

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

ALLEN-BRADLEY CONTROLLOGIX

1756-EN2T

CONTROLLOGIX ETHERNET/IP BRIDGE MODULE

Applicable product family: Allen-Bradley ControlLogix network modules

OFFICIAL SOURCE

1756-EN2T.pdf

The following pages are selected from the supplied manufacturer document and retain their original page content.



ControlLogix EtherNet/IP Network Devices

Catalog Numbers 1756-EN2F, 1756-EN2FK, 1756-EN2T,
1756-EN2TK, 1756-EN2TP, 1756-EN2TPK, 1756-EN2TPXT,
1756-EN2TR, 1756-EN2TRK, 1756-EN2TXT, 1756-EN2TRXT,
1756-EN3TR, 1756-EN3TRK, 1756-EN4TR, 1756-EN4TRK,
1756-EN4TRXT, 1756-ENBT, 1756-ENBTK, 1756-EWEB



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.

These 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.

ControlLogix EtherNet/IP Network Device Overview

Preface

About This Publication	7
Conventions	7
Download Firmware, ADP, EDS, and Other Files	7
Summary of Changes	7
Additional Resources	8

Chapter 1

Overview	9
ControlLogix Network Device Features	9
EtherNet/IP Network Specifications	11
EtherNet/IP Network	13
Device Properties Information	14
Simple Network Management Protocol (SNMP)	14
Disable SNMP	14
Electronic Keying	15
Protected Mode	16
Enabling Explicit Protected Mode	16
Disabling Explicit Protected Mode	16
Protected Mode in a Redundant Adapter Pair	17
Enabling Explicit Protected Mode in a Redundant Adapter Pair (RAP)	17
Disabling Explicit Protected Mode in a Redundant Adapter Pair	17
How to Determine if the Module is in Explicit Protected Mode	17
Secure Digital Card	18
Disable Secure Digital Card	19
CIP Security	19
Syslog Event Logging	20
Parallel Redundancy Protocol	21
Device Level Ring (DLR)	21

Chapter 2

Concurrent Communication

Concurrent Communication with FLEXHA 5000 I/O Modules	23
Logical Level	23
Physical Level	24
Communication Module Configuration	24
Concurrent Communication in a PRP Topology	25
Concurrent Communication in a DLR Topology	29
Concurrent Communication with FLEX 5000 Safety I/O Modules	31
Logical Level	31
Physical Level	32
Communication Module Configuration - FLEX 5000 Safety I/O Modules	32
Concurrent Communication in a PRP Topology	33
Concurrent Communication in a DLR Topology	36
Standard Communication Between Logix SIS Controllers and FLEX 5000 Standard I/O Modules	37

Connect to the EtherNet/IP Network

Chapter 3

Set the IP Address	41
Requirements	41
Set the IP Address with Rotary Switches	42
1756-EN4TR Mode Rotary Switch	43
Other Methods to Set the Address	43
Reset the Module to Factory Default Value	43
Redundant Adapter Considerations Setting the IP Address	44

Connect Redundant EtherNet/IP Adapters

Chapter 4

Redundant Design Considerations	45
Redundant System Components	46
Redundant Switchovers	46
Switchover Considerations	46
Status Display Codes	47
Configure a 1756-EN4TR Redundant Adapter Pair	48
Redundant Architecture	53
Redundant Architecture Network Considerations	55
PRP Architecture with RedBox Switches	57
PRP Architecture without RedBox Switches	58

Security Options

Chapter 5

MSG Instruction	59
Configure the MSG Communication Path	59
Disable/Enable an Ethernet Port	61
Disable/Enable an Ethernet Port with FactoryTalk Linx Network Browser	61
Disable/Enable an Ethernet Port on the Port Configuration Tab	62
Disable an Ethernet Port with a MSG Instruction	63
Disable the CIP Security Ports	64
Disable the CIP Security Ports with FactoryTalk Linx Network Browser	64
Disable the CIP Security Ports with a MSG Instruction	65
Disable/Enable LLDP	66
Disable the USB Port	67
Disable/Enable the SD Card	68
Disable/Enable the SD Card on the Module Properties Dialog	68
Disable/Enable the SD Card with a MSG Instruction	69
Disable/Enable the 4-character Status Display	70
Disable/Enable All Categories of Messages	70
Disable/Enable Individual Categories of Messages	71
Disable/Enable the Webpages	72
Use a CIP Generic MSG to Disable the Webpages	72
Use a CIP Generic MSG to Enable the Webpages	73
Disable/Enable Simple Network Management Protocol (SNMP)	74
Use a CIP Generic MSG to Disable SNMP	74
Use a CIP Generic MSG to Enable SNMP	75
Disable the Socket Object	76
Disable the Email Object	76

ControlLogix Network Device Status Indicators	Appendix A
	Status Indicators 77
	Single-Port Module Status Indicators 79
	Dual-Port Module Status Indicators 79
	Diagnostic Web Pages 82
	Access the Diagnostic Web Pages 82
	Index 83

Notes:

About This Publication

This manual describes how you can use ControlLogix® EtherNet/IP™ communication modules with a Logix 5000® controller and communicate with various devices on the Ethernet/IP network.

Use this manual if you program applications that use EtherNet/IP networks with ControlLogix controllers.

Conventions

Be sure to understand these concepts and tools:

- FactoryTalk® Linx
- Studio 5000 Logix Designer® application
- ControlFLASH Plus™
- HMIs
- SNMP tools

Download Firmware, AOP, EDS, and Other Files

Download firmware, associated files (such as Add-on Profiles, Electronic Data Sheets, Device Type Manager), and access product release notes from the Product Compatibility and Download Center at rok.automationdirect.com.

Summary of Changes

This manual contains new and updated information. Changes throughout this revision are marked by change bars, as shown to the right of this paragraph.

This manual was revised to add or update the information that is listed in this table.

Topic	Page
Added chapter on Concurrent Communication.	23

Additional Resources

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

Resource	Description
1756 EtherNet/IP Communication Modules Installation Instructions, publication 1756-IN050	Provides information on how to install EtherNet/IP™ modules.
1756 ControlLogix Communication Modules Specifications, publication 1756-TD003	Specifications for ControlLogix communication modules.
Redundancy Systems User Manual, publication 1756-UM015	Describes how to set up, configure, program, monitor, and troubleshoot Logix SIS, ControlLogix 5580, and ControlLogix 5570 redundancy systems.
Deploying Device Level Ring within a Converged Plantwide Ethernet Architecture Design and Implementation Guide, publication ENET-TD015	Highlights the key IACS application requirements, technology, and supporting design considerations to help with the successful design and deployment of these specific use cases within the CPwE framework.
Ethernet Design Considerations Reference Manual, publication ENET-RM002	Provides details about how to use EtherNet/IP communication modules with Logix 5000 controllers and communicate with other devices on the EtherNet/IP network.
EtherNet/IP Device Level Ring Application Technique, publication ENET-AT007	Describes DLR network operation, topologies, configuration considerations, and diagnostic methods.
EtherNet/IP Media Planning and Installation Manual This manual is available from the Open DeviceNet® Vendor Association (ODVA) at: http://www.odva.org .	Provides details about how to install, configure, and maintain linear and Device Level Ring (DLR) networks by using Rockwell Automation EtherNet/IP devices that are equipped with embedded switch technology.
EtherNet/IP Network Devices User Manual, publication ENET-UM005	Describes how to use EtherNet/IP communication modules in Logix 5000 control systems.
EtherNet/IP Parallel Redundancy Protocol Application Technique, publication ENET-AT006	Describes how you can configure a Parallel Redundancy Protocol (PRP) network with a compatible device or switch.
EtherNet/IP Socket Interface Application Technique, publication ENET-AT002	Describes the socket interface that you can use to program MSG instructions to communicate between a Logix 5000 controller via an EtherNet/IP module and Ethernet devices that do not support the EtherNet/IP application protocol, such as barcode scanners, RFID readers, or other standard Ethernet devices.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.
Troubleshoot EtherNet/IP Networks Application Technique, publication ENET-AT003	Provides details about how to assign IP addresses to and how to troubleshoot EtherNet/IP networks and devices.

You can view or download publications on Literature Library: rok.auto/literature.

ControlLogix EtherNet/IP Network Device Overview

Topic	Page
Overview	9
ControlLogix Network Device Features	9
EtherNet/IP Network Specifications	11
Device Properties Information	14
Simple Network Management Protocol (SNMP)	14
Electronic Keying	15
Protected Mode	16
Protected Mode in a Redundant Adapter Pair	17
Secure Digital Card	18
CIP Security	19
Parallel Redundancy Protocol	21
Device Level Ring (DLR)	21

Overview

EtherNet/IP™ networks are communication networks that offer a comprehensive suite of messages and services for many automation applications.

This open network standard uses commonly available Ethernet communication products to support real-time I/O messaging, information exchange, and general messaging.

ControlLogix Network Device Features

The ControlLogix® EtherNet/IP network devices:

- Facilitate high-speed data transfer between Logix 5000® controllers and remote I/O modules.
- Connect to multiple EtherNet/IP network topologies.

Figure 1 shows how Rockwell Automation EtherNet/IP communication modules fit into a control system.

Figure 1 - EtherNet/IP Communication Modules in a Control System

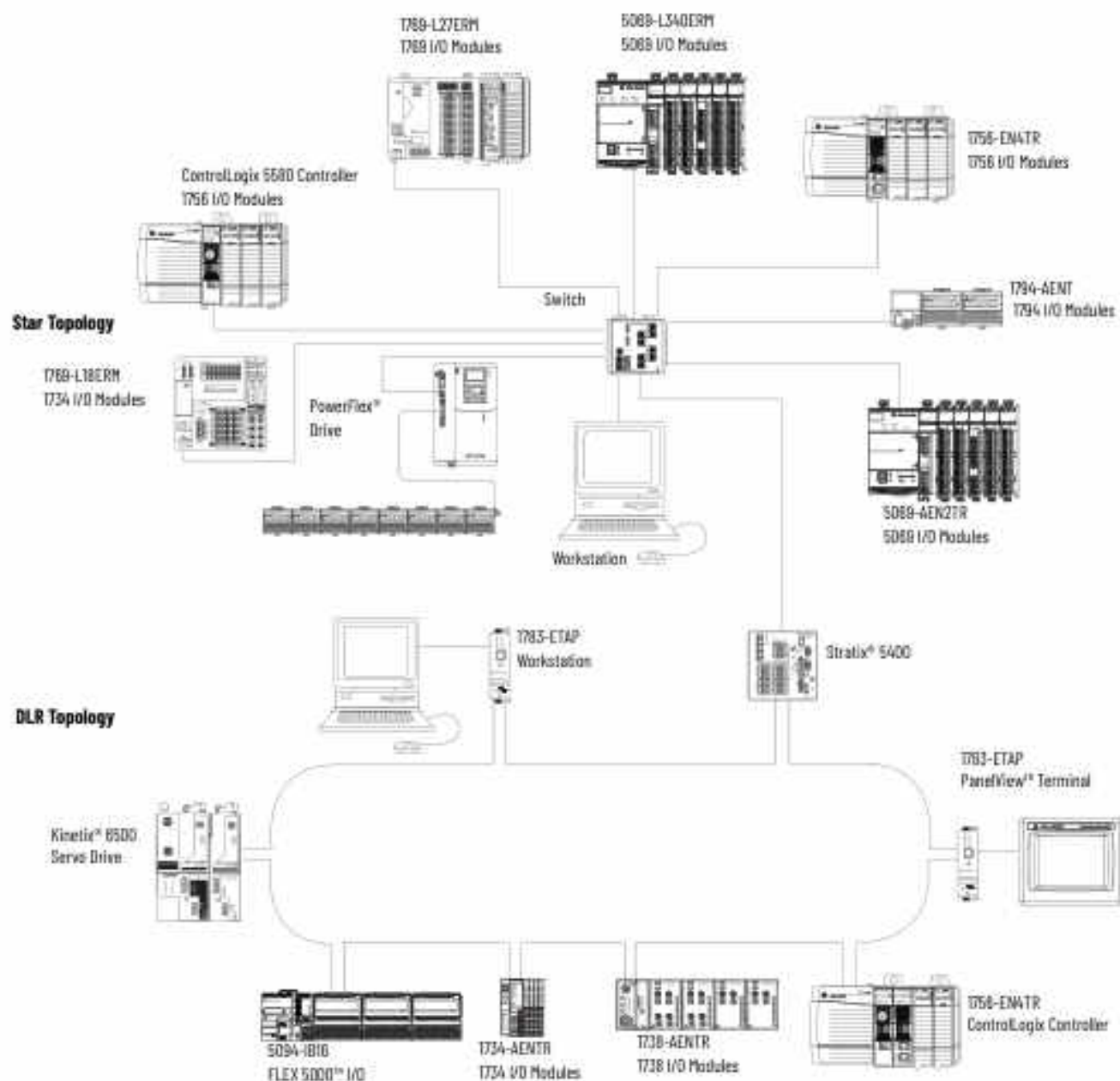


Table 1 - EtherNet/IP Communication Modules

Cat. No. ⁽¹⁾	Description	Media	Communication Rate
1756-EN2F, 1756-EN2FK	EtherNet/IP bridge, fiber	Fiber	100 Mbps, no auto-negotiation.
1756-EN2T 1756-EN2TK	EtherNet/IP bridge, copper	Copper	10/100 Mbps
1756-EN2TP, 1756-EN2TPK	EtherNet/IP bridge, PRP support, copper	Dual Copper	10/100 Mbps
1756-EN2TPXT	ControlLogix-XT [™] , extended temperature EtherNet/IP bridge, PRP support	Dual Copper	10/100 Mbps
1756-EN2TR, 1756-EN2TRK	EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps
1756-EN2TXT	ControlLogix-XT, extended temperature EtherNet/IP bridge, copper, for extreme environments	Copper	10/100 Mbps
1756-EN2TRXT	ControlLogix-XT, extended temperature EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps
1756-EN3TR, 1756-EN3TRK	EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps
1756-EN4TR, 1756-EN4TRK	EtherNet/IP bridge, embedded switch, copper	Dual Copper	10/100 Mbps 1 Gbps
1756-EN4TRXT	ControlLogix-XT, extended temperature EtherNet/IP bridge, embedded switch, copper	Dual Copper	10/100 Mbps 1 Gbps
1756-ENBT, 1756-ENBTK	EtherNet/IP bridge, copper	Copper	10/100 Mbps
1756-EWEB	Ethernet web server module	Copper	10/100 Mbps

(1) A catalog number ending in a K denotes a conformal coating.

EtherNet/IP Network Specifications

Table 2 - ControlLogix EtherNet/IP Connections Specifications⁽¹⁾

Cat. No.	Connections		CIP [™] Unconnected Messages (backplane + Ethernet)
	TCP	CIP ⁽²⁾	
1756-ENBT	64	128	64 + 64
1756-EN2F	128	256	128 + 128
1756-EN2T	128	256	128 + 128
1756-EN2TP	128	256	128 + 128
1756-EN2TR	128	256	128 + 128
1756-EN3TR	128	256	128 + 128
1756-EN4TR	512	1000 I/O, 528 messaging/HMI	256 + 256
1756-EWEB	64	128	128 + 128

(1) Includes the K conformal coating catalog numbers and the XT extreme environment catalog numbers.

(2) Except for the 1756-EN4TR, which has separate I/O and messaging/HMI CIP connections, these connections can be used for any combination of I/O and messaging/HMI.

Table 3 - ControlLogix EtherNet/IP Data Specifications⁽¹⁾

Cat. No.	Produced/Consumed Tags		Socket Services	Duplicate IP Detection (starting revision)
	Number of Multicast Tags, Max ⁽²⁾	Unicast Available in RSLogix 5000 [®] Software		
1756-EN2F	32	Version 16.03.00 or later	Yes	All Revisions
1756-EN2T		Version 16.03.00 or later	Yes	
1756-EN2TP		Version 24.00.00 or later	Yes	
1756-EN2TR		Version 17.01.02 or later	Yes	
1756-EN3TR		Version 18.02.00 or later	Yes	
1756-EN4TR		Version 24.00.00 or later	Yes	
1756-ENBT	N/A	Version 16.03.00 or later	No	Revision 3.3
1756-EWEB			Yes	Revision 2.2

(1) Includes the K conformal coating catalog numbers and the XT extreme environment catalog numbers.

(2) Each controller can send a maximum of 32 multicast produced tags to one single consuming controller. If these same tags are sent to multiple consumers, the maximum number is 31.

Table 4 - ControlLogix EtherNet/IP Specifications⁽¹⁾

Cat. No.	Firmware Revision	RSLinx 5000 Software Version	RSLinx® Software Version	Packet Rate Capacity (packets/second) ⁽²⁾		Support for Extended Environment ⁽³⁾	Integrated Motion on the EtherNet/IP Network Axes
				I/O	HMI/MSG		
1756-ENBT	Any	8.02.00 or later	2.30 or later	5000	900	No	N/A
1756-EN2F	2.x	15.02.00 or later	2.51 or later	10,000	2000	No	N/A
	3.6 or later	18.02.00 or later ⁽⁴⁾		25,000 ⁽⁵⁾			Up to 8 axes supported ⁽⁵⁾
1756-EN2T	2.x or earlier	15.02.00 or later	2.51 or later	10,000	2000	No	N/A
	3.6 or later	18.02.00 or later ⁽⁴⁾		25,000 ⁽⁵⁾			Up to 8 axes supported ⁽⁵⁾
1756-EN2TXT	2.x	15.02.00 or later	2.51 or later	10,000	2000	Yes	N/A
	3.6 or later	18.02.00 or later ⁽⁴⁾		25,000 ⁽⁵⁾			Up to 8 axes supported ⁽⁵⁾
1756-EN2TP	Any	24.00.00 or later ⁽⁴⁾	4.10 or later	25,000 ⁽⁵⁾	2000	No	Up to 8 axes supported ⁽⁵⁾
1756-EN2TPXT	10.x or later	24.00.00 or later	4.10 or later	25,000 ⁽⁵⁾	2000	Yes	Up to 8 axes supported ⁽⁵⁾
1756-EN2TR	2.x	17.01.02 or later	2.55 or later	10,000	2000	No	N/A
	5.x or later	18.02.00 or later ⁽⁴⁾	2.56 or later	25,000 ⁽⁵⁾			Up to 8 axes supported ⁽⁵⁾
1756-EN2TRXT	5.028 or later	20.01.00 or later	2.56 or later	25,000 ⁽⁵⁾	2000	Yes	Up to 8 axes supported ⁽⁵⁾
1756-EN3TR	3.6 or later	18.02.00 or later ⁽⁴⁾	2.56 or later	25,000 ⁽⁵⁾	2000	No	Up to 256 axes supported ⁽⁵⁾
1756-EN4TR	Any	24.00.00 or later ⁽⁴⁾	4.10 or later	• 50,000 without CIP Security™ • 25,000 with integrity • 15,000 with integrity and confidentiality	• 3,700 without CIP Security • 2,700 with integrity • 1,700 with integrity and confidentiality	No	Up to 256 axes supported ⁽⁵⁾
1756-EN4TRXT	Any	24.00.00 or later ⁽⁴⁾	4.10 or later	• 50,000 without CIP Security • 25,000 with integrity • 15,000 with integrity and confidentiality	• 3,700 without CIP Security • 2,700 with integrity • 1,700 with integrity and confidentiality	Yes	Up to 256 axes supported ⁽⁵⁾

(1) Includes the K conformal coating catalog numbers.

(2) I/O numbers are maximums; they assume no HMI/MSG. HMI/MSG numbers are maximums; they assume no I/O. Packet rates vary depending on packet size. For more details, see Troubleshoot EtherNet/IP Application Technique, publication [ENCT-AT003](#), and the EDS file for a specific catalog number.

(3) Module operates in a broad temperature spectrum, -20...+70 °C (-4...+168 °F), and meets ANSI/ISA-S71.04-1985 Class G1, G2 and G3, and cULus, Class 1 Div 2, C-Tick, CE, ATEX Zone 2 and SIL 2 requirements for increased protection against salts, corrosives, moisture/condensation, humidity, and fungal growth.

(4) This version is required to use CIP Sync™ technology, Integrated Motion on the EtherNet/IP Network, or Exact Match keying.

(5) This value assumes the use of a 1756-L8x or a 1756-L7x ControlLogix controller. For a 1756-L8x ControlLogix controller, see ControlLogix Controllers User Manual, publication [1756-UM001](#).

(6) CIP Security requires FactoryTalk® Linx version 6.11.00 or later.

EtherNet/IP Network

The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports both real-time I/O messaging and message exchange. The EtherNet/IP network uses off-the-shelf Ethernet communication chips and physical media.

If you need to	Select this interface
Control I/O modules and drives Act as an adapter for I/O on remote EtherNet/IP links Communicate with other EtherNet/IP devices (messages and HMI) Bridge EtherNet/IP links to route messages to devices on other networks	1756-EN2F, 1756-EN2FK 1756-EN2T, 1756-EN2TK, 1756-EN2TXT 1756-EN2TP, 1756-EN2TPK, 1756-EN2TPXT 1756-EN2TR, 1756-EN2TRK, 1756-EN2TRXT 1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT 1756-ENBT, 1756-ENBTK
Support Device Level Ring (DLR) and linear topologies	1756-EN2TR, 1756-EN2TRK, 1756-EN2TRXT 1756-EN3TR, 1756-EN3TRK 1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Support for Parallel Redundancy Protocol	1756-EN2TP, 1756-EN2TPK, 1756-EN2TPXT 1756-EN4TR ⁽¹⁾ , 1756-EN4TRK ⁽¹⁾ , 1756-EN4TRXT ⁽¹⁾
Support for Redundant Adapters ⁽²⁾	1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Provide control in environments where temperatures range from -25...+70 °C (-13...+158 °F)	1756-EN2TPXT 1756-EN2TRXT 1756-EN2TXT 1756-EN4TRXT
Secure access to a control system from within the plant network	1756-EN4TR, 1756-EN4TRK, 1756-EN4TRXT
Use an Internet browser to access tags remotely in a ControlLogix controller Communicate with other EtherNet/IP or generic Ethernet devices (messaging only; no I/O control) Bridge EtherNet/IP links to route messages to devices on other networks	1756-EWEB, 1756-EWEBK web server

(1) Starting with firmware revision 4.001.

(2) Redundant Adapters require version 3.001 and higher firmware. See the [Product Compatibility and Download Center \(PCDC\)](#) for that firmware.

Device Properties Information

You can use FactoryTalk Linx Network Browser to view:

- Catalog Number
- Manufacture Date
- Warranty Number
- Series

This applies to:

- T756-EN2x modules manufactured with firmware revision 12.001 or later.
- T756-EN4TR modules manufactured in July 2022 or later with firmware revision 4.001 or later.

Example Module Manufactured with Earlier Firmware	Module Manufactured with Later Firmware
	

Simple Network Management Protocol (SNMP)

SNMP enables the device to be remotely managed through other network management software. SNMP defines the method of communication among the devices and also denotes a manager for the monitoring and supervision of the devices. For more information about SNMP, see the Ethernet Reference Manual, publication [ENET-RM002](#).

Cat. No.	Default Status	Ability to Disable SNMP
T756-EN2F	Off with firmware revision 12.001 or later On with firmware revision 11.004 or earlier	Yes with firmware revision 12.001 or later No with firmware revision 11.004 or earlier
T756-EN2T		
T756-EN2TP		
T756-EN2TR		
T756-EN3TR	Off	Yes
T756-EN4TR		

SNMP Passwords for these modules can be changed. For information on how to change the SNMP Password, see the Knowledgebase Technote [SNMP Password and MIB Configuration](#).

Disable SNMP

To disable SNMP, see [Disable/Enable Simple Network Management Protocol \(SNMP\) on page 74](#).

Electronic Keying

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. These attributes are compared in the following table.

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: • Same catalog number • Same or higher Major Revision • Minor Revision as follows: - 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. ATTENTION: Be cautious when using 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.
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	Changing Electronic Keying parameters online interrupts connections to the device and any devices that are connected through the device. Connections from other controllers can also 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-AT001](#).

Protected Mode

The 1756-EN2F, 1756-EN2T, 1756-EN2TP, 1756-EN2TR, 1756-EN3TR, and 1756-EN4TR support explicit protected mode.⁽¹⁾ When in this mode, the module does not allow any configuration changes.

The only exception is for CIP Security devices such as the 1756-EN4TR. For those, if a security policy has already been deployed to the module, then that security policy can be modified while in explicit protected mode. If a security policy has not yet been deployed to the module, then explicit protected mode prevents an initial policy from being deployed.

Enabling Explicit Protected Mode

To enable the module in an "explicit protected mode state", follow these steps.

1. Set the rotary switches to position '900'.
2. Power up the device, and wait for the display to scroll, "Protected Mode - Change Switch Settings".
3. Power down the device.
4. Set the switches for normal operation.
5. Power up the device.
6. The device is now in Explicit Protected Mode.

Operation in Explicit Protected Mode

While operating in protected mode, the module rejects any CIP explicit messages that would change the configuration of the module. For example, you cannot change the IP address, speed, or duplex settings when the module has Explicit Protected Mode enabled.

IMPORTANT

When used in a Redundant Chassis Pair (RCP) with ControlLogix controllers, the 1756-EN2x/1756-EN4x EtherNet/IP communication modules have a special case for the Time Sync object, where the PTP_Enable attribute is allowed to be set from the backplane. This is needed to allow the controller to set the PTP enable using unconnected messaging in the secondary (it is set via a class 1 connection in the primary controller, and in non-RCP cases).

Disabling Explicit Protected Mode

To disable the "explicit protected mode state", follow these steps.

1. Set the rotary switches on position '000'.
2. Power up the device, and wait for the display to scroll, "Unprotected Mode - Change Switch Settings".
3. Power down the device.
4. Set the switches for normal operation.
5. Power up the device.
6. The device is now in Unprotected Mode.

⁽¹⁾ For 1756-EN2F, 1756-EN2T, EN3TR, and 1756-EN2TR Versions TL001 and later.
For 1756-EN2TP and 1756-EN4TR all versions.

Protected Mode in a Redundant Adapter Pair

The 1756-EN4TR supports explicit protected mode in a redundant adapter pair. In this mode, the module does not allow any configuration changes.

Enabling Explicit Protected Mode in a Redundant Adapter Pair (RAP)

To enable the module in an "explicit protected mode state in RAP", follow these steps.

1. Put your system in a qualified state.
2. Remove the secondary device from the chassis, put it in explicit mode using the methods that are found on [page 16](#), and insert the module back into the chassis.
The system is qualified with the message "Explicit Protected Mode Mismatch" on the module display.
3. Force a switchover either using ADP service or disconnect the cable.
4. Remove secondary (previous primary) device, put it in explicit mode and insert module back.

The system has enabled explicit protected mode.

Disabling Explicit Protected Mode in a Redundant Adapter Pair

To disable the module in an "explicit protected mode state in RAP", follow these steps.

1. Put your system in a qualified state.
2. Remove the secondary device from the chassis, put it in non-protected mode using the methods that are found on [page 16](#), and insert the module back into the chassis.
The system is qualified with the message "Explicit Protected Mode Mismatch" on the module display.
3. Force a switchover either using ADP service or disconnect the cable.
4. Remove secondary (previous primary) device, put it in non-protected mode and insert module back.

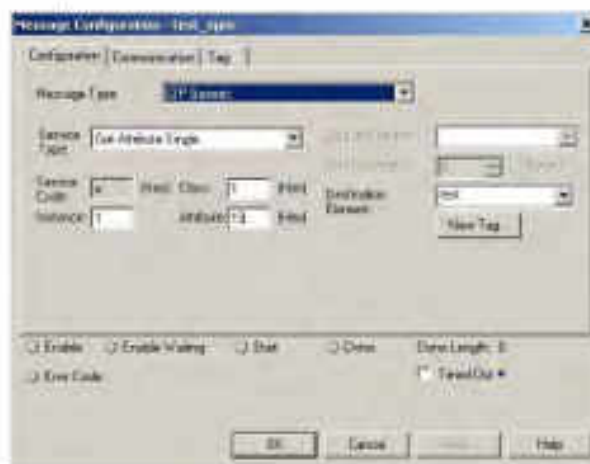
The system has disabled explicit protected mode.

How to Determine if the Module is in Explicit Protected Mode

To determine if your module is in explicit protected mode, either view the ADP Module information page, or create a Generic CIP message. Set the following parameters:

- Service Type: Get Single Attribute
- Class = 1
- Instance = 1
- Attribute = 13(Hex)

The Destination Element Tag must be the INT type. Bit 3 is explicit protected mode and a value of 1 indicates that protected mode is enabled.



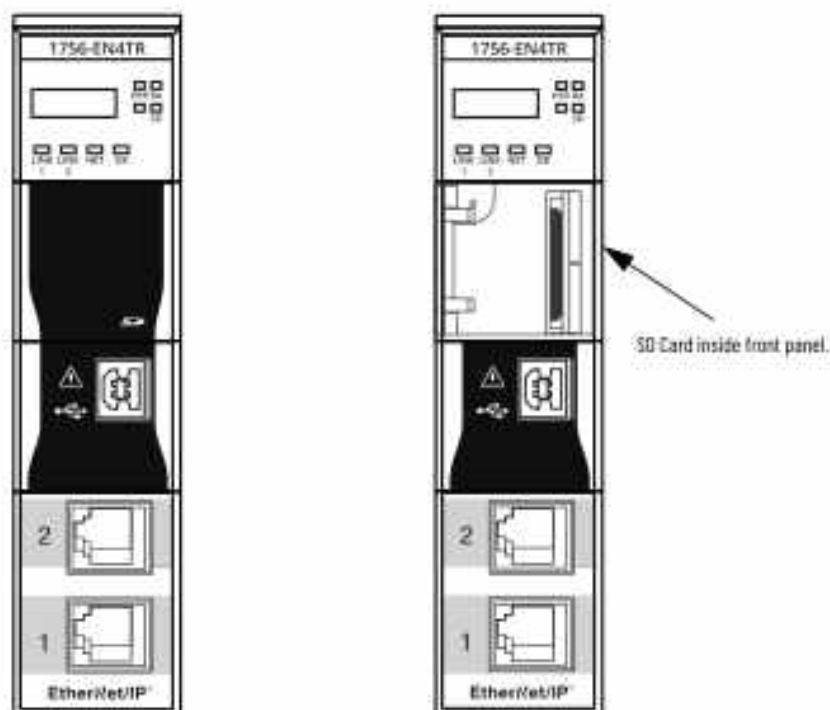
Secure Digital Card

The 1756-EN4TR uses a Secure Digital (SD) card to store:

- Module firmware
- Module configuration
- Fault logs

You can provide the fault logs to technical support rather than shipping the entire module.

The SD card slot is inside the front panel of the module.



When the device is powered up, the device uses the configuration from the SD card if the configuration does not exist in the device. When a blank SD card is inserted, or powered up, the configuration is copied from the device to the SD card that was inserted.

If the module powers up with a configuration that does not match the configuration on the already inserted SD card, the configuration on the SD card is used and copied to the module.

IMPORTANT

The 1756-EN4TR does not save the CIP Security configuration information to the SD card. On power-up, the CIP Security setting returns to the module default setting.

If the module is already powered, and an SD card is inserted, a warning message is displayed.



To see other potential error messages, see [Table 12 on page 80](#).

To change these results, do one of two things. One option is to do an out of box reset on the module, if you want to use the configuration on the SD card. A second option is to modify one of the configuration settings on the device, if you want to use the configuration on the device.

IMPORTANT If an SD card with a valid configuration is inserted into a 1756-EN4TR module that does not match, an error is displayed on the status display on the front of the module warning of this mis-configuration. If the SD card is intended to be used in the 1756-EN4TR module it must be cleared by external means and reinserted. If this is not done before the next power cycle of the 1756-EN4TR with the non-matching configuration, this configuration is copied to the 1756-EN4TR with all settings including the IP address from the original module. This can possibly cause an IP address conflict.

The 1756-EN4TR supports the use of a 1784-SD1 (1 GB) and 1784-SD2 (2 GB) card. You can use third-party SD cards with the device. You can use SD cards with as much as 32 GB of memory.

IMPORTANT Rockwell Automation does not test the use of third-party SD cards with the device.

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.

Disable Secure Digital Card

To disable the SD card, see [Disable/Enable the SD Card on page 68](#).

CIP Security

CIP Security™ is a standard, open communication mechanism that is defined by the Open DeviceNet® Vendors' Association (ODVA) that helps to provide a secure data transport across an EtherNet/IP™ network. It lets CIP-connected devices authenticate each other before transmitting and receiving data.

CIP Security uses the following security properties to help devices protect themselves from malicious communication:

- Device Identity and Authentication
- Data Integrity and Authentication
- Data Confidentiality

Rockwell Automation uses the following products to implement CIP Security:

- FactoryTalk Services Platform, version 6.11 or later, with the following components enabled:
 - FactoryTalk Policy Manager
 - FactoryTalk System Services
- FactoryTalk Linx, version 6.11 or later
- Studio 5000® Design Environment, version 31.00.00 or later
- CIP Security-enabled Rockwell Automation products, for example, the product described in this publication

For more information on CIP Security, including which products support CIP Security, see the CIP Security with Rockwell Automation Products Application Technique, publication [SECURE-AT001](#).

IMPORTANT**Redundant Chassis Pair**

T756-EN4TR modules with firmware revision 4.001 support CIP Security when used in a **redundant chassis pair** with ControlLogix 5580 controllers that have firmware revision 34.001 or later. This supports program upload/download/monitor/HMI (not I/O).

- The T756-EN4TR pair must be configured for non-IP address swapping.
- The T756-EN4TR pair cannot be configured for redundant adapter mode while used in a **redundant chassis pair** with ControlLogix 5580 controllers.
- The T756-EN4TR pair that is configured for CIP security cannot be used to communicate with remote I/O, because I/O in ControlLogix redundancy requires multi-cast. A second T756-EN4TR pair is required for I/O.

Redundant Adapter Mode

CIP Security is not yet supported when the T756-EN4TR is in **redundant adapter mode** for remote I/O.

If a T756-EN4TR is installed and using CIP Security, and it is reconfigured to be part of a **redundant adapter pair** for remote I/O, the module loses its CIP Security configuration. When this occurs, the I/O chassis will lose communication with the controller. At this point, the CIP Security policy must be redeployed.⁽¹⁾

⁽¹⁾ CIP Security is not supported in redundant adapters. See [Chapter 4](#) on [page 45](#).

Syslog Event Logging

The T756-EN4TR module supports syslog event logging. Do not use FactoryTalk AssetCentre for logging if you want to use a syslog collector.

Choose a syslog collector that supports the following:

- RFC-5424 syslog protocol
- Ability to receive messages from the T756-EN4TR module

To set the IP address of the syslog collector, use FactoryTalk Policy Manager software.

IMPORTANT

The T756-EN4TR module must be connected to the same network as the syslog collector.

For more information, see:

- CIP Security with Rockwell Automation Products Application Technique, publication [SECURE-AT001](#).
- Logix 5000 Controller and I/O Fault Codes and Syslog Messages, publication [1756-R0001](#).