



Compact 5000 EtherNet/IP Adapters

Catalog Numbers 5069-AENTR, 5069-AENTRK, 5069-AEN2TR



Allen-Bradley

by ROCKWELL AUTOMATION

User Manual

Original Instructions

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.



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.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

The following icon may appear in the text of this document.



Identifies information that is useful and can help to make a process easier to do or easier to understand.

Rockwell Automation recognizes that some of the terms that are currently used in our industry and in this presentation are not in alignment with the movement toward inclusive language in technology.

We are proactively collaborating with industry peers to find alternatives to such terms and making changes to our products and content. Please excuse the use of such terms in our content while we implement these changes.

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About This Publication

This manual describes how to use Compact 5000™ EtherNet/IP™ adapters in a Logix 5000™ control systems.

Make sure that you are familiar with the following:

- Use of a controller in a Logix 5000 control system, including the following controllers:
 - CompactLogix™ 5380 controllers
 - Compact GuardLogix® 5380 controllers
 - CompactLogix 5480 controllers
 - ControlLogix® 5580 controllers
 - GuardLogix 5580 controllers
- Use of an EtherNet/IP network
- Use of various software applications from Rockwell Automation

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Download Firmware, AOP, EDS, and Other Files

Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes from the Product Compatibility and Download Center at rok.auto/pcdc.

Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

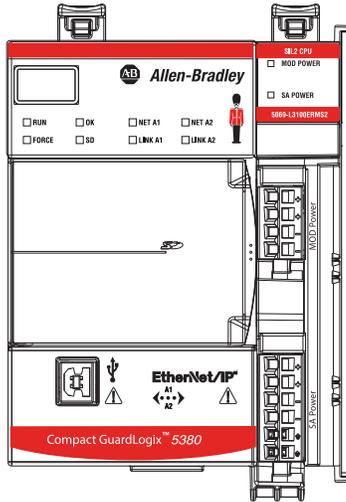
Topic	Page
Updated artwork	Throughout
Reformatted document to new template	Throughout
Added Series A and B examples	6

The appearance of the CompactLogix Series A Controllers has been updated.

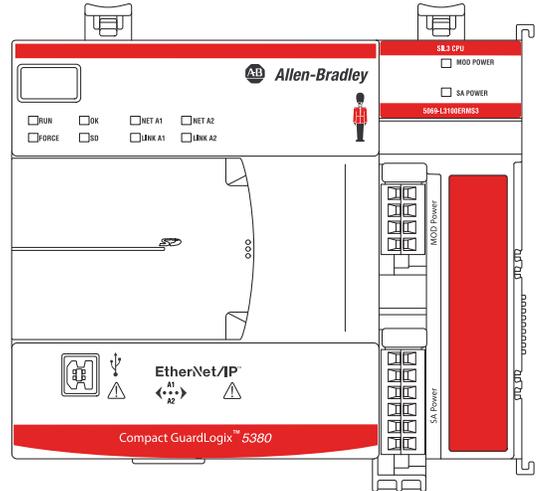
Before Change.



CompactLogix 5380 Controller



Compact GuardLogix 5380 SIL 2 Controller

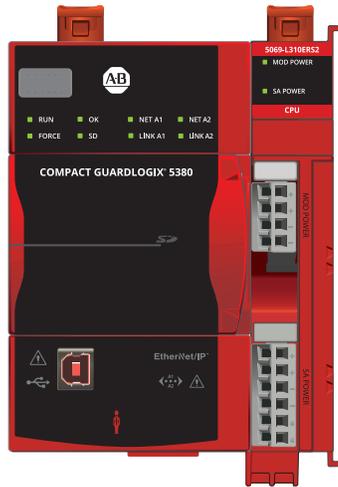


Compact GuardLogix 5380 SIL 3 Controller

After Change.



CompactLogix 5380 Controller



Compact GuardLogix 5380 SIL 2 Controller



Compact GuardLogix 5380 SIL 3 Controller

Compact 5000 EtherNet/IP Adapter Features

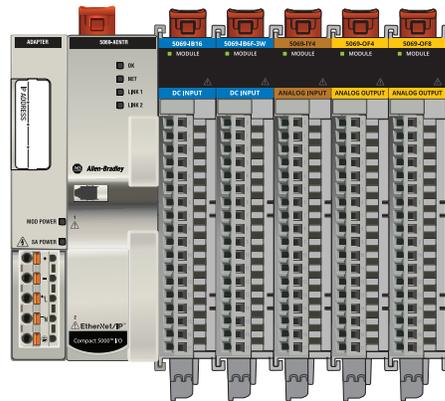
Compact 5000 EtherNet/IP Adapter Features

A Compact 5000™ EtherNet/IP™ Adapter performs the following functions:

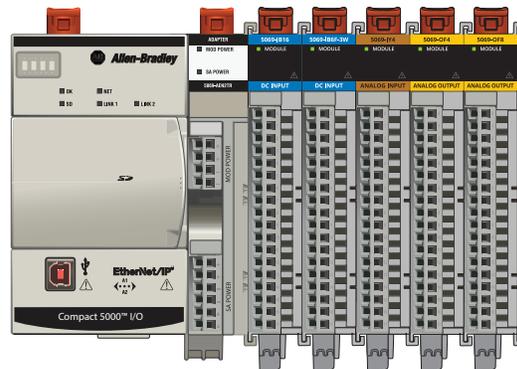
- Facilitates high-speed data transfer between some Logix 5000™ controllers and remote I/O modules.
- Provides system-side power and field-side power to Compact 5000 I/O system.
- Connects to multiple EtherNet/IP network topologies.
- Supports as many as 31 Compact 5000 I/O modules.

Figure 1 - Compact 5000 I/O Modules

5069-AENTR Adapter with Compact 5000 I/O Modules



5069-AEN2TR Adapter with Compact 5000 I/O Modules



Minimum Software Requirements

You can use the Studio 5000 Logix Designer® application, version 28.00.00 or later, with Compact 5000 EtherNet/IP adapters.

Depending on what version of Logix Designer application that your application uses, you can be required to install an Add-on Profile (AOP). AOPs are made available between releases of different Logix Designer application versions. By obtaining and installing an AOP, you can add the adapter to your project.

You can access AOPs from the Product Compatibility and Download Center (PCDC) that is available at:

<https://compatibility.rockwellautomation.com/Pages/home.aspx>

EtherNet/IP Features

The adapters support the following EtherNet/IP features.

Cat. No.	Features						
	Communication Rate	Linear Network	DLR Protocol	Ability to Operate as a DLR Supervisor	PRP Protocol	Protected Mode	CIP Sync
5069-AENTR, 5069-AENTRK ⁽¹⁾	10 Mbps 100 Mbps 1 Gbps	Yes	Yes	Yes	No	Explicit Implicit	Yes
5069-AEN2TR	10 Mbps 100 Mbps 1 Gbps	Yes	Yes	Yes	No	Not Supported	Yes

(1) A catalog number followed by a "K" indicates a conformal coating option.

Protected Mode With 5069-AENTR Adapter

Protected mode is a state where the device is operational, but has implemented defenses against disruptive changes that would take the product out of service for the process. For more complete information on how Protected Mode works, see EtherNet/IP Network Devices User Manual, publication [ENET-UM006](#).

IMPORTANT Protected Mode is only available with the 5069-AENTR adapter. The 5069-AEN2TR adapter does not support Protected Mode.

The following types of Protected Mode are available:

- Implicit
- Explicit

These modes differ in how a device is entered in such state and what type of action is prohibited in each of the following modes.

Implicit Protected Mode is a security enhancement that is automatically triggered as soon as one of the following occur:

- The adapter bridges I/O connections.
- The adapter is a target of I/O connections.

Explicit Protected Mode is a security enhancement, supported with firmware revision 4.011 or later, that is triggered when a certain rotary switches pattern is selected.

This security enhancement occurs on the I/O module level and helps prevent unauthorized configuration changes that can affect system behavior and cause unintended and unforeseen changes.

Enter and Exit Implicit Protected Mode

The adapter enters Protected Mode as soon as I/O connections are established through or to the adapter (status connection). The adapter exits Protected Mode as soon as all I/O connections through or to the adapter (status connection) are stopped.

Enter and Exit Explicit Protected Mode

The adapter enters Protected Mode when rotary switches are set to value 900 during startup.

To enter Explicit Protected Mode, complete the following steps.

1. Note the current position of the rotary switches.
2. Power down the device.
3. Set the rotary switches to 900, then power up the device.

The adapter confirms entering into Explicit Protected Mode with the following status indicator flashing sequence:

- OK indicator - flashing red
 - All other indicators - off.
4. Power down the device and restore previous values to the rotary switches.
 5. Power up the device to normal work with Explicit Protected Mode enabled.

To exit Explicit Protected Mode, complete the following steps.

1. Note the current position of the rotary switches.
2. Power down the device.
3. Set the rotary switches to 000, then power up the device.

The adapter confirms exiting Explicit Protected Mode with the following status indicator flashing sequence:

- OK indicator - flashing red
 - All other indicators - off.
4. Power down the device and restore previous values to the rotary switches.
 5. Power up the device to normal work with Explicit Protected Mode disabled.

Restrictions Imposed By Implicit Protected Mode

Protected mode helps prevent access to services that are not required after the device is configured and in normal operation. Protected mode disables features that can make the device vulnerable to disruptive actions. By doing so, Protected mode helps to reduce the attack surface.

When it is in Protected Mode, the adapter helps prevent execution of the following tasks:

- Changing Ethernet configuration settings, such as port speed.
- Changing IP settings, such as IP address, mask, and DHCP mode.
- Updating the device firmware.
- Disabling or re-enabling external product ports.
- Performing remote resets.

Restrictions Imposed by Explicit Protected Mode

Protected Mode helps prevent access to services that are not required after the device is configured and in normal operation. Protected Mode disables features that can make the device vulnerable to disruptive actions. By doing so, Protected Mode helps to reduce the attack surface.

When it is in Protected Mode, the adapter helps prevent execution of the following tasks:

- Changing Ethernet configuration settings, such as port speed.
- Changing IP settings, such as IP address, mask, and DHCP mode.
- Updating the adapter firmware revision.
- Disabling or re-enabling external product ports.
- Performing remote adapter resets.
- Disabling or enabling WWW server.
- Disabling or enabling SNMP server.

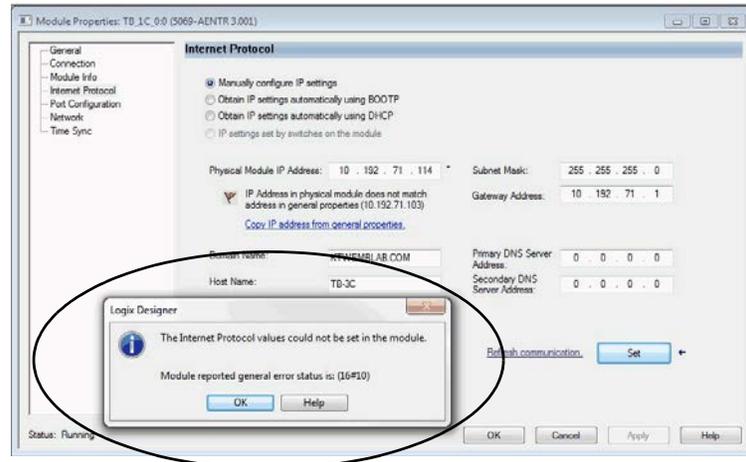
Perform Tasks When Not Restricted

If the adapter is in Protected Mode and you attempt to perform any of the restricted tasks, you are alerted that such a task cannot be performed because the device is in Protected Mode.

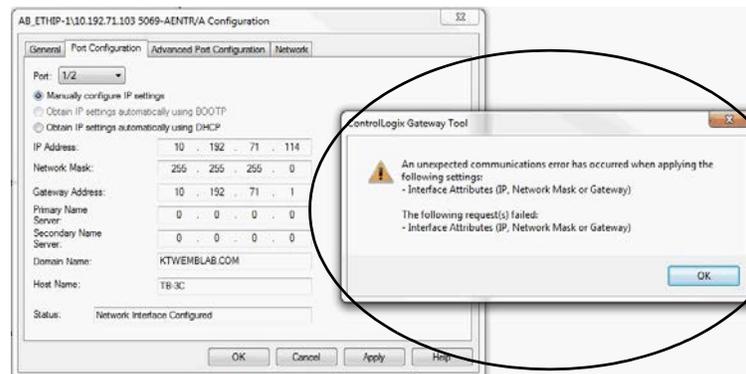
The following are example alerts that result from an attempt to set IP values on the adapter when the adapter is in Protected Mode:

IMPORTANT Protected Mode is not configurable.

- Studio 5000 Logix Designer® application



- RSLinx® Classic software



If the adapter is not in Protected Mode, the adapter does not reject attempts to perform the tasks that are described previously.

For example, after the adapter is initially powered up, but no I/O connections are established yet, the adapter is not in Explicit Protected Mode. Additionally, if the adapter is not in Explicit Protected Mode then you can attempt to update the adapter firmware revision and the adapter does not reject the attempt.



If the adapter enters Protected Mode each time the device powers up, check the application controllers to determine if there are active I/O connections that are opened via the adapter.

Secure Digital Card

The 5069-AEN2TR EtherNet/IP adapter supports the use of a Secure Digital (SD) card to store all configuration data that is stored in nonvolatile memory, for example, the IP address or network communication rate for each port.

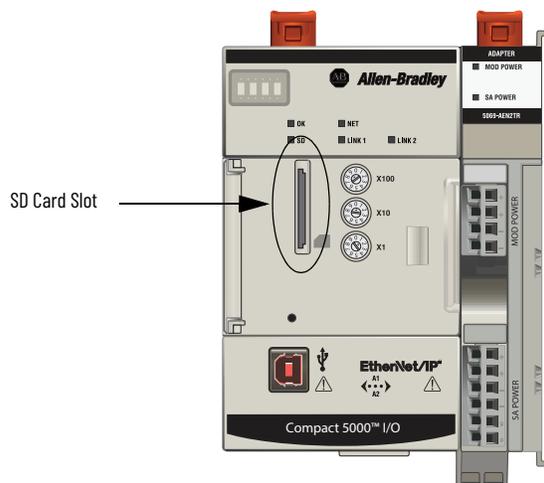
IMPORTANT The 5069-AEN2TR adapter does not support the use of an SD card.

The adapter supports the use of a 1784-SD1 (1 GB) and 1784-SD2 (2 GB) card. You can use third-party SD cards with the controller. You can use SD cards with as much as 32 GB of memory. Keep in mind, Rockwell Automation® **does not test the use of third-party SD cards** with the controller.

If you use an SD card other than those cards that are available from Rockwell Automation, unexpected results can occur. For example, you can experience data corruption or data loss.

SD cards that are not provided by Rockwell Automation can have different industrial, environmental, and certification ratings as those cards that are available from Rockwell Automation. These cards can have difficulty with survival in the same industrial environments as the industrially rated versions available from Rockwell Automation.

An SD card slot is on the front of the adapter.



Adapter and SD Card Interaction

The 5069-AEN2TR adapter interacts with the SD card at power-up and when the card is installed while the adapter is running.

IMPORTANT No user action is required for the interaction between the adapter and the SD card to occur.

Whenever configuration is written to the adapter, either at initial configuration or when changes occur, it is written to the internal memory in the adapter and the SD card.

The following apply regarding the adapter and SD card interacting:

Conditions	Action That Occurs
<ul style="list-style-type: none"> The adapter powers-up. The installed SD card does not contain adapter configuration data. 	The adapter configuration is copied from the internal memory to the SD card.
<ul style="list-style-type: none"> The adapter powers-up. The installed SD card contains configuration data that differs from what is stored on the internal memory. 	<p>The configuration data on the SD card is copied to the internal memory and overwrites what was previously there.</p> <p>If the configuration data on the SD card includes an IP address that differs from what is on the adapter, the overwrite changes the adapter IP address to match what is on the SD card.</p>
<ul style="list-style-type: none"> The adapter is running. You insert an SD card that contains configuration data that differs from what is stored on the internal memory. 	<p>There is no change to the configuration data in either the internal memory or the SD card. A fault occurs and is indicated by the following:</p> <ul style="list-style-type: none"> The message <i>SD Data Mismatch</i> scrolls across the adapter 4-character display. The S.MemoryCardDataMismatch tag changes to 1. <p>We recommend that you keep the data on the internal memory and SD card the same. In this case, you can take one of the following actions to clear the fault and make sure the configuration in the internal memory matches that on the SD card:</p> <ul style="list-style-type: none"> If you want to use the configuration that is on the SD card, cycle power. After power-up, the configuration data on the SD card is copied to the internal memory. If you want to use the configuration that is in the internal memory, change something in the adapter configuration. The configuration data is updated in the internal memory and then copied to the SD card. Then change the configuration on the adapter back to its previous settings. The configuration data is updated in the internal memory and then copied to the SD card.
<ul style="list-style-type: none"> The adapter is running. The adapter configuration changes. 	The updated configuration data is copied from the internal memory to the SD card.
The adapter firmware revision is updated.	The adapter configuration data on the SD card is deleted before the update begins. After the firmware revision is updated, the adapter configuration is copied from the internal memory to the SD card.

Conformal Coating with 5069-AENTRK Adapter

The 5069-AENTRK EtherNet/IP adapter is conformal coated to add a layer of protection when exposed to harsh, corrosive environments.

Notes:

Compact 5000 EtherNet/IP Adapter Power Requirements

This chapter explains how to power Compact 5000™ EtherNet/IP™ adapters.

Two Types of Power

The adapters provide power to I/O modules as follows:

- MOD power - System-side power that powers the I/O modules and lets them transfer data and execute logic.

System-side power is provided through the MOD power connector and is passed to each module as it is added to the system.

- SA power - Field-side power that powers some Compact 5000™ I/O modules and field-side devices that are connected to them.

Field-side power is provided through the SA power connector and is passed to each module as it is added to the system.

Power begins at the adapter and passes across the I/O module internal circuitry via power buses.

MOD power passes across a MOD power bus, and SA power passes across a SA power bus. The MOD power bus and SA power bus are isolated from each other.

IMPORTANT For Compact 5000 EtherNet/IP adapter and I/O modules, we recommend that you use a separate external power supply for the MOD power and SA power, respectively.

If you use one external power supply and power is lost from that supply, the system loses both MOD power and SA power. That is, system-side and field side power, respectively, is lost.

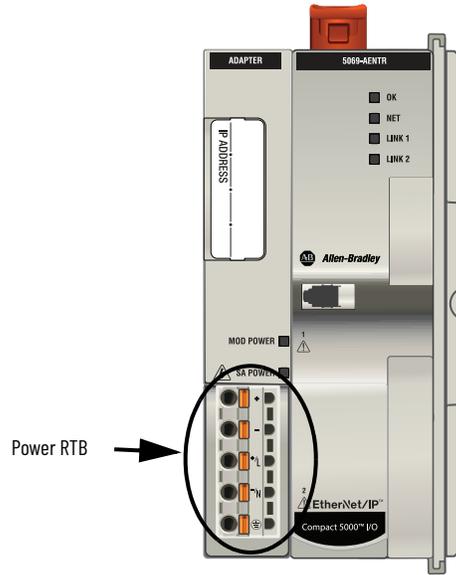
If you use separate external power supplies, the loss of power from one external power supply does not affect the availability of power from the other supply. For example, if separate external power supplies are used and SA power is lost, MOD power remains available for the Compact 5000 I/O EtherNet/IP adapter and Compact 5000 I/O modules.

Power Connectors

You connect external power supplies to removable terminal blocks (RTBs) to provide MOD power and SA power. The adapters use different RTBs to connect power.

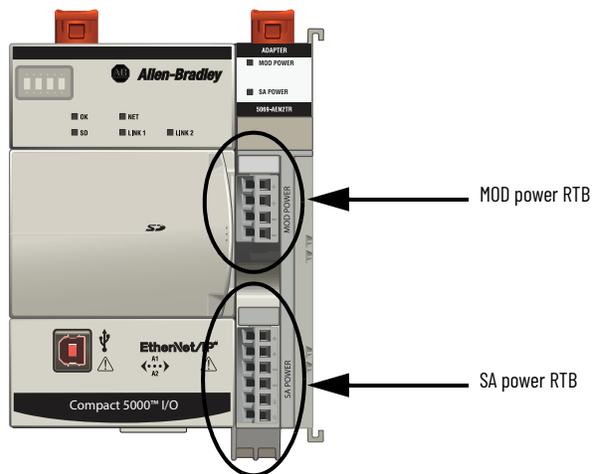
The 5069-AENTR adapter uses a 5-terminal Power RTB to connect MOD power and SA power. Both power types are provided to the system via one RTB.

Figure 2 - 5069-AENTR EtherNet/IP Adapter Power Connector



The 5069-AEN2TR adapter uses two RTBs to connect MOD power and SA power. You connect an external power supply to the MOD power RTB to provide MOD power. You connect an external power supply to the SA power RTB to provide SA power.

Figure 3 - 5069-AEN2TR EtherNet/IP Adapter Power Connectors



For more information on how to connect MOD power and SA power, see the Compact 5000 I/O EtherNet/IP Adapter Installation Instructions, publication [5069-IN003](#).

MOD Power Bus

MOD power is a DC power source that is required to operate a Compact 5000 I/O system.

IMPORTANT You can only use DC power on the MOD power bus. Do not connect AC power to the MOD power bus.

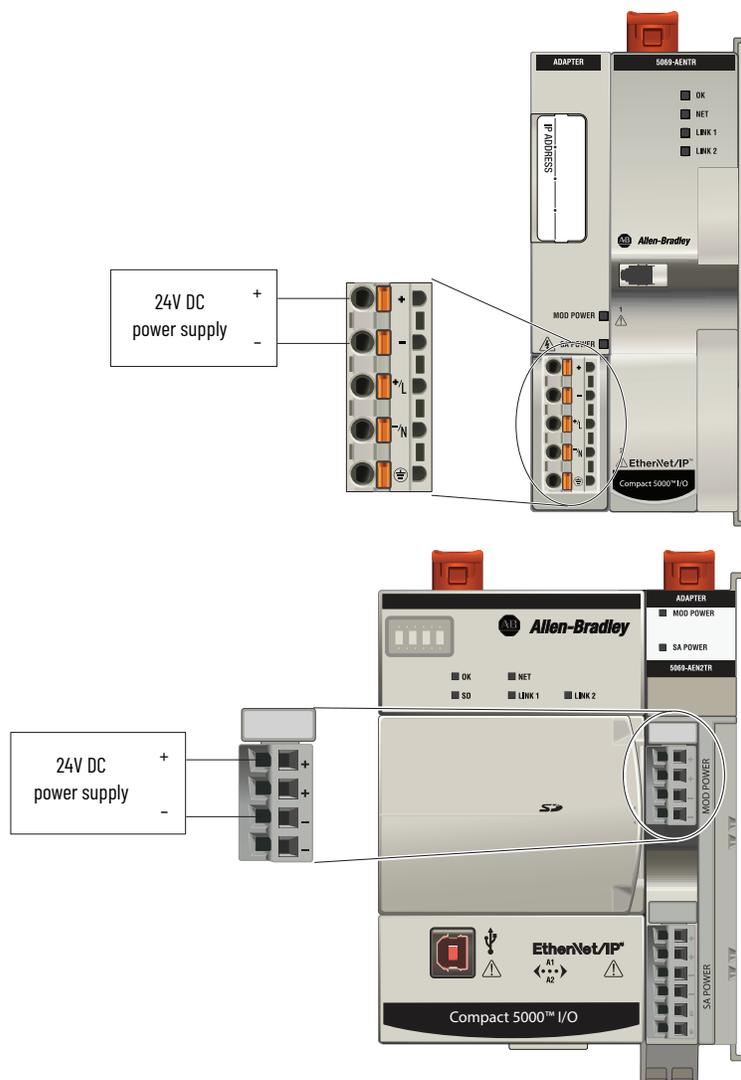
Remember the following:

- A Compact 5000 I/O system uses only one MOD power bus.
- Every module draws current from the MOD power bus and passes the remaining current to the next module.
- You must limit the MOD power source to 10 A, max, at 18...32V DC.
- We recommend that you use an external power supply that is adequately sized for the total MOD power bus current that is drawn by the adapters and I/O modules.

For example, if the total MOD power current draw is 5 A, you can use a MOD power supply that is limited to 5 A.

IMPORTANT You must consider **inrush current requirements** when you calculate the total MOD power bus current draw in the system.

Figure 4 - 5069-AENTR and 5069-AEN2TR EtherNet/IP Adapters MOD Power Connector



When the MOD power source is turned on, that is, I/O modules receive system-side power, the following occurs.

1. The adapter draws current from the MOD power bus current and passes the remaining current through to the next module.
2. The next module draws MOD power bus current and passes the remaining current through to the next module.
3. The process continues until MOD power bus current needs are met for all modules.

For more information on the current that the modules draw from the MOD power bus, see the Compact 5000 I/O Modules Specifications Technical Data, publication [5069-TD001](#).

SA Power Bus

SA power provides power to devices that are connected to some of the Compact 5000 I/O modules. Remember the following:

- Some Compact 5000 I/O modules draw current from the SA power bus and pass the remaining current to the next module.
- Some Compact 5000 I/O modules only pass current along the SA power bus to the next module.
- A Compact 5000 I/O system can have multiple SA power buses. The first SA power bus starts at the adapter and passes across the I/O modules that are installed to the right of the adapter.

You use a 5069-FPD field potential distributor to establish a new SA power bus. The new SA power bus is isolated from the SA power bus to its left in the system.

For more information on how to use a 5069-FPD field potential distributor in a CompactLogix™ 5380 system, see [page 22](#).

- You can connect either a 24V DC or 120/240V AC external power supply to a 5069-FPD field potential distributor in a Compact 5000 I/O system.
- If AC and DC modules that require SA power are installed in a Compact 5000 I/O system, you must use a 5069-FPD field potential distributor to establish a new SA power bus.

You install one set of the same module types, for example, DC modules, to the first SA power bus. Then you install the other set, for example, AC modules to the second SA power bus. That is, the SA power bus to the right of the 5069-FPD field potential distributor.

The SA power source limitations described previously apply to each isolated SA power bus separately.

-
- IMPORTANT** You must limit the SA power source to one of the following:
- If you use DC voltage, you must limit the SA power source to 10 A, max at 18...32V DC.
 - If you use AC voltage, you must limit the SA power source to 10 A, max at 18...240V AC.
-

- We recommend that you use an external power supply that is adequately sized for the total SA power bus current draw.

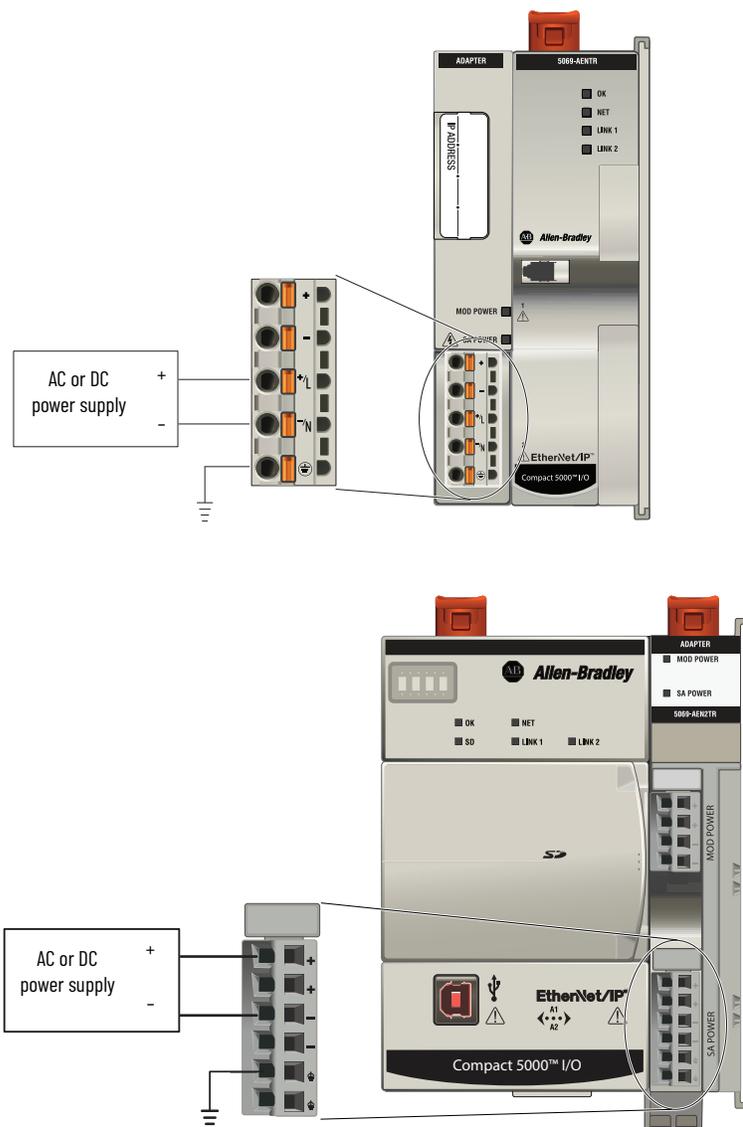
For example, if the total SA power current draw is 4 A, you can use an SA power supply that is limited to 4 A.

You must consider current inrush requirements when you calculate the total SA power bus current draw.

- Connections to an SA power bus use a **shared common**. All inputs that draw current from an SA power bus to power field-side devices have a return through circuitry to the SA - terminal on the SA power connector.

IMPORTANT Each SA power bus has a shared common unique to that bus because SA power buses are isolated from each other. That is, the SA power bus that the adapter establishes has a shared common. If you use a 5069-FPD field potential distributor to establish a new SA power bus in the system, the second bus has its own shared common for modules that draw current from it.

Figure 5 - 5069-AENTR and 5069-AEN2TR EtherNet/IP Adapters SA Power Connector



When the SA power source is turned on, that is, the adapter and I/O modules receive field-side power, the following occurs.

1. The Compact 5000 I/O EtherNet/IP adapter draws current from the SA power bus current and passes the remaining current through to the next module.
2. The next module completes one of the following tasks.
 - If the module uses SA power to power a field-side device, the module draws current from the SA power bus and passes the remaining current through to the next module.
 - If the module does not use SA power bus current, the module passes the remaining current through to the next module.
3. The process continues until all SA power bus current needs are met for the modules on the SA power bus.

For more information on the current that the Compact 5000 I/O modules draw from the SA power bus, see the Compact 5000 I/O Modules Specifications Technical Data, publication [5069-TD001](#).

Track SA Power Bus Current Draw

We recommend that you track the SA power bus current draw, max, per module, and collectively for the adapter and I/O modules in the system.

You must make sure that the Compact 5000 I/O modules that are installed on an SA power bus do not consume more than 10 A. If so, you must establish another SA power bus.

Consider the following with this example:

- The values in this example represent a worst-case calculation. That is, all modules that draw SA power bus current, draw the maximum available on the module.
- Not all modules that are shown in [Figure 6](#) use SA power bus current. For example, the 5069-ARM and 5069-OW4I modules only pass SA power bus current to the next module.

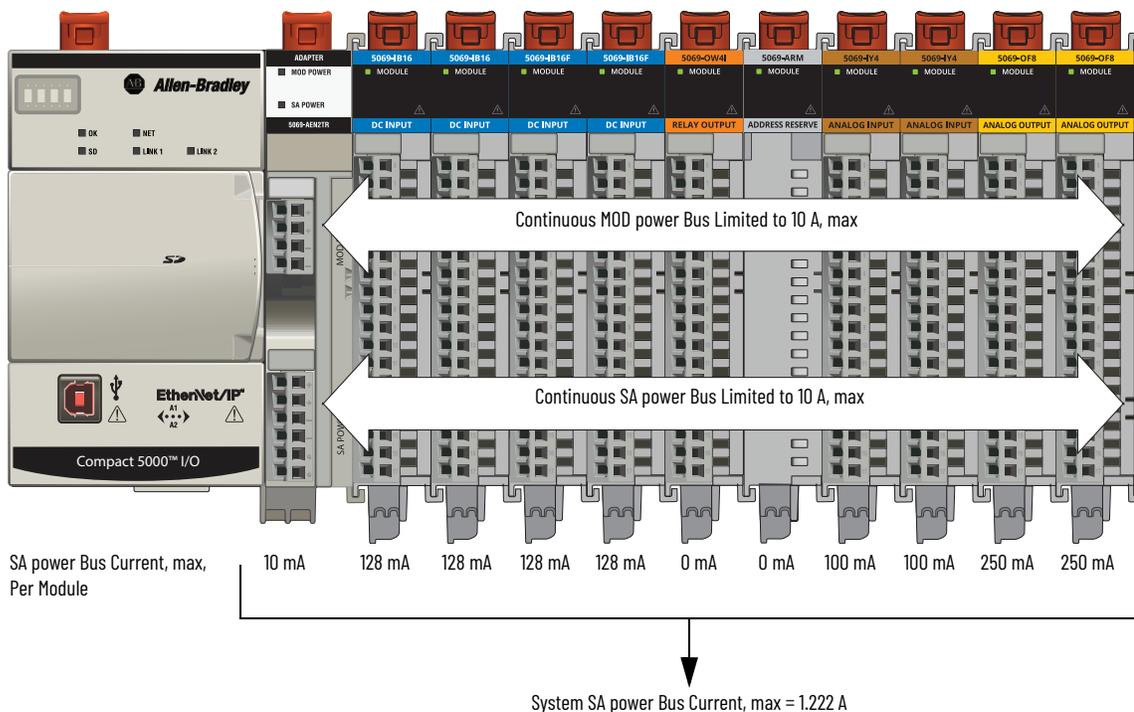
Some other Compact 5000 I/O modules do not use SA power bus current, but are not shown in the graphic, for example, the 5069-OB16 module.

- System SA power bus current, max, is calculated as each module draws SA power bus current.

In the example in [Figure 6](#), after the 5069-IB16 module in slot 1 draws SA power bus current, the system SA power bus current, max, is 138 mA. After the 5069-IB16 module in slot 2 draws SA power bus current, the system SA power bus current draw is 266 mA.

This process continues until the system SA power bus current, max, is 1.222 A.

Figure 6 - Compact 5000 I/O EtherNet/IP Adapter and I/O Modules - Calculate SA Power Bus Current Draw



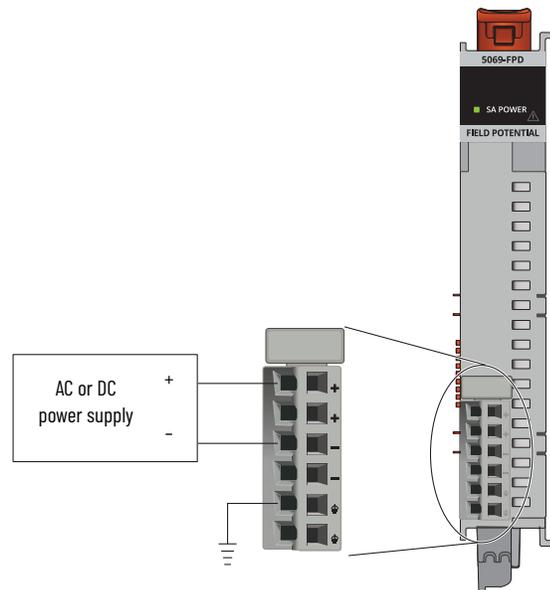
Use a 5069-FPD Field Potential Distributor to Create a New SA Power Bus

You can use a 5069-FPD field potential distributor to add an SA power bus to a Compact 5000 I/O system; this changes the field-side power distribution source for Compact 5000 I/O modules. However, the field potential distributor passes MOD power bus signals through to the next module in the system.

The field potential distributor blocks the current that passes across the SA power bus to its left. At that point, the field potential distributor establishes a new SA power bus for modules to the right. The new SA power bus is isolated from the SA power bus to its left in the system.

You can connect either a 24V DC or 120/240V AC external power supply to a 5069-FPD field potential distributor.

Figure 7 - 5069-FPD Field Potential Distributor SA Power Connector



The SA power bus that a field potential distributor establishes functions in the same way as the SA power bus that a Compact 5000 EtherNet/IP adapter establishes functions.

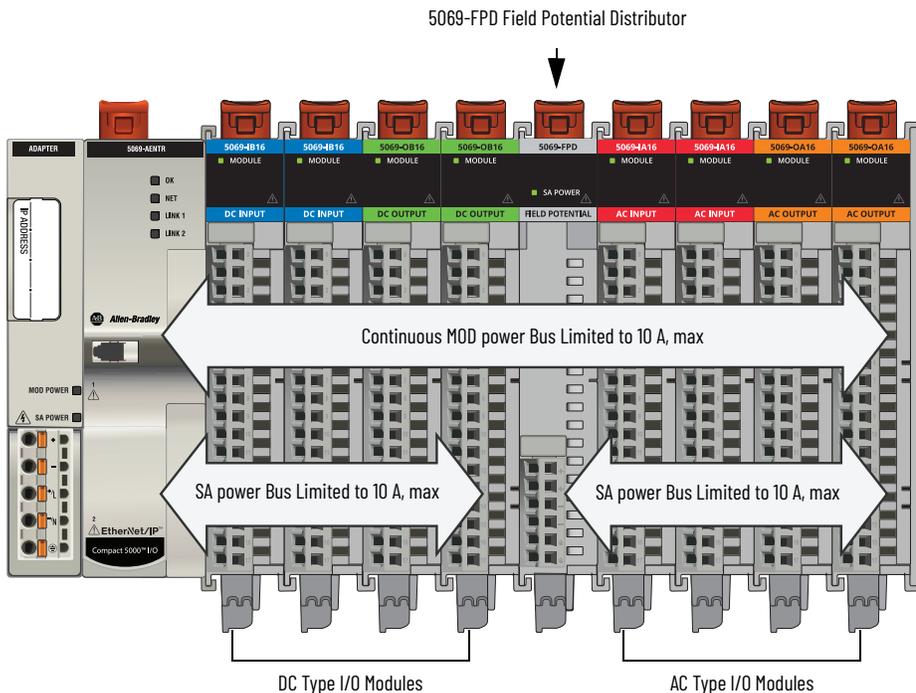
Examples of system configurations that use multiple SA power buses include:

- The modules in the system collectively draw more than 10 A of SA power. That is, the maximum current that one SA power bus can provide.
- The modules in the system are of different module types, that is, AC voltage and DC voltage.

Figure 8 show examples when a 5069-FPD field potential distributor creates a second SA power bus.

Figure 8 - Compact 5000 I/O EtherNet/IP Adapter and I/O Modules - Create a New SA Power Bus

In this example, a 5069-FPD field potential distributor is used to create an SA power bus so the DC type I/O modules are separated from the AC type I/O modules.



SA Power - Additional Notes

Remember the following:

- We recommend that you use a separate power supply for the SA power connection from the power supply that is used with the MOD power connection.
- The actual current in a Compact 5000 I/O system SA power bus current draw changes based on the operating conditions at a given time.

For example, the SA power bus current draw on some modules is different if all channels power field devices or half of the channels power field devices.

- Not all Compact 5000 I/O modules use SA power.

For example, the 5069-ARM, 5069-OB16, 5069-OB16F, 5069-OW4I, and 5069-OX4I modules do not use SA power.

- Some Compact 5000 I/O modules use field-side power but do not draw it from a SA power bus. The modules receive field-side power from an external power supply that is connected to the module RTB.

For example, the 5069-OB16 and 5069-OB16F modules use Local Actuator (LA) terminals, that is, LA+ and LA- terminals for all module channels.

Restrictions When You Install Compact 5000 I/O Safety Modules in a Compact 5000 I/O System

You can install Compact 5000 I/O safety modules in a Compact 5000 I/O system. [Table 1](#) describes restrictions that you must meet when you use the safety modules in a remote system.

Table 1 - Restrictions - Compact 5000 I/O Safety Modules in a Compact 5000 I/O System

Component to Which SA Power Is Connected	Restrictions
5069-FPD Field Potential Distributor With Compact 5000 I/O Safety and Standard Modules	<p>The following restrictions apply:</p> <ul style="list-style-type: none"> You can use non-SELV or PELV power supplies if only Compact 5000 I/O standard modules are installed to the right of the 5069-FPD field potential distributor. The power supply that provides SA power to the Compact 5000 I/O safety modules must be SELV/PELV-listed. If Compact 5000 I/O relay modules are installed before the Compact 5000 I/O safety modules, you must install a 5069-FPD field potential distributor before the safety modules. This creates additional isolation. In this case, you must use a SELV/PELV-listed supply with the 5069-FPD field potential distributor. If AC modules are added before the Compact 5000 I/O safety modules, you must install a 5069-FPD field potential distributor that is powered by an SELV/PELV-listed power supply, before the safety modules.

Example Compact 5000 I/O System

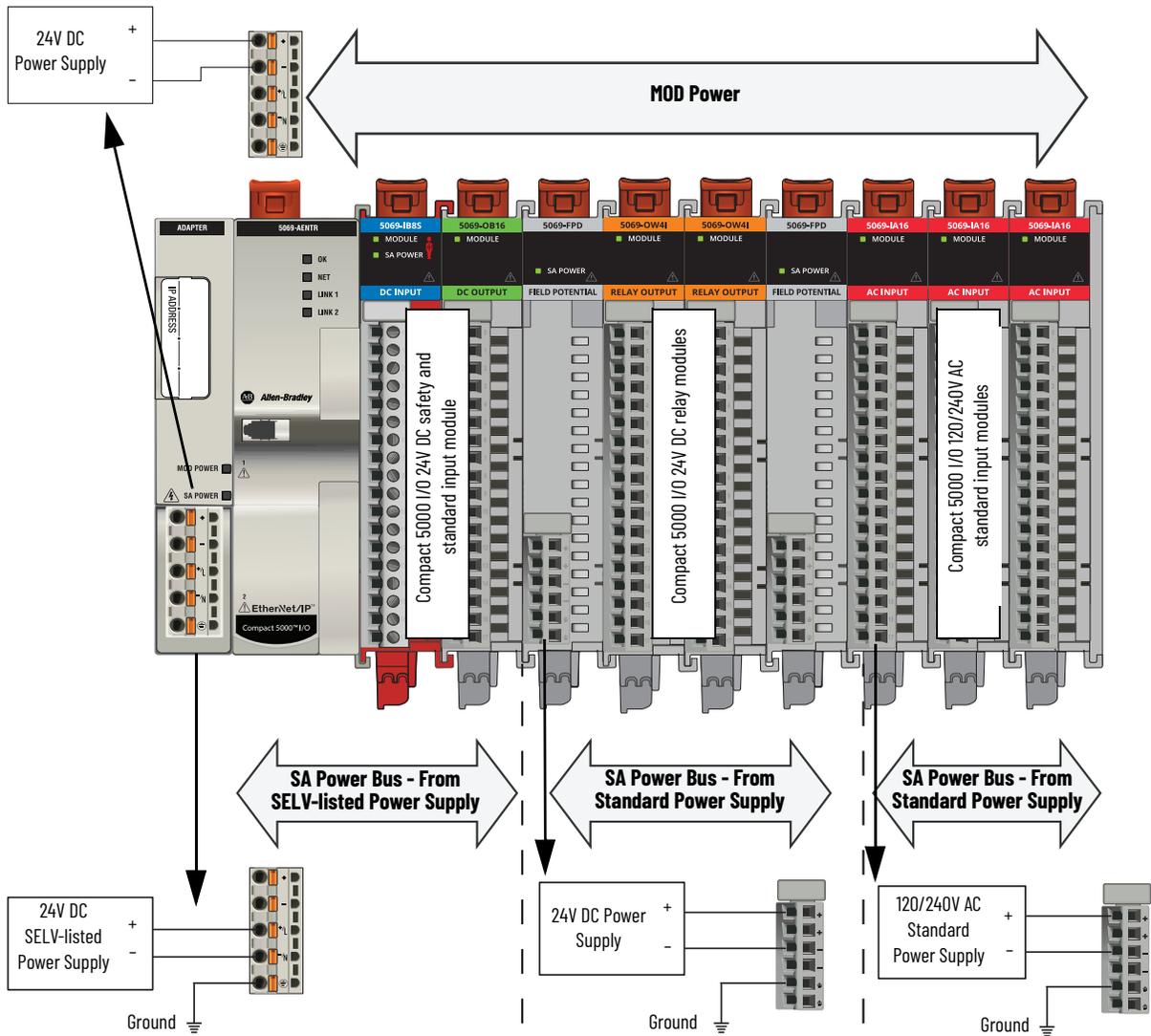
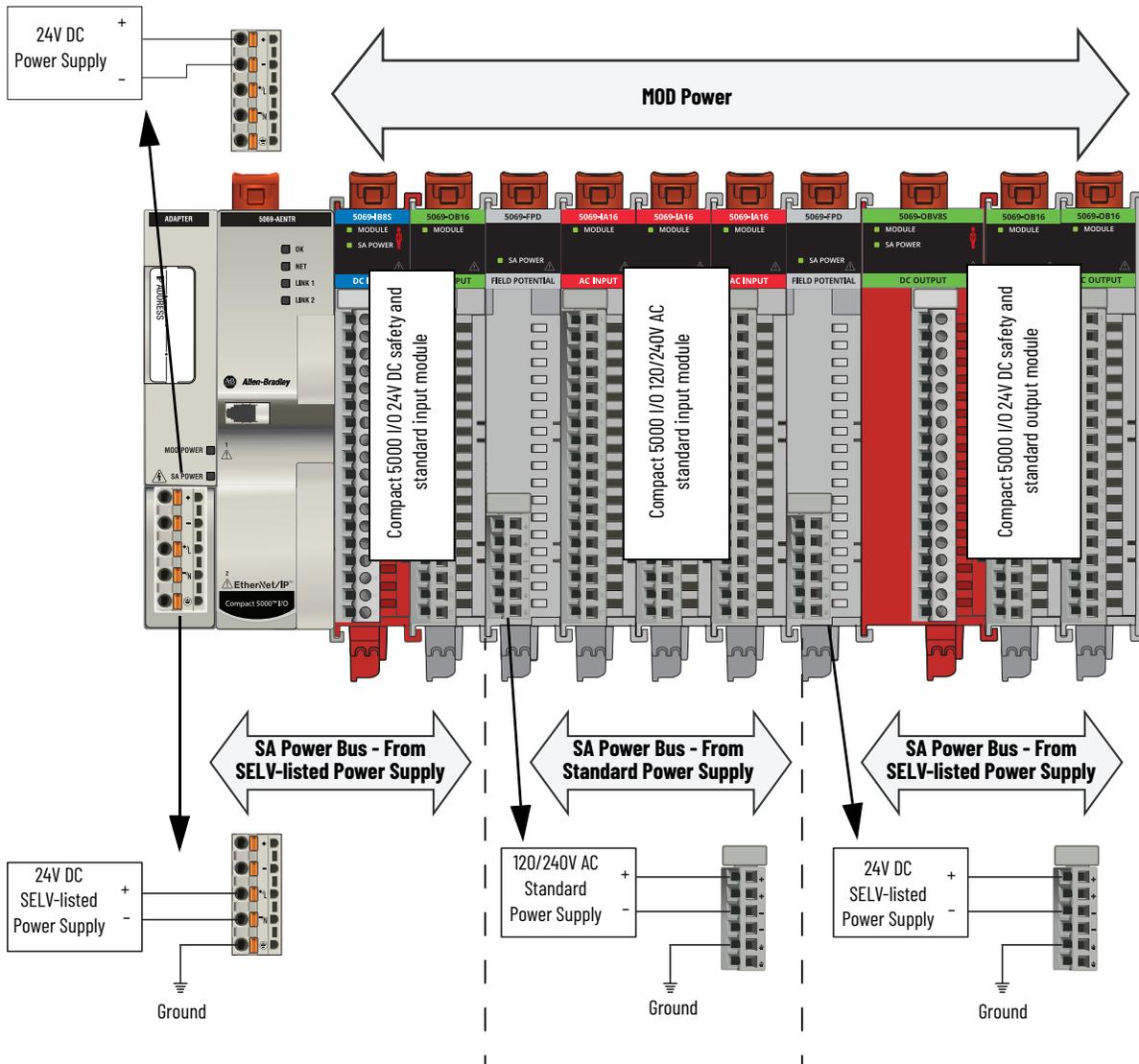


Table 1 - Restrictions - Compact 5000 I/O Safety Modules in a Compact 5000 I/O System

Component to Which SA Power Is Connected	Restrictions
5069-FPD Field Potential Distributor With Compact 5000 I/O Safety and Standard Modules	In addition to the restrictions on page 24 , this restriction also applies: <ul style="list-style-type: none"> You must use SELV or PELV power supplies to provide SA power to Compact 5000 I/O safety modules that are installed to the right of the 5069-FPD field potential distributor.

Example Compact 5000 I/O System



Notes:

Connect to the EtherNet/IP Network

You must set the IP address on the adapter for the adapter to operate on an EtherNet/IP™ network.

The following are adapter conditions in which you set the IP address:

- Set the IP address for the first time after it powers up in the out-of-box state.

IMPORTANT The adapter powers up in the out-of-box the first time you install it. However, the adapter also after power is cycled and the adapter is configured to clear its IP address after power is cycled.

- Change the IP address after it has been set.

Set the IP Address

When the adapter is in the out-of-the-box state, the following apply regarding IP addresses:

- The adapters ship without an IP address.
- The rotary switches on the adapter are set as follows:
 - 5069-AENTR adapter - 999
 - 5069-AEN2TR adapter - 000
- The adapter is DHCP-enabled. That is, the adapter is configured to obtain an IP address via a DHCP server.

If there is no DHCP server or the DHCP server is not configured to set the IP address, you must set the IP address manually.

- The adapter issues requests for an IP address via DHCP until an IP address is set by using one of the tools that are described in this section.
- The adapter is configured so that you must set the IP address each time that power is cycled.

You can change the adapter configuration so that you are not required to set an IP address each time that power is cycled.

Requirements

To set the IP address, have the following:

- EtherNet/IP or USB drivers that are installed on the programming workstation (For more information on setting drivers or IP addresses, see [ENET-UM006](#))
- MAC ID from the device, which is on the label on the side of the device
- Recommended IP address for the device

Set the IP Address with the Rotary Switches

If the network uses 192.168.1.x, use the rotary switches on the adapter to set the last octet of network IP address. Valid numbers range from 001...254.

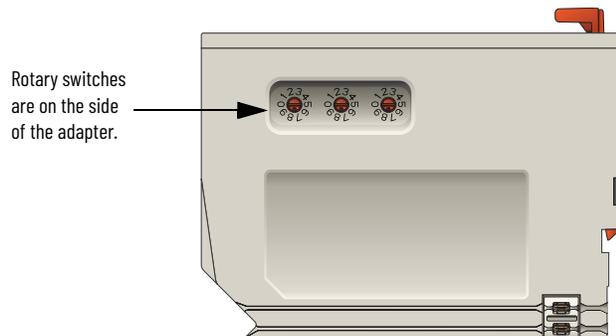
IMPORTANT The rotary switches only set the IP address when power is cycled.



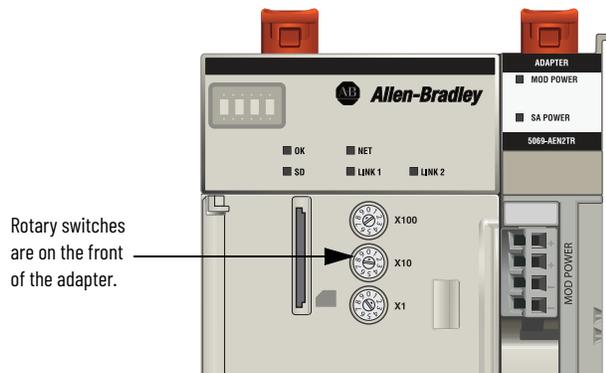
WARNING: When you change switch settings on the adapter while power is on, an electric arc can occur. This arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.
When you press the reset button on the 5069-AEN2TR adapter while power is on, an electric arc can occur. This arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

IMPORTANT The 5069-AEN2TR adapter does not have a reset button.

- 5069-AEN2TR - The leftmost switch represents the first digit in the octet, the middle switch represents the second digit, and the right-most switch represents the third digit.



- 5069-AEN2TR - The bottom switch represents the first digit in the octet, the middle switch represents the second digit, and the top switch represents the third digit.



Other Methods to Set the IP Address

The Compact 5000 EtherNet/IP™ adapter supports the following additional methods to change the IP address:

- BOOTP/DHCP utility
- RSLinx® Classic software
- For more information on how to use these methods, see EtherNet/IP Network Device User Manual, publication [ENET-UM006](#).

Reset the 5069-AENTR Adapter

You can reset the adapters to their factory default values. There are differences in the required tasks to reset the adapters.

To reset the adapter to its default settings, complete the following steps.

1. Power down the adapter.
2. Set the rotary switches to 888.
3. Power up the adapter.
4. Wait for the adapter power-up sequence to complete.

The power-up sequence is complete, and the adapter has returned to its factory default setting when the status indicator states are as follows:

- OK indicator - Flashing red
 - All other indicators - Alternate between red and green
5. Power down the adapter.
 6. Set the rotary switches to the desired address.

IMPORTANT If you do not want to set the IP address via the rotary switches, set them to 999.

After the adapter powers up, set the IP address.

7. Power up the adapter.

Reset the 5069-AEN2TR Adapter

You can reset the 5069-AEN2TR adapter to its factory default values with the reset button.

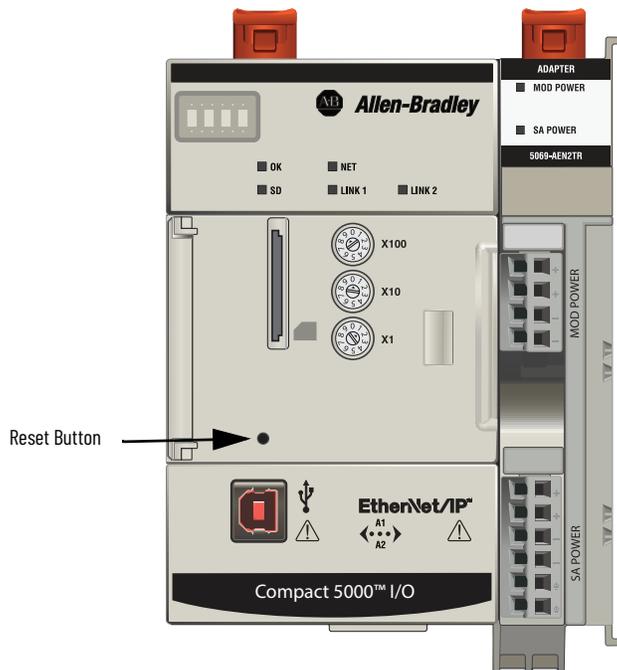


ATTENTION: When you reset a module, all connections to or through the module are closed, and can result in loss of control.



WARNING: When you press the reset button while power is on, an electric arc can occur. This arc could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

1. Power down the adapter.
2. Open the front door on the adapter.
3. Use a small tool or screwdriver to press and hold the reset button.
4. While holding in the reset button, power up the adapter.
5. Continue to hold the reset button while the 4-character display cycles through TEST, DFLT, 4, 3, 2, 1.
6. Factory Default scrolls one time across the display.
7. Release the reset button.



Configure the Adapter

After you install the communication module and set the IP address, you must add the module to a controller project. The project must be online to set the Speed and Duplex configurable parameters on the module.

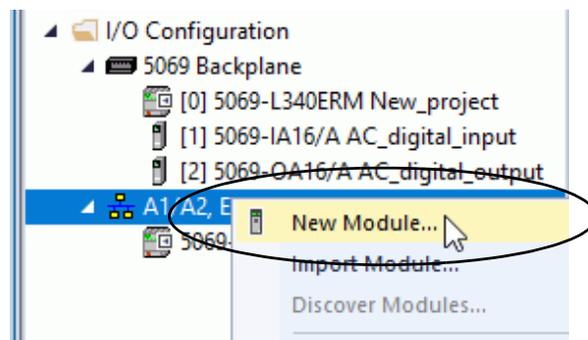
IMPORTANT You can use the Logix Designer application, version 28.00.00 or later, with Compact 5000™ EtherNet/IP™ adapters.

Depending on what version of Logix Designer application that your application uses, you can be required to install an Add-on Profile (AOP). AOPs are made available between releases of different Logix Designer application versions. By obtaining and installing an AOP, you can add the adapter to your project.

You can access AOPs from the Product Compatibility and Download Center (PCDC) that is available at rok.auto/pcdc.

Add the Module to a Project

1. Verify that your project is offline.
2. Right-click your network port, and choose New Module.



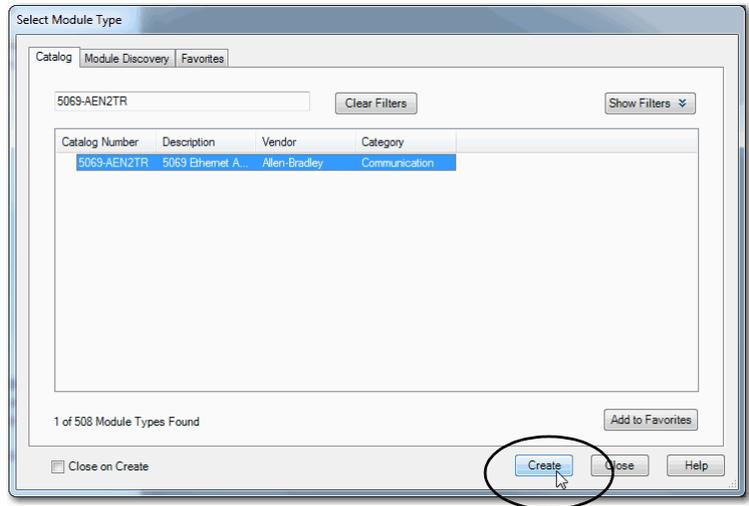
3. On the Select Module Type dialog box, complete the following tasks:
 - a. In the search field, type the catalog number for your adapter.

This example uses the 5069-AEN2TR adapter.

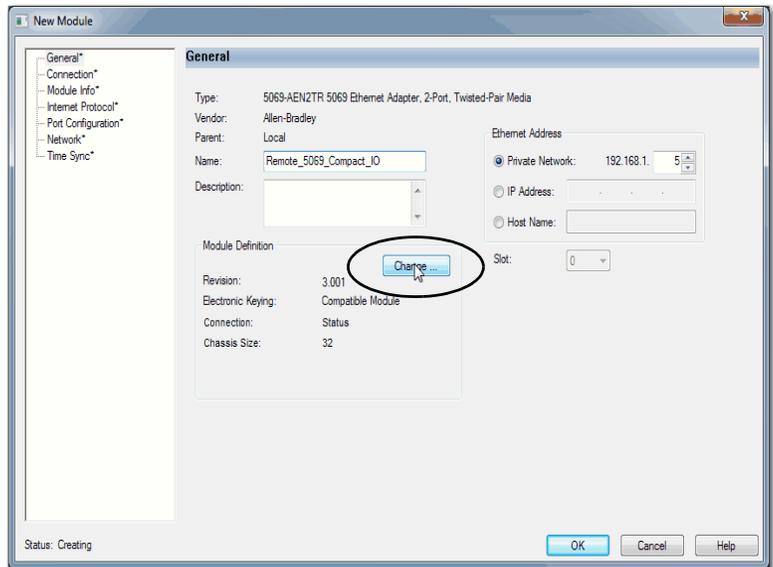
- b. In the Catalog Number field, select the adapter.

For some modules, the Select Major Revision dialog box can appear. If the dialog box appears, choose the major revision of the module and click OK.

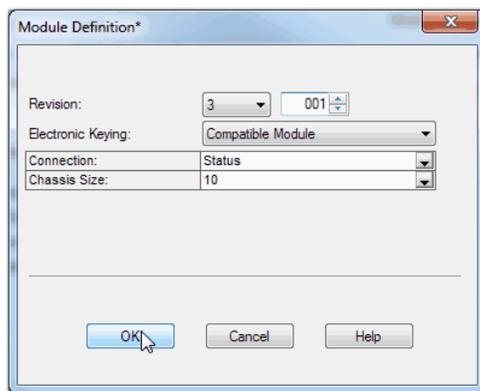
- c. Click Create.



4. On the New Module dialog box, complete the following tasks on the General category page:
 - a. Type a name.
 - b. Enter the IP address.
 - c. In the Module Definition area, click Change.



The Module Definition dialog box appears.



5. Complete the following tasks.
 - a. Set the appropriate Revision of the firmware that is on your adapter.

Major Revision (left pull-down menu)	This field only displays the major revisions that are applicable to the selected series. This field appears dimmed when online unless the module supports allowing major revision changes to be made while online.
Minor Revision (right field)	Sets the minor revision of the module. The valid range is 1..255. This field is enabled while offline, and while in the Program, Remote Program, and Remote Run modes. It appears dimmed when in Run mode, or when electronic keying is set to Disable Keying

- b. Select the appropriate the Electronic Keying setting.

Electronic Keying is enabled while offline, and while in Program, Remote Program, and Remote Run modes. It appears dimmed when in Run mode.

Electronic Keying reduces the possibility that you use the wrong device in a control system. It compares the device that is defined in your project to the installed device. If keying fails, a fault occurs. The following attributes are compared.

Attribute	Description
Vendor	The device manufacturer.
Device Type	The general type of the product, for example, digital I/O module.
Product Code	The specific type of the product. The Product Code maps to a catalog number.
Major Revision	A number that represents the functional capabilities of a device.
Minor Revision	A number that represents behavior changes in the device.

The following Electronic Keying options are available.

Keying Option	Description
Compatible Module	Lets the installed device accept the key of the device that is defined in the project when the installed device can emulate the defined device. With Compatible Module, you can typically replace a device with another device that has the following characteristics: <ul style="list-style-type: none"> • Same catalog number • Same or higher Major Revision • Minor Revision as follows: <ul style="list-style-type: none"> - If the Major Revision is the same, the Minor Revision must be the same or higher. - If the Major Revision is higher, the Minor Revision can be any number.
Disable Keying	Indicates that the keying attributes are not considered when attempting to communicate with a device. With Disable Keying, communication can occur with a device other than the type specified in the project. <p>ATTENTION: Be cautious when you use Disable Keying; if used incorrectly, this option can lead to personal injury or death, property damage, or economic loss. We strongly recommend that you do not use Disable Keying. If you use Disable Keying, you must take full responsibility for understanding whether the device being used can fulfill the functional requirements of the application.</p>
Exact Match	Indicates that all keying attributes must match to establish communication. If any attribute does not match precisely, communication with the device does not occur.

Carefully consider the implications of each keying option when selecting one.

IMPORTANT When you change Electronic Keying parameters online, it interrupts connections to the device and any devices that are connected through the device. Also, connections from other controllers can be broken. If an I/O connection to a device is interrupted, the result can be a loss of data.

For more detailed information on Electronic Keying, see Electronic Keying in Logix 5000™ Control Systems Application Technique, publication [LOGIX-ATool](#).

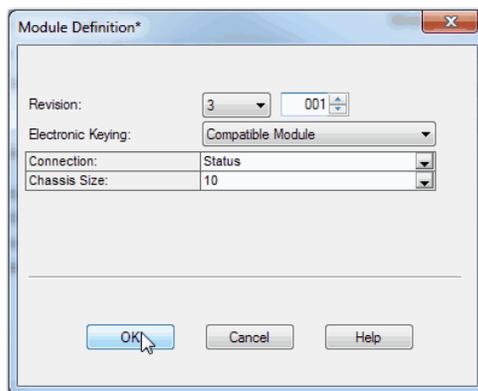
c. Select the Connection.

None	No direct connection from Controller (Originator) to the adapter.
Status	Reports device status.

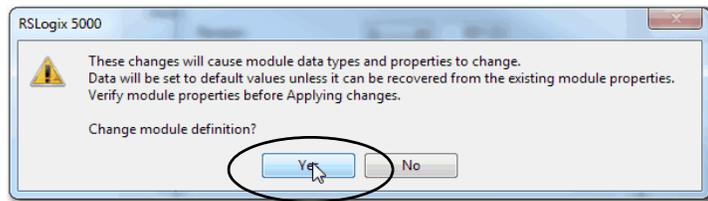
d. Set the Chassis Size to the number of modules including the adapter.

For example, one adapter with nine I/O modules equals a chassis size of ten.

e. Click OK.



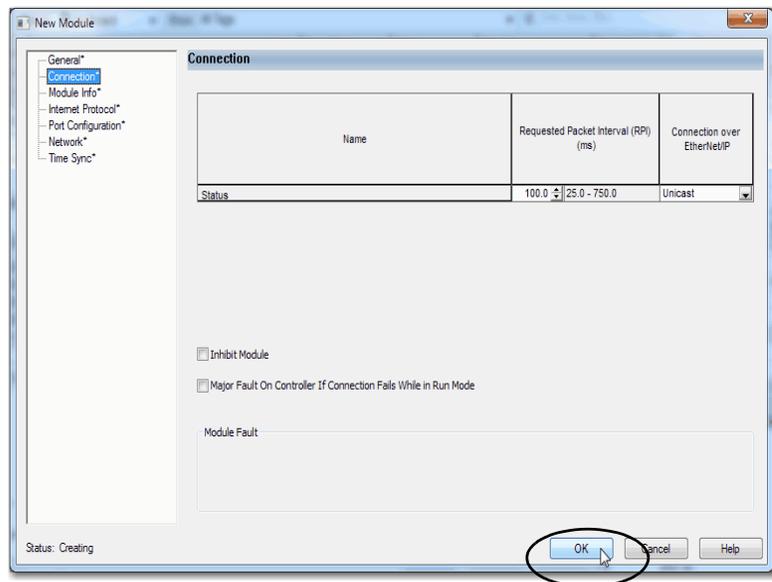
If you set the Connection to Status, click Yes on the Logix 5000™ dialog box.



6. On the New Module dialog box, click the Connection category and complete the tasks:
 - a. Set the Requested Packet Interval (RPI). The range is 25...750 ms, with 100 ms as the default. This connection is for status data only, with no I/O.
 - b. Select the Connection over EtherNet/IP, Unicast, or Multicast.

For non-redundant controllers, the default value is Unicast when the target device supports unicast; otherwise, the default value is Multicast. For redundant controllers, the default value is Multicast when the target device supports multicast; otherwise, the default value is Unicast.

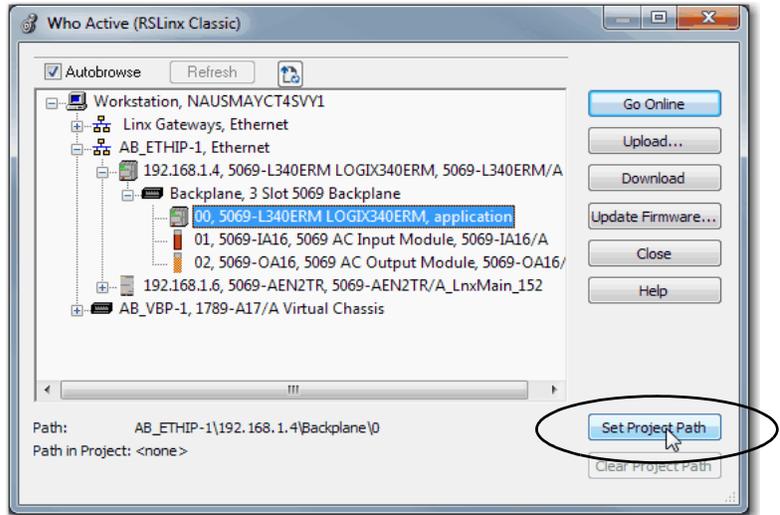
- c. Click OK.



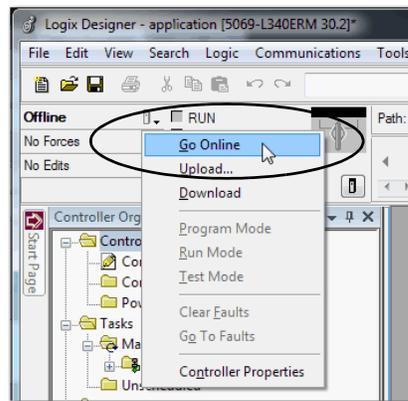
7. Save the project.
8. If the project does not have a communication path to the controller, click Browse to create a path.



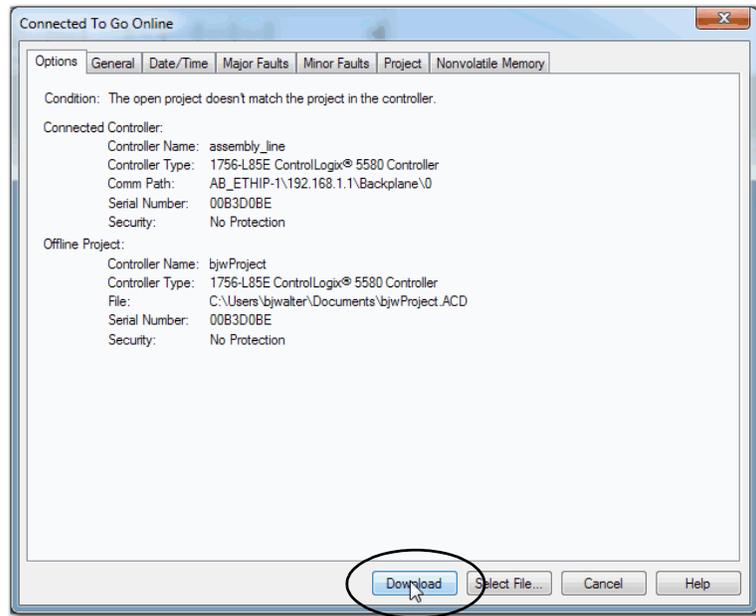
9. On the Who Active dialog box, choose the desired path and click Set Project Path and close the dialog box.



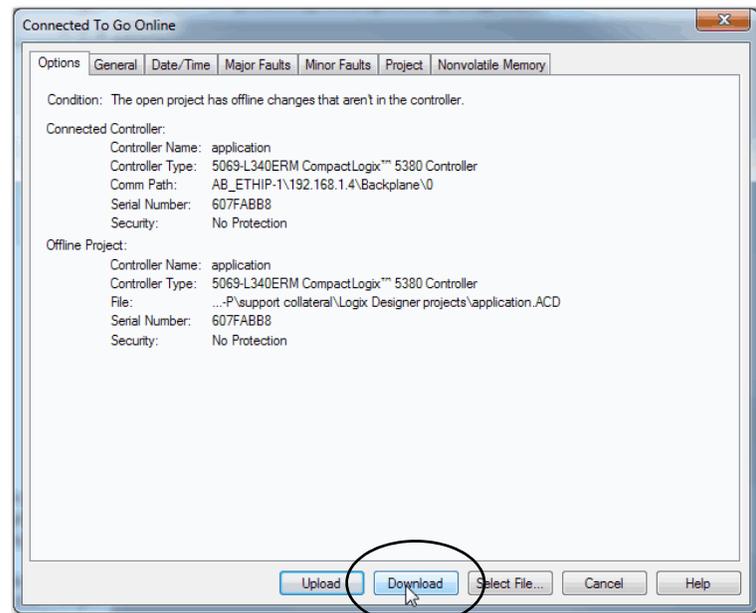
10. Verify that the controller mode switch is in the PROG mode position
11. Click the Controller Status icon, and choose Go Online.



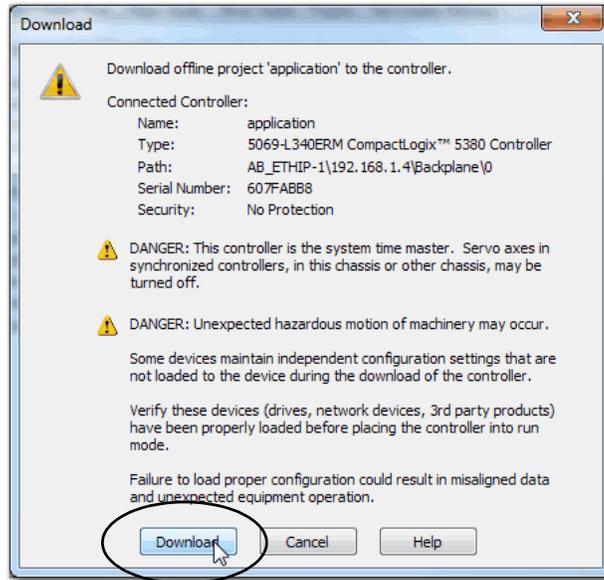
12. On the Connected To Go Online dialog box, click Download.



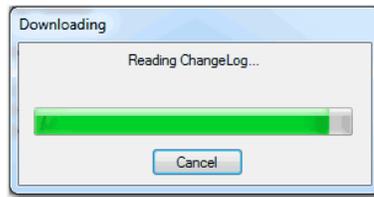
13. On the Download dialog box, click Download.



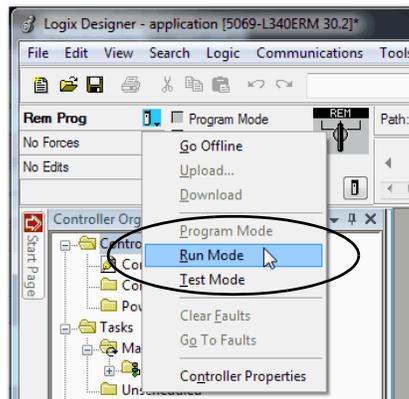
14. Confirm that you want to download the project.



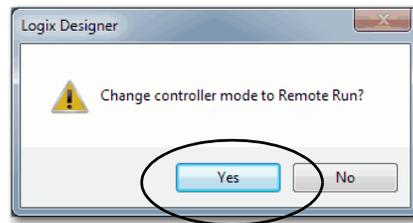
The project downloads to the controller. The dialog box closes when the download is complete.



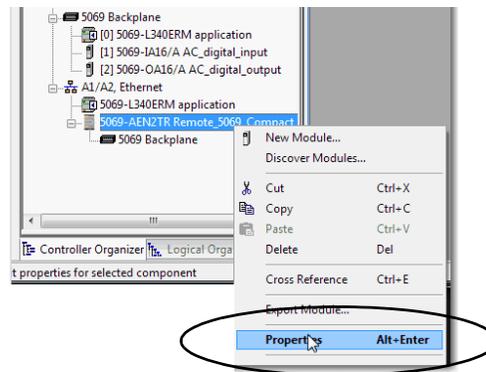
15. If you did not already configure the Ethernet port speed and duplex settings with RSLinx® Classic software, complete the following tasks.
 - a. Put the controller mode switch in the REM position.
 - b. Change the Logix Designer application project to Run mode.



c. When prompted to Change controller mode to Remote Run, click Yes.



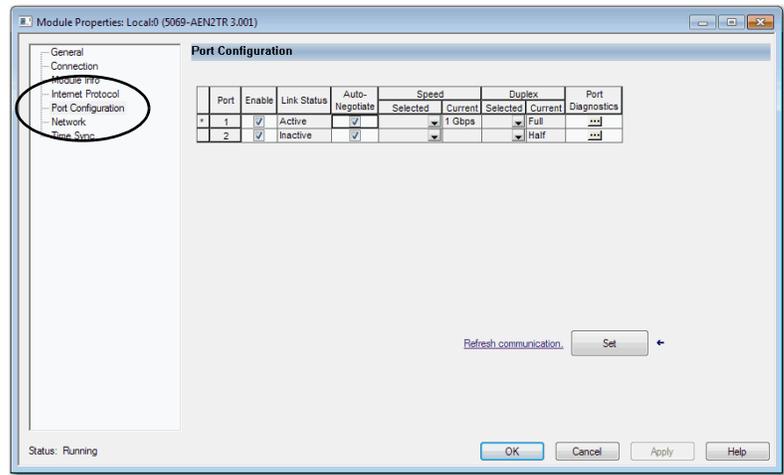
d. Right-click the adapter, and choose Properties.



e. On the Module Properties dialog box, click the Port Configuration category.

Desired Task	Action
Let the module automatically set the port speed and duplex settings.	Leave Auto-negotiate enabled.
Manually configure your port speed and duplex settings.	Complete the following steps. <ol style="list-style-type: none"> 1. Clear the Auto-negotiate port speed and duplex checkbox. 2. From the Current Port Speed pull-down menu, choose a port speed. 3. From the Current Duplex pull-down menu, choose full-duplex.

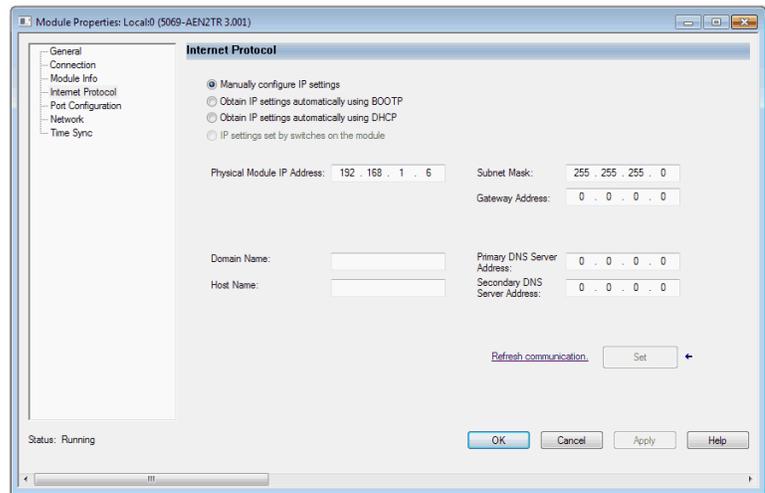
- IMPORTANT** Consider the following when you configure the port settings:
- The Compact 5000 I/O EtherNet/IP adapters only support full-duplex mode.
 - The speed and duplex settings for the devices on the same Ethernet network must be the same to avoid transmission errors.
 - Fixed speed and full-duplex settings offer better reliability than autonegotiate settings and are recommended for some applications.
 - If the module is connected to an unmanaged switch, leave Auto-negotiate checked or the module fails.
 - If you force the port speed and duplex with a managed switch, the corresponding port of the managed switch must be forced to the same settings or the module fails.
 - If you connect a manually configured device to an autonegotiate device (duplex mismatch), a high rate of transmission errors can occur.



16. Click the Internet Protocol category.

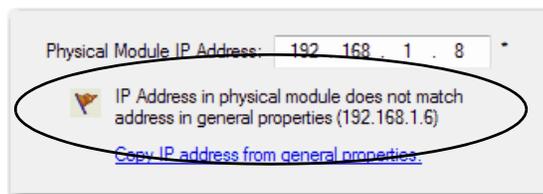
If needed, you can set Internet Protocol properties such as:

- Domain Name
- Host Name
- Gateway Address
- Primary and secondary DNS Server Addresses.



f. On the Module Properties dialog box, click OK.

IMPORTANT If you try to change the IP address on this page, the following alert appears:



g. Save the project.

Enable or Disable HTTP Server and SNMP Server

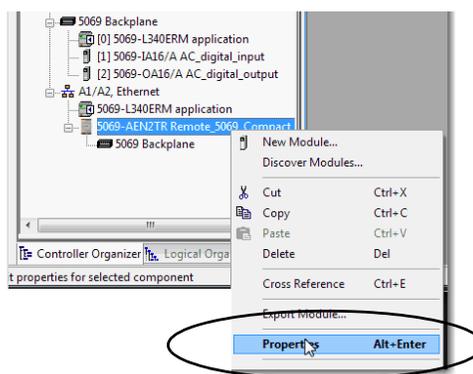
You can enable or disable the HTTP server and SNMP server as an added security feature from firmware revision 4.011 or later. The HTTP server and SNMP server are disabled by default from firmware revision 4.011 or later. Disabling these servers in conjunction with using the Explicit Protected Mode decreases the possibility of a security breach.

Enable the HTTP Server in Logix Designer Application

To change the settings in the Add-on Profile Server pages, make sure that the adapter is not in Explicit Protected Mode. To exit Explicit Protected Mode, see [Enter and Exit Explicit Protected Mode on page 9](#).

IMPORTANT From firmware revision 4.011 or later, the HTTP server is disabled by default in out of box state and after performing a factory reset.

1. In the Logix Designer application project, select the adapter device from the Controller Organizer pane.
2. Right-click the adapter, and choose Properties.



3. On the Module Properties page, click Servers in the tree view.
4. Select the Enable checkbox next to the Hypertext Transfer Protocol (HTTP) server.

You can select the checkbox only when the controller is online.

5. Click the Apply button to accept the changes. You do not need to cycle power to the adapter.
6. Enter Explicit Protected Mode.



ATTENTION: To decrease the possibility of a security breach, use Explicit Protected Mode and do not enable the HTTP server.

Enable	Name	Port	Protocol
<input type="checkbox"/>	Simple Network Management Protocol (SNMP)	161	UDP
<input checked="" type="checkbox"/>	Hypertext Transfer Protocol (HTTP)	80	TCP

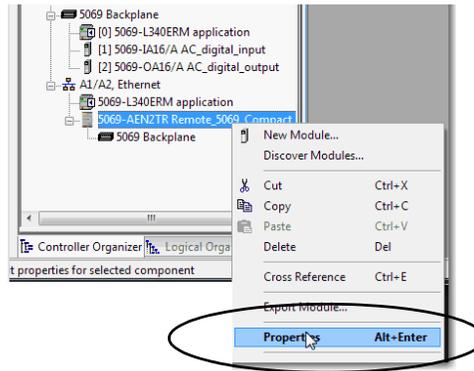
Device is in Implicit Protected Mode. Inhibit connections to the device to allow changes to server settings.

Status: Running

Enable the SNMP Server in Logix Designer Application

To change the settings in the Add-on Profile Server pages, make sure that the adapter is not in Explicit Protected Mode. To exit Explicit Protected Mode, see [Enter and Exit Explicit Protected Mode on page 9](#).

1. In the Logix Designer application project, select the adapter device from the Controller Organizer pane.
2. Right-click on the adapter and select Properties from the menu.



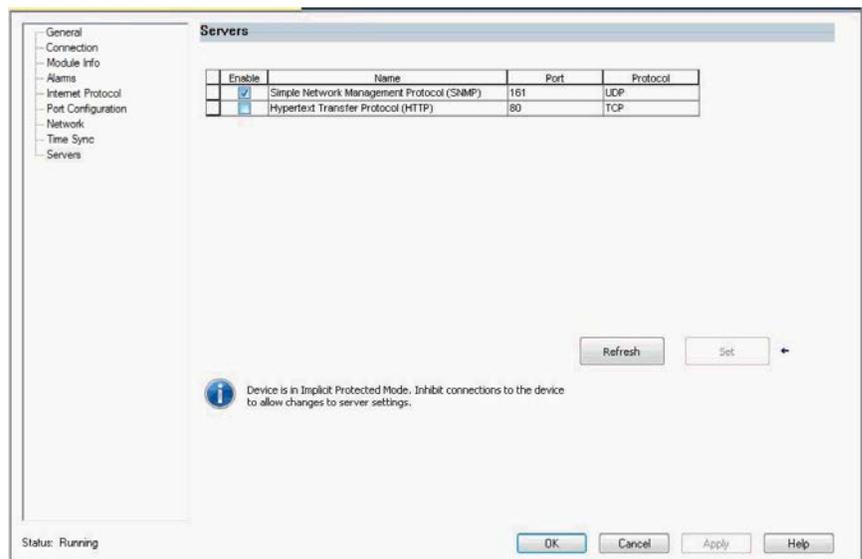
3. On the Module Properties page, click Servers in the tree view.
4. Select the Enable checkbox next to the Simple Network Management Protocol (SNMP) server.

The controller must be online to select the checkbox. If the controller is offline, you cannot select the checkbox.

5. Click the Apply button to accept the changes. You do not need to cycle power to the adapter.
6. Enter Explicit Protected Mode.



ATTENTION: To decrease the possibility of a security breach, use Explicit Protected Mode and do not enable the SNMP server.



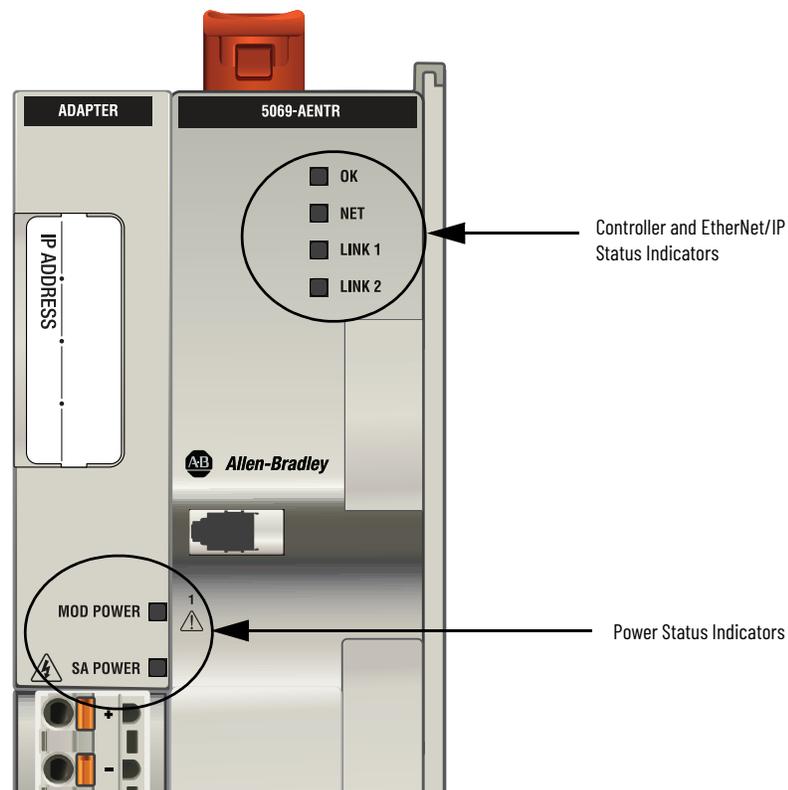
Notes:

Compact 5000 EtherNet/IP Adapter Status Indicators

EtherNet/IP™ communication modules have multi-character displays and status indicators to assist with performance and diagnostics.

5069-AENTR Adapter Status Indicators

Figure 9 - 5069-AENTR Adapter Status Indicators



[Table 2](#) describes the 5069-AENTR adapter status indicators.

Table 2 - 5069-AENTR Status Indicators

Indicator	State	Description	Recommended Action
OK	Off	There is no power applied to the device.	Apply power as necessary
	Flashing Green	The IP address is not set.	Set the IP address using one of the recommended methods.
	Steady green	The device is operating in a normal condition.	None
	Flashing red	One of the following: <ul style="list-style-type: none"> The device has a recoverable fault. The fault can be read from the diagnostic webpages. A firmware update is being performed on the device. The adapter has powered up and is in the Factory Default state. In this case, all other indicators flash red and green. 	One of the following: <ul style="list-style-type: none"> Cycle power. Wait for the firmware update to finish. Use adapter as necessary.
	Steady red	The device has an unrecoverable fault.	Cycle power. If the fault persists, replace the device.

Table 2 - 5069-AENTR Status Indicators

Indicator	State	Description	Recommended Action
NET	Off	The device is not configured, or does not have an IP address.	Configure the device or assign an IP address.
	Flashing green	The device has an IP address, but no active connections are established.	Establish connections as required by the project.
	Steady green	The device has an IP address and at least one established active connection.	None
	Steady red	There is a Duplicate IP address condition or invalid configuration.	Troubleshoot the issue and remedy the cause. For example, if a Duplicate IP address condition exists, determine which devices on the network use the same IP address and change the IP addresses to unique values.
	Flashing red and green	The device has powered up and is in the Factory Default state. In this case, the OK indicator is flashing red and all other indicators flash red and green.	Use adapter as necessary.
LINK1	Off	No activity. One of the following conditions exists: <ul style="list-style-type: none"> • The module is not powered. • The RJ45 cables are properly seated in the adapter and connected devices. • No link exists on the port. • The port is administratively disabled. 	One of the following: <ul style="list-style-type: none"> • If there is no power to the device, complete one of the following: <ul style="list-style-type: none"> - Turn on power. - Verify that the module RTB is properly seated in the adapter. IMPORTANT: Before you touch the module RTB, verify that power is not applied to the adapter. Once the module RTB is properly seated, turn on power. • Verify that the RJ45 cables are properly seated in the adapter and connected devices. • If there is power to the device but no link exists, troubleshoot the issue and remedy the cause. • If the port is administratively disabled, confirm that is the desired state. If not, use RSLinx® Classic software or the Logix Designer application to enable the port.
	Flashing green	Activity exists on the port.	None
	Flashing red and green	The device has powered up and is in the Factory Default state. In this case, the OK indicator is flashing red and all other indicators flash red and green.	Use adapter as necessary.
LINK2	Off	No activity. One of the following conditions exists: <ul style="list-style-type: none"> • The module is not powered. • The RJ45 cables are properly seated in the adapter and connected devices. • No link exists on the port. • The port is administratively disabled. • The port is disabled due to rapid ring faults. • The port configuration is configured in a manner that can result in issues. For example, the port can be configured to Autonegotiate and the port at the other end of the cable is configured such that Autonegotiate is disabled. 	One of the following: <ul style="list-style-type: none"> • If there is no power to the device, complete one of the following: <ul style="list-style-type: none"> - Turn on power. - Verify that the module RTB is properly seated in the adapter. IMPORTANT: Before you touch the module RTB, verify that power is not applied to the adapter. Once the module RTB is properly seated, turn on power. • Verify that the RJ45 cables are properly seated in the adapter and connected devices. • If there is power to the device but no link exists, troubleshoot the issue and remedy the cause. • If the port is administratively disabled, confirm that is the desired state. If not, use RSLinx Classic software or the Logix Designer application to enable the port. • If the port is disabled due to rapid ring faults, troubleshoot the cause of the fault and remedy it. • Check configuration for the links at both ends of the cable and verify that they are correct to perform normal operation.
	Flashing green	Activity exists on the port.	None
	Steady green	Adapter is the supervisor of a Device Level Ring network.	None
	Flashing red and green	The device has powered up and is in the Factory Default state. In this case, the OK indicator is flashing red and all other indicators flash red and green.	Use adapter as necessary.
	MOD Power	Off	There is no module power applied to the device.
	Steady green	Module power is present.	None
	Flashing red and green	The device has powered up and is in the Factory Default state. In this case, the OK indicator is flashing red and all other indicators flash red and green.	Use adapter as necessary.
SA Power	Off	Status of SA power is unknown.	Apply SA power as necessary
	Steady green	SA power is present.	None
	Flashing red and green	The device has powered up and is in the Factory Default state. In this case, the OK indicator is flashing red and all other indicators flash red and green.	Use adapter as necessary.

5069-AEN2TR Adapter Status Indicators

Figure 10 - 5069-AEN2TR Adapter Status Indicators

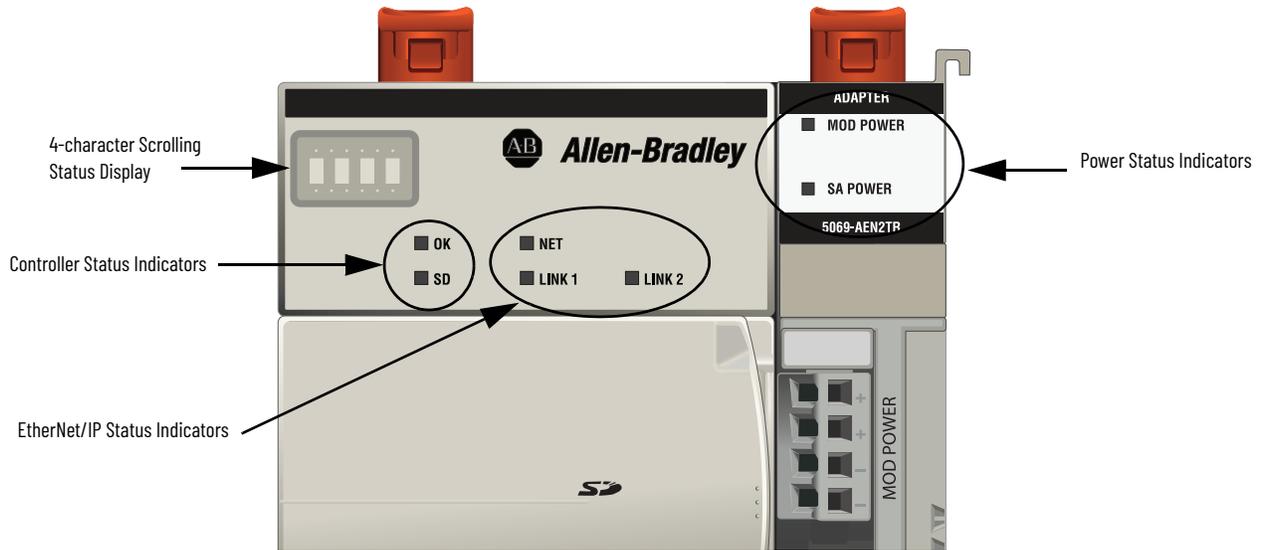


Table 3 describes the 5069-AEN2TR adapter status indicators.

Table 3 - 5069-AEN2TR Status Indicators

Indicator	State	Description	Recommended Action
OK	Off	There is no power applied to the device.	Apply power as necessary
	Steady green	The device is operating in a normal condition.	None
	Flashing red	One of the following: <ul style="list-style-type: none"> The device has a recoverable fault. The fault can be read from the device through the USB or Ethernet ports. A firmware update is being performed on the device. 	One of the following: <ul style="list-style-type: none"> Cycle power. Wait for the firmware update to finish.
	Steady red	The device has an unrecoverable fault.	Cycle power. If the fault persists, replace the device.
SD	Off	There is no activity to the SD card.	None
	Flashing green	The controller is reading from, or writing to the SD card.	None
	Steady red	The SD card does not have a valid file system.	None
NET	Off	The device is not configured, or does not have an IP address.	Configure the device or assign an IP address.
	Flashing green	The device has an IP address, but no active connections are established.	Establish connections as required by the project.
	Steady green	The device has an IP address and at least one established active connection.	None
	Steady red	There is a Duplicate IP address condition or invalid configuration.	Troubleshoot the issue and remedy the cause. For example, if a Duplicate IP address condition exists, determine which devices on the network use the same IP address and change the IP addresses to unique values.
LINK1	Off	No activity. One of the following conditions exists: <ul style="list-style-type: none"> The module is not powered. The RJ45 cables are properly seated in the adapter and connected devices. No link exists on the port. 	One of the following: <ul style="list-style-type: none"> If there is no power to the device, complete one of the following: <ul style="list-style-type: none"> Turn on power. Verify that the module RTB is properly seated in the adapter. IMPORTANT: Before you touch the module RTB, verify that power is not applied to the adapter. Once the module RTB is properly seated, turn on power. Verify that the RJ45 cables are properly seated in the adapter and connected devices. If there is power to the device but no link exists, troubleshoot the issue and remedy the cause.
	Flashing green	Activity exists on the port.	None

Table 3 - 5069-AEN2TR Status Indicators

Indicator	State	Description	Recommended Action
LINK2	Off	No activity. One of the following conditions exists: <ul style="list-style-type: none"> • The module is not powered. • The RJ45 cables are properly seated in the adapter and connected devices. • No link exists on the port. • The port is administratively disabled. • The port is disabled due to rapid ring faults. 	One of the following: <ul style="list-style-type: none"> • If there is no power to the device, complete one of the following: <ul style="list-style-type: none"> - Turn on power. - Verify that the module RTB is properly seated in the adapter. IMPORTANT: Before you touch the module RTB, verify that power is not applied to the adapter. Once the module RTB is properly seated, turn on power. • Verify that the RJ45 cables are properly seated in the adapter and connected devices. • If there is power to the device but no link exists, troubleshoot the issue and remedy the cause. • If the port is administratively disabled, confirm that is the desired state. • If the port is disabled due to rapid ring faults, troubleshoot the cause of the fault and remedy it.
	Flashing green	Activity exists on the port.	None
	Steady green	Adapter is the supervisor of a Device Level Ring network.	None
MOD Power	Off	There is no module power applied to the device.	Apply MOD power as necessary
	Steady green	Module power is present.	None
SA Power	Off	Status of SA power is unknown.	Apply SA power as necessary
	Steady green	SA power is present.	None

[Table 4](#) describe the possible messages on the 4-character display for a 5069-AEN2TR adapter.

Table 4 - Messages on 4-character Display

Message Type	Example Message on 4-character Display	Description
TEST	TEST	Message appears while power-up tests run.
PASS	PASS	Message appears when power-up tests complete.
Embedded software version	Rev 2.003	Message appears once, after the power-up tests complete successfully.
OK	OK	The first message in the scrolling message display. Message scrolls continuously during operation.
Port Down	Link 2 - Port Down	Message appears when an EtherNet/IP port does not have a connection. Message scrolls continuously during operation.
Port Rate/Duplex State	Port 1 - 1Gb/FULL	The current port rate and duplex state. Message scrolls continuously during operation. If not connected to a 1 Gb switch, the message shows 100/FULL.
IP Address	192.168.1.17	The IP address of the adapter. Message scrolls continuously during operation.
Link Disabled	Port 2 - Link Disabled	Message appears when you have disabled an EtherNet/IP port. Message scrolls continuously during operation.
Duplicate IP	Duplicate IP - 00:00:BC:02:34:B4	Message appears when the adapter detects a device with the same IP address on the network. The message shows the MAC ID of the device with the duplicate IP address. Message scrolls continuously during operation.
Fault	Cycle power to unit.	Message appears, and scrolls continuously, during a fault.

Module Tags

Module tags are created when you add the adapter to a controller project and set the connection to Status.

Compact 5000 EtherNet/IP Adapter Tags [Table 5](#) describes the Compact 5000™ EtherNet/IP™ adapter tags:

Table 5 - Compact 5000 I/O EtherNet/IP Adapter Module Tags

Tag Name	Data Type	Definition	Valid Values
RunMode	BOOL	Module operating state	<ul style="list-style-type: none"> 0 = Idle 1 = Run
ConnectionFaulted	BOOL	Indicates if a connection to the target is running. The module always returns a zero in this member. The controller overwrites the zero with a one when the connection is not up.	<ul style="list-style-type: none"> 0 = Connection running 1 = Connection not running
DiagnosticActive	BOOL	Indicates if any diagnostics are active or if the prognostics threshold is reached.	<ul style="list-style-type: none"> 0 = No diagnostics active 1 = One or more diagnostics are active or the prognostics threshold is reached
CIPSyncValid	BOOL	Indicates if the module is synced with a 1588 master.	<ul style="list-style-type: none"> 0 = Module is not synced 1 = Module is synced
CIPSyncTimeout	BOOL	Indicates if the module was once synced with a 1588 master, but is not now due to a timeout.	<ul style="list-style-type: none"> 0 = A valid time master has not timed out. 1 = A valid time master was detected on the backplane, but the time master has timed out. The module is using its local clock and can be drifting away from the last known time master.
DiagnosticSequenceCount	SINT	Increments for each time a distinct diagnostic condition is detected, and when a distinct diagnostic condition transitions from detected to not detected. Set to zero by product reset or power cycle. Wraps from 255 (-1) to 1 skipping zero.	-128...127 The value of 0 is skipped except during module power-up.
OverTemperature	BOOL	Indicates if the module is at its maximum thermal rating. IMPORTANT: This tag is always 0 with the 5069-AENTR adapter.	<ul style="list-style-type: none"> 0 = Module is not at its maximum thermal rating 1 = Module is at its maximum thermal rating
CriticalTemperature	BOOL	Indicates if the temperature is approaching (but below) the point of thermal runaway. IMPORTANT: This tag is always 0 with the 5069-AENTR adapter.	<ul style="list-style-type: none"> 0 = Temperature is not approaching the point of thermal runaway 1 = Temperature is approaching the point of thermal runaway
Port1Connected	BOOL	Indicates if the numbered Ethernet port is active.	<ul style="list-style-type: none"> 0 = Ethernet port is not active 1 = Ethernet port is active
Port2Connected	BOOL	Indicates if the numbered Ethernet port is active.	<ul style="list-style-type: none"> 0 = Ethernet port is not active 1 = Ethernet port is active
Port1FullDuplex	BOOL	Indicates if the numbered Ethernet port, if it is connected, is running full-duplex mode or half-duplex mode.	<ul style="list-style-type: none"> 0 = Ethernet port is running in half-duplex mode 1 = Ethernet port is running in full-duplex mode
Port2FullDuplex	BOOL	Indicates if the numbered Ethernet port, if it is connected, is running full-duplex mode or half-duplex mode.	<ul style="list-style-type: none"> 0 = Ethernet port is running in half-duplex mode 1 = Ethernet port is running in full-duplex mode

Table 5 - Compact 5000 I/O EtherNet/IP Adapter Module Tags

Tag Name	Data Type	Definition	Valid Values
Port1AutoNegotiationStatus	SINT	Indicates the status of link auto-negotiation	<ul style="list-style-type: none"> • 0 = Auto-negotiation in progress. • 1 = Auto-negotiation and speed detection failed. Using default values for speed and duplex. Default values are product-dependent; recommended defaults are 10 Mbps and half-duplex. • 2 = Auto negotiation failed, but detected speed. Duplex was defaulted. Default value is product-dependent; recommended default is half-duplex mode. • 3 = Successfully negotiated speed and duplex mode. • 4 = Auto-negotiation not attempted. Forced speed and duplex mode.
Port2AutoNegotiationStatus	SINT	Indicates the status of link auto-negotiation	<ul style="list-style-type: none"> • 0 = Auto-negotiation in progress. • 1 = Auto-negotiation and speed detection failed. Using default values for speed and duplex. Default values are product-dependent; recommended defaults are 10 Mbps and half-duplex. • 2 = Auto negotiation failed, but detected speed. Duplex was defaulted. Default value is product-dependent; recommended default is half-duplex mode. • 3 = Successfully negotiated speed and duplex mode. • 4 = Auto-negotiation not attempted. Forced speed and duplex mode.
Port1Speed	INT	Indicates the actual port speed in Mbps.	10, 100, 1000
Port2Speed	INT	Indicates the actual port speed in Mbps.	10, 100, 1000
TCPConnections	INT	The number of TCP/IP connections currently open to the adapter.	All positive values
CIPConnections	INT	The number of CIP connections currently open to and through the adapter.	All positive values
CIPLostPackets	DINT	A running sum of the number of Sequenced Address Item Sequence Numbers that are skipped in Class 0 and Class 1 connections that are consumed by the adapter and its children.	All positive values
CIPTimeouts	DINT	A running count of the number of connections that time out, both originated and targeted, and connections to and through the adapter.	All positive values

Table 5 - Compact 5000 I/O EtherNet/IP Adapter Module Tags

Tag Name	Data Type	Definition	Valid Values
HMIPacketRate	DINT	The number of Class 3 packets and unconnected packets that are sent and received by the device in the previous second.	All
IOPacketRate	DINT	The number of class 0 and class 1 packets that are transmitted or received by the adapter in the previous second.	All positive values
EthernetErrors	DINT	The sum over all ports of the Ethernet Link object values: In Discards, In Errors, In Unknown Protos, Out Discards, Out Errors, Alignment Errors, FCS Errors, Single Collisions, Multiple Collisions, SQE Test Errors, Deferred Transmissions, Late Collisions, Excessive Collisions, MAC Transmit Errors, Carrier Sense Errors, Frame Too Long, and MAC Receive Errors.	All positive values
CPUUtilization	INT	The percentage of the capacity of the product's compute engine (whether that is a CPU, or a core of a CPU, or a thread) most important to the performance of communication of packets by the product. The value equals the percentage.	0...100
DLRNetworkState	SINT	The current value of the Network Status instance attribute of the DLR object for devices with multiple Ethernet ports that support DLR.	0 - Normal 1 - Ring Fault 2 - Unexpected Loop Detected 3 - Partial Network Fault 4 - Rapid Fault/Restore Cycle
DLRSupervisorState	SINT	The current value of the Ring Supervisor Status instance attribute of the DLR object for devices with multiple Ethernet ports that support DLR.	0 - Device is functioning as a backup 1 - Device is functioning as the active ring supervisor 2 - Device is functioning as a normal ring node 3 - Device is operating in a non-DLR topology 4 - Device cannot support the current ring parameters (Beacon Interval and Beacon Timeout)
MemoryCardFault This tag is only available with the 5069-AEN2TR adapter.	BOOL	Indicates if an SD card fault was detected. Either of the following conditions can trigger the fault: <ul style="list-style-type: none"> When there is not an SD card in the SD card slot. When a corrupted write on SD card was detected. 	0 - No fault 1 - SD card fault detected
MemoryCardDataMismatch This tag is only available with the 5069-AEN2TR adapter.	BOOL	Indicates that there is a difference between the configuration that is stored on the adapter and the configuration that is stored on the SD card.	0 - No fault 1 - SD card data mismatch detected
LocalClockOffset	LINT	The offset from the local clock to the system time. This value helps to detect steps in time. This value updates when a PTP update is received.	All
LocalClockOffsetTimestamp	LINT	The time when the Local Clock Offset was sampled. This value is initially zero, and the first time stamp occurs when the module synchronizes with the master clock.	—
GrandMasterClockID	SINT[8]	The EUI-64 Identity of the CIP Sync Grandmaster clock the module is synced to.	All

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Additional Resources

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

Resource	Description	
Hardware installation	Compact 5000™ I/O EtherNet/IP™ Adapter Installation Instructions, publication 5069-IN003	Describes how to install and wire the Compact 5000 I/O EtherNet/IP™ adapters.
	Compact 5000 I/O Serial Module Install Instructions, publication 5069-INO22	Describes how to install the Compact 5000 I/O Serial Module.
	Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley® industrial automation controls and assemblies.
	Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
	Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Technical Data	Compact 5000 I/O Modules Specifications Technical Data, publication 5069-TD001	Provides specifications for Compact 5000 I/O EtherNet/IP adapters and Compact 5000 I/O modules.
Networks	Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
	EtherNet/IP Communication Modules in 5000 Series Control Systems User Manual, publication ENET-UM004	Describes how to use Compact 5000 I/O EtherNet/IP adapters.
	EtherNet/IP Network Devices User Manual, publication ENET-UM006	Describes how to configure and use EtherNet/IP devices with a Logix 5000™ controller and communicate with various devices on the Ethernet network.
Design Considerations	Ethernet Design Considerations Reference Manual, publication ENET-RM002	Provides additional information on network design for your system.
	American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
	System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
Programming Tasks and Procedures	UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help confirm that they conform to the requirements of Underwriters Laboratories.
	Replacement Guidelines: Logix 5000 Controllers Reference Manual, publication 1756-RM100	Provides guidelines on how to replace the following: ControlLogix® 5560/5570 controller with a ControlLogix 5580 controller CompactLogix™ 5370 L3 controllers with a CompactLogix 5380 controller
	Logix 5000 Controllers Common Procedures Programming Manual, publication 1756-PM001	Provides access to the Logix 5000 Controllers set of programming manuals. The manuals cover such topics as how to manage project files, organize tags, program logic, test routines, handle faults, and more.
User Manuals	Logix 5000 Controllers General Instructions Reference Manual, publication 1756-RM003	Provides information on the programming instructions available to use in Logix Designer application projects.
	GuardLogix® Safety Application Instruction Set Reference Manual, publication 1756-RM095	Provides information on the GuardLogix Safety application instruction set.
	ControlLogix 5580 and GuardLogix 5580 Controllers User Manual, publication 1756-UM543	Describes how to use ControlLogix 5580 and GuardLogix 5580 controllers.
	5000 Series I/O Modules in Logix 5000 Control Systems User Manual, publication 5000-UM004	Describes how to use 5000 Series I/O modules.
	5000 Series Analog I/O Modules in Logix 5000 Control Systems User Manual, publication 5000-UM005	Describes how to use Compact 5000 I/O analog modules.
	5000 Series High-speed Counter Modules in Logix 5000 Control Systems User Manual, publication 5000-UM006	Describes how to use the Compact 5000 I/O.
	ControlLogix DH-485 Communication Module, publication 1756-UM532	Describes how to use the ControlLogix DH-485 Communication Module.
	Electronic Keying in Logix 5000 Control Systems Application Technique, publication LOGIX-AT001	Describes how to use electronic keying in Logix 5000 control system applications.
Product Certifications	DF1 Protocol and Command Set Reference Manual, publication 1770-RM516	Describes how to use electronic keying in Logix 5000 control system applications.
	CompactLogix 5380 and Compact GuardLogix 5380 Controllers User Manual, publication 5069-UM001	Describes how to use CompactLogix 5380 and Compact GuardLogix 5380 controllers.
Product Certifications	Product Certifications website, rok.auto/certifications .	Provides declarations of conformity, certificates, and other certification details.

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Waste Electrical and Electronic Equipment (WEEE)



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Rockwell Automation maintains current product environmental compliance information on its website at rok.auto/pec.

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