User Manual

Allen-Bradley

POINT I/O Digital and Analog Modules and POINTBlock I/O Modules

Catalog Numbers 1734-IA2, 1734-IM4, 1734-IB2, 1734-IB4, 1734-IB8, 1734-IB4D, 1734-IM2, 1734-IM4, 1734-IV2, 1734-IV4, 1734-IV8, 1734-OA2, 1734-OA4, 1734-OB2, 1734-OB2EP, 1734-IV8, 1734-OA2, 1734-OA4, 1734-OB2, 1734-OB2EP, 1734-OB2E, 1734-OB4, 1734-OB4E, 1734-OB8, 1734-OB8E, 1734-OV2E, 1734-OV4E, 1734-OV8E, 1734-OW2, 1734-OW4, 1734-OX2, 1734-IE2C, 1734-IE2V, 1734-OE2C, 1734-OE2V, 1734D-IA16, 1734D-IA8XOA8, 1734D-IA8XOW8, 1734D-IB16, 1734D-IB8XOB8, 1734D-IB8XOW8

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Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	**WARNING:** Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence
	**SHOCK HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	**BURN HAZARD:** Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

This publication contains new and revised information not in the last release.

New Information

See the table that shows what we added to this publication.

Item Added	Cat. No.
Input Modules	1734-IA4 1734-IB4D 1734-IM4
Output Modules	1734-OA4
Specialty Modules	1734-IR2E
One-piece Terminal Bases	1734-TOP, 1734-TOPS 1734-TOP3, 1734-TOP3S

Revised Information

We updated additional information as necessary to more fully explain certain procedures.

Change Bars

Change bars (as shown with this paragraph) show the areas in this manual that are different from previous editions and indicate the addition of new or revised information.

Notes:

Purpose of This Manual

This manual describes how to install, configure, and troubleshoot your POINT I/O modules.

The POINT I/O modules in this manual are DeviceNet ready. Each module can exist on the DeviceNet network as one of the following:

- As an individual node
- With an adapter (catalog number 1734-ADN or 1734-ADNX) as a single node

When using these POINT I/O modules with an adapter, use this manual in conjunction with the user manual for the adapter you are using as shown in the table.

For applications using these modules in a network with a 1734-PDN DeviceNet Communication Interface, or a 1734D-*xx* POINTBlock I/O module, this user manual is the primary documentation.

When Using POINT I/O Modules on This Network	Refer to User Manual for	Cat. No.	Publication No.
DeviceNet network	DeviceNet adapter	1734-ADN 1734-ADNX	1734-UM002
ControlNet network	ControlNet adapter	1734-ACNR	1734-UM008
EtherNet/IP network	EtherNet/IP adapter	1734-AENT	1734-UM011
PROFIBUS network	PROFIBUS adapter	1734-APB	1734-UM005

Who Should Use This Manual

In this manual, we assume you know how to do the following:

- Use RSNetWorx software or similar configuration software to set up and calibrate these modules.
- Have the capability to download and use electronic data sheet (EDS) files.

If you do not, refer to your software documentation or online help before attempting to use these modules.

Additional Resources

Refer to this table for a list of related 1734 products and documentation. Most of these are available from http://literature.rockwellautomation.com/. For specification and safety certification information, refer to the installation instructions.

Resource	Description
Analog Modules	
Analog Current and Voltage Input Module Installation Instructions, publication 1734-IN027	Provides installation information for 1734-IE2C and 1734-IE2V input modules
Analog Current and Voltage Output Module Installation Instructions, publication 1734-IN002	Provides installation information about 1734-OE2C and 1734-OE2V modules
Communication Devices	
ControlNet Adapter Installation Instructions, publication 1734-IN582	Provides installation information about 1734-ACNR adapters
ControlNet Adapter User Manual, publication 1734-UM008	Describes how to use 1734-ACNR adapters
DeviceNet Communication Interface Module Installation Instructions, publication 1734-IN057	Provides installation information about 1734-PDN modules
DeviceNet Adapter Installation Instructions, publication 1734-IN026	Provides installation information about 1734-ADN and 1734-ADNX adapters
DeviceNet Adapter User Manual, publication 1734-UM002	Describes how to use 1734-ADN and 1734-ADNX adapters
EtherNet/IP Adapter Installation Instructions, publication 1734-IN590	Provides installation information about 1734-AENT adapters
EtherNet/IP Adapter User Manual, publication 1734-UM011	Describes how to use 1734-AENT adapters
PROFIBUS Adapter Installation Instructions, publication 1734-IN014	Provides installation information about 1734-APB adapters
PROFIBUS Adapter User Manual, publication 1734-UM005	Describes how to use 1734-APB adapters
Digital AC Input Modules	
220V AC Input Module Installation Instructions, publication 1734-IN008	Provides installation information about 1734-IM2 and 1734-IM4 modules
120V AC Input Module Installation Instructions, publication 1734-IN010	Provides installation information about 1734-IA2 and 1734-IA4 modules
Digital AC Output Modules	
120/220V AC Output Module Installation Instructions, publication 1734-IN009	Provides installation information about 1734-OA2 and 1734-OA4 modules
Digital DC Input Modules	
Sink Input Module Installation Instructions, publication 1734-IN051	Provides installation information about 1734-IB2, 1734-IB4, and 1734-IB8 modules
Source Input Module Installation Instructions, publication 1734-IN052	Provides installation information about 1734-IV2, 1734-IV4, and 1734-IV8 modules
Digital DC Output Modules	
Protected Output Module Installation Instructions, publication 1734-IN586	Provides installation information about 1734-OB2EP modules
Protected Sink Output Module Installation Instructions, publication 1734-IN585	Provides installation information about 1734-OV2E, 1734-OV4E, and 1734-OV8E modules
Protected Source Output Module Installation Instructions, publication 1734-IN056	Provides installation information about 1734-OB2E, 1734-OB4E, and 1734-OB8E modules
Protected Source Output Module Installation Instructions, publication 1734-IN018	Provides installation information about 1734-OB2, 1734-OB4, and 1734-OB8 modules
POINTBlock Modules	
8 AC Input/8 AC Output Module Installation Instructions, publication 1734-IN022	Provides installation information about 1734D-IA8XOA8 modules

Resource	Description
8 AC Input/8 AC Relay Output Module Installation Instructions, publication 1734-IN023	Provides installation information about 1734D-IA8XOW8 modules
8 DC Input/8 Output Module Installation Instructions, publication 1734-IN020	Provides installation information about 1734D-IB8XOB8 modules
8 DC Input/8 DC Output Module Installation Instructions, publication 1734-IN021	Provides installation information about 1734D-IB8XOW8 modules
16 AC Input Module Installation Instructions, publication 1734D-IN001	Provides installation information about 1734D-IA16 modules
16 DC Input Module Installation Instructions, publication 1734D-IN002	Provides installation information about 1734D-IB16 modules
Power Supplies, Wiring Base Assemblies, Miscellaneous	
Cold Junction Wiring Base Assembly Installation Instructions, publication 1734-IN583	Provides installation information about 1734-TBCJC assemblies
Field Potential Distributor Installation Instructions, publication 1734-IN059	Provides installation information about 1734-FPD distributors
POINT I/O 24V DC Expansion Power Supply Installation Instructions, publication 1734-IN058	Provides installation information about 1734-EP24DC power supplies
POINT I/O 120/240V AC Expansion Power Supply Installation Instructions, publication 1734-IN017	Provides installation information about 1734-EPAC power supplies
POINT I/O Common Terminal Module Installation Instructions, publication 1734-IN024	Provides installation information about 1734-CTM modules
POINT I/O Voltage Terminal Module Installation Instructions, publication 1734-IN024	Provides installation information about 1734-VTM modules
POINT I/O Wiring Base Assembly Installation Instructions, publication 1734-IN511	Provides installation information about 1734-TB and 1734-TBS assemblies
POINT I/O Wiring Base Assembly Installation Instructions, publication 1734-IN013	Provides installation information about 1734-TB3 and 1734-TB3S assemblies
POINT I/O One-piece Wiring Base Assembly Installation Instructions, publication 1734-IN028	Provides installation information about 1734-TOP, 1734-TOPS, 1734-TOP3 and 1734-TOP3S assemblies
Relay Modules	
Relay Output Module Installation Instructions, publication 1734-IN055	Provides installation information about 1734-OW2 and 1734-OW4 modules
Relay Output Module Installation Instructions, publication 1734-IN587	Provides installation information about 1734-OX2 modules
Specialty Modules	
Encoder/Counter Module Installation Instructions, publication 1734-IN005	Provides installation information about 1734-IJ and 1734-IK modules
Encoder/Counter Module User Manual, publication 1734-UM006	Describes how to use 1734-IJ and 1734-IK modules
Very High-speed Counter Module Installation Instructions, publication 1734-IN003	Provides installation information about 1734-VHSC5 and 1734-VHSC24 modules
Very High-speed Counter Module User Manual, publication 1734-UM003	Describes how to use 1734-VHSC5 and 1734-VHSC24 modules
Address Reserve Module Installation Instructions, publication 1734-IN019	Provides installation information about 1734-ARM modules
ASCII RS-232 and 485 Module Installation Instructions, publication 1734-IN588	Provides installation information about 1734-232ASC and 1734-485ASC modules
ASCII RS-232 and 485 Module User Manual, publication 1734-UM009	Describes how to use 1734-232ASC and 1734-485ASC modules
RTD and Isolated Thermocouple Input Module Installation Instructions, publication 1734-IN011	Provides installation information about 1734-IR2, 1734-IT2I, and 1734-IR2E modules

Resource	Description
RTD and Isolated Thermocouple Input User Manual, publication 1734-UM004	Describes how to use 1734-IR2, 1734-IT2I, and 1734-IR2E modules
Synchronous Serial Interface Encoder Module Installation Instructions, publication 1734-IN581	Provides installation information about 1734-SSI modules
Synchronous Serial Interface Encoder Module User Manual, publication 1734-UM007	Describes how to use 1734-SSI modules

Preface

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About the Modules

About This Chapter

This chapter introduces POINT I/O and related modules to include the following:

- Digital modules
- Relay output modules
- Analog modules
- Specialty modules
- Power supplies, wiring base assemblies, and miscellaneous modules

Digital Modules

This table lists the1734 digital modules.

Digital Module Description	Cat. No.
2, 4, and 8 sink input modules	1734-IB2, 1734-IB4, 1734-IB8, 1734-IB4D
2, 4, and 8 source input modules	1734-IV2, 1734-IV4, 1734-IV8
2, 4, and 8 sink output modules	1734-OV2E, 1734-OV4E, 1734-OV8E
2, 4, and 8 protected source output modules	1734-OB2, 1734-OB4, 1734-OB8, 1734-OB2E, 1734-OB4E, 1734-OB8E
2 protected source output modules	1734-OB2EP
2 and 4 relay output modules	1734-OW2, 1734-OW4
2 relay output modules	1734-OX2
2 120/220V AC output modules	1734-OA2, 1734-OA4
2 120V AC input modules	1734-IA2, 1734-IA4
2 240V AC input modules	1734-IM2, 1734-IM4

This table lists the 1734D POINTBlock modules.

POINTBlock Module Description	Cat. No.
8 AC input and 8 AC output	1734D-IA8XOA8 and 1734-IA8XOA8S
8 AC input and 8 relay output	1734D-IA8XOW8 and 1734-IA8XOW8S
8 DC input and 8 DC output	1734D-IB8XOB8 and 1734-IB8XOB8S
8 DC input and 8 relay output	1734D-IB8XOW8 and 1734-IB8XOW8S
16 AC input	1734D-IA16 and 1734-IA16S
16 DC input	1734D-IB16 and 1734-IB16S

Input Modules

For input modules, DC inputs are 24V DC nominal, with an input range of 10...28.8V dc, and are offered with 2, 4,or 8 sinking style inputs, or 2, 4, or 8 sourcing style inputs. The 1734-IB2, 1734-IB4, 1734-IB4D, and 1734-IB8 input modules are sinking modules. The 1734-IV2, 1734-IV4, and 1734-IV8 modules are sourcing input modules.

For input modules, AC inputs are 120V AC nominal with an input range of 85...132V ac, or 220V AC nominal with an input range of 159...264V ac, with sinking inputs.

Features of the all input modules include the following:

- Autobaud (will match baud of existing devices on the network)
- Selectable input filter times (0...65 ms with 1 ms default)
- Sequential auto addressing

Output Modules

The 1734-OB2, 1734-OB4, 1734-OB8, 1734-OB2E, 1734-OB4E, and 1734-OB8E DC output modules have current limited sourcing outputs, which source a positive voltage of up to 1 A with respect to their DC return per channel. The 1734-OB2EP sources a positive voltage of up to 2 A with respect to its DC return per channel. The outputs are not isolated from each other. For these modules, DC outputs are 24V DC nominal, with a range of 10...28.8V dc. A number of output diagnostic features are incorporated to assist in troubleshooting. The 1734-OB2E, 1734-OB2EP, 1734-OB4E, and 1734-OB8E modules feature the following:

- Output diagnostics (short circuit and wire-off indication and reporting bits per channel)
- Current limited outputs
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

The 1734-OV2E, 1734-OV4E, and 1734-OV8E modules are protected sink output modules protected to 1 A. The outputs are not isolated from each other. For these modules, DC outputs are 24V DC nominal, with a range of 10...28.8V dc. A number of output diagnostic features are incorporated to assist in troubleshooting. The 1734-OV2E, 1734-OV4E, and 1734-OV8E modules feature the following (note that 1734-OV2E, 1734-OV4E, and 1734-OV8E modules have no wire-off indication):

- Output diagnostics (short circuit and reporting bits per channel)
- Current limited outputs
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

The 1734-OA2 and 1734-OA4 AC output modules have sourcing outputs, which source a voltage of up to 0.75 A per channel. The outputs are not isolated from each other. For this module, AC outputs are 120/220V AC nominal, with a range of 74...264V dc. The 1734-OA2 and 1734-OA4 modules feature the following:

- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

Relay Output Modules

Two versions of relay modules are:

- 1734-OW2, 1734-OW4 relay module.
- 1734-OX2 relay module.

The 1734-OW2 and 1734-OW4 relay outputs are Type A (Normally Open), the 1734-OX2 relay outputs are Type 2 Form C. Both modules' outputs sink or source a current with respect to power or return. Contact outputs are isolated from each other. Each output is rated 5...240V rms at 2 A (current is load dependant). Features include:

- Autobaud (will match baud of existing devices on the network).
- Sequential auto addressing.

Analog Modules

The 1734 analog modules consist of input modules (1734-IE2C and 1734-IE2V) and output modules (1734-OE2C and 1734-OE2V). Each module has two single-ended, non-isolated channels.

Cat. No.	Module Type	Number of Channels	Resolution
1734-IE2C	Analog Input	2	16 bits across 0…21 mA
1734-IE2V	Analog Input	2	15 bits plus sign across -10…10V
1734-OE2C	Analog Output	2	13 bits across 0…21 mA
1734-OE2V	Analog Output	2	14 bits across -10…10V

The features of the analog modules depend on the type of analog module: input or output. These are features common to both input and output modules.

- Data - The current input and output modules operate in unipolar mode only. Voltage input and output modules operate in unipolar or bipolar modes. Data returned from the module is scaled by the user to any 16 bit signed integer (–32,768...+32,767).
- Input modules produce 6 bytes of data.
  - Channel 0 Data (2 bytes)
  - Channel 1 Data (2 bytes)
  - Channel 0 Status (1 byte)

  - Channel 1 Status (1 byte)
- Output modules consume 4 bytes of data.
  - Channel 0 Data (2 bytes)
  - Channel 1 Data (2 bytes)
- Output modules produce 2 bytes of data.
  - Channel 0 Status (1 byte)
  - Channel 1 Status (1 byte)
- Operational modes
  - Current - two modes
    - 0 to 20 mA
    - 4 to 20 mA (default mode)
  - Voltage - two modes
    - 0 to 10V (default mode)
    - -10 to +10V
- Individually set channel mode
- Scaling - conversion to engineering units

Input Modules

These features are available on input modules.

- Latching alarms, when set, latch low- and high-alarm status information. Available alarms include:
  - Low.
  - Low Low.
  - High.
  - High High.
- Disable alarms - disables all channel alarms and faults so they are not reported in the channel status field. Four different alarms are available.
- Settable update rate update rate determines how often an input channel is scanned.
- Notch filter is selectable for both inputs (50, 60, 250, and 500 Hz).
- Digital filter sets a time constant.

Output Modules

These are features available on output modules.

- Latching alarms, when set, latch low and high clamp alarm status information.

- Low and high clamps can be set individually or on a channel basis. When the output value reaches clamp value, a status bit is set, indicating the output is clamped.
- Disable alarms - disables all channel alarms and faults so they are not reported in the channel status field.
  - Fault and Idle mode action let you select what happens to the output if a fault occurs or if the module is in idle mode. The choices are the following:
  - Hold Last State
  - Low Clamp
  - High Clamp
  - User-defined value

Specialty Modules

For more information about the following 1734 specialty modules, refer to the installation instructions and user manuals listed in the Related Products and Documentation section of this manual.

Module Description	Cat. No.
5V Encoder/Counter Module	1734-IJ
24V Encoder/Counter Module	1734-IK
24V Very High-speed Counter Module	1734-VHSC24
5V Very High-speed Counter Module	1734-VHSC5
ASCII RS-232 and RS-485 Module	1734-232ASC, 1734-485ASC
Isolated Thermocouple Input Module	1734-IT2I
RTD Input Module	1734-IR2, 1734-IR2E
Synchronous Serial-interface Encoder Module	1734-SSI

Power Supplies, Wiring Base Assemblies, and Miscellaneous Modules

For more information about the following, refer to the installation instructions and user manuals listed in the Related Products and Documentation section of this manual.

Module Description	Cat. No.
Cold-junction Wiring Base Assembly	1734-TBCJC
Field Potential Distributor	1734-FPD
POINT I/O 24V DC Expansion Power Supply	1734-EP24DC
POINT I/O Common Terminal Module	1734-CTM
POINT I/O Voltage Terminal Module	1734-VTM
Wiring Base Assembly	1734-TB, 1734-TBS, 1734-TB3, 1734-TB3S, 1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S
Address Reserve Module	1734-ARM

Notes:

Install POINT I/O Modules

About This Chapter

Read this chapter for installation and wiring information including how to complete the following:

- Install the mounting base assembly.
- Install an I/O module.
- Install the removable terminal block.
- Remove a mounting base.
- Wire digital modules.
- Wire analog modules.
- Wire power distribution and other modules, such as communication interface modules, field potential distributor modules, expansion power supplies, and addressable reserve modules.

Environment and Enclosure

ATTENTION:

This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 m (6561 ft) without derating.

This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open-type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1 (Industrial Automation Wiring and Grounding Guidelines), for additional installation requirements pertaining to this equipment.

ATTENTION: POINT I/O is grounded through the DIN rail to chassis ground. Use zinc-plated, yellow-chromated steel DIN rail to assure proper grounding. The use of DIN rail materials (for example, aluminum or plastic) that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding.

Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.).

Explosion Hazard

WARNING:

- 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.

Prevent Electrostatic Discharge

ATTENTION: This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

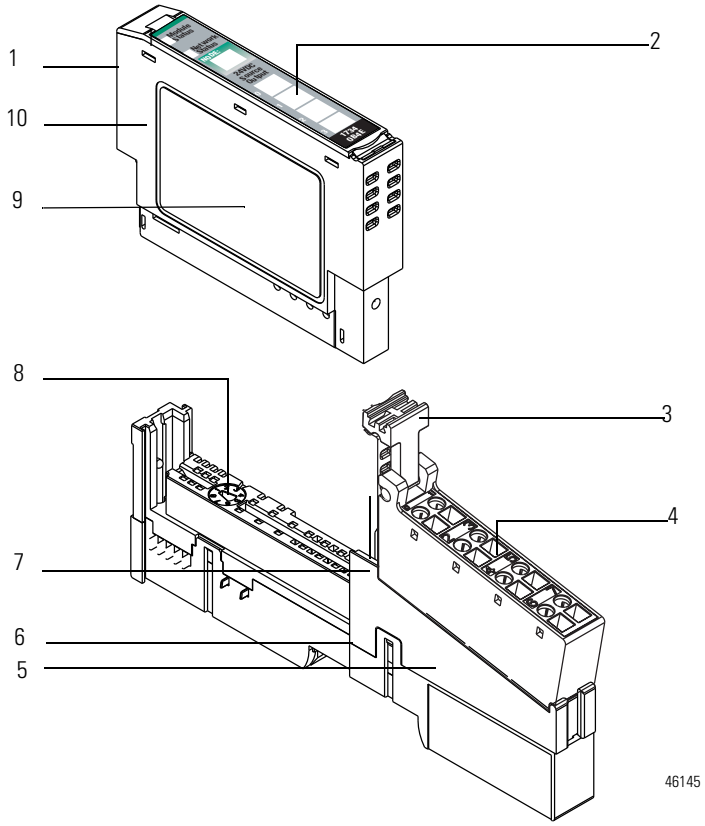
Install the Mounting Base Assembly

The 1734-TB, 1734-TBS, 1734-TB3, or 1734-TB3S wiring base assembly consists of a 1734-MB mounting base and a 1734-RTB or 1734-RTBS removable terminal block.

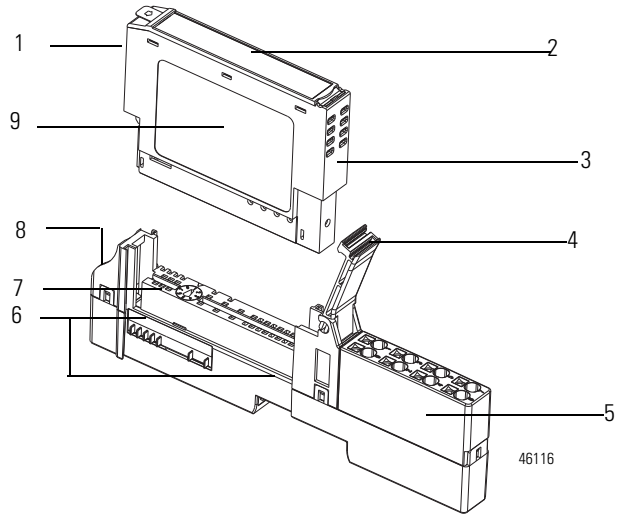
An alternative is the 1734-TOP, 1734-TOPS, 1734-TOP3, or 1734-TOP3S POINT I/O one-piece terminal base.

Refer to the figures that show these wiring bases.

To install the mounting base assembly on the DIN rail, proceed as follows.

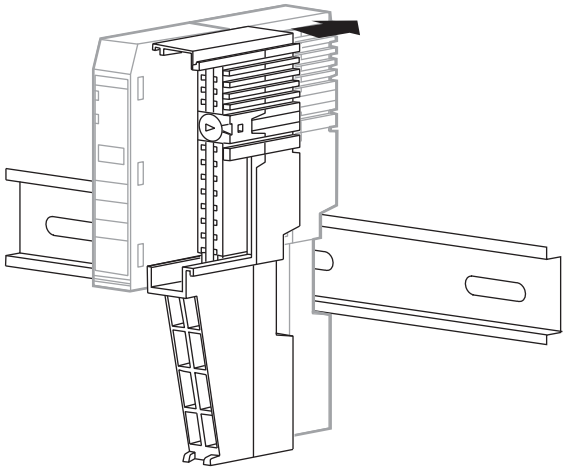


	Description		Description
1	Module Locking Mechanism	2	Slide-in Writable Label
3	RTB Removing Handle	4	Removable Terminal Block (RTB)
5	Mounting Base	6	Interlocking Side Pieces
7	DIN Rail Locking Screw (orange)	8	Mechanical Keying (orange)
9	Module Wiring Diagram	10	Insertable I/O Module



	Description		Description
1	Module Locking Mechanism	2	Slide-in Writable Label
3	Insertable I/O Module	4	Handle
5	One-piece Terminal Base with Screw or Spring Clamp	6	Interlocking Side Pieces
7	Mechanical Keying (orange)	8	DIN Rail Locking Screw (orange)
9	Module Wiring Diagram		

1. Position the mounting base (wiring base assembly) vertically above the installed units (adapter, power supply, or existing module).
2. Slide the mounting base down, allowing the interlocking side pieces to engage the adjacent module, power supply, or adapter.



3. Press firmly to seat the mounting base on the DIN rail.

The mounting base snaps into place.

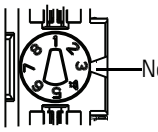
4. To remove the mounting base from the DIN rail, remove any installed module (and any module immediately to the right), and use a small-bladed screwdriver to rotate the DIN-rail locking screw to a vertical position and release the locking mechanism.
5. Lift straight up to remove the mounting base.

Install an I/O Module

Install the module before or after base installation. Make sure that the mounting base is correctly keyed before installing the module into the mounting base. In addition, make sure the mounting base locking screw is positioned horizontal referenced to the base.

WARNING: When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

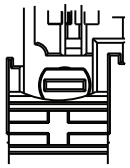
1. Using a bladed screwdriver, rotate the keyswitch on the mounting base clockwise until the number required for the type of module aligns with the notch in the base.



Module	Keyswitch Position
1734-ARM (1)	–
1734-CTM, 1734-VTM	5
1734-IA2, 1734-IA4	8
1734-IB2,1734-IB4, 1734-IB8	1
1734-IE2C, 1734-IE2V	3
1734-IM2, 1734-IM4	8
1734-IV2, 1734-IV4, 1734-IV8	1
1734-OA2, 1734-OA4	8
1734-OB2, 1734-OB4, 1734-OB8, 1734-OB2E, 1734-OB4E, 1734-OB8E	1
1734-OB2EP	1
1734-OE2C, 1734-OE2V	4
1734-OV2E, 1734-OV4E, 1734-OV8E	1
1734-OW2, 1734-OW4	7
1734-OX2	7

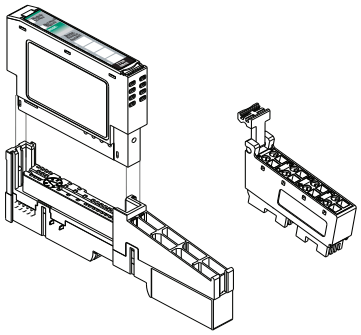
(1) Use the same keyswitch position as the removed module.

2. Make certain the DIN-rail locking screw is in the horizontal position, noting that you cannot insert the module if the locking mechanism is unlocked.



46149

3. Insert the module straight down into the mounting base and press to secure, locking the module into place.



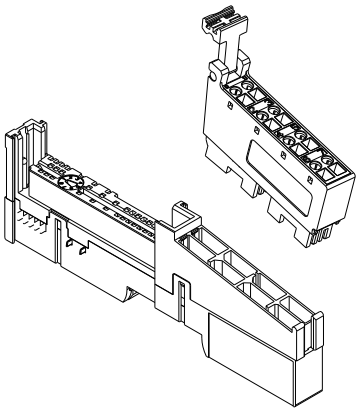
46150

Install the Removable Terminal Block

A removable terminal block is supplied with your mounting base assembly. To remove, pull up on the removable terminal block (RTB) handle. This lets you remove and replace the base as necessary without removing any of the wiring. To reinsert the removable terminal block, proceed as follows.

WARNING: When you connect or disconnect the RTB with field-side power applied, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure to remove power or that the area is nonhazardous before proceeding.

1. Insert the RTB end opposite the handle into the base unit.
This end has a curved section that engages with the mounting base.



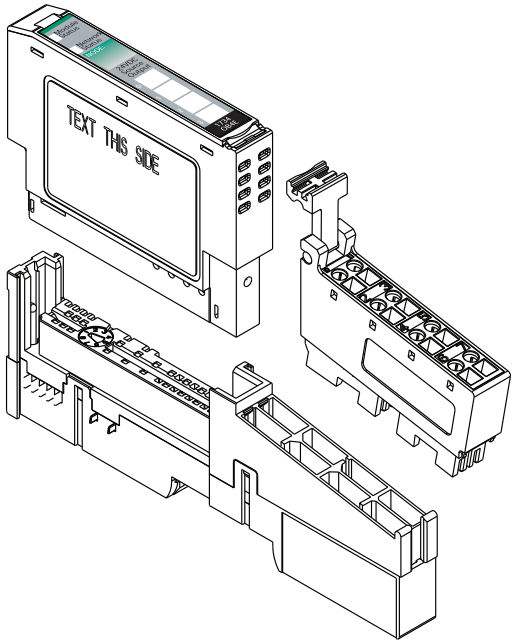
2. Rotate the terminal block into the mounting base until it locks itself in place.
3. If an I/O module is installed, snap the RTB handle into place on the module.

Remove a Mounting Base

To remove a mounting base, you must remove any installed module, and remove the removable terminal block (RTB), if wired.

WARNING: When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure to remove power or that the area is nonhazardous before proceeding.

1. Unlatch the RTB handle on the I/O module.
2. Pull on the RTB handle to remove the RTB.
3. Press in on the module lock on the top of the module, and pull up on the I/O module to remove it from the base.
4. Remove the module to the right of the base you are removing, noting that the interlocking portion of the base sits under the adjacent module.
5. Use a small-bladed screwdriver to rotate the orange DIN-rail locking screw on the mounting base to a vertical position, noting that this releases the locking mechanism.
6. Lift the mounting base straight up to remove.

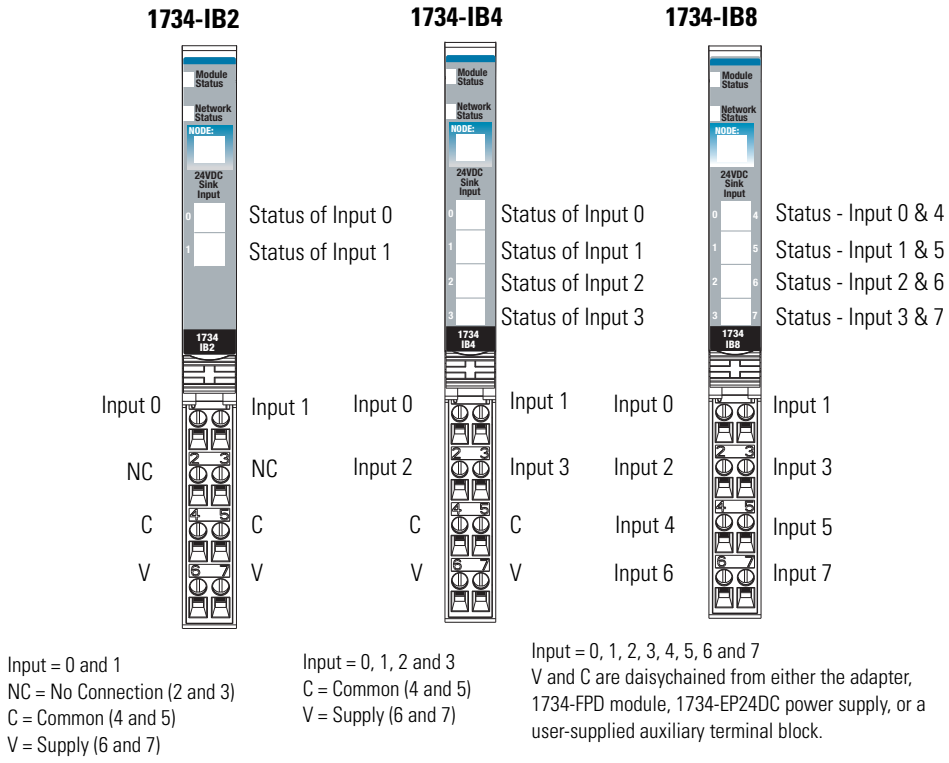


30880

Wiring Digital Modules

Refer to this section to wire digital modules.

1734-IB2, 1734-IB4, and 1734-IB8 Sink Input Modules

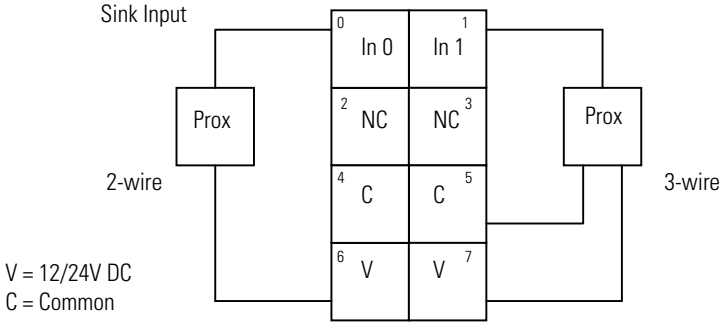


Input = 0 and 1
NC = No Connection (2 and 3)
C = Common (4 and 5)
V = Supply (6 and 7)

Input = 0, 1, 2 and 3
C = Common (4 and 5)
V = Supply (6 and 7)

Input = 0, 1, 2, 3, 4, 5, 6 and 7
V and C are daisychained from either the adapter, 1734-FPD module, 1734-EP24DC power supply, or a user-supplied auxiliary terminal block.

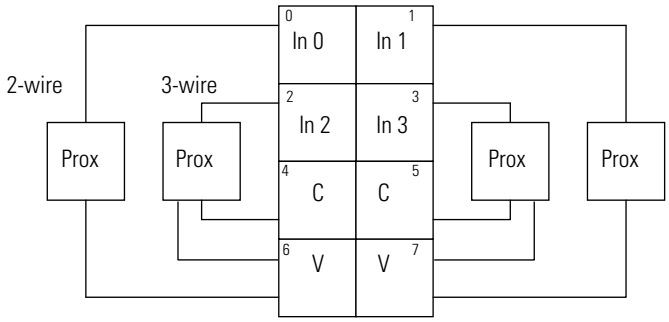
1734-IB2 Module Wiring Diagram



Channel	Input	Common	Voltage
0	0	4	6
1	1	5	7
Connect common on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.			

1734-IB4 Module Wiring Diagram

Sink Input

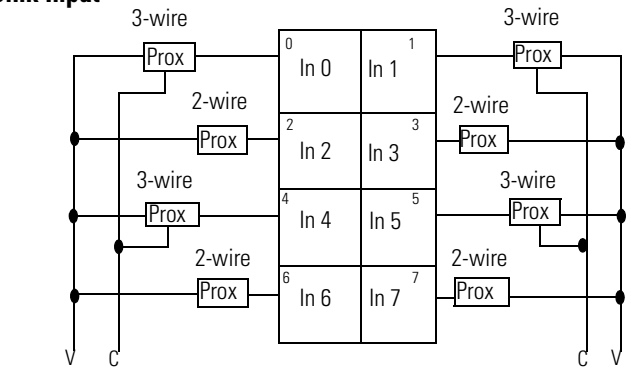


V = 12/24V DC
C = Common

Channel	Input	Common	Voltage
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Connect common on 3- proximity switches. 12/24V DC is supplied through the internal power bus.			

1734-IB8 Module Wiring Diagram

Sink Input



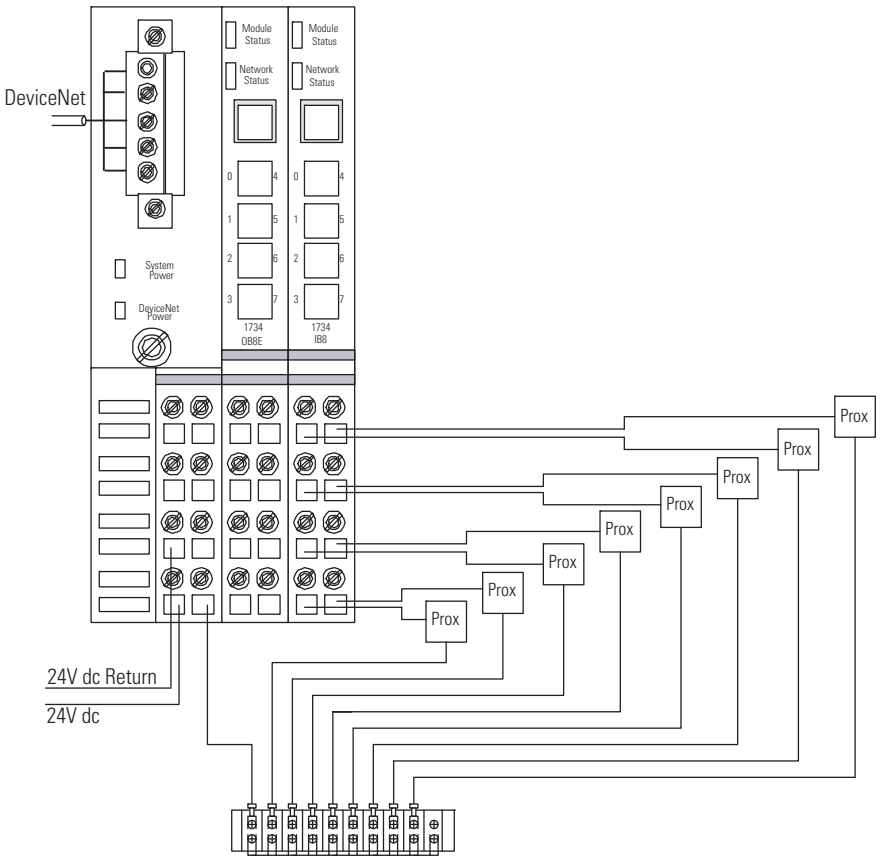
V = 12/24V DC
C = Common

Channel	Input	Channel	Input
0	0	4	4
1	1	5	5

Channel	Input	Channel	Input
2	2	6	6
3	3	7	7
Daisychain common and power connections from 1734 adapter, 1734-FPD module, 1734-EP24DC power supply, or from a user-supplied external auxiliary terminal block.			

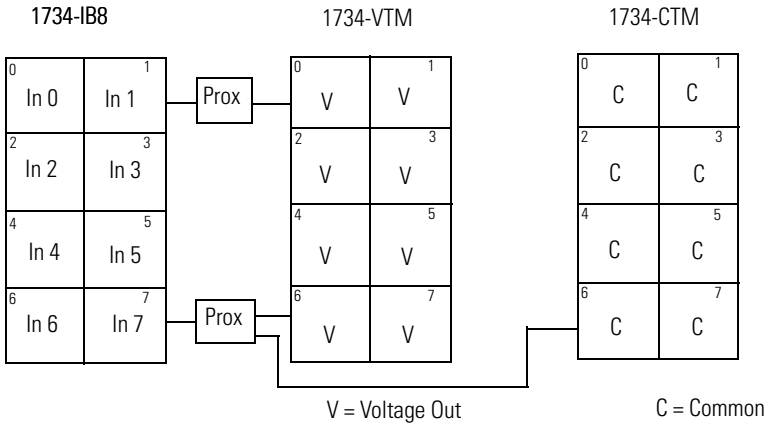
ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Example of Wiring - 1734-IB8 Module Using 2-Wire Proximity Switches

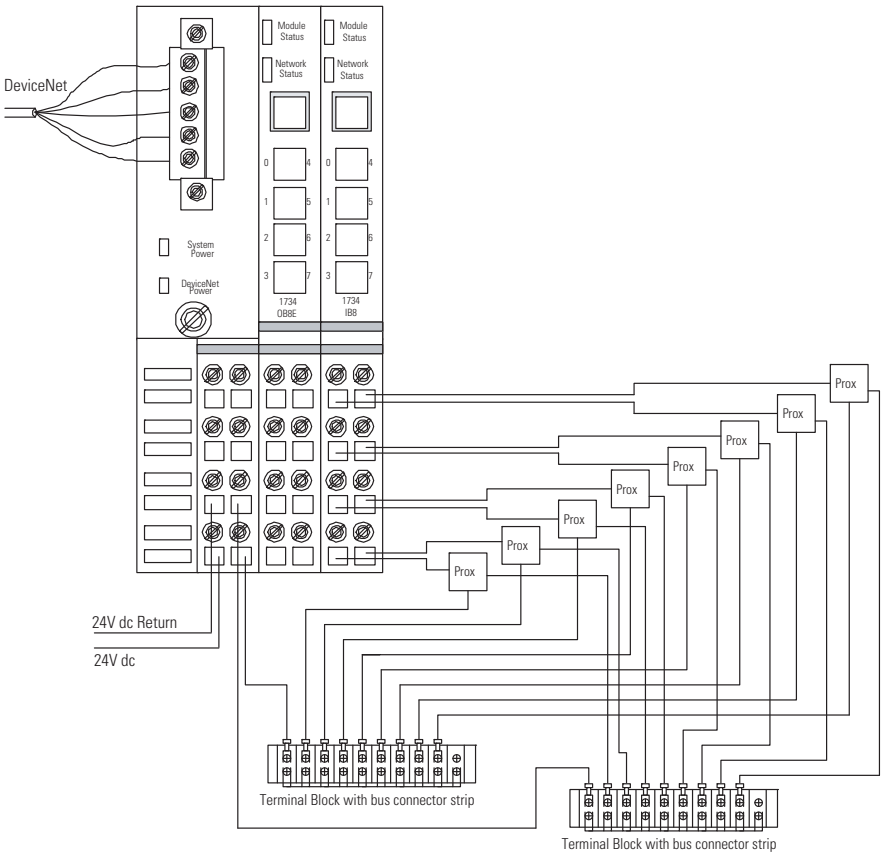


Terminal Block with Bus Connector Strip

Example of Wiring - 1734-IB8 Module Using 3-wire Proximity Switches



Example of Wiring - 1734-IB8 Module Using 3-wire Proximity Switches

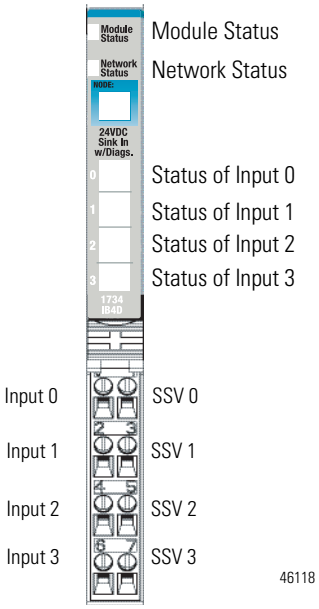


Terminal Block with Bus Connector Strip

1734-IB4D Modules

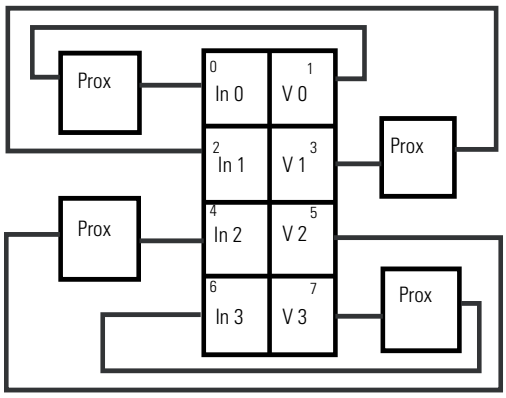
Note that voltage and current are daisychained from either the adapter, 1734-FPD module, or 1734-EP24DC module.

Common connections for three-wire devices require an external wiring connection. A 1734-CTM module can provide the common connection.



1734-IB4D Module Wiring Diagram

Sink Input



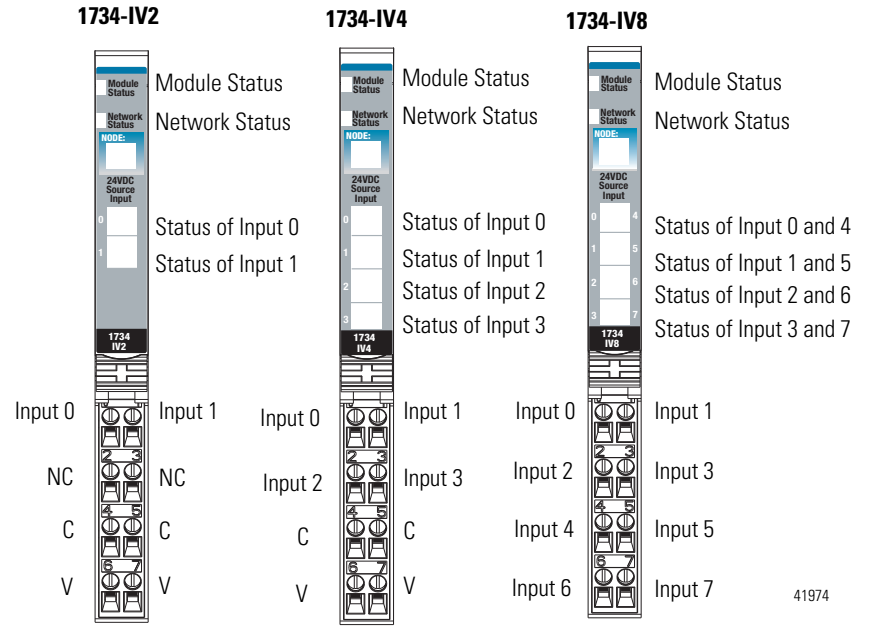
V=10/28.8V DC

If a common connection is required (three-wire devices), then a 1734-CTM common terminal module can be required.

Channel	Terminal Number	
	Input	Common
0	0	External(1)
1	2	
2	4	
3	6	
Connect common on three-wire proximity switches. 10/28.8V DC is supplied through the internal power bus.		

(1) Common connections require an external connection, such as a 1734-CTM module.

1734-IV2, 1734-IV4, and 1734-IV8 Source Input Modules

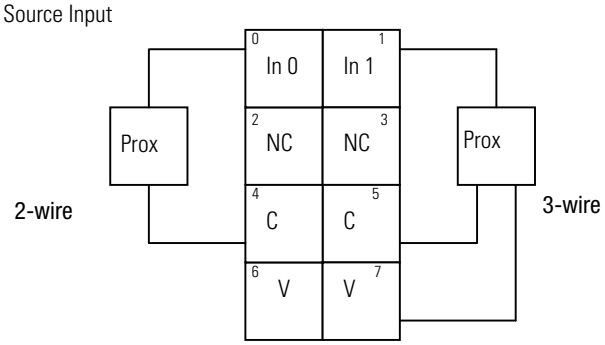


Input = 0 and 1
NC = No Connection (2 and 3)
C = Common (4 and 5)
V = Supply (6 and 7)

Input = 0, 1, 2 and 3
C = Common (4 and 5)
V = Supply (6 and 7)

Input = 0, 1, 2, 3, 4, 5, 6 and 7
V and C are daisychained from either the adapter, 1734-FPD module, 1734-EP24DC power supply, or from a user-supplied auxiliary terminal block.

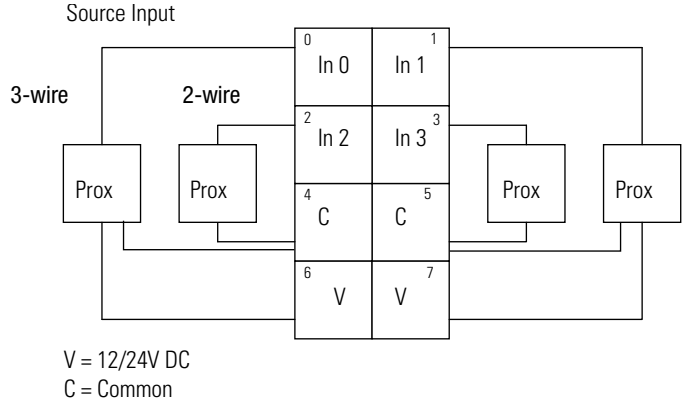
1734-IV2 Module Wiring Diagram



V = 12/24V DC,
C = Common

Channel	Input Terminal	Common Terminal	Power
Channel 0	0	4	6
Channel 1	1	5	7
Connect power on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.			

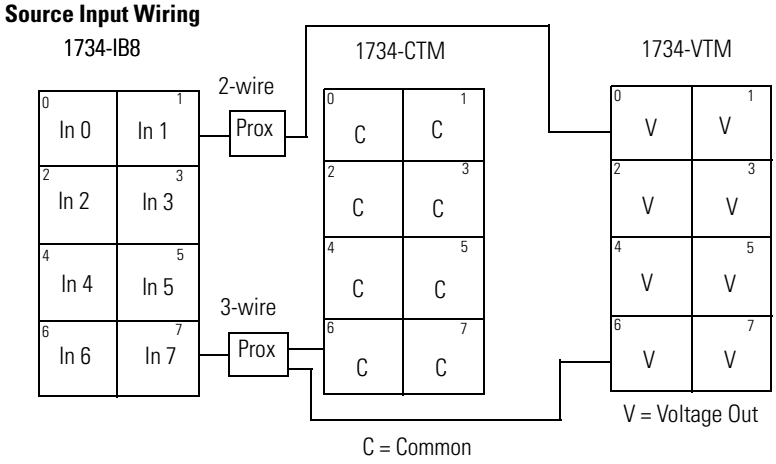
1734-IV4 Module Wiring Diagram



Channel	Input Terminal	Common Terminal	Power
Channel 0	0	4	6
Channel 1	1	5	7
Channel 2	2	4	6
Channel 3	3	5	7

Connect power on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.

1734-IV8 Module Wiring Diagram



Channel	Input Terminal	Channel	Input Terminal
Channel 0	0	Channel 4	4
Channel 1	1	Channel 5	5
Channel 2	2	Channel 6	6
Channel 3	3	Channel 7	7

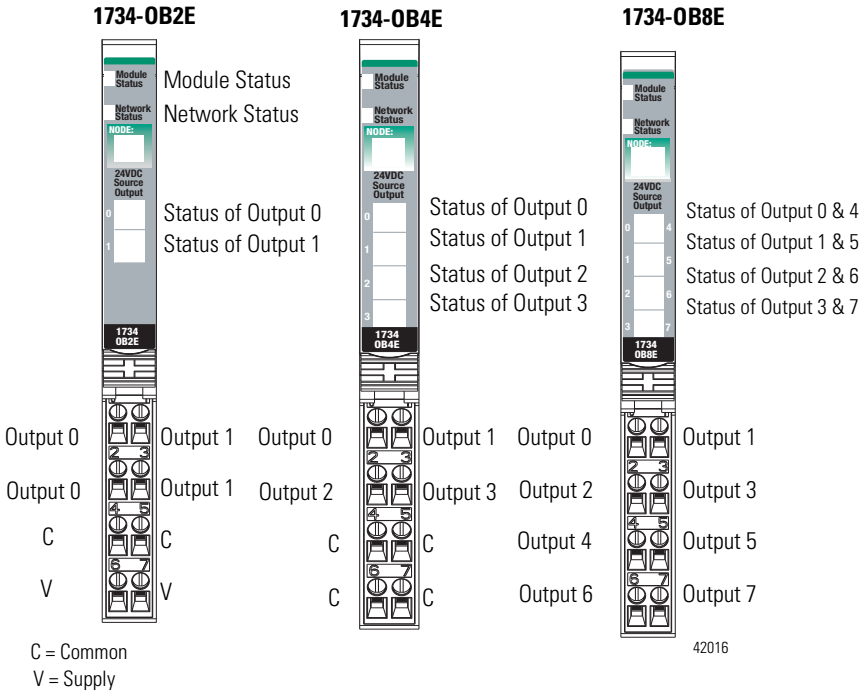
Daisychain common and power connections from 1734 Adapter, 1734-FPD, 1734-EP24DC or from user supplied external auxiliary terminal block.

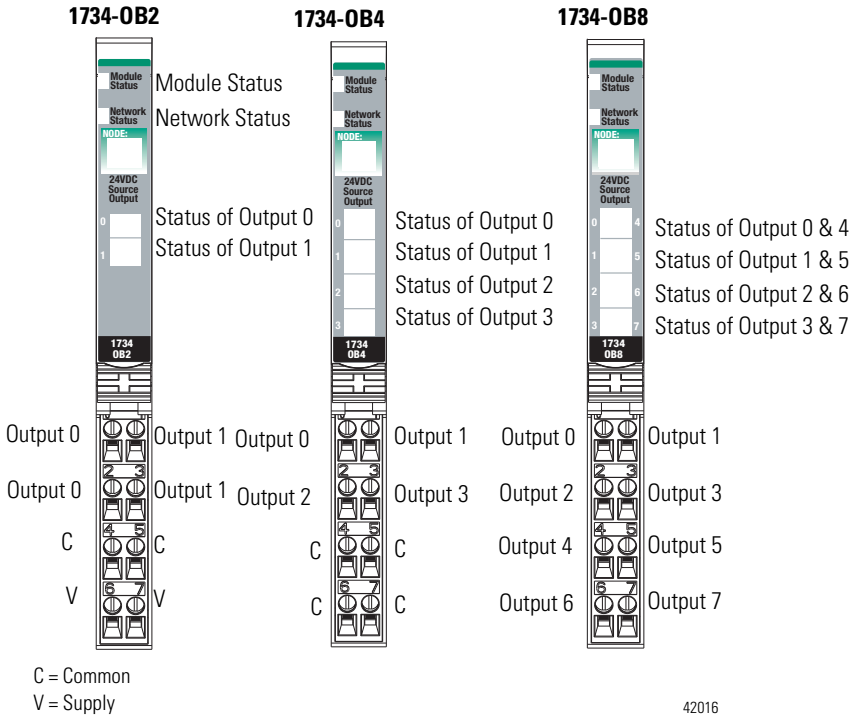
WARNING: When you connect or disconnect wiring while field side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

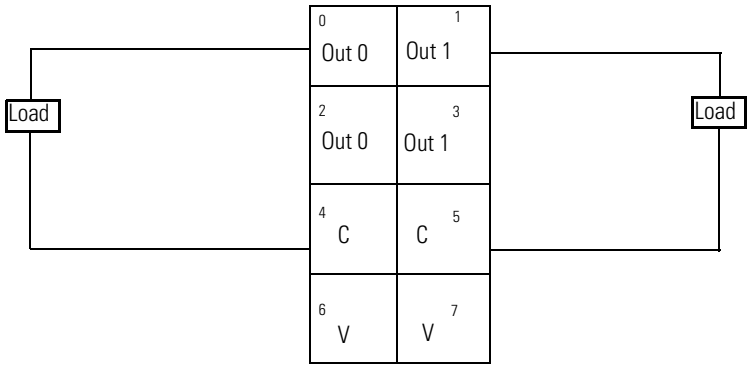
ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

1734-OB2E, 1734-OB4E, 1734-OB8E, 1734-OB2, 1734-OB4, and 1734-OB8 Protected Output Modules





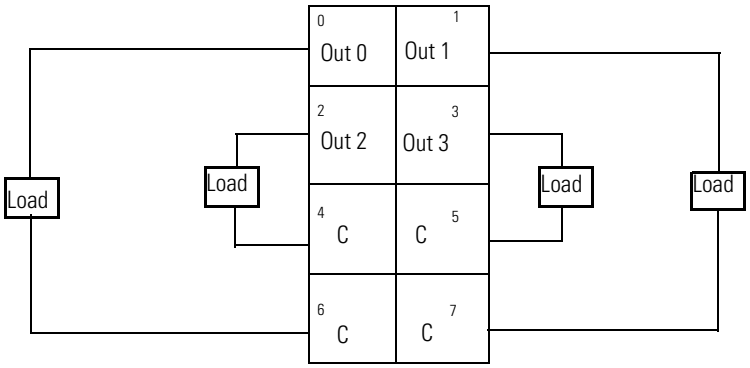
1734-OB2 and 1734-OB2E Module Wiring Diagram



V = 12/24V DC, C = Common
Field power is supplied from internal power bus

Channel	Output Terminal	Common Terminal	Power
Channel 0	0, 2	4	6
Channel 1	1, 3	5	7
Module power is supplied from the internal power bus.			

1734-OB4 and 1734-OB4E Module Wiring Diagram



V = 12/24V DC,
C = Common
Field power is supplied from internal power bus

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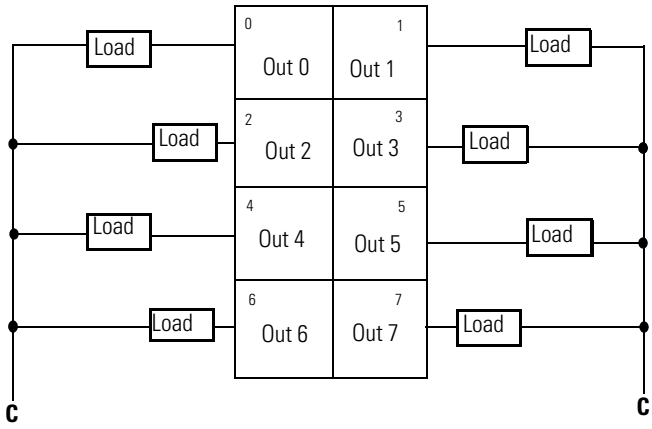
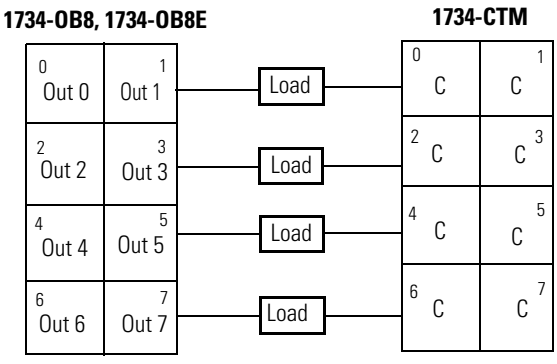
Channel	Output Terminal	Common Terminal	Power
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Module power is supplied from internal power bus.			

1734-OB8 and 1734-OB8E Module Wiring Diagram

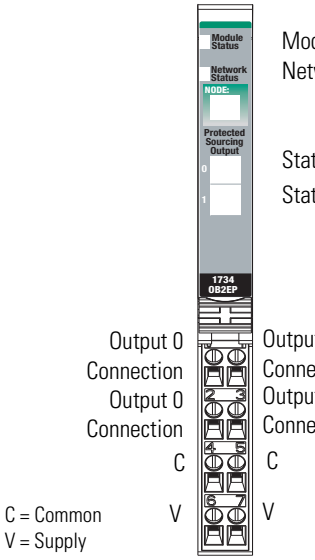


Common must be daisychained from a 1734 adapter, 1734-FPD module, 1734-EP24DC power supply, or from a user-supplied auxiliary terminal block. The 24V DC power to the module is supplied by the internal power bus and comes from the same 1734 adapter, 1734-FPD module, or 1734-EP24DC power supply as common.

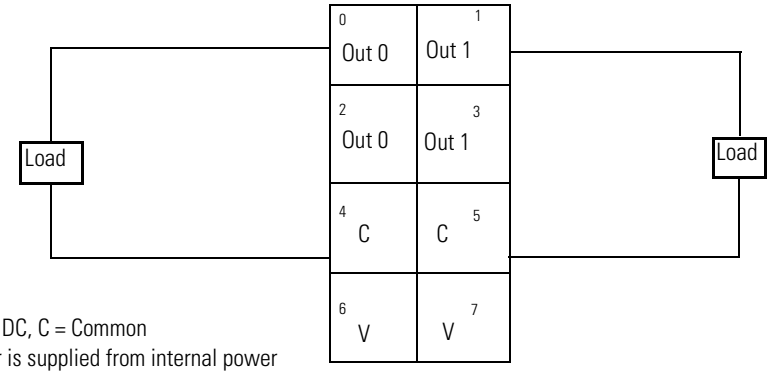
Channel Number	Output Terminal	Common Terminal	Power
Channel 0	0	Common is daisychained from either a 1734 adapter, 1734-FPD module, 1734-EP24DC power supply, or from a user-supplied external terminal block.	The 24V DC power for the module is supplied by the internal power bus and originates from the same adapter, 1734-FPD module, or 1734-EP24DC power supply as common.
Channel 1	1		
Channel 2	2		
Channel 3	3		
Channel 4	4		
Channel 5	5		
Channel 6	6		
Channel 7	7		
Module power is supplied from the internal power bus.			



1734-OB2EP Protected Output Module



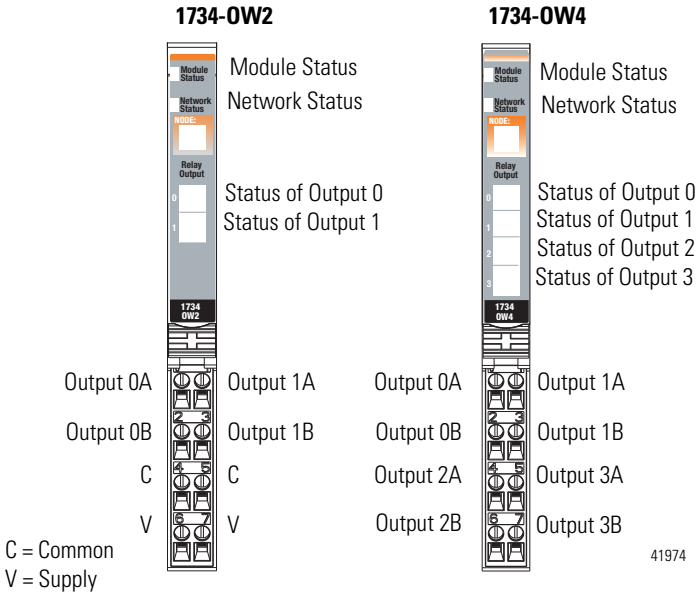
1734-OB2EP DC Protected Output Module Wiring Diagram



V = 12/24V DC, C = Common
Field power is supplied from internal power bus

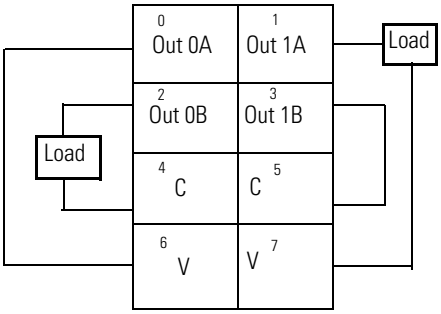
Channel	Output Terminal	Common Terminal	Power
Channel 0	0, 2	4	6
Channel 1	1, 3	5	7
Module power is supplied from the internal power bus.			

1734-OW2 and 1734-OW4 Relay Output Modules



ATTENTION: Relay contacts are not powered by the internal power bus. Load power can be provided by the internal power bus or an external power source.

1734-OW2 Modules with Load Powered by Internal Power Bus Wiring Diagram

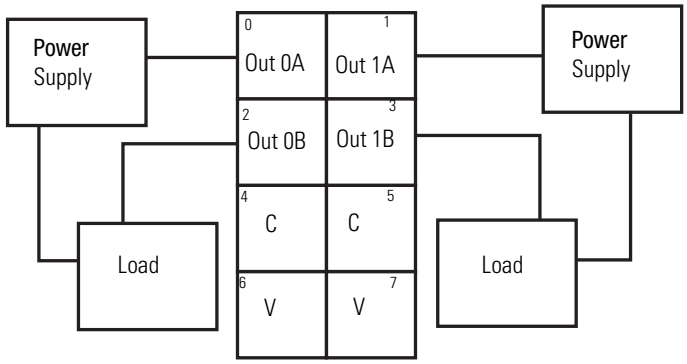


Out = Output channel relay contacts
V = Supply (can range from +5V DC…240V AC)
C = Common

Channel	Output	Common	Supply
0A	0	4	6
0B	2	4	6
1A	1	5	7
1B	3	5	7

Supply voltage can range from +5V DC…240V AC, depending on relay load. Power for the module can be provided by the internal power bus.

1734-OW2 Modules with Load Powered by External Power Wiring Diagram

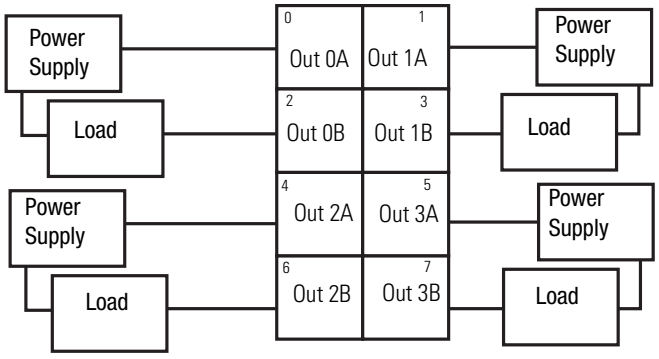


Out = Output channel relay contacts
Power Supply = can range from +5V DC…240V AC
C = Common

Channel	Output	Common	Supply(1)
0A	0	Not used	Not used
0B	2	Not used	Not used
1A	1	Not used	Not used
1B	3	Not used	Not used

(1) Supply voltage can range from +5V DC…240V AC, depending on relay load. Power for the module can be provided by the external power supply.

1734-OW4 Modules with Load Powered by External Power Wiring Diagram



Out = Output channel relay contacts

Channel	Output	Common	Supply(1)
0A	0		
0B	2		
1A	1		

Channel	Output	Common	Supply(1)
1B	3		
2A	4		
2B	6		
3A	5		
3B	7		

(1) Supply voltage can range from +5V DC… 240V AC, depending on relay load. 12/24V DC power for the module is provided by the external power supply. The power supply voltage may be daisychained from a 1734 adapter, 1734-FPD module, or 1734-EP24DC power supply communication interface. Each channel is individually isolated and may have a unique supply or voltage as necessary.

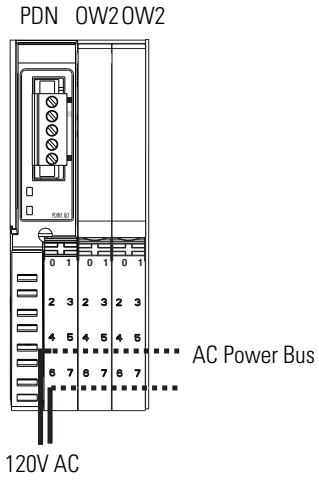
ATTENTION: Do not attempt to increase load current or wattage capability beyond the maximum rating by connecting two or more outputs in parallel. The slightest variation in relay switching time may cause one relay to momentarily switch the total load current.

Make certain that all relay wiring is properly connected before applying any power to the module.

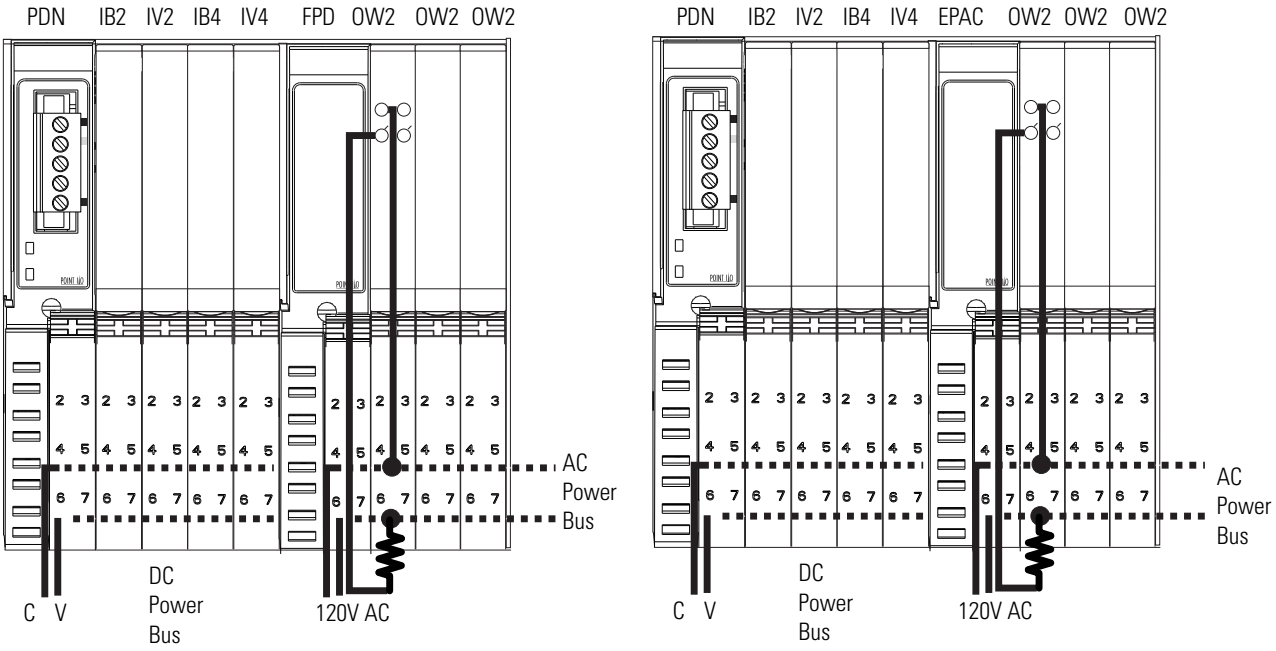
Total current draw through the wiring base unit is limited to 10 A. Separate power connections to the terminal base unit may be necessary.

Use the end cap from your adapter or interface module to cover the exposed interconnections on the last mounting base on the DIN rail. Failure to do so could result in equipment damage or injury from electric shock.

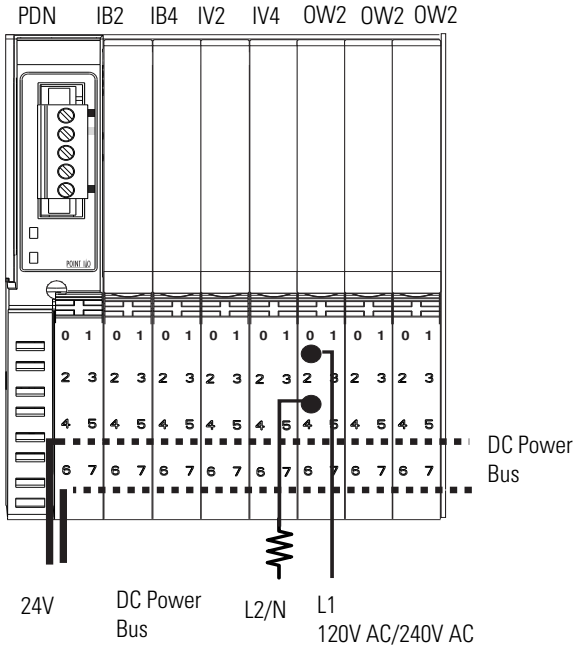
Relay Modules Using AC Only



Relay Modules Using a 1734-FPD or 1734-EPAC Module to Create a New AC Power Bus



Relay Modules Using External Wiring for AC Power



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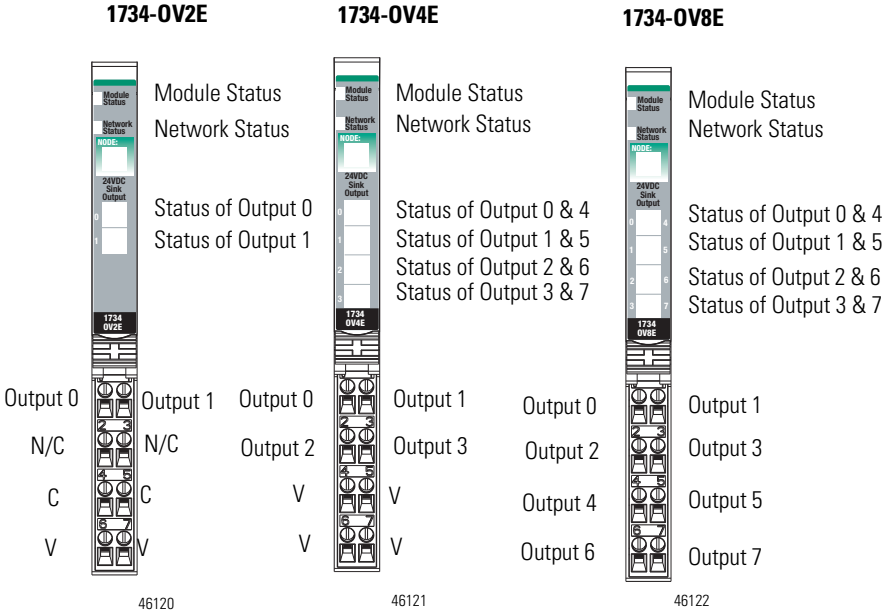
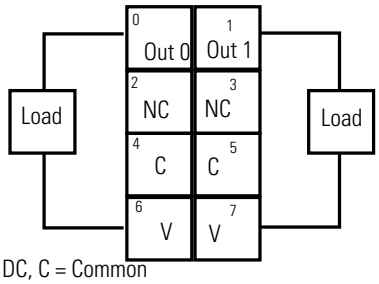
1734-OV2E, 1734-OV4E, and 1734-OV8E Sink Output Modules



C = Common
V = Supply

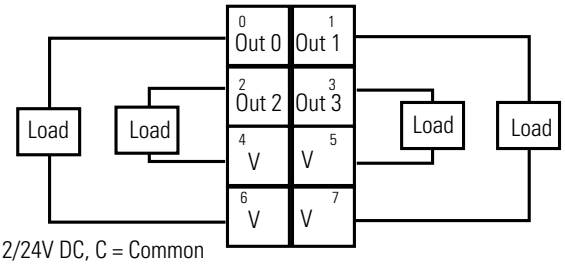
DC Sink Output Module Cat. No. 1734-OV2E Wiring Diagram



V = 12/24V DC, C = Common
Field power is supplied from internal power bus

Channel	Output Terminal	Power	Common Terminal
Channel 0	0	6	4
Channel 1	1	7	5
Module power is supplied from the internal power bus.			

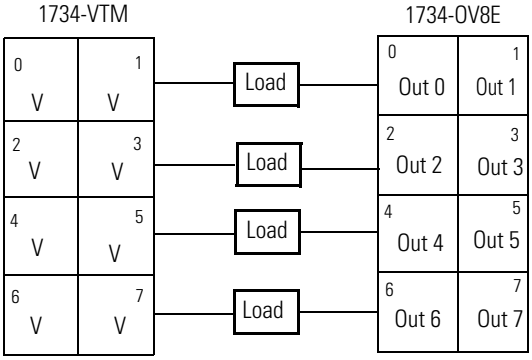
DC Sink Output Module Cat. No. 1734-OV4E Wiring Diagram



V = 12/24V DC, C = Common
Field power is supplied from internal power bus

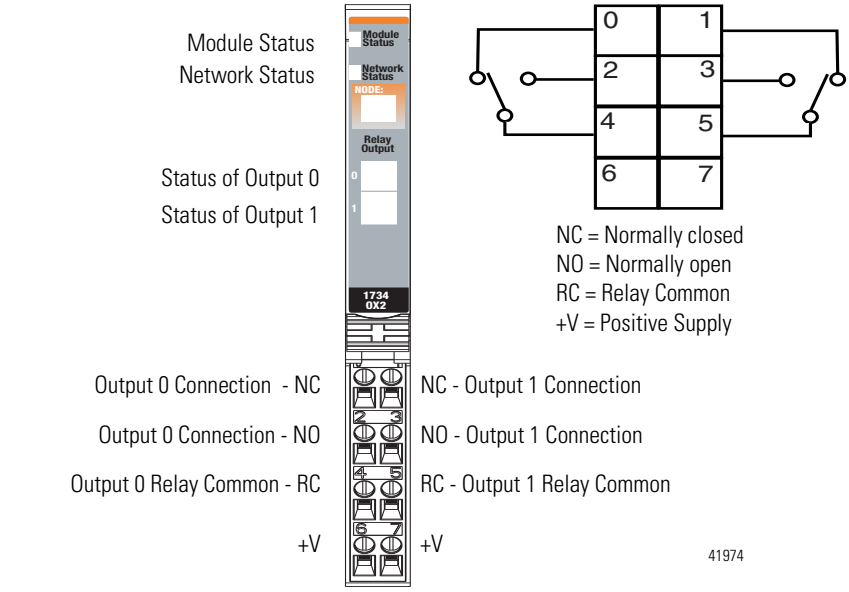
Channel	Output Terminal	Power	Common Terminal
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Module power is supplied from internal power bus.			

DC Sink Output Module Cat. No. 1734-OV8E Wiring Diagram



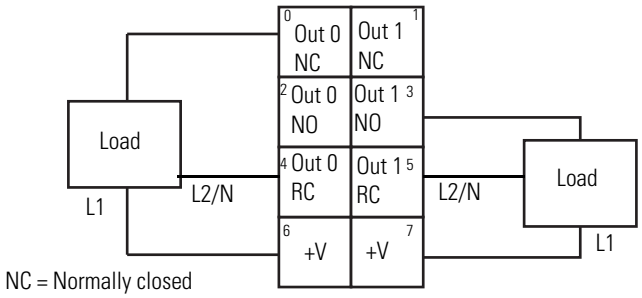
V = Voltage Out

1734-OX2 2-relay Output Modules



ATTENTION: Relay contacts are not powered by the internal power bus. Load power can be provided by the internal power bus or an external power source.

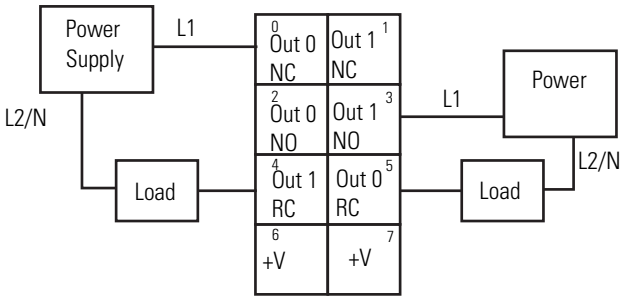
1734-OX2 Module with Load Powered by Internal Power Bus Wiring Diagram



Channel	Output	Relay Common	Supply
0 (N.C.)	0	4	6
0 (N.O.)	2		
1 (N.C.)	1	5	7
1 (N.O.)	3		

Supply voltage can range from +5V DC…240V AC, depending on relay load.
12V, 24V DC, 120V, 240V AC power for the module is provided by the internal power bus.

1734-OX2 Modules with Load Powered by External Power Bus Wiring Diagram



Out = Output channel relay contacts
Power Supply = can range from +5V DC…240V AC
RC = Relay Common

Channel	Output	Relay Common	Supply(1)
0 (N.C.)	0	4	6
0 (N.O.)	2		
1 (N.C.)	1	5	7
1 (N.O.)	3		

(1) Supply voltage can range from +5V DC…240V AC, depending on relay load. 12V, 24V DC, 120V, 240V AC power for the module is provided by the internal power bus

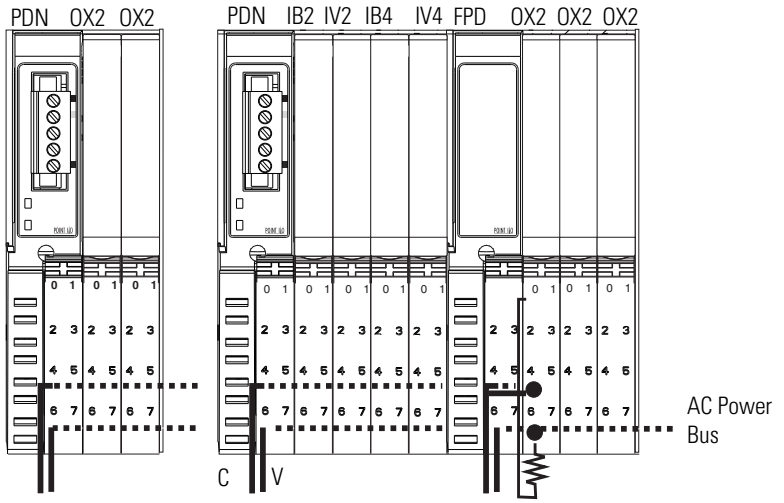
ATTENTION: Do not attempt to increase load current or wattage capability beyond the maximum rating by connecting two or more outputs in parallel. The slightest variation in relay switching time may cause one relay to momentarily switch the total load current.

Make certain that all relay wiring is properly connected before applying any power to the module.

Total current draw through the wiring base unit is limited to 10 A. Separate power connections to the terminal base unit may be necessary.

Use the end cap from your adapter or interface module to cover the exposed interconnections on the last mounting base on the DIN rail. Failure to do so could result in equipment damage or injury from electric shock.

Wire with AC Modules Only using a 1734-PDN Module or 1734-PDN Module to Create a New AC Power Bus



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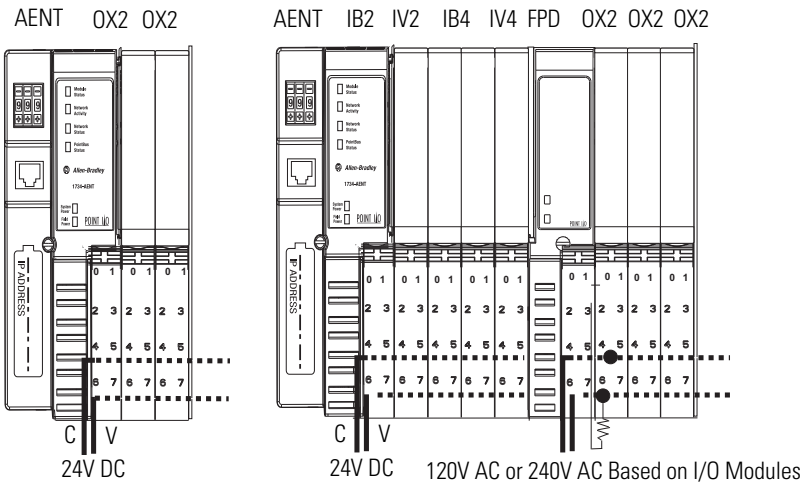
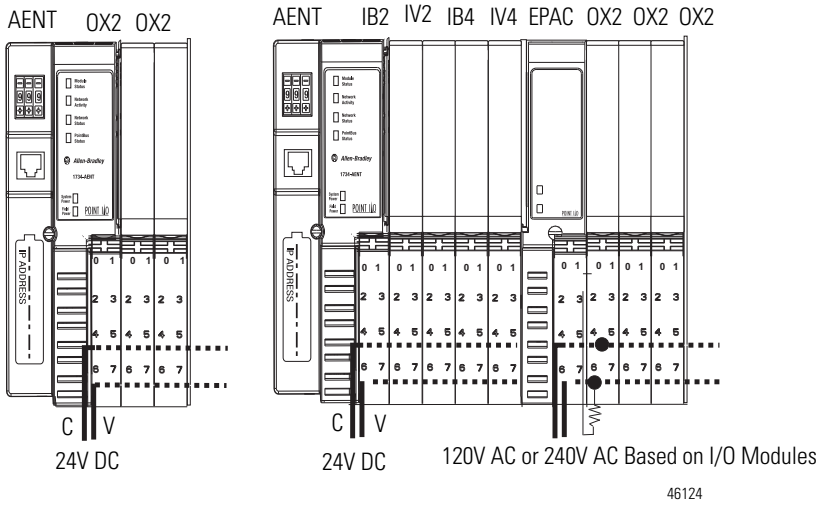
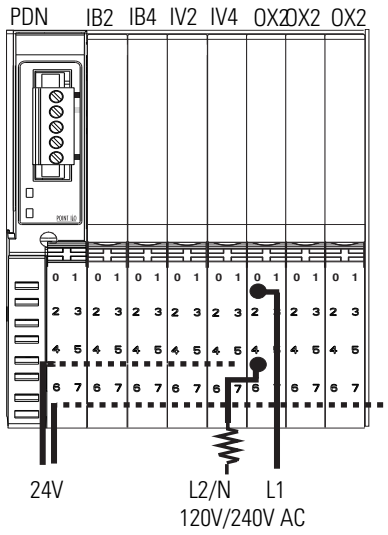
Wire with AC Modules Only Using a 1734-AENT Module, or Using a 1734-AENT Module to Create a New AC Power Bus



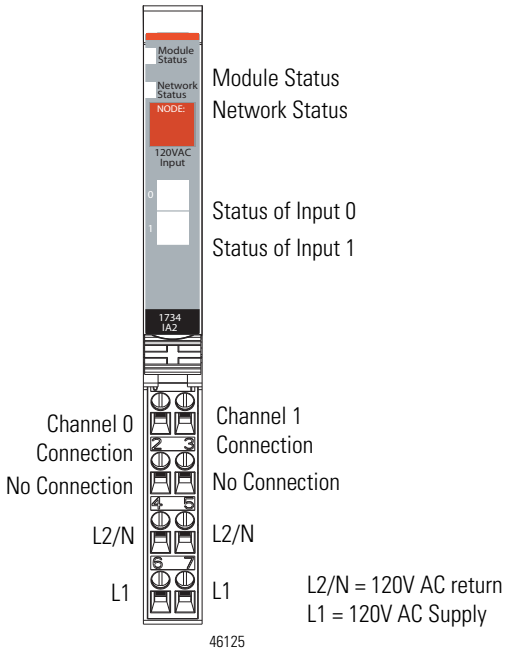


Wire Using External Power Source for AC Relay Power

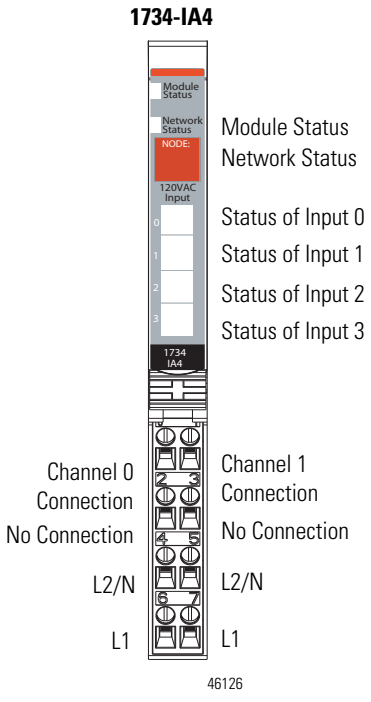


1734-IA2 and 1734-IA4 120 V AC Input Modules

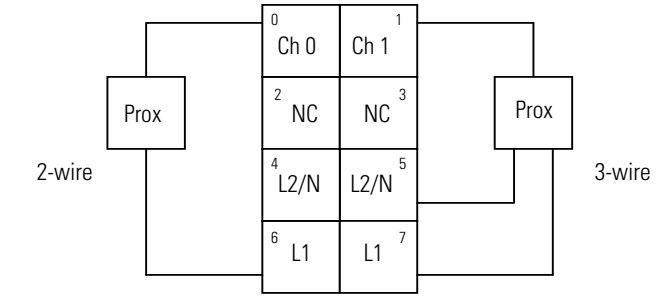
1734-IA2



1734-IA4



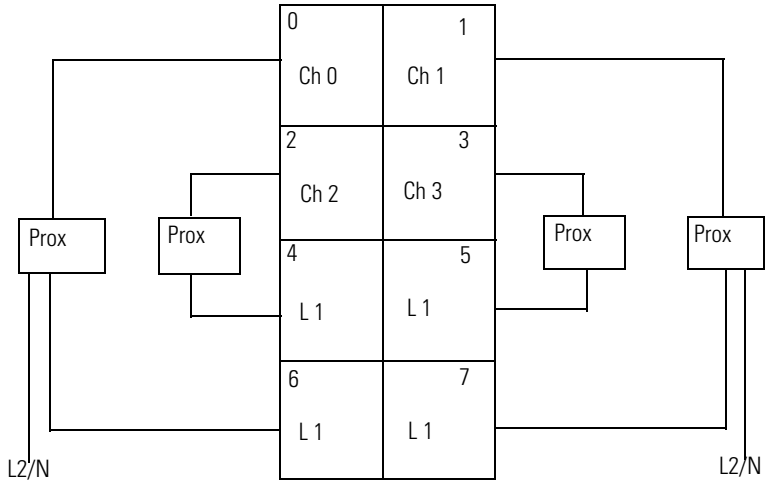
1734-IA2 120 V AC Input Module Wiring Diagram



Ch 0 = Channel 0 Ch 1 = Channel 1
NC = No connection L2/N = 120V AC Neutral L1 = 120V AC

Channel	Input Terminal	Return	Supply
0	0	4	6
1	1	5	7
Module power is supplied from the internal power bus.			

1734-IA4 120 V AC Input Module Wiring Diagram



Ch0 = Channel 0 Input Ch1 = Channel 1 Input Ch2 = Channel 2 Input
Ch3 = Channel 3 Input L2/N = 120V AC Neutral L1 = 120V AC

Channel	Input Terminal	Common Terminal	Power
0	0		4
1	1		5
2	2		6
3	3		7
Module power is supplied from the internal power bus.			

1734-IM2 and 1734-IM4 220V AC Input Modules

1734-IM2

Module Status
Network Status
Status of Input 0
Status of Input 1
Channel 0 Connection
No Connection
Channel 1 Connection
No Connection
L2/N
L2/N
L1
L1

46134

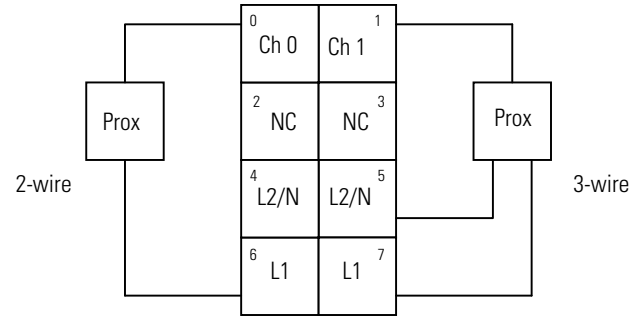
1734-IM4

Module Status
Network Status
Status of Input 0
Status of Input 1
Status of Input 2
Status of Input 3
Channel 0 Connection
No Connection
Channel 1 Connection
No Connection
L2/N
L2/N
L1
L1

46134

L2/N = 220V AC return
L1 = 220V AC Supply

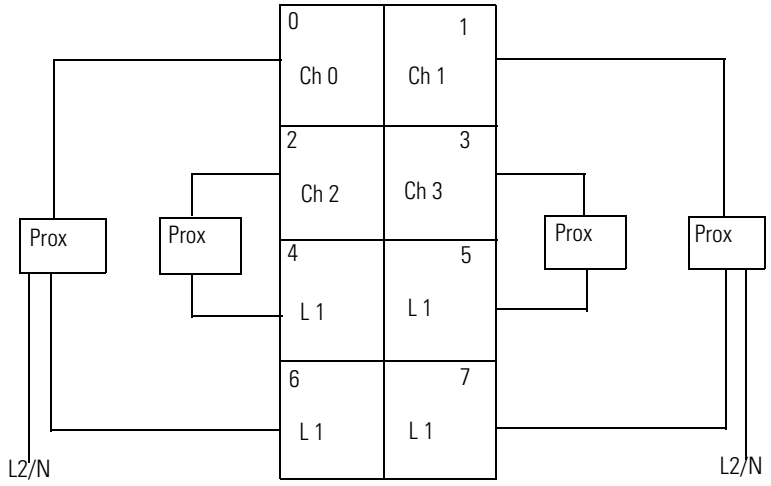
1734-IM2 120V AC 2 Input Module Wiring Diagram



Ch 0 = Channel 0 input
NC = No connection
L1 = 220V AC

Ch 1 = channel 1 input
L2/N = 220V AC Neutral

Channel	Input Terminal	Return	Supply
0	0	4	6
1	1	5	7
Module power is supplied from the internal power bus.			



Ch0 = Channel 0 Input
Ch3 = Channel 3 Input

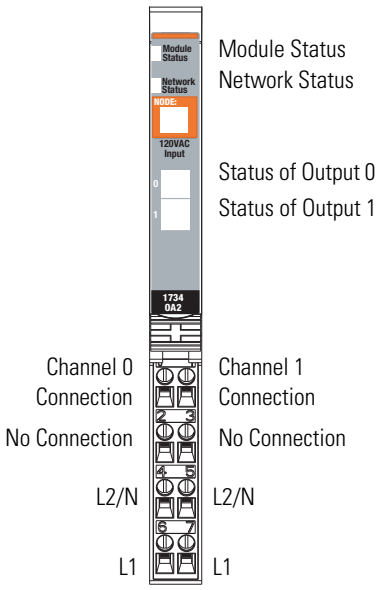
Ch1 = Channel 1 Input
L2/N = 120V AC Neutral

Ch2 = Channel 2 Input
L1 = 120V AC

Channel	Input Terminal	Common Terminal	Power
0	0		4
1	1		5
2	2		6
3	3		7
Module power is supplied from the internal power bus. Use an external neutral bus or a 1734-CTM module for AC (220V) neutral connections, if required.			

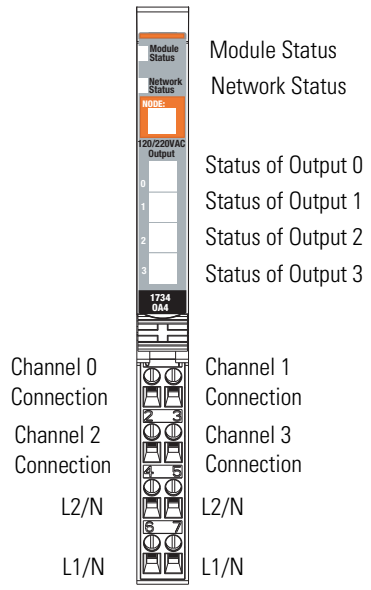
1734-OA2 and 1734- OA4 120/220V AC Output Modules

1734-OA2

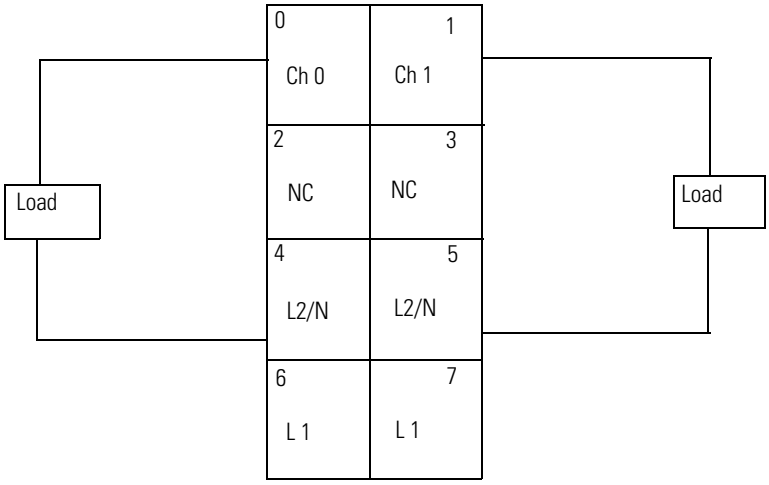


L2/N = 120/220V AC return

1734-OA4



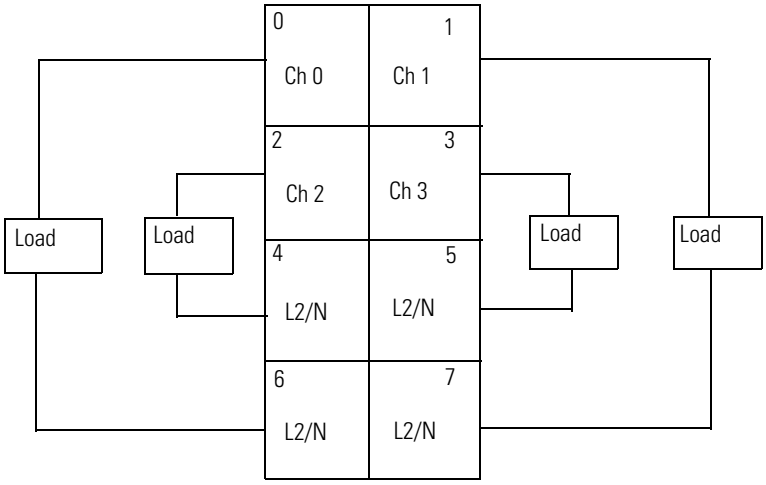
1734-OA2 AC 2 Output Module Wiring Diagram



L1 =120/220V AC supply, L2/N = 120/220V AC return
Ch 0 = Channel 0 Ch 1 = Channel 1
Field power is supplied from internal power bus

Channel	Output Terminal	Return	Supply
Channel 0	0	4	6
Channel 1	1	5	7
Module power is supplied from the internal power bus.			

1734-OA4 AC 2 Output Module Wiring Diagram

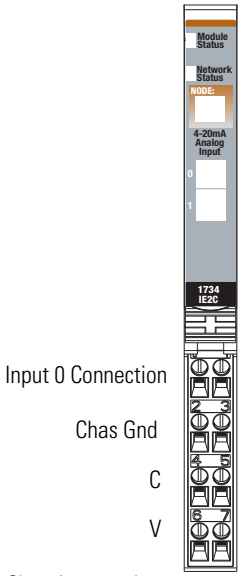


L1 =120/220V AC Supply
L2/N = 120/220V AC Return
Ch 0 = Channel 0 Ch 2 = Channel 2
Ch 1 = Channel 1 Ch 3 = Channel 3
Field power is supplied from the internal power bus.

Channel	Output Terminal	Common Terminal	Power
0	0	4	
1	1	5	
2	2	6	
3	3	7	

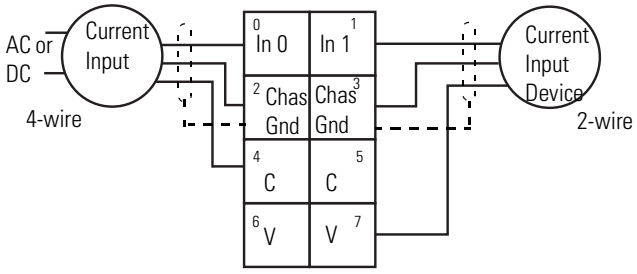
Wiring Analog Modules

1734-IE2C Analog Current Input Module



Chas Gnd = Chassis ground
C = Common
V = Supply

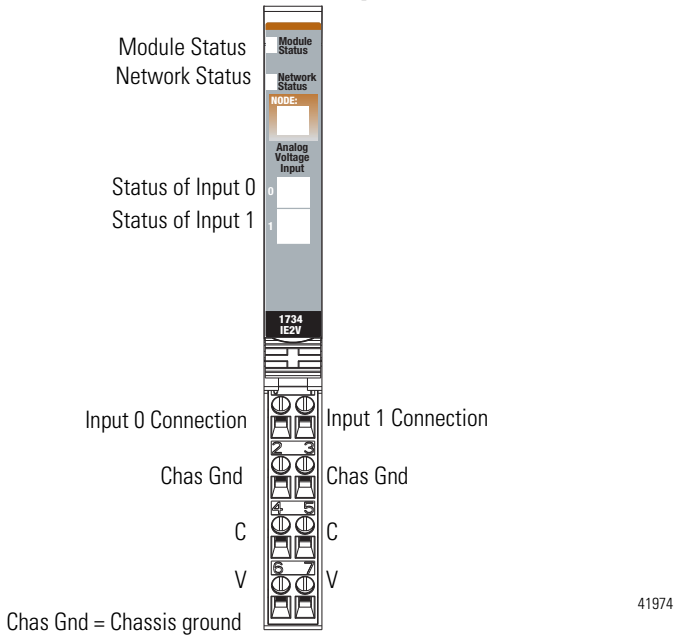
1734-IE2C Analog Current Input Module Wiring Diagram



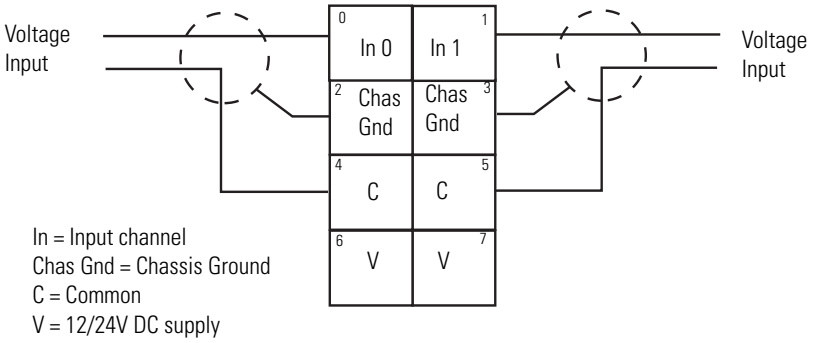
In = Input channel
Chas Gnd = Chassis Ground
C = Common
V = 12/24V DC supply

Channel	Current Input	Chassis Ground	Common	Voltage
0	0	2	4	6
1	1	3	5	7
12/24V DC is provided by the internal power bus.				

1734-IE2V Analog Voltage Input Module

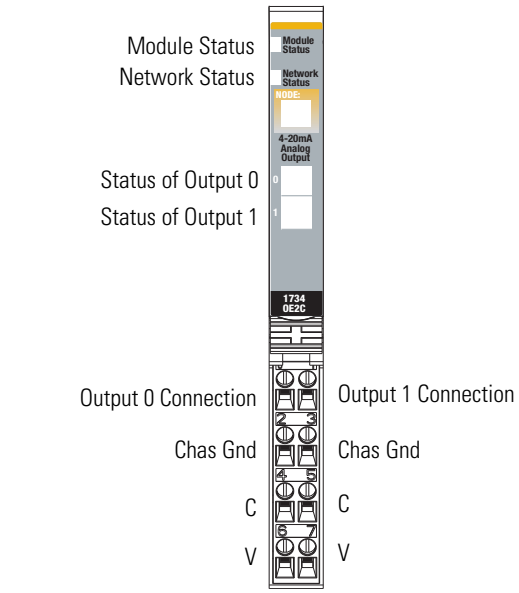


1734-IE2V Analog Voltage Input Module Wiring Diagram

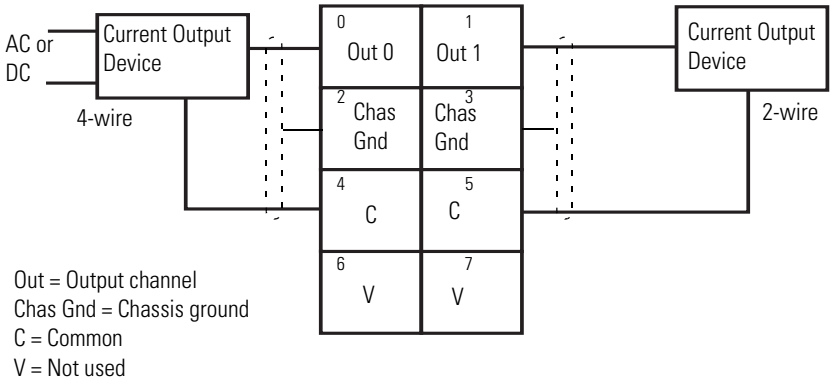


Channel	Voltage Input	Chassis Ground	Common	Supply
0	0	2	4	6
1	1	3	5	7
12/24V DC is provided by the internal power bus.				

1734-OE2C Analog Current Output Module

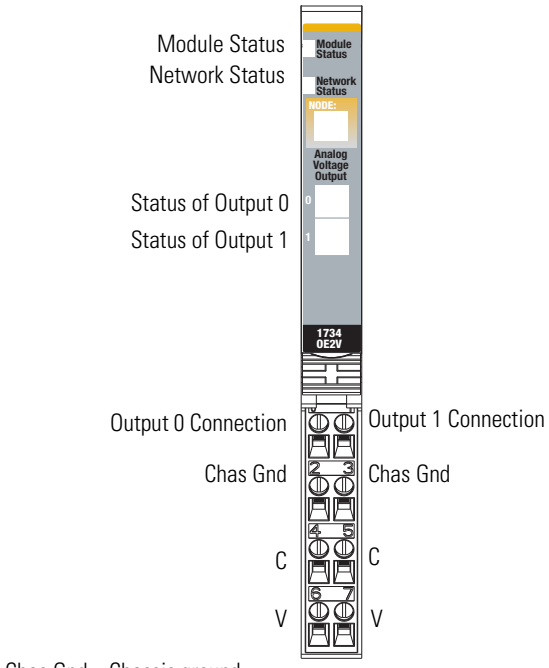


1734-OE2C Analog Current Output Module Wiring Diagram



Channel	Current Output	Common	Chassis Ground	Supply
0	0	4	2	6
1	1	5	3	7
12/24V DC power is provided by the internal power bus.				

1734-OE2V Analog Voltage Output Module



Chas Gnd = Chassis ground
C = Common
V = Supply

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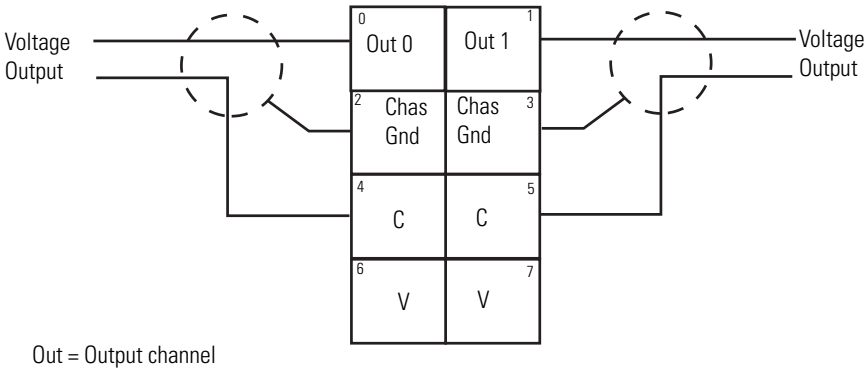
1734-OE2V Analog Voltage Output Module Wiring Diagram



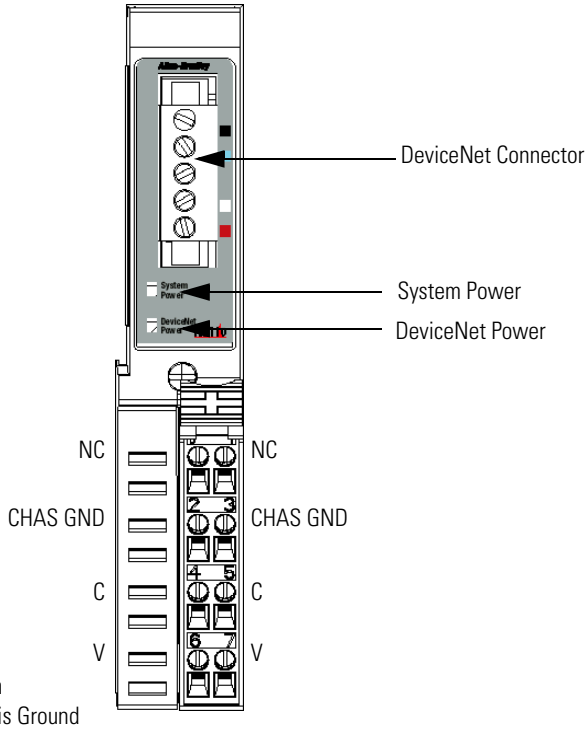
Out = Output channel
Chas Gnd = Chassis ground
C = Common
V = 12/24V Supply

42017IRR

Channel	Voltage Output	Chassis Ground	Common	Supply
0	0	2	4	6
1	1	3	5	7
12/24V DC power is provided by the internal power bus.				

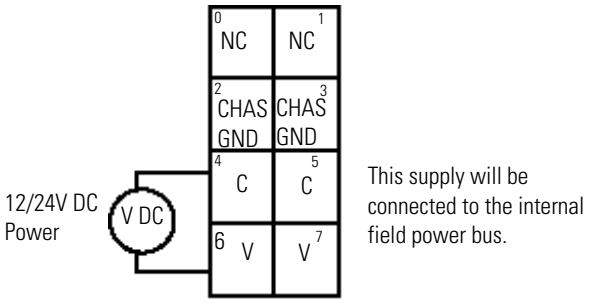
Wiring Power Distribution and Other Modules

1734-PDN Communication Interface Module



NC = No Connection
CHAS GND = Chassis Ground
C = Common
V = Supply

1734-PDN Module Wiring Diagram

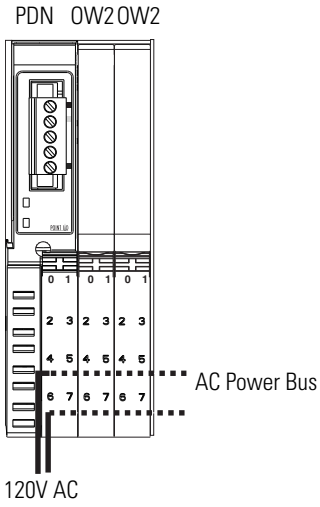


NC = No Connection
CHAS GND = Chassis Ground
C = CommonV = Supply

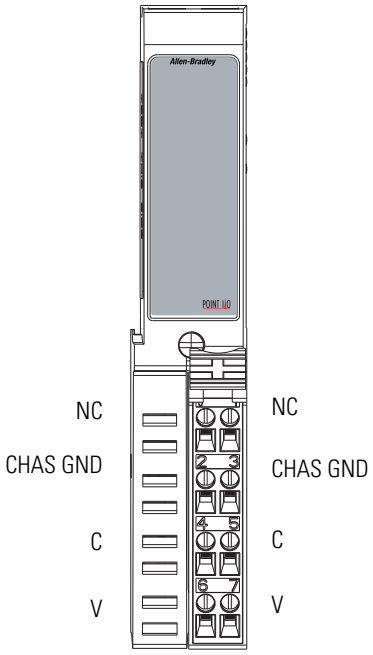
DeviceNet connection

Black	1	-V
Blue	2	CAN - Low
Bare	3	Shield
White	4	CAN - High
Red	5	+V

Wire the Communication Interface Module for AC Modules Only

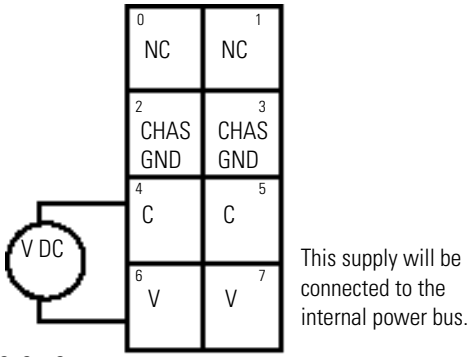


1734-FPD Field Potential Distributor Module



NC = No Connection
CHAS GND = Chassis Ground
C = Common V = Supply

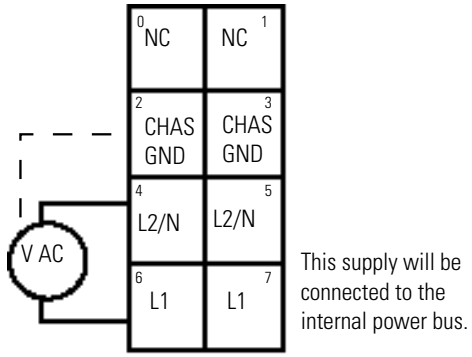
1734-FPD Modules for 12/24V DC Wiring Diagram



V = 12/24V DC, C = Common
CHAS GND = Chassis ground

Connect	Terminal
+V DC	6
-V DC	4
Chas Gnd	2
12/24V DC becomes the internal power bus for modules to the right.	

1734-FPD Modules for 120/240V AC Wiring Diagram

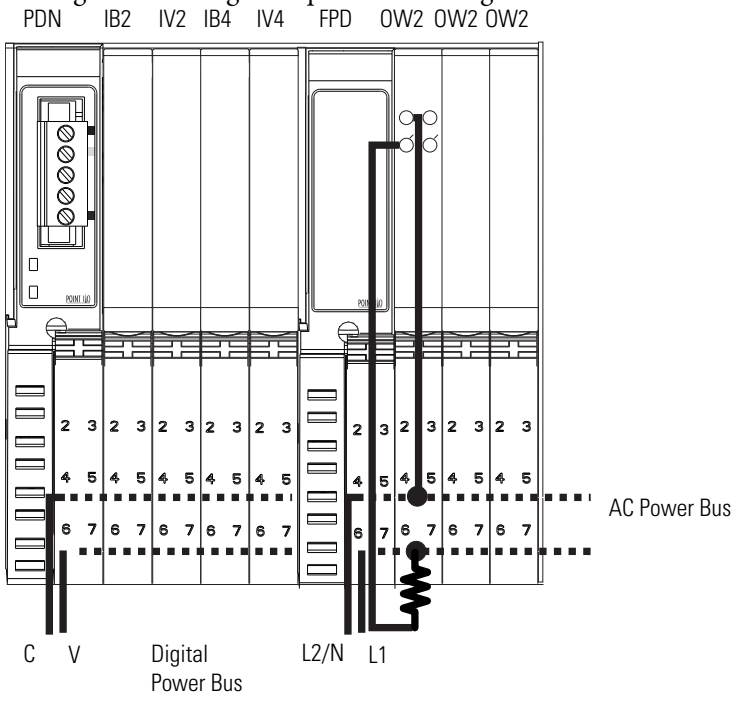


L2/N = Neutral, L1 = 120/240V AC
CHAS GND = Chassis ground

Connect	Terminal
L1	6
L2/N	4
Chas Gnd	2
120/240V DC becomes the internal power bus for modules to the right.	

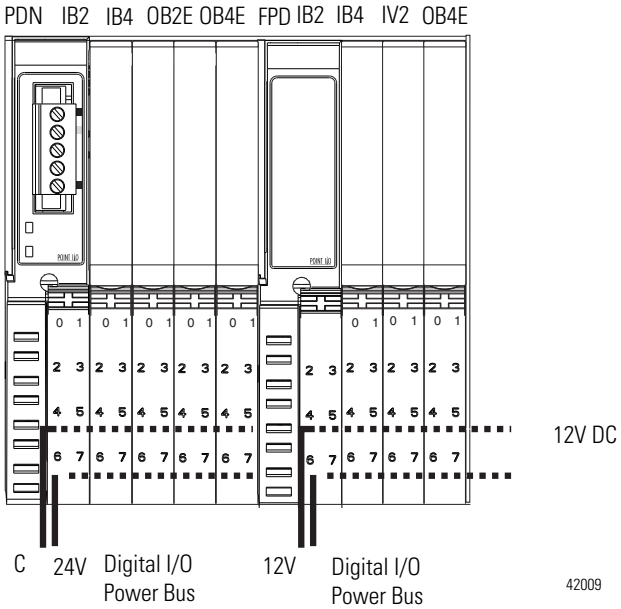
Create a New AC Power Bus Using a 1734-FPD Module

This configuration changes the power bus voltage for AC modules.



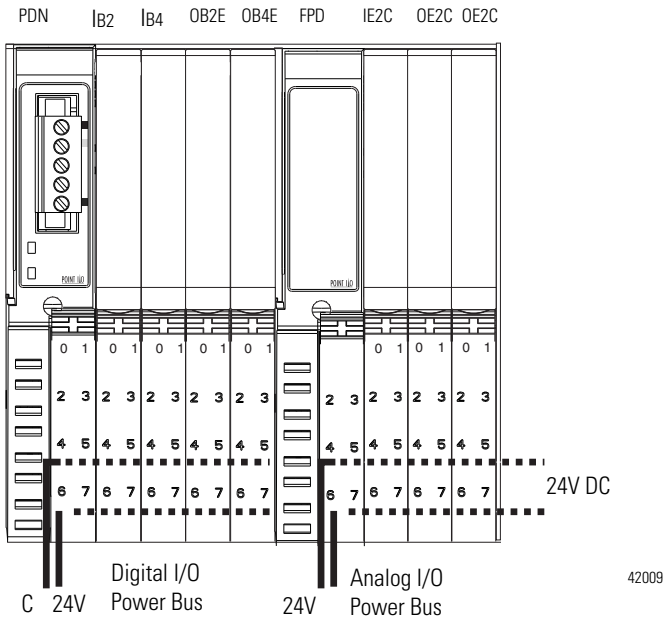
Wiring Using a 1734-FPD Module to Create a New DC Power Bus

This configuration changes power bus voltage for 12/24V DC systems.

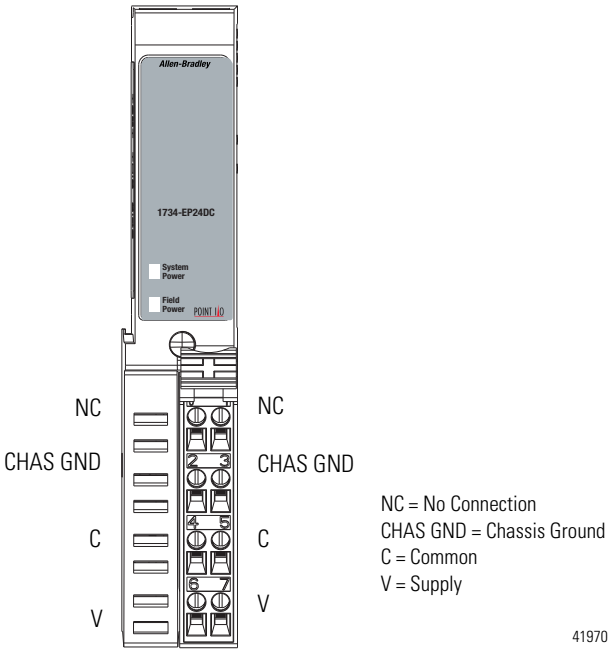


Wiring Using a 1734-FPD Module to Create a New Analog Power Bus

This configuration isolates noisy digital I/O power from sensitive analog I/O power.

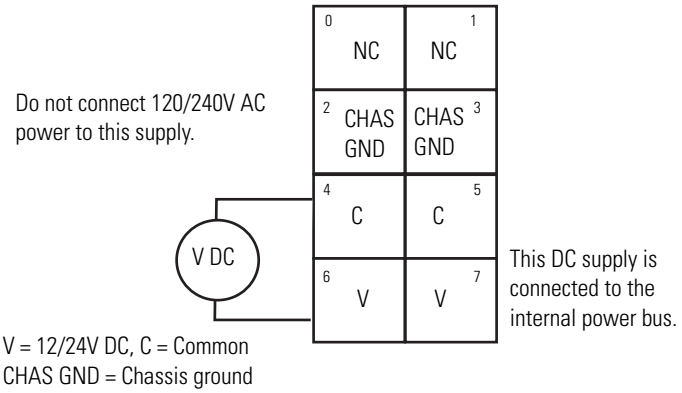


1734-EP24DC Expansion Power Supply



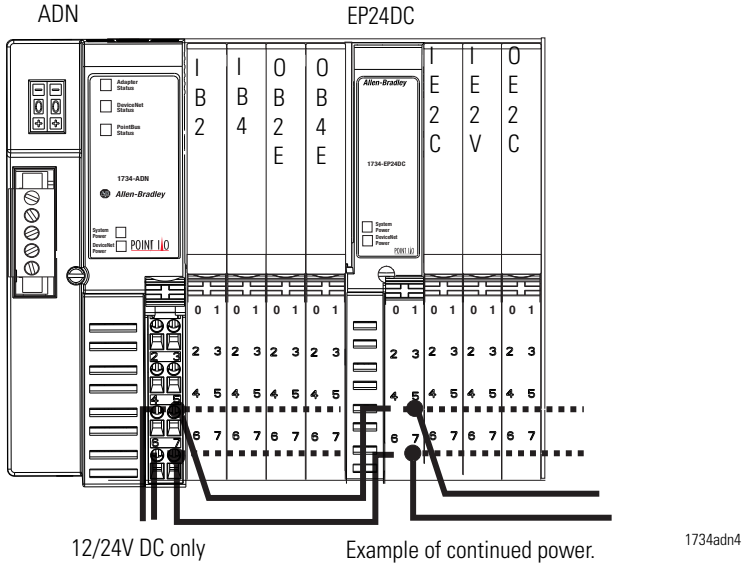
12/24V DC Wiring Diagram

ATTENTION: Use the 1734-EP24DC expansion power supply only with adapter class products. This 1734-EP24DC power supply cannot be used with a 1734-PDN module or 1734D POINTBlock modules. Do not connect 120/240V AC power to this supply.

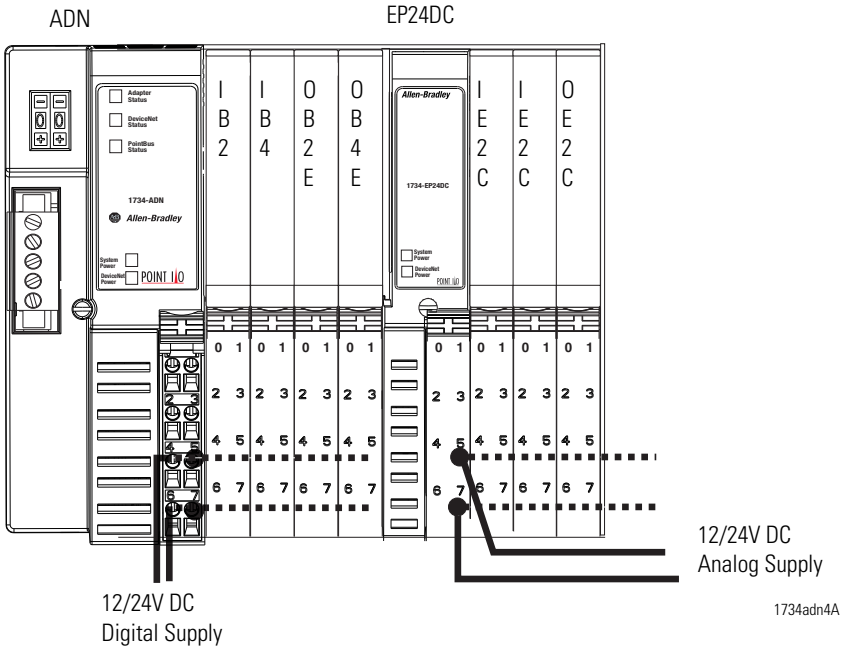


Connect	Terminal	Terminals (for continuing power)
+V DC	6	7
-V DC	4	5
Chas Gnd	2	3
12/24V DC becomes the internal power bus for modules to the right.		

Example of Continuing Power

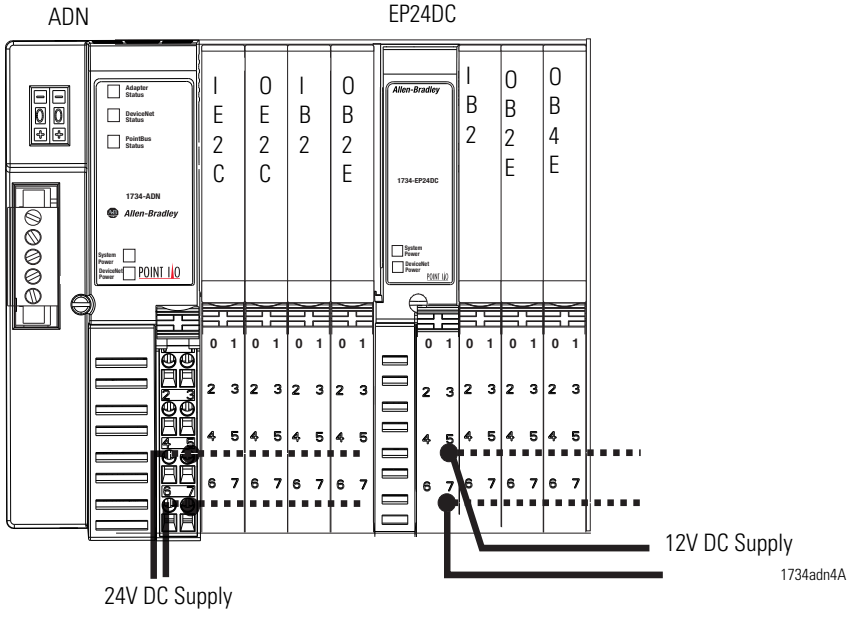


Example of Functional Partitioning

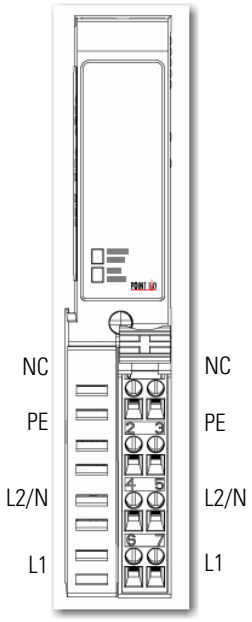


IMPORTANT The 1734-EP24DC expansion power supply can be used with POINT I/O adapters only. This 1734-EP24DC power supply cannot be used with a 1734-PDN module or 1734D POINTBlock modules.

Example of Logical Partitioning



1734-EPAC AC Expansion Power Supply



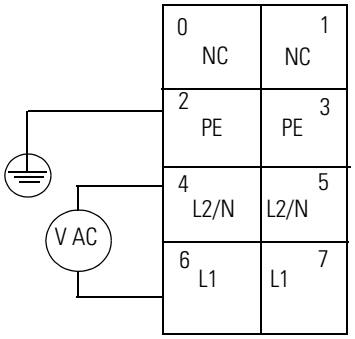
NC = No Connection
PE = Protective Earth Ground
L2/N = Neutral
L1 = 120/240V AC

120/240V AC Wiring Diagram

Connect ground wire to PE terminal.

This AC supply will be connected to the internal power bus.

L1 = 120/240V AC
L2/N = 120/240V AC
PE = Protective Earth Ground



Connect	Terminal	Terminals (for continuing power)
L1 (120/240V AC)	6	7
L2/N(Neutral)	4	5
PE (Protective Earth ground)	2	3
120/240V AC becomes the internal power bus for modules to the right.		

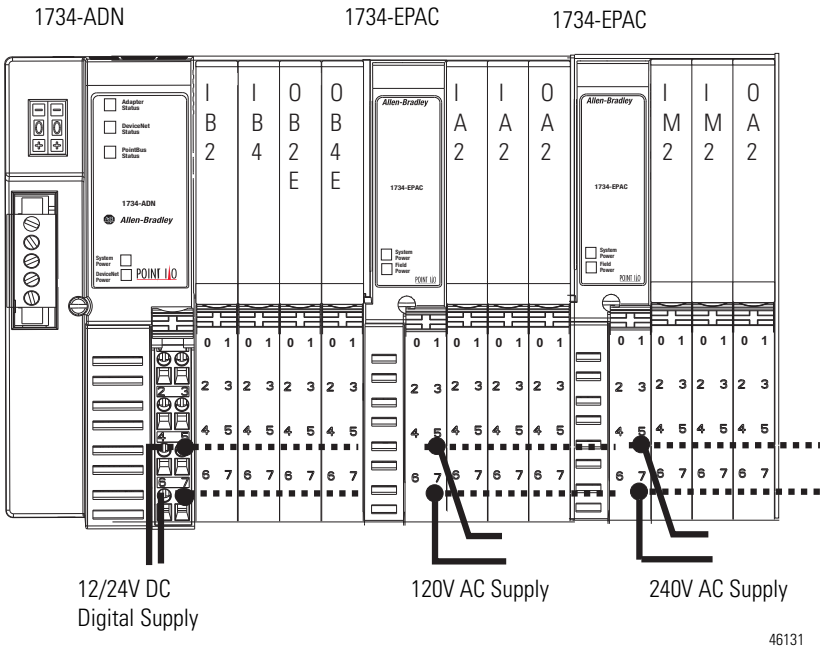
ATTENTION: If you connect or disconnect wiring while field side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding.

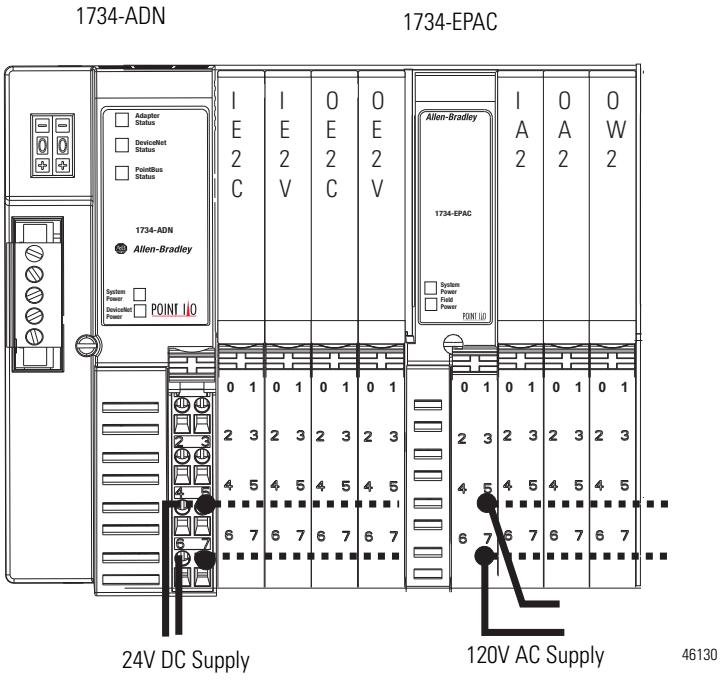
ATTENTION: Use the 1734-EPAC AC expansion power supply only with adapter class products.

IMPORTANT The 1734-EPAC AC expansion power supply can be used only with POINT I/O adapters.

Example of Functional Partitioning



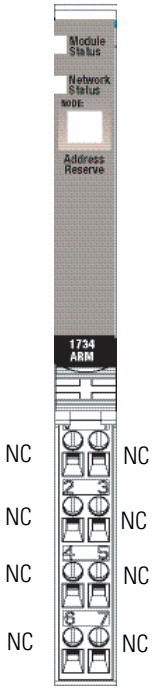
Example of Logical Partitioning



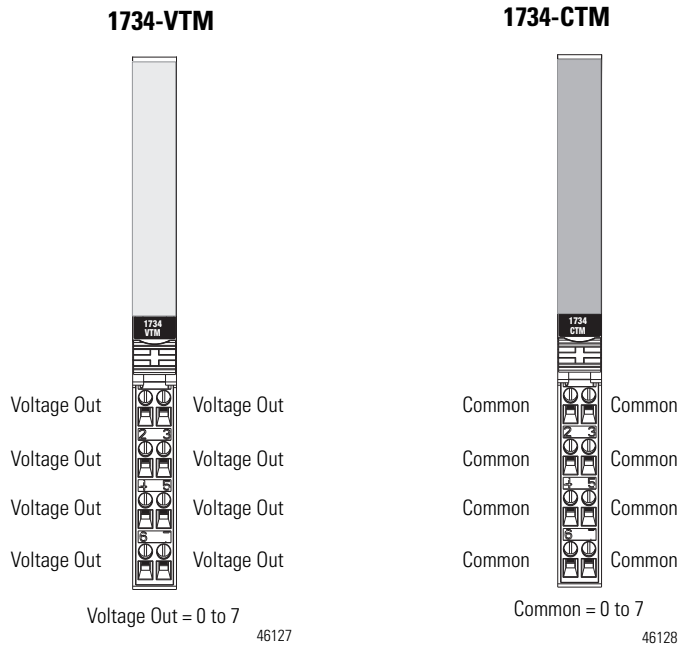
1734-ARM Address Reserve Module

The 1734-ARM module requires no external wiring.

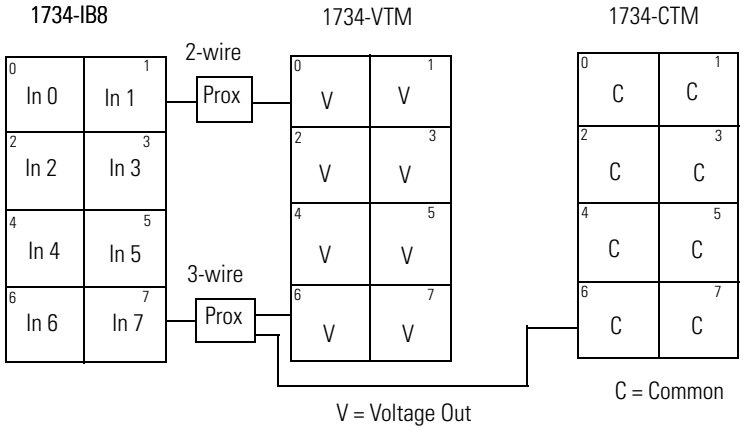
NC = No connection



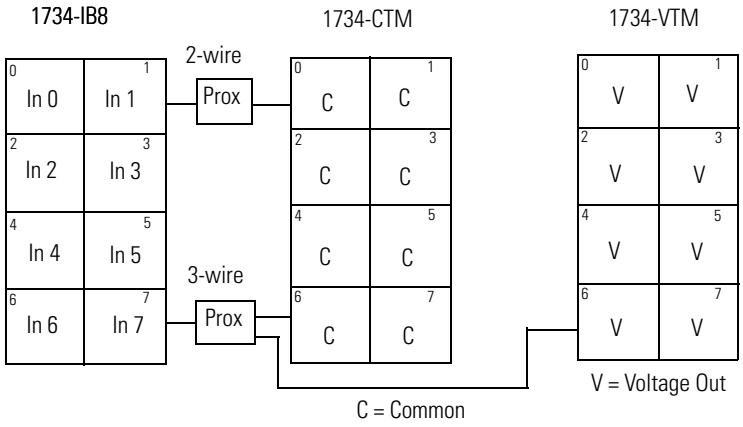
1734-CTM and 1734-VTM Modules



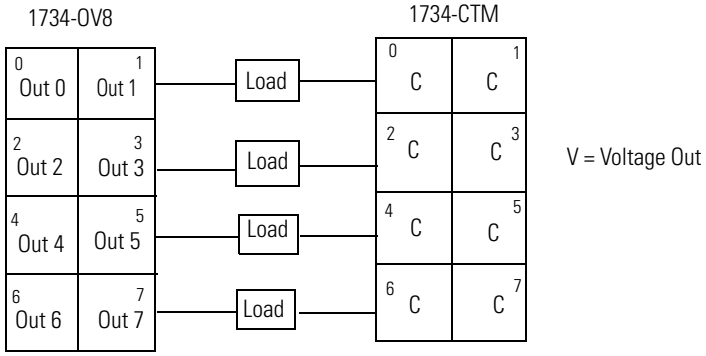
Sink Input Wiring Diagram



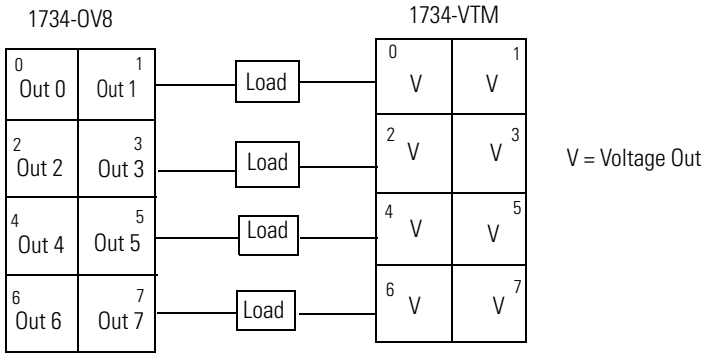
Source Input Wiring Diagram



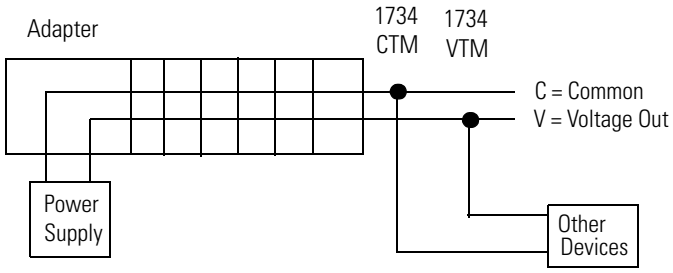
Source Output Wiring Diagram



Sink Output Wiring Diagram



General Purpose Wiring Diagram



Install POINTBlock I/O Modules

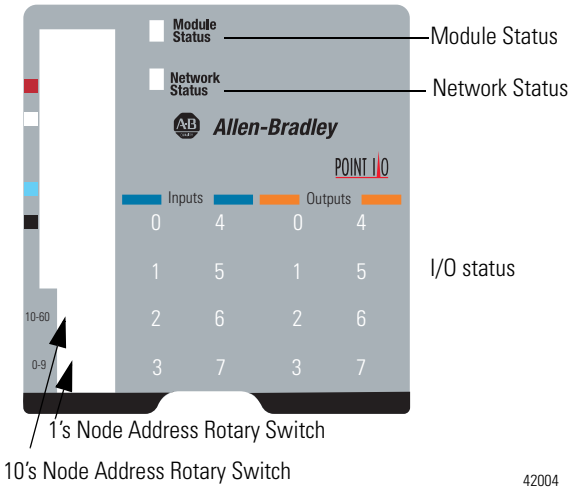
About This Chapter

Read this chapter for information about how to wire POINTBlock I/O modules to include the following:

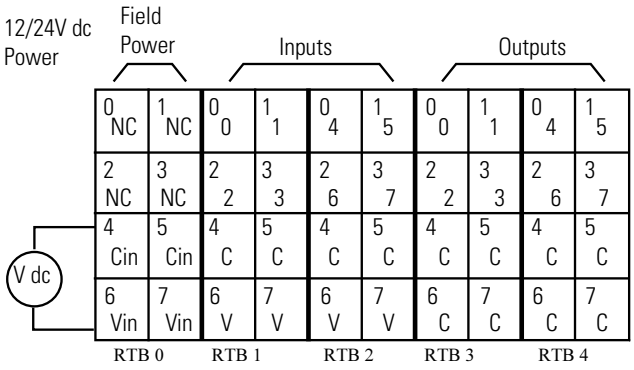
- 1734D-IB8XOB8 POINTBlock 8 DC In/8 DC Out Modules
- 1734D-IB8XOW8 POINTBlock 8 DC In/8 Relay Out Modules
- 1734D-IA8XOA8 POINTBlock 8 AC In/8 AC Out Modules
- 1734D-IA8XOW8 POINTBlock 8 AC In/8 Relay Out Modules
- 1734D-IA16 POINTBlock 16 AC Input Modules
- 1734D-IB16 POINTBlock 16 DC Input Modules

Wiring POINTBlock Modules

1734D-IB8XOB8 POINTBlock 8 DC In/8 DC Out Modules



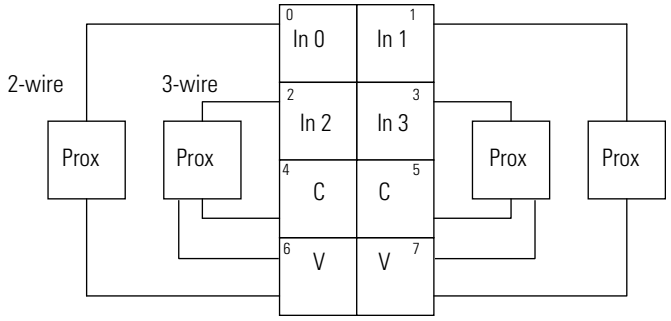
8 Input/8 Output Module Wiring Diagram



This supply will be connected to the internal power bus.

NC = No Connection Chas Gnd = Chassis Ground
C = Common V = Supply

Sink Input Wiring Diagram

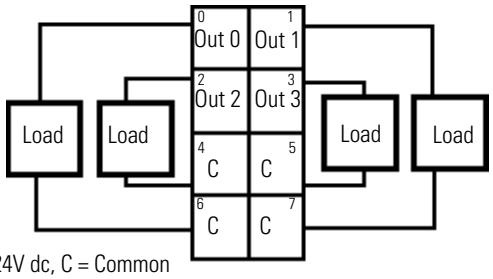


V = 12/24V dc
C = Common

Channel	Input Terminal	Common	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
Connect common on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring Diagram



V = 12/24V dc, C = Common
Field power is supplied from internal power bus

Channel	Output Terminal	Common Terminal	Power
Remote Termination Block 3			
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Remote Termination Block 4			
Channel 4	0	6	
Channel 5	1	7	
Channel 6	2	4	
Channel 7	3	5	
Module power is supplied from the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Outputs are electronically protected to 0.75 A. Module outputs are selectable for latched mode or auto-reset mode. (Latched/auto reset is set by module, not by individual channel.) Each channel is assigned a bit in the data table to indicate the faulted condition. Outputs in the latched mode can only be reset with a user command to the module.

Latch Mode Functionality

State	Indication	Error Bit
Off	Dark	0
On	Yellow	0
Faulted/On	Red	1
Faulted/Off	Flashing Red	1

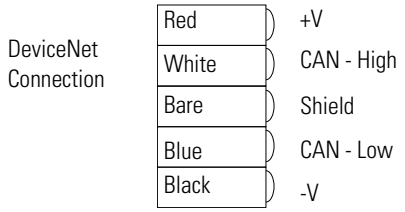
To reset an output, the reset bit for the output can be set, or the output bit must be cycled off/on.

Auto Retry Mode Functionality

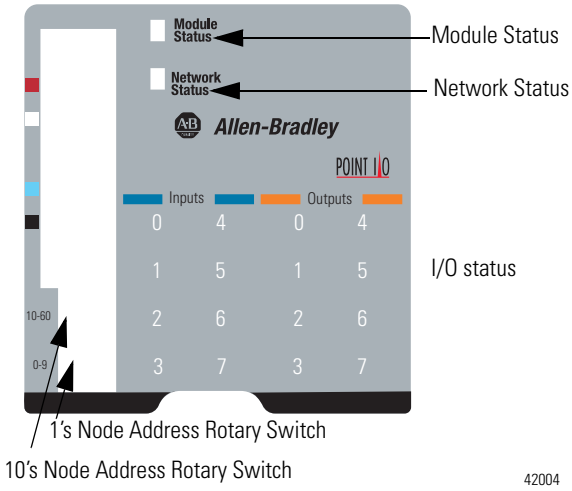
State	Indication	Error Bit
Off	Dark	0
On	Yellow	0
Faulted/On	Red	1
Faulted/Off	Flashing Red	1

In auto retry, the output recovers once the fault is removed.

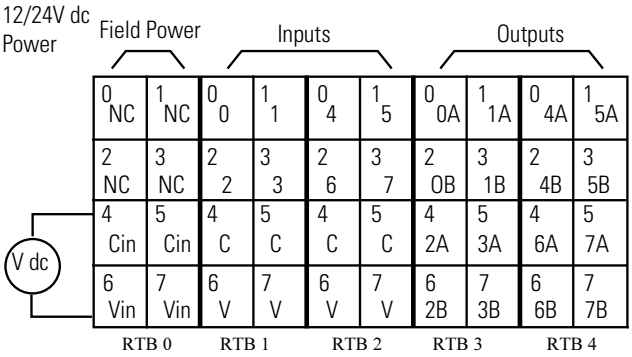
DeviceNet Connector Wiring



1734D-IB8XOW8 POINTBlock 8 DC In/8 Relay Out Modules



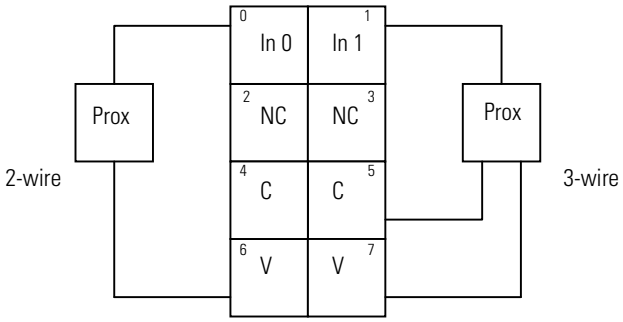
8 Input/8 Relay Output Module Wiring Diagram



This supply will be connected to the internal power bus.

NC = No Connection
C = Common
Chas Gnd = Chassis Ground
V = Supply

Sink Input Wiring

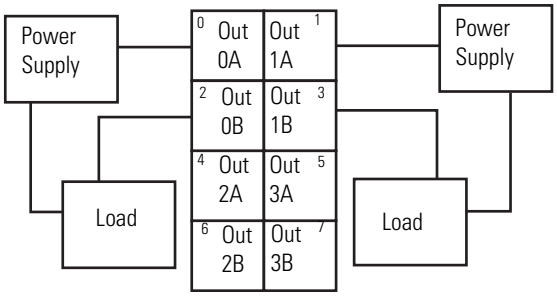


V = 12/24V dc
C = Common

Channel	Input Terminal	Common	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
Connect common on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring Diagram (Load Powered by External Power)

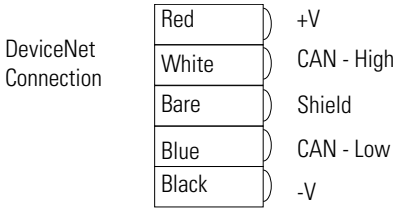


Out = Output channel relay contacts
Power Supply = can range from +5V DC to 240V ac
C = Common

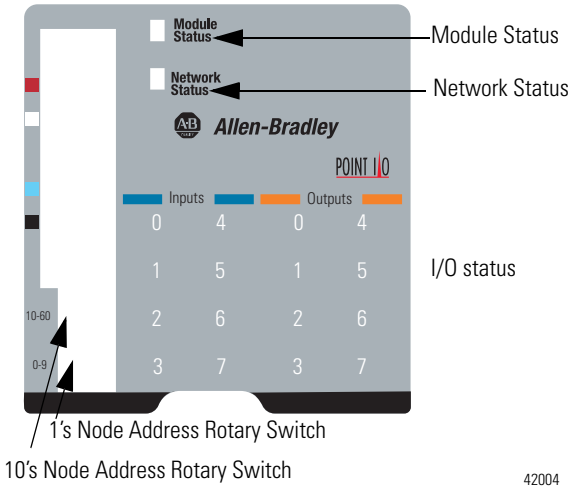
Channel	Output	Common	Supply
Remote Termination Block 3			
0A	0	Not used	Not used
0B	2		
1A	1		
1B	3		
2A	4		
2B	6		
3A	5		
3B	7		
Remote Termination Block 4			
4A	0	Not used	Not used
4B	2		
5A	1		
5B	3		
6A	4		
6B	6		
7A	5		
7B	7		
Supply voltage can range from +5V DC to 240V ac, depending on relay load. 12/24V DC power for the module is provided by the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

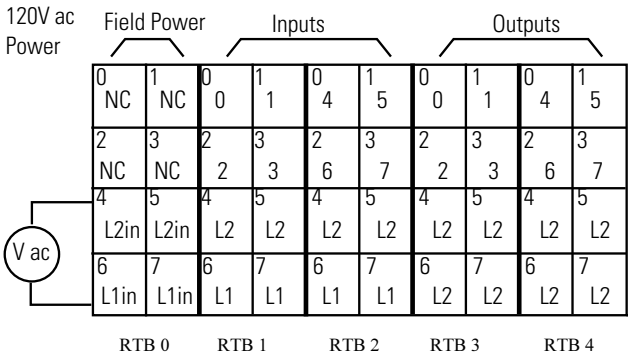
DeviceNet Connector Wiring



1734D-IA8XOA8 POINTBlock 8 AC In/8 AC Out Modules



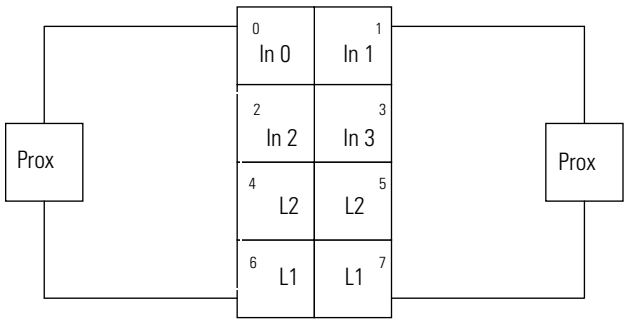
1734D-IA8XOA8 POINTBlock 8 AC In/8 AC Out Modules Wiring Diagram



This supply will be connected to the internal power bus.

NC = No Connection
Chas Gnd = Chassis Ground
L2/N = AC Return/Neutral
L1 = AC Power

Input Wiring Diagram

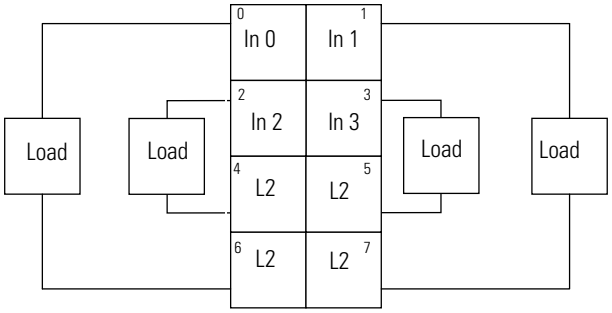


L1 = 120V ac
L2 = Return

Channel	Input Terminal	Return	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
120V AC is supplied through the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring Diagram

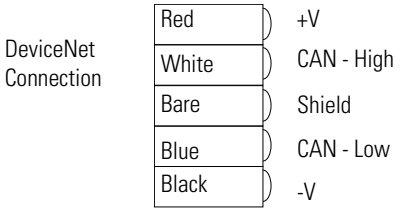


L1 = 120V ac
L2 = Return

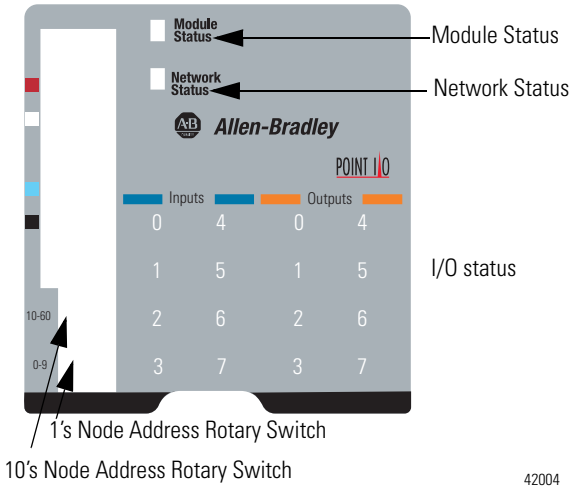
Channel	Output Terminal	Common Terminal	Power
Remote Termination Block 3			
Channel 0	0	6	
Channel 1	1	7	
Channel 2	2	4	
Channel 3	3	5	
Remote Termination Block 4			
Channel 4	0	6	
Channel 5	1	7	
Channel 6	2	4	
Channel 7	3	5	
Module power is supplied from the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

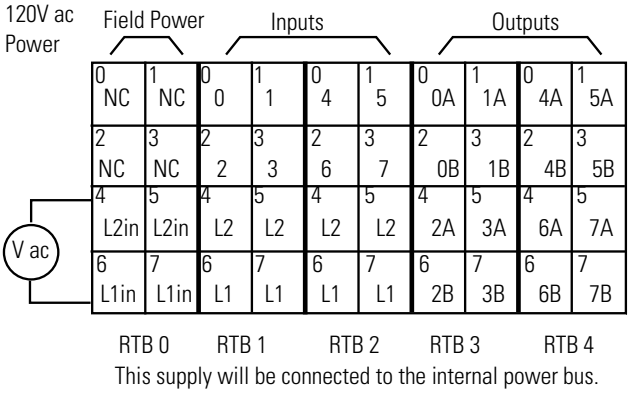
DeviceNet Connector Wiring



1734D-IA8XOW8 POINTBlock 8 AC In/8 Relay Out Modules

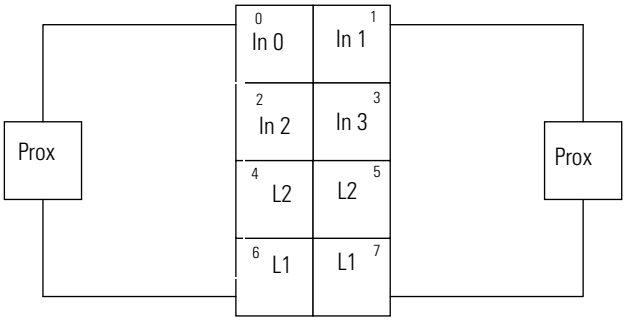


1734D-IA8XOW8 POINTBlock 8 AC In/8 Relay Out Modules Wiring Diagram



NC = No connection
L2/N = AC Return/Neutral
L1 = AC Power

Input Wiring Diagram



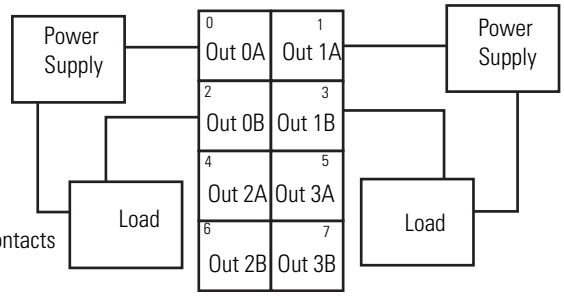
L1 = 120V ac
L2 = Return

Channel	Input Terminal	Return	Voltage
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7
6	2	4	6
7	3	5	7
120V AC is supplied through the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

Output Wiring Diagram

Load Powered by External Power



Out = Output channel relay contacts
L1 = 120V ac
L2 = Return

Channel	Output	Common	Supply
Remote Termination Block 3			
0A	0	Not used	Not used
0B	2		
1A	1		
1B	3		
2A	4		
2B	6		
3A	5		
3B	7		
Remote Termination Block 4			
4A	0	Not used	Not used
4B	2		
5A	1		
5B	3		
6A	4		
6B	6		
7A	5		
7B	7		
Supply voltage is 120V ac. 120V AC power for the module is provided by the internal power bus.			

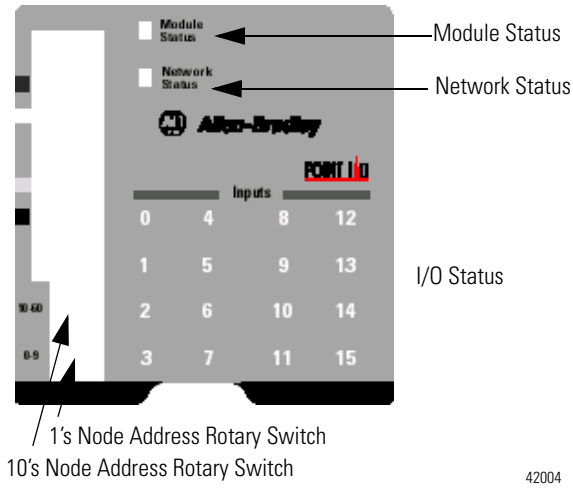
ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

DeviceNet Connector Wiring

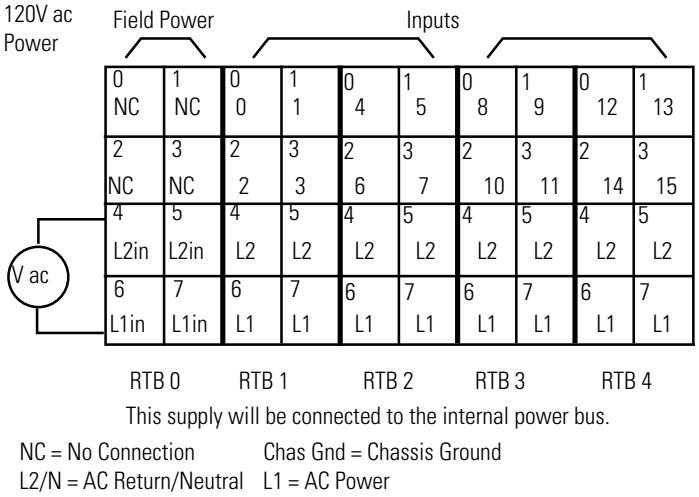
DeviceNet Connection

Red	+V
White	CAN - High
Bare	Shield
Blue	CAN - Low
Black	-V

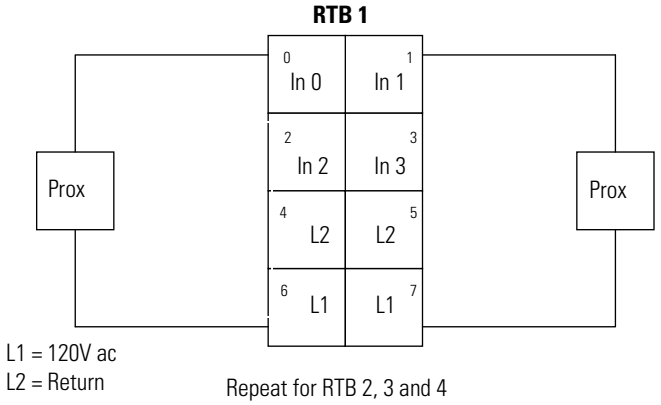
1734D-IA16 POINTBlock 16 AC Input Modules



Wire the 16 AC Input Module Wiring Diagram



Input Wiring Diagram

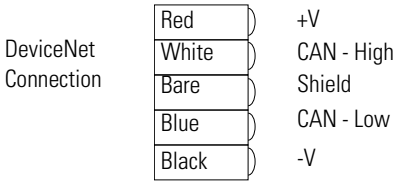


ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

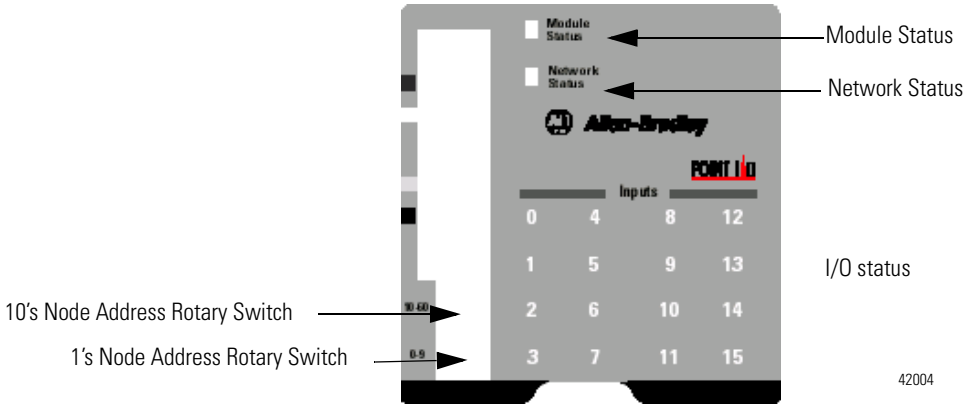
Channel	Input Terminal	Return	Voltage
Remote Termination Block 0			
Field Power Block			
Vin (L1)			6 and/or 7
Return (L2/N)		4 and/or 5	
Remote Termination Block 1			
0	0		6
1	1		7
2	2		6
3	3		7
Remote Termination Block 2			
4	0		6
5	1		7
6	2		6
7	3		7
Remote Termination Block 3			
8	0		6
9	1		7
10	2		6
11	3		7
Remote Termination Block 4			
12	0		6
13	1		7

Channel	Input Terminal	Return	Voltage
14	2		6
15	3		7
120V AC is supplied through the internal power bus.			

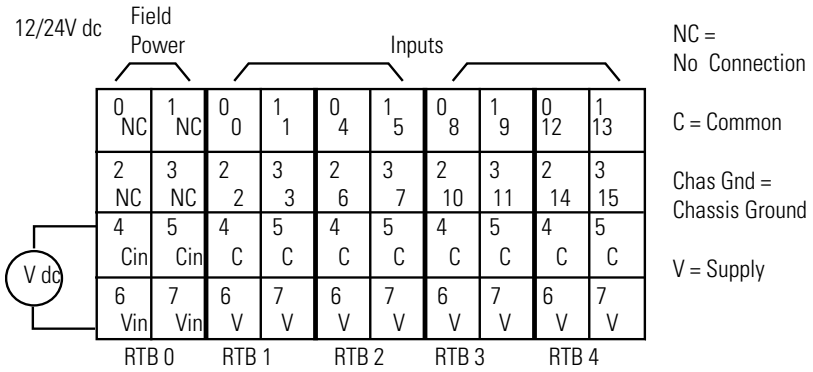
DeviceNet Connector Wiring



1734D-IB16 POINTBlock 16 DC Input Modules

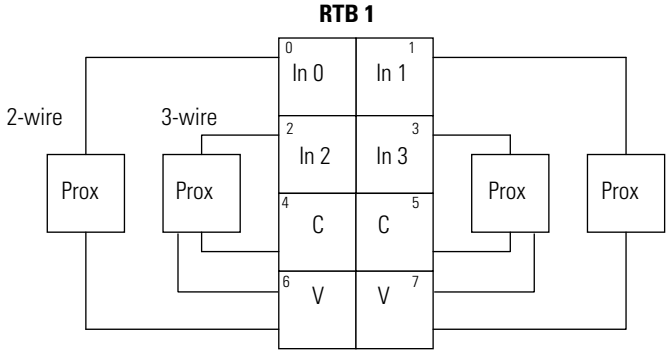


16 DC Input Module Wiring Diagram



This supply will be connected to the internal power bus.

Sink Input Wiring Diagram



V = 12/24V dc
C = Common

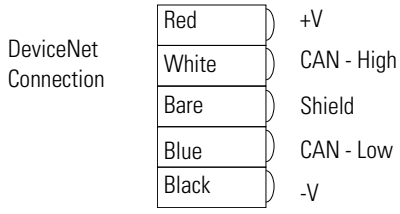
Repeat for RTB 2, RTB 3 and RTB 4.

Channel	Input Terminal	Common	Voltage
Remote Termination Block 0			
Field Power Block			
Vin (supply)			6 and 7
Common)		4 and 5	
Remote Termination Block 1			
0	0	4	6
1	1	5	7
2	2	4	6
3	3	5	7
Remote Termination Block 2			
4	0	4	6
5	1	5	7

Channel	Input Terminal	Common	Voltage
Remote Termination Block 0			
Field Power Block			
Vin (supply)			6 and 7
Common)		4 and 5	
6	2	4	6
7	3	5	7
Remote Termination Block 3			
8	0	4	6
9	1	5	7
10	2	4	6
11	3	5	7
Remote Termination Block 4			
12	0	4	6
13	1	5	7
14	2	4	6
15	3	5	7
Connect common on 3-wire proximity switches. 12/24V DC is supplied through the internal power bus.			

ATTENTION: When connecting more than one wire in a termination point, make sure that both wires are the same gauge and type.

DeviceNet Connector Wiring



POINT I/O Module Data

About This Chapter

Read this chapter for information about module status, input, output, and configuration data, and default data maps forPOINT I/O modules to include the following:

- Digital Input Modules
- Digital Output Modules
- Relay Output Modules
- Analog Input Modules
- Analog Output Modules
- POINTBlock I/O Modules

Digital Input Modules

Read this section for information about digital input modules.

Digital DC Input Modules

The 1734 digital DC input modules feature the following:

- 24V DC nominal DC inputs
- Input range of 10...28.8V dc
- 2, 4, or 8 sinking or sourcing style inputs
- Autobaud (will match baud of existing devices on the network)
- Selectable input filter times (0...65 ms with 1 ms default)
- Sequential auto addressing

I/O messages are sent to (consumed) and received from (produced) these POINT I/O modules. These messages are mapped into the processor memory.(1) These POINT I/O modules produce one byte of input data (scanner Rx). They do not consume I/O data (scanner Tx).

(1) These are mapped through scan lists in DeviceNet networks and Direct, Listen Only, or Rack Optimized connections in ControlNet and EtherNet/IP networks.

Default Data Map for the 1734-IB2 and 1734-IV2 Input Modules								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (scanner Rx)	Not used						Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0, Ch1 = input channel 1, 0 = off, 1 = on								

Default Data Map for the 1734-IB4 and 1734-IV4 Input Modules								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0, Ch1 = input channel 1, Ch2 = input channel 2, Ch3 = input channel 3, 0 = off, 1 = on								

Default Data Map for the 1734-IB8 and 1734-IV8 Input Modules								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = input channel 0, Ch1 = input channel 1, Ch2 = input channel 2, Ch3 = channel 3, Ch4 = input channel 4, Ch5 = input channel 5, Ch6 = input channel 6, Ch7 = input channel 7, 0 = off, 1 = on								

Default Data Map for 1734-IB4D Module - Produced Assembly Instance 101								
Message Size: 2 Bytes								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produce 0 (Rx)	Fault 3	Fault 2	Fault 1	Fault 0	Input 3	Input 2	Input 1	Input 0
Produce 1 (Rx)	SC 3	SC 2	SC 1	SC 0	OW 3	OW 2	OW 1	OW 0
Consume (Tx)	No consumed data							
Where: OW = open wire, SC = short circuit, fault = open wire or short circuit.								

Default Data Map for 1734-IB4D Module - Produced Assembly Instance 23								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produce 0 (Rx)	Fault 3	Fault 2	Fault 1	Fault 0	Input 3	Input 2	Input 1	Input 0
Consume (Tx)	No consumed data							
Where: Fault = open wire or short circuit.								

Default Data Map for 1734-IB4D Module - - Configuration Assembly Instance 103								
Message Size: 18 Bytes								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Consume 0	Input 0 Off to On Filter Byte 0							
Consume 1	Input 0 Off to On Filter Byte 1							
Consume 2	Input 0 On to Off Filter Byte 0							
Consume 3	Input 0 On to Off Filter Byte 1							
Consume 4	Input 1 Off to On Filter Byte 0							
Consume 5	Input 1 Off to On Filter Byte 1							
Consume 6	Input 1 On to Off Filter Byte 0							
Consume 7	Input 1 On to Off Filter Byte 1							
Consume 8	Input 2 Off to On Filter Byte 0							
Consume 9	Input 2 Off to On Filter Byte 1							
Consume 10	Input 2 On to Off Filter Byte 0							
Consume 11	Input 2 On to Off Filter Byte 1							
Consume 12	Input 3 Off to On Filter Byte 0							
Consume 13	Input 3 Off to On Filter Byte 1							
Consume 14	Input 3 On to Off Filter Byte 0							
Consume 15	Input 3 On to Off Filter Byte 1							
Consume 16	Autobaud Disable				Enable OW3	Enable OW2	Enable OW1	Enable OW0
Consume 17	Produced Assembly Instance							
Produce (Tx)	No produced data							
Where: OW = open wire.								

Digital AC Input Modules

The 1734 digital AC input modules feature the following:

- 120 or 220V AC nominal are AC inputs
- Input range of 65...132 for 120V AC inputs; 159...264 for 220V AC inputs
- Two sinking style inputs
- Autobaud (will match baud of existing devices on the network)
- Selectable input filter times (0...65 ms with 1 ms default)
- Sequential auto addressing

I/O messages are sent to (consumed) and received from (produced) these POINT I/O modules. These messages are mapped into the processor memory.(1)

(1) These are mapped through scan lists in DeviceNet networks and Direct, Listen Only, or Rack-optimized connections in ControlNet and EtherNet/IP networks.

These POINT I/O modules produce one byte of input data (scanner Rx). They do not consume I/O data (scanner Tx).

Default Data Map for the 1734-IA2 and 1734-IM2 Input Modules								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

Default Data Map for the 1734-IA4 and 1734-IM4 Input Modules								
Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (scanner Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; Ch2 = channel 2, Ch3 = channel 3, 0 = off, 1 = on								

Digital Output Modules

Read this section for information about digital output modules.

Digital DC Output Modules

The features of DC output modules include the following:

- 24V DC outputs with a range of 10...28.8V dc
- Output diagnostic features are incorporated to assist in troubleshooting
- Current limited outputs of up to 2 A with respect to their DC return
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

I/O messages are sent to (consumed) and received from (produced) these POINT I/O modules. These messages are mapped into the processor memory.(1) These POINT I/O modules produce one byte of input data (scanner Rx). They consume one byte of output data (Scanner Tx).

Default Data Map for 1734-OB2, 1734-OB2E, and 1734-OV2E Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Not used						Ch 1	Ch 0	Channel status (1734-OB2E module only) (1)
Where: 0 = no error, 1 = error									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Not used						Ch 1	Ch 0	Channel state
Where: 0 = off, 1 = on									

(1) The 1734-OB2, 1734-OB4, and 1734-OB8 Digital DC Output modules do produce one byte of data (Scanner RX), but it is always zero.

Default Data Map for 1734-OB4, 1734-OB4E, and 1734-OV4E Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel status (1734-OB4E module only)(1)
Where: 0 = no error, 1 = error									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = off, 1 = on									

(1) The 1734-OB2, 1734-OB4, and 1734-OB8 Digital DC Output modules do produce one byte of data (Scanner RX), but it is always zero.

Default Data Map for 1734-OB8, 1734-OB8E, and 1734-OV8E Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch 7	Ch 6	Ch 5	Ch 4	Ch 3	Ch 2	Ch 1	Ch 0	Channel status (1734-OB8E module only)(1)
Where: 0 = no error, 1 = error									
Message Size: 1 Byte									

Default Data Map for 1734-OB8, 1734-OB8E, and 1734-OV8E Output Module									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Ch 7	Ch 6	Ch 5	Ch 4	Ch 3	Ch 2	Ch 1	Ch 0	Channel state
Where: 0 = off, 1 = on									

(1) The 1734-OB2, 1734-OB4, and 1734-OB8 Digital DC Output modules do produce one byte of data (Scanner RX), but it is always zero.

Default Data Map for the 1734-OB2EP Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Digital AC Output Modules

The 1734-OA2 AC output module features include the following:

- 120V AC outputs with a range of 74...264V AC (120/220V AC nominal)
- Each output is rated at 0.10 A minimum to 0.75 A maximum
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

Default Data Map for the 1734-OA2 Output Module									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

Default Data Map for 1734-OA4 Modules									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used				Ch 3	Ch 2	Ch 1	Ch 0	Channel state
Where: 0 = Off, 1 = On									

Relay Output Modules

The relay output modules consist of 1734-OW2 and 1734-OW4 2-relay output modules and 1734-OX2 4-relay output modules. Features of the 1734-OW2 and 1734-OW4 relay modules include the following:

- Type A Normally Open relays
- Sink or source a current with respect to power or return
- Contact outputs isolated from each other
- Each output rated 5...240V dc/V rms at 2 A (current is load dependant)
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

Features of the 1734-OX2 relay modules include the following:

- Two Form C isolated (normally open; normally closed) electromechanical relays
- Sink or source a current with respect to power or return
- Contact outputs isolated from each other
- Each output rated 5...240V dc/V rms at 2 A (current is load dependant)
- Autobaud (will match baud of existing devices on the network)
- Sequential auto addressing

I/O messages are sent to (consumed) and received from (produced) these POINT I/O modules. These messages are mapped into the processor memory.

Default Data Map for the 1734-OW2 Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch 1	Ch 0	Channel state
Where: 0 = off, 1 = on									

Default Data Map for the 1734-OW4 Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used				Ch 3	Ch 2	Ch 1	Ch 0	Channel state
Where: 0 = off, 1 = on									

Default Data Map for the 1734-OX2 Relay Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch 1	Ch 0	Channel state
Where: 0 = NO contact off, NC contact on 1 = NO contact on, NC contact off									

Analog Input Modules

The 1734-IE2C Analog Input Module is a two-channel module that converts an analog input current to a digital value. The module resolution is 16 bits across 0 to 21 mA. The module has two modes.

- 0...20 mA
- 4...20 mA (default mode)
- Scaling to any 16-bit signed integer (–32,768...+32,767) - Default for 1734-IE2C scalers are +3277 @ 4 mA for low and +16,383 @ 20 mA for high
- Operates in Unipolar mode

The 1734-IE2V Analog Input Module is a two-channel module that converts an analog input voltage to a digital value. The module resolution is 16 bits across -10...+10V. The module has two modes.

- 0...10V DC (default mode)
- +/- 10V dc
- Scaling to any 16-bit signed integer (–32,768...+32,767) - Default for 1734-IE2V scalers are 0 @ 0V for low and +10,000 @ 100V for high
- Operates in Unipolar or Bipolar modes

Data

The1734-IE2C module operates in unipolar mode only; the 1734-IE2V module operates in unipolar or bipolar modes. Data returned from the module is scaled by the user to any 16-bit signed integer (–32,768...+32,767). Six bytes of data are read from the 1734-IE2C and 1734-IE2V modules. No data is written to the input modules.

- Channel 0 Data (2 bytes)
- Channel 1 Data (2 bytes)
- Channel 0 Status (1 byte)
- Channel 1 Status (1 byte)

Communicate with Your Module

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory.(1) These POINT I/O input modules produces six bytes of input data (scanner Rx) and fault status data. It does not consume output data (scanner Tx).

Default Data Map for the 1734-IE2C Analog Input Module

Message Size: 6 Bytes

	15	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**
Produces (scanner Rx)	Input Channel 0 High Byte								Input Channel 0 Low Byte							
	Input Channel 1 High Byte								Input Channel 1 Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															
Where:	CF = Channel Fault status; 0 = no error, 1 = fault LA = Low Alarm; 0 = no error, 1 = fault LLA = Low/Low Alarm: 0 = no error, 1 = fault UR = Underrange; 0 = no error, 1 = fault								CM = Calibration Mode; 0 = normal, 1 = calibration mode HA = High Alarm; 0 = no error, 1 = fault HHA = High/High Alarm; 0 = no error, 1 = fault OR = Overrange; 0 = no error, 1 = fault							

Default Data Map for the 1734-IE2V Analog Input Module

Message Size: 6 Bytes

	15	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**

(1) These are mapped through scan lists in DeviceNet networks and Direct, Listen Only, or Rack-optimized connections in ControlNet and EtherNet/IP networks.

Default Data Map for the 1734-IE2V Analog Input Module																
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault
LA = Low Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
HA = High Alarm; 0 = no error, 1 = fault
HHA = High/High Alarm; 0 = no error, 1 = fault
OR = Overrange; 0 = no error, 1 = fault

Scaling

Select scaling for each channel by making the selection on the configuration dialog. Scaling is the conversion of unscaled data to engineering units.

The high and low scalers (Engineering Units) are signed integers. There are no restrictions on these units.

- Defaults for 1734-IE2C scalers are +3277 @ 4 mA for low and +16,383 @ 20 mA for high.
- Defaults for 1734-IE2V scalers are 0 @ 0V for low and +10,000 @ 100V for high.

Set each scaler individually or on a per channel basis.

The 1734-IE2C module reads a current input between 0 or 4 mA (low) and 20 mA (high) dependent on mode selected. The 1734-IE2V module reads a voltage input between -10V or 0V (low) and +10V (high) dependent on mode selected.

Channel Status

Channel Status Byte							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Over Range	Under Range	High High Alarm	Low Low Alarm	High Alarm	Low Alarm	CAL Mode	Channel Fault

- Channel Fault Description - General channel health bit indicates whether the module is operating with or without faults. If any alarms or faults are detected, this bit is set. Channel Status can be read on a per channel basis or by reading the Channel Status Byte (Bit 0) in the Module Produce Assembly.

- Calibration Mode Bit - This bit (Channel Status Bit 1) is set when you begin calibration. See the Calibrate Your Analog Modules chapter of this manual for calibration details. When set, the channel status indicator blinks green.
- Low Alarm Value Bit - When the input signal is less than the Low Alarm value, this bit (Channel Status Bit 2) is set. The default value for this alarm is as follows:
  - 1734-IE2C module is 3113 counts (3.8 mA)
  - 1734-IE2V module is 500 counts = 500 mV (0.5V).
- High Alarm Value Bit - When the input signal is more than the High High Alarm value, this bit (Channel Status Bit 3) is set. The default value for this alarm is as follows:
  - 1734-IE2C module is 16547 counts (20.2 mA).
  - 1734-IE2V module is 9500 counts = 9500 mV (9.5V).
- Low Low Alarm Value Bit - When the input signal is less than the Low Low Alarm value, this bit (Channel Status Bit 4) is set. The default value for this alarm is as follows:
  - 1734-IE2C module is 2867 counts (3.5 mA).
  - 1734-IE2V module is 200 counts = 200 mV (0.2V).
- High High Alarm Value Bit - When the input signal is more than the High Alarm value, this bit (Channel Status Bit 5) is set. The default value for this alarm is as follows:
- 1734-IE2C module is 16792 counts (20.5 mA).
- 1734-IE2V module is 9800 counts = 9800 mV (9.8V).
- Under-range Status Bit - This bit (Channel Status Bit 6) is set when the module returned data is at a minimum. 1734-IE2C module is 98 counts (around 120 μA); 1734-IE2V module is -0.25 or -10.25V, depending on range. When set, the channel status indicator blinks red.
- Over-range Status Bit - This bit (Channel Status Bit 7) is set when the module returned data is at a maximum. 1734-IE2C module is around 21 mA. 1734-IE2V module is +10.25V. When set, the channel status indicator blinks red.

Latch Alarms

The latch alarms lets low- and high-alarm status information to be latched when an alarm is set. Even if an alarm is momentarily set, the status bit stays set until a reset latch service is issued. Default setting is Unlatched. Each channel can be configured individually.

Alarm Disable

This function disables all channel alarms and faults so they are not reported in the channel status field. The channel indicator stays solid green, alarms are ignored. The default state is Alarms Enabled. Each channel can be configured individually.

Calibration Status

This status bit is set when the channel is in Calibration mode. At Begin Calibration, the module is put into Calibration mode. This bit is reset when the Accept Low Calibration, or Accept High Calibration, commands are sent. This is **not** the Bad Calibration Status bit, which is set if the module is **not** calibrated.

Digital Filter

A digital filter is available on the input modules. You set a time constant that is used in the equation:

$Yn = Yn\text{-}1 + (dt / (dt + T_A) * (Xn\text{-}Yn\text{-}1)$

Where: Yn = new data
Yn-1 = old data.
dt = Channel Update Rate in milliseconds
T_A = digital filter time constant
Xn = present unfiltered data
T_A can be an integer from 0...10,000 ms. If set to 0, the filter is disabled

The default setting is disabled. This is done by setting the time constant (TA) to zero. Each channel can be configured individually for time constant but update rate (dt) is done on a per module basis.

Update Rate

The update rate determines how often a channel is scanned. The maximum rate is determined by the notch filter setting. The minimum update rate is 10,000 ms.

- 120 ms maximum update rate - 50 Hz
- 100 ms update rate - 60 Hz
- 24 ms update rate - 250 Hz
- 12 ms update rate - 500 Hz

Notch Filter

Select a notch filter. The notch filter is for both inputs. Valid settings are the following:

- 50 Hz - 120 ms maximum update rate

- 60 Hz - 100 ms update rate
- 250 Hz - 24 ms update rate
- 500 Hz - 12 ms update rate

The update rate determines the rate at which the inputs are sampled. Maximum update rate is determined by the notch filter setting. The notch filter parameter is used to select the fastest possible rate. Minimum update rate is 10,000 ms.

Alarms

Available alarms include the following:

- Low
- Low Low
- High
- High High

Each alarm has one status bit which is set to indicate when the input goes beyond its set point. All Alarm Status bits can be read individually or from the Channel Status Byte (bits 2...5).

You can configure each channel alarm individually.

Range Status

The module reports both Under Range and Over Range status.

- Under Range Status - This bit (Channel Status Bit 6) is set when the module returned data is at a minimum.
  - For the 1734-IE2C module, the value is 98 counts (around 120 μA).
  - For the 1734-IE2V module, the value is -0.25 or -10.25V, depending on mode.
  - When set, the channel status indicator blinks red.
  - On the 1734-IE2C module, a wire-off condition sets this bit.
- Over Range Status - This bit (Channel Status Bit 7) is set when the module returned data is at a maximum.
  - For the 1734-IE2C module, the value is around 21 mA
  - For the 1734-IE2V module, the value is +10.25V.
  - When set, the channel status indicator blinks red.
  - On the 1734-IE2V module, a wire-off condition sets this bit.

Channel Indicator Behavior

See the table for a listing of channel indicator states for given module conditions.

Indication	Probable Cause
Channel Status	
Off	Module in CAL mode
Solid green	Normal (channel scanning inputs)
Flashing green	Channel being calibrated
Solid red	No power or major channel fault
Flashing red	Channel at end of range 1734-IE2C module - (0 mA or 21 mA) 1734-IE2V module - (-0.25, -10.25, or +10.25)

Analog Output Modules

The 1734-OE2C Analog Output Module is a two-channel module that converts a digital code to an analog output current. The module resolution is 13 bits across 0...21 mA.

The 1734-OE2V Analog Output Module is a two-channel module that converts a digital code to an analog output voltage. The module resolution is 14 bits across -10...+10V.

Data

The 1734-OE2C module operates in Unipolar mode; the 1734-OE2V module operates in Unipolar or Bipolar modes. Data sent to the module is scaled by the user to any 16-bit number. All data sent to the module is signed integer, ranging from –32768...+32767 counts.

The 1734-OE2C module:

- consumes 4 bytes of data (scanner Rx) in this format:
  - Channel 0 Data (2 bytes)
  - Channel 1 Data (2 bytes)
- produces 2 bytes of data (scanner Tx) in this format:
  - Channel 0 Status (1 byte)
  - Channel 1 Status (1 byte)

Default Data Map for the 1734-OE2C Analog Output Module																
Message Size: 4 Bytes																
	15	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							
Message Size: 2 Bytes																
	15	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault
HCA = High Clamp Alarm; 0 = no error, 1 = fault

The 1734-OE2V module:

- consumes 4 bytes of data (scanner Rx) in this format:
  - Channel 0 Data (2 bytes)
  - Channel 1 Data (2 bytes)
- produces 2 bytes of data (scanner Tx) in this format:
  - Channel 0 Status (1 byte)
  - Channel 1 Status (1 byte)

Default Data Map for the 1734-OE2V Analog Output Module																
Message Size: 4 bytes																
	15	**14**	**13**	**12**	**11**	**10**	**09**	**08**	**07**	**06**	**05**	**04**	**03**	**02**	**01**	**00**
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							
Message Size: 2 Bytes																
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status; 0 = no error, 1 = fault
CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault
HCA = High Clamp Alarm; 0 = no error, 1 = fault

Operational Modes

The 1734-OE2C module has these modes:

- 0...20 mA
- 4...20 mA (Default mode)

The 1734-OE2V module has these modes:

- 0... 10V DC (Default mode)
- -10...10V dc

You can set Channel Mode individually. The effective difference in the two modes is how you apply the scalers. There is no internal offset, meaning that the resolution is not changed.

For the 1734-OE2C module, in both modes, you assign the high scaler the value of 20 mA. For the low scaler you assign the following:

- In 0...20 mA mode, the value of 0 mA
- In 4... 20 mA mode, the value of 4 mA

For the 1734-OE2V module, in both modes, you assign the high scaler the value of +10V. For the lower scaler you assign the following:

- In 0...10V mode, the value of 0V
- In ±10V mode, the value of -10V

Scaling

Scaling is the conversion of unscaled data to Engineering Units. The high and low scalers (Engineering Units) are Signed Integers. There are no restrictions on these units.

Default scaling points are 1638 @ 4 mA and 8191 @ 20 mA counts for the 1734-OE2C module and 0 and 10,000 for the 1734-OE2V module. Each scaler can be set individually and on a per-channel basis.

The 1734-OE2C module calculates and outputs a current between 0 mA or 4 mA (low scaler) and 20 mA (high scaler); the 1734-OE2V module calculates and outputs a voltage between -10V or 0V (low scaler) and +10V (high scaler).

Since scalers have no restrictions, use care when configuring the module. If the lower scaler is set to –32,768 and the module is in 4...20 mA (or -10V...10V) mode, the module is incapable of setting the output to 0 mA (or less than -10V on the 1734-OE2V module) because that requires a number smaller than –32,768. –32,768 is the smallest number that you can represent with a signed integer.

Fault and Idle/Program Mode Action

You can select what happens to the output if a fault occurs or if the module is in Idle/Program mode. The choices are the following:

- Hold Last State
- Low Clamp
- High Clamp
- User defined value

The module default for both Fault and Idle/Program state is Low Clamp. All values are scaled. You can set each action individually and on a per channel basis. For an example of what would happen if the module lost communication, see the table.

Channel Configuration	When a fault occurs	When module Is in Idle/ program mode
Module Mode = 4…20 mA with Scalers set at 0 and 8191 counts Low Clamp = 0 counts High Clamp = 8191 counts Fault State = User Defined Idle State = Low Clamp Fault Value = 4095 counts	Channel 0 goes to 4095 counts which equals 12 mA.	Channel 0 goes to 0 counts which equals 4 mA.
Module Mode = 0…10V with Scalers set at 0 and 10000 counts Low Clamp = 0 counts High Clamp = 10000 counts Fault State = User Defined Idle State = Low Clamp Fault Value = 5000 counts	Channel 0 goes to 5000 counts which equals 5V.	Channel 0 goes to 0 counts which equals 0V.

Channel Status

The module status bits included in each Channel Status Byte are the following:

- Channel Fault
- CAL Mode
- Low Clamp
- High Clamp

Channel Status can be read individually using RSNetWorx software or by reading the Channel Status Byte in the Module Produce Assembly.

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Not Used				High Clamp	Low Clamp	CAL Mode	Channel Fault

- Channel Fault Bit -This general channel health bit (Channel Status Bit 0) indicates that the module is operating with or without faults. If any alarms or faults are detected, this bit is set.
- Calibration Status Bit - This status bit (Channel Status Bit 1) is set when the channel is in Calibration mode. At Begin Calibration, the module is put into Calibration mode. This bit does not get set until the Output Low Reference or Output High Reference commands are sent. Do not confuse this bit with the Bad Calibration Status bit, which is set if the module is **not** calibrated.
- Low Clamp Status Bit - This status bit (Channel Status Bit 2) is set when the output data is clamped to it's minimum level. The default value is -32,768 counts. Low Clamp Status can be read on a per-channel basis or by reading the Module Produce Assembly.
- High Clamp Status Bit - This status bit (Channel Status Bit 3) is set when the output data is clamped to its maximum level. The default value is 32,767 counts. High Clamp Status can be read on a per channel basis or by reading the Module Produce Assembly.

Open-wire Detection (1734-OE2C only)

This condition has no unique status bit, but if an open-wire condition exists, the general Channel Status bit is set. The module can't determine what the condition is: open wire or loss of field power. The Channel indicators blinks red.

Power Fail Detection (1734-OE2V only)

This condition has no unique status bit, but if a power failure condition exists, the general Channel Status bit is set. The Channel indicators goes to solid red.

Low and High Clamps

The clamps define the maximum and minimum values of the output. These default to the following with the data scaled:

- -32,768 counts (0 or 4 mA) and +32,767 counts (21 mA) for the 1734-OE2C module
- -32,768 counts (0 or -10V) and +32,767 counts (+10V) for the 1734-OE2V module

Each clamp can be set individually and on a per-channel basis. When the output value reaches clamp value, a status bit is set, indicating the output has been

clamped. The clamps are absolute. Regardless of what is sent to the module or what the fault state values are, the module does not operate outside these settings.

Latch Alarms

The latched alarms let low and high clamp status information to be latched. If an output is clamped momentarily, the clamp status bit stays set until a reset latch service is issued. The default setting is Unlatched. Each channel can be configured individually. You can enable the Latch on a per-channel basis.

Alarm Disable

This function disables all channel alarms and faults so they are not reported in the channel status field. The channel LED status indicator stays solid green, and Latch Alarms are ignored. Change-of-state has no effect on module behavior. Default state is Alarms Enabled. Each channel can be configured individually. You can disable Alarms on a per-channel basis or they can be set with the Module Configuration Assembly.

Channel Indicators

See the table for channel indicator states for given module condition.

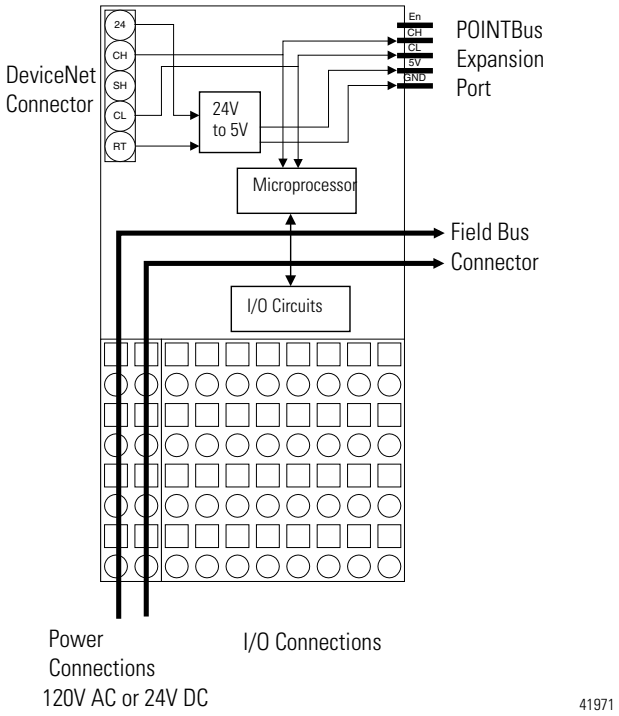
Indication	1734-OE2C Probable Cause	1734-OE2V Probable Cause
Channel Status		
Off	Module in CAL mode	Module in CAL mode
Solid green	Channel actively controlling outputs	Channel actively controlling outputs
Blinking green	Channel calibrating	Channel calibrating
Blinking red	Open wire or no power	Low/High Clamp alarm
Solid red	Unrecoverable fault - may require device replacement	Loss of field power

POINTBlock I/O Modules

Mount these 1734D input/output modules on DIN rail with an integrated DeviceNet communication interface, 8 inputs and 8 outputs, removable terminations, and a POINTBus expansion port.

The modules include a non-isolated DeviceNet communication interface. The 24V DC from the DeviceNet connection powers a non-isolated DC/DC converter that generates +5V DC that powers the POINTBlock electronics and connects to the POINTBus port to power the expansion I/O electronics.

Module	Termination		Voltage
	Cage-clamp	Spring-clamp	
1734D-IB8XOB8E	X		12/24V DC
1734D-IB8XOB8ES		X	
1734D-IB8XOW8	X		12/24V DC
1734D-IB8XOW8S		X	
1734D-IA8XOA8	X		120V AC
1734D-IA8XOA8S		X	
1734D-IA8XOW8	X		120V AC
1734D-IA8XOW8S		X	
1734D-IA16	X		120V AC
1734D-IA16S		X	
1734D-IB16	X		12/24V DC
1734D-IB16S		X	



ATTENTION: Whatever field power you supply is connected to the internal field-power bus. For example, if 120V AC is applied to the power connections, there will be 120V AC applied to the modules through the internal field-power bus.

POINT I/O modules to the right of the module will also have that internal power bus voltage applied, unless you use a 1734-FPD, 1734-EP24DC, or 1734-EPAC module to interrupt and change the field power-bus voltage.

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. These messages are mapped into the processor's memory.

The 1734D-IB8XOB8E module produces one byte of input data (scanner Rx) status. It consumes one byte of output data (scanner Tx).

Default Data Map for the 1734D-IB8XOB8E DC Input/Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data (or state)
Where: 0 = off, 1 = on									

The 1734D-IB8XOW8 module produces one byte of input data (scanner Rx) status. It consumes one byte of output data (scanner Tx).

Default Data Map for the 1734D-IB8XOW8 DC Input/Relay Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

The 1734D-IA8XOA8 module produces one byte of input data (scanner Rx) status. It consumes one byte of output data (scanner Tx).

Default Data Map for the 1734D-IA8XOA8 AC Input/Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

The 1734D-IA8XOW8 module produces one byte of input data (scanner Rx) status) It consumes one byte of output data (scanner Tx).

Default Data Map for the 1734D-IA8XOW8 AC Input/Relay Output Module									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Input Data
Where: 0 = off, 1 = on									
Message Size: 1 Byte									
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Output Data
Where: 0 = off, 1 = on									

The 1734D-IA16 module produces two bytes of input data (scanner Rx). It does not consume output data (scanner Tx).

Default Data for the 1734D-IA16 Module																
Message Size: 2 Bytes																
	15	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																

For 1734D-IB16 modules, I/O messages are sent to (consumed) and received from (produced) the POINTBlock I/O modules. These messages are mapped into the processor's memory. This module produces two bytes of input data (scanner Rx) and does not consume output data (scanner Tx).

Default Data for the 1734D-IB16 Module																
Message Size: 2 bytes																
	15	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produces (Rx)	I15	I14	I13	I12	I11	I10	I9	I8	I7	I6	I5	I4	I3	I2	I1	I0
Consumes (Tx)	No consumed data															
Where: I0 = channel 0, I1 = channel 1; 0 = off, 1 = on																

Notes:

Calibrate Your Analog Modules

About This Chapter

Read this chapter for information about how to calibrate analog modules. Your analog I/O module is factory-calibrated. You may choose to recalibrate your module in your system to increase its accuracy for your specific application. This chapter covers the following:

- Tools required to calibrate analog modules
- Calibrate analog current input modules
- Calibrate analog current output modules
- Calibrate analog voltage input modules
- Calibrate analog voltage output modules

You do not have to configure a module before you calibrate it. If you decide to calibrate your analog I/O modules first, you can configure it at the same time.

IMPORTANT Analog I/O modules can be calibrated on a channel by channel basis or with the channels grouped together. Regardless of which option you choose, we recommend you calibrate all channels on your module each time you calibrate. This helps you maintain consistent calibration readings and improve module accuracy.

Calibration is meant to correct any hardware inaccuracies that may be present on a particular channel or in your system. The calibration procedure compares a known standard, either input signal or recorded output, with the channel's performance and then calculates a linear-correction factor between the measured and the ideal.

The linear-calibration correction factor is applied on every input or output in the same manner to obtain maximum accuracy.

When you calibrate input modules, use current or voltage calibrators to send a signal to the module to calibrate it.

When you calibrate output modules, use a digital multimeter (DMM) to measure the signal the module is sending out.

Tools Required to Calibrate Your Analog Modules

To maintain your module's accuracy specifications, we recommend you use calibration instruments with specific ranges. See the table for a list of the recommended instruments for each module.

Module	Recommended Instrument Range
1734-IE2C	1.00…20.00 mA (+/-0.15 μA) current source
1734-OE2C	DMM better than 0.6 μA
1734-IE2V	Voltage source 0.0…10.0V (±0.3 mV)
1734-OE2V	DMM better than 0.5 mV

You must be online to calibrate your analog I/O modules. We recommend the module not be actively controlling a process when you calibrate it.

IMPORTANT The module ignores output data sent to the module until after calibration ends. This could be hazardous if active control were attempted during calibration.

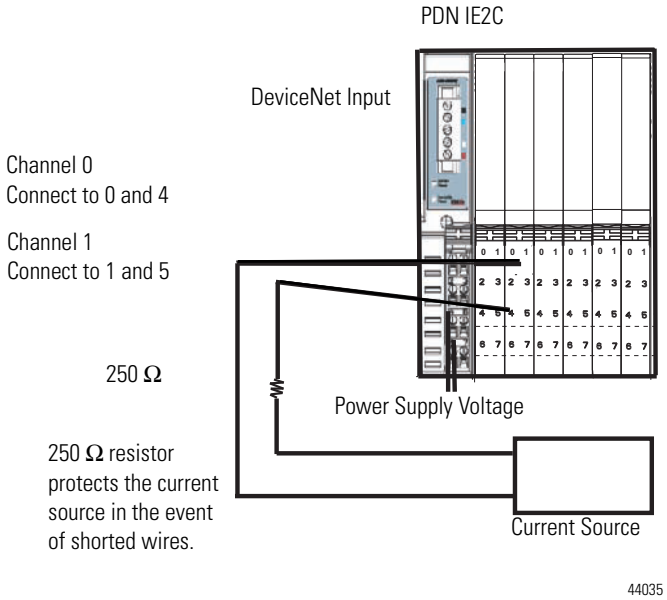
Input calibration consists of the following steps for an example of 2 channels.

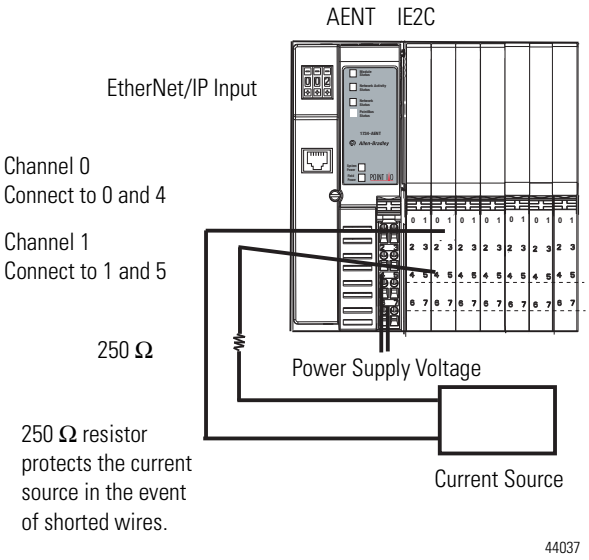
1. Connect the calibration system.
2. Allow the system to warmup for at least 10 minutes.
3. Connect current or voltage source to channel 0 by applying 4 mA (current) or 0V (voltage).
4. Begin calibration.
5. Select both channels.
6. Accept Low cal for channel 0 (both status indicators blink).
7. Set current or voltage source to high value (20 mA current; or +10V voltage).
8. Accept High cal for channel 0 (channel 0 status indicator turns off if calibration was good, but channel 1 status indicator still blinks).
9. Connect current or voltage source to channel 1.
10. With high cal now applied to channel 1, accept High cal for channel 1.
11. Set current or voltage source to Low value.
12. Accept Low cal for channel 1.

Calibrate the Analog Current Input Module

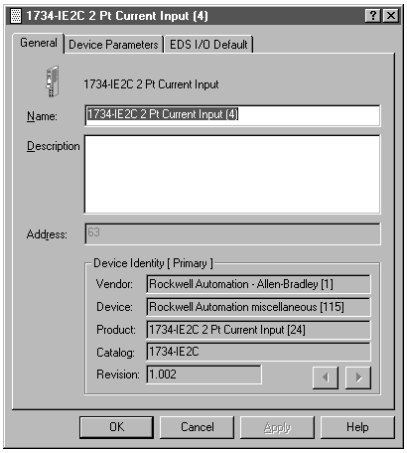
To calibrate your current input module, connect the module in a system similar to that shown in the figure.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module. This allows internal temperatures to stabilize, and reduces drift errors.

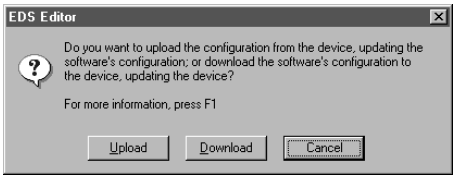




1. Double-click the icon to bring up the General parameter dialog.

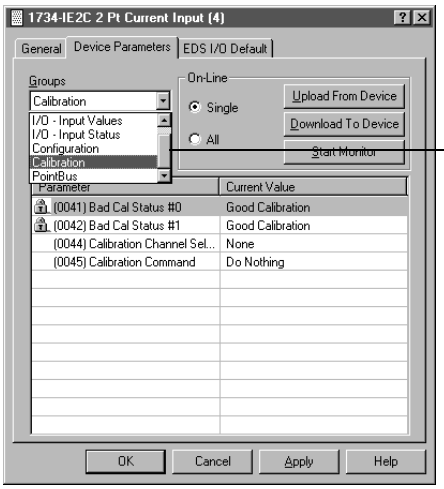


The EDS editor asks you if you want to upload the configuration from the device.



2. From the EDS editor, click Upload
3. From the General parameter dialog, click Device Parameters.

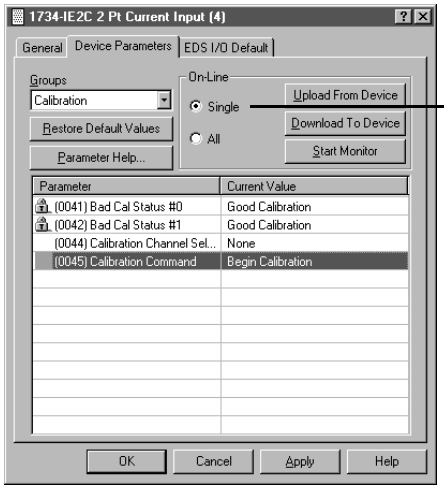
   You see the Device Parameters dialog.



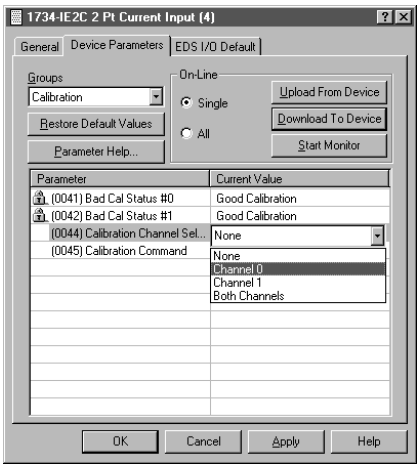
This is the group pull-down.

4. Select Calibration at the Groups pull-down.
5. Click Calibration Command, and select Begin Calibration.
6. Click the Download to Device button.

   Both channel status indicators turn off.



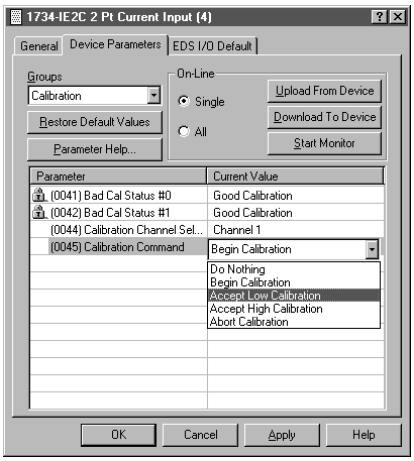
7. Click Calibration Channel Set to bring up channel selections, and select a channel.
8. Click the Download to Device button.



9. Apply 4.00 mA to the input.
10. Click Accept Low Calibration.

11. From the Device Parameters dialog, click the Download to Device button.

    The status indicator for the channel being calibrated blinks.



12. Set the current source to 20 mA.
13. Click Accept High Calibration.
14. Click the Download to Device button.

    Calibration is complete as soon as High and Low calibration for the selected channels are done successfully.

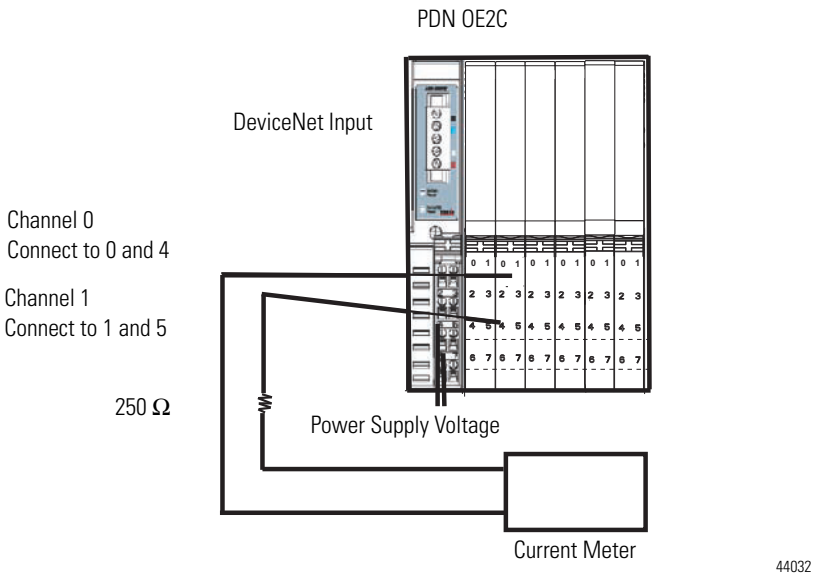
15. Repeat above steps to calibrate the other channel, noting that both high and low inputs must be accepted in order for the module to finish calibration.

    Calibration is now complete. If the module does not accept calibration (status indicator is still blinking), click Abort Calibration and start over.

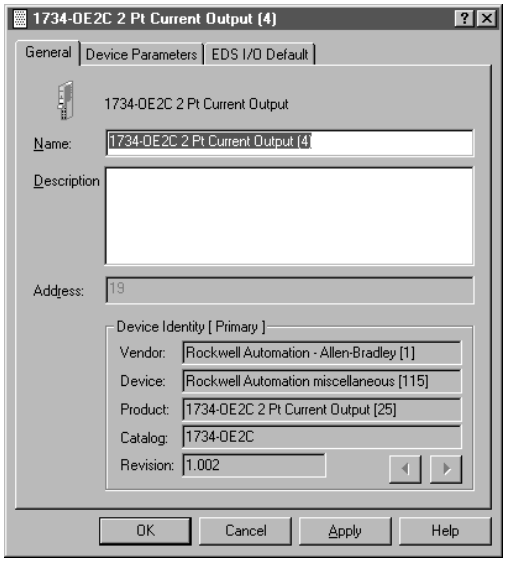
Calibrate the Analog Current Output Module

To calibrate your output module, connect the module in a DeviceNet system similar to that shown in the figure, and use this procedure.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module. This allows internal temperatures to stabilize and reduces drift errors.



1. Double-click the icon to bring up the General parameter dialog.



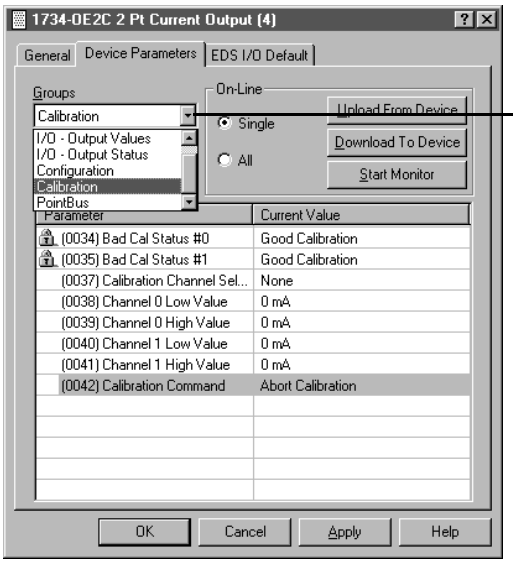
You see the EDS editor ask you if you want to upload the configuration from the device.

2. From the EDS editor dialog, click Upload.

3. Click Device Parameters.

   You see the Device Parameters dialog.

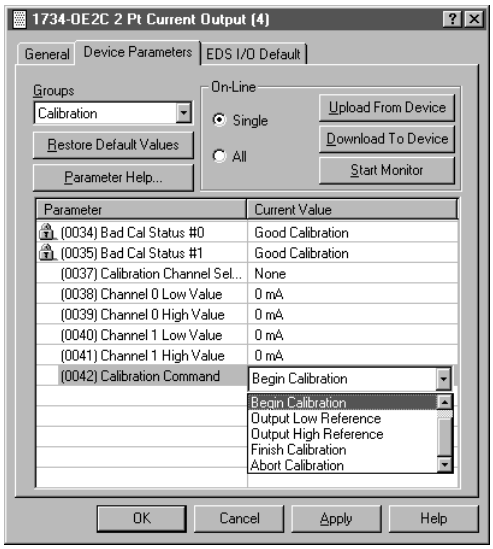
4. Select Calibration at the Group pull-down.



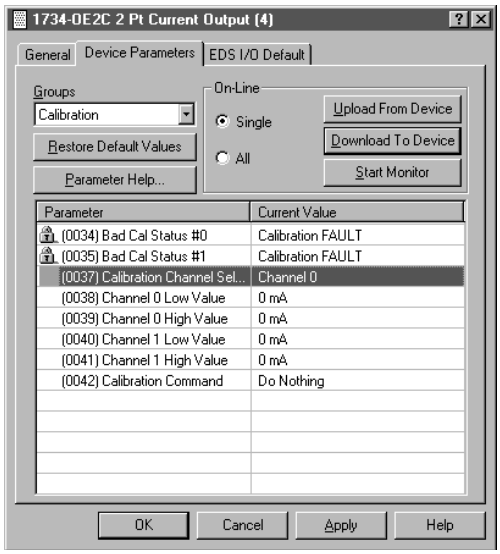
Group pull-down

5. From the Device Parameters dialog, click Calibration Command, and select Begin Calibration.

6. From the Device Parameters dialog, click the Download to Device button.

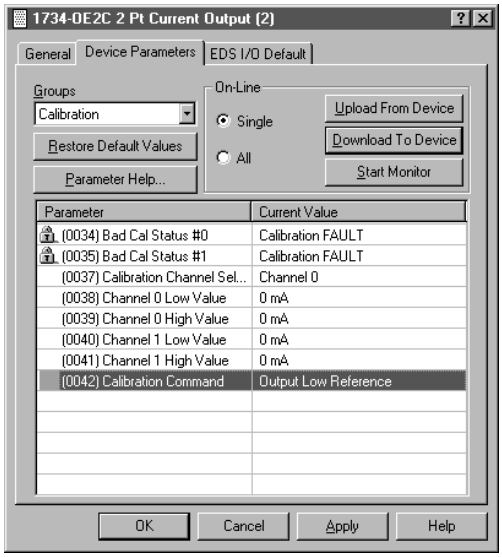


7. Click Calibration Channel Sel to bring up channel selections, and select a channel.
8. Click the Download to Device button.

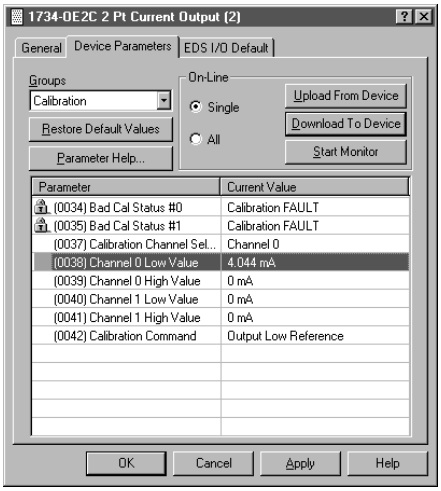


9. Select Output Low Reference, and download to the module.

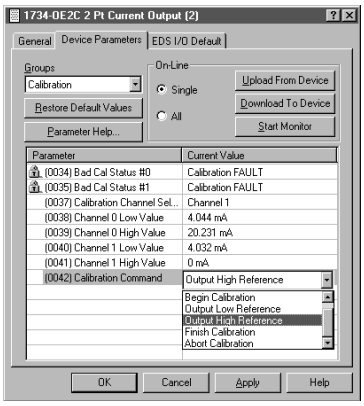
   The selected channel status indicator blinks green.



10. Enter the value shown on your DVM for the Channel Low Value (4.044 in the example).

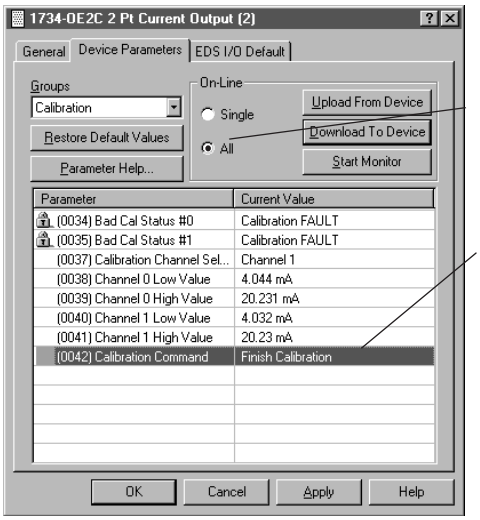


11. From the Device Parameters dialog, select the Output High Value, and download to the module.

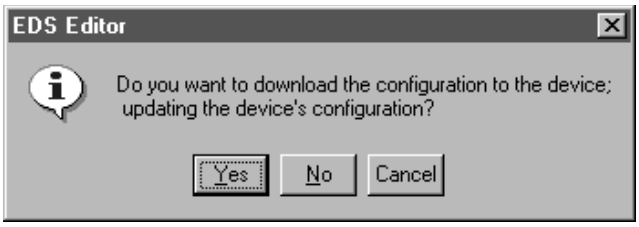


12. From the Device Parameters dialog, enter the value shown on the DVM, which is 20.231 in this example.
13. Repeat these steps for the other channel.
14. From the Device Parameters dialog, click All and Finish Calibration to complete the calibration process.

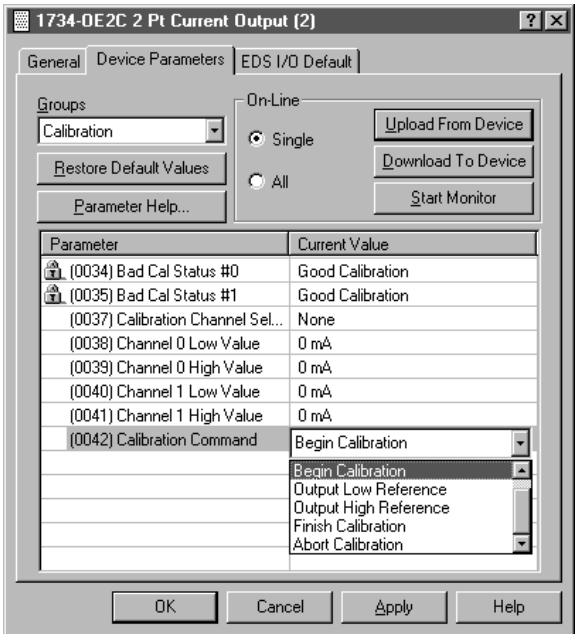
15. From the Device Parameters dialog, click Apply.
You see the EDS Editor and are prompted to download to the module:



16. From the EDS Editor dialog, click Yes:



If calibration was accomplished, the Cal Status reflects good.



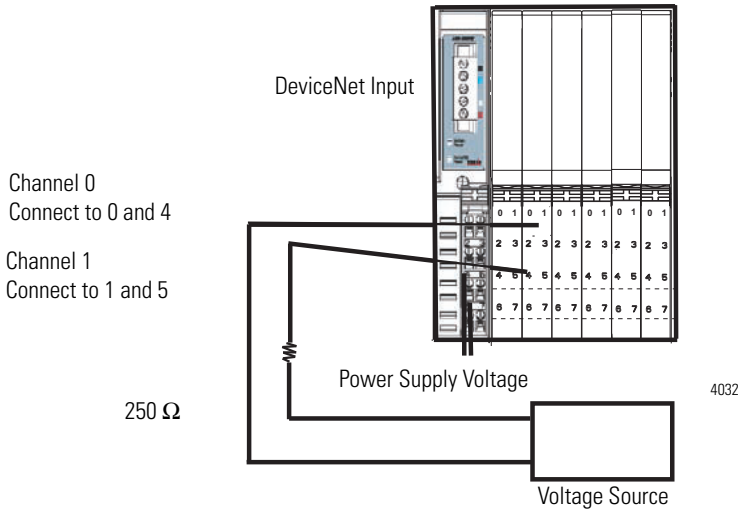
Your module is now calibrated.

Calibrate the Analog Voltage Input Module

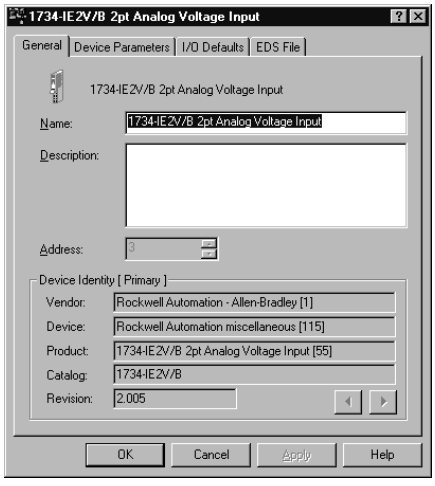
To calibrate your voltage input module, connect the module in a DeviceNet system similar to that shown in the figure.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module. This allows internal temperatures to stabilize, and reduces drift errors.

You can calibrate both voltage input channels at the same time using one voltage source.

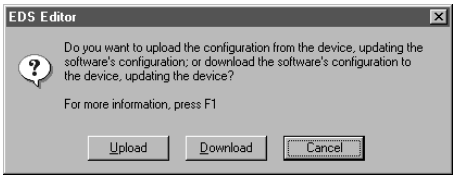


1. Double-click the icon to bring up the General parameter dialog.
2. Click Device Parameters to view the parameters.

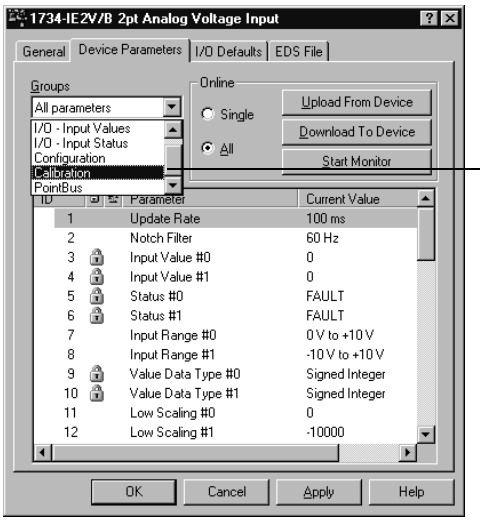


You see the EDS Editor dialog that asks you if you want to upload the configuration from the device.

3. From the EDS Editor dialog, click Upload.



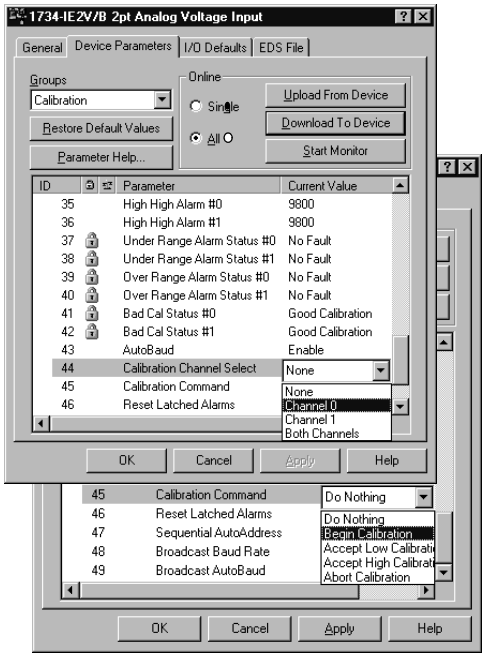
4. From the General Parameters dialog, select Calibration at the Groups pull-down.



This is the group pull-down.

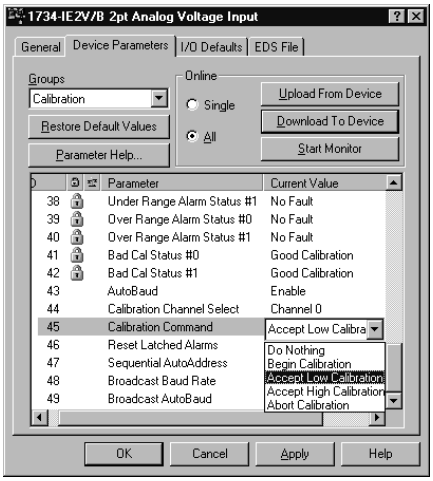
5. Select your channel.
6. Click Calibration Command, and Apply.
7. Click the Download to Device button.

Both channel status indicators turn off.



8. Apply 0.0V to the input.
9. Click Accept Low Calibration.
10. Click the Download to Device button.

    The status indicator for the channel being calibrated blinks.



11. Set the voltage source to +10.0V.
12. Click Accept High Calibration.
13. Click the Download to Device button.

    Calibration is complete as soon as High and Low calibration for the selected channels are done successfully.

14. Repeat these steps to calibrate the other channel, if desired.

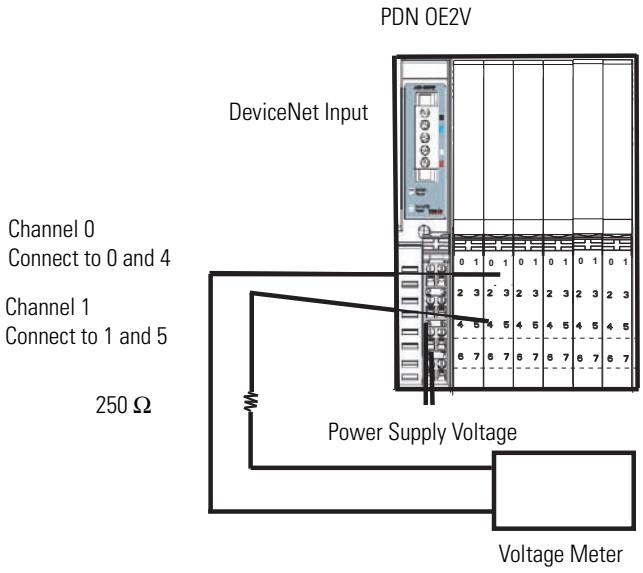
    Both high and low inputs must be accepted in order for the module to finish calibration.

    Calibration is now complete. If the module does not accept calibration (status indicator is still blinking), from the Device Parameters dialog, click Abort Calibration and start over.

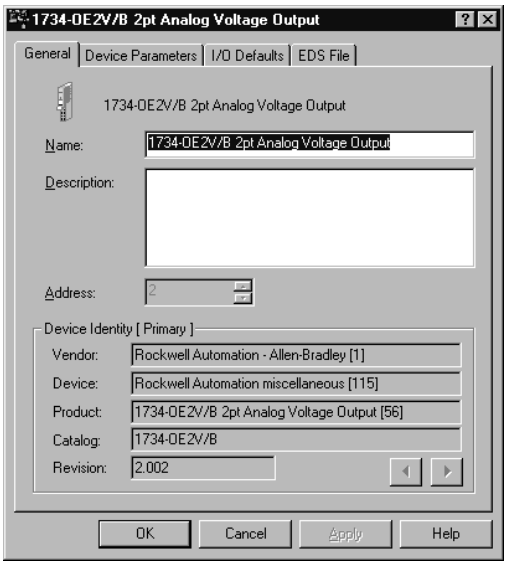
Calibrate the Analog Voltage Output Module

To calibrate your output module, connect the module in a DeviceNet system similar to that shown in the figure and use this procedure.

IMPORTANT Apply power to the power supply and module for at least 10 minutes before calibrating the module. This allows internal temperatures to stabilize, and reduces drift errors.



1. Double-click the icon to bring up the General parameter dialog.

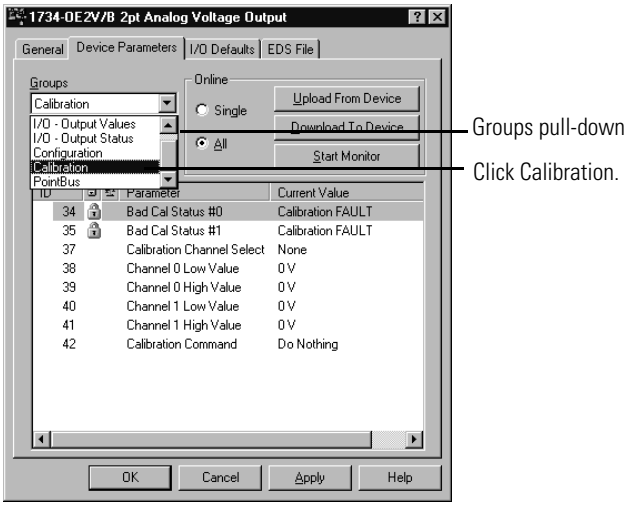


You see the EDS Editor dialog ask you if you want to upload the configuration from the device.

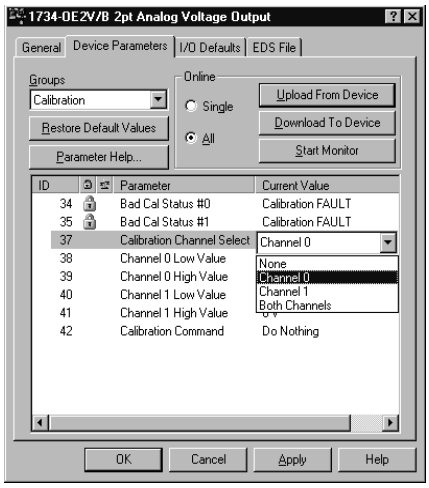
2. From the EDS Editor dialog, click Upload.

.

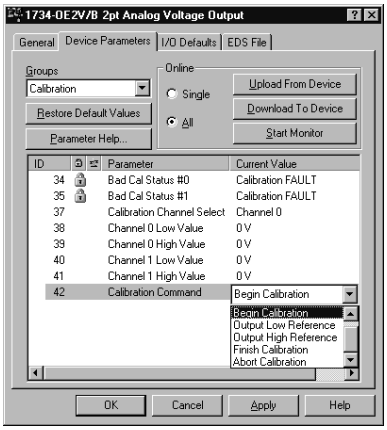
3. From the Device Parameters dialog, select Calibration at the Groups pull-down.



4. Select your channel(s).



5. Click Calibration Command and Apply.

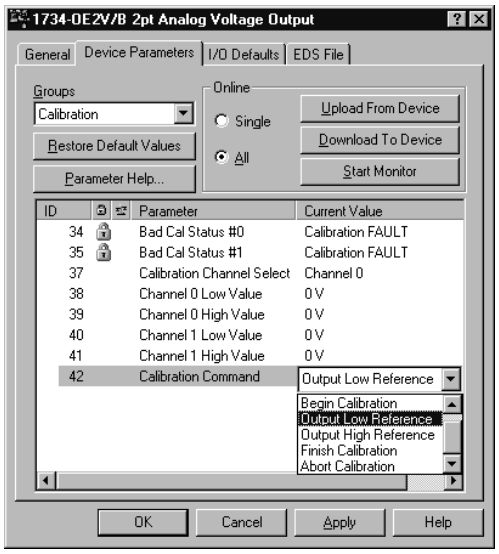


6. Click the Download to Device button.

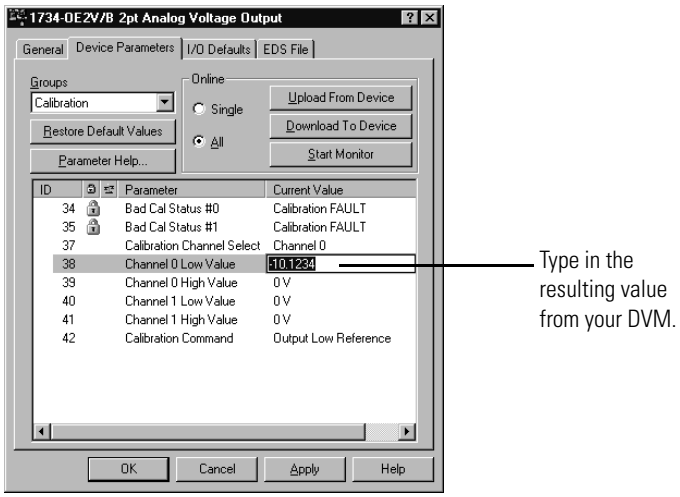
   The channel status indicator turns off.

7. Select a channel.
8. Click the Download to Device button.
9. Select Output Low Reference and download to the module.

The selected channel status indicator blinks green.

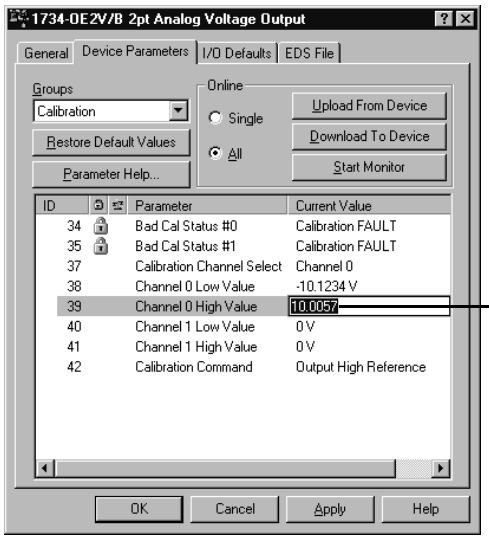


10. Enter the value shown on your DVM for the Channel Low Value (-10.1234 in the example).



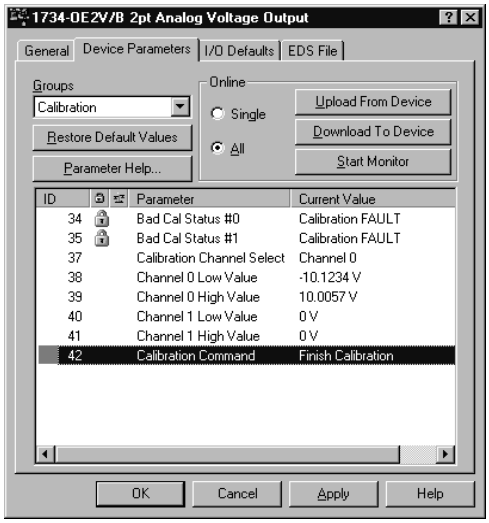
11. Select the Output High Value and download to the module.

12. Enter the value shown on the DVM onto your dialogs (10.0057 in this example).



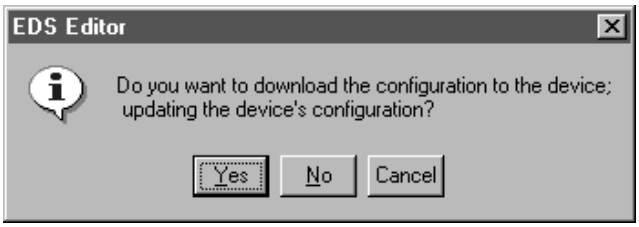
13. Repeat these steps for the other channel.

14. From the Device Parameters dialog, select All, and click Finish Calibration to complete the calibration process.

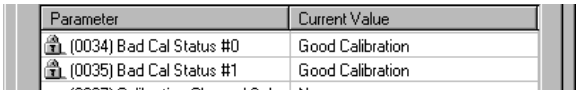


You see the EDS Editor dialog that prompts you to download to the module.

15. From the EDS Editor dialog, click Yes.



If calibration was accomplished, the Cal Status reflects good.



Your module is now calibrated.

Troubleshoot with the Indicators

About This Chapter

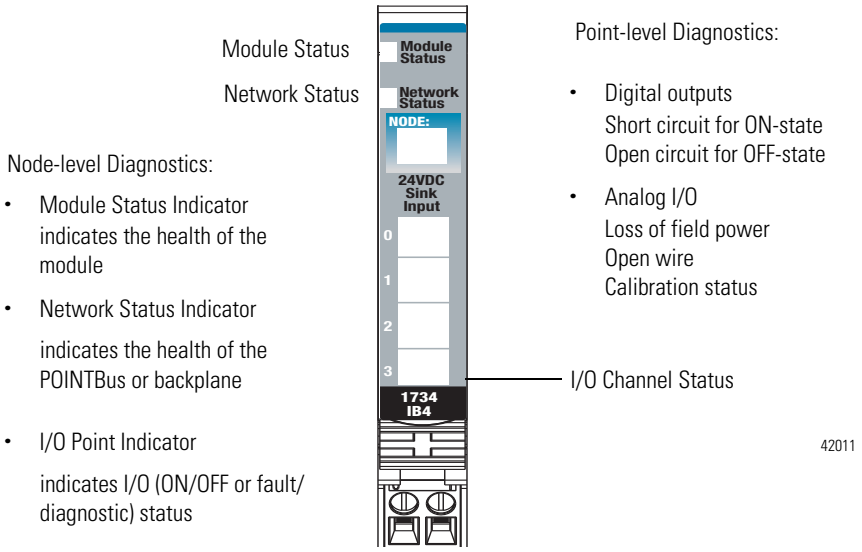
Read this chapter for information about troubleshooting with the following indicators:

- Module status
- Network status
- Power indication
- Calibration status
- I/O POINT status (ON/OFF/fault or diagnostic)

Refer to each module's individual indicators for detailed information.

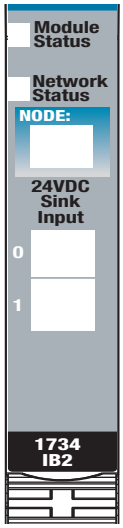
About Module Diagnostics

All status and diagnostic information (strobed, polled, cyclic, or change-of-state) is reported back over the network communication adapter. A single point of failure is detected and reported at the module and to the control system.



Network and Module Status Indications

The network and module status indications are the same for all modules.



Module Status

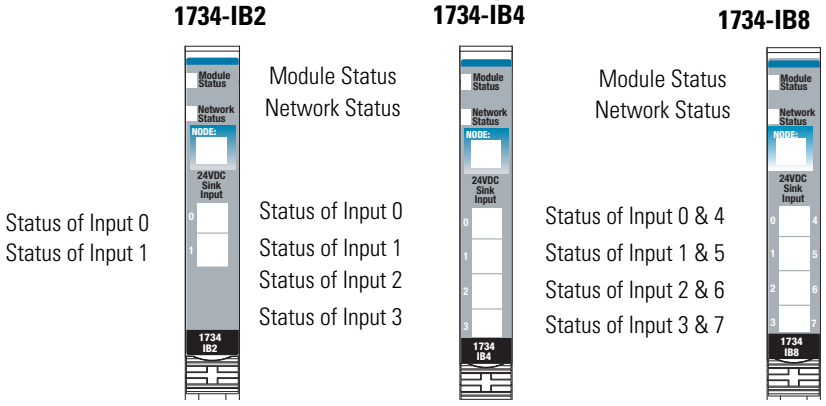
Network Status

Indication	Probable Cause	Recommended Action
Module Status		
Off	No power applied to device.	Apply power to device.
Solid green	Device is operating normally.	None.
Flashing green	Device needs commissioning due to configuration missing, incomplete, or incorrect.	Configure device properly.
Flashing red	Recoverable fault is present. Device did not pass internal test.	1. Cycle power to device. 2. If condition persists, replace device.
Solid red	Unrecoverable fault may require device replacement.	Replace device.
Flashing red/green	Device is in self-test.	None.
Network Status		
Off	Device is not online. - Device has not completed Auto Baud detection because there is no network traffic. - Device has not completed dup_MAC_id test. - Device not powered - check module status indicator.	Apply power to device, wait for MAC_id to complete, and correct, as needed.
Flashing green	Device is online but has no connections in the established state.	None - device is in Idle or Program mode.
Solid green	Device is online and has connections in the established state.	None.
Flashing red	One or more I/O connections are in timed-out state.	Check for I/O module failure, and correct, as needed.
Solid red	Critical link failure is present with failed communication device. Device detected error that prevents it from communicating on the network.	Verify that adapter and terminal bases are properly installed, and reinstall, as needed.
Flashing red/green	Communication faulted device - the device has detected a network access error and is in communication faulted state. Device has received and accepted an Identify Communication Faulted Request - long protocol message.	Verify that adapter is properly installed, and reinstall, as needed.

Troubleshoot Digital Modules

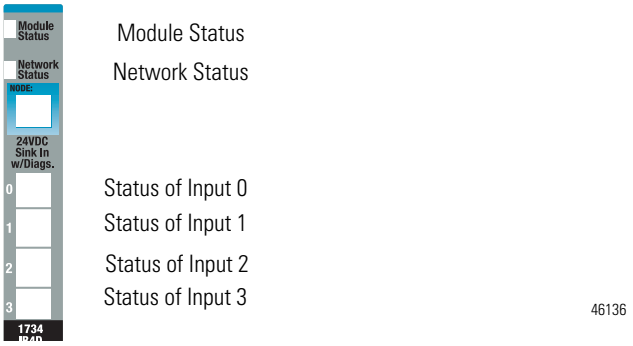
The I/O status indicators provide input and output indications for each module. Individual meanings are indicated in the tables.

1734-IB2, 1734-IB4, and 1734-IB8 Sink Input Modules



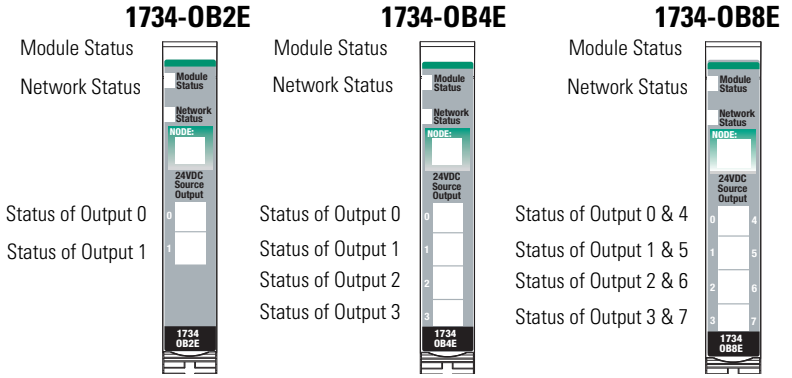
Indication	Probable Cause	Recommended Action
I/O Status		
Off	Input is in the off-state.	None.
Yellow	Input is in the on-state.	None.

1734-IB4D Sink Input Modules with Diagnostics



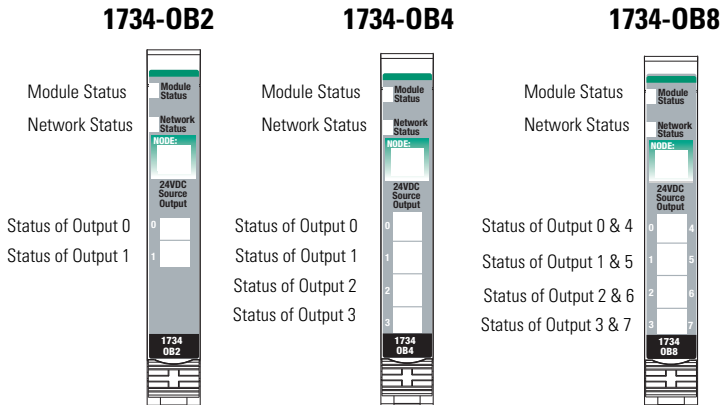
Indication	Probable Cause	Recommended Action
I/O Status		
Off	Input is in the off-state.	None.
Yellow	Input is in the on-state.	None.
Red	Short circuit detected.	Check I/O wiring or terminal base.
Flashing red	Open wire detected.	Check I/O wiring or terminal base.

1734-OB2E, 1734-OB4E, and 1734-OB8E Source Output Modules



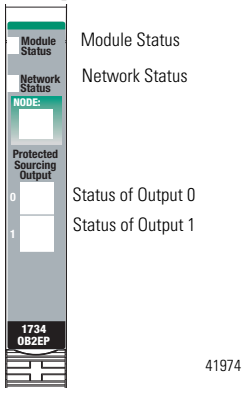
Indication	Probable Cause	Recommended Action
I/O Status		
Off	All outputs are inactive.	None.
Yellow	One or more output is active and under control.	None.
Flashing red	Open circuit detected - no load (Off-state only).	Connect load or disable no load detection.
Solid red	Short circuit detected (On-state only).	Remove short or overloaded circuit.

1734-OB2, 1734-OB4, and 1734-OB8 Source Output Modules



Indication	Probable Cause	Recommended Action
I/O Status		
Off	All outputs are inactive.	None.
Yellow	One or more outputs is active and under control.	None.

1734-OB2EP Protected Output Module



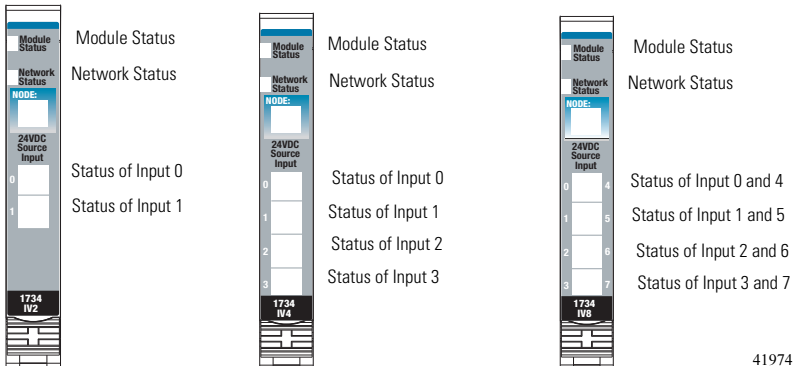
Indication	Probable Cause	Recommended Action
I/O Status		
Off	All outputs are inactive.	None.
Yellow	One or more output is active and under control.	None.
Flashing red	Open circuit detected - no load (Off-state only).	Connect load or disable no load detection.
Solid red	Short circuit detected (On-state only).	Remove short or overloaded circuit.

1734-IV2, 1734-IV4, and 1734-IV8 Source Input Modules

1734-IV2

1734-IV4

1734-IV8



Indication	Probable Cause	Recommended Action
I/O Status		
Off	Input is in the off-state.	None.
Yellow	Input is in the on-state.	None.

1734-OV2E, 1734-OV4E, and 1734-OV8E Protected Sink Output Modules

1734-OV2E

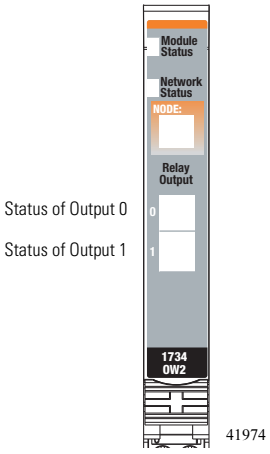
1734-OV4E

1734-OV8E

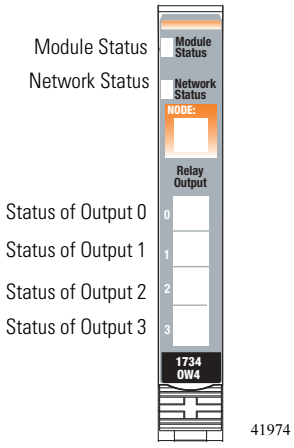
Indication	Probable Cause	Recommended Action
I/O Status		
Off	All outputs are inactive.	None.
Yellow	One or more output is active and under control.	None.
Red	Short circuit detected (On-state only).	Remove short or overloaded circuit.

1734-OW2 and 1734-OW4 Relay Output Modules

1734-OW2

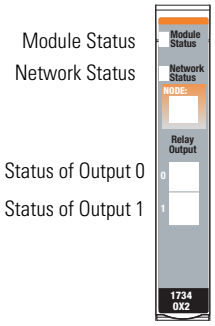


1734-OW4



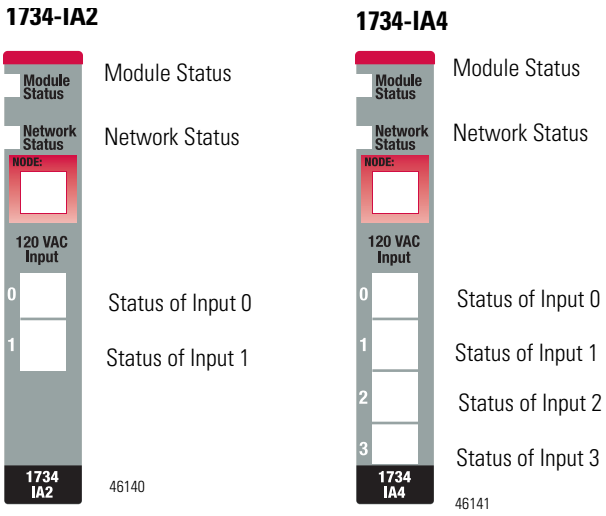
Indication	Probable Cause	Recommended Action
I/O Status		
Off	Output is off (contacts open).	None.
Yellow	Output is on (contacts closed).	None.None.

1734-OX2 Relay Output Module



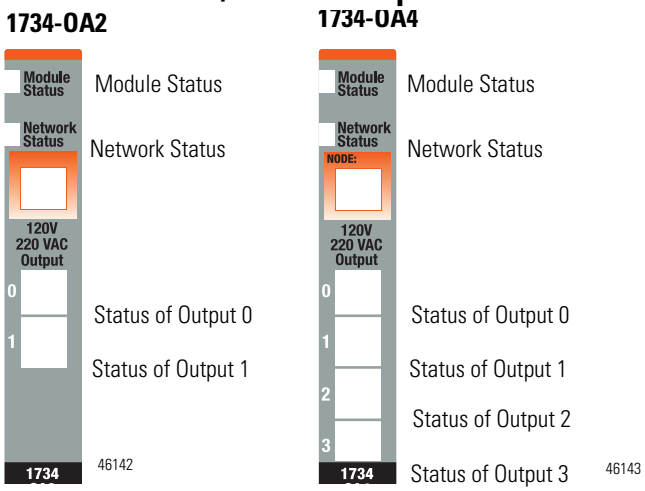
Indication	Probable Cause	Recommended Action
I/O Status		
Off	Output is off.	None.
Yellow	Output is on.	None.

1734-IA2 and 1734-IA4 120V AC Input Module



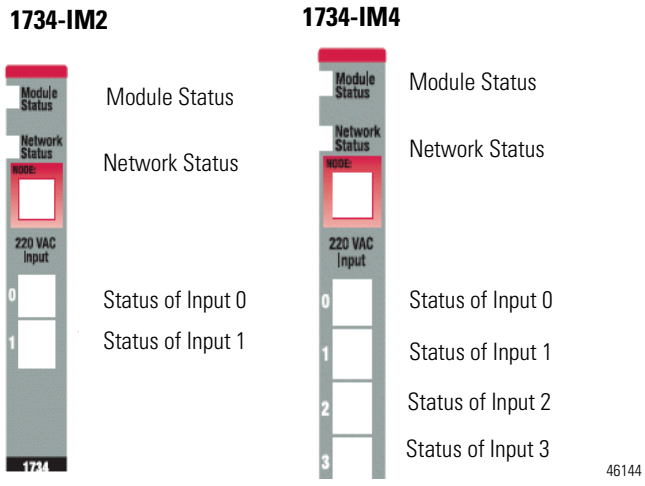
Indication	Probable Cause	Recommended Action
I/O Status		
Off	Input is in the off-state.	None.
Yellow	Input is in the on-state.	None.

1734-OA2 and 1734-OA4 120/220V AC Output Module



Indication	Probable Cause	Recommended Action
I/O Status		
Off	All outputs are inactive.	None.
Yellow	One or more outputs is active and under control.	None.

1734-IM2 and 1734-IM4 220V AC Input Module

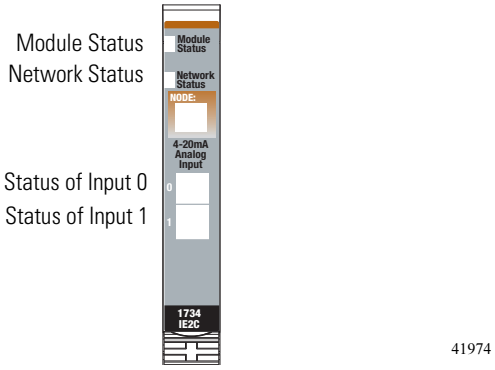


Indication	Probable Cause	Recommended Action
I/O Status		
Off	Input is in the off-state	None.
Yellow	Input is in the on-state	None.

Troubleshoot Analog Modules

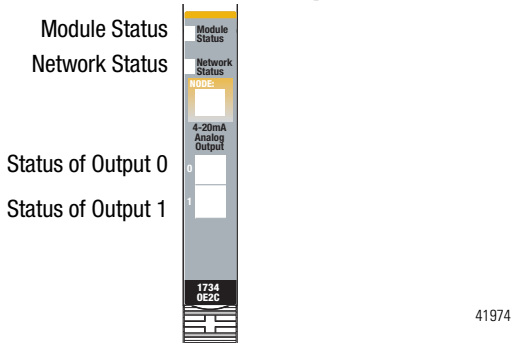
Each analog module has I/O indicators to show the status of the inputs/outputs. Refer to the individual module for I/O status information.

1734-IE2C Analog Current Input Module



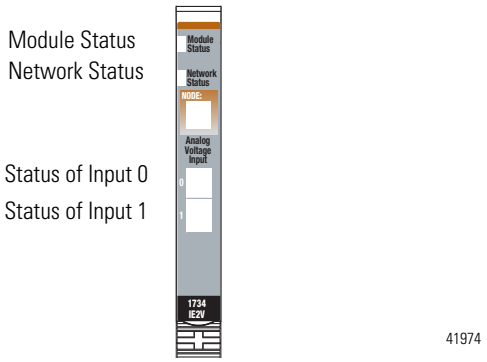
Indication	Probable Cause	Recommended Action
Channel Status		
Off	Module is in CAL mode.	None.
Solid green	Normal operation present with channel scanning inputs.	None.
Flashing green	Channel being calibrated.	None.
Solid red	No power or major channel fault present.	Apply field power, or replace module, as needed.
Flashing red	Channel is at end of range (0 mA or 21 mA).	Operate within normal range.

1734-OE2C Analog Current Output Module



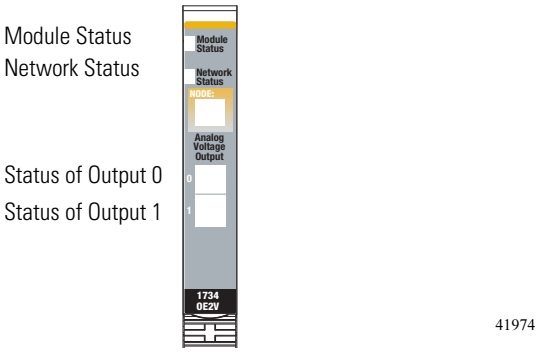
Indication	Probable Cause	Recommended Action
Channel Status		
Off	Module is in CAL mode.	None.
Solid green	Channel actively controlling outputs	None.
Flashing green	Channel calibrating.	None.
Solid red	Unrecoverable fault may require device replacement.	Replace device.
Flashing red	No power, or open wire present.	Apply power or verify wiring to load, and correct, as needed.

1734-IE2V Analog Voltage Input Module



Indication	Probable Cause	Recommended Action
Channel Status		
Off	Module is in CAL mode.	None.
Solid green	Normal operation present with channel scanning inputs.	None.
Flashing green	Channel being calibrated.	None.
Solid red	No power or major channel fault present.	Apply field power, or replace module, as needed.
Flashing red	Channel is at end of range (-0.25, -10.25, or +10.25V).	Operate within normal range.

1734-OE2V Analog Voltage Output Module

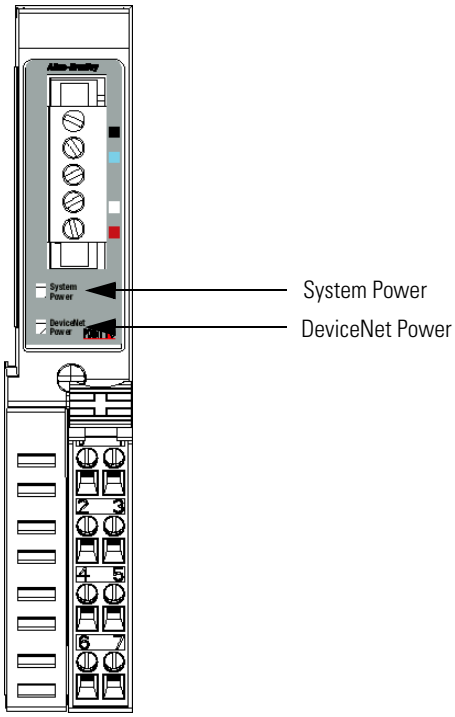


Indication	Probable Cause	Recommended Action
Channel Status		
Off	Module is in CAL mode.	None.
Solid green	Normal operation present with channel actively controlling outputs.	None.
Flashing green	Channel being calibrated.	None.
Flashing red	A Low or High Clamp alarm is present.	Operate within normal range.
Solid red	No field power is present.	Apply field power.

Troubleshoot I/O Communication Modules

The status indicators on the communication modules provide system power and DeviceNet power indications.

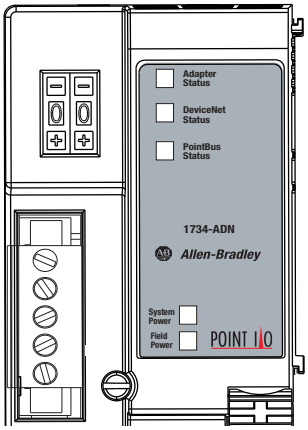
1734-PDN DeviceNet Communication Interface Module



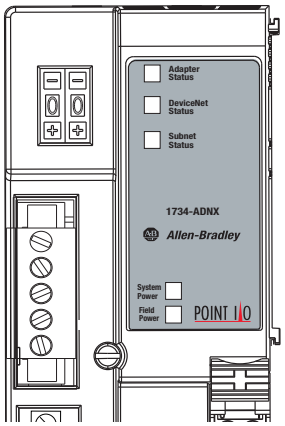
Indicator	Indication	Probable Cause	Recommended Action
System Power	Off	• Device is not active. • DeviceNet power is off, or DC-DC converter problem is present.	1. Verify DeviceNet power is on, and apply power if needed. 2. Verify backplane power not exceeded, and correct, as needed. 3. Replace 1734-PDN module.
	Green	• System power is on. • DC-DC converter is active (5V).	None.
DeviceNet Power	Off	• Device is not active. • DeviceNet power is off.	Apply DeviceNet 24V power.
	Green	Power is on with 24V present.	None.

1734-ADN (X) DeviceNet Adapter

1734-ADN DeviceNet Adapter



1734-ADNX DeviceNet Adapter



1734adnx

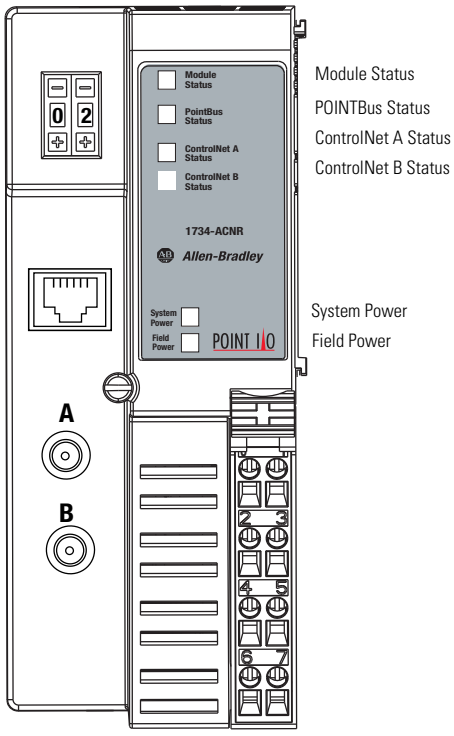
Indication	Probable Cause	Recommended Action
Adapter Status		
Off	No power applied to device.	Apply power to device.
Solid green	Device is operating normally.	None.
Flashing green	Device needs commissioning due to configuration missing, incomplete, or incorrect.	Check configuration and recommission the adapter.
Flashing red	Recoverable fault is present.	1. Make sure the adapter does not need a FLASH update. 2. Verify MAC_id switch has not changed since power-up.
Solid red	Unrecoverable fault may require device replacement.	Replace the adapter.
Flashing red/green	Device is in self-test.	Wait for the self-test to finish.

Indication	Probable Cause	Recommended Action
DeviceNet Status		
Off	Device is not online. • Device has not completed Dup_MAC_ID test. • Device is not powered - check module status indicator.	Apply power to device, wait for no duplicate MAC_id to complete, and correct, as needed.
Flashing green	Device is online, but has no connections in the established state.	None - device is in Idle or Program mode.
Solid green	Device is online and has connections in the established state.	None.
Flashing red	One or more I/O connections are in timed-out state	Check for I/O module failure, and correct, as needed.
Solid red	Critical link failure present with failed communication device. Device detected error that prevents it from communicating on the network.	Verify that adapter and terminal bases are properly installed, and reinstall, as needed.
Flashing red/green	Communication faulted device - the device detected a network access error and is in communication faulted state. Device received and accepted an Identify Communication Faulted Request - long protocol message.	Verify adapter is properly installed, and reinstall, as needed.

Subnet and POINTBus Status		
Off	Device is not online. • Device has not completed Dup_MAC_ID test. • Device is not powered - check module status indicator.	Check adapter status indicator to determine if more time is needed to complete the dup_MAC_id test or if the adapter needs to be powered.
Flashing green	Device is online but has no connections in the established state.	None.
Solid green	Device is online and has connections in the established state.	None.
Flashing red	No scanlist is available. I/O module is missing.	1. Make sure all I/O modules are connected and using the correct MAC IDs. 2. Check Cycling Node Status parameter in RSNetWorx for DeviceNet software.
Solid red	Critical link failure - failed communication device present. Device detected error that prevents it from communicating on the network.	1. Make sure an I/O module is not using a MAC ID = 0. 2. Make sure all backplane modules are communicating at the proper communication rate.

Indicator	Indication	Probable Cause	Recommended Action
System Power	Off	Field power is OFF, or DC-DC converter problem.	1. Verify field power is on. 2. Verify backplane power (load current) is not exceeded. 3. Replace 1734-ADN(X) adapter.
	Green	System power is on. DC-DC converter is active (5V).	None.
Field Power	Off	Field power is off.	Turn field power on.
	Green	Power is on with 24V present.	None.

1734-ACNR ControlNet Adapter



Indication	Probable Cause	Recommended Action
Module Status		
Off	No power applied to device.	Apply power to device.
Alternating red/ green	LED power cycle test (module self-test) is present.	None.
Flashing red	Recoverable fault has occurred: • Firmware (NVS) update • MAC ID changed • CPU load exceeded	 • Complete firmware update. • Return module to correct node address. • Reduce CPU load.
Solid red	Unrecoverable fault has occurred: • Self test failure (checksum failure at power cycle • Ramtest failure at power cycle) • Firmware fatal error	Replace 1734-ACNR adapter.
Flashing green	Waiting for connection or ControlNet cable break.	Check cable and make connection, as needed.
Solid green	Module is operating correctly (normal mode).	None.

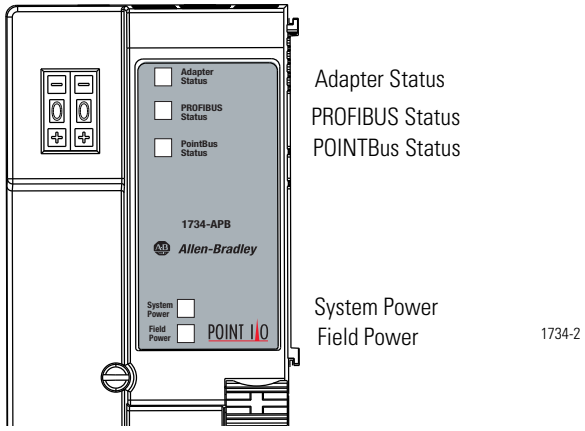
Indication	Probable Cause	Recommended Action
POINTBus Status		
Off	Device not powered - check module status indicator.	Apply power to device.
Alternating red/green	LED power cycle test is present.	None.
Flashing red	Recoverable fault has occurred: • At power up the number of expected modules does not equal the number of modules present • A module is missing • Node fault (I/O connection timeout)	• Change chassis size to match number of modules present. • Replace missing module. • Check for I/O Module failure and correct, as needed.
Flashing green	Adapter online with no connections established. • Adapter chassis size has not been configured • Controller in program/idle mode • ControlNet cable break • Firmware (NVS) update	 • Set adapter chassis size. • None. • Check cable and connect, as needed. • Complete firmware update.
Solid green	Adapter online with connections established (normal operation, in run mode)	None.
Solid red	Unrecoverable fault occurred - the adapter is bus off.	1. Cycle power to device. 2. If condition persists, replace device.

Indication	Probable Cause	Recommended Action
ControlNet A/B Status		
Viewed Together (A and B)		
Both Steady Off	Reset, no power, or entire network interface deactivated.	None or cycle power.
Alternating red/green	Self test mode is present.	None.
Alternating red/Off	Incorrect configuration is present.	Check network address and other ControlNet configuration parameters.
Both Steady red	Faulted unit is present.	Cycle power or reset unit. If fault persists, contact A-B representative or distributor.
Viewed Individually (A or B)		
Steady Off	Channel disabled.	Program network for redundant media, if required.
Flashing red/green	Incorrect network configuration is present.	Cycle power or reset unit. If fault persists, contact A-B representative or distributor.
Flashing red/Off	• Media fault. • No other nodes present on network.	• Check media for items such as broken cables, loose connectors, and missing terminators. • Add other nodes to the network.
Flashing green/Off	• Temporary channel errors are present. • Node is not configured to go on line.	Make sure the configuration manager node is present and working and selected address is not greater than selected UMAX.(1)
Steady green	Normal operation - MAC frames are being received without detected errors.	None.

(1) The configuration manager node is the node responsible for distributing ControlNet configuration data to all nodes on the network.

Indication	Probable Cause	Recommended Action
System Power		
Off	Not active - field power is off or DC-DC converter problem.	1. Verify field power is on. 2. Verify backplane power (load current) is not exceeded. 3. Replace 1734-ACNR adapter.
Green	System power is on, and DC-DC converter is active (5V).	None.
Field Power		
Off	Not active - field power is off.	Apply power to device.
Green	Power is on - 24V is present.	None.

1734-APB PROFIBUS Adapter



Indication	Probable Cause	Recommended Action
Adapter Status		
Off	• No power supplied. • Hardware check is in progress. • Initialization is in progress.	1. Apply power. 2. Wait for power self-test to complete.
Green	Operation is normal.	None.
Red	Hardware check fault present.	Replace device.

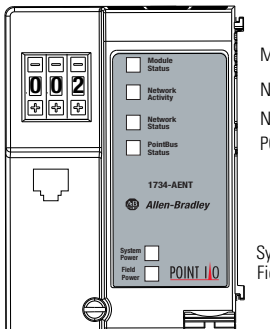
Indication	Probable Cause	Recommended Action
PROFIBUS Status		
Off	No power supplied. Bus is offline.	Apply power, verify network cabling, and correct, as needed.
Solid green	Bus is online (data exchange).	None.
Flashing green	Adapter received a CLEAR command from the master.	None.
Solid red	Error in PROFIBUS initialization is present. No modules installed in the backplane.	Verify configuration, proper installation of modules, and correct, as needed.

Indication	Probable Cause	Recommended Action
Flashing red	1 Hz - Check_Configuration telegram rejected. Max number of POINT I/O modules in master configuration overridden. 2 Hz - SetPrm telegram rejected. The first byte in user parameter data does not equal zero. Max number of user parameter bytes overridden.	Check configuration.

Indication	Probable Cause	Recommended Action
POINTBus Status		
Off	• No power supplied. • Hardware check is in progress. • Initialization is in progress.	Apply power.
Solid green	Normal operation present.	None.
Flashing red	1 Hz - Incorrect POINT I/O module installed. POINT I/O module removed from backplane.	Verify module installation, no modules removed, and correct, as needed.
Solid red	Critical link failure (BUS_OFF) is present.	Check network cabling, and correct, as needed.

Indicator	Indication	Probable Cause	Recommended Action
System Power	Off	System power not applied.	1. Verify field power is on. 2. Verify backplane power (load current) is not exceeded. 3. Replace 1734-APB adapter.
	Green	System power (5V) present	None.
Field Power	Off	Field power not applied.	Apply field power (24V).
	Green	Field power (24V) applied.	None.

1734-AENT EtherNet/IP Adapter



Indication	Probable Cause	Recommended Action
Module Status		
Off	No power applied to device	Apply power to the device.
Flashing red/green	LED power cycle test (module self-test) present.	None.
Solid green	Device is operating normally.	None.
Flashing red	• Recoverable fault has occurred. • Firmware (NVS) update present. • Address switches changed.	1. Complete firmware update. 2. Verify address switches.
Solid red	• Unrecoverable fault has occurred. • Self-test failure present (checksum failure, or ramtest failure at power cycle). • Firmware fatal error present.	Replace adapter.

Indication	Probable Cause	Recommended Action
POINTBus Status		
Off	Device not powered - check module status indicator.	Apply power to device.
Flashing red/green	LED power cycle test present.	None.
Flashing red	Recoverable fault occurred: • At power cycle the number of expected modules does not equal the number of modules present • A module is missing • Node fault (I/O connection timeout) occurred.	• Configure chassis size. • Check for missing module and reinstall as needed. • Check for I/O module failure and correct as needed.
Solid red	Unrecoverable fault occurred - the adapter is bus off.	1. Cycle power to device. 2. If condition persists, replace device.
Flashing green	Firmware (NVS) update in progress.	None.
Solid green	Adapter online with connections established (normal operation, Run mode).	None.

Indication	Probable Cause	Recommended Action
System Power		
Off	Not active; field power is off or DC-DC converter problem present.	1. Verify power is on, and apply power if needed. 2. Verify backplane power not exceeded, and correct, as needed. 3. Replace 1734-AENT module.
Green	System power is on; DC-DC converter is active (5V).	None.
Field Power		
Off	Not active; field power is off.	Apply field power.
Green	Power is on; 24V is present.	None.

Indication	Probable Cause	Recommended Action
Network Activity		
Off	No link established.	Verify network cabling, and correct, as needed.
Flashing green/Off	Transmit or receive activity present.	None.
Steady green	Link established.	None.
Network Status		
Off	Device not initialized. The module does not have an IP address.	Apply power to device, verify IP address, and correct, as needed.
Flashing green	No CIP connections present. Device has an IP address, but no CIP connections are established.	None.
Solid green	CIP connections present. Device online and has an IP address, and CIP connections are established.	None.
Flashing red	One or more CIP connections has timed-out.	Check for I/O module failure and controller operation, and correct, as needed.
Solid red	Duplicate IP address detected.	Verify IP address setting and correct, as needed.
Flashing red/green	The module is performing a self-test (only occurs during power cycle test).	None.

Notes:

Default Data Maps

About This Appendix

Read this appendix for a list of default data maps for 1734 POINT I/O modules.

Digital Module Default Data Maps

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. You map these messages into the processor memory.

1734-IB2 Sink Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							

Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off 1 = on

1734-IB4 Sink Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							

Where: Ch 0 = input channel 0 Ch 1 = input channel 1 Ch 2 = input channel 2 Ch3 = channel 3 0 = off 1 = on

1734-IB8 Sink Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							

Where: Ch = input channel 0 = off 1 = on

1734-IB4D Sink Input Modules with Diagnostics

Default Data Map - Produced Assembly Instance 101

Message Size: 2 Bytes								
	7	6	5	4	3	2	1	0
Produce 0 (Rx)	Fault 3	Fault 2	Fault 1	Fault 0	Input 3	Input 2	Input 1	Input 0

Default Data Map - Produced Assembly Instance 101

Message Size: 2 Bytes								
Produce 1 (Rx)	SC 3	SC 2	SC 1	SC 0	OW 3	OW 2	OW 1	OW 0
Consume (Tx)	No consumed data							

Where: OW = open wire, SC = short circuit, fault = open wire or short circuit.

Data Map - Produced Assembly Instance 23

Message Size: 1 Byte								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Produce 0 (Rx)	Fault 3	Fault 2	Fault 1	Fault 0	Input 3	Input 2	Input 1	Input 0
Consume (Tx)	No consumed data							

Where: Fault = open wire or short circuit.

Default Data Map - Configuration Assembly Instance 103

Message Size: 18 Bytes								
	7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Consume 0	Input 0 Off to On Filter Byte 0							
Consume 1	Input 0 Off to On Filter Byte 1							
Consume 2	Input 0 On to Off Filter Byte 0							
Consume 3	Input 0 On to Off Filter Byte 1							
Consume 4	Input 1 Off to On Filter Byte 0							
Consume 5	Input 1 Off to On Filter Byte 1							
Consume 6	Input 1 On to Off Filter Byte 0							
Consume 7	Input 1 On to Off Filter Byte 1							
Consume 8	Input 2 Off to On Filter Byte 0							
Consume 9	Input 2 Off to On Filter Byte 1							
Consume 10	Input 2 On to Off Filter Byte 0							
Consume 11	Input 2 On to Off Filter Byte 1							
Consume 12	Input 3 Off to On Filter Byte 0							
Consume 13	Input 3 Off to On Filter Byte 1							
Consume 14	Input 3 On to Off Filter Byte 0							
Consume 15	Input 3 On to Off Filter Byte 1							
Consume 16	Autobaud Disable				Enable OW3	Enable OW2	Enable OW1	Enable OW0
Consume 17	Produced Assembly Instance							
Produce (Tx)	No produced data							

Where: OW = open wire.

1734-IV2 Source Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch 0 = input channel 0 data Ch 1 = input channel 1 data								

1734-IV4 Source Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch1	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch 0 = input channel 0 Ch 1 = input channel 1 Ch 2 = input channel 2 Ch 3 = input channel 3								

1734-IV8 Source Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch1	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch 0 = input channel 0 Ch 1 = input channel 1 Ch 2 = input channel 2 Ch 3 = input channel 3 Ch 4 = input channel 4 Ch 5 = input channel 5 Ch 6 = input channel 6 Ch 7 = input channel 7								

1734-IA2 Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1; 0 = off, 1 = on								

1734-IA4 Input Module

Message Size: 1 Byte

Table (cell) Heading	7	6	5	4	3	2	1	0
Produces (scanner Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1, Ch2 - channel 2, Ch3 = channel 3 0 = Off, 1 = On								

1734-IM2 Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (scanner Rx)							Ch1	Ch0
Consumes (scanner Tx)	No consumed data							
Where: Ch 0 = channel 0, Ch 1 = channel 1; 0 = off, 1 = on								

1734-IM4 Input Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0
Produces (Rx)					Ch3	Ch2	Ch1	Ch0
Consumes (Tx)	No consumed data							
Where: Ch0 = channel 0, Ch1 = channel 1, Ch2 - channel 2, Ch3 = channel 3 0 = Off, 1 = On								

1734-OA2 Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = off, 1 = on									

1734-OA4 Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	No produced data								
Consumes (scanner Tx)	Not used				Ch 3	Ch 2	Ch1	Ch0	Channel state
Where: 0 = Off, 1 = On									

1734-OB2E, 1734-OB2 Electronically Protected Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status (1734-OB2E only)
Where: 0 = no error 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = off 1 = on									

1734-OB4E, 1734-OB4 Electronically Protected Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel status (1734-OB4E only)
Where: 0 = no error 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = off 1 = on									

1734-OB8E, 1734-OB8 Electronically Protected Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch7	Ch6	Ch5	Ch4	Ch 3	Ch 2	Ch 1	Ch 0	Channel status (1734-OB8E only)
Where: 0 = no error 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch7	Ch6	Ch5	Ch4	Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = off 1 = on									

1734-OB2EP Protected Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = off, 1 = on									

1734-OV2E Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used						Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = off, 1 = on									

1734-OV4E Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel status
Where: 0 = no error, 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used				Ch3	Ch2	Ch1	Ch0	Channel state
Where: 0 = off, 1 = on									

1734-OV8E Output Module

Message Side: 1 Byte

	7	6	5	4	3	2	1	0	
Produces (scanner Rx)	Ch 7	Ch 6	Ch 5	Ch 4	C h3	C h 2	C h 1	C h0	Channel status
Where: 0 = no error 1 = error									

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Ch 7	C h6	Ch 5	Ch 4	Ch 3	Ch 2	Ch 1	Ch 0	Channel state
Where: 0 = no error 1 = error									

1734-OW2 Relay Sink/Source Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch 1	Ch 0	Channel state
Where: 0 = off 1 = on									

1734-OW4 Relay Sink/Source Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used				Ch 3	Ch 2	Ch 1	Ch 0	Channel state
Where: 0 = off 1 = on									

1734-OX2 Relay Output Module

Message Size: 1 Byte

	7	6	5	4	3	2	1	0	
Consumes (scanner Tx)	Not used						Ch1	Ch0	Channel state
Where: 0 = NO contact Off, NC contact On 1 = NO contact On, NC contact Off									

Analog Module Default Data Maps

I/O messages are sent to (consumed) and received from (produced) the POINT I/O modules. You map these messages into the processor memory.

1734-IE2C Analog Current Input Module

Message Size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 High Byte								Input Channel 0 Low Byte							
	Input Channel 1 High Byte								Input Channel 1 Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status0 = no error1 = fault
CM = Calibration Mode 0 = normal1 = calibration mode
LA = Low Alarm 0 = no error1 = fault
HA = High Alarm 0 = no error1 = fault
LLA = Low/Low Alarm 0 = no error1 = fault
HHA = High/High Alarm 0 = no error1 = fault
UN = Underrange 0 = no error1 = fault
OR = Overrange 0 = no error1 = fault

Channel Status

Channel Status Bytes							
Bit 7	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Over Range	Under Range	High High Alarm	Low Low Alarm	High Alarm	Low Alarm	CAL Mode	Channel Fault

1734-IE2V Analog Voltage Input Module

Message Size: 6 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Input Channel 0 - High Byte								Input Channel 0 - Low Byte							
	Input Channel 1 - High Byte								Input Channel 1 - Low Byte							
	Status Byte for Channel 1								Status Byte for Channel 0							
	OR	UR	HHA	LLA	HA	LA	CM	CF	OR	UR	HHA	LLA	HA	LA	CM	CF
Consumes (scanner Tx)	No consumed data															

Where: CF = Channel Fault status; 0 = no error, 1 = fault CM = Calibration Mode; 0 = normal, 1 = calibration mode
LA = Low Alarm; 0 = no error, 1 = fault HA = High Alarm; 0 = no error, 1 = fault
LLA = Low/Low Alarm; 0 = no error, 1 = fault HHA = High/High Alarm; 0 = no error, 1 = fault
UR = Underrange; 0 = no error, 1 = fault OR = Overrange; 0 = no error, 1 = fault

1734-OE2C Analog Current Output Module

Message Size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

Message Size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (Rx)	High Byte - Channel 1 Status								Low Byte - Channel 0 Status							
	Not used				HCA	LCA	CM	CF	Not used				HCA	LCA	CM	CF

Where: CF = Channel Fault status 0 = no error 1 = fault CM = Calibration Mode 0 = normal 1 = calibration mode
LCA = Low Clamp Alarm 0 = no error 1 = fault HCA = High Clamp Alarm 0 = no error 1 = fault

Channel Status

Channel Status Bytes							
Bit 7	**Bit 6**	**Bit 5**	**Bit 4**	**Bit 3**	**Bit 2**	**Bit 1**	**Bit 0**
Not used				High Clamp	Low Clamp	CAL Mode	Channel Fault

1734-OE2V Analog Voltage Output Module

Message Size: 4 bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Consumes (scanner Tx)	Output Channel 0 High Byte								Output Channel 0 Low Byte							
	Output Channel 1 High Byte								Output Channel 1 Low Byte							

Message Size: 2 Bytes

	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Produces (scanner Rx)	Channel 1 Status - High Byte								Channel 0 Status - Low Byte							
	Not used				HCA	LCA	CM	ST	Not used				HCA	LCA	CM	ST

Where: ST = Channel Fault Status; 0 = no error, 1 = fault CM = Calibration Mode; 0 = normal, 1 = calibration mode
LCA = Low Clamp Alarm; 0 = no error, 1 = fault HCA = High Clamp Alarm; 0 = no error, 1 = fault

Notes:

Mounting Dimensions

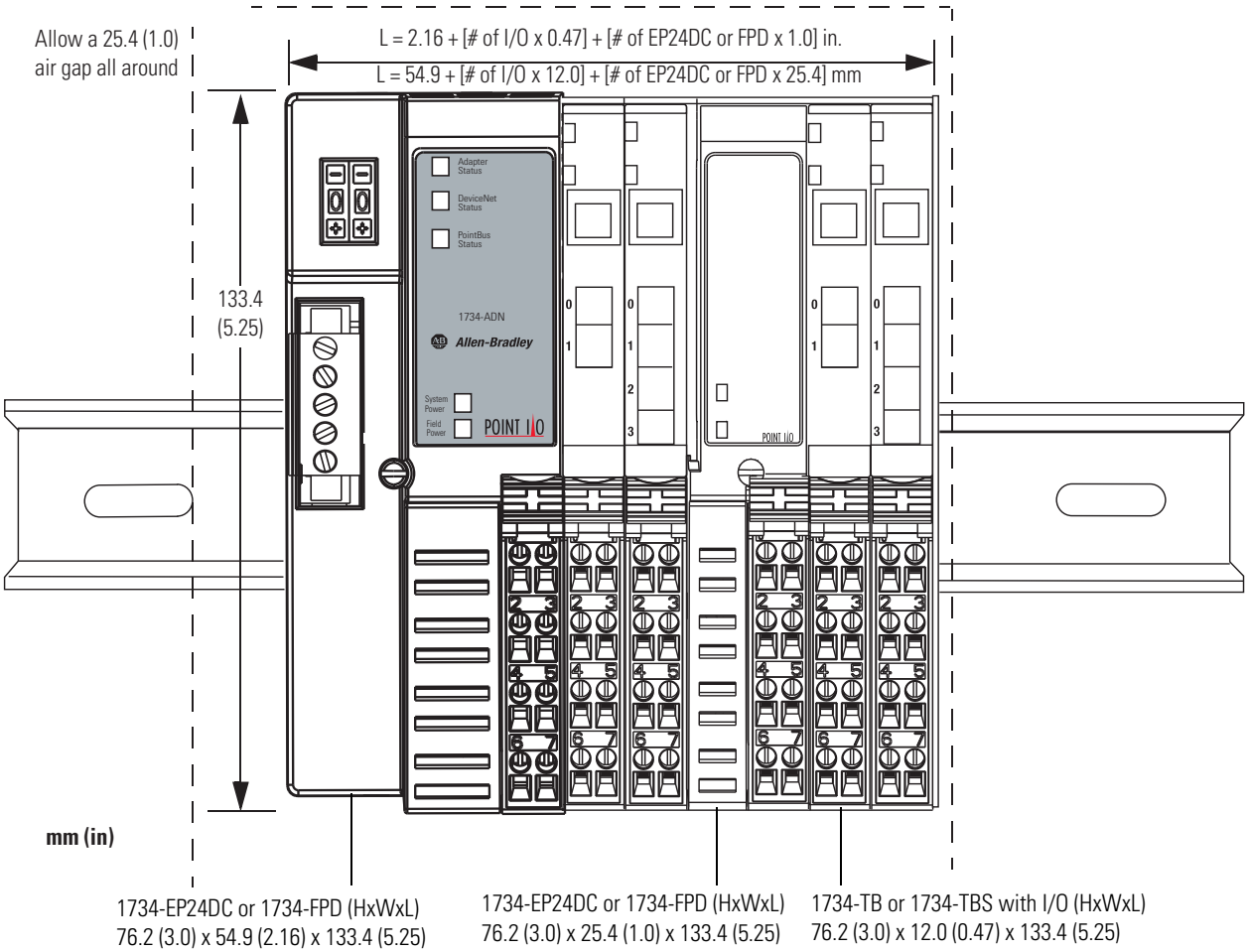
About This Appendix

Read this appendix for mounting dimensions for the following:

- POINT I/O module with a 1734-ADN adapter
- POINT I/O module with a 1734-PDN module
- POINTBlock modules

POINT I/O Module with a 1734-ADN, 1734-ACNR, 1734-AENT, or 1734-APB Adapter

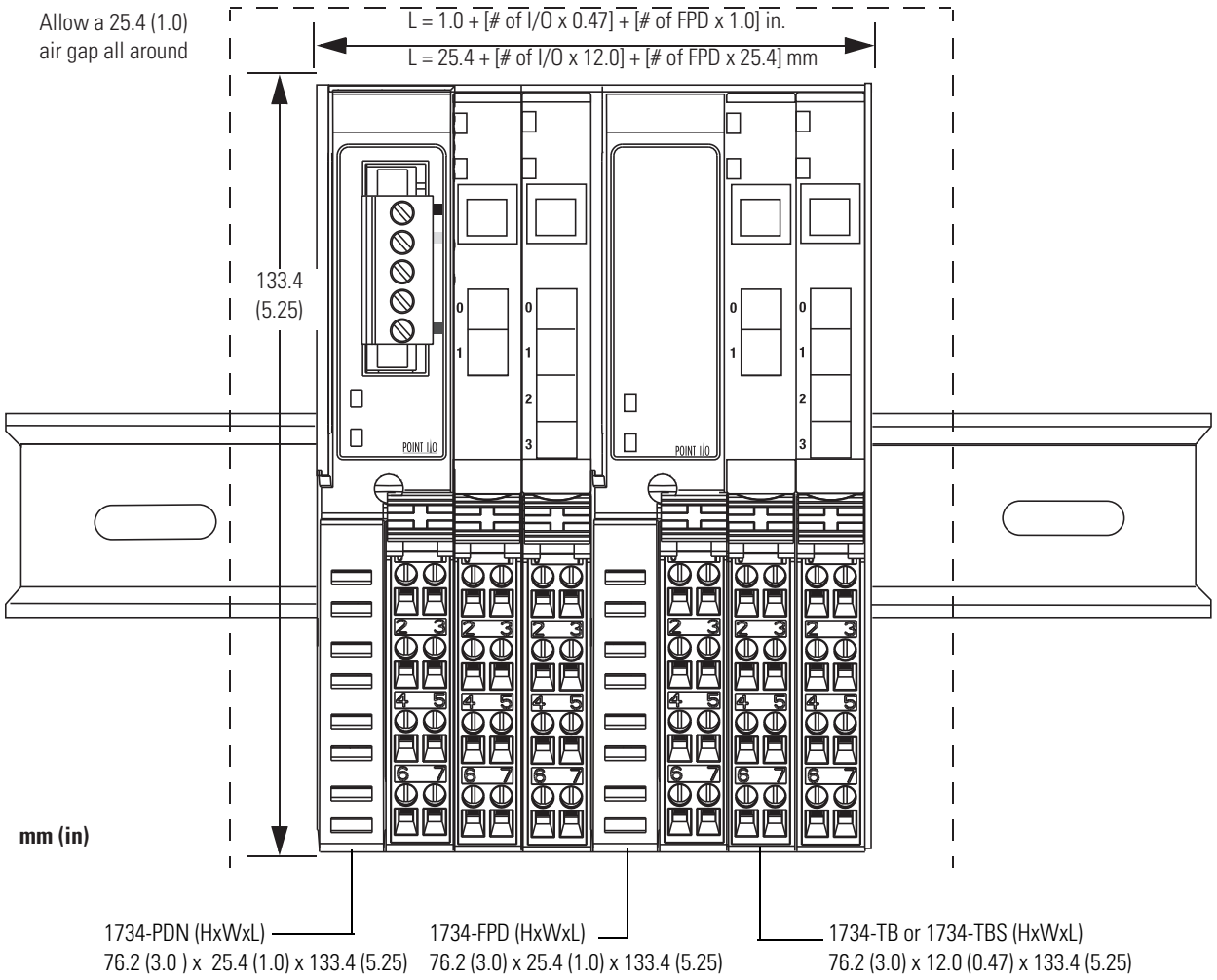
See the figure for mounting dimensions for a POINT I/O module with a network adapter. The example figure shows a 1734-ADN adapter.



Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.).

POINT I/O Module with a 1734-PDN Module

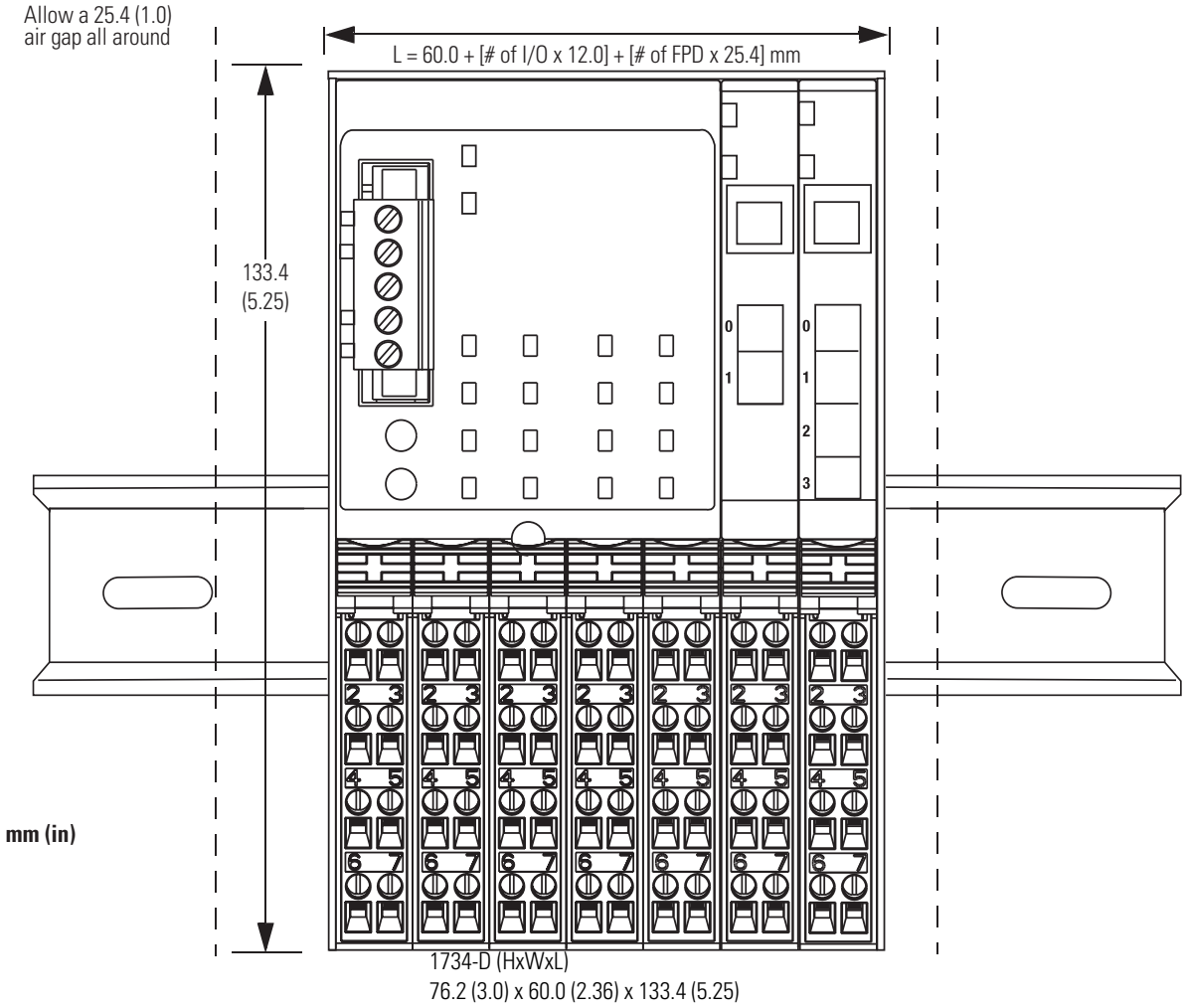
See the figure for mounting dimensions for POINT I/O module with a 1734-PDN DeviceNet Communication Interface module.



Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.).

POINTBlock Module

See the figure for mounting dimensions for a 1734-D POINTBlock module.



Secure DIN rail to mounting surface approximately every 200 mm (7.8 in.).

Notes:

Configure POINT I/O Modules in RSLogix 5000 Software

About This Appendix

Read this appendix for information about how to configure digital and analog POINT I/O modules, using RSLogix® 5000 software with one of the following:

- ControlNet network using a 1734-ACNR adapter
- Ethernet/IP network using a 1734-AENT adapter

Use the Help Button

From the dialogs you use to configure digital and analog POINT I/O modules, click Help at the bottom of the dialog for information about how to complete entries on the dialogs.

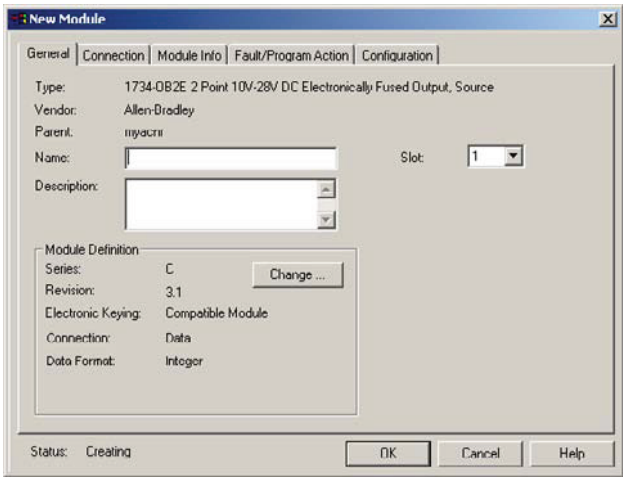
From a warning dialog, click Help at the bottom of the dialog to get information about that specific error.

Configure Digital Modules

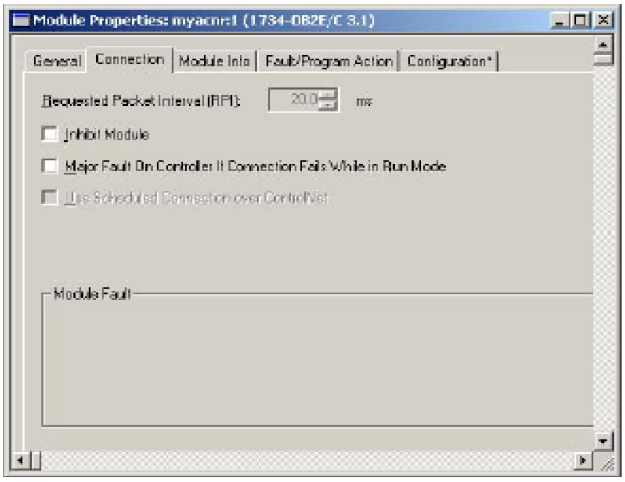
To configure POINT I/O digital modules in RSLogix 5000 software, using a ControlNet or EtherNet/IP network, use these steps.

1. Configure your adapter, referring to the user manual for your 1734-AENT adapter for EtherNet/IP networks or 1734-ACNR adapter for ControlNet networks with information on how to select a controller and communication module.
2. Add a digital module according to the instructions in your 1734-ACNR or 1734-AENT adapter user manual.

   As an example, if you add 1734-OB2E, you see the New Module dialog.



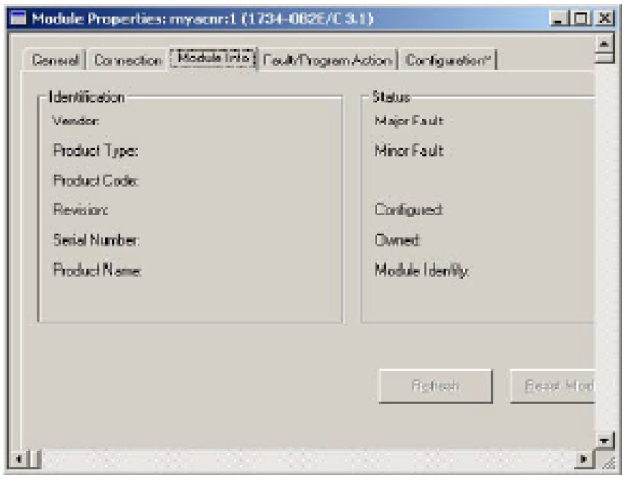
3. Choose the Connection tab at the top of the dialog.



4. Leave the following unchecked:
   - Inhibit Module
   - Major Fault On Controller If Connection Fails While in Run Mode
5. Complete the entry for Requested Packet Interval (RPI), if the field is selectable, per the following table.

Adapter Configuration	Value for PRI for Module Type
	Digital
Direct Connection	50 ms
Rack Optimization	RPI is not selectable

6. Choose Module Info to see a dialog that provides identification and status information



7. See the appropriate sections of this appendix for information about the following tabs and dialogs, which you see based on the module you added:
   - Fault/Program Action
   - Configuration

About Fault/Program Action and Configuration Dialogs

You see Fault/Program Action and Configuration dialogs based on the module and connection types. Refer to the following table.

For Module Type	With Connection Type	You See These Tabs[1]	
		Fault/Program Action	Configuration
Input	Data		x
	Listen Only		
	Listen Only - Rack Optimization		
	Rack Optimization		x
Output	Data	x	x
	Listen Only		
	Listen Only - Rack Optimization		
	Rack Optimization	x	x

(1) You see tabs for General, Connection, and Module Info for all module and connection types.

Understand Data and Connection Formats

For digital modules, the choices for data format and connection type are as follows.

- Data Format - Integer
- Connection Type
  - Data
  - Listen only
  - Listen only - rack optimization
  - Rack optimization

When you change entries for data format and connection type, note the following:

- You do not delete the existing module.
- You do not create a new module.
- You bring forward configuration data for the new settings.
- Any configuration data you do not bring forward sets to the default value.

After you apply new settings for data format and connection, note the following:

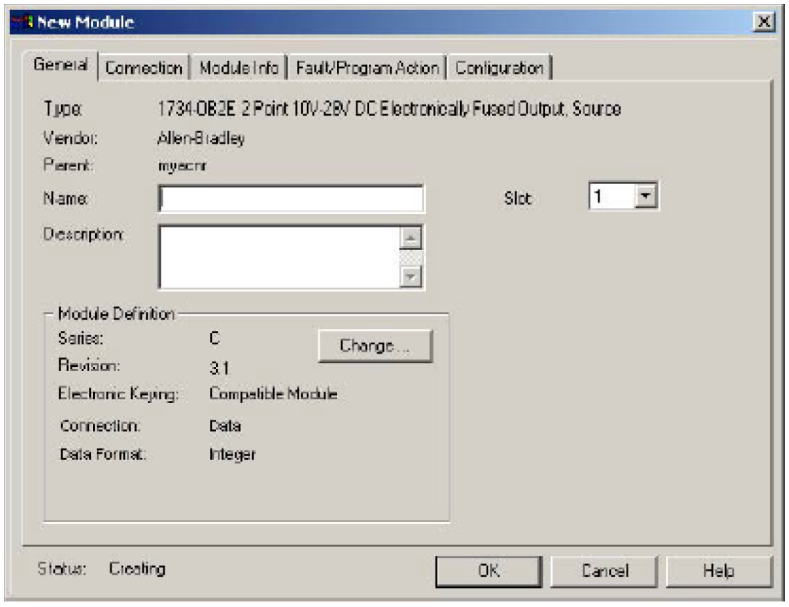
- This is the base configuration for the next change in connection and data format settings.
- You lose all configuration data from previous data formats.

The choices for connection type for modules depend on the communication type format for the parent adapter, per the table.

Adapter Communication Format	Connection Type	Input Module	Output Module		
			1734-OA2 1734-OW2,4 1734-OX2	1734-OB2, 1734-OB4, 1734-OB8	1734-OB2E, 1734-OB4E, 1734-OB8E 1734-OB2EP, 1734-OV2E, 1734-OV4E, 1734-OV8E
Listen Only - Rack Optimization	Data (default)	x	x	x	x
	Listen Only	x			x
	Listen Only Rack Optimization	x	x		x
None	Data (default)	x	x	x	x
	Listen Only	x			x
Rack Optimization	Data (default)	x	x	x	x
	Listen Only	x			
	Rack Optimization	x	x	x	x

Understand Transition to Hard Run Behavior

While online with a controller in Remote Run mode, change fields on the dialogs you select from the New Module dialog.



When you switch the controller to Hard Run, note the following:

- You disable all controls except for the Description field on the General dialog, which remains active in all modes.
- You revert to each control that contains an edited value, including the Description field on the General dialog, to include the following dialogs:

- General
- Connection
- Fault/Program Action
- Configuration

Work with Dialogs for Digital Input Modules

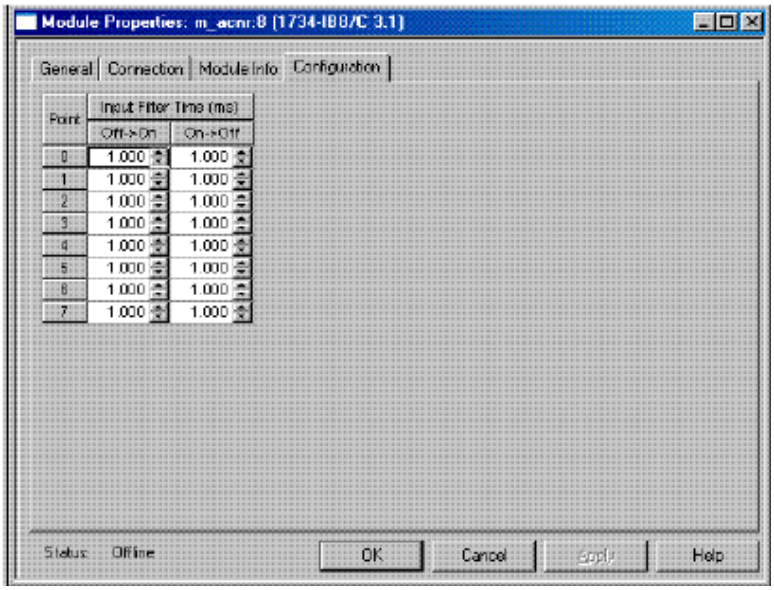
To complete entries for the dialogs for input modules proceed as follows.

1. Add an input module with these entries for connection type.
   - Data
   - Rack Optimization
2. From the top of the General dialog, select Configuration,

   You see the Configuration dialog, which is what you use to configure the filter for input points for the following:
   - Off to On
   - On to Off

   The Configuration dialog displays configuration data for each channel in individual rows in a table. Input modules support separate filter times for Off to On and On to Off transitions. The number of input channels varies based on the type of module as in these examples.
   - A 1734-IA2 module has 2 input channels (0 to 1).
   - A 1734-IB4 module has 4 input channels (0 to 3).

   See the figure for a Configuration dialog for an 8-point input module.



3. From the Configuration dialog, complete entries for Input Filter Time (ms) for Off-On and On-Off for each point, referring to the table.

Feature	Description
Channel	Displays channels you use to set channel configuration parameters
Input Filter Time	Displays Off to On or On to Off transition filter constant • A high signal must be present for this amount of time before the module reports an On. • a low signal must be present for this amount of time before the module reports an Off. • Enter a value in milliseconds. • The default is 1 ms (1000 ms).

4. From the Configuration dialog, perform one of the following:
   - Click another tab at the top of the dialog.
     or
   - Click OK to save changes and close the dialog.
     or
   - Click Cancel to return to default values.
     or
   - Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs.

Work with Dialogs for Digital Output Modules

Read this section to complete the Fault/Program Action and Configuration dialogs for output modules. You typically select these dialogs from the General dialog, when you add an output module with the following entries for connection type:

- Data
- Rack Optimization

Enter values for the Fault/Program Action and Configuration dialogs based on the following output modules:

- Without diagnostic status
- With overload diagnostic status
- With overload and open load diagnostic status

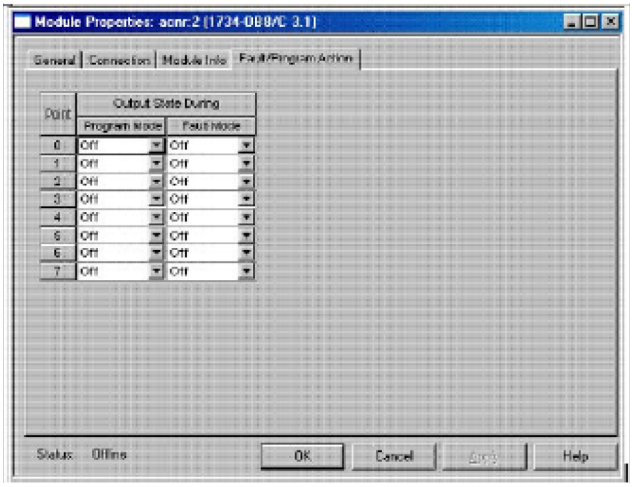
Enter Values on the Fault/Program Action Dialog

Enter values on this dialog to configure the module output state for output modules when the controller mode changes to Program or Fault mode. To make these entries, follow these procedures.

1. From the General dialog, select Fault/Program Action.

   You see the Fault/Program Action dialog. See the figure for the Fault/Program Action dialog for an 8-point output module. The dialogs for 2-point and 4-point output modules are identical except for the number of point you can configure. Use this dialog to configure the Program mode and Fault mode for channels for the following modules:

   - Without diagnostic status
   - With overload diagnostic status
   - With overload and open load diagnostic status



2. From the Fault/Program Action dialog, complete entries, referring to the table for a summary of how to make these entries.

Feature	Description
Point	Displays the channel numbers.
Program Mode	• Select a value to determine the behavior of each output when the controller transitions to the Program mode. • Make a selection from the available values for each channel: - Off (default) - On - Hold • In Hard Run only, you disable editing this feature.
Fault Mode	• Select a value to determine the behavior of each output when communication with the controller fails. • Select from the available values for each channel: - Off (default) - On - Hold • In Hard Run only, you disable editing this feature.

3. From the Fault/Program Action dialog, perform one of the following:

- Click another tab at the top of the dialog.
  or
- Click OK, which closes the dialog.
  or
- Click Cancel to return to default values.
  or
- Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs.

Enter Values on the Configuration dialog

Enter values on this dialog based on the type of module with the following:

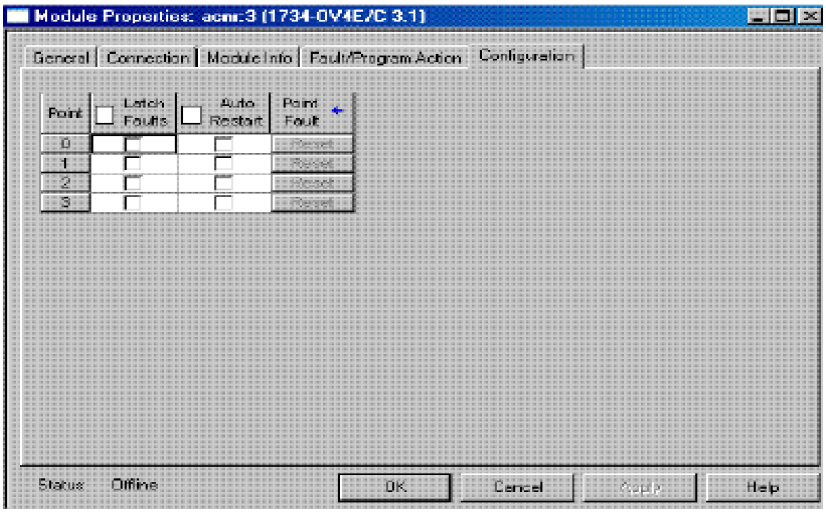
- Overload diagnostic status
- Overload and open load diagnostic status

To complete the entries on this dialog proceed as follows.

1. From the General dialog, select Configuration.

   You see the Configuration dialog, which displays configuration data for each channel in individual rows in a table. The number of output channels varies based on the type of module as in the following examples:
   - The 1734-OB2E module has two output channels (0 to 1).
   - The 1734-OB4E module has four output channels (0 to 3).
   - The 1734-OB8E module has eight output channels (0 to 7).

See the figure for a Configuration dialog for a 4-point output module. The 2-point and 8-point output modules are identical except for the number of point you can configure.



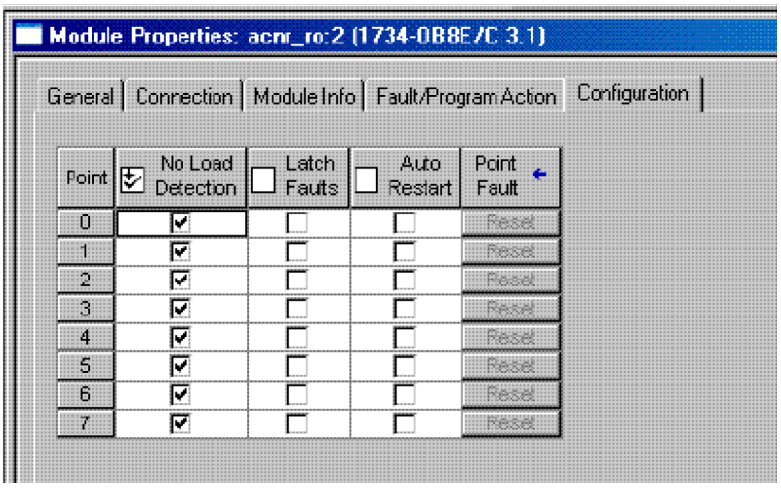
2. From the Configuration dialog, complete entries, referring to the table for information about how to complete entries with No Load Detection.

Feature	Description
Point	Displays the channel numbers.
Latch Faults	• Use to determine how a status bit acts after the cause of the fault is removed. • Use latching for tracking transient or momentary faults. • You do not affect status LEDs when using latched alarms. **If You Select** / **Then** Latch Faults (checked) — Alarm bits stay faulted if an alarm occurs. Clear the fault by using the clear latched alarm service for the channel (Reset pushbutton). Reset Latch Faults (unchecked) — Alarm bits reflect the present state.
Auto Restart	• The Reset mode defines the action of the output during a short circuit or overload. • A fault also occurs if you turn on an output when you do not apply field power to it. **Select** / **If you want the output to** Latched off (unchecked) — Shut off Auto restart (checked) — Continually try to turn on
Point Fault	• Select to clear latched alarms. • A blue arrow denotes the use of explicit messaging.

3. At the top of the Configuration dialog, complete the header check boxes for the following:
   - No Load Detection
   - Latch Faults

- Auto Restart

See the figure where, as an example, if you want to configure all of the channels the same way, you check the No Load Detection header. This checks all the boxes in the column and enables the bit for all the channels in the module.



4. From the bottom of the Configuration dialog, perform one of the following:
   - Click another tab at the top of the dialog.
     or
   - Click OK, which closes the dialog.
     or
   - Click Cancel to return to default values.
     or
   - Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs.

Configure Analog Modules

To configure POINT I/O modules in RSLogix 5000 software, complete these steps.

1. Configure your adapter, referring to the user manual for your adapter for information on how to:
   - Configure the adapter
   - Add modules to the I/O configuration
   - Select a controller and communication module
2. According to the instructions in your adapter user manual, add an analog module and display the General dialog.
3. From the top of the General dialog, click Connection.
4. From the Connection dialog, leave the following unchecked:
   - Inhibit Module
   - Major Fault On Controller If Connection Fails While in Run Mode
5. From the Connection dialog, enter a value for Requested Packet Interval (RPI), if the field is selectable, per the table.

Adapter Configuration	Default Value for RPI for Analog Module Type
Direct Connection	50 ms
Rack Optimization	RPI is not selectable

6. From the Connection dialog, click Choose Module Info from the top of the dialog to see a dialog that provides identification and status information.
7. For information about the Fault/Program Action, Configuration, Alarm Configuration and Calibration tabs and dialogs, see the appropriate sections of this appendix.

   You see these tabs based on the module you added.

Understand Data and Connection Formats

For analog modules, the choices for data format and connection type are as follows.

- Data Format
  - Integer
- Connection Type
  - Data
  - Listen only
  - Listen only - rack optimization
  - Rack optimization

When you change entries for Data Format and Connection Type, note the following:

- You do not delete the existing module.
- You do not create a new module.
- You bring forward configuration data for the new settings.
- Any configuration data you do not bring forward sets to the default value.

After you apply new settings for data format and connection, note the following:

- This is the base configuration for the next change in connection and data format settings.
- You lose all configuration data from previous data formats.

The choices for connection type for modules depend on the communication type format for the parent adapter, as explained in the user manual for the adapter.

Work with Dialogs for Analog Input Modules

Read this section for information about how to complete entries on the following dialogs for analog input modules:

- Configuration
- Alarm Configuration
- Calibration

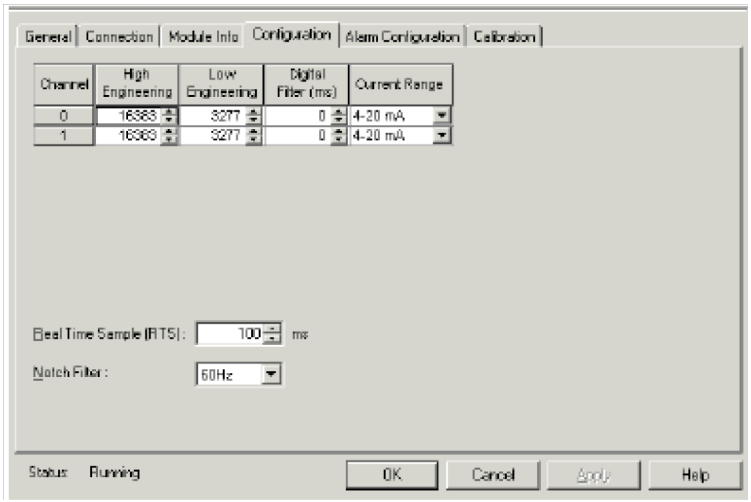
To display the dialogs, you typically click Configuration, Alarm Configuration, or Calibration at the top of the General dialog.

Work with the Configuration Dialog

This dialog does not appear for Listen Only connections. To complete the entries on this dialog, proceed as follows.

1. From the top of the General dialog, click Configuration.

You see a Configuration dialog for a current or voltage module, based on the type of module you added. See the figure for a Configuration dialog for a current input module.



2. From the Configuration dialog, complete entries, referring to the table.

For This Value	Select	Comments
High Engineering	-32768…32767	Default for 1734-IE2C analog input module is 16383. Default for 1734-IE2V analog input module is 10000.
Low Engineering	-32768…32767	Default for 1734-IE2C analog input module is 3277. Default for 1734-IE2V analog input module is 0.
Digital Filter (ms)	0…10000	Default is 0.
Current Range	4…0 mA 0…20 mA	Default is 4…20 mA.
Voltage Range	-10…10V 0…10V	Default is 0…10V
Real Time Sample (ms)	0…10000	Default is 100. Refer to the Real Time Sample Values table for the relationship between Notch Filter and Real Time Sample.
Notch Filter	50 Hz 60 Hz 250 Hz 500 Hz	Default is 60 Hz. Refer to the Real Time Sample Values table for the relationship between Notch Filter and Real Time Sample.

Real Time Sample Values

Real Time Sample	Notch Filter Setting			
	50 Hz	60 Hz	250 Hz	500 Hz
Min	120 ms	100 ms	24 ms	12 ms

3. From the bottom of the Configuration dialog, perform one of the following:
   - Click another tab at the top of the dialog.
     or

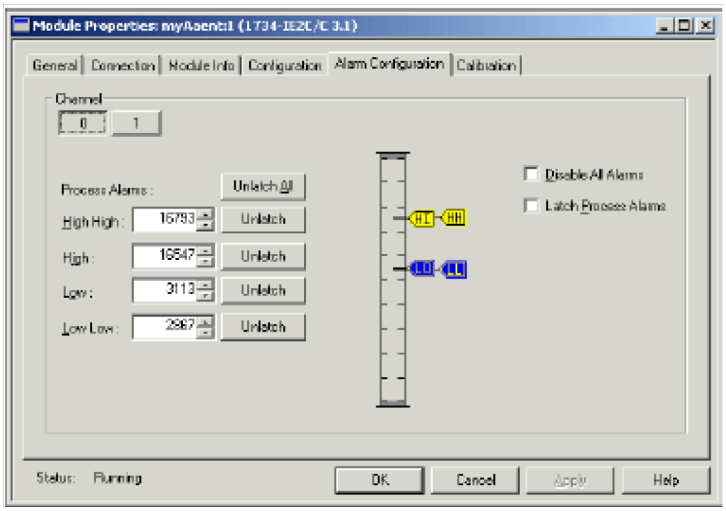
- Click OK to save changes and close the dialog.
  or
- Click Cancel to return to default values.
  or
- Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs.

Work with the Alarm Configuration Dialog

This dialog does not appear for Listen Only connections. To complete the entries on this dialog, proceed as follows.

1. From the top of the General dialog, click Alarm Configuration.

   You see an Alarm Configuration dialog for a current or voltage module, based on the type of module you added. See the figure for the Alarm Configuration dialog for a 1734-IE2C module. See the table for a list of default values.



Alarm Configuration Dialog Default Values

Value	1734-IE2C	1734-IE2V
High High	16793	9800
High	16547	9500
Low	3113	500
Low Low	2867	200

2. From the Alarm Configuration dialog, perform the following:

a. Click a channel push button, such as 0 or 1, which is highlighted to show it was pressed, selecting the corresponding channel for the values you enter.

b. Enter values for low and high alarms in one of these ways:

- Type the numeric value.
- Drag the pointer on the corresponding slider control.

c. Choose unlatch options one of the following ways:

- Click Unlatch next to an individual alarm.
- Click Unlatch All to unlatch all the alarms at once.

d. Check the checkbox for the following, if desired:

- Disable All Alarms - A check in the checkbox tells the module to not report alarms. This is disabled in Hard Run mode only.
- Latch Process Alarms - A check in the checkbox lets you latch transient alarm conditions. This is disabled in Hard Run mode.

e. Click OK

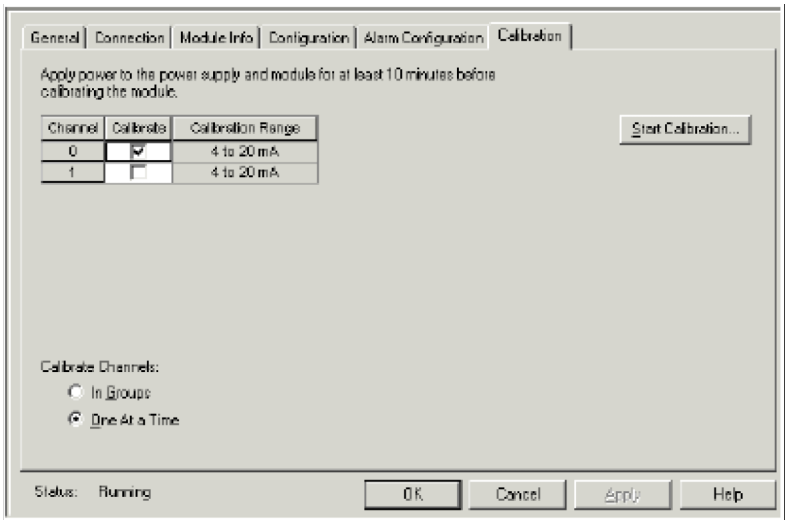
Work with the Calibration Dialog

To complete entries on this dialog proceed as follows. Perform calibration in Hard Run or Remote mode. For information about the tools and steps for calibration, refer to the Calibrating Your Analog Module section of this manual.

1. From the General dialog, click Calibration.

   You see the Calibration dialog for a current or voltage input module, depending on the module type.

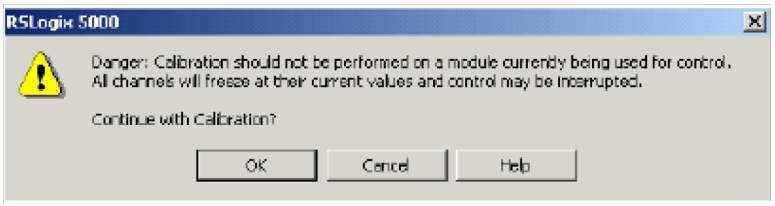
   See the figure for a Calibration dialog for a current input module.



2. Check the Calibrate checkbox to specify which channel to calibrate.
3. Under Calibrate Channels, select One At a Time.
4. Click Start Calibration, which is active when the system is online, and you selected at least one of the channels.

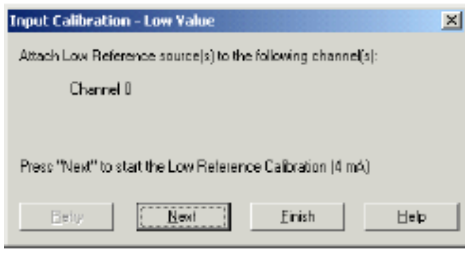
   Note that when you press the F1 button on your keyboard or click Help from the wizards and warning messages that appear during calibration, you get detailed information about related procedures.

   You see a Danger dialog.



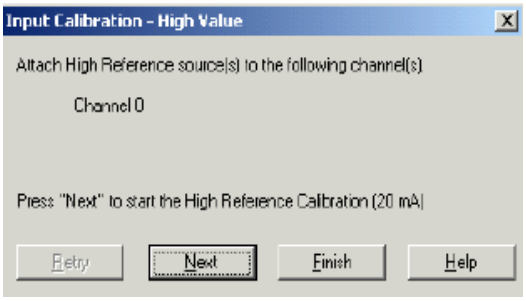
5. From the Danger dialog, for a module not currently used for control, click OK.

   You see the Low Value dialog.



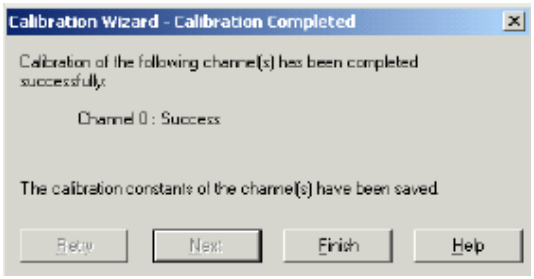
6. From the Low Value dialog, click Next to start calibration.

   You see the High Value dialog.



7. From the High Value dialog, click Next to start calibration.

You see the Calibration Completed dialog that shows you saved the changed calibration constants of the channel.



Work with Dialogs for Analog Output Modules

Read this section for information about how to complete entries on the following dialogs for analog output modules:

- Configuration
- Alarm Configuration
- Fault/Program Action
- Calibration

To display the dialogs, you typically click Fault/Program Action, Configuration, Alarm Configuration, or Calibration at the top of the General dialog.

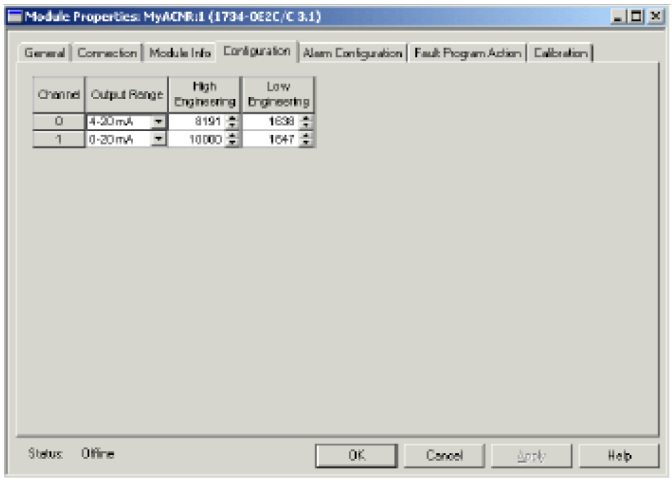
Work with the Configuration Dialog

This dialog does not appear for Listen Only connections. To complete the entries on this dialog, proceed as follows.

1. From the top of the General dialog, click Configuration.

   You see a Configuration dialog for a current or voltage module, based on the type of module you added.

See the figure that shows configuration parameters for each channel in individual rows on the grid with, for example, 1734-OE2C having two output channels.



2. From the Configuration dialog, complete entries, referring to the table.

For This Value	Select	Comments
High Engineering	-32768…32767	Default for 1734-OE2C analog output module is 8191. Default for 1734-OE2V analog output module is 10000.
Low Engineering	-32768…32767	Default for 1734-OE2C analog output module is 1638. Default for 1734-OE2V analog output module is 0.
Current Range	4…20 mA 0…20 mA	Default is 4…20 mA.
Voltage Range	-10…10V 0…10V	Default is 0…10V

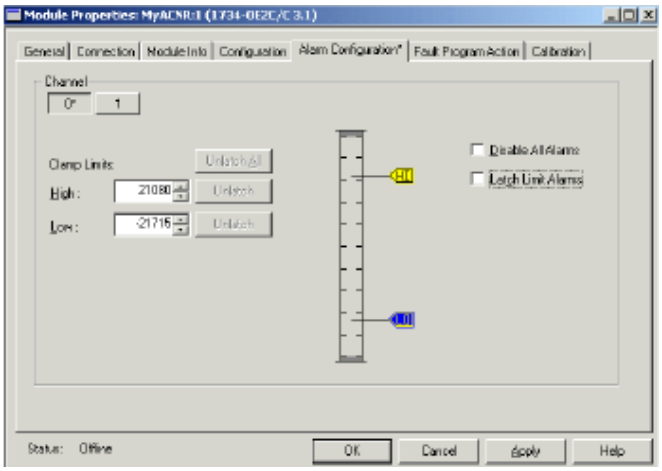
3. From the bottom of the Configuration dialog, perform one of the following:
   - Click another tab at the top of the dialog.
     or
   - Click OK to save changes and close the dialog.
     or
   - Click Cancel to return to default values.
     or
   - Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs.

Work with Alarm Configuration Dialog

This dialog does not appear for Listen Only connections. To complete the entries on this dialog, proceed as follows.

1. From the top of the General dialog, click Alarm Configuration.

   You see an Alarm Configuration dialog for a current or voltage module, based on the type of module you added.



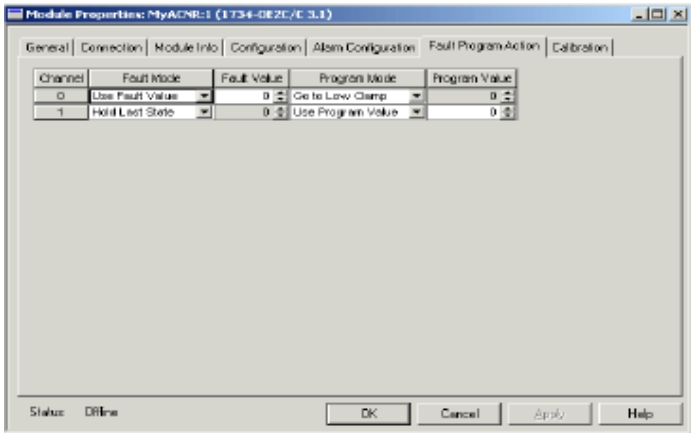
2. Click a channel push button, such as 0 or 1, to show it pressed, selecting the corresponding channel for the values you enter.
3. Enter values for Low and High Clamp limits by typing the numeric value or dragging the pointer on the corresponding slider control, noting the following:
   - For High Clamp limit, default is 32767.
   - For High Clamp limit, range is -32768 to 32767.
   - For Low Clamp limit, default is -32768
   - For Low Clamp limit, range is -32768 to 32767.
4. Choose unlatch options one of these ways.
   - Click Unlatch to unlatch an individual alarm.
   - Click Unlatch All to unlatch all the alarms at once.
5. Check the checkbox for the following, if desired:
   - Disable All Alarms — A check in the checkbox tells the module to not input alarms. This is disabled in Hard Run only.
   - Latch Process Alarm — A check in the checkbox lets you latch transient alarm conditions. This is disabled in Hard Run mode.
6. Click OK

Work with the Fault/Program Action Dialog

Use this dialog to configure and display the parameters controlling output states during Fault and Program conditions. This dialog does not appear for Listen Only connections. To complete the entries on the dialog, proceed as follows.

1. From the top of the General dialog, click Fault/Program Action.

You see a Fault/Program Action dialog.



2. From the Fault/Program Action dialog, complete items, referring to the table.

For This Value	Select	Comments
Fault Mode	Hold Last State Go to Low Clamp Go to High Clamp Use Program Value	Default is Go to Low Clamp.
Fault Value	-32768…32767	Default is 0.
Program Mode	Hold Last State Go to Low Clamp Go to High Clamp Use Program Value	Default is Go to Low Clamp.
Program Value	-32768…32767	Default is 0.

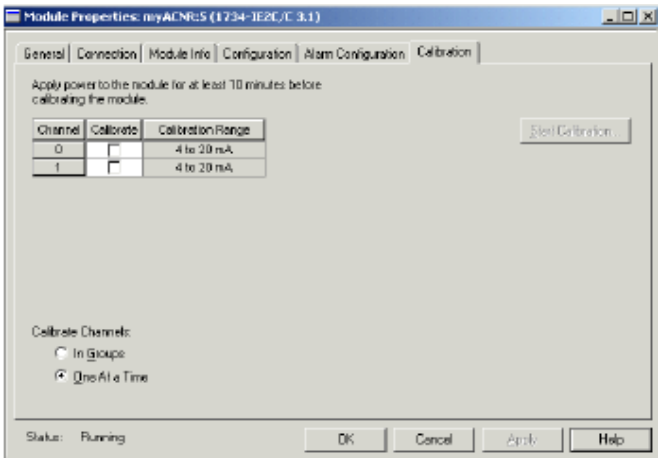
3. From the bottom of the dialog, perform one of the following:
   - Click another tab at the top of the dialog.
     or
   - Click OK to save changes and close the dialog.
     or
   - Click Cancel to return to default values.
     or
   - Click Apply to save changes you made on any of the dialogs and continue to display the dialog, noting that you enable the Apply button when you make changes to any of the dialogs

Work with the Calibration Dialog

To complete entries on this dialog, proceed as follows. Perform calibration in Hard Run or Remote mode. For information about the tools and steps for calibration, refer to the Calibrating Your Analog Module section of this manual.

1. From the General dialog, click Calibration.

You see the Calibration dialog for a current or voltage output module, depending on the module type.



2. From the Calibration dialog, click one of these:

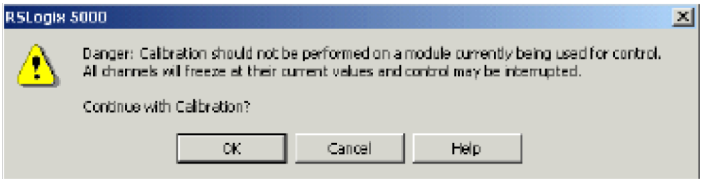
- In Groups
- One At a Time

3. From the Calibration dialog, check the Calibrate checkbox to specify which channel to calibrate.

4. From the Calibration dialog, click Start Calibration, which is active when:
   - the system is online, and
   - you selected at least one of the channels.

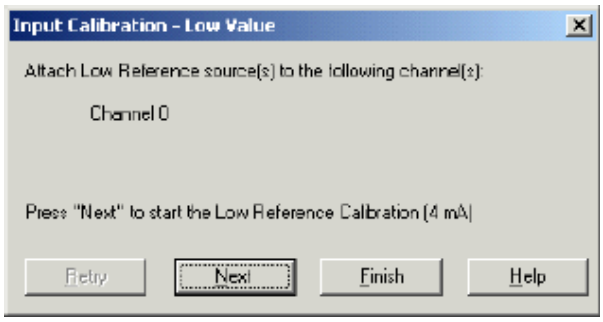
   Note that when you press the F1 button on your keyboard or click Help from the wizards and warning messages that appear during calibration you get detailed information about related procedures.

   You see a Danger dialog.



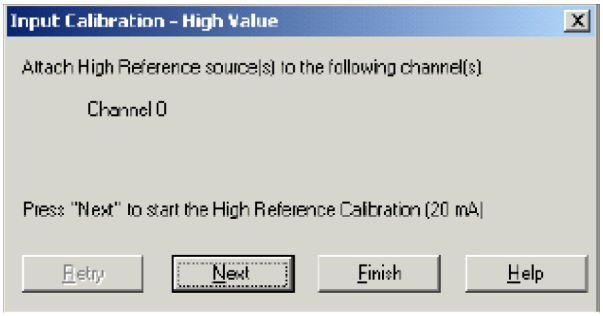
5. From the Danger dialog, for a module not currently used for control, click OK.

You see a Low Value dialog.

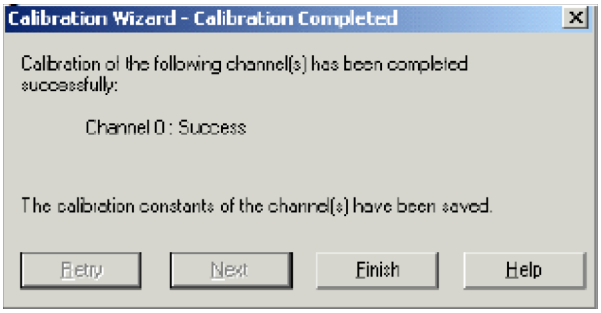


6. From the Low Value dialog, follow the instructions you see and click Next.

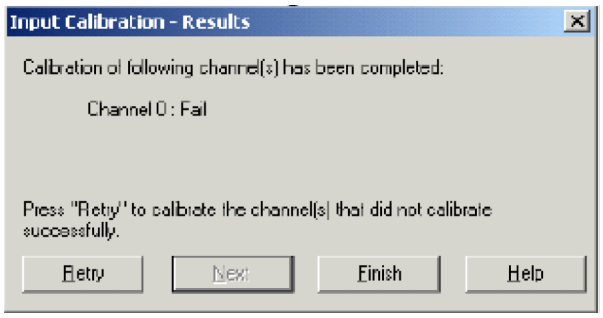
   You see the High Value dialog.



7. From the High Value dialog, follow the instructions you see and click Next to start calibration.
8. If calibration completes successfully, you see the Calibration Completed dialog.



If calibration fails, the Results dialog shows a failed calibration.



9. If calibration is successful, click Finish; otherwise, from the Results dialog, click Retry to calibrate the channel that did not calibrate successfully and repeat the process until calibration is successful.
10. Repeat calibration for each channel, if applicable.

Notes:

Configure POINT I/O Modules for DeviceNet Networks

About This Appendix

Read this appendix to learn how to configure POINT I/O modules in a DeviceNet network. If you are using a ControlNet, EtherNet/IP, or PROFIBUS network, refer to the appropriate manual.

- POINT I/O ControlNet Adapter User Manual, publication 1734-UM008
- POINT I/O EtherNet/IP Adapter User Manual, publication 1734-UM011
- POINT I/O PROFIBUS Adapter Module User Manual, publication 1734-UM005

Configuring POINT I/O Modules

To configure POINT I/O modules, use RSNetWorx software to identify the network and configure the I/O modules with electronic data sheet (EDS) files. To obtain EDS files for use in configuration, go to http://www.ab.com/networks/eds.

Commissioning a Node

Methods for commissioning nodes are the following:

- RSNetWorx commissioning pull-down
- Sequential Auto Addressing feature
- Third-party configuration software

Using the RSNetWorx Commissioning Tool

The RSNetWorx commissioning tool lets you commission devices (set the node address and the data rate parameters) that are either connected to a DeviceNet network or connected via a point-to-point connection.

The node commissioning tool works through RSLinx software; RSNetWorx software does not have to be online when performing the operation.

Before you can add any device to a DeviceNet network, you must commission it. This means you must program into the device a node address and data rate. Some devices are precommissioned, meaning a node address (usually set to 63) and a data rate (usually set to 125 Kbps) are programmed into the device at the factory prior to shipment. You need to commission other devices in the field. Once a

device has been commissioned and attached to a network, you can use the RSNetWorx for DeviceNet node commissioning tool to edit the node address and data rate that were set previously.

Exercise caution while editing node addresses when on a network. When you apply a new node address, it immediately overwrites the node address data in the device currently specified. If you decide to reassign node addresses, you should first determine the order in which this needs to be done so that all the devices still have unique node addresses when you finish.

For example, if two of the devices on your network are a photoelectric sensor and a hand controller and you accidentally change the node address of the hand controller to be the same as that of the photoelectric sensor, then the photoelectric sensor no longer has a unique address. This means it is not able to provide data to the scanner. If you cannot access a device, because you have used its node address for another device, you have to remove it from the network, recommission it, then reinstall it on the network.

ATTENTION: Do not change the data rate of devices while they are connected to a network. Erratic operation may result. We recommend that if you need to change the data rate of a device, you should remove it from the network, establish a point-to-point connection between the PC, which hosts the RSNetWorx for DeviceNet software, and the target device, recommission it, and then, reconnect it to the network.

Use Sequential Auto Addressing

Sequential Auto Addressing (SAA) reassigns the node address of every module to the right of the one you select on the POINTBus network. Each module changes its node address to one greater than its neighbor.

IMPORTANT Make sure the node address of the selected module is the desired value before issuing the SAA command.

When this command is set, each module to the right gets a new address one greater than its neighbor. The addressing ripples through a line of POINT I/O modules, assigning a node number to each module installed in a mounting base on the same POINTBus network.

Follow these steps to Auto Address a line of POINT I/O modules.

1. Set the address of the first module you want to address.
2. Set the Auto Address command to Sequential Address.

   All modules in line reset with new sequential addresses.

For example, assume you have five POINT I/O modules in a line, and the address of the first module is 10. After the Sequential Address command is sent to the first module, the node address of the line is 10, 11, 12, 13, and 14.

Using Third-party Configuration Software

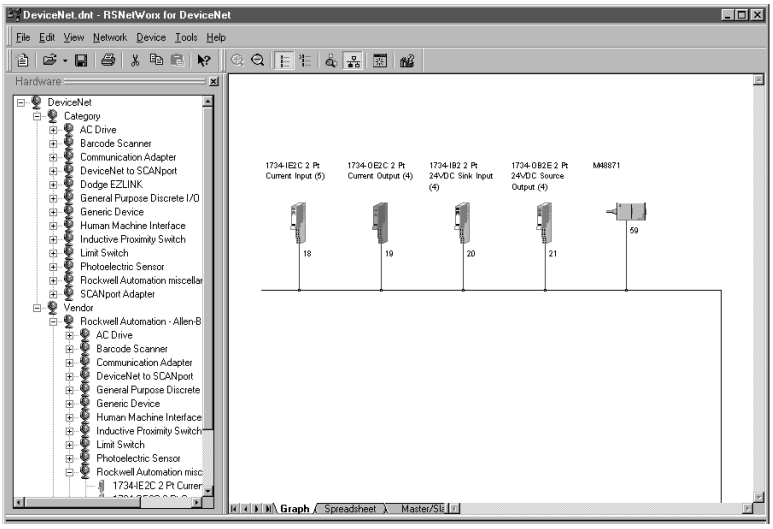
When using third-party configuration software, load the EDS files into the software and follow the designers instructions.

Configure Digital Modules Using RSNetWorx Software

To configure digital input modules, proceed as follows, noting that input modules use dialogs similar to the one for the 1734-IB4 modules used in this procedure.

1. Open your RSNetWorx for DeviceNet software.
2. Using the selections on the left, construct your system.

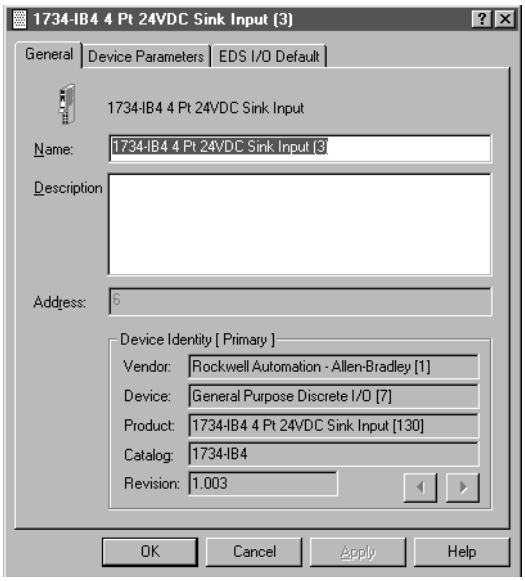
   If your network is up, click Browse.



3. After setting up your system, double-click the module you want to configure.

   If you are online, upload the configuration.

A dialog similar to the following appears.



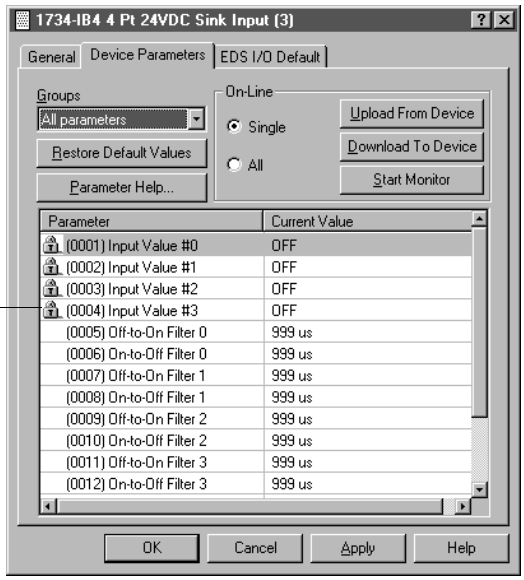
4. Click the Device Parameters tab to get to the dialog for setting the parameters.

Configure Input Modules

See the figure for a Device Parameters dialog for a 1734-IB4 input module example. All digital input modules have parameters similar to this example.

On this dialog, you see all the parameters for the module. These include filters, autobaud, sequential addressing, and communication rate(if not using autobaud).

If you see a lock next to an entry, you can't change that parameter.

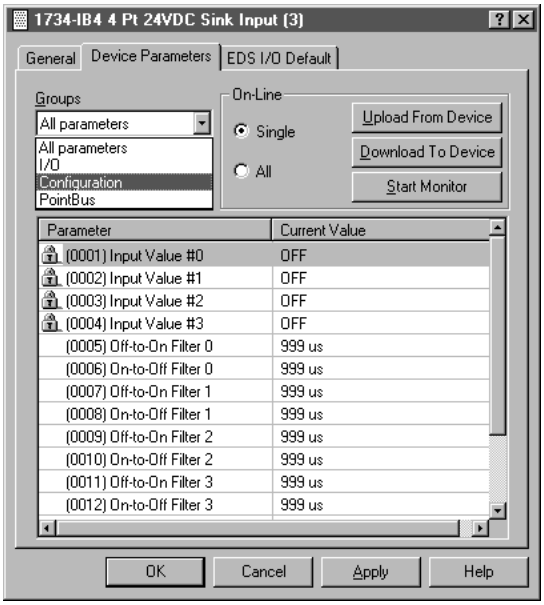


The Group's pull-down includes the following:

- All parameters
- I/O
- Configure
- POINTBus

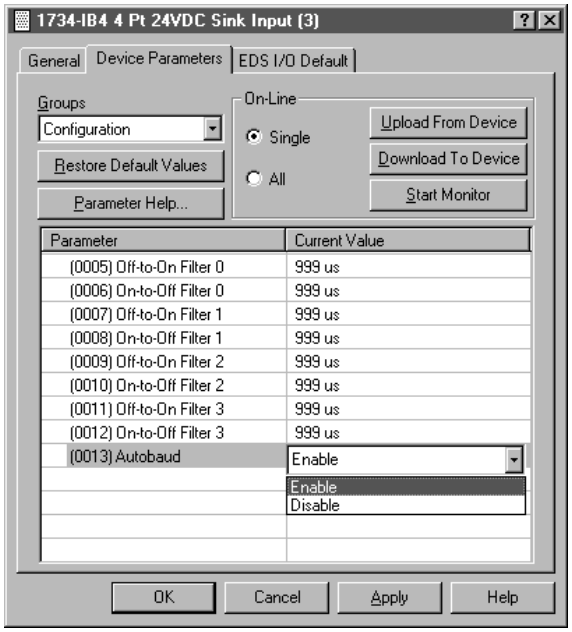
To complete entries from the Device Parameters dialog, use this procedure.

1. From the General Parameters dialog, at the groups list Select Configuration and the parameters you want.
2. From the Device Parameters dialog, select Single and change or configure parameters one at a time, or select All to change all selections at once.

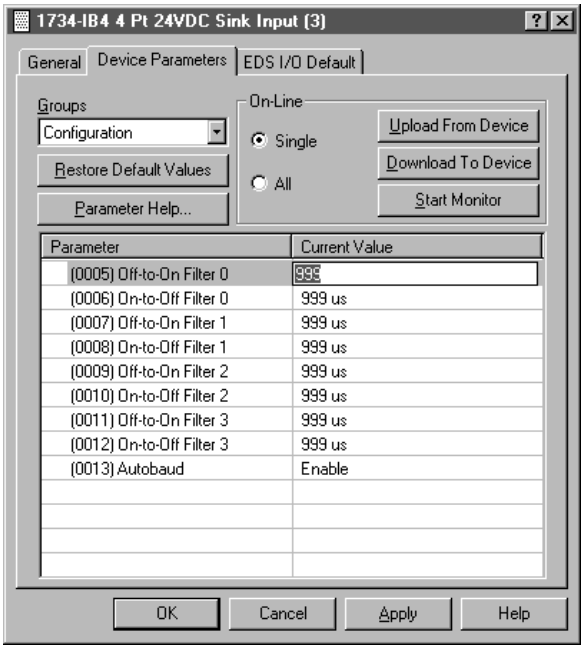


Note that if autobaud is selected, the communication rate of this module automatically matches the communication rate of the existing devices on

the network, and you are prevented from selecting a specific communication rate.



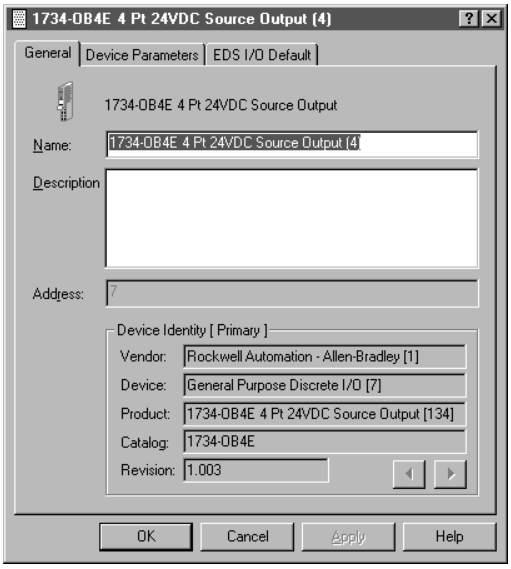
3. From the Device Parameters dialog, select the filter of your choice by selecting and typing in the filter time, noting that each input channel can have its own time selection.
4. From the Device Parameters dialog, click Download to Device.



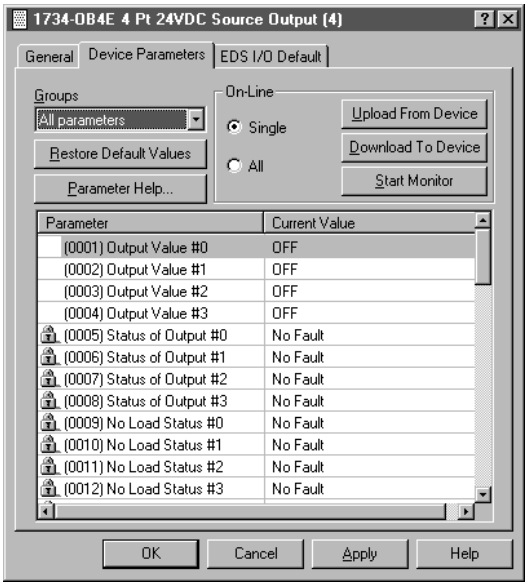
Configure Output Modules

To configure output modules, follow this procedure. Output modules use dialogs similar to the one for the 1734-OB4E output module used in this procedure.

1. From the General Parameters dialog, click Device Parameters to get the dialog for setting parameters.



2. From the Device Parameters dialog, set parameters for the module to include sequential addressing and autobaud or, if not using autobaud, communication rate.

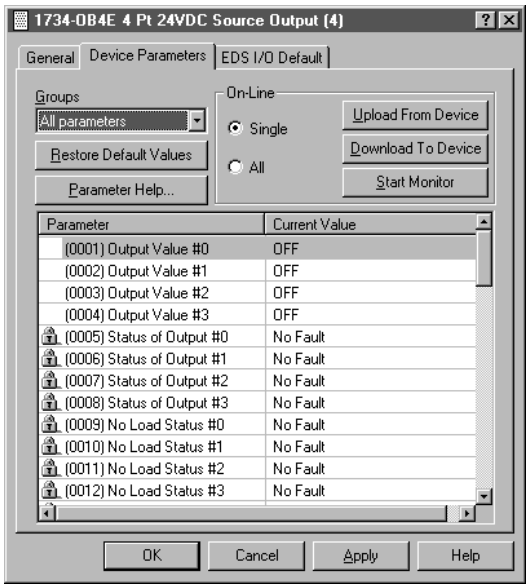


The Group's pull-down menu includes the following:

- All parameters
- I/O output value

- I/O output status
- Reset services
- POINTBus
- Configuration

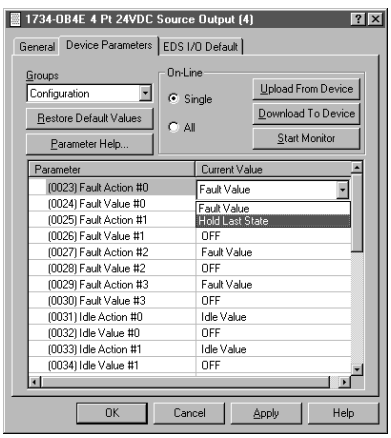
3. At the Groups pull-down menu, select Configuration and the parameters you want.

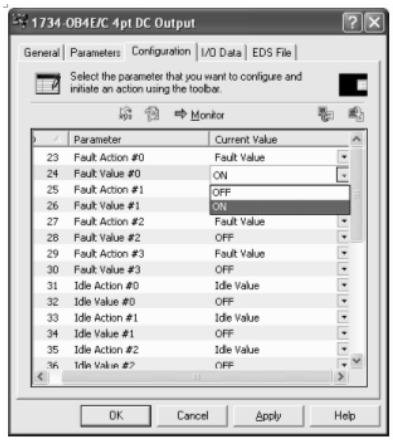


4. Select Single to change or configure parameters one at a time, or All to change all selections at once, noting that configurable parameters include the following:
   - Fault Value - Off/on
   - Fault Action - Fault value/hold last state
   - Idle Value - Off/on
   - Idle Action - Idle value/hold last state
   - Enable no load - No load enabled/no load disabled
   - Reset mode - Latch off/auto restart
   - Autobaud - Enable/disable

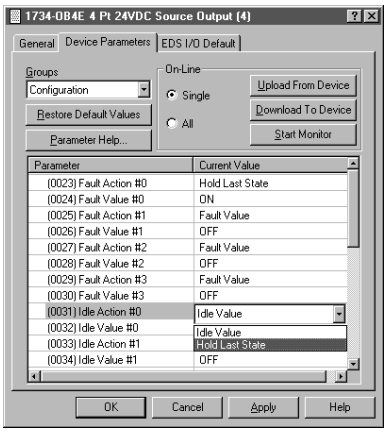
   Note that if autobaud is selected, the communication rate of this module automatically matches the communication rate of the existing devices on the network and you are locked out from selecting a communication rate.

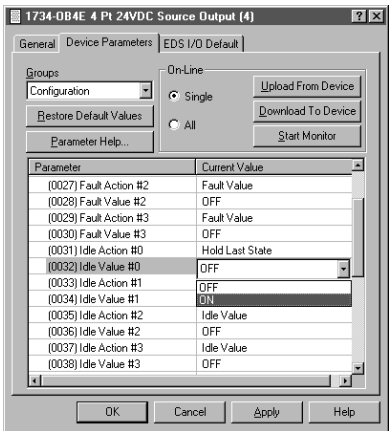
See the figures for dialogs for selecting Fault Action and Fault Value.



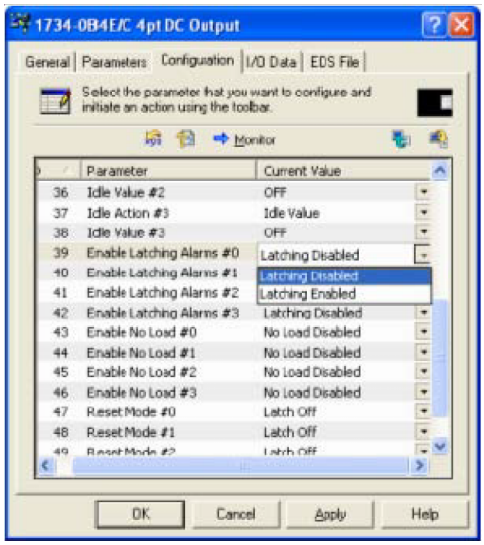


See the figure for a dialog for selecting Idle Action and Idle Value.

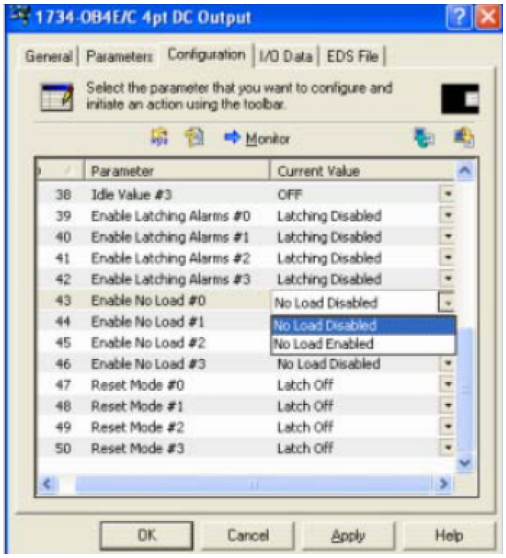




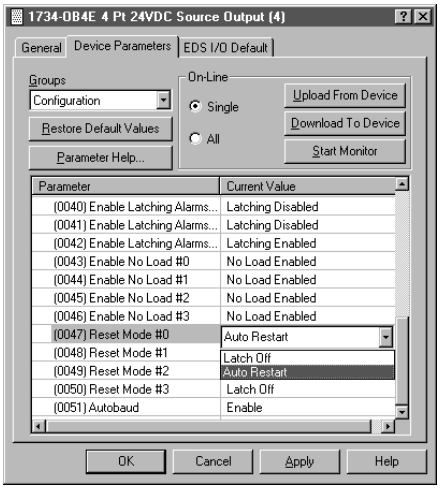
See the figure for a dialog for Latching Alarms parameter select.



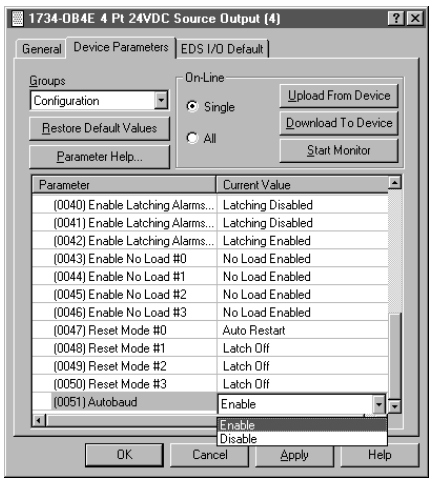
See the figure for a dialog for selecting Enable No Load.



See the figure for a dialog for selecting Reset Mode.



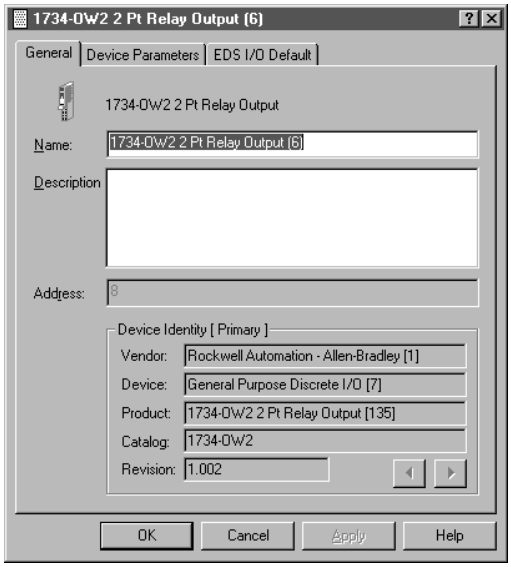
See the figure for a dialog for selecting autobaud.



5. From the Device Parameters dialog, click Download to Device.

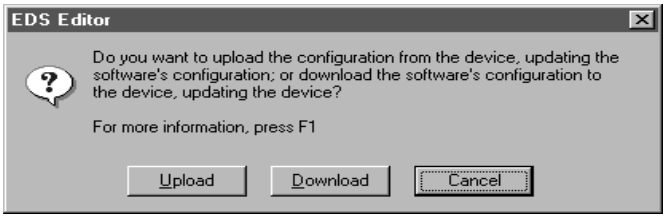
To configure the 1734-OW2 relay output module, use this procedure.

1. From the General dialog, click Device Parameters to get the dialog for setting parameters.

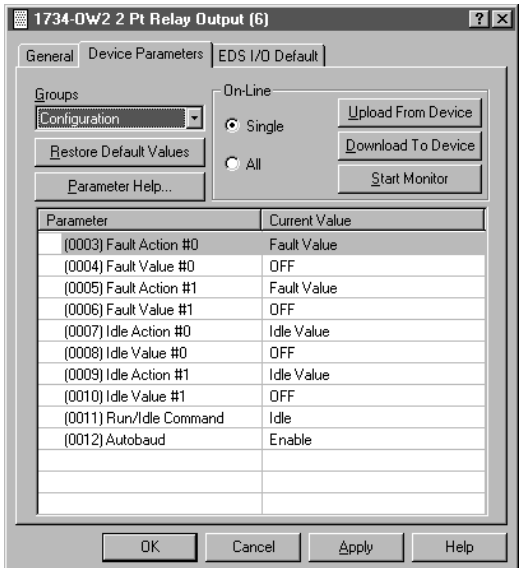


You see the EDS Editor.

2. From the EDS Editor, click Upload to load the latest information.



3. From the Device Parameters dialog, click Configuration to set the parameters for the module to include sequential addressing and autobaud, or, if not using autobaud, the communication rate.



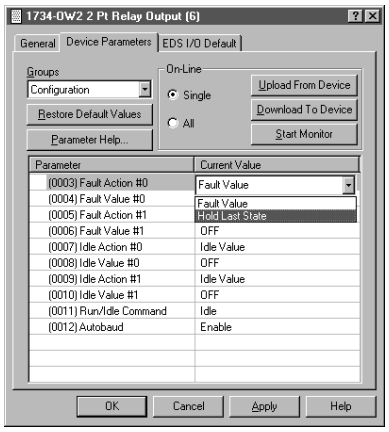
The Groups pull-down menu includes the following:

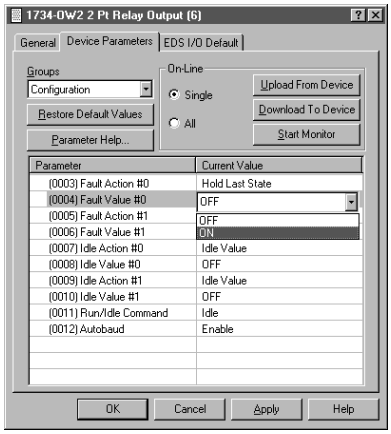
- All parameters
- I/O
- POINTBus
- Configuration - Select to set the paramters

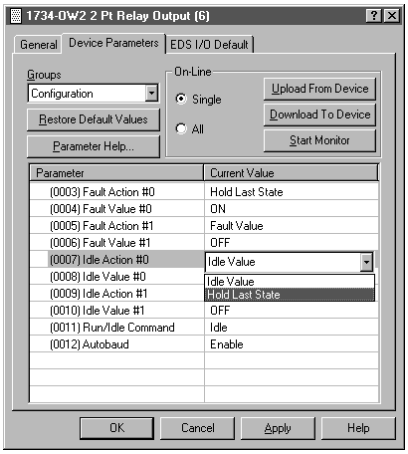
Note that configurable parameters include the following:

- Fault Action - Fault value/Hold Last State
- Fault Value - Off/On
- Idle Action - Idle value/Hold Last State
- Idle Value - Off/On
- Run/Idle Command - Idle/Run

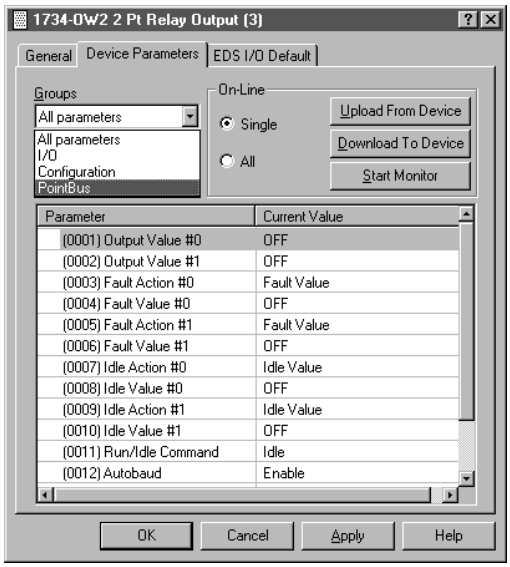
- Autobaud - Enable/Disable





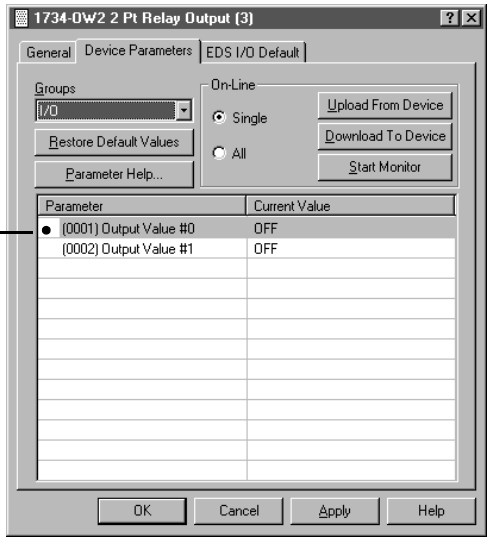


4. From the Device Parameters dialog, at Groups select All parameters to display each item and POINTBus to display only the run/idle command and autobaud.



5. From the Device Parameters dialog, to monitor the output, click Start Monitor, noting the following:
   - The output value is displayed for each scan.
   - Click All to scan all values.
   - The Start Monitor button turns to Stop Monitor during monitoring.
   - Click Stop Monitor to stop monitoring the selected parameters.
   - Identify monitoring by a ball appearing momentarily next to the selected item during each scan.

Monitoring is identified by the ball appearing momentarily next to the selected item during each scan.



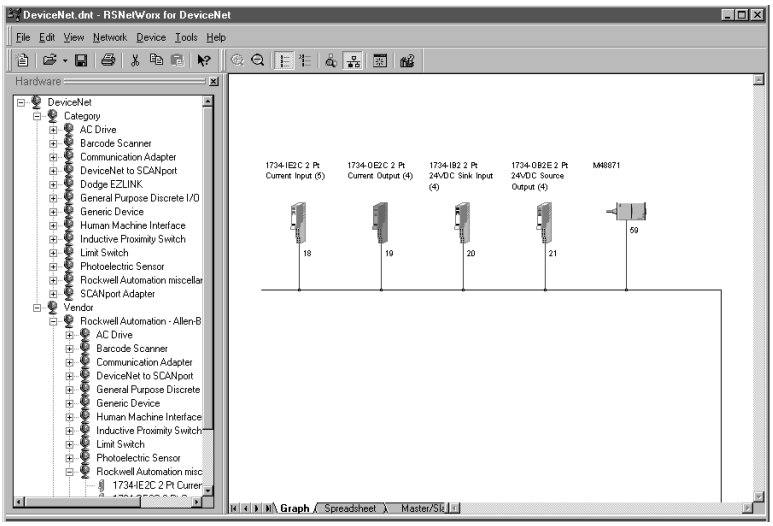
Configure Analog Modules Using RSNetWorx Software

Read this for a description of how to configure any analog module. The 1734-IE2C and 1734-OE2C modules in this procedure are representative of input and output analog modules. The actual dialogs for your particular module may not be identical to the ones shown here. To configure analog input modules, proceed as follows.

1. Open your RSNetWorx for DeviceNet software.

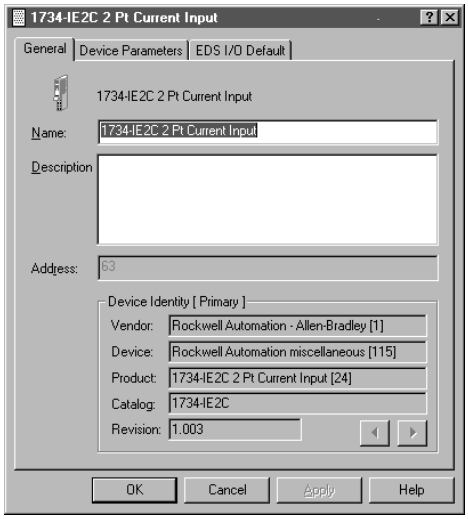
   You see the RSNetWorx for DeviceNet dialog.

2. From the RSNetworx for DeviceNet dialog, use the selections in the window on the left construct your system, or if your network is up, click Browse.



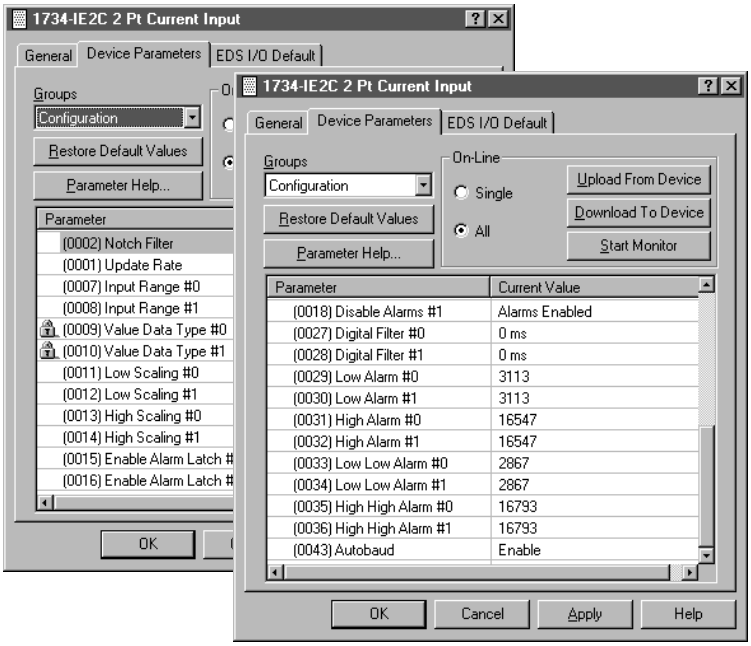
3. Double-click the graphic for the desired module to display the General dialog.

4. From the General dialog, click Device Parameters to see the dialog for setting parameters.



An EDS Editor dialog appears.

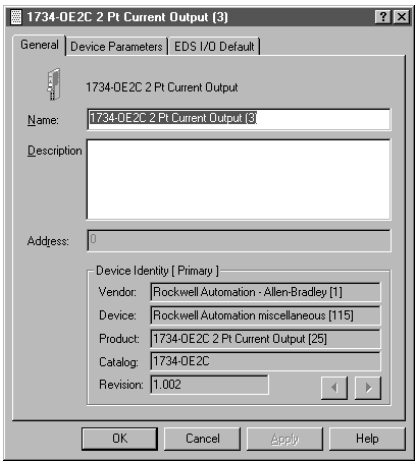
5. From the EDS Editor dialog, click Upload to upload existing parameters from the device.
6. From the Device Parameters dialog, at the Groups list select Configuration to select parameters.
7. Select Single to change or configure parameters one at a time or All to change all selections at once.
8. Change the configuration, or apply the uploaded parameters, noting that to change the parameters you must downlown to the device.



To configure the analog output module, use this procedure.

1. Double-click the icon.

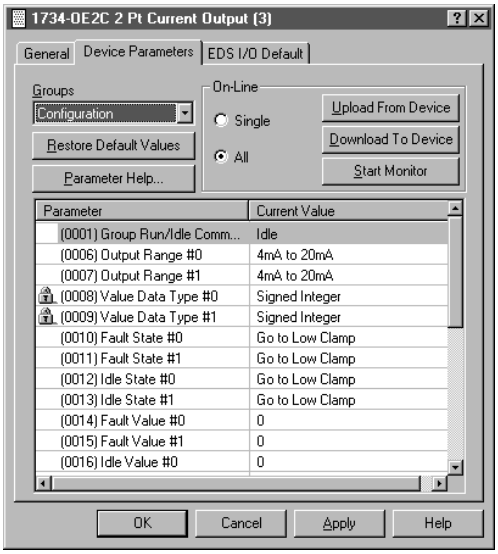
   The General dialog appears.



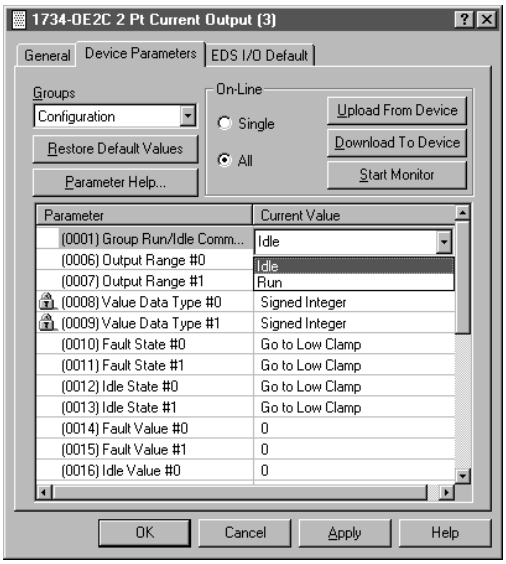
2. From the General dialog, click Device Parameters to set parameters.

   You see the EDS Editor dialog.

3. From the EDS Editor dialog, click Upload to upload existing parameters from the device.
4. From the Device Parameters dialog, from Groups select Configuration.



5. From the Device Parameters dialog, set Run or Idle, noting that any parameter with a lock indicated next to it is nonchangeable..



6. Select values for current or voltage.

   For current, click one of the following:

   - 4...20 mA
   - 0...20 mA

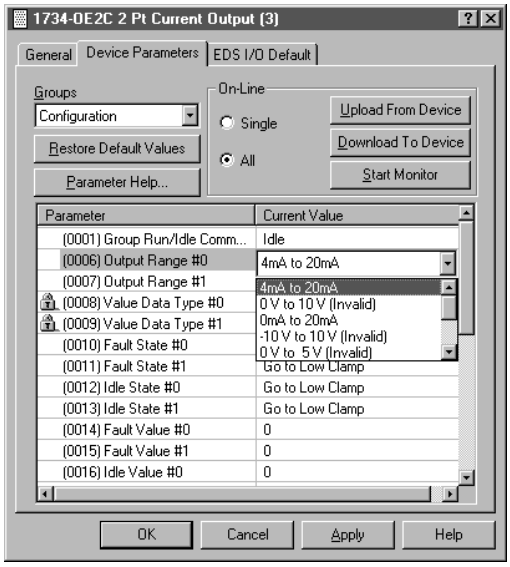
   For voltage, click one of the following:

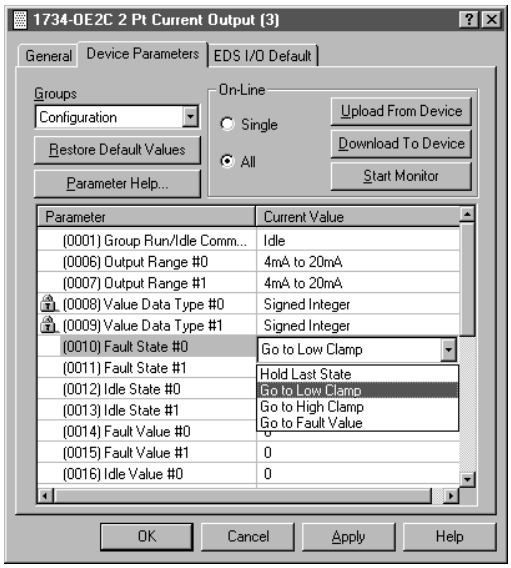
   - 0...10V
   - -10...+10V

   Note that fault states include the following:

   - Hold Last state
   - Go to Low Clamp
   - Go to High Clamp

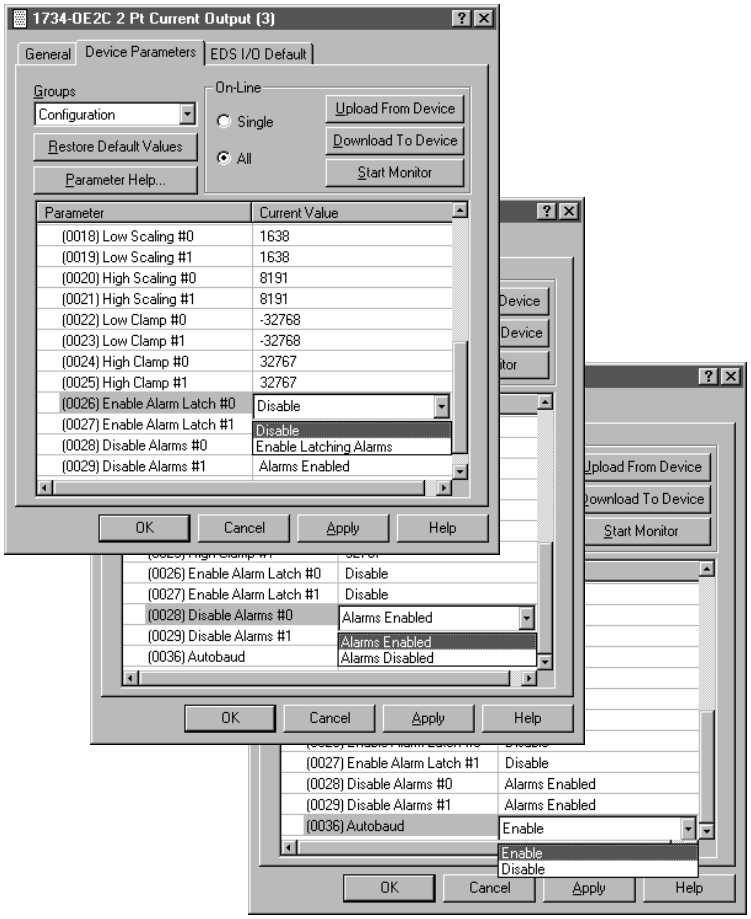
- Go to Fault Value





7. For Enable Alarm Latch, select Enable Latching Alarms or Disable.
8. For Disable Alarm, select Alarms Enabled or Alarms Disabled.
9. For Autobaud, select Enable or Disable.

With current or voltage modules if you change range values, note that it affects range or scaling of the module.



Numerics

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Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://www.rockwellautomation.com/support/, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

Installation Assistance

If you experience a problem within the first 24 hours of installation, review the information that is contained in this manual. You can contact Customer Support for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/support/americas/phone_en.html, or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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