Table 2 - 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 utipements 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 be changed only in an area known to be nonhazardous.	**WARNING:** 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.

Table 3 - European Hazardous Location Approval

The following applies to products marked ⟨Ex⟩ II 3 G. Such modules:
• are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Annex II to Directive 94/9/EC. See the EC Declaration of Conformity at http://www.rockwellautomation/products/certification.com for details. The type of protection used is "Ex nA nC IIC T4 Gc" according to EN 60079-15:2010 and EN 60079-0:2012.
• are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, air or dust mixtures are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to ATEX directive 1999/92/EC.

Table 4 - Special Conditions for Safe Use

WARNING: Special Conditions for Safe Use
• This equipment is not resistant to sunlight or other sources of UV radiation.
• This equipment shall be mounted in an ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (as defined in EN/IEC 60529) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments. The enclosure must be accessible only by the use of a tool.
• 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 140% of the rated voltage when applied in Zone 2 environments.
• The instructions in the user manual shall be observed.
• This equipment must be used only with ATEX/IECEx certified Rockwell Automation backplanes.
• 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.
• Do not use the USB port in hazardous locations.

Table 5 - 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 wrist strap.
- 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.

Before You Install the Module

To operate an EtherNet/IP communication module on an EtherNet/IP network, you must assign a network IP address.

Figure 1 - How the IP Address is Set
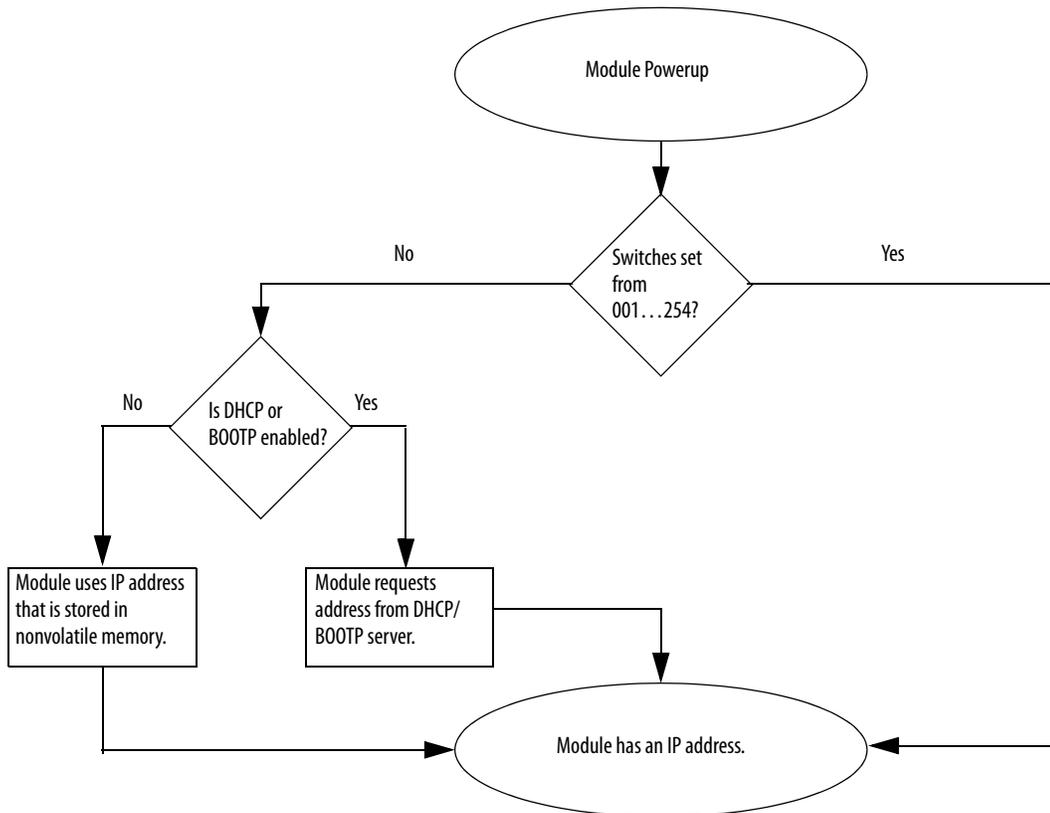
Install the Module

You can install or remove a module while chassis power is on. To install the module, follow these steps.

Table 6 - Removal and Insertion Under Power

⚠	**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. 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.

**Table 7 - Multi-point Network Communication**

⚠	**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.

1. Determine module slot location.

2. Install the communication module in any slot in a ControlLogix® or ControlLogix-XT™ chassis.

   You can install multiple communication modules in the same chassis.

This example shows chassis slot numbering in a 4-slot ControlLogix chassis. Slot 0 is the first slot and is always the left-most slot in the chassis.
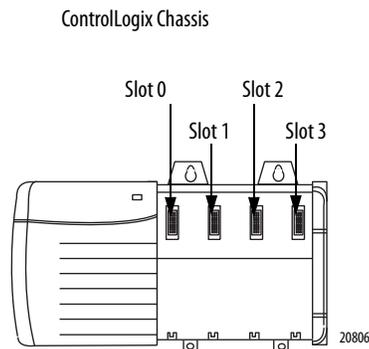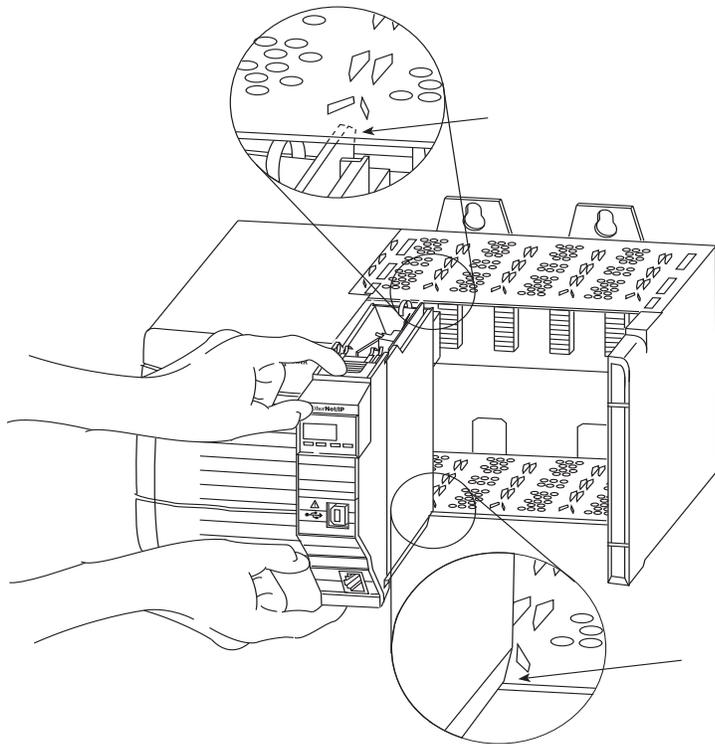

ControlLogix Chassis

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

| ⚠	**ATTENTION:** Use caution when handling the module. One side of the module is a heat sink and can be hot.

3. Align the circuit board with top and bottom guides in the chassis.

32455

4. Slide the module into the chassis.

Make sure that the module backplane connector properly connects to the chassis backplane. The module is properly installed when it is flush with the power supply or other installed modules.
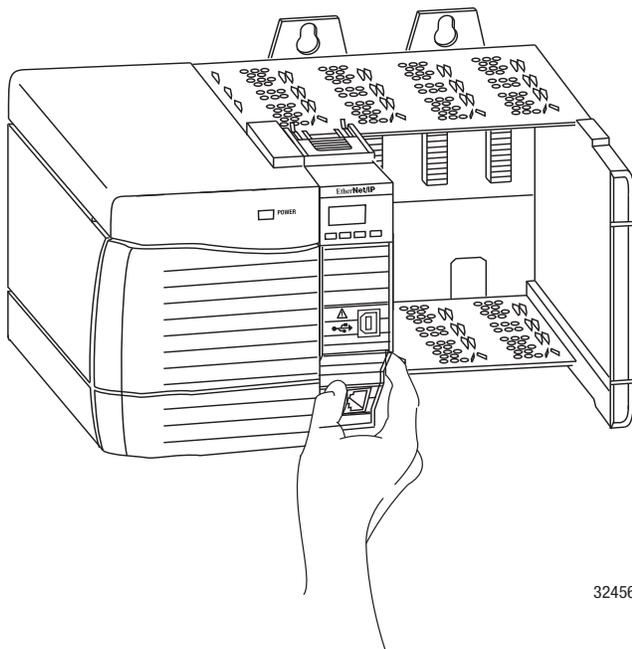
32456

Connect the Module to an EtherNet/IP Network Via a RJ45 Connection

Wire the RJ45 connector as shown.

```
8 ------ NC
7 ------ NC
6 ------ RD-
5 ------ NC          8
4 ------ NC
3 ------ RD+         1
2 ------ TD-
1 ------ TD+      RJ 45
```
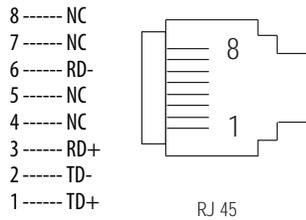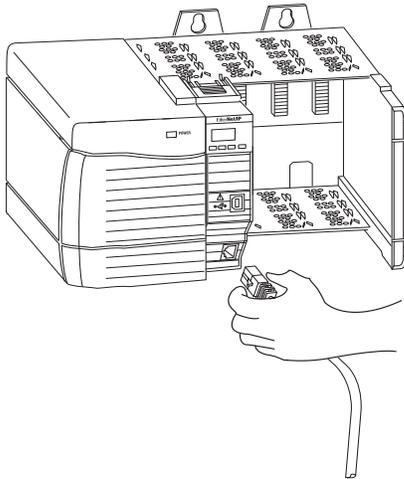
Connect the Module to the Network

Follow these steps to connect the module to the network.

> ⚠️ **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.

1. Attach the cable with the RJ45 connector to the Ethernet port on the module as shown.

32457

2. Attach the other end of the cable to the devices in your network.

## Connect to the Module Via the USB Port, Optional

Use a USB cable to connect your computer to the controller. With the USB connection, you can download programs to controllers and configure Ethernet modules directly from your computer. You must use RSLinx® Classic software, version 2.55 or later to use the USB port.

Apply Chassis Power and Check the Status Indicators

Before you apply power, you must install and connect a ControlLogix chassis and power supply.

Follow these steps to apply power.
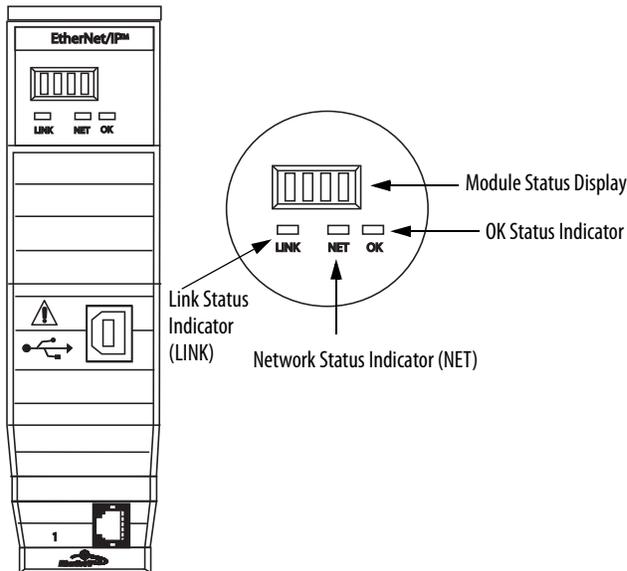
1. Flip the switch to the ON position.
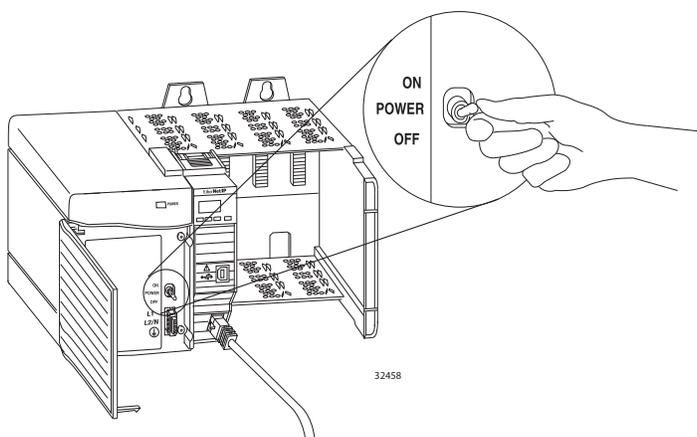
2. Check the status indicators to determine that the power supply and module are operating properly.

The alphanumeric display cycles through the following states: TEST - PASS - OK - REV *x.x,* where *x.x* is the firmware revision that is installed on the module. The display then alternates between OK and port link status.

Status Indicators

These are the 1756 EtherNet/IP communication module status indicators.

Module Status Display

OK Status Indicator

Link Status Indicator (LINK)

Network Status Indicator (NET)

32452

Table 8 - Link (LINK) Status Indicator

Status	Description

Off	One of these conditions exists:
	• The module is not powered.
	  – Verify that there is chassis power.
	  – Verify that the module is completely inserted into the chassis and backplane.
	    No link exists on the port.
	  – Verify that the RJ45 connector in the Ethernet port is completely inserted and the other end of the cable is connected to a device in your network

Flashing green	Activity exists on the port.
Green	A link exists on the port.

Table 9 - Network (NET) Status Indicator

Status	Description

Off	One of these conditions exists:
	• The module is not powered.
	  – Verify that there is chassis power.
	  – Verify that the module is completely inserted into the chassis and backplane.
	  – Make sure that the module has been configured.
	• The module is powered but does not have an IP address. Assign an IP address to the module.

Flashing green	The controller has an IP address and one of these conditions exists:
	• The module has not established any CIP connections.
	  If connections are configured for this module, check the connection originator for the connection error code.
	• One or more connections have timed out. For example, an HMI or I/O connection has timed out.
	  Re-establish the connection.
	• All CIP connections have closed or have timed out. For example, all HMI and I/O connections have timed out.

Table 9 - Network (NET) Status Indicator (continued)

Status	Description
Green	The module has established at least 1 CIP connection and is operating properly. The IP address of the module scrolls across the module status display.
Red	The module is in conflict mode. The module shares an IP address with another device on the network. The current IP address of the module scrolls across the Module Status display. The display scrolls: OK <IP_address_of_this_module> Duplicate IP <Mac_address_of_duplicate_node_detected> For example: OK 10.88.60.196 Duplicate IP - 00:00:BC:02:34:B4 Change the IP address of the module.
Flashing green/flashing red	The module is performing its power-up testing.

Table 10 - OK Status Indicator

Status	Description
Off	The module is not powered. • Verify that there is chassis power. • Verify that the module is completely inserted into the chassis and backplane. • Make sure that the module has been configured.
Flashing green	The module is not configured. The Module Status display scrolls: BOOTP or DHCP<Mac_address_of_module> For example: BOOTP 00:0b:db:14:55:35 Configure the module.
Green	The module is operating correctly. The IP address of the module scrolls across the Module Status display.
Flashing red	The module detected a recoverable minor fault. Check the module configuration. If necessary, reconfigure the module.
Red	The module detected an unrecoverable major fault. Cycle power to the module. If a power cycle does not clear the fault, replace the module.
Flashing red/flashing green	The module is performing its power-up testing.

Network Connectors and Cable

This product contains a USB port.

> **WARNING:** Local programming ports and USB ports are intended only for temporary use and must not be connected or disconnected unless the area is nonhazardous. Do not use the USB port in hazardous locations.

Modules	Ports	Requirements
EtherNet/IP	Copper Ethernet	Connector/cable RJ45 connector according to IEC 60603-7, 2, or 4 pair Category 5e minimum cable according to TIA 568-B.1 or Category 5 cable according to ISO/IEC 24702

Specifications

Attribute	1756-EN2TSC
Voltage and current ratings	5.1V DC, 1 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, surrounding air	60 °C (140 °F)
Enclosure type rating	None (open-style)
Isolation voltage	30V (continuous), Basic Insulation Type, Ethernet to Backplane, USB to Backplane, and USB to Ethernet, Type tested at 860V AC for 60 s
Wire size	Ethernet connections: RJ45 connector according to IEC 60603-7, 2 or 4 pair Category 5e minimum cable according to TIA 568-B.1 or Category 5 cable according to ISO/IEC 24702.
NA temp code	T4A
ATEX temp code	T4
IECEx temp code	T4

Additional Resources

These resources contain information about related products from Rockwell Automation.

Resource	Description
EtherNet/IP Modules Installation Instructions, publication ENET-IN002	Provides details on how to install and configure EtherNet/IP communication modules.
Ethernet Design Considerations Reference Manual, publication ENET-RM002	Provides details about how to use EtherNet/IP communication modules with Logix5000™ controllers and communicate with other devices on the EtherNet/IP network.
EtherNet/IP Secure Communication User Manual, publication ENET-UM003	Provides information on system architecture, configuring secure communication, and diagnostics.
EtherNet/IP Network Configuration User Manual, publication ENET-UM001	Describes how you can use EtherNet/IP communication modules with your Logix5000 controller and communicate with various devices on the Ethernet network.
EtherNet/IP Embedded Switch Technology Application Guide, publication ENET-AP005	Provides details about how to install, configure, and maintain linear and Device-level Ring (DLR) networks by using Rockwell Automation EtherNet/IP devices equipped with embedded switch technology.
EtherNet/IP Media Planning and Installation Manual This manual is available from the Open DeviceNet Vendor Association (ODVA) at http://www.odva.org	Provides details about how to use the required media components and provides information on how to plan for, install, verify, troubleshoot, and certify your EtherNet/IP network.

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