

# ControlLogix Communication Modules

Separate communication modules are available for different networks. Install multiple communication modules into the ControlLogix backplane to bridge or route control and information data between different networks. You can route a message through a maximum of four chassis (eight communication hops). You do not need a ControlLogix controller in the chassis.

Application	Network	Page
<ul style="list-style-type: none"> <li>Plant management (material handling)</li> <li>Configuration, data collection, and control on one high-speed network</li> <li>Time-critical applications with no established schedule</li> <li>Inclusion of commercial technologies (such as video over IP)</li> <li>Internet/Intranet connection</li> <li>High-speed transfer of time-critical data between controllers and I/O devices</li> <li>Integrated Motion on the EtherNet/IP network and safety</li> <li>Redundant controller systems</li> </ul>	EtherNet/IP	19
<ul style="list-style-type: none"> <li>High-speed transfer of time-critical data between controllers and I/O devices</li> <li>Deterministic and repeatable data delivery</li> <li>Media redundancy</li> <li>Intrinsic safety</li> <li>Redundant controller systems</li> </ul>	ControlNet	20
<ul style="list-style-type: none"> <li>Connections of low-level devices directly to plant floor controllers, without interfacing them through I/O modules</li> <li>Data sent as needed</li> <li>More diagnostics for improved data collection and fault detection</li> <li>Less wiring and reduced start-up time than a traditional, hard-wired system</li> </ul>	DeviceNet	20
<ul style="list-style-type: none"> <li>Plant-wide and cell-level data sharing with program maintenance</li> <li>Data sent regularly</li> <li>Transfer of information between controllers</li> </ul>	Data Highway Plus	21
<ul style="list-style-type: none"> <li>Connections between controllers and I/O adapters</li> <li>Data sent regularly</li> <li>Distributed control so that each controller has its own I/O and communicates with a supervisory controller</li> </ul>	Remote I/O	21
<ul style="list-style-type: none"> <li>Fieldbus transmitters and actuators</li> <li>Closed-loop control</li> <li>Process automation</li> </ul>	Foundation Fieldbus	22

For detailed specifications, see the 1756 ControlLogix Communication Modules Specifications Technical Data, publication [1756-TD003](#).

## EtherNet/IP Communication Modules

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

Cat. No.	Description	Media	Communication Rate	Integrated Motion on the EtherNet/IP Network Axes, max	TCP/IP Connections	Logix Connections
1756-EN2F	EtherNet/IP bridge, fiber	Fiber	100 Mbps	8	128	256
1756-EN2T	EtherNet/IP bridge, copper	Copper	10/100 Mbps	8	128	256
1756-EN2TR	EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps	8	128	256
1756-EN3TR	EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps	128	128	256

## Select a ControlLogix System

Cat. No.	Description	Media	Communication Rate	Integrated Motion on the EtherNet/IP Network Axes, max	TCP/IP Connections	Logix Connections
1756-EN2TXT	ControlLogix-XT, extended temperature EtherNet/IP bridge, copper for extreme environments	Copper	10/100 Mbps	8	128	256
1756-EN2TRXT	ControlLogix-XT, extended temperature EtherNet/IP bridge, embedded switch, copper	Dual copper	10/100 Mbps	8	128	256
1756-EN2TSC	EtherNet/IP secure communication module	Copper	10/100 Mbps	—	128	256
1756-ENBT	EtherNet/IP bridge, copper	Copper	10/100 Mbps	—	64	128
1756-EWEB	Ethernet web server module	Copper	10/100 Mbps	—	64	128

## ControlNet Communication Modules

The ControlNet network combines the functionality of an I/O network and a peer-to-peer network, providing high-speed performance. The ControlNet network provides deterministic, repeatable transfers of critical control data.

Cat. No.	Description	Communication Rate	Logix Connections	Number of Nodes
1756-CN2	ControlNet bridge, standard media	5 Mbps	128 <sup>(1)</sup>	99
1756-CN2R	ControlNet bridge, redundant media	5 Mbps	128 <sup>(1)</sup>	99
1756-CNB	ControlNet bridge, standard media	5 Mbps	64 <sup>(2)</sup>	99
1756-CNBR	ControlNet bridge, redundant media	5 Mbps	64 <sup>(2)</sup>	99
1756-CN2RXT	ControlLogix-XT, extended temperature ControlNet bridge, redundant media	5 Mbps	128 <sup>(1)</sup>	99

(1) 128 connections are available for standard use. An extra three connections are reserved for redundant control.

(2) Recommend using only 40...48 Logix connections for I/O.

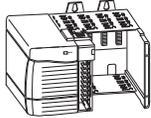
## DeviceNet Communication Module

The DeviceNet network provides connections between simple, industrial devices (such as sensors and actuators) and higher-level devices (such as controllers and computers).

Cat. No.	Description	Communication Rate	Number of Nodes
1756-DNB	DeviceNet bridge	125 Kbps (500 m max) 250 Kbps (250 m max) 500 Kbps (100 m max)	64

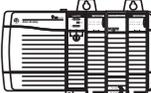
# Select a ControlLogix System



Step 1  
[ControlLogix I/O Modules](#)  
  
[Page 10](#)

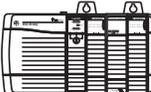
- Select:
- I/O modules—Some modules have field-side diagnostics, electronic fusing, or individually isolated inputs/outputs
  - A remote terminal block (RTB) or wiring system for each I/O module



Step 2  
[ControlLogix Integrated Motion](#)  
  
[Page 18](#)

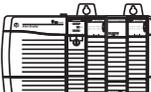
- Select:
- An EtherNet/IP communication module for Integrated Motion
  - Associated cables
  - Select drives, motors, and accessories (use the Motion Analyzer software)



Step 3  
[ControlLogix Communication Modules](#)  
  
[Page 19](#)

- Select:
- Networks
  - Communication modules
  - Associated cables and network equipment
  - Sufficient modules and cables if you are planning a redundant system



Step 4  
[ControlLogix Controllers](#)  
  
[Page 24](#)

- Select a controller:
- Standard ControlLogix controller
  - Redundant ControlLogix controller
  - Safety GuardLogix controller
  - Extreme environment ControlLogix controller
  - Standard Armor ControlLogix controller
  - Safety Armor GuardLogix controller

Step 5  
[ControlLogix Chassis](#)  
  
[Page 30](#)

- Select:
- A chassis with sufficient slots
  - Slot fillers for empty slots

Step 6  
[ControlLogix Power Supplies](#)  
  
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- Select:
- One power supply for each chassis, if you are using standard power supplies
  - A power supply bundle if you are planning a redundant power supply system

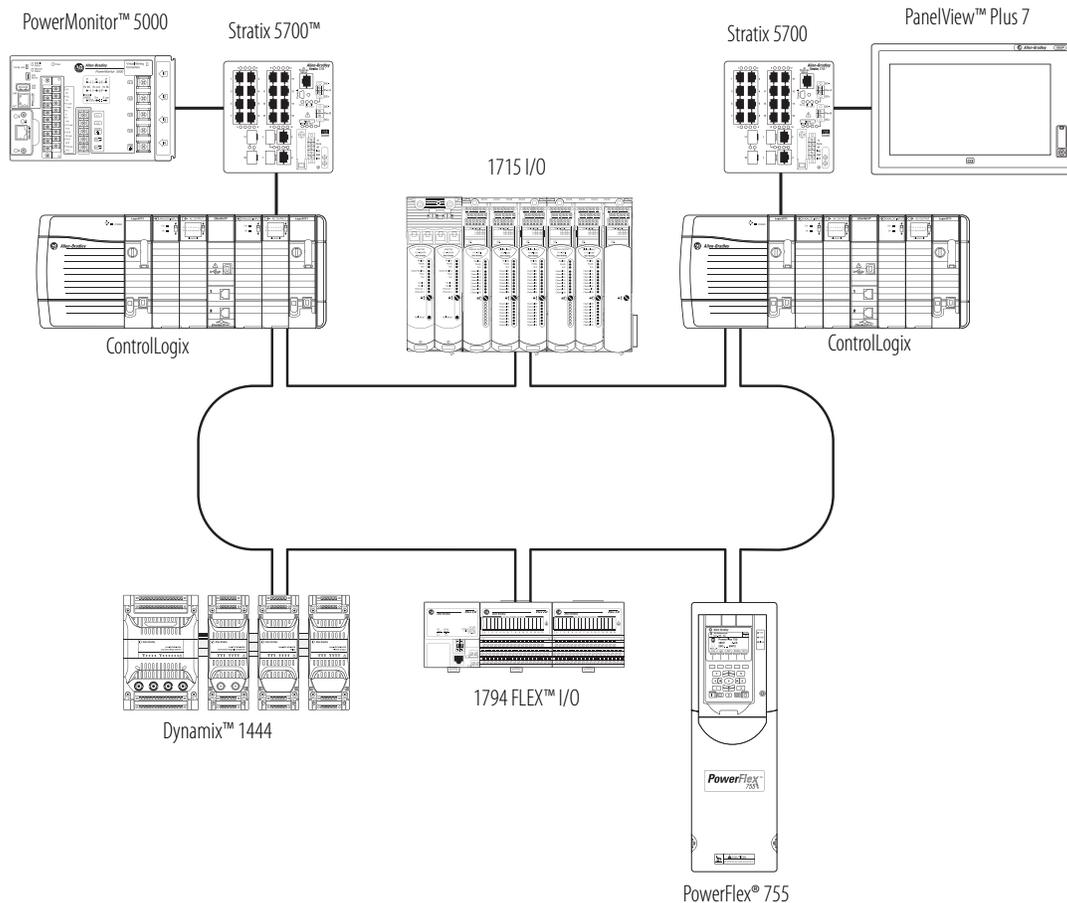
# ControlLogix System Overview

The ControlLogix system provides discrete, drives, motion, process, and safety control together with communication and state-of-the-art I/O in a small, cost-competitive package. The system is modular, so you can design, build, and modify it efficiently with significant savings in training and engineering.

## Example Configuration—ControlLogix System

A simple ControlLogix system consists of a standalone controller and I/O modules in one chassis. For a more comprehensive system, use the following:

- Multiple controllers in one chassis
- Multiple controllers joined across networks
- I/O in multiple platforms that are distributed in many locations and connected over multiple I/O links



## Conformal Coating

A conformal coating solution is offered on select ControlLogix products. Conformal coating helps protect the assembly by providing a layer of protection against contaminants and humidity to extend product life in harsh, corrosive environments. Conformally coated products have a 'K' suffix at the end of the catalog number, such as 1756-A4K. Conformally coated, Allen-Bradley® products meet or exceed these requirements:

- ANSI/ISA 71.04.2013 G3 Environment (10-year exposure)
- IEC 61086-3-1 Class 2
- IPC-CC-830
- MIL-I-46058C
- EN600068-2-52 salt mist test, severity level 3

The most current list of conformally coated products can be found by contacting your local Rockwell Automation distributor, sales office, or at the following location:

<http://www.ab.com/en/epub/catalogs/12762/2181376/2416247/360807/ControlLogix-System.html>

## ControlLogix-XT System

ControlLogix-XT™ (Extended Temperature) controllers function the same way as traditional ControlLogix controllers with an extended temperature range. The ControlLogix-XT products include control and communication system components that are conformally coated to extend product life in harsh, corrosive environments:

- The standard ControlLogix system can withstand temperature ranges from 0...60 °C (33...140 °F).
- When used independently, the ControlLogix-XT system can withstand temperature ranges from -25...70 °C (-13...158 °F).