

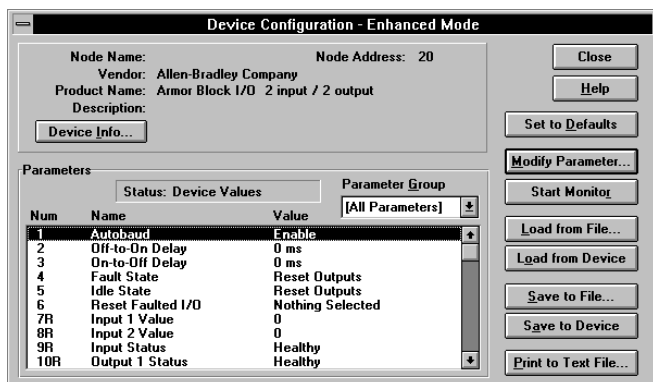
## Adding a Device to the Network

Action	Response																											
<p>At the network screen, click on the "add device" button.</p>	 <p>The screenshot shows a dialog box titled 'NETWORK2.PCI'. It contains fields for 'Network Name' (NETWORK2), 'Network Description', and 'Number of Devices' (13). There are buttons for 'Add Network', 'Add Device...', 'Remove Device', and 'Work Item'. Below these are sections for 'Device Types' and 'Device List'.</p>																											
<p>At the "add device to network" screen, click on "discrete I/O" in the device type box.</p>	 <p>The screenshot shows the 'Add Device to Network' dialog box. It has fields for 'Node Address' (2), 'Node Name', and 'Node Description'. The 'Device Type' list includes 'Communication Adapter', 'Control Station', 'DC Drive', 'Discrete I/O', 'General Motion Controller', and 'Inductive Proximity Switch'. Below is a table of products.</p> <table border="1" data-bbox="384 797 878 959"> <thead> <tr> <th>Vendor</th> <th>Product Name</th> <th>Major Revision</th> </tr> </thead> <tbody> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 16 input</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 16-in</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 2 input / 2 output</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 2-in/2-out</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4 input</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4 output</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4-in</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4-out</td> <td>1</td> </tr> </tbody> </table> <p>At the bottom, there is an 'Add Device Not Listed...' button.</p>	Vendor	Product Name	Major Revision	Allen-Bradley Company	Armor Block I/O 16 input	2	Allen-Bradley Company	Armor Block I/O 16-in	1	Allen-Bradley Company	Armor Block I/O 2 input / 2 output	2	Allen-Bradley Company	Armor Block I/O 2-in/2-out	1	Allen-Bradley Company	Armor Block I/O 4 input	2	Allen-Bradley Company	Armor Block I/O 4 output	2	Allen-Bradley Company	Armor Block I/O 4-in	1	Allen-Bradley Company	Armor Block I/O 4-out	1
Vendor	Product Name	Major Revision																										
Allen-Bradley Company	Armor Block I/O 16 input	2																										
Allen-Bradley Company	Armor Block I/O 16-in	1																										
Allen-Bradley Company	Armor Block I/O 2 input / 2 output	2																										
Allen-Bradley Company	Armor Block I/O 2-in/2-out	1																										
Allen-Bradley Company	Armor Block I/O 4 input	2																										
Allen-Bradley Company	Armor Block I/O 4 output	2																										
Allen-Bradley Company	Armor Block I/O 4-in	1																										
Allen-Bradley Company	Armor Block I/O 4-out	1																										
	<p>Then click on the desired ArmorBlock device.</p> <p>Select the device node address for this device.</p>  <p>Click on the OK button when you have selected your device. Add more devices as necessary.</p> 																											

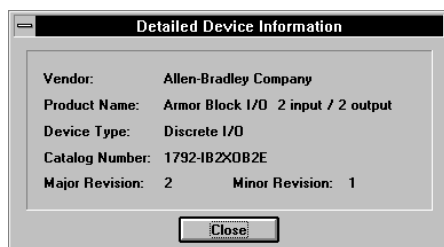
## Configure your Device Parameters

After adding the devices to the network, you must configure them. You have 2 choices:

- highlight the device, and click on the **Config Device...** button, or
- double-click on the device to bring up the device configuration screen.



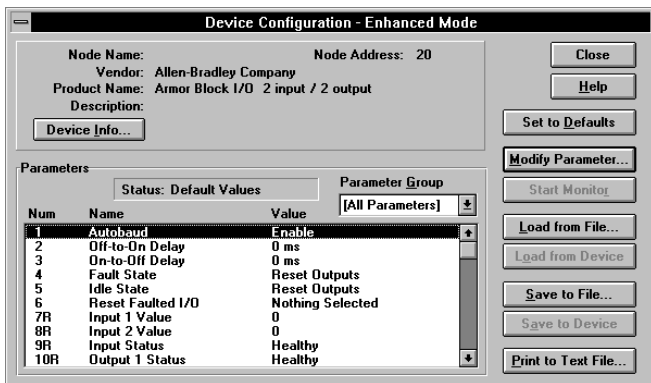
For detailed device information on this device, click on



## Configuring the Parameters

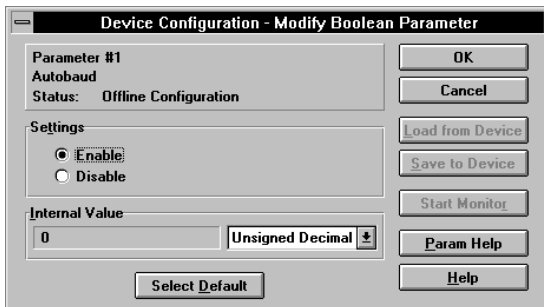
Default settings for the 2 in/2 out module are:

autobaud	when enabled, matches device baud rate to network baud rate at powerup	enable
off to on delay	time from a valid input signal to recognition by the block module	no delay
on to off delay	time from input signal dropping below the valid level to recognition by the block module	no delay
fault state	defines output behavior during a communication fault	reset outputs
idle state	defines output behavior during program mode	reset outputs
reset faulted I/O	reset sensor source voltage and faulted outputs	nothing selected



1. Double click on the parameter you want to change.

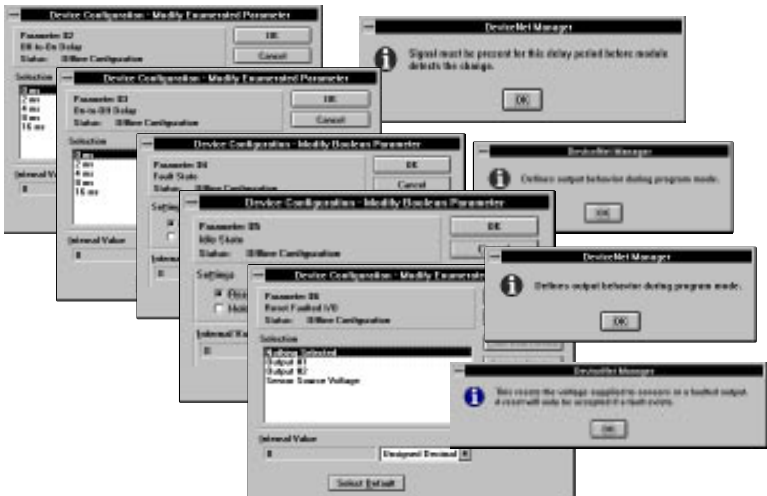
The parameter screen appears.



- Click on the radio button  to select a different setting. To save the setting, click on **OK**. To cancel any changes, click on **Cancel**.
- For help about a specific parameter, click on **Param Help**. A screen similar to this will appear. To continue, click on **OK**.



- Continue with any additional parameters you want set for your block module. The 2 input/2 output module has the following additional parameters: off to on delay, on to off delay, idle state, fault state, and reset faulted I/O..



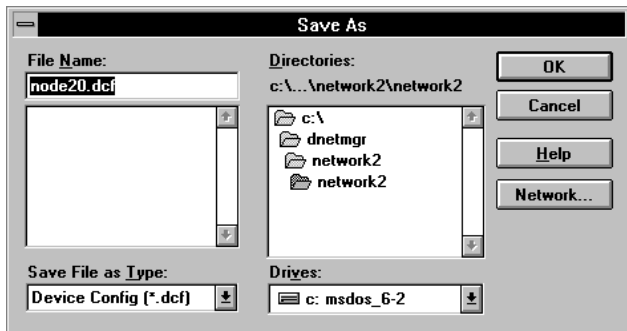
When you have completed each parameter selection, click on the **OK** button. This returns you to the device configuration screen.


You can save these parameters to a file for downloading to the device when online, or print them to a text file for hard copy use.

## Saving to a File


1. To save those parameters to a file, click on the  button.

You see this screen.

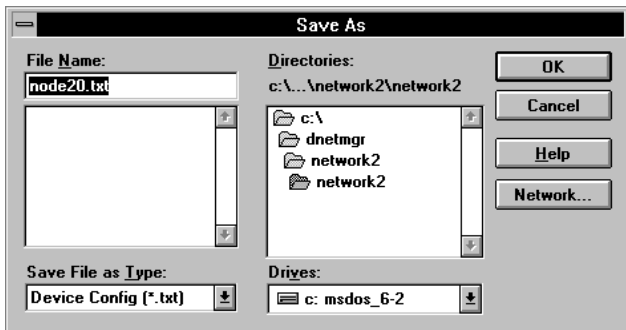


2. Choose the file name, file type (.dcf), directory, and drive to which you want to save the file.
3. Click on the  button to save.


## Printing to a Text File

1. If you choose to save your changes to a text file, click on the  button.


A screen similar to the following will appear.





- Choose the file name, file type (.TXT), directory and drive to which you want to save the file.
- Click on the  button to save. Use this file to print out as hard copy for future reference.

## Online Help

Online help is available on all screens. Click on  to bring up pertinent information concerning the device configuration you are selecting.

Additionally, help is available on each parameter screen by clicking on



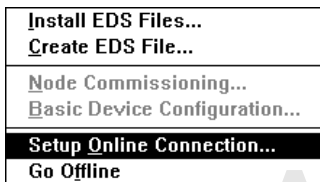
## Configure Your ArmorBlock Module Online Using the DeviceNet Manager Configuration Tool

The procedure for online configuration is similar to the offline configuration procedure previously described. You must:

- establish the interface to the network
- add the device to the network from the Add Device to Network screen
- access and configure the device parameters

### Establish the Interface

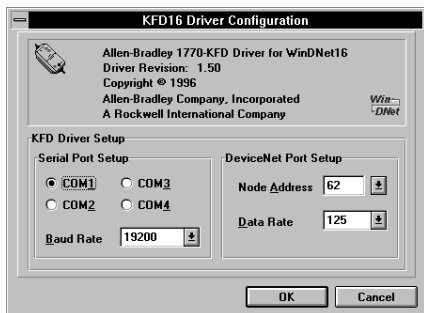
- Select the “set up online connection” at the Utilities pulldown menu.



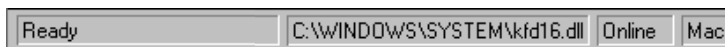
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2. The configuration screen for your selected driver appears. You can:

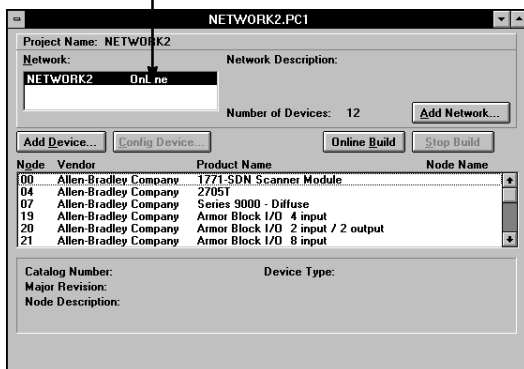
- set the node address
- set the data rate
- select the interface adapter serial port
- set the interface adapter baud rate




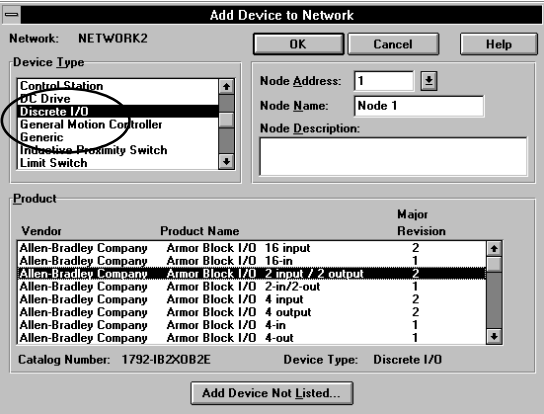
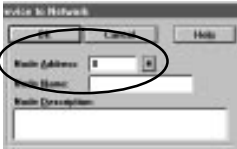

3. After setting the parameters, click on the **OK** button. The system will automatically go online, as shown at the bottom of the screen.



Online will also appear in the Network area.



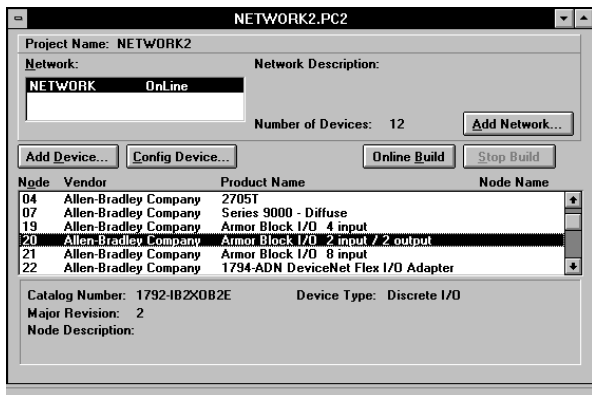
## Add the Device to the Network

Action	Response																											
<p>At the network screen, click on the “add device” button.</p>	 <p>The screenshot shows a window titled 'NETWORK2.NET'. It has a 'Network' field set to 'NETWORK2' and a 'Network Description' field. Below these are 'Add Network', 'Delete Network', and 'Refresh' buttons. A 'Number of Devices' field is set to '12'. The 'Add Device' button is circled in red. Below this is a table with columns 'Vendor', 'Product Name', and 'Node Name'. The table lists several Allen-Bradley products like '1771 S&amp;H 3-axiom Module', 'Series 5000 - 300ksc', and 'Armor Block I/O'.</p>																											
<p>At the “add device to network” screen, click on “discrete I/O” in the device type box.</p>	 <p>The screenshot shows a dialog box titled 'Add Device to Network'. It has 'Network: NETWORK2' and buttons for 'OK', 'Cancel', and 'Help'. The 'Device Type' list has 'Discrete I/O' selected and circled in red. Other fields include 'Node Address' (set to 1), 'Node Name' (set to Node 1), and 'Node Description'. Below is a 'Product' table:</p> <table border="1" data-bbox="422 820 909 966"> <thead> <tr> <th>Vendor</th> <th>Product Name</th> <th>Major Revision</th> </tr> </thead> <tbody> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 16 input</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 16-in</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 2 input / 2 output</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 2-in/2-out</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4 input</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4 output</td> <td>2</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4-in</td> <td>1</td> </tr> <tr> <td>Allen-Bradley Company</td> <td>Armor Block I/O 4-out</td> <td>1</td> </tr> </tbody> </table> <p>At the bottom, it shows 'Catalog Number: 1792-IB2X082E' and 'Device Type: Discrete I/O'. There is an 'Add Device Not Listed...' button.</p> <p>Then click on the desired ArmorBlock device.          Select the device node address for this device.</p>  <p>The small screenshot shows the 'Node Address' field with the value '1' and a red circle around the input area.</p> <p>Click on the OK button when you have selected your device.          Add more devices as necessary.</p>  <p>The screenshot shows the 'OK' button from the dialog box.</p>	Vendor	Product Name	Major Revision	Allen-Bradley Company	Armor Block I/O 16 input	2	Allen-Bradley Company	Armor Block I/O 16-in	1	Allen-Bradley Company	Armor Block I/O 2 input / 2 output	2	Allen-Bradley Company	Armor Block I/O 2-in/2-out	1	Allen-Bradley Company	Armor Block I/O 4 input	2	Allen-Bradley Company	Armor Block I/O 4 output	2	Allen-Bradley Company	Armor Block I/O 4-in	1	Allen-Bradley Company	Armor Block I/O 4-out	1
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Allen-Bradley Company	Armor Block I/O 16-in	1																										
Allen-Bradley Company	Armor Block I/O 2 input / 2 output	2																										
Allen-Bradley Company	Armor Block I/O 2-in/2-out	1																										
Allen-Bradley Company	Armor Block I/O 4 input	2																										
Allen-Bradley Company	Armor Block I/O 4 output	2																										
Allen-Bradley Company	Armor Block I/O 4-in	1																										
Allen-Bradley Company	Armor Block I/O 4-out	1																										

**Important:** The node address can only be set at the “Node Commissioning” screen (from the Utilities pulldown menu). See page NO TAG.

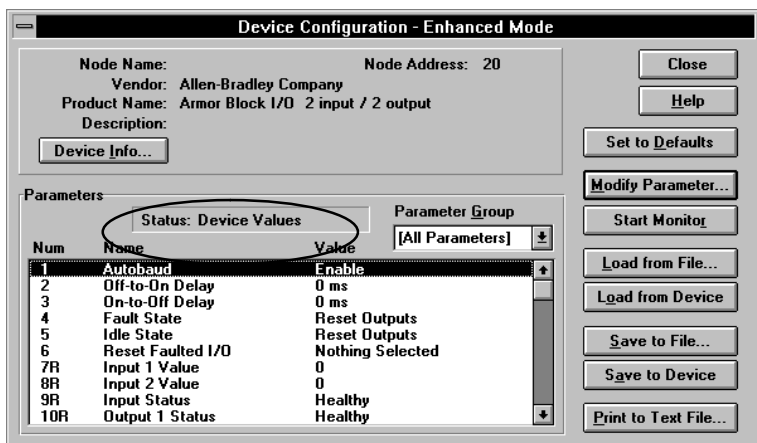


- Click once on the device you wish to configure on the project screen and choose **Config Device...**

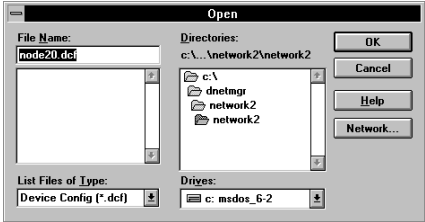


The device configuration screen appears.

If you have	Parameter Status is
Not previously modified default settings	Default Values
Modified parameters but have not saved them	Modified
Modified and saved parameter settings	Current
Clicked on "Load from File"	File Values
Clicked on "Load from Device"	Device Values



## 5. Load parameters.

If you want to load parameters	Choose
From a file	<div data-bbox="459 250 667 305" style="border: 1px solid black; padding: 2px; text-align: center;"> <b>L</b>oad from File...         </div>
You see this screen.	
	
Choose the drive, file type, and directory to load the file from.	
Select the file name so that it is highlighted and choose	
<div data-bbox="573 686 781 742" style="border: 1px solid black; padding: 2px; text-align: center;"> <b>O</b>K         </div>	
<p><b>Note:</b> The product code, type and revision must be identical in order to load a file from one device to another.</p>	
From the selected device	<div data-bbox="459 846 667 901" style="border: 1px solid black; padding: 2px; text-align: center;"> <b>L</b>oad from Device         </div>
From default settings	<div data-bbox="459 907 667 963" style="border: 1px solid black; padding: 2px; text-align: center;">           Set to <b>D</b>efaults         </div>

## 6. Modify the parameter.

---

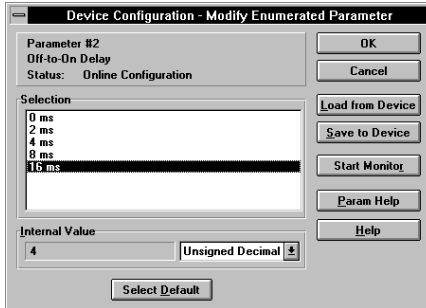
**If you want to**                      **Choose**

---

**Modify a parameter**

**Modify Parameter...**

You see a screen similar to this one.



Click on the settings you wish to activate.

To save these settings,  
choose

**OK**

To save these settings to the device,  
choose

**Save to Device**

To use default settings,  
choose

**Select Default**

To cancel any changes,  
choose

**Cancel**

For help about a specific parameter, click on the  
parameter and then

choose

**Param Help**

You can view parameters online by clicking on

**Start Monitor**

Any changes that occur for a parameter will be reflected  
on the screen.

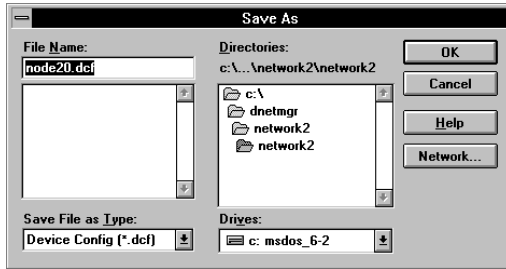
---

## 7. Save parameters to a file, to the device, or print to a file.

If you want to	Choose
----------------	--------

Save parameters to a file	
---------------------------	---

You see this screen.



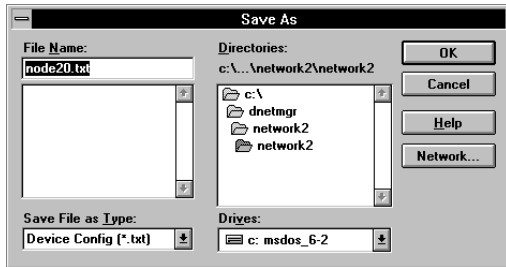
Select the drive, file type, directory, and file name to which you would like to save and choose



Save parameters to the selected device	
--	---


Print to a file	
-----------------	---

You see this screen.



Select the drive, file type, directory, and file name to which you would like to save and choose



8. To exit from the Enhanced Configuration screen, click on .


# Allen-Bradley

## Monitoring Parameters Online



You can monitor parameters at the Device Configuration screen or at the selected parameter screen.

The start monitor button on the Device Configuration screen allows you to monitor all of the parameters online. To monitor parameters:



Click on the  button to start the monitor.

The monitor function starts after a few seconds.

1. The status line flashes "monitoring." →
2. The monitoring function is indicated by an asterisk moving down next to the parameters. →
3. The monitor button changes to  and only "modify parameter" and "stop monitoring" are active.
4. Click on the  button to stop monitoring.



To monitor an individual parameter:

1. Select the parameter on the Device Configuration screen.
2. Highlight the parameter and click on "Modify Parameter."
3. Click on "Start Monitor" on the individual parameter screen.



## Reset Faults

There are various ways to reset faults on an ArmorBlock module.

- cycle power to the module by disconnecting, then reconnecting the DeviceNet connector
- use the Reset Faulted I/O feature on the parameter screen
- use the explicit message program control feature
- for output faults, remove and reconnect the output power connector

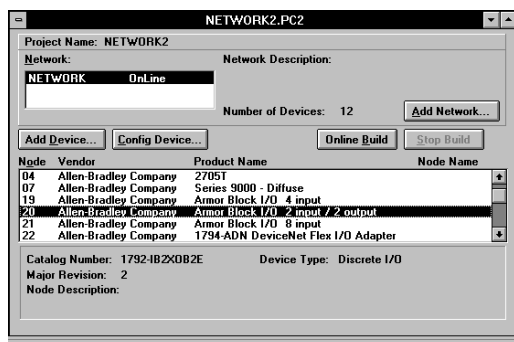


**ATTENTION:** If you reset a fault by removing and replacing the output power connector, outputs (including the faulted output) will be on when power is reconnected.

**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. If this occurs, reset the module.

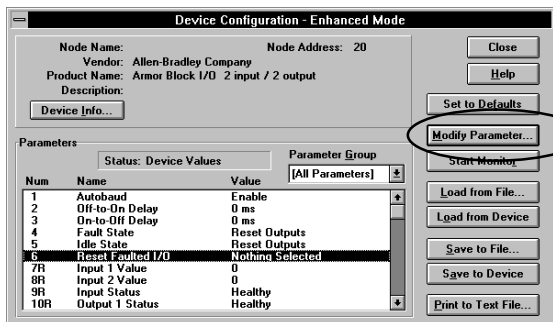
## Reset Faults Online Using the Parameter Screen

To reset faults online, return to the network screen and proceed as follows:



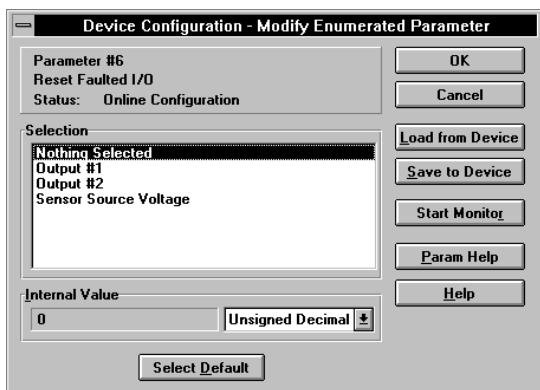
1. Click on the faulted device.
2. Then click on the Configure Device button.

The device configuration screen appears. Select the Reset Faulted I/O parameter.



After selecting the parameter, click on the modify parameter button.

The configuration screen for the selected parameter appears.



1. Click on the faulted output to reset.
2. Then click on the OK button to apply.
3. You will be returned to the configuration screen. Click on "Save to Device" to apply the change.

## Reset Faults using Explicit Message Program Control

You can also reset inputs and outputs using the Explicit Message Program Control feature on the Scanner module master. Refer to the specific scanner publications for information on using this feature.

The format for the reset explicit message transaction block must contain 6 words as shown below:

	Word	Input Fault	Output Fault
Transaction Header	Word 0	TXID - CMD/STATUS	TXID - CMD/STATUS
	Word 1	PORT - SIZE	PORT - SIZE
	Word 2	Service = 32 hex - MAC ID	Service = 32 hex - MAC ID
Transaction Body	Word 3	Class = 1D hex	Class = 9
	Word 4	Instance = 1	Instance = n - where n = number of the output (1 or 2)
	Word 5	Attribut Data = 0	Attribut Data = 0

## Configure Your ArmorBlock Module Using EDS Files

Current versions of DeviceNet Manager software include ArmorBlock module support. If you are using a version of DeviceNet Manager software that does not include ArmorBlock module Electronic Data Sheets (EDS) files in its library, you can use the following information to create the file.

If you are using a configuration tool other than DeviceNet Manager, you can also use the following information to create the EDS file. (Note: This EDS file was current at the time of printing. Contact your nearest district office for information on later files.)

```
$ Electronic Data Sheet for Armor Block I/O (1792-IB2XOB2E)
[File]
DescText = "1792-IB2XOB2E Armor Block I/O EDS File";
CreateDate = 04-18-96;
CreateTime = 12:00:00;
ModDate = 09-17-96;
ModTime = 16:00:00;
Revision = 2.1;
[Device]
VendCode = 1;
```

\$ EDS revision.

```

VendName = "Allen-Bradley Company, Inc.";
ProdType = 7;
ProdTypeStr = "General Purpose Discrete I/O";
ProdCode = 1028;
MajRev = 2;
MinRev = 1;
ProdName = "Armor Block I/O 2 input / 2 output";
Catalog = "1792-IB2XOB2E";
UCMM = 0;           $ UCMM is not supported.
[IO_Info]
Default = 0x0001;   $ The default I/O type is polled I/O.
PollInfo =
0x0001,           $ Polled I/O device.
1,                $ Input1 entry is the default input connection.
1;                $ Output1 entry is the default output connection.
Input1 =
1,                $ The size in bytes that this connection produces.
0,                $ All bits of this connection are significant.
0x0001,           $ Only Polled I/O is compatible.
"IB2XOB2E Production Data", $ Name of Connection.
6,                $ Path length.
"20 04 24 64 30 03", $ Path to I/O Production Assembly.
$$$$$$$$$ Help string $$$$$$$$$$
"This connection contains input data at bits 0 and 1, output status at bits 2 and 3, and
sensor source voltage status at bit 7.";

Output1 =
1,                $ The size in bytes that this connection consumes.
2,                $ Only the two least significant bits of this
connection are used.
0x0001,           $ Only Polled I/O is compatible.
"IB2XOB2E Consumption Data", $ Name of Connection.
6,                $ Path length.
"20 04 24 20 30 03", $ Path to I/O Consumption Assembly.
$$$$$$$$$ Help string $$$$$$$$$$
"This connection contains data for two outputs.";

[ParamClass]
MaxInst = 11;     $ 6 configurable and 5 read-only parameters.
Descriptor = 0x09; $ Stub param instances in eeprom.
CfgAssembly = 0x68; $ The config assembly is instance #104 of assy obj.
[Params]
$$$$$$$$$
$$$$$$$$$
Param1 =           $ Disable Autobaud
0,                $ reserved
6,                $ Link Path Size
"20 03 24 01 30 64", $ Link Path to disable autobaud attribute.
0x0002,           $ No support for settable path, scaling, scaling links, or
real time update of value. Value is gettable and
Settable. Enumerated strings are supported.
4,                $ Data Type - boolean
1,                $ Data Size
1,                $ Data Size
"Autobaud",       $ Parameter Name
"",               $ Units String
$$$$$$$$$ Help string $$$$$$$$$$

```







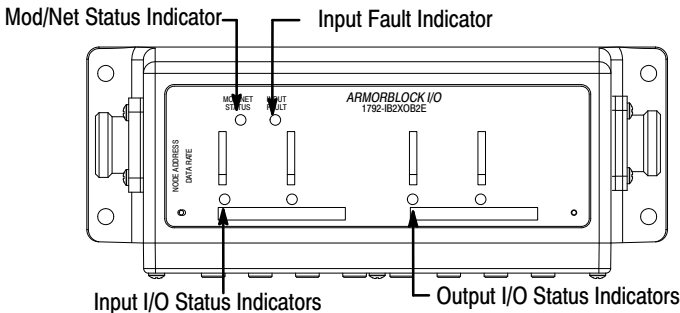
```

0,                $ reserved
6,                $ Link Path Size
"20 09 24 02 30 04", $ Link Path to Output 2 status attribute.
0x0032,          $ No support for settable path, scaling, or scaling
                $ links.
                $ Value is gettable only. Enumerated strings are
                $ supported.
8,                $ Data Type – unsigned short int
1,                $ Data Size – (in bytes)
"Output 2 Status", $ Parameter Name
"",              $ Units String
                $$$$$$$$$ Help string $$$$$$$$$$
"This parameter is the current status of Output 2.",
0,1,0,           $ Min, Max, and Default values
1,1,1,0,0,0,0,0; $ Not Used
[Groups]
Group1="Configuration",5,1,2,3,4,5;
Group2="I/O",6,6,7,8,9,10,11;
[EnumPar]
Param1="Enable","Disable";
Param2="0 ms","2 ms","4 ms","8 ms","16 ms";
Param3="0 ms","2 ms","4 ms","8 ms","16 ms";
Param4="Reset Outputs","Hold Last State";
Param5="Reset Outputs","Hold Last State";
Param6="Nothing Selected","Output #1","Output #2","Sensor Source Voltage";
Param9="Healthy","Faulted";
Param10="Healthy","Faulted";
Param11="Healthy","Faulted";
    
```

## Troubleshoot with the Indicators

The ArmorBlock I/O module has 3 types of indicators:

- Mod/Net status indicator
- Input fault indicator
- individual I/O status indicators





**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. If this occurs, reset the module (page 25).

<b>Mod/Net Status Indicator</b>	
<b>Indication</b>	<b>Status</b>
OFF	No power, or no network access, or incorrect baud rate <sup>1</sup>
Flashing Green/OFF	On-line but not connected
Solid Green	On-line, link okay, connected
Flashing Red	Recoverable fault
Solid Red	Critical failure, or duplicate node address present
Green to Red to Off	At powerup only – The module is autobauding
<sup>1</sup> This only occurs when Autobaud is disabled, and the module is set to an incorrect baud rate.	
<b>Input Fault Indicator</b>	
<b>Indication</b>	<b>Status</b>
OFF	Sensor source voltage operating correctly
Solid Red	1 or more Sensor source voltage shorts
<b>Input I/O Status Indicator</b>	
<b>Indication</b>	<b>Status</b>
OFF	No valid input signal present
Yellow	Valid input signal present
<b>Output I/O Status Indicator</b>	
<b>Indication</b>	<b>Status</b>
OFF	Output is off
Yellow	Output is on
Red (see note)	Output is faulted
Note: A faulted output may cause adjacent outputs to fault.	

## Specifications

### 2 Input/2 Output Module – 1792-IB2XOB2E/B

Input Specifications		
Inputs per Block		2 sinking
On-state Voltage Range		10–30V dc
On-state Current	Maximum Minimum	6.0mA @ 30V dc 2.0mA @ 10V dc
Off-state Voltage	Maximum	5V dc
Off-state Current	Minimum	1.5mA
Transition Voltage		5–10V dc
Transition Current		1.5–3.0mA
Input Impedance	Maximum	5K ohms
Input Signal Delay	Off to On On to Off	0ms, 2ms, 4ms, 8ms, 16ms 0ms, 2ms, 4ms, 8ms, 16ms
Sensor Source	Voltage Current	10–25V dc 50mA per point, 0.1A total per module
Output Specifications		
Outputs per Block		2 sourcing
Output Voltage Range		19 – 30V dc
On-state Voltage	Maximum	0.25V dc @ rated current
On-state Current	Maximum	2.0A per output @ 70°C
Module Current (all outputs on)	Maximum	4.0A per module <sup>1</sup>
Off-state Leakage Current	Maximum	1.5mA per output
Surge Current (per output)	Maximum	4.0A for 10ms, repeatable every 2s
<b>Specifications continued on next page</b>		

## 2 Input/2 Output Module – 1792-IB2XOB2E/B

### General Specifications

Indicators		Mod/Net Status – red/green Input Fault – red I/O Status – yellow/red (customer field side driven)
DeviceNet Power	Voltage Current	11.0 – 25.0V dc 100mA (no powered sensors) 200mA (full sensor load)
Surge Current at Power Up		Less than 10A for 5ms
Dimensions	Inches Millimeters	2.6H X 7.7W X 3.06D 66H X 195W X 77.7D
Connectors		1792-IB2XOB2EA/B – Aluminum connectors 1792-IB2XOB2ES/B – Stainless Steel Connectors
Power Dissipation	Maximum	1.9 Watts
Thermal Dissipation	Maximum	6.9 BTU/hr
Isolation Voltage		500V ac – outputs to DeviceNet 500V ac – outputs to inputs

**Specifications continued on next page**

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## 2 Input/2 Output Module – 1792-IB2XOB2E/B

Environmental Conditions	
Operational Temperature	-25 to 70°C (-13 to 158°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	up to 100%
Shock	30 g peak acceleration, 11(±1)ms pulse width
Operating	50 g peak acceleration, 11(±1)ms pulse width
Non-operating	Tested 10 g @ 10–500Hz per IEC 68-2-6
Vibration	
Conductors	Refer to publication 1485-6.7.1 for information on cabling for your DeviceNet module.
Enclosure	Meets or exceeds NEMA 4X and 6P, IP67 1200psi, 140°F hosedown
Agency Certification (when product or packaging is marked)	<ul style="list-style-type: none"> <li>• CSA certified</li> <li>• CSA Class I, Division 2, Groups A, B, C, D certified</li> <li>• UL listed</li> <li>• CE marked for all applicable directives</li> </ul>

<sup>1</sup> Minimum wire size is 20 gauge.

**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 1.2/1.0.**

 **Rockwell** Automation

**Allen-Bradley**

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