



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.

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

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



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



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.

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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.auto/pcdc.

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-INQ50	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-UM006	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.

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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

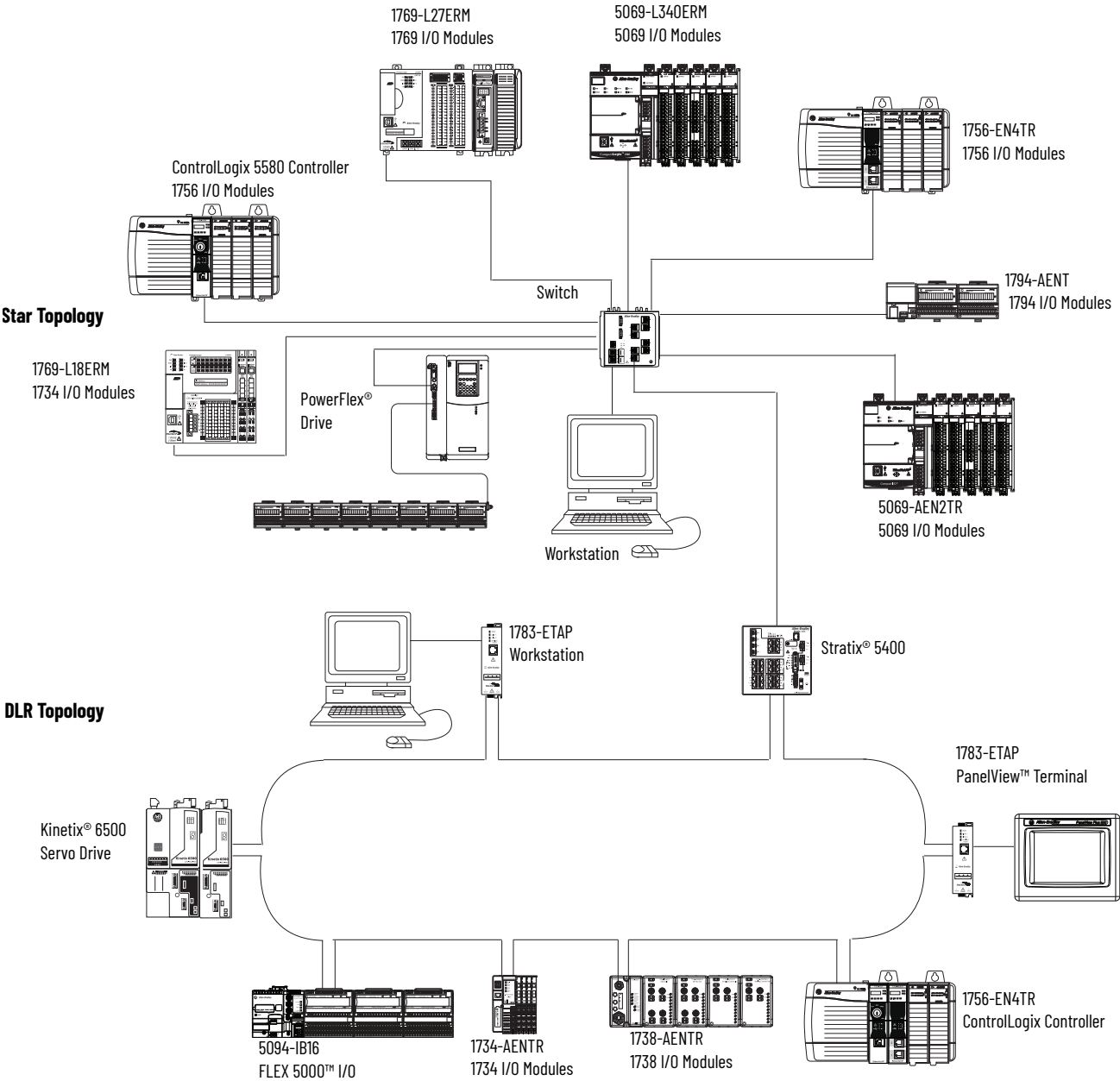


Table 1 - EtherNet/IP Communication Modules

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		Version 16.03.00 or later	No	Revision 3.3
1756-EWEB	N/A		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.