



Installation Instructions

POINT I/O DeviceNet Communication Interface Module

Catalog Number 1734-PDN, Series B

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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.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc., is prohibited.

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.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
 ATTENTION	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you: <ul style="list-style-type: none">• identify a hazard• avoid a hazard• recognize the consequence
 SHOCK HAZARD	Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that dangerous voltage may be present.
 BURN HAZARD	Labels may be located on or inside the equipment (e.g., drive or motor) to alert people that surfaces may be dangerous temperatures.

ATTENTION**Preventing Electrostatic Discharge**

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.
 - If available, use a static-safe workstation.
 - When not in use, store the equipment in appropriate static-safe packaging.
-

ATTENTION**Environment and Enclosure**

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 meters 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.

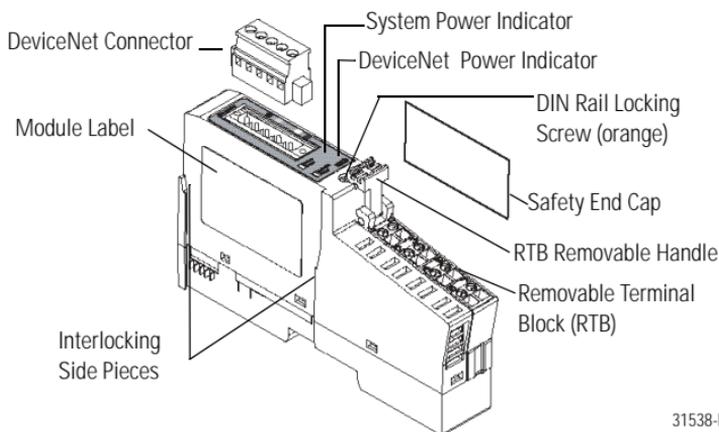
ATTENTION

POINT I/O is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail material (e.g., aluminum, plastic, etc.) 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.

Identify Module Components

Use the figure to identify the external features of the module.



Install the Module

To install the module on the DIN rail, proceed as follows.

ATTENTION



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. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

1. Position the module vertically above the DIN rail
2. Press down firmly to install the module on the DIN rail.

The locking mechanism will lock the module to the DIN rail.

3. Remove the safety end cap by sliding it up to expose the backplane and power interconnections.

ATTENTION



Do not discard the end cap. Use this end cap 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.

Install the Module in an Existing System

To install a replacement module in an existing system, proceed as follows.

1. To remove the module from the DIN rail, pull up on the RTB removal handle to remove the terminal block.

WARNING

When you connect or disconnect the Removable Terminal Block (RTB) with field-side power applied, 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.

2. Use a small-bladed screwdriver to rotate the DIN rail locking screw to a vertical position.

This releases the locking mechanism.

3. Lift straight up to remove.
4. Position the module vertically above the DIN rail.
5. Slide the module down so that the interlocking side pieces engage the adjacent module.
6. Press firmly to seat the module on the DIN rail.

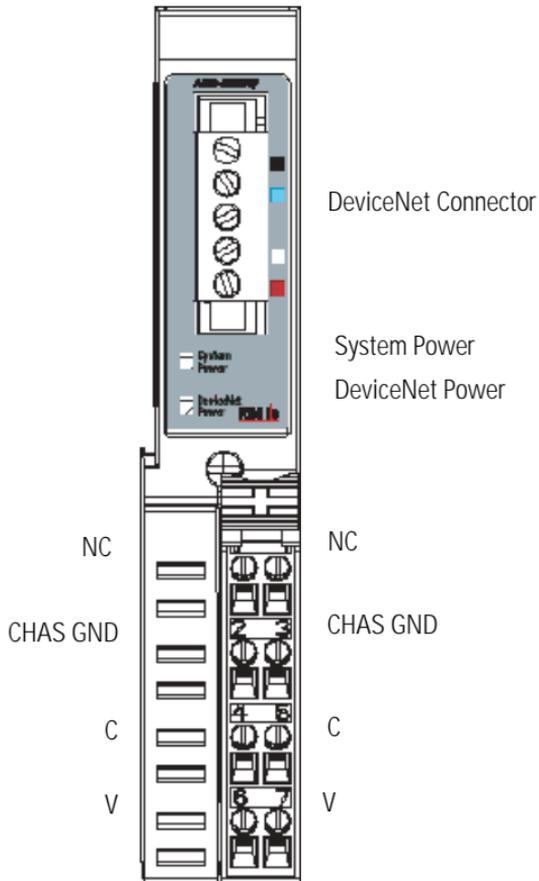
The module locking mechanism will snap into place.

Wire the Module

WARNING



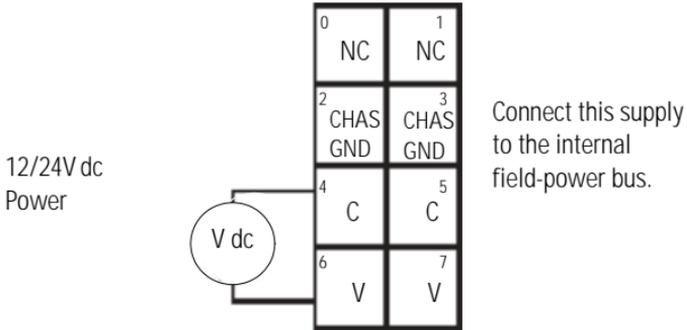
If you connect or disconnect wiring while the field-side power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.



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

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12/24V dc Wiring



NC = No Connection
C = Common

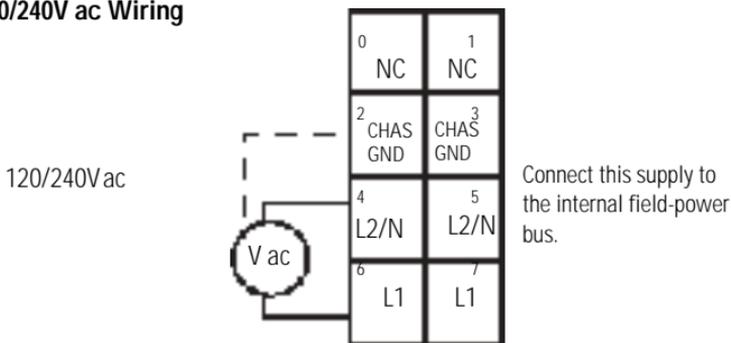
CHAS GND = Chassis Ground
V = Supply

43960

Connect	Terminal In	Terminal Out
+V dc	6	7
-V dc	4	5
Chas Gnd	2	3

12/24V dc becomes the internal field-power bus for modules to the right.

120/240V ac Wiring



NC = No Connection
 L2/N = Neutral, L1 = 120/240V ac
 CHAS GND = Chassis Ground

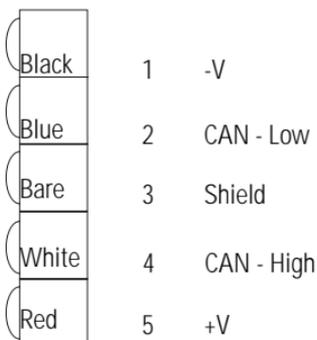
43961

Connect	Terminal In	Terminal Out
L1	6	7
L2/N	4	5
Chas Gnd	2	3

120/240V ac becomes the internal field-power for modules to the right.

DeviceNet Wiring

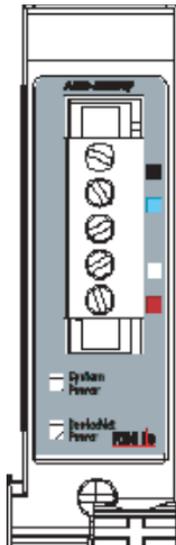
DeviceNet
 Connection



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Troubleshoot with Indicators

Use the status indicators to troubleshoot your module.



System Power

DeviceNet Power

41970

Indicator	Indication	Probable Cause
System Power	Off	Not active DeviceNet power is off or DC-DC converter problem.
	Green	System power is on. DC-DC converter is active (5V).
DeviceNet Power	Off	Not active DeviceNet power is OFF.
	Green	Power is on with 24V present.

North American Hazardous Location Approval

<p>The following information applies when operating this equipment in hazardous locations:</p>	<p>Informations sur l'utilisation de cet équipement en environnements dangereux:</p>
<p>Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>
<p>WARNING</p> 	<p>EXPLOSION HAZARD -</p> <ul style="list-style-type: none"> • 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.
<p>AVERTISSEMENT</p> 	<p>RISQUE D'EXPLOSION –</p> <ul style="list-style-type: none"> • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapte à une utilisation en environnement de Classe 1, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

European Hazardous Location Approval

European Zone 2 Certification (The following applies when the product bears the EEx marking.)

This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC.

DEMKO certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of Category 3 equipment intended for use in potentially explosive atmospheres, given in Annex II to this Directive.

The examination and test results are recorded in confidential report No 03NK30347.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50021.

IMPORTANT

Observe the following additional Zone 2 certification requirements.

- This equipment is not resistant to sunlight or other sources of UV radiation.
 - The secondary of a current transformer shall not be open-circuited when applied in Class I, Zone 2 environments.
 - Equipment of lesser Enclosure Type Rating must be installed in an enclosure providing at least IP54 protection when applied in Class I, Zone 2 environments.
 - This equipment shall be used within its specified ratings defined by Allen-Bradley.
 - Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Class I, Zone 2 environments.
-

Specifications

Communication Interface Specifications

Expansion I/O Capacity	<p data-bbox="406 306 923 356">Up to 17 modules, dependent on backplane bus current draw (17 times 75mA = 1.275A, just under the limit of 1.3A)</p> <p data-bbox="406 356 923 379">The actual number of modules can vary.</p> <p data-bbox="406 379 923 450">Add up the current requirements of the modules you want to use to make sure they do not exceed the amperage limit of the 1734-PDN module.</p> <p data-bbox="406 450 923 473">Cat. No. POINTBus Current Requirements</p> <table data-bbox="406 473 923 1268"> <tr><td>1734-IB2</td><td>75mA</td></tr> <tr><td>1734-IB4</td><td>75mA</td></tr> <tr><td>1734-IB8</td><td>75mA</td></tr> <tr><td>1734-IV2</td><td>75mA</td></tr> <tr><td>1734-IV4</td><td>75mA</td></tr> <tr><td>1734-OB2</td><td>75mA</td></tr> <tr><td>1734-OB4</td><td>75mA</td></tr> <tr><td>1734-OB8</td><td>75mA</td></tr> <tr><td>1734-OB2E</td><td>75mA</td></tr> <tr><td>1734-OB2EP</td><td>75mA</td></tr> <tr><td>1734-OB4E</td><td>75mA</td></tr> <tr><td>1734-OB8E</td><td>75mA</td></tr> <tr><td>1734-OV2E</td><td>75mA</td></tr> <tr><td>1734-OV4E</td><td>75mA</td></tr> <tr><td>1734-OW2</td><td>80mA</td></tr> <tr><td>1734-OW4</td><td>80mA</td></tr> <tr><td>1734-OX2</td><td>100mA</td></tr> <tr><td>1734-IE2C</td><td>75mA</td></tr> <tr><td>1734-OE2C</td><td>75mA</td></tr> <tr><td>1734-IE2V</td><td>75mA</td></tr> <tr><td>1734-OE2V</td><td>75mA</td></tr> <tr><td>1734-IA2</td><td>75mA</td></tr> <tr><td>1734-IM2</td><td>75mA</td></tr> <tr><td>1734-OA2</td><td>75mA</td></tr> <tr><td>1734-IJ</td><td>160mA</td></tr> <tr><td>1734-IK</td><td>160mA</td></tr> <tr><td>1734-IR2</td><td>220mA</td></tr> <tr><td>1734-IT2I</td><td>175mA</td></tr> <tr><td>1734-SSI</td><td>110mA</td></tr> <tr><td>1734-232ASC</td><td>75mA</td></tr> <tr><td>1734-VHSC5</td><td>180mA</td></tr> <tr><td>1734-VHSC24</td><td>180mA</td></tr> <tr><td>1734-485ASC</td><td>75mA</td></tr> </table>	1734-IB2	75mA	1734-IB4	75mA	1734-IB8	75mA	1734-IV2	75mA	1734-IV4	75mA	1734-OB2	75mA	1734-OB4	75mA	1734-OB8	75mA	1734-OB2E	75mA	1734-OB2EP	75mA	1734-OB4E	75mA	1734-OB8E	75mA	1734-OV2E	75mA	1734-OV4E	75mA	1734-OW2	80mA	1734-OW4	80mA	1734-OX2	100mA	1734-IE2C	75mA	1734-OE2C	75mA	1734-IE2V	75mA	1734-OE2V	75mA	1734-IA2	75mA	1734-IM2	75mA	1734-OA2	75mA	1734-IJ	160mA	1734-IK	160mA	1734-IR2	220mA	1734-IT2I	175mA	1734-SSI	110mA	1734-232ASC	75mA	1734-VHSC5	180mA	1734-VHSC24	180mA	1734-485ASC	75mA
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Communication Interface Specifications (continued)

Communication Rate	125K bit/s (500m maximum) 250K bit/s (250m maximum) 500K bit/s (100m maximum)
DeviceNet Power Requirements	24V dc (+4% = 25V dc max) @ 400mA maximum
DeviceNet Cable	Allen-Bradley part number 1485C-P1-Cxxx Refer to publication NETS-SG001 for more information.
Module Location	Starter module - left side of 1734 system

DeviceNet Power Supply Specifications

Input Voltage Rating	24V dc nominal
Input Voltage Range	11...25V dc DeviceNet specification
Input Overvoltage Protection	Reverse polarity protected
Inrush Current	6A for 5ms maximum
Indicators	2 green power supply status indicators: System Power (POINTBus 5V power) DeviceNet Power (24V from DeviceNet)
Supply Power and Current Ratings	DeviceNet power must be supplied by a Class 2 source.
Power Supply	User supplied power should be separate from DeviceNet power.

General Specifications

POINTBus Output Current	1.3A maximum @5V dc \pm 5% (4.75...5.25)
Power Consumption	8.0W @25V dc
Power Dissipation	1.2W maximum @ 25V dc
Thermal Dissipation	4.1 BTU per hour, maximum @ 25V dc
Isolation Voltage (continuous-voltage withstand rating)	50V continuous Tested to withstand 2600V dc for 60s
Field Power Bus Supply Current Supply Voltage	10A maximum 10...28.8V dc range, 120V ac or 240V ac
Dimensions Inches (Millimeters)	3.0H x 1.0W x 5.25L (76.2H x 25.4W x 133.4L)
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock) -20...55 °C (-4...131 °F)
Storage Temperature	IEC60068-2-1 (Test Ab, Unpackaged Non-operating Cold) IEC60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat) IEC60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock) -40...85 °C (-40...185 °F)
Relative Humidity	IEC60068-2-30 (Test Db, Unpackaged Non-operating Damp Heat) 5...95% non-condensing
Shock Operating	IEC60068-2-27 (Test Ea, Unpackaged Shock) 30 g
Shock Non-operating	IEC60068-2-27 (Test Ea, Unpackaged Shock) 50 g
Vibration	IEC 60068-2-6 (Test Fc, Operating) 5g @ 10-500Hz
Emissions	CISPR 11: Group 1, Class A
ESD Immunity	IEC6100-4-2 6kV contact discharges 8kV air discharges

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Radiated RF Immunity	IEC 61000-4-3 10V/m with 1KHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900MHz 10V/m with 200Hz 50% Pulse 100%AM at 1890 MHz
EFT/B Immunity	IEC 61000-4-4 +4kV at 2.5kHz on power ports +2kV at 5kHz on communication ports
Surge Transient Immunity	IEC 61000-4-5 ± 1 kV line-line (DM) and ± 2 kV line-earth (CM) on power ports ± 2 kV line-earth (CM) on communication ports
Conducted RF Immunity	IEC61000-4-6 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz
Enclosure Type Rating	None (open-style)
Wire Size	14AWG (2.5 mm ²)...22AWG (0.34 mm ²) solid or stranded copper wire rated @ 75°C or greater 3/64 inch (1.2 mm) insulation maximum
Wiring Category ¹	1 - on signal ports
Terminal Base Screw Torque	0.6 Nm (7 lb-in)
Weight	0.13 kg (0.29 lb)

Certification ² (when product is marked)	c-UL-us	UL Listed Industrial Control Equipment, certified for U.S. and Canada
	c-UL-us	UL Listed for Class I, Division 2, Group A,B,C,D Hazardous Locations, certified for U.S. and Canada
	CE	European Union 89/336/EEC EMC Directive, compliant with: EN 50082-2; Industrial Immunity EN 61326; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions European Union 72/23/EEC LVD Directive, compliant with: EN 61131-2; Programmable Controllers
	C-Tick	Australian Radiocommunications Act, compliant with: AS/NZS CISPR11; Industrial Emissions
	EEx	European Union 94/9/EC ATEX Directive, compliant with: EN 50021; Potentially Explosive Atmospheres, Protection "n" (Zone 2) when used at or below 60V ac or 75V dc
	ODVA	ODVA conformance tested to DeviceNet specifications

- 1 Use this Conductor Category information for planning conductor routing. Refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.
- 2 See the Product Certification link at www.ab.com for Declarations of Conformity, Certificates, and other certification details.

POINT I/O and POINTBus are trademarks of Rockwell Automation.
DeviceNet is a trademark of the Open DeviceNet Vendor Association.

Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using its products. At <http://support.rockwellautomation.com>, 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://support.rockwellautomation.com>.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running:

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell 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:

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

www.rockwellautomation.com

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