

User Manual

Original Instructions

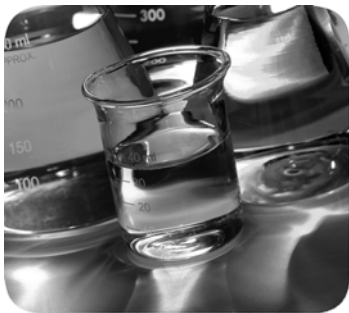


Allen-Bradley

Guardmaster®

Multifunctional Access Box with CIP Safety over EtherNet/IP

Catalog Numbers 442G-MABH-x, 442G-MABxB-Ux-x, 442G-MABE1



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.

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

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

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



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



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).

	Preface	
	Additional Resources	5
	Studio 5000™ Environment	6
	Chapter 1	
General Description	Product Overview	7
	Power to Release	8
	Power to Lock	8
	Assembly Overview.....	9
	About the Catalog Numbers	
	Auxiliary/Manual Release.....	12
	Bolt Locking Mechanism	13
	Typical Ethernet Configurations	14
	Chapter 2	
Safety Concept	Standards Applied to the Guardmaster 442G Multifunctional Access Box with CIP Safety™ over EtherNet/IP®	19
	Safety Certification.....	19
	Safety Requirements for Integrated Safety Applications.....	21
	Chapter 3	
Use the Multifunctional Access Box in an Integrated Safety Controller-based System	Set the Network IP Address	23
	Set the IP Address with BOOTP/DHCP Server.....	24
	Restoring the Module to DHCP Mode	26
	Duplicate IP Address Detection and Resolution	28
	Add and Configure the Multifunctional Access Box in the Logix Designer Application.....	29
	Add Module to the I/O Configuration Tree.....	29
	Configure the Module Properties.....	31
	Configure the Safety Connections	34
	Save and Download the Module Configuration.....	35
	Chapter 4	
Status and Troubleshooting	Network Status Indicators	42
	Lock Module Status Indicators	43
	Status/Diagnostic Status Indicators.....	43
	Fault Codes and Corrective Actions	44
	Clearing Faults.....	45

Specifications	Appendix A	
	Safety Ratings.....	47
	Operating Characteristics.....	47
	Environmental.....	47
	Physical Characteristics.....	47
EtherNet/IP I/O Assemblies	Appendix B	
	Input Assemblies.....	49
	Output Assemblies.....	49
	Tag Definitions.....	50
	Right-hand System.....	52
	Left-hand System.....	53
Change Actuation Directions of Handle Assembly	Appendix C	
	Change Actuation Direction of Handle Assembly.....	55

Use this manual if you are responsible for designing, installing, programming, or troubleshooting systems that use the 442G Multifunctional Access Box with CIP Safety over EtherNet/IP® protocol.

You must have a basic understanding of electrical circuitry and familiarity with safety-related systems. If you do not, obtain the proper training before using this product.

This manual is a reference guide for the 442G Multifunctional Access Box with CIP Safety over EtherNet/IP protocol. It describes the procedures to use to install, wire, and troubleshoot the module. This manual:

- Explains how to install and wire your 442G Multifunctional Access Box with CIP Safety over EtherNet/IP protocol
- Provides an overview of the 442G Multifunctional Access Box with CIP Safety over EtherNet/IP protocol

Read and understand this manual before using the described products. Consult your Rockwell Automation® representative if you have any questions or comments.

Additional Resources

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

Resource	Description
Allen-Bradley™ Industrial Automation Glossary, publication AG-7.1	Glossary of industrial automation terms and abbreviations
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.rockwellautomation.com/global/certification/overview.page	Provides declarations of conformity, certificates, and other certification details.
GuardLogix 5570 and Compact GuardLogix 5370 Controller Systems Safety Reference Manual, publication 1756-RM099	Provides the safety requirements needed to reach SIL3 in a safety system.
GuardLogix 5570 Controllers User Manual, publication 1756-UM022	Provides information on how to install, configure, program, and use GuardLogix™ 5570 controllers in Studio 5000 Logix Designer™ projects.
Compact GuardLogix 5370 Controllers User Manual, publication 1769-UM022	Provides information on how to install, configure, program, and use Compact GuardLogix 5370 controllers.
Multifunctional Access Box with CIP Safety over EtherNet/IP® installation instructions, publication 442G-IN004	Provides information on how to install the module. This includes mounting information, wiring, and specifications.

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

Notes:

General Description

Product Overview

The access box with CIP-Safety over EtherNet/IP™ is a combined interlocking module with guard locking and integrated control elements. The intended use of the access box is at entry points for full-body access into automation cells or areas that require restricted or controlled access.

The access box can be used in an integrated safety system with a GuardLogix™ safety controller. Safety data is exchanged by using CIP Safety via an EtherNet/IP network.

In combination with a movable safety guard and the control system, this safety module can prevent opening of the safety guard while a dangerous machine function is performed. The position of the guard locking is monitored during this process.

- Starting commands that cause a dangerous machine function must become active only when the safety guard is closed and locked.
- The guard locking module must not be unlocked until the dangerous machine function has ended.
- Closing and locking a safety guard must not cause automatic starting of a dangerous machine function. A separate start command must be issued.

The locking module detects the position of the safety guard and the position of the bolt actuator. The position of the locking arm is also monitored. The bolt actuator is moved into and out of the locking module by actuating the door handle. When the bolt is fully inserted into the locking module, the locking arm can lock the bolt actuator in this position.

The GuardLocked input signal is turned on only when the locking bolt is sensed in its extended position in the lock module AND the locking arm is in position (for example, the guard is closed and the bolt is both extended and locked).

Power-to-Release

For Power-to-Release versions, the locking arm is kept in the locked position by spring force and unlocked by solenoid force when power is applied to the solenoid.

Guard locking is activated when the guard is in the closed position and power is removed from the solenoid.

IMPORTANT Safety output signal Unlock is turned off.

Guard locking is deactivated when voltage is applied to the solenoid.

IMPORTANT Safety output signal Unlock is turned on.



ATTENTION: If the safety guard is open when power is removed from the solenoid and the guard is then closed, guard locking is activated. This can lead to persons being locked in unintentionally.

Power-to-Lock

For Power-to-Lock versions, the locking arm is kept in the locked position by solenoid force when power is applied to the solenoid and unlocked by spring force when power is removed from the solenoid.

Guard locking is activated when the guard is in the closed position and power is applied to the solenoid.

IMPORTANT Safety output signal Unlock is turned off.

Guard locking is deactivated when voltage is removed from the solenoid.

IMPORTANT Safety output signal Unlock is turned on.



ATTENTION: In the event of an unintended loss of power, guard locking will be deactivated. Power-to-Lock versions should only be used for personal protection if minimum safe distance is provided in accordance with EN ISO 13855.

Assembly Overview

Figure 1 - Components at a Glance

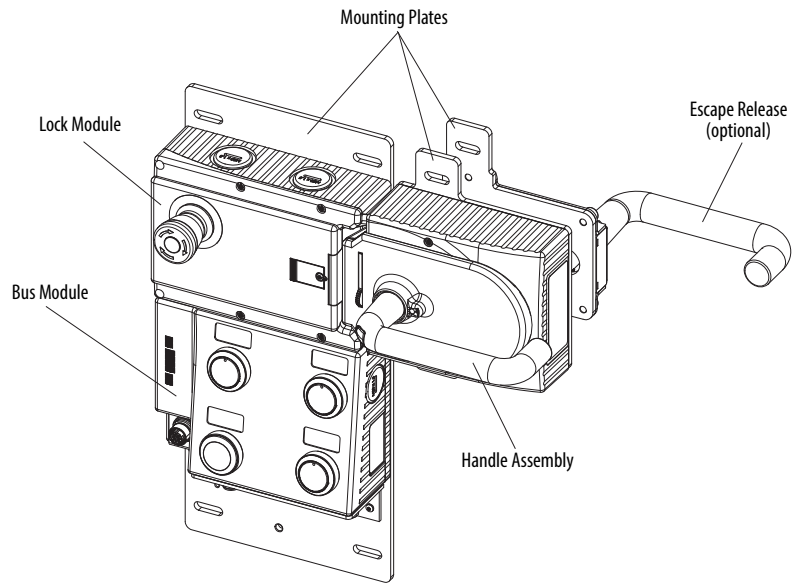


Figure 2 - Bus Module

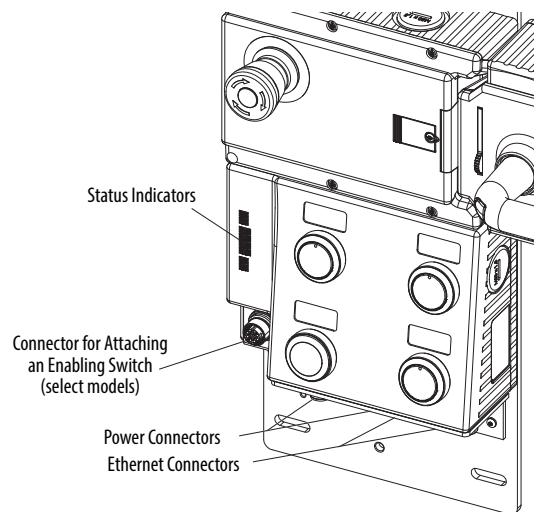


Figure 3 - Locking Module with Control Cover

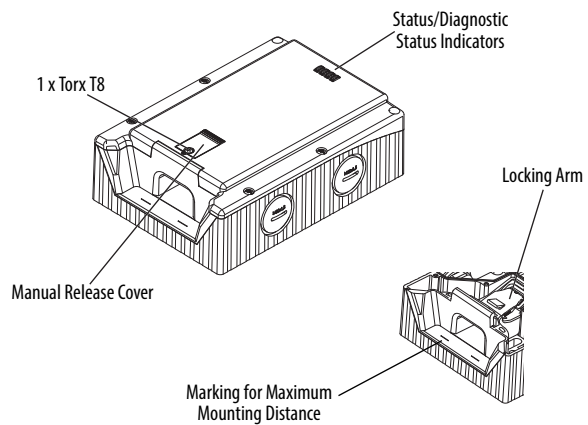


Figure 4 - Handle Assembly

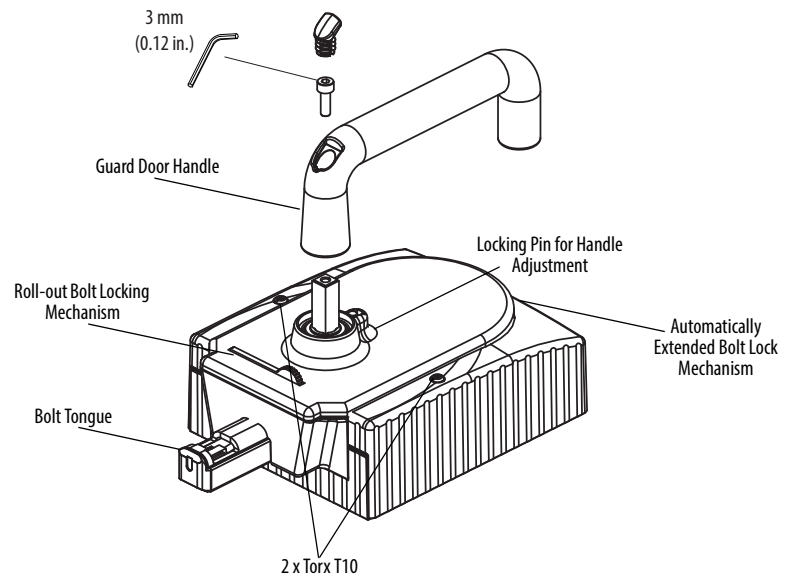
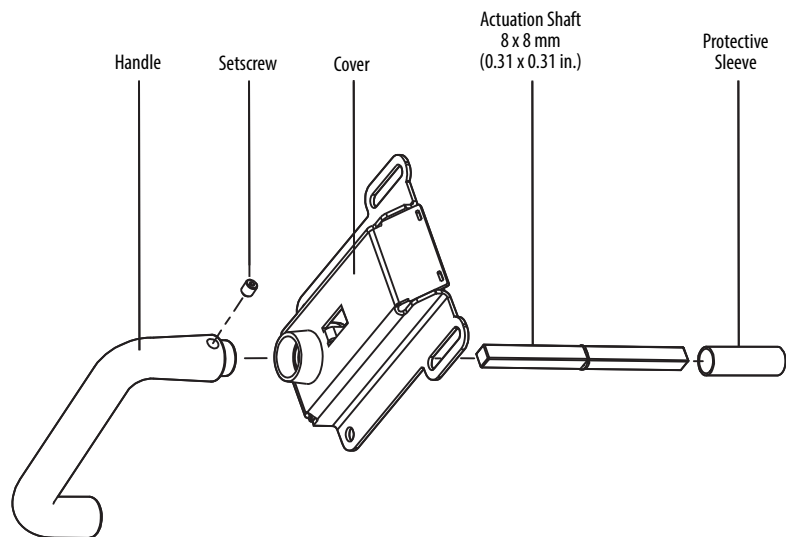


Figure 5 - Escape Release (optional)



IMPORTANT The length of the actuation shaft (115 mm [4.53 in.]) is optimized for mounting on a 45 mm (1.77 in.) profile. An extended shaft is available (442G-MABASHFT). See installation instructions for instructions regarding mounting on smaller or larger profiles.

About the Catalog Numbers

Do not use this table as a configurator.

442G-MAB R B-U R EO J P4679
a b c d e

a	Lock Type
	R = Power-to-Release L = Power-to-Lock
b	R = Guard door hinged on the right L = Guard door hinged on the left
c	EO = Illuminated EStop in position S0 ¹ blank = no EStop
d	J = Enabling switch connector blank = No connector for enabling switch
e	P49 = Push buttons in positions 4 and 9 ¹ P4679 = Push buttons in positions 4, 6, 7, 9 ¹

Refer to [Figure 21 on page 52](#) and [Figure 22 on page 53](#).

Auxiliary/Manual Release

The manual release lets you unlock the guard door in the event of unforeseen or uncommon circumstances.

IMPORTANT The manual release is not a safety function. The machine manufacturer must select and use a suitable release according to the risk assessment. The correct function must be checked at regular intervals.

The system enters into a latching fault (fault code 2744) when the manual release is actuated.

IMPORTANT The system might not enter into a latching fault if the manual release is actuated slowly.

To clear the fault, open the guard and cycle the LockSequenceFaultUnlatch input signal (see [Clearing Faults on page 45](#)).

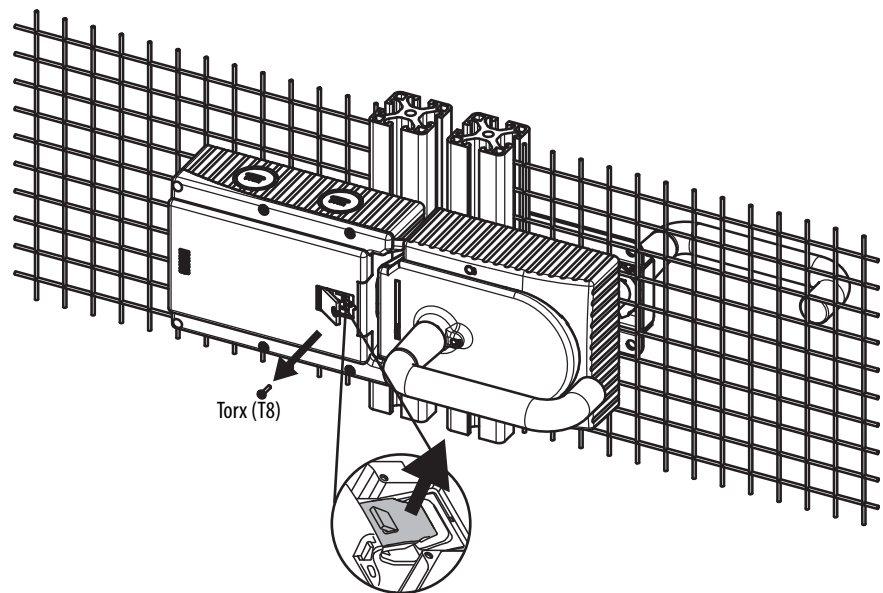


ATTENTION: The locking screw must be screwed back in and sealed after assembly and after use of the manual release. Tightening torque is 0.5 N•m (4.42 lb•in).

To unlock the guard door using the manual release:

1. Undo locking screw.
2. Use a screwdriver to lift the locking arm actuate the guard door handle.

Figure 6 - Auxiliary/Manual Release



Bolt Locking Mechanism

The access box has two mechanisms for locking the bolt actuator to prevent locking the guard and restarting the machine while an operator is inside the safeguarded area.

One of the bolt locking mechanisms automatically extends when the handle is in the OPEN position. The other mechanism is manually extended (see Figure 18). To pivot out, press the grooved part (only possible with the handle in the OPEN position and the bolt retracted).

IMPORTANT With the manual bolt locking mechanism rolled out, the bolt cannot be extended.

Note: The minimum padlock diameter is 2 mm (0.08 in.) and the maximum diameter is 10 mm (0.39 in.) You can fit a maximum of three locks in an 8 mm (0.31 in.) diameter.

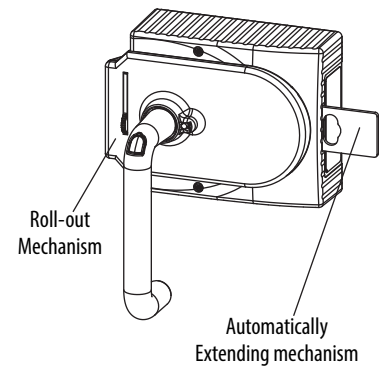


Figure 7 - Bolt Locking Mechanisms

Mounting Plates

IMPORTANT The use of the handle assembly mounting plate is required with the Ethernet version of the access box. The use of the escape release mounting plate is optional.

Figure 8 - Handle Assembly Mounting Plate [mm (in.)]

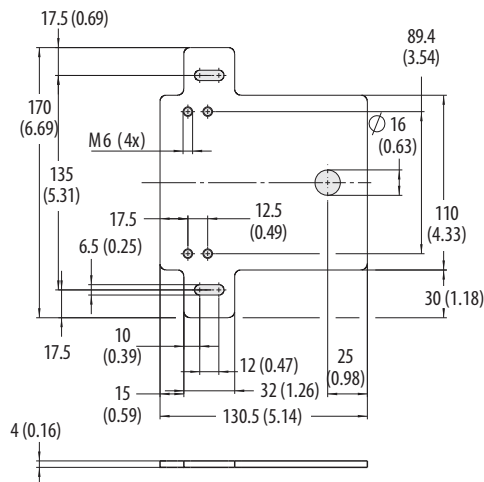
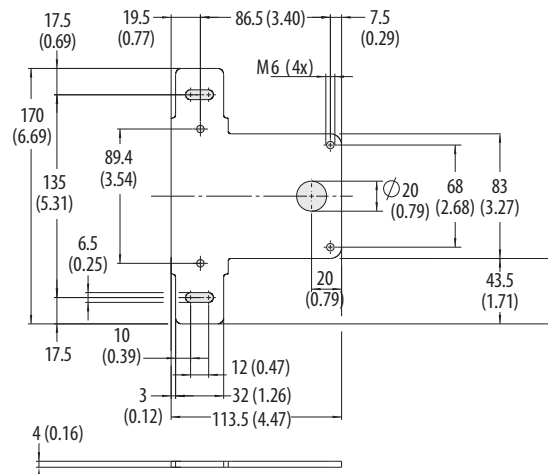


Figure 9 - Escape Release Mounting Plate [mm (in.)]



Mounting Hardware Reference

Handle Assembly Mounting Plate is supplied with the following hardware:

- 4X DIN 7984-M6X12 ZN (screw)
- 4X DIN 433-6 NI (washer)
- 4X DIN 6797-JZ-D6,4 (lock washer)

Escape Release Mounting Plate is supplied with the following hardware:

- 4X DIN 7984-M6X8 (screw)
- 4X DIN 433-6 NI (washer)
- 4X DIN 6797-JZ-D6,4 (lock washer)

Typical Ethernet Configurations

The Multifunctional Access Box with CIP Safety can be connected in any of the following three network topologies: star, linear, or module level ring (DLR).

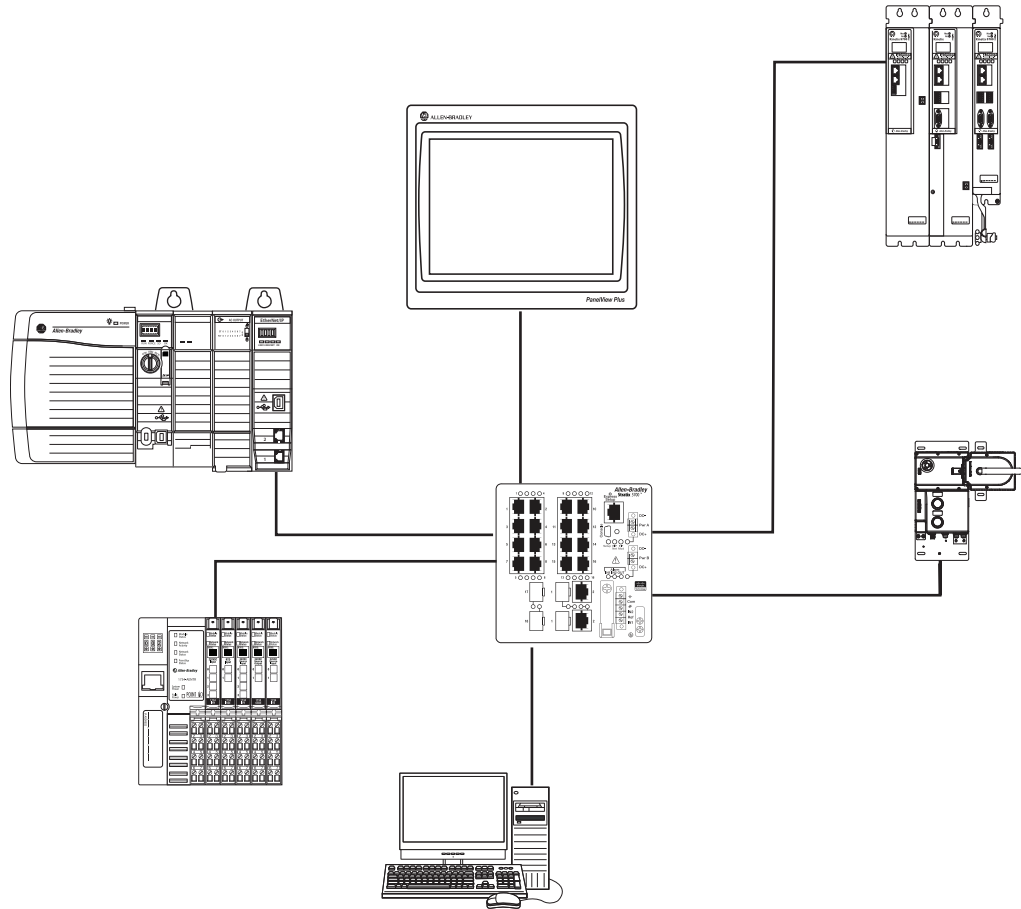


ATTENTION: The Multifunctional Access Box does not currently support time sensitive applications based on CIP Sync™, including CIP Motion™ applications. Do not use the access box in DLR topologies where other nodes are using CIP Sync or CIP Motion. To be used in linear topologies, where other nodes are using CIP Sync or CIP Motion, the access box must be connected at the end of the line.

Star Topology

The star structure consists of a number of modules connected to a central switch. Modules can be added or removed without affecting the rest of the network.

Figure 10 - Example of Star Topology



Linear Topology

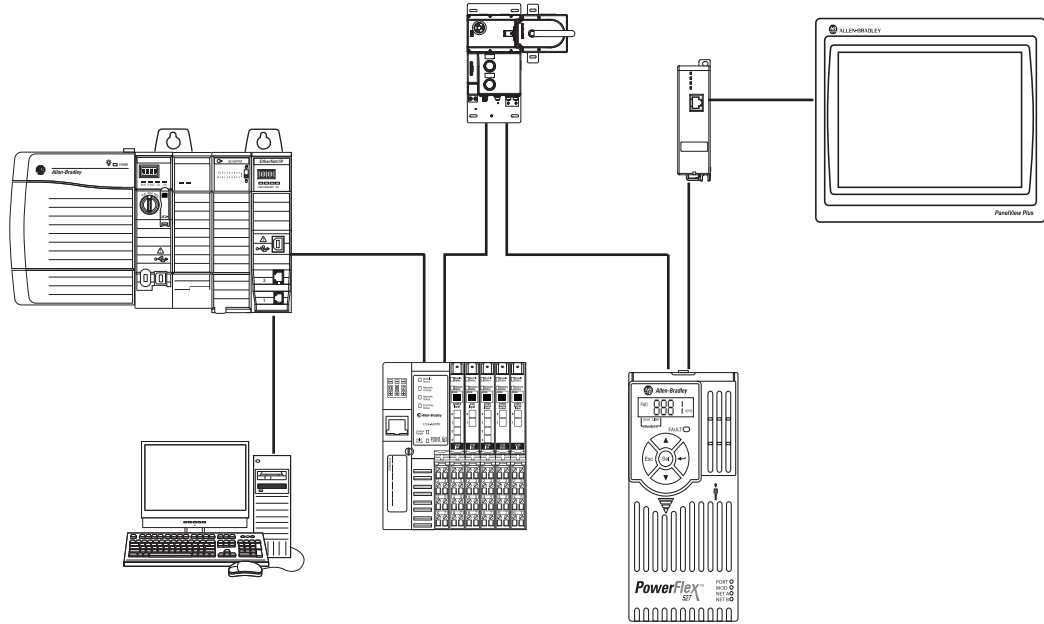
The linear topology uses the embedded switching capability to form a daisy-chain style network that has a beginning and an end. Linear topology simplifies installation and reduces wiring and installation costs, but a break in the network disconnects all modules downstream from the break. When this topology is used, both Ethernet connections on the access box may be used. For the network connection, use Link 1, Link 2, or both.

IMPORTANT Modules without dual ports must include the 1783-ETAP module or be connected at the end of the line.



ATTENTION: The Multifunctional Access Box does not currently support time sensitive applications based on CIP Sync, including CIP Motion applications. Do not use the access box in DLR topologies where other nodes are using CIP Sync or CIP Motion. To be used in linear topologies, where other nodes are using CIP Sync or CIP Motion, the access box must be connected at the end of the line.

Figure 11 - Example of Linear Topology



Module-level Ring (DLR) Topology

A DLR network is a single-fault-tolerant ring network that is intended for the interconnection of automation modules without the need for more switches. The ring topology offers these advantages:

- Media redundancy
- Fast-network fault detection and reconfiguration
- Resiliency of a single-fault-tolerant network
- Easy implementation without more hardware requirements

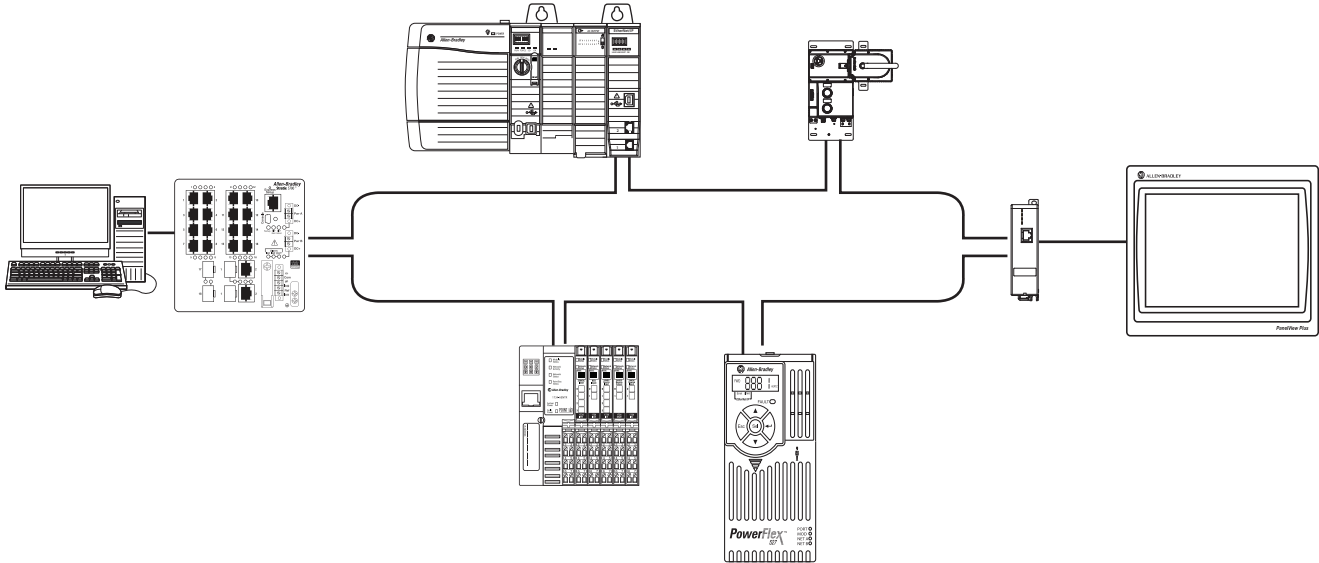
IMPORTANT This section summarizes a DLR network. To plan, configure, and monitor DLR networks, see *EtherNet/IP Embedded Switch Technology Application Guide*, publication [ENET-AP005](#).

One DLR network can support as many as 50 nodes. A DLR network supports copper connections (maximum of 100 m [328 ft]), fiber-optic connections (maximum of 2 km), or a mix of copper and fiber.



ATTENTION: The Multifunctional Access Box does not currently support time sensitive applications based on CIP Sync, including CIP Motion applications. Do not use the access box in DLR topologies where other nodes are using CIP Sync or CIP Motion. To be used in linear topologies, where other nodes are using CIP Sync or CIP Motion, the access box must be connected at the end of the line.

Figure 12 - Example Module-level Ring Topology



Notes:

Safety Concept

Standards Applied to the Guardmaster 442G Multifunctional Access Box with CIP Safety over EtherNet/IP

The Guardmaster® access box satisfies applicable requirements in the following standards that are related to functional and machinery assembly:

- IEC 60947-5-3: 1999/A: 2005
- EN/ISO 13849-1:2008/AC: 2009 (Performance Level e [PLe], Category 4)
- IEC 61508: 2010 (SIL 3)
- IEC 62061: 2005 (SIL cl3)
- EN/ISO 14119:2013
- UL 508 17th Edition dated 3/19/2013

Safety Certification

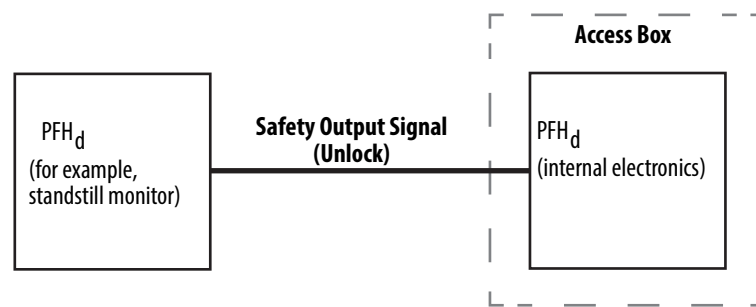
The Guardmaster access box is a Type 4 interlocking module with guard locking and high-coded RFID actuators according to EN ISO 14119.

The module is certified for use in safety applications up to and including Performance Level PLe and Category 4 in compliance with EN ISO 13849-1 and SIL 3 according to IEC 61508 and IEC 62061, for guard position monitoring, guard lock monitoring, and guard locking control.

Control of Guard Locking

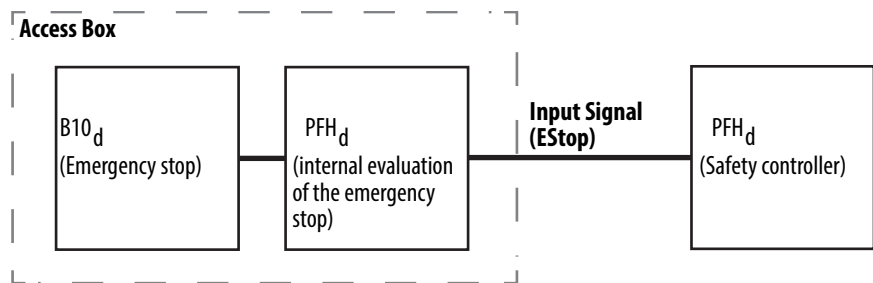
The safety level of guard locking control is determined by the module PFH_d and by the external control (for example, PFH_d of the standstill monitor). Guard locking is controlled with the Unlock output signal.

Figure 13 - Control of Guard Locking



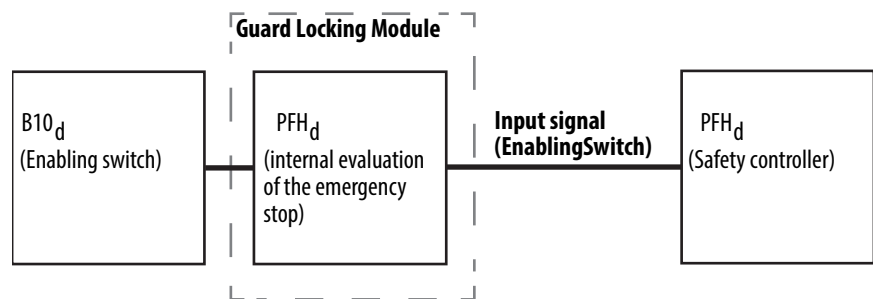
The following applies to modules with emergency stop.

Figure 14 - Emergency Stop Function



The following applies to modules with a connection for an enabling switch.

Figure 15 - Enabling Switch Function



The access box must be installed in accordance with the applicable regulation and standards.

While the access box can be used for PLe and Category 4 applications, the installer must comply with guard requirements (for example, EN/ISO 13854 and EN/ISO 13857) and in some cases also minimum (safe) distance requirements (for example, EN/ISO 13855).

The installed system, including the safety control system and the means by which the machine stops, must achieve the needed safety performance. The access box is one element in the safety system.

Before safety components are used, a risk assessment must be performed on the machine in accordance with:

- EN ISO 12100, Safety of machinery – Basic concepts - General principles for design - Risk assessment and risk reduction.
- EN ISO 13849-1, Safety of machinery. Safety related parts of control systems. General principles for design, Annex B
- IEC 62061, Safety of Machinery – Functional safety of safety-related electrical, electronic, and programmable electronic control systems.

Correct use includes compliance with the relevant requirements for installation and operation, in particular:

- EN ISO 13849-1, Safety of machinery. Safety related parts of control systems. General principles for design
- EN ISO 14119, Safety of machinery. Interlocking modules that are associated with guards. Principles for design and selection

- EN 60204-1, Safety of machinery. Electrical equipment of machines. General requirements.

Additional guidance on guards, guard locking and guard interlocking is found in:

- EN/ISO 12100 Safety of machinery—General principles for design—Risk assessment and risk reduction
- EN/ISO 13855 Safety of machinery—Positioning of safeguards concerning the approach speeds of parts of the human body
- EN/ISO 13857 Safety of machinery—Safety distances to prevent hazard zones from being reached by upper and lower limbs
- EN/ISO 14120 General requirements for the design and construction of guards

Safety Requirements for Integrated Safety Applications

Safety application requirements include evaluating the probability of failure rates (PFD and PFH), system reaction time settings, and functional verification tests.

For safety system requirements, including information on the safety network number (SNN), functional verification test intervals, system reaction time, and PFD/PFH calculations, refer to the GuardLogix™ safety reference manual for your controller. You must read, understand, and fulfill the requirements that are detailed in the safety reference manual before operating a safety system that uses this module.

Notes:

Use the Multifunctional Access Box in an Integrated Safety Controller-based System

Set the Network IP Address

The module ships with the DIP switches set to 0 and DHCP enabled.



ATTENTION: Set a suitable network IP address before connecting the module to a network.

Perform one of these steps to set the network IP address:

- Adjust the DIP switches inside the module (see [Figure 19 on page 41](#)).
- Use a Dynamic Host Configuration Protocol (DHCP) server, such as Rockwell Automation BootP/DHCP Server Utility.
- Retrieve the IP address from nonvolatile memory.

The module reads the switches first to determine if the switches are set to a valid number. Set the network address by adjusting the eight DIP switches inside the module. Valid settings range from 001...254.

When the switches are set to a valid number, the module's IP address is 192.168.1.xxx (where xxx is the decimal representation of the binary number set on the switches). The subnet mask of the module is 255.255.255.0 and the gateway address is set to 0.0.0.0. When the module is reading the network address set on the switches, the module does not have a host name assigned to it or use any Domain Name System.

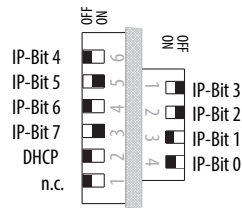
If the switches are set to an invalid number (such as 000 or a value greater than 254), the module checks to see if DHCP is enabled. If DHCP is enabled, the module asks for an address from a DHCP server. The DHCP server also assigns other Transport Control Protocol (TCP) parameters.

If DHCP is not enabled, the module uses the IP address (along with other TCP configurable parameters) stored in nonvolatile memory.

See [Figure 16 on page 24](#) for an example of the network address DIP switches.

Figure 16 - Example Network Address DIP Switches

This example shows the switches set at 10100011 (163) with a network address of 192.168.1.163.



Set the IP Address with a BOOTP/DHCP Server

The BOOTP/DHCP server is a standalone server that you can access from either of these locations:

- Programs > Rockwell Software > BOOTP-DHCP Server

If you have not installed the server, you can download and install it from <http://www.ab.com/networks/ethernet/bootp.html>.

- Tools directory on the Studio 5000™ installation CD

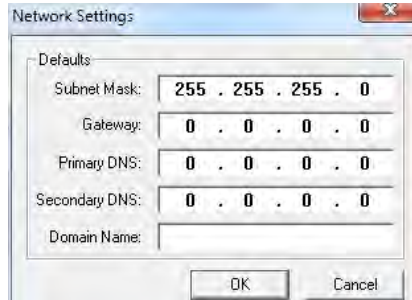
IMPORTANT Before you start the BOOTP/DHCP server, make sure that you have the ethernet address (MAC ID) of the module. The MAC ID is on a label on the side of the module and uses an address in a format similar to the following:
00-0b-db-14-55-35

The BOOTP/DHCP server also limits the possibility of assigning duplicate IP addresses.

If you use the BOOTP/DHCP server in an uplinked subnet where an enterprise DHCP server exists, a module can get an address from the enterprise server before the Rockwell Automation utility sees the module. If necessary, disconnect from the uplink to set the address and configure the module to retain the static address before reconnecting to the uplink. This is not a problem if you have configured the node names in the module and leave DHCP enabled.

To set the IP address with a BOOTP/DHCP server, follow these steps.

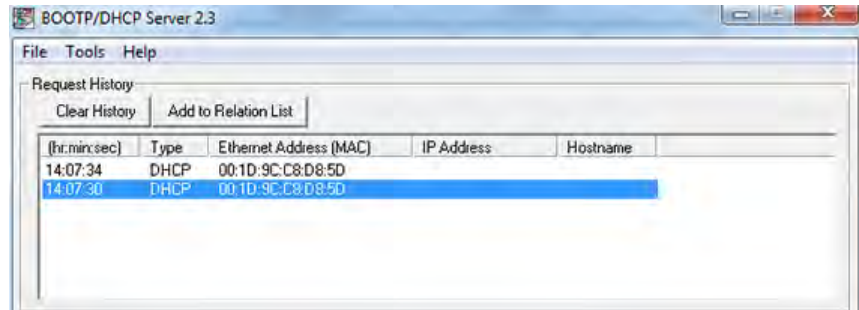
1. Start the BOOTP/DHCP software.
2. From the Tools menu, choose Network Settings.
3. If appropriate for the network, type the Subnet Mask, Gateway address, Primary and/or Secondary DNS address, and Domain Name.



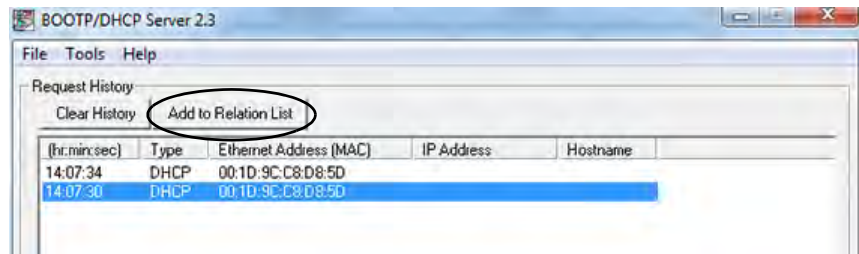
4. Click OK.

The Request History panel displays the MAC IDs of modules that issue DHCP requests.

5. Select the appropriate module.

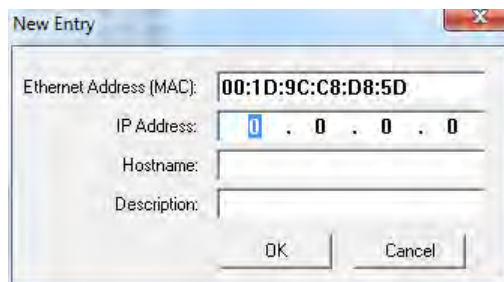


6. Click Add to Relation List.



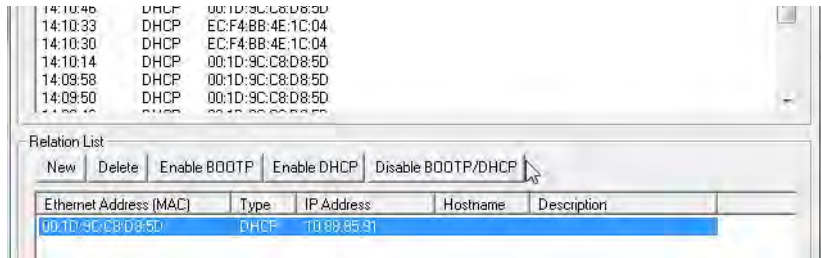
The New Entry dialog box appears.

7. Type an IP Address, Hostname, and Description for the module.



8. Click OK.
9. To assign this configuration to the module, wait for the module to appear in the Relation List panel and select it.

10. Click Disable BOOTP/DHCP.



The module now uses the assigned configuration and will no longer issue DHCP requests.

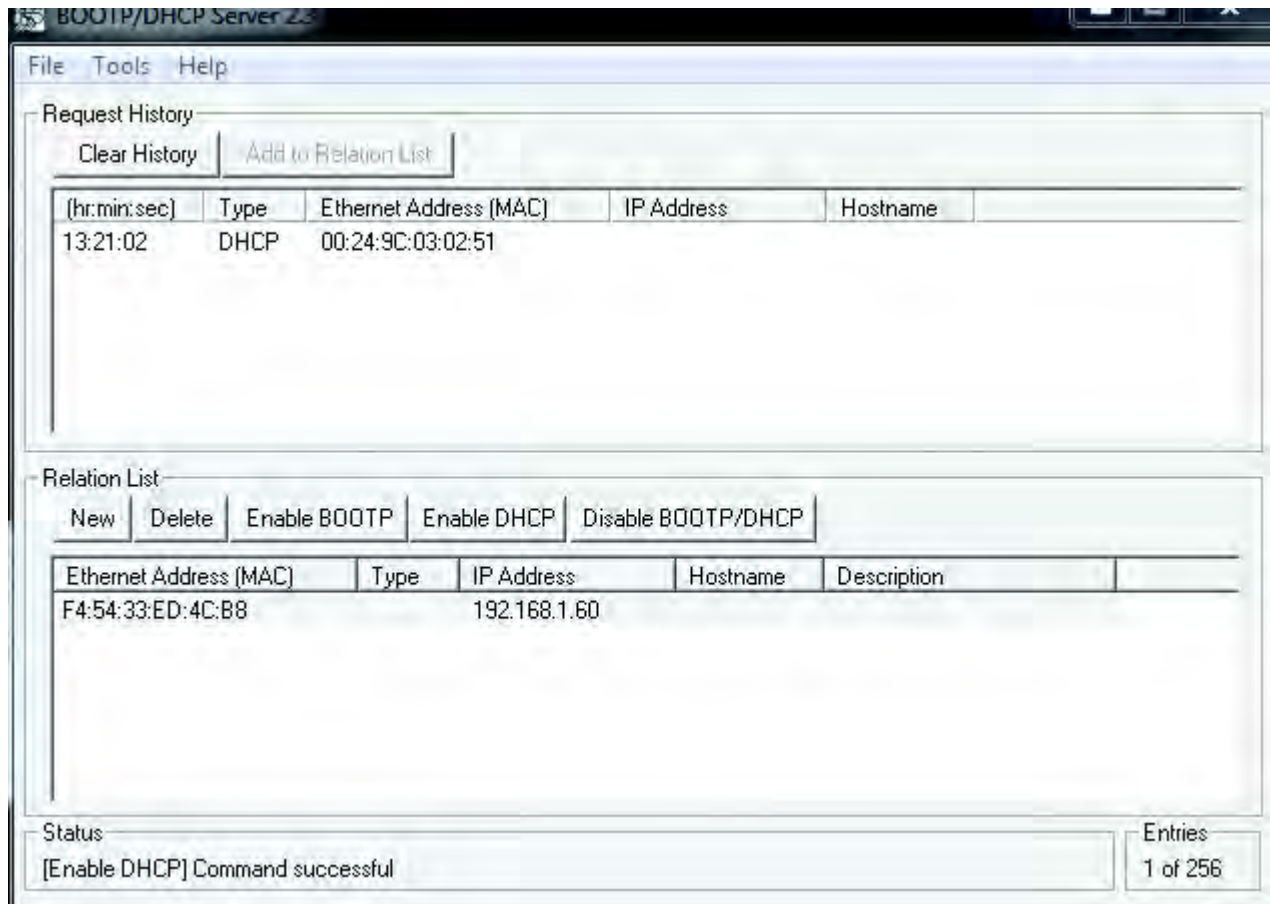
IMPORTANT If you do not select Disable BOOTP/DHCP, then on a power cycle the module clears the current IP configuration and begins sending DHCP requests again.

Restoring the Module to DHCP Mode

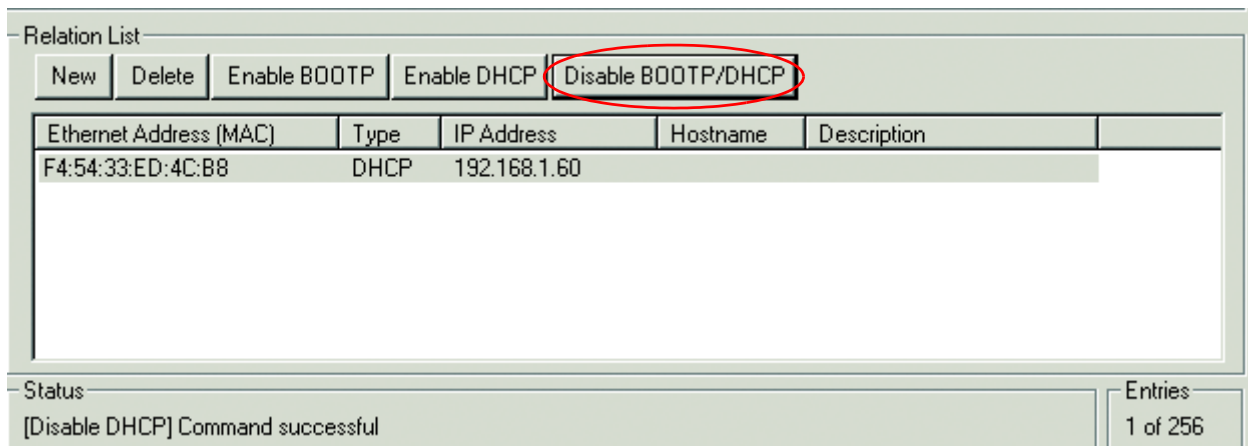
When the IP Address of the Module Is Known

Use a BootP/DHCP utility to Enable DHCP.

1. Start the BootP/DHCP Software.
2. Under relation list, add a new entry for the module. Enter the MAC ID of the module and the known IP address.
3. Select Enable DHCP.
4. A message will appear in the lower left corner indicating that the command was successful.

Figure 17 - Enable DHCP

5. After power cycling the module it will resume sending DHCP requests.
6. Use a DHCP server to set the IP address as described in section “Setting the Network IP Address.”
7. Disable DHCP.

Figure 18 - Disable DHCP

IMPORTANT If you do not select Disable BOOTP/DHCP, then on a power cycle the module clears the current IP configuration and begins sending DHCP requests again.

When the IP Address of the Module Is Unknown

1. Set DHCP DIP Switch (refer to [Figure 3 on page 43](#)) to the ON position.
2. Power cycle the module.
3. Use a DHCP server to set the IP address as described in section “Setting the Network IP Address.”
4. Disable DHCP.

IMPORTANT If you do not select Disable BOOTP/DHCP, then on a power cycle the module clears the current IP configuration and begins sending DHCP requests again.

5. Return the DHCP DIP Switch to the OFF position.

Duplicate IP Address Detection and Resolution

The module verifies that its IP address does not match any other module IP address on the network when you perform either of these tasks:

- Connect the module to a EtherNet/IP network.
- Change the IP address on the module.

If the IP address matches that of another module on the network, the EtherNet/IP port on the module transitions to conflict mode. In conflict mode, these conditions exist:

- Module (MOD) status indicator flashes red.
- Network (NET) status indicator is solid red.

This table describes how to resolve duplicate IP addresses.

Duplicate IP Address Detection Conditions	Resolution Process
<ul style="list-style-type: none"> • Both modules support duplicate IP address detection. • Second module is added to the network after the first module is operating on the network. 	<ol style="list-style-type: none"> 1. The module that began operation first uses the IP address and continues to operate without interruption. 2. The module that begins operation second detects the duplication and enters Conflict mode. 3. Assign a new IP address to the module that is in Conflict mode.
<ul style="list-style-type: none"> • Both modules support duplicate IP address detection • Both modules were powered up at approximately the same time. 	<p>Both EtherNet/IP modules enter Conflict mode.</p> <p>To resolve this conflict, follow these steps:</p> <ol style="list-style-type: none"> 1. Assign a new IP address to one of the modules. 2. Cycle power to the other module.
One module supports duplicate IP address detection and a second module does not.	<ol style="list-style-type: none"> 1. Regardless of which module obtained the IP address first, the module that does not support IP address detection uses the IP address and continues to operate without interruption. 2. The module that supports duplicate IP address detection detects the duplication and enters Conflict mode. 3. Assign a new IP address to the module that is in conflict mode.

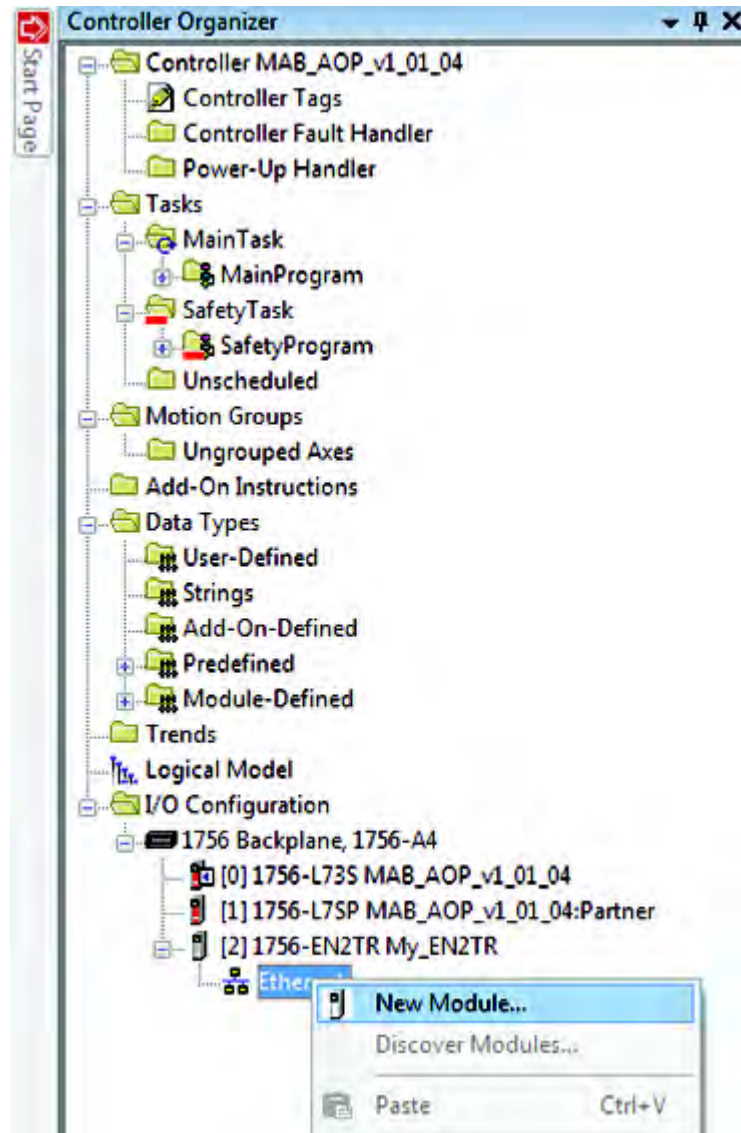
Add and Configure the Multifunctional Access Box in the Logix Designer Application

An Add-on Profile (AOP) is available for the access box and can be used with RSLogix 5000 version 20 and higher. The profile can be downloaded from <http://www.rockwellautomation.com/global/support/overview.page>

Add Module to the I/O Configuration Tree

To add an access box to the I/O configuration tree, follow these guidelines.

1. From the I/O Configuration tree, right-click the Ethernet bridge module, as shown in the figure, and choose New Module.



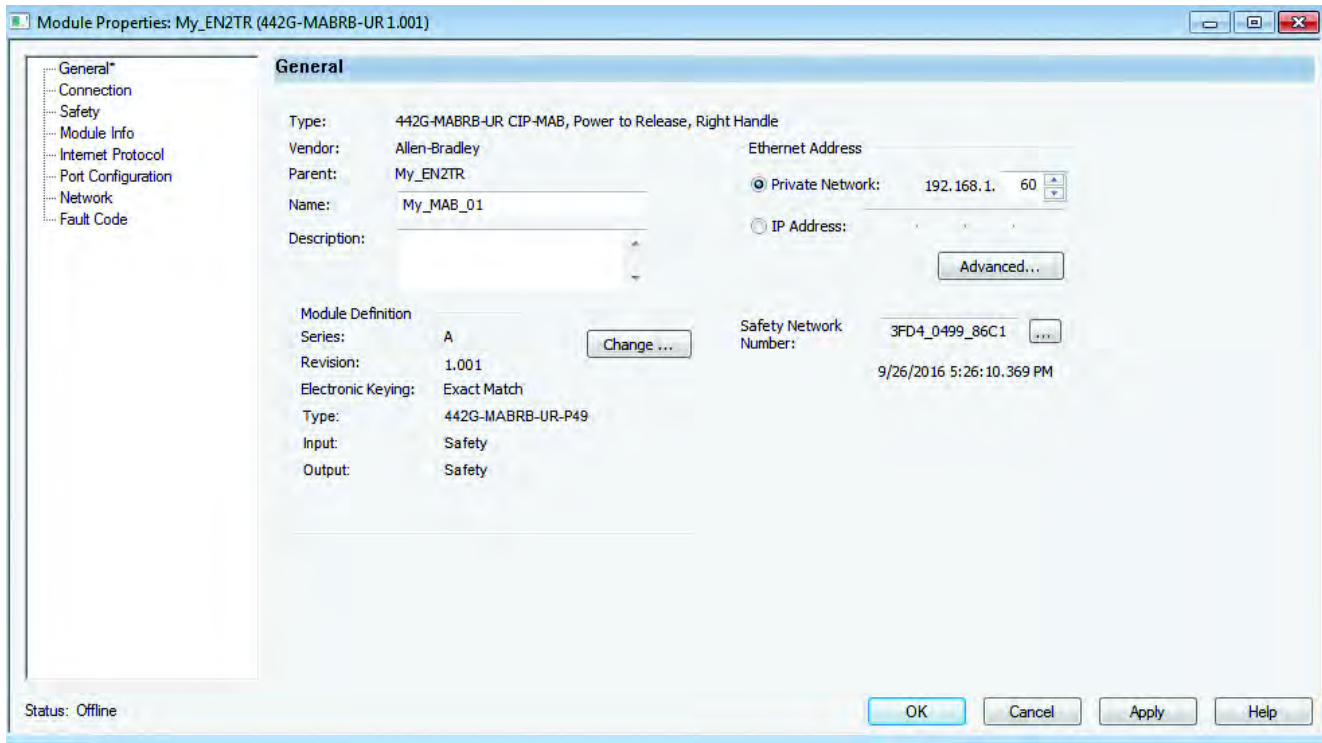
2. In the Select Module dialog box, enter “MAB” to see a list of available models.
3. Choose the appropriate module, and select Create at the bottom of the dialog box.

Configure the Module

Follow these steps to configure the general properties of the module.

TIP At the bottom of a dialog box, choose Help for information about how to complete entries in the dialog box. At the bottom of a warning dialog box, choose Help to get information about that specific error.

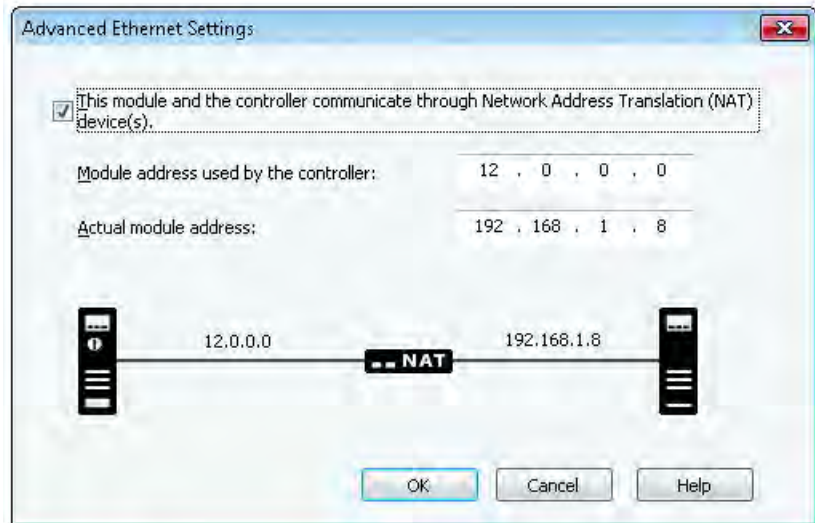
1. From the I/O configuration tree, double-click the module to see the Module Properties dialog box.



2. Type a unique name for the module.
3. If desired, type a description.
4. If you are not using network address translation (NAT), type the IP address of the module in the IP Address field.

If you are using NAT, follow these steps:

5. In the IP Address field, type the IP address that the controller will use.
6. Click Advanced to open the Advanced Ethernet Settings dialog box.



7. Check the checkbox to indicate that this module and the controller communicate through NAT modules.
8. Type the actual module address.

If you configured the IP Address using the BOOTP/DHCP, this is the address you set on the module.

9. Click OK.

IMPORTANT When NAT is used in a safety application with a GuardLogix controller, the module does not accept a safety connection unless the actual module address is provided.

Change the Module Definition

On the General tab, click Change to open the Module Definition dialog box, and enter the following.

- Series
- Major and minor revisions
- Electronic keying

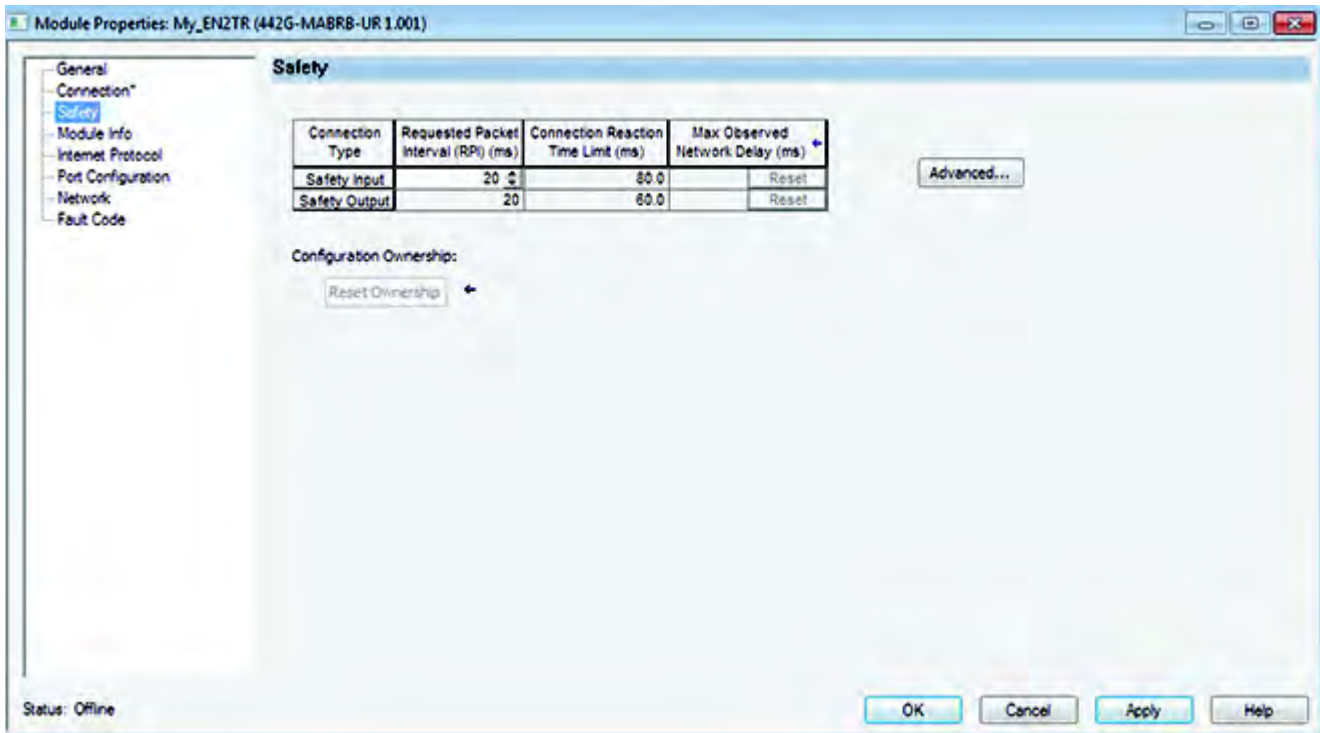
The catalog number in the Type field represents the catalog number of the module being used. A picture of the device is displayed and can be used to confirm the module selection.



Configure the Safety Connection

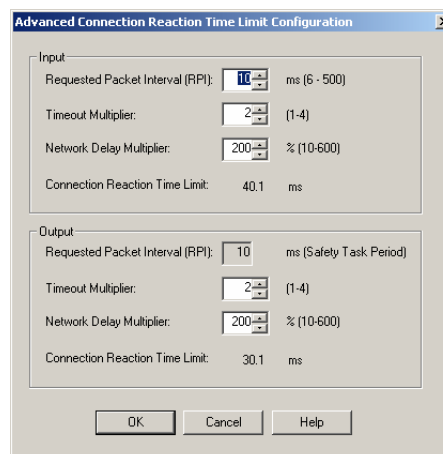
Follow these steps to complete entries when you choose the Safety tab.

1. From the Module Properties dialog box, choose the Safety tab to see the Safety dialog box.



IMPORTANT Both standard and safety rated signals are included in the CIP safety connection (refer to Appendix B, EtherNet/IP I/O Assemblies on [page 49](#)). Safety rated signals can be used in safety functions. Standard rated signals can be used in the safety task, but must not be relied on for safety functions.

2. Click Advanced to configure Requested Packet Interval (RPI) and Configure Connection Reaction Time Limit (CRTL)



We suggest that you keep the Timeout Multiplier and Network Delay Multiplier at their default values of 2 and 200.

See GuardLogix Controllers User Manual, listed in the [Additional Resources on page 5](#), for more information about the CRTL.

Make sure that input RPI is set to match the need. The smallest input RPI supported by the module is 10 ms. A smaller RPI consumes more network bandwidth. This can cause nuisance trips because other modules can't get access to the network.

Selecting an appropriate RPI will result in a system with maximum (best) performance.

IMPORTANT Analyze each safety channel to determine what is appropriate. The default timeout multiplier of 2 and network delay multiplier of 200 will create an input connection reaction time limit of four times the RPI and an output connection reaction limit of three times the RPI. Changes to these parameters must be approved by a safety administrator.

A connection status bit (ConnectionFaulted) exists for every connection.

Scope: **MAB_AOP_v1_C** Show: All Tags

Name	Value	Force Mask	Style	Data Type	Class
- My_MAB_01:I	{...}	{...}		AB:442G_MABB_E0JP4679:I:0	Safety
My_MAB_01:I.RunMode	1		Decimal	BOOL	Safety
My_MAB_01:I.ConnectionFaulted	0		Decimal	BOOL	Safety
My_MAB_01:I.DiagnosticActive	0		Decimal	BOOL	Safety
My_MAB_01:I.EStop	1		Decimal	BOOL	Safety
My_MAB_01:I.EnablingSwitch	0		Decimal	BOOL	Safety
My_MAB_01:I.GuardClosed	1		Decimal	BOOL	Safety

If the RPI and CRTL for the network are set appropriately, then this status tag must always have a value of 0. Monitor all connection status bits to verify that they are not changing to 1 intermittently due to timeouts.

Configuration Signature

The multifunctional access box does not have any configuration data. A safety signature is not generated for this device.

Save and Download the Module Configuration

After the module is configured, download the project to the controller. It is recommended that the project be saved prior to downloading.

Configuration Ownership – Reset Ownership

Configuration ownership must be established when a new safety I/O module is added to a project and any time there is a change in one of the following items.

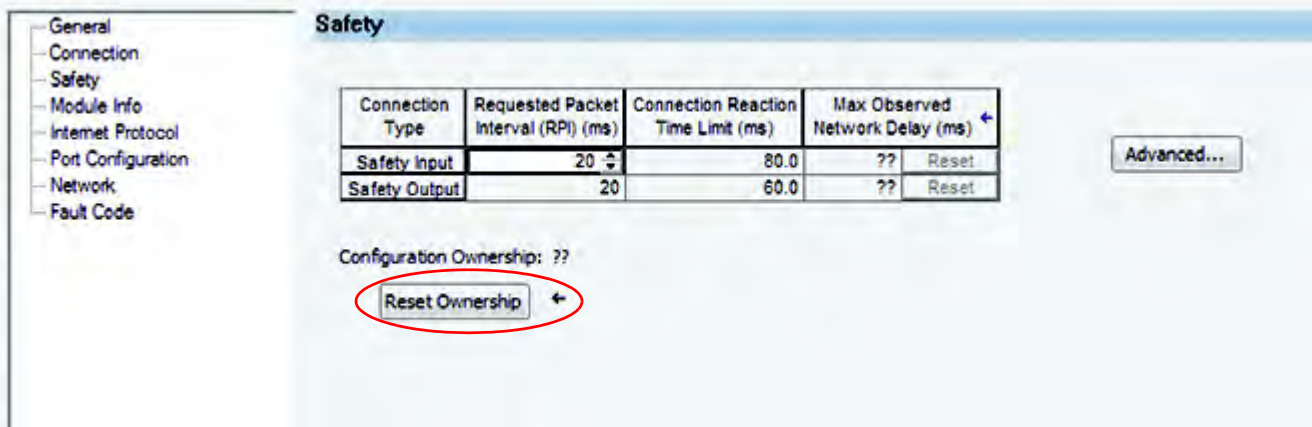
- EtherNet/IP address
- Safety Network Number
- GuardLogix slot number
- GuardLogix Safety Network Number
- Communication path from GuardLogix controller to module

IMPORTANT When replacing an access box, if the controller does not automatically re-establish the safety connection, it may be necessary to reset the ownership and the SNN.

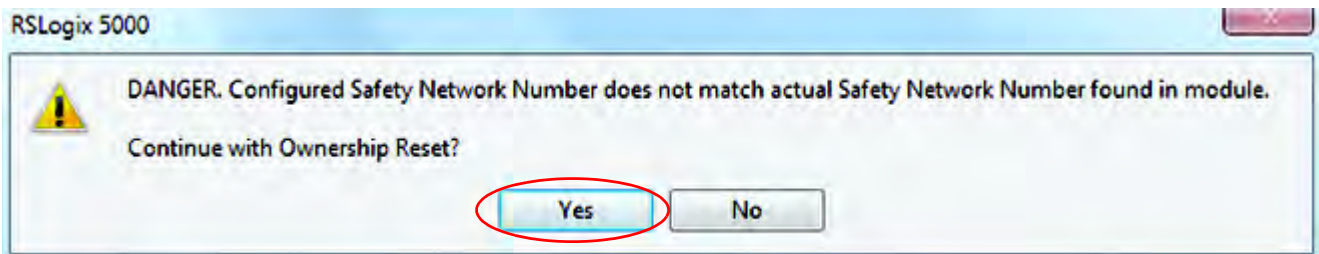
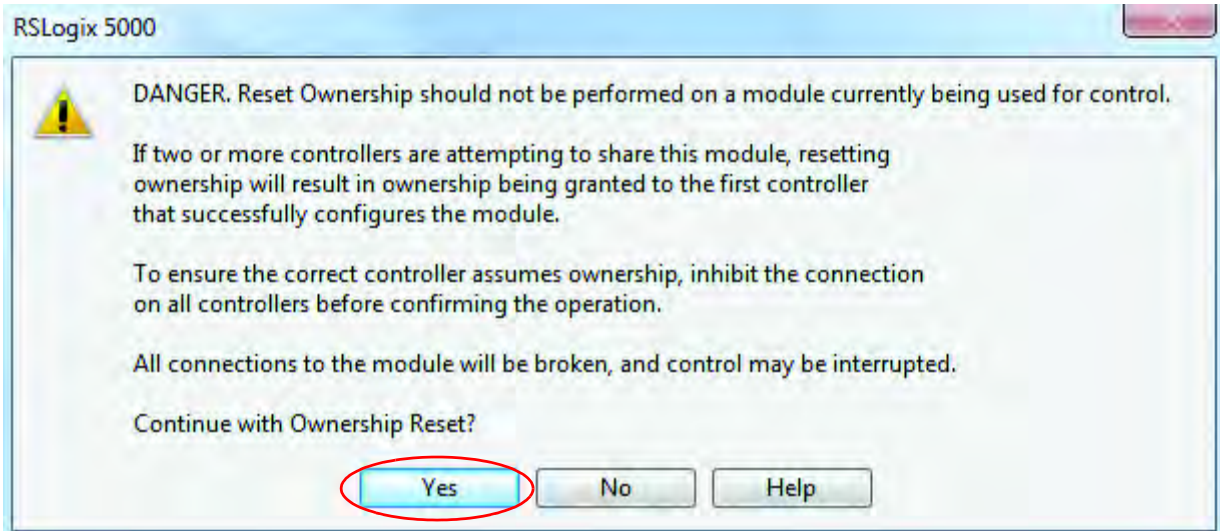
If any of these items change, the connection between the GuardLogix controller and the module is lost, and the yellow yield in the project tree appears. Reset ownership to re-establish the connection by using this procedure.

IMPORTANT When replacing a device, if the replacement device was used previously and if the connection is local (as shown on the safety tab in RSLogix 5000), the device must first be reset to out-of-box condition. Refer to “Resetting a Module to Out-of-box Condition” in publication [1756-UM020I-EN-P](#).

1. From the Module Properties dialog box, choose the Safety tab. You see the Safety dialog box.
2. Click Reset Ownership to re-establish the connection.



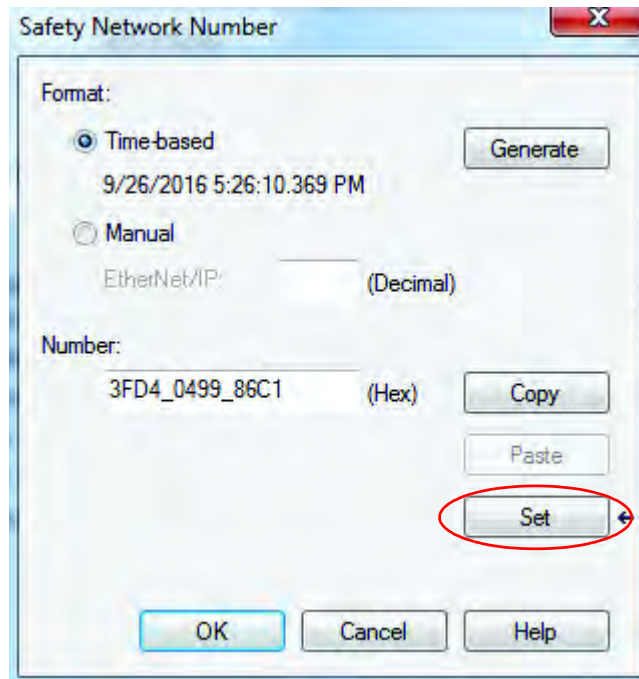
3. Click yes to continue with ownership reset.



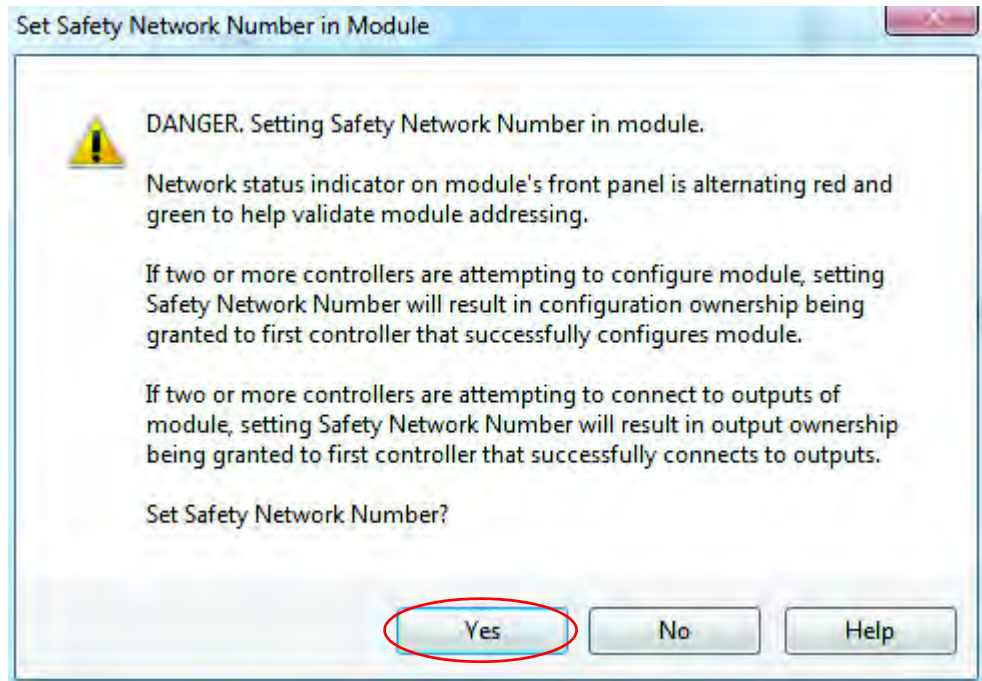
4. On the connection page, notice that the module is faulted (safety network number (SNN) not set, module-out-of-box).



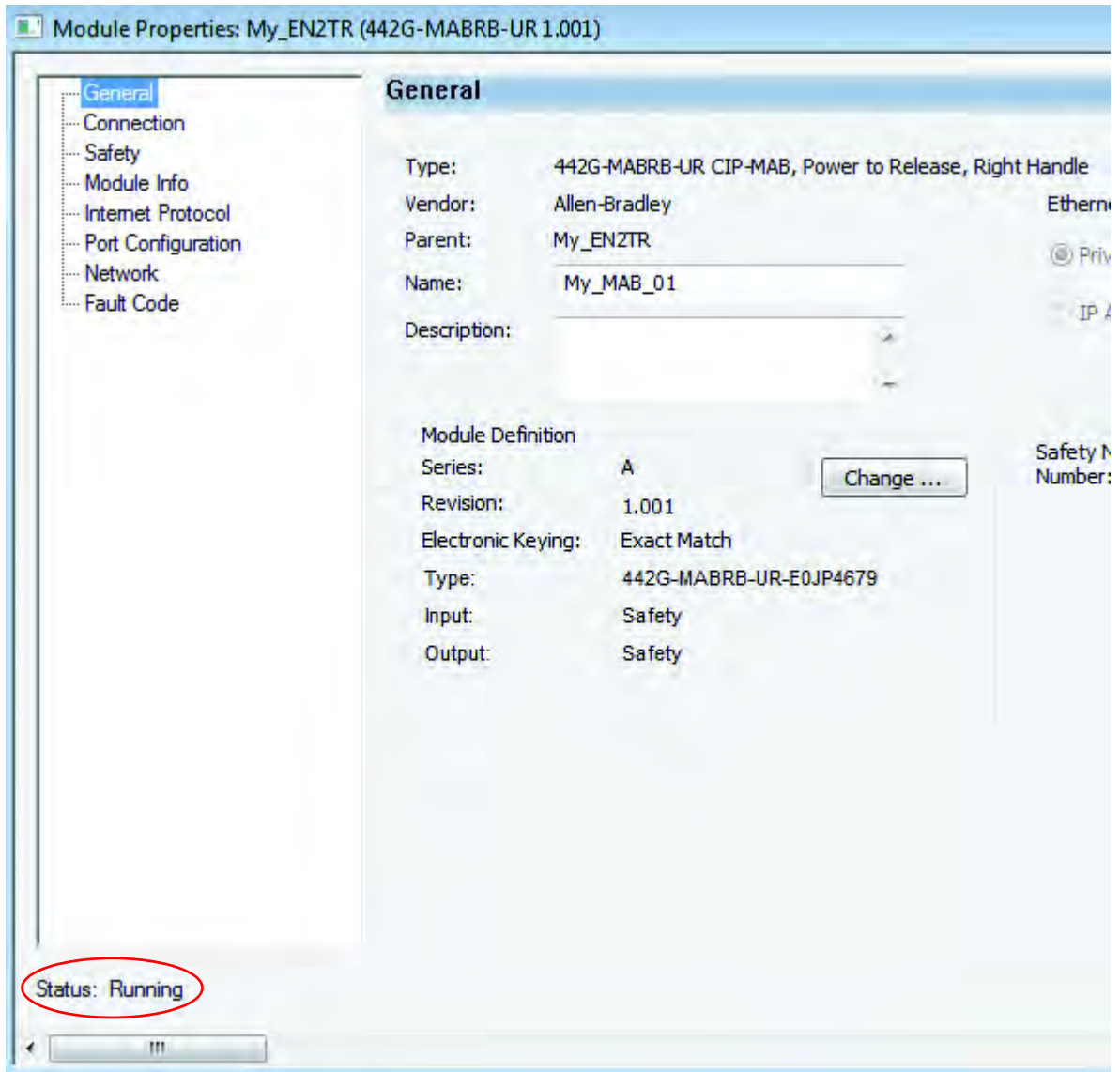
5. From the General tab, click Safety Network Number. The SNN dialog box appears. Enter the Number, Click Set, then click OK.



6. Select Yes to continue when the following warning appears.

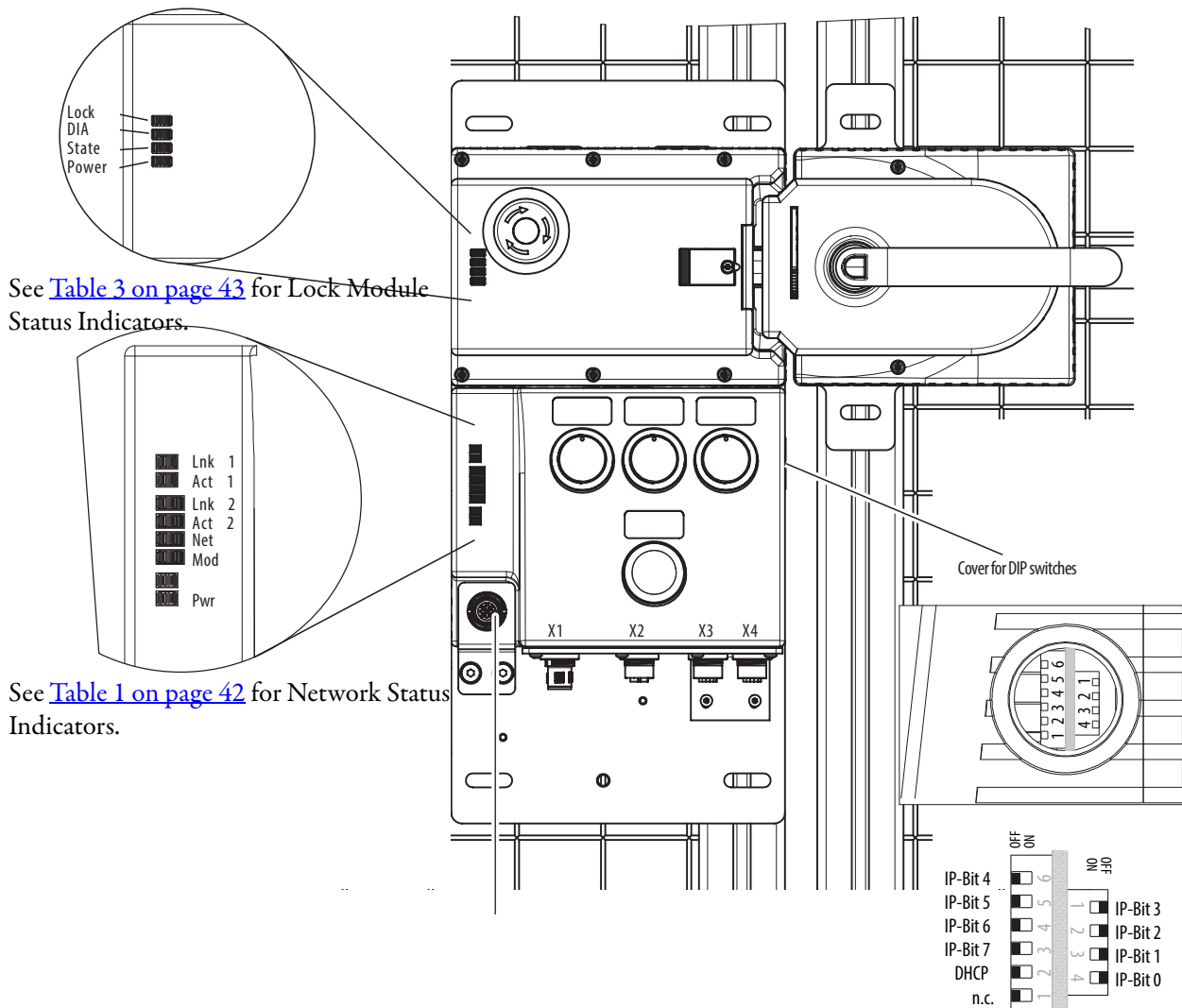


7. The module status changes from Faulted to Running, as shown in the lower left corner of the General tab.



Status and Troubleshooting

Figure 19 - Status Indicators and DIP Switches



See [Table 3 on page 43](#) for Lock Module Status Indicators.

See [Table 1 on page 42](#) for Network Status Indicators.

See [Table 2 on page 42](#) for DIP Switch Assignment.

Table 1 - Network Status Indicators

Status Indicator	Color	Significance
ACT 1 ACT 2	OFF Green flashing Yellow flashing	No activity Port activity Collision
LNK1 LNK2	OFF Green Yellow Red	No connection Connection Port disabled Major NIC fault
MOD	Green flashing Green Red flashing Red Red/green flashing	Idle or standby Normal operation Recoverable fault Unrecoverable fault Self-test/startup
NET	Green flashing Green Red flashing Red Red/green flashing	No network connection Network connection Time out Communication failed Network error

Table 2 - DIP Switch Assignment

Switch	Designation	Function	
Block 2	1	n.c.	Reserved
	2	DHCP	OFF position = IP address via DIP switch ON position = IP address via DHCP (all other DIP switches in position = OFF) TIP: To identify the module in the control system, set the DIP switch to ON position. This will allow the module to be recognized by the DHCP server. Use this if you do not know the IP address (See Restoring the Module to DHCP Mode on page 26.)
	3	IP bit 7	Enter the last octet of the IP address. Example: 192.168.1.[DIP switch code, binary -----
	4	IP bit 6	
	5	IP bit 5	
	6	IP bit 4	
Block 1	4	IP bit 3	Fixed part
	3	IP bit 2	The following applies: OFF position = 0 ON position = 1
	2	IP bit 1	
	1	IP bit 0	

Factory setting: all switches in OFF position.

Table 3 - Lock Module Status Indicators









Operating Mode	Guard Position	Bolt Position	Guard Locking	Input Signal GuardClosed	Input Signal GuardInterlock	Input Signal GuardLocking	Module Diagnostics Input Signal LockSequenceFault	Power (green)	State (green)	Lock (yellow)	DIA (red)	State
Normal Operation	Open	Not inserted	OFF	OFF	OFF	OFF	OFF	●	 Long OFF Short ON	○	○	Normal operation, guard is open
	Closed	Not inserted	OFF	ON	OFF	OFF	OFF	●	 Long ON, short OFF	○	○	Normal operation, guard is closed
	Closed	Inserted	OFF	ON	ON	OFF	OFF	●	●	 Long ON, Short OFF	○	Normal operation, guard is closed, bolt tongue is inserted
	Closed	Inserted	ON	ON	ON	ON	OFF	●	●	●	○	Normal operation, guard is closed and locked
Handle Configuration Standby	Open	Not inserted	OFF	OFF	OFF	OFF	●	 3 x	○	○	Guard is open; module is ready to configure another handle assembly (standby is active for only three minutes after power-up).	
Setup	Closed	Inserted	ON	OFF	ON	ON	OFF	●	 1 Hz	○	○	Handle configuration
	X	X	X	OFF	OFF	OFF	OFF	○	○	○	○	Positive acknowledgement after completion of handle configuration. Set output bit Locking Fault Reset to resume normal operation.
Fault Display	X	X	X	OFF	OFF	OFF	ON	○	 3 X	○	○	Handle assembly read error (for example, error in code or code cannot be read) ²
	X	X	X	OFF	OFF	OFF	ON	○	○	○	●	Internal fault (for example, component faulty, data fault) ¹
	X	X	X	OFF	OFF	OFF	ON	○	○	 1 x	○	Signal sequence incorrect (for example, broken bolt) ³ or after actuation of the escape release ¹

Table 4 - Key to Symbols

○	Status indicator not illuminated		Status indicator flashes
●	Status indicator illuminated	X	Any state

¹ Latching fault; use corresponding output bit to reset. (See [Clearing Faults on page 45.](#))

² Non-latching fault; open safety guard and close it again to reset.

³ Latching fault; use corresponding output bit to reset; guard must be open. (See [Clearing Faults on page 45.](#))

Table 5 - Fault Codes and Corrective Actions

Fault Code	Fault Type	Fault Description	Corrective Action	Fault Reset Bit ¹
2721	Emergency-stop discrepancy time error	The time between Estop Channel A and Channel B changing state exceeded the maximum allowable time.	Press the emergency stop button. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2722	Enabling switch discrepancy time error.	The time between Enabling Switch Channel A and Channel B changing state exceeded the maximum allowable time.	Remove the enabling switch. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2723	Door position discrepancy time error	Discrepancy between both microprocessor channels of module	Open the guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2724	Bolt position discrepancy time error	Discrepancy between both microprocessor channels of module	Open the guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2725	Guard Locking discrepancy time error	Discrepancy between both microprocessor channels of module	Open the guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2731	Emergency-stop test pulse error	No test pulses are being detected by the Estop monitoring circuit.	This problem can be the result of a short circuit on one or both of the emergency stop contacts. Press and release the emergency stop button. Check for signs of abuse or tampering. Inspect the switch casing for damage. The lock module cover (with EStop) may need to be replaced. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2732	Enabling switch test pulse error	No test pulses are being detected by the Enabling Switch monitoring circuit.	Check enabling switch connection for a possible short circuit on one or both of the enabling switch contacts. Replace the enabling switch if there are any signs of abuse or tampering. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2733	Door position test pulse error	No test pulses are being detected by the Guard Door Position monitoring circuit.	Open and close guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2734	Bolt position test pulse error	No test pulses are being detected by the Bolt Position monitoring circuit.	Open and close guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2735	Guard locking test pulse error	No test pulses are being detected by the Guard Lock monitoring circuit.	Close and lock the guard door. Unlatch the fault by cycling output GeneralFaultUnlatch.	GeneralFaultUnlatch
2741	Max. service life of 1,000,000 operations has been reached	The module has reached the Maximum Mechanical Lifetime of 1,000,000 operations.	No action required. For information only.	N/A
2742	Internal module error	Indicates an unrecoverable fault. The module may need to be replaced.	Power cycle the access box. If the error persists, the bus/lock module may need to be replaced.	None
2743	Signal sequence error	The module detected an unacceptable sequence of events (for example, guard locking is active while the guard door is in the open position).	Check the mechanical function of the handle assembly and bolt actuator. Open the guard door. While the guard door is open, unlatch the fault by cycling output LockSequenceFaultUnlatch.	LockSequenceFaultUnlatch
2744	Lock module error	The module detected activation of the escape release handle or the manual release.	Open and close the guard door. Unlatch the fault by cycling output LockSequenceFaultUnlatch.	LockSequenceFaultUnlatch
2745	Transponder read error	Indicates an unrecoverable fault. The module may need to be replaced.	Power cycle the access box. If the error persists, the bus/lock module may need to be replaced.	None
2750	Power supply or CIP Safety parameter assignment error	This error indicates a problem with the power supply or a CIP Safety parameter assignment error.	Disconnect and reconnect the power supply.	None

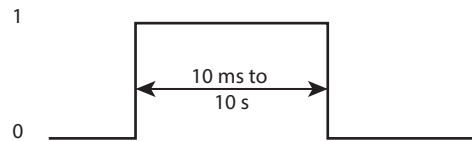
¹ See [Clearing Faults on page 45](#).

Clearing Faults

Clearing faults in the access box requires cycling one of the fault reset signals (GeneralFaultUnlatch or LockSequenceFault Unlatch) as specified in [Table 5 on page 44](#).

The reset requires a leading and trailing edge of the reset signal within a specific time frame. The pulse width must be between 10 ms...10 s. If the pulse width is too short or too long, the reset function is not executed.

Figure 20 - Fault Reset Timing



Multiple Faults

It is highly unlikely that more than one fault will occur at the same time. If a new fault does occur before a previous fault has been cleared, a new value will be written to FaultCode deleting the previous one. The DiagnosticActive bit is set with each fault, but will not change state if the second fault occurs before the first fault is cleared.

Notes:

Specifications

Safety Ratings																											
Standards	IEC 60947-5-3, EN ISO 13849-1, ISO 14119, UL 508 (evaluated for risks of electrical shock and fire; only suitable for NFPA 79 applications)																										
Safety Classification	Type 4 interlocking module with guard locking and high-coded RFID actuators according to ISO 14119																										
Functional Safety Data	<p>PL e, Cat. 4 (according to ISO 13849-1, SIL cl3 according to IEC 62061 and IEC 61508)</p> <table border="1"> <tbody> <tr> <td rowspan="4">MTTF_d</td> <td>Monitoring of guard locking</td> <td>746 years</td> </tr> <tr> <td>Control of guard locking</td> <td>475 years</td> </tr> <tr> <td>Evaluation of emergency stop</td> <td>787 years</td> </tr> <tr> <td>Evaluation of enabling switch</td> <td>753 years</td> </tr> <tr> <td rowspan="4">PFH_d</td> <td>Monitoring of guard locking</td> <td>3.37 x 10⁻⁹</td> </tr> <tr> <td>Control of guard locking</td> <td>4.91 x 10⁻⁹</td> </tr> <tr> <td>Evaluation of emergency stop</td> <td>3.05 x 10⁻⁹</td> </tr> <tr> <td>Evaluation of enabling switch</td> <td>3.05 x 10⁻⁹</td> </tr> <tr> <td rowspan="2">B10_d</td> <td>Emergency stop</td> <td>1.0 x 10⁵</td> </tr> <tr> <td>Enabling switch</td> <td>According to manufacturer's specifications</td> </tr> <tr> <td>Mission time</td> <td>20 years</td> <td></td> </tr> </tbody> </table>	MTTF _d	Monitoring of guard locking	746 years	Control of guard locking	475 years	Evaluation of emergency stop	787 years	Evaluation of enabling switch	753 years	PFH _d	Monitoring of guard locking	3.37 x 10 ⁻⁹	Control of guard locking	4.91 x 10 ⁻⁹	Evaluation of emergency stop	3.05 x 10 ⁻⁹	Evaluation of enabling switch	3.05 x 10 ⁻⁹	B10 _d	Emergency stop	1.0 x 10 ⁵	Enabling switch	According to manufacturer's specifications	Mission time	20 years	
MTTF _d	Monitoring of guard locking		746 years																								
	Control of guard locking		475 years																								
	Evaluation of emergency stop		787 years																								
	Evaluation of enabling switch	753 years																									
PFH _d	Monitoring of guard locking	3.37 x 10 ⁻⁹																									
	Control of guard locking	4.91 x 10 ⁻⁹																									
	Evaluation of emergency stop	3.05 x 10 ⁻⁹																									
	Evaluation of enabling switch	3.05 x 10 ⁻⁹																									
B10 _d	Emergency stop	1.0 x 10 ⁵																									
	Enabling switch	According to manufacturer's specifications																									
Mission time	20 years																										
Certifications	cULus (UL 508) and CE Marked for all applicable EU directives																										
Safety Outputs	CIP Safety																										
Operating Characteristics																											
Torque Settings, maximum	1 N·m (8.85 lb in.) lock module cover screws (6x); 0.5 N·m (4.42 lb in.) manual release locking screw; 2 N·m (17.70 lb in.) handle set screw (handle and escape release)																										
Holding Force F _{zh} (ISO 14119)	2000 N																										
Locking Bolt Alignment Tolerance	Horizontal: ± 4 mm (0.16 in.); Vertical: ± 5 mm (0.2 in.)																										
Operating Voltage	Class 2 PELV 24V DC +10/-15% required ¹																										
EMC Protection Requirements	In accordance with EN 61000-4 and DIN EN 61326-3-1																										
Current Consumption, maximum	500 mA																										
Operating Current, maximum	4 A																										

¹ Refer to Electrical Connection—Power Supply Requirements in Installation Instructions, publication [442G-IN004 -EN-P](#).

² The risk time is the maximum difference between the time the input status changes and the time the corresponding bit in the input assembly is turned on.

Operating Characteristics (continued)											
External Fuse	Minimum 1 A, slow-blow										
Risk Time (per IEC 60947-5-3) ²	<table border="1"> <tbody> <tr> <td>EStop</td> <td>100 ms</td> </tr> <tr> <td>Enabling switch</td> <td>100 ms</td> </tr> <tr> <td>Guard position</td> <td>250 ms</td> </tr> <tr> <td>Bolt position</td> <td>250 ms</td> </tr> <tr> <td>Guard locking</td> <td>250 ms</td> </tr> </tbody> </table>	EStop	100 ms	Enabling switch	100 ms	Guard position	250 ms	Bolt position	250 ms	Guard locking	250 ms
EStop	100 ms										
Enabling switch	100 ms										
Guard position	250 ms										
Bolt position	250 ms										
Guard locking	250 ms										
Switching Frequency, maximum	1 Hz										
Insulation Voltage U _i (IEC 60947-1)	75V										
Impulse Withstand Voltage U _{imp}	0.5 kV										
Pollution Degree (IEC 60947-1)	3										
Manual Release	Built in (ISO 14119)										
Mechanical Life	1,000,000 operations										
Environmental											
Ambient Temperature at UB = DC 24V	-20...+55°C (-4...+131°F)										
Storage Temperature [C (F)]	-20...+65° (-4...+149°)										
Enclosure Rating	IP54										
Operating Humidity	5...80% relative										
Vibration/Shock	IEC 60068-2-27 30 g (1.06 oz), 11 ms/IEC 60068-2-6 10...55 Hz										
Physical Characteristics											
Weight	Lock/bus assembly on mounting plate 3.6kg (7.9lb), handle assembly on mounting plate 1.2kg (2.6lb), escape release 500g (17.6 oz)										
Materials	Glass fiber reinforced plastic, nickel-plated die-cast zinc, anodized aluminum handle, stainless steel, powder-coated sheet steel										

Notes:

EtherNet/IP I/O Assemblies

Input Assemblies

Instance Decimal (hex)	Signal Rating	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
1025 (401)	Standard	0	Reserved					Diagnostic Active			
	Standard	1	Reserved								
	Standard	2	Reserved								
		3	Reserved								
	Safety	4	—	—	—	—	—	—	Enabling Switch	EStop	
	Safety	5	Guard Locked	Guard Interlocked	—	—	—	Reserved	Reserved	Guard Closed	
	Standard	6	—	—	—	Switch 6 ¹	—	—	—	Switch 4 ¹	
	Standard	7	—	—	—	Switch 9 ¹	—	—	—	Switch 7 ¹	
	Standard	8	—	—	—	—	—	—	—	—	
	Standard	9	Cycle Threshold Exceeded	—	Unlock Command Fault	Reserved	Enabling Switch Fault	EStop Fault	Lock Sequence Fault	—	
Standard	10,11	Fault Code									

¹ Switch (x) refers to the switch in position SX (see [Figure 21](#) and [Figure 22](#) on pages 52 and 53).

Output Assemblies

Instance Decimal (hex)	Data Type	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1279 (4FF)	Safety	0	—	—	—	—	—	—	—	Unlock
	Standard	1	—	—	Light 9 ²	—	Light 7 ²	Light 6 ²	—	Light 4 ²
	Standard	2	—	—	—	—	—	—	—	EStop Light
	Standard	3	Lock Sequence Fault Unlatch	General Fault Unlatch	Reserved					

² Light (x) refers to illumination of the switch in position Sx (see [Figure 21](#) and [Figure 22](#) on pages 52 and 53).

IMPORTANT Safety rated signals can be used in safety functions. Standard rated signals can be used in the safety task, but must **not** be relied on for safety functions.

Tag Definitions

Name	Signal Rating	Data Type	Tag Definition
ConnectionFaulted	Standard	BOOL	Connection Faulted — Indicates the state of the communication connection between the access box and the controller. 0 = Connection to the tag is up and working 1 = Not connected
CycleThresholdExceeded		BOOL	Cycle Threshold Exceeded— indicates when the module has reached 1,000,000 switching cycles 0 = < 1,000,000 switching cycles of the solenoid 1 = ≥ 1,000,000 switching cycles of the solenoid Note: Prognostic information only. This is not a fault condition.
DiagnosticActive		BOOL	Diagnostic Active — Indicates whether the access box is faulted. 1 = One or more diagnostics active 0 = No diagnostics active
EnablingSwitch	Safety	BOOL	Enabling Switch (Grip Switch) Status 1 = Enabling is in the active (enabled) state 0 = Switch is released (safe state)
EnablingSwitchFault	Standard	BOOL	Enabling Switch (Grip Switch) Fault — indicates an Enabling Switch specific fault 1 = Fault 0 = OK, no fault Note: This rolls up into DiagnosticActive.
EStop	Safety	BOOL	EStop Button Status 1 = E-stop is in the active state (E-stop not pressed) 0 = E-stop pressed (safe state)
EStopFault	Standard	BOOL	EStop Fault — indicates an E-stop specific fault 1 = Fault 0 = OK, no fault Note: This rolls up into Diagnostic Active.
EStopLight		BOOL	EStop Light — controls illumination for the Emergency Stop button. 1 = Illumination is turned ON 0 = Illumination is turned OFF
FaultCode		INT	Fault Code — indicates the specific diagnostic message of the access box
GeneralFaultUnlatch		BOOL	General Fault Acknowledgement — unlatches faults related to the bus interface 1 = Reset of bus module 0 = Normal operation
GuardClosed	Safety	BOOL	Guard Position Monitoring — indicates the position of the guard 1 = Guard is closed 0 = Guard is open
GuardInterlocked		BOOL	Interlock Status 1 = Guard is interlocked (guard closed with bolt actuator engaged) 0 = Bolt is retracted (disengaged) and/or guard is open
GuardLocked		BOOL	Guard Locking Status 1 = Guard locking is active (guard is closed, actuator (bolt) is engaged AND locked) 0 = Guard locking is not active (actuator (bolt) is NOT engaged and NOT locked)
Light<X>		BOOL	Light X — controls illumination of the push button in location <x> 1 = Illumination is turned ON 0 = Illumination is turned OFF X= 4, 6, 7, 9 switch element designator

Name	Signal Rating	Data Type	Tag Definition
LockSequenceFaultUnlatch	Standard	BOOL	Lock Sequence Fault Acknowledgement — unlatches faults related to the locking sequence 1 = Reset of locking assembly 0 = Normal operation
LockSequenceFault		BOOL	Lock Sequence Fault — indicates a signal sequence error 1 = Fault 0 = OK, no fault Note: This rolls up into Diagnostic Active.
RunMode		BOOL	Run Mode — Indicates the operating mode of the access box 1 = Run Mode 0 = Not Run Mode
Switch<X>	Standard	BOOL	Switch X for momentary push button: 1 = Push Button Pressed 0 = Push Button Released X=4, 6, 7, 9 switch element designator
Unlock	Safety	BOOL	Unlock Command — control for switching the guard locking on and off 1 = Turn guard locking OFF (disable locking) 0 = Turn guard locking ON (enable locking) Note: Logic is the same for both Power to Lock (PTL) and Power to Release (PTR) versions
UnlockCommandFault	Standard	BOOL	Unlock Command Fault — indicates a fault in the Unlock Command 1 = Fault 0 = OK, no fault Note: This rolls up into Diagnostic Active.

Figure 21 - Right-hand System

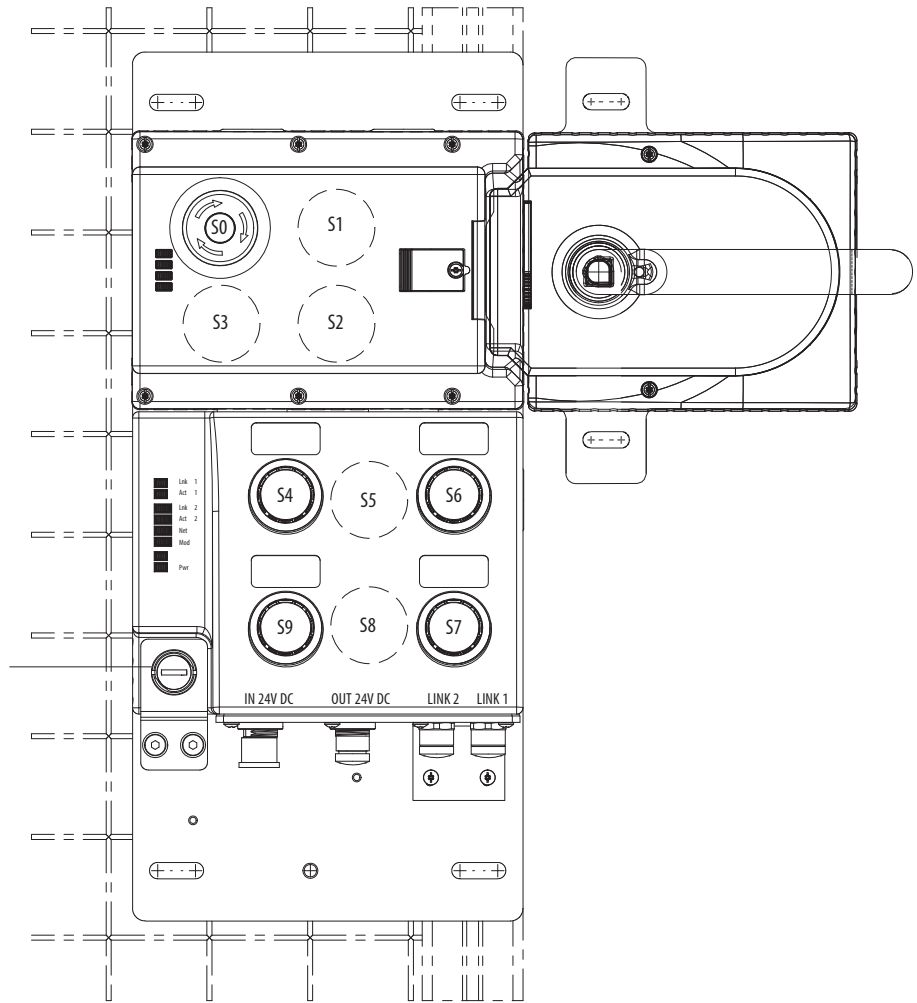
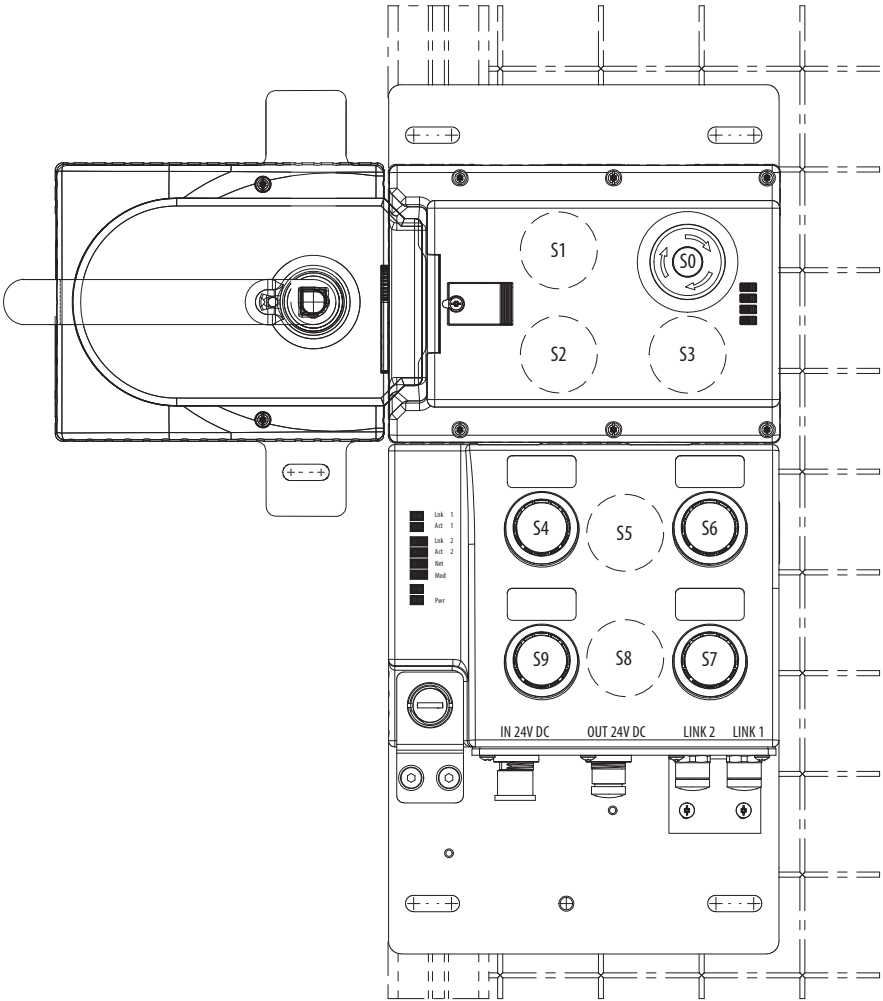


Figure 22 - Left-hand System



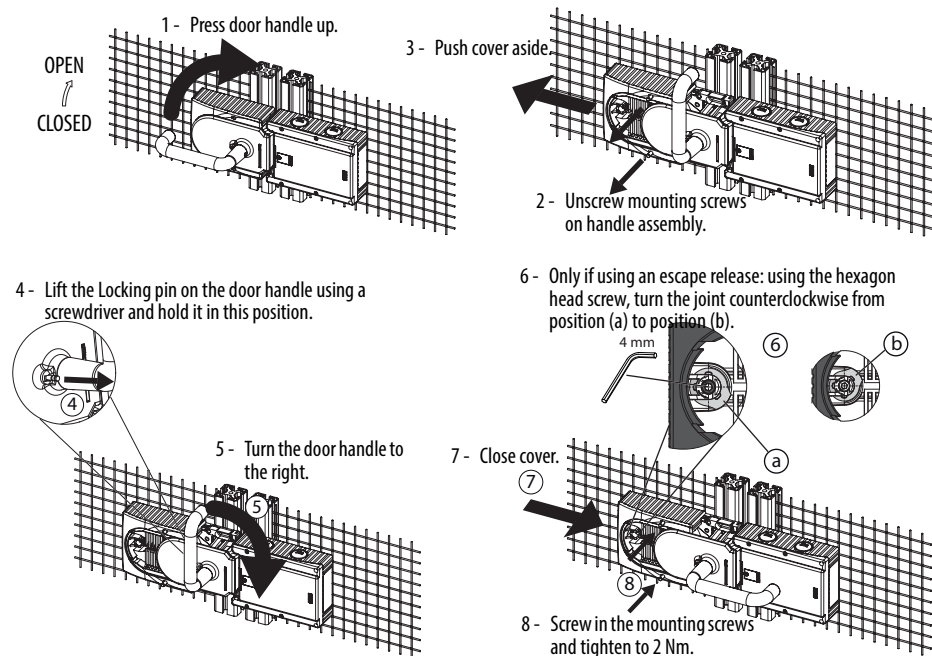
Notes:

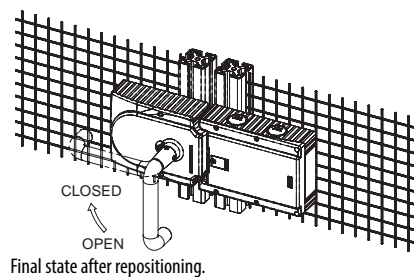
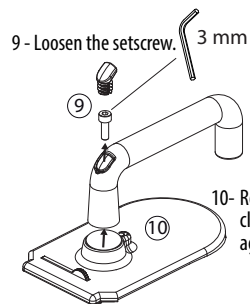
Change Actuation Direction of Handle Assembly

IMPORTANT It is only possible to perform this change when the bolt is not extended and an escape release is not yet mounted.

If for some reason a right-hand assembly needs to be mounted on a left-hinged guard door or a left-hand assembly needs to be mounted on a right-hinged guard door, the actuating direction of the door handle must be changed. The example that is shown is for changing from right- to left-hand operation (see [Figure 23](#)).

Figure 23 - Change Actuation Direction





A

additional resources 5
assembly overview 9
auxiliary/manual release 12

B

bolt locking mechanism 12, 13
BOOTP/DHCP server 24, 23

C

configuration ownership 36
configure connection reaction time limit
(CRTL) 35
control of guard locking 19
CRTL 35, 36

D

module definition 33
module-level ring topology 16, 17
DHCP 23, 24, 26
dialog
Safety 35
DLR 16
duplicate IP address detection 29
dynamic host configuration protocol 23

E

emergency stop function 20
EN 60204-1 21
EN ISO 12100 20
EN ISO 13849-1 19, 20, 21
EN ISO 14119 19, 21
EN ISO 13855 8
EN/ISO 12100 21
EN/ISO 13855 20, 21
EN/ISO 13857 20, 21
EN/ISO 14120 21
EN/ISO 13854 20
Ethernet address 24

F

failure rates 21

H

help button 31

I

I/O
configuration tree 29
IEC 62061 20
IP address 23

L

linear topology 15, 16

M

MAC ID 24, 25, 26
manual release 12
minimum safe distance 8
mounting plates 13

N

NAT 32, 33
network (IP) address 23
network address translation 32
network topologies 14
node address setting 23

O

online help 31

P

PFD and PFH 21
power-to-lock 8
power-to-release 7
probability of failure rates (PFD and PFH) 21
product overview 7

R

requested packet interval (RPI) 35
reset ownership 36, 37
restoring the module to DHCP mode 26
RFID 19
risk assessment 20
RPI 35, 36
RSLogix 5000 software version 29

S

safety certification 19
safety connection 35
safety network 21
safety network number 36, 37
safety network number (SNN) 21
set network (IP) address 23
SNN 21, 38
star topology 14, 15
Studio 5000 environment 6
Studio 5000 Logix Designer software 29

T

Transport Control Protocol 23
troubleshooting 41

Notes:

Rockwell Automation Support

Use the following resources to access support information.

Technical Support Center	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	https://rockwellautomation.custhelp.com/
Local Technical Support Phone Numbers	Locate the phone number for your country.	http://www.rockwellautomation.com/global/support/get-support-now.page
Direct Dial Codes	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	http://www.rockwellautomation.com/global/support/direct-dial.page
Literature Library	Installation Instructions, Manuals, Brochures, and Technical Data.	http://www.rockwellautomation.com/global/literature-library/overview.page
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	http://www.rockwellautomation.com/global/support/pcdc.page

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

Allen-Bradley, GuardLogix, Guardmaster, RSLogix 5000, Rockwell Software, Rockwell Automation, Studio 5000, and Studio 5000 Logix Designer are trademarks of Rockwell Automation, Inc.

CIP Motion, CIP Safety, CIP Sync, and EtherNet/IP are trademarks of ODVA, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

Rockwell Otomasyon Ticaret A.Ş., Kar Plaza İş Merkezi E Blok Kat:6 34752 İçerenköy, İstanbul, Tel: +90 (216) 5698400

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846