Installation Instructions

Ethernet Network Appliance (with Network Address Translation)

Catalog Number 9300-ENA

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.

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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.
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 identify a hazard, avoid a hazard, and recognize the consequences.
SHOCK HAZARD	Labels may be on or inside the equipment (for example, 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.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
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.	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.
WARNING ⚠ **EXPLOSION HAZARD -** - 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.	**AVERTISSEMENT** ⚠ **RISQUE D'EXPLOSION –** - 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 inadapté à une utilisation en environnement de Classe I, Division 2. - S'assurer que l'environnement est classé non dangereux avant de changer les piles.

European Hazardous Location Approval

ATTENTION	This equipment is intended for use in potentially explosive atmospheres as defined by European Union Directive 94/9/EC and 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. Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-15 and EN 60079-0.

WARNING	• This equipment is not resistant to sunlight or other sources of UV radiation. • This equipment must be installed in an enclosure providing at least IP54 protection when applied in Zone 2 environments. • This equipment shall be used within its specified ratings defined by Rockwell Automation. • Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 40% when applied in Zone 2 environments. • Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.

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 (6562 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 enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA, V2, V1, V0 (or equivalent) if non-metallic. 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.

In addition to this publication, see the following publications:

- Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1, for additional installation requirements

- NEMA Standards publication 250, and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures

Preventing 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.

ATTENTION	To comply with the CE Low Voltage Directive (LVD), all connections ot this equipment must be powered from a source compliant with the following: Safety Extra Low Voltage (SELV) or Protected Extra Low Voltage (PELV).

ATTENTION	To comply with UL restrictions, all connections to this equipment must be powered from a source compliant with the following: Class 2.

The figure shows Ethernet port identification for the 9300-ENA.

Ethernet Port Identification

Uplink

Local

Configuration
Port
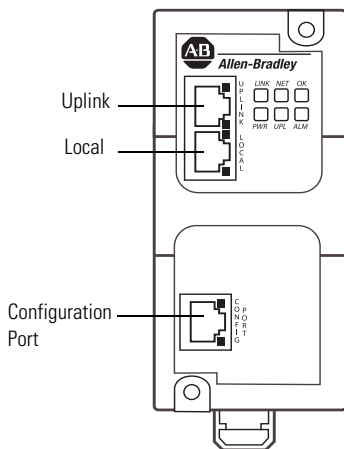
31871-M

Install the Modules

Mount the modules, as shown, in the vertical position only. We do not recommend horizontal mounting due to thermal considerations. When mounting, provide 50 mm (2 in.) of space on all sides for adequate heat dissipation.

IMPORTANT	Use care with the plastic DIN rail clip.

WARNING	If you connect or disconnect the communication cable with power applied to this module or any device on the network, 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.

| **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.

DIN Rail Mounting

Read this section for information on how to install and remove a module using DIN rail mounting.

Install the Module

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

1. Mount your DIN rail.

2. Snap the DIN-rail latch into the closed position.

3. Hook the top slot over the DIN rail and push the module into position on the DIN rail.


31873-M
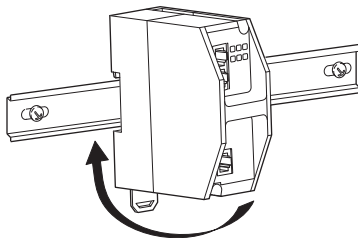
Remove the Module

To remove the module from DIN rail, proceed as follows.

1. Place a screwdriver in the DIN-rail latch at the bottom of the module.

2. Hold the module and pry downward on the latch until the module is released from the DIN rail.

31874-M
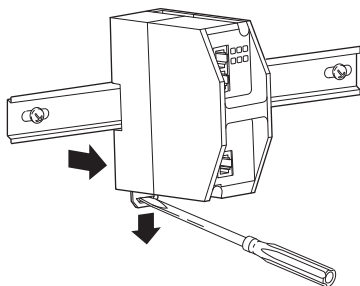
Panel Mounting

Provide 15 mm (0.6 in.) clearance for DIN-rail latch movement during installation and removal. Dimensions in the figure are in mm (in.). These views are not actual size.
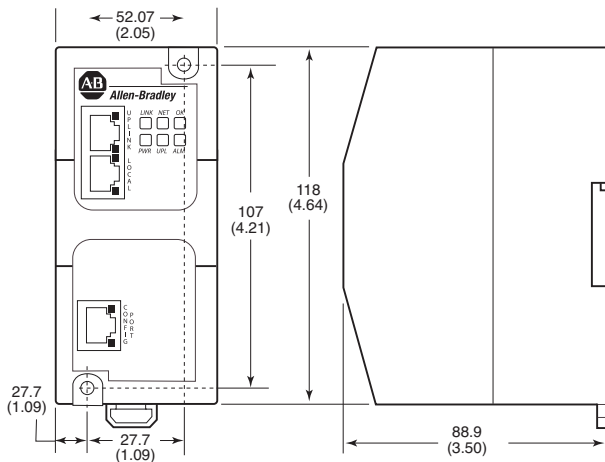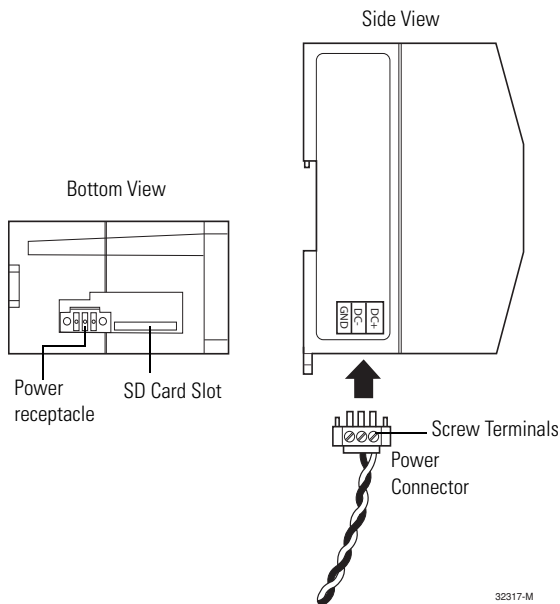

3216-M

Wire the Module

Read this section for information about external power supply wiring.

Provide low voltage DC power to the module by using the screw terminals contained in the power connector.
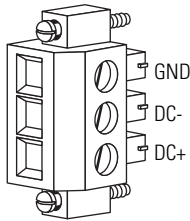
Side View

Bottom View

Power receptacle

SD Card Slot

GND
DC-
DC+

Screw Terminals

Power Connector

32317-M

Follow these steps to prepare the DC power cable.

1. Locate the power connector.

GND
DC-
DC+

32322-M

2. Identify the positive and return DC power connections on the connector.

   The positive DC power connection is labeled DC+ and the negative DC power connection in the adjacent connection labeled DC-.

3. Measure a length of 0.82...0.52 mm^2 (18...20 AWG) copper wire long enough to connect to the DC power source.

4. Using an 18-gauge wire-stripping tool, strip each of the two wires to 6.3 mm (0.25 in.) ±0.5 mm (0.02 in.).

   Do not strip more than 6.8 mm (0.27 in.) of insulation from the wire. Stripping more than the recommended amount of wire can leave exposed wire from the connector after installation.

0.5 inch (12.7 mm)

31789-M

5. Insert the exposed part of the positive wire into the connection labeled DC+ and the exposed part of the return wire into the connection labeled DC-.

Make sure that you cannot see any wire lead. Only wire with insulation should extend from the connector.

6. Use a ratcheting-torque screwdriver to torque the power and relay connector captive screws (above the installed wire leads) to 0.23 N•m (2.0 lb in.).

7. Connect the other end of the positive wire (the one connected to DC+) to the positive terminal on the DC power source, and connect the other end of the return wire (the one connected to DC-) to the return terminal on the DC power source.

Attach the Power Connector

Follow these steps to connect the DC power connector:

1. Insert the power connector into the Power receptacle on the bottom of the unit.

2. Use a screwdriver to tighten the captive screws on the sides of the power connector.

Connect the Copper Ethernet Ports

Follow these steps to connect the copper Ethernet port(s) on the module.

1. Locate the copper Ethernet RJ-45 ports on the module.

2. Connect one end of an Ethernet cable to one of the copper ports on the module.

3. Connect the other end of the Ethernet cable to a device in your Ethernet network.

Grounding Considerations

ATTENTION	You must provide an acceptable grounding path for each device in your application. For more information on proper grounding guidelines, refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines.

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. The functional earth ground connection to the product is through the specified pin on the dc connection terminals.

IMPORTANT	The ground connection is required at the grounding pin on the dc connection terminals

Refer to publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines, for additional information.
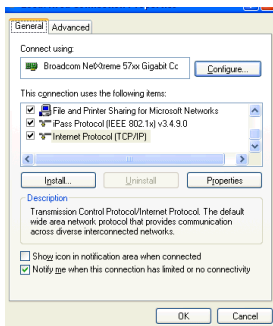
Use the Module

To start using your module, follow this procedure. For information about the status indicators on the module, refer to the LED functions on .

1. Connect the 9300-ENA module's configuration port to your computer's LAN card by using an Ethernet patch cable or cross-over cable and follow these steps.

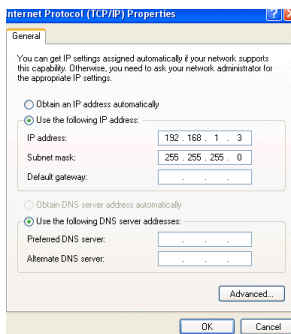   a. Choose Start>Settings>Network Connections and right-click Local Area Connection and Properties.
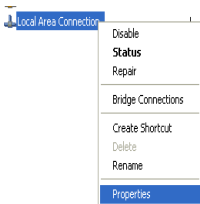
   b. From the Local Area Connection Properties menu, check Ethernet Protocol (TCP/IP), and click Properties.
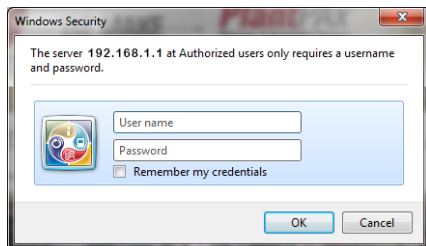
c. From the Ethernet Protocol (TCP/IP) Properties menu, change the IP address to 192.168.1.3 and Subnet mask to 255.255.255.0.

2. Connect to the module via a Web browser by using these steps.

a. Open a browser window.

b. Enter the default IP address of 192.168.1.1 in the address bar, press Enter, and note the following defaults:

• Username should be left blank.

• Password is PASSWORD.

3. Configure the module; you can get complete configuration instructions by clicking the Help tabs to view the embedded manual.
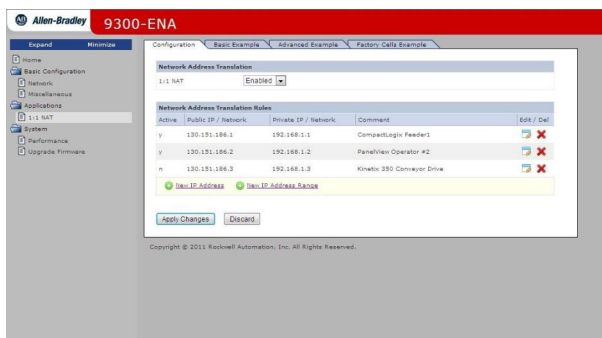
9300-ENA Status Indicators Layout

Reference this chart for status indicator functions when the module is in use.

Indicator	Status	Description
OK	Flashing green/red	Booting (or selftest)
OK	Flashing green	Device operational (heart beat)
OK	Steady red	Unrecoverable fault
NET	Steady green	Cable is plugged in and an IP address is configured on configuration port
LINK	Steady green	SD card connected (not implemented at this time)
UPL	Steady green	Uploading new firmware, uploading new configuration
ALM	Flashing red	Error/alarm code indication

Using the SD Card

The 9300-ENA ships without an SD card installed. Complete these steps to install/remove the SD card from the 9300-ENA.

| **ATTENTION** ⚠	SD slot is for maintenance only and power must be disconnected or the area known to be free of ignitable concentrations of flammable gases or vapors when SD slot is used for maintenance.

| **WARNING** ⚠	When you insert or remove the Secure Digital (SD) memory card while 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.

IMPORTANT	• Verify that the SD card status indicator is off and that the card is not in use before removing it. • We recommend that you do the following: - Use the SD cards available from Rockwell Automation (catalog number 1784-SD1 or 1784-SD2). • While other SD cards may be used with the controller, Rockwell Automation has not tested the use of those cards with the controller. If you use a SD card other than those available from Rockwell Automation, you may experience data corruption or loss. • Also, SD cards not provided by Rockwell Automation do not have the same industrial, environmental, and certification ratings as those available from Rockwell Automation.

1. Verify that the SD card is not in use by checking to be sure the SD indicator is off.

    a. Verify that the SD card is locked or unlocked according to your preference.

Unlocked   Locked
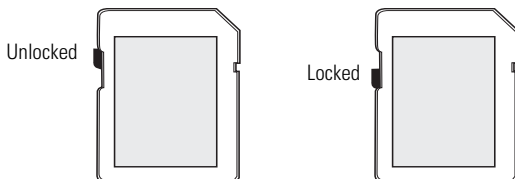
2. Locate the SD card slot on the bottom of the unit.

SD Card Slot
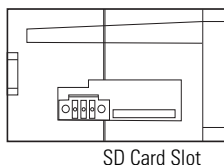
3. Insert the SD card until it latches.

4. To remove, press and release the SD card to eject it.

Specifications

Technical Specifications

Attribute	9300-ENA
Power requirements	12…48V DC Class 2/SELV 250 mA @ 24V D
Power dissipation, max	5.8 W @ 60 °C (140 °F)
Thermal dissipation	24.6 BTU/hr @ 60 °C (140 °F) max
Network ports	3 RJ-45 10/100 full/half duplex ports
Protocols	TCP/IP, EtherNet/IP, Http, DHCP, Bootp, FTP
Indicators	6 port indicators, 6 status indicators
EtherNet/IP features	Link status, connections active
Module features	DHCP client, Bootp client
Voltage variation	IEC 61000-4-29: 10 ms interruption on DC supply ports
Enclosure type rating	Meets IP20
Inrush current, max	2.2 A

Technical Specifications

Attribute	9300-ENA
Isolation voltage	50V (continuous), Basic Insulation Type No isolation between individual Ethernet ports Routine tested at 707V AC for 1 s, DC power ports to ground and DC power ports to Ethernet ports
Wire size	Ethernet connections: RJ45 connector according to IEC 60603-7, 2 or 4 pair Category 5e min cable according to TIA 568-B.1 or Category 5 cable according to ISO/IEC 24702 DC Power connections: 0.33... 3.3 mm^2 (22...12 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater, 1.2 mm (3/64 in.) insulation max Functional Ground connection: 3.3 mm^2 (12 AWG) solid or stranded copper wire rated at 75 °C (167 °F) or greater
Torque	DC power and functional ground: 1.36 N•m (12 lb•in)
Wiring category[1] [2]	2 - on DC power ports 2 - on Ethernet ports
North American temp code	T4
IEC temp code	T3

[1]   Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

[2]   Use this Conductor Category information for planning conductor routing as described in the appropriate system level installation manual.

Environmental Specifications

Attribute	9300-ENA
Emissions	CISPR 11: Group 1, Class A
Temperature, operating	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): 0…60 °C (32…140 °F)
Temperature, nonoperating	IEC 60068-2-1 (Test Ab, Unpackaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Non-operating Thermal Shock): -40…85 °C (-40…185 °F)
Relative humidity	IEC 60068-2-30 (Test Db, Unpackaged Damp Heat): 5…95% noncondensing
Vibration	IEC 60068-2-6 (Test Fc, Operating): 2 g @ 10…500 Hz
Operating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 15 g
Nonoperating shock	IEC 60068-2-27 (Test Ea, Unpackaged Shock): 30 g
ESD immunity	IEC 61000-4-2: 6 kV contact discharges 8 kV air discharges
Radiated RF immunity	IEC 61000-4-3: 10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 1V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity	IEC 61000-4-4: ±2 kV at 5 kHz on power ports ±1 kV at 5 kHz on Ethernet ports

Environmental Specifications

Attribute	9300-ENA
Surge transient immunity	IEC 61000-4-5: ±1 kV line-line (DM) and ±2 kV line-earth CM) on DC power ports ±2 kV line-earth (CM) on shielded Ethernet port
Conducted RF immunity	IEC 61000-4-6: 10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Magnetic field immunity	IEC 61000-4-8: 30 A/m long duration and 300 A/m short duration at 50 and 60 Hz

Certifications

| Certifications (when product is marked)[1]	Value
CE	European Union 2004/108/EC EMC Directive, compliant with: EN 61326-1; Meas./Control/Lab., Industrial Requirements EN 61000-6-2; Industrial Immunity EN 61000-6-4; Industrial Emissions EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
C-Tick	Australian Radiocommunications Act, compliant with: -AS/NZS CISPR11; Industrial Emissions
EtherNet/IP	ODVA conformance tested to EtherNet/IP specifications
c-UL-us	UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E356258. UL Listed for Class I, Divison 2 Group A,B,C,D Hazardous Locations, certified for US and Canada. See UL Files E356259.

[1] See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
EtherNet/IP Industrial Protocol White Paper, publication ENET-WP001	Describes how to implement services and data objects on a TCP/UDP/IP based Ethernet network.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://ra.rockwellautomation.com/literature. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

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, 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. You can also visit our Knowledgebase at http://www.rockwellautomation.com/knowledgebase for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect^{SM} 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, 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 product up and running.

United States	1.440.646.3434
Outside United States	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 (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 the return procedure.

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