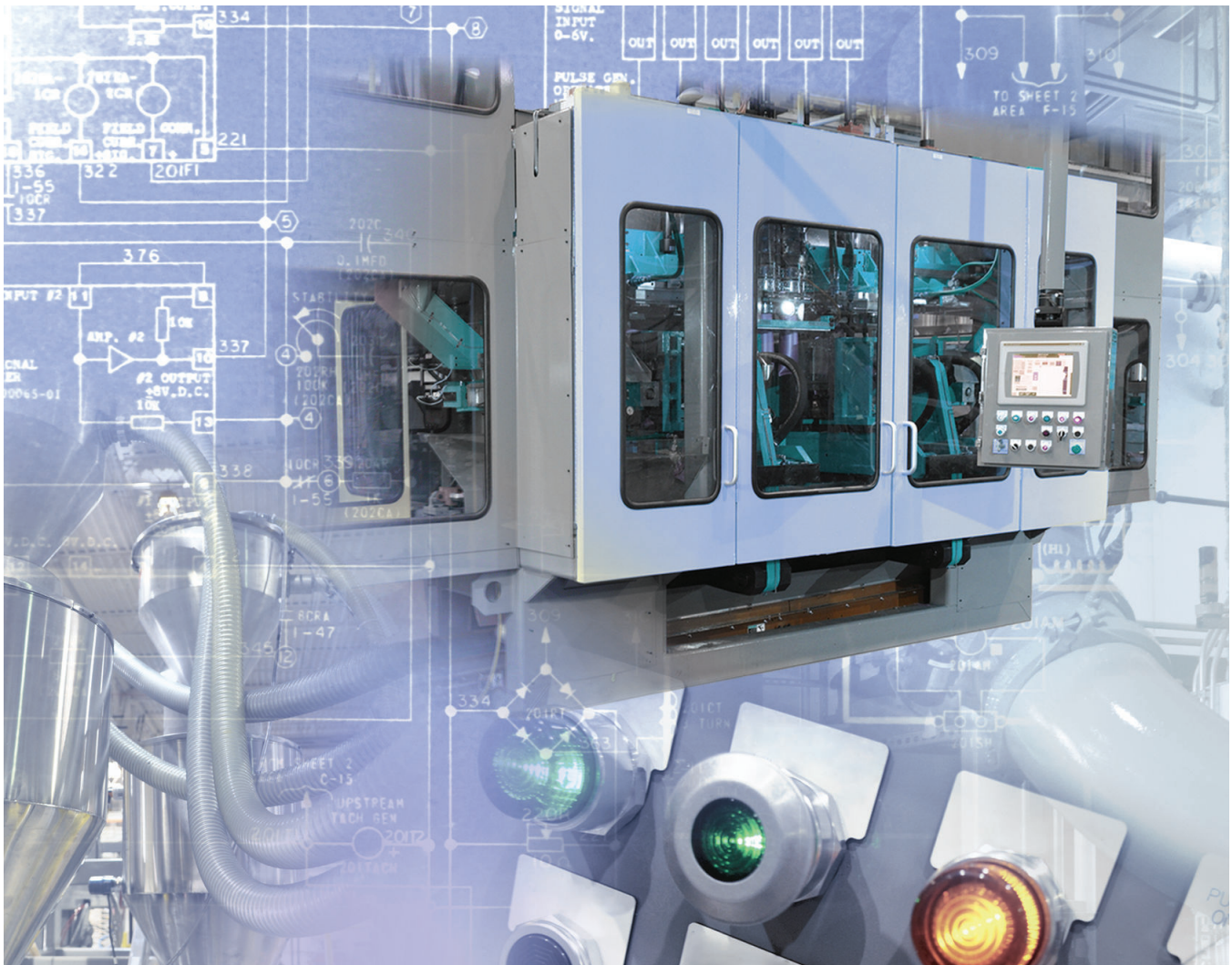


Networks

EtherNet/IP, ControlNet, DeviceNet, FOUNDATION Fieldbus, HART, Profibus PA, Serial, DH+/RIO, DH-485



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What's Inside

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Networks Comparison

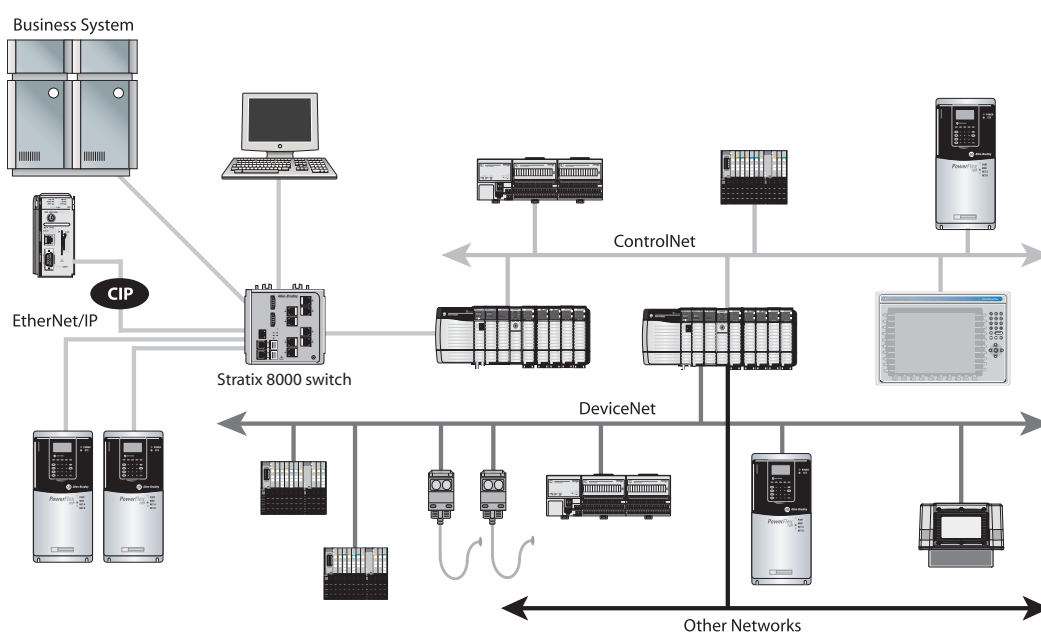
Rockwell Automation follows a strategy of using open network technology for seamless, top-floor to shop-floor integration. These open networks speak a common language and share a universal set of communication services. As a result, information can be communicated seamlessly throughout the plant, from shop floor to top floor, and to and from the Internet for e-business applications.

EtherNet/IP, ControlNet, and DeviceNet networks simplify design, start-up and maintenance, reducing costs throughout your plant with common control and communication services. Each network uses topology, capacity, and design characteristics that support real-time control, device configuration, data collection, and peer interlocking. These networks are open technologies supported by ODVA and international standards organizations, and have millions of nodes installed world-wide along with hundreds of vendor products in the market.

	EtherNet/IP Network	ControlNet Network	DeviceNet Network
Function	Plant management system tie-in (material handling); configuration, data collection, and control on a single high-speed network	Supports transmission of time critical data between PLC and I/O devices	Connects low-level devices directly to plant-floor controllers—without interfacing them through I/O modules
Typical devices networked	• Mainframe computers • Programmable controllers • Robots • HMIs • I/O • Drives • Process instruments • RFID	• Programmable controllers • I/O chassis • HMIs • Personal computers • Drives • Robots	• Sensors • Motor starters • Drives • Personal computers • Push buttons • Low-end HMIs • Bar code readers • PLC controllers • Valve manifolds
Data repetition	Large packets, data sent regularly	Medium-size packets; data transmissions are deterministic and repeatable	Small packets; data sent as needed
Number of nodes (max)	No limit	99	64 logical
Data transfer rate	10 Mbps, 100 Mbps, or 1 Gbps	5 Mbps	500, 250, or 125 Kbps
Typical use	Plant-wide architecture High-speed applications	Redundant applications Scheduled communication	Supply power and connectivity to low level devices

Choose the right network:

- **Application** – determine the purpose and application of the network – what the network does.
- **Devices** – determine what devices and node types you need to connect.
- **Fit** – determine which networks best fit the application and device requirements by considering topology, capacity, and performance.
- **Ease of Use** – determine which networks reduce development, commissioning, and maintenance time and costs; determine which networks improve productivity.
- **Cost** – of the networks that fit the application, determine which network provides the most value.



Encompass Partners

Through the Encompass™ program, our third-party product referencing program, you can quickly locate the products that best solve your application challenges. Use the Encompass search tool to sort and filter products from best-in-industry suppliers in your region to connect to the Rockwell Automation architecture, or to use with our products.

For more information, see the Rockwell Automation Encompass Program search tool at http://www.ab.com/db/encompass/bps_ext.search.



Additional Resources

These documents and websites contain additional information concerning related Rockwell Automation products.

ODVA Resources

Resource	Description
http://www.odva.org/	Open DeviceNet Vendors Association (ODVA) website
http://www.odva.org/default.aspx?tabid=54	The CIP Advantage website • CIP features and benefits • How to get started
Ethernet Media Planning and Installation Manual, ODVA publication http://www.odva.org/Portals/0/Library/Publications_Numbered/PUB00148R0_EtherNetIP_Media_Planning_and_Installation_Manual.pdf	Describes the required media components and how to plan for, install, verify, troubleshoot, and certify an Ethernet network.
Network Infrastructure for EtherNet/IP: Introduction and Considerations, ODVA publication http://www.odva.org/Portals/0/Library/Publications_Numbered/PUB00035R0_Infrastructure_Guide.pdf	Provides an overview of the technologies used in EtherNet/IP networks and provides guidelines for deploying infrastructure devices in EtherNet/IP networks.

Rockwell Automation Resources

Resource	Description
http://www.ab.com/networks/	Rockwell Automation networks and communication website
http://www.ab.com/networks/ethernet/	Rockwell Automation EtherNet/IP website
http://www.rockwellautomation.com/services/networks/ http://www.rockwellautomation.com/services/security/	Rockwell Automation network and security services websites
http://www.ab.com/networks/architectures.html	Education series webcasts for IT and controls professionals
EtherNet/IP Embedded Switch Technology Application Guide, publication ENET-AP005	Describes how to install, configure, and maintain linear and device-level Ring (DLR) networks using Rockwell Automation EtherNet/IP devices with embedded switch technology.
EtherNet/IP Network Configuration User Manual, publication ENET-UM001	Describes how to configure and use EtherNet/IP communication modules with a Logix5000 controller and communicate with various devices on the Ethernet network.
Ethernet Design Considerations Reference Manual, publication ENET-RM002	Overview of EtherNet/IP basics

Cisco and Rockwell Automation Alliance Resources

Resource	Description
http://www.ab.com/networks/architectures.html	Rockwell Automation and Cisco Systems reference architecture website
Converged Plantwide Ethernet (CPwE) Design and Implementation Guide, publication ENET-TD001	Represents a collaborative development effort from Rockwell Automation and Cisco Systems. The design guide is built on, and adds to, design guidelines from the Cisco Ethernet-to-the-Factory (EttF) solution and the Rockwell Automation Integrated Architecture. The design guide focuses on the manufacturing industry.
Embedded Switch Technology Reference Architectures Reference Manual, publication ENET-RM003	Provides design recommendations for connecting device-level topologies to larger, switch networks comprised of Layer 2 access switches and the implementation of embedded switch technology.

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

Studio 5000 Environment

The Studio 5000™ Engineering and Design Environment combines engineering and design elements into a common environment. The first element in the Studio 5000 environment is the Logix Designer application. The Logix Designer application is the rebranding of RSLogix™ 5000 software and will continue to be the product to program Logix5000™ controllers for discrete, process, batch, motion, safety, and drive-based solutions.



The Studio 5000 environment is the foundation for the future of Rockwell Automation® engineering design tools and capabilities. This environment is the one place for design engineers to develop all of the elements of their control system.

Notes:

EtherNet/IP Network

The EtherNet/IP network provides plant-wide network systems using open, industry-standard networking technologies. It enables real-time control and information in discrete, continuous process, batch, safety, drive, motion, and high availability applications. The EtherNet/IP network connects devices such as motor starters and sensors to controllers and HMI devices and on into the enterprise. It supports non-industrial and industrial communications on a common network infrastructure.

EtherNet/IP technology is designed to be the one network with the broadest use across all plant disciplines, with the ability to handle communications from the bottom to the top. It supports the following uses:

- **Business System / Automation Integration**—Exclusively uses standard IEEE 802.3 and TCP/IP/UDP
- **HMI**—Offers plenty of bandwidth to support very large, data-intensive HMI applications, with support from nearly every HMI vendor
- **Device Programming and Configuration**—Uses the Ethernet port on your personal computer
- **Peer-to-Peer Communication**—Provides interlocking and data transfer between controllers, robots, and others
- **I/O Control**—Provides update rates below 1 ms
- **Time Synchronization and Time Stamping**—Sub-microsecond coordination
- **Drive Control**—Configuration, monitoring, and coordinated control
- **Safety Control**—Mixes standard and safety devices on the same network
- **Motion Control**—Provides precision motion control for the most demanding coordinated-motion applications

Additional Resources

Resource	Description
Rockwell Automation EtherNet/IP Network web pages. http://ab.rockwellautomation.com/Networks-and-Communications/Ethernet-IP-Network	EtherNet/IP connected products
EtherNet/IP Media Planning and Installation Manual	ODVA document with details on planning and troubleshooting EtherNet/IP media
Ethernet Design Considerations Reference Manual, publication ENET-RM002	Overview of EtherNet/IP basics
EtherNet/IP Embedded Switch Technology Application Guide, publication ENET-AP005	Installation, configuration, and maintenance of linear and Device-level Ring (DLR) networks using Rockwell Automation EtherNet/IP devices with embedded switch technology
EtherNet/IP Modules Installation Instructions, publication ENET-IN002	Installation and start up of EtherNet/IP module systems with Logix5000 controllers
EtherNet/IP Network Configuration User Manual, publication ENET-UM001	Configuration of EtherNet/IP modules system with Logix5000 controllers
Converged Plantwide Ethernet (CPwE) Design and Implementation Guide, publication ENET-TD001	Represents a collaborative development effort from Rockwell Automation and Cisco Systems. The design guide is built on, and adds to, design guidelines from the Cisco Ethernet-to-the-Factory (EttF) solution and the Rockwell Automation Integrated Architecture. The design guide focuses on the manufacturing industry.
Embedded Switch Technology Reference Architectures Reference Manual, publication ENET-RM003	Provides design recommendations for connecting device-level topologies to larger, switch networks comprised of Layer 2 access switches and the implementation of embedded switch technology.

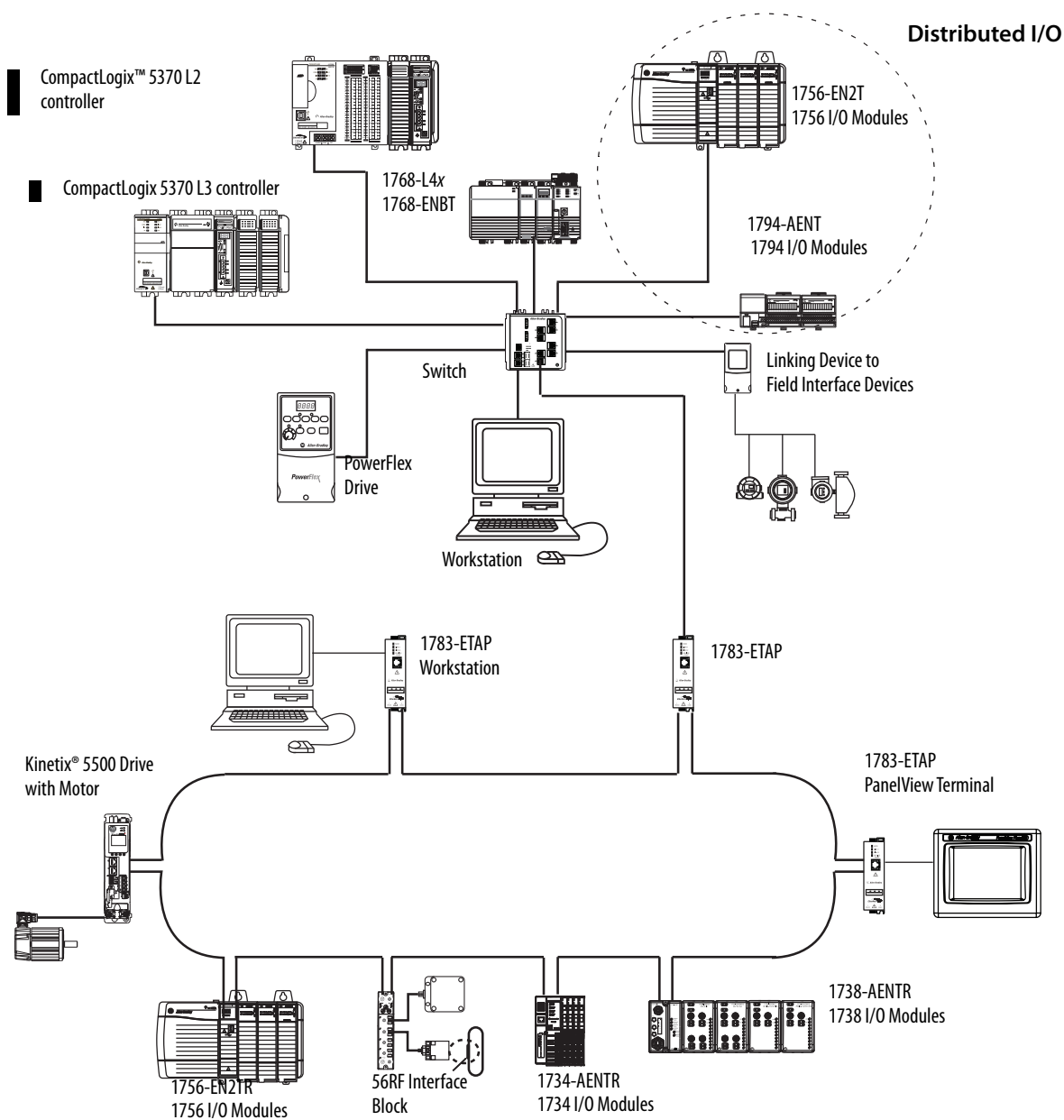
To view or download these publications, go to:

<http://www.rockwellautomation.com/literature>

To obtain a hard copy, contact your Allen-Bradley distributor or Rockwell Automation sales representative.

EtherNet/IP Modules in a Control System

The following diagram shows how EtherNet/IP modules can fit into a control system.



Programmable Automation Controllers

CompactLogix 5370 Controllers - EtherNet/IP Connectivity

Cat. No.	Description	CIP Motion Axes	Logix Resources	TCP/IP Connections
1769-L16ER	CompactLogix 5370 L1 controllers with integrated EtherNet/IP dual-port, POINT I/O form factor	—	4 nodes	120
1769-L18ER		—	8 nodes	
1769-L18ERM		2	8 nodes	
1769-L24ER-BB1B,	CompactLogix 5370 L2 controllers with integrated EtherNet/IP dual-port, Compact I/O form factor	—	8 nodes	120
1769-L24ER-QBFC1B		—	8 nodes	
1769-L27ERM-QBFC1B		4	16 nodes	
1769-L30ER	CompactLogix 5370 L3 controllers with integrated EtherNet/IP dual-port	—	16 nodes	120
1769-L30ERM		4	16 nodes	
1769-L33ER		—	32 nodes	
1769-L33ERM		8	32 nodes	
1769-L36ERM		16	48 nodes	

CompactLogix and Compact GuardLogix® Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Logix Connections	TCP/IP Connections
1768-ENBT	1768-L4x EtherNet/IP communication bridge	128	64
1768-EWEB	1768-L4x EtherNet/IP communication bridge	128	64
1769-L32E	1769-L3x modular CompactLogix controller with integrated EtherNet/IP port	32	32
1769-L35E			
1769-L23E-QB1B	1769-L2x packaged CompactLogix controller with integrated EtherNet/IP port	32	8
1769-L23E-QBFC1B			

ControlLogix and GuardLogix Controllers - EtherNet/IP Connectivity

Cat. No.	Description	CIP Motion Axes	Logix Connections	TCP/IP Connections
1756-EN2F	EtherNet/IP communication bridge, fiber	8	256	128
1756-EN2T	EtherNet/IP communication bridge, copper			
1756-EN2TXT	EtherNet/IP communication bridge, extreme environments	8	256	128
1756-EN2TR	Dual-port EtherNet/IP communication bridge	8	256	128
1756-EN2TRXT	Dual-port EtherNet/IP communication bridge, extreme environments	8	256	128
1756-EN2TSC	EtherNet/IP secure communication module	8	256	128
1756-EN3TR	Dual-port EtherNet/IP communication bridge	128	256	128
1756-ENBT	EtherNet/IP communication bridge	—	128	64
1756-EWEB	Web server module	—	128	64

SoftLogix™ 5800 Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1789-L10	SoftLogix 5800 controllers	Personal computer Ethernet card
1789-L30		
1789-L60		

Programmable Logic Controllers

MicroLogix™ Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1761	MicroLogix 1000 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1763	MicroLogix 1100 controllers	- Built-in Ethernet port 1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1762	MicroLogix 1200 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1766	MicroLogix 1400 controllers	- Built-in Ethernet port 1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1764	MicroLogix 1500 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled

SLC™ 500 Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1747-L511	SLC 5/01 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1747-L514		
1747-L524	SLC 5/02 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1747-L531	SLC 5/03 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1747-L532		
1747-L533		
1747-L541	SLC 5/04 controllers	1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1747-L542		
1747-L543		
1747-L551	SLC 5/05 controllers	- Built-in EtherNet/IP port 1761-NET-ENI EtherNet/IP and RS-232-C interface 1761-NET-ENIW EtherNet/IP and RS-232-C interface, web enabled
1747-L552		
1747-L553		

PLC-5® Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1785-L11B	Standard PLC-5 controllers	1785-ENET EtherNet/IP interface module
1785-L20B		
1785-L30B		
1785-L40B		
1785-L40L		
1785-L60B		
1785-L60L		
1785-L80B		
1785-L26B	Standard PLC-5 controllers with protected memory	1785-ENET EtherNet/IP interface module
1785-L46B		
1785-L86B		
1785-L20E	PLC-5 Ethernet controllers	• Built-in EtherNet/IP port • 1785-ENET EtherNet/IP interface module
1785-L40E		
1785-L80E		

Safety Programmable Controllers

SmartGuard™ and GuardPLC™ Controllers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1752-L24BBBE	SmartGuard 600 controllers with integrated EtherNet/IP port	Built-in EtherNet/IP port
1753-L28BBBM	GuardPLC 1600 controllers with integrated EtherNet/IP ports	Built-in EtherNet/IP ports with SafeEthernet safety protocol
1753-L28BBBP		
1753-L32BBBM8A	GuardPLC 1800 controllers with integrated EtherNet/IP ports	Built-in EtherNet/IP ports with SafeEthernet safety protocol
1753-L32BBBP8A		

Operator Interfaces

PanelView™ Plus 6 Operator Terminals - EtherNet/IP Connectivity

Cat. No.	Description	Interface
2711P	PanelView Plus 6 terminals, 700 color	Built-in EtherNet/IP port Optional 2711P-RN20 Ethernet module provides additional Ethernet port on 700 and 1500 models only.
	PanelView Plus 6 terminals, 1000 color	
	PanelView Plus 6 terminals, 1250 color	
	PanelView Plus 6 terminals, 1500 color	
	PanelView Plus 6 terminals, 400 greyscale	Options with built-in EtherNet/IP port
	PanelView Plus 6 terminals, 400 color	
	PanelView Plus 6 terminals, 600 greyscale	
	PanelView Plus 6 terminals, 600 color	

PanelView Plus 6 Compact Operator Terminals - EtherNet/IP Connectivity

Cat. No.	Description	Interface
2711PC-K4M20D8	PanelView Plus 6 Compact terminal, 400 greyscale	Built-in EtherNet/IP port
2711PC-B4C20D8	PanelView Plus 6 Compact terminal, 400 color	
2711PC-T6M20D8	PanelView Plus 6 Compact terminal, 600 greyscale	
2711PC-T6C20D8	PanelView Plus 6 Compact terminal, 600 color	

PanelView Component Operator Terminals - EtherNet/IP Connectivity

Cat. No.	Description	Interface
2711C-T4T	PanelView Component C400 terminal, color	Built-in EtherNet/IP port
2711C-T6M	PanelView Component C600 terminal, monochrome	
2711C-T6T	PanelView Component C600 terminal, color	
2711C-T10C	PanelView Component C1000 terminal, color	

Industrial Computers

Industrial Computers - EtherNet/IP Connectivity

Cat. No.	Description	Interface
6189V-PCIENET	6155R compact non-display computer	Ethernet PCI card, 10/100/1000 Mbps for additional Ethernet ports Computers come with built-in Ethernet ports
	6177R non-display computers	
	6180P integrated display computer with keypad	
	6181F integrated display computers with solid-state drives (SSD)	
	6181P integrated display computers with hard disk drives (HDD)	

RFID Interfaces

Radio Frequency Identification Devices - EtherNet/IP Connectivity

Cat. No.	Description	Interface
56RF-IN-IPS12	RFID ICODE interface, single channel with I/O, 1 input, 1 output	Built-in Ethernet port
56RF-IN-IPD22	RFID ICODE interface, dual channel with I/O, 1 input, 1 output	
56RF-IN-IPD22A	RFID ICODE interface, dual channel with I/O, 2 inputs	

Linking Devices

Linking Devices - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1788-EN2DN	EtherNet/IP-to-DeviceNet linking device	Link an EtherNet/IP network to a DeviceNet network
1788-EN2FFR	Foundation Fieldbus linking device	Link an EtherNet/IP network to a Foundation Fieldbus H1 network
1788-EN2PAR	Ethernet/IP to Profibus PA linking device	Link an EtherNet/IP network to a Profibus PA network

I/O Platforms

Redundant I/O - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1715-AENTR	1715 Redundant I/O	Redundant EtherNet/IP adapter

In-Cabinet Distributed I/O - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1734-AENT	POINT™ I/O	EtherNet/IP I/O adapter
1734-AENTR	POINT Guard I/O™	EtherNet/IP dual-port I/O adapter
1791ES	CompactBlock Guard Logix® I/O	EtherNet/IP options
1794-AENT	FLEX™ I/O	EtherNet/IP I/O adapter
1794-AENTR	FLEX Ex™ I/O	EtherNet/IP dual-port I/O adapter
1794-AENTRXT		EtherNet/IP dual-port I/O adapter, extreme environments

On-Machine Distributed I/O - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1732E	ArmorBlock® I/O	Ethernet/IP options
1738-AENT	ArmorPOINT® I/O	EtherNet/IP I/O adapter
1738-AENTR		EtherNet/IP dual-port I/O adapter
1799	Embedded I/O	Ethernet/IP options

Chassis-Based Distributed I/O - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1715-AENTR	1715 Redundant I/O	Redundant EtherNet/IP I/O adapter
1769	Compact I/O™	Requires CompactLogix controller with built-in EtherNet/IP port
1756-EN2F	ControlLogix® I/O	EtherNet/IP communication bridge, fiber
1756-EN2T		EtherNet/IP communication bridge, copper
1756-EN2TXT		EtherNet/IP communication bridge, extreme environments
1756-EN2TR		Dual-port EtherNet/IP communication bridge
1756-EN2TRXT		Dual-port EtherNet/IP communication bridge, extreme environments
1756-EN2TSC		EtherNet/IP secure communication module
1756-EN3TR		Dual-port EtherNet/IP communication bridge
1756-ENBT		EtherNet/IP communication bridge
1747-AENTR	SLC I/O	Dual-port EtherNet/IP communication bridge to Logix5000 controllers

Drives

PowerFlex 4-Class Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
22B	PowerFlex® 40 AC drives	Built-in EtherNet/IP options
22C	PowerFlex 400 AC drives	
22-COMM-E	PowerFlex 4 AC drives	Ethernet/IP adapter
	PowerFlex 40 AC drives	
	PowerFlex 400 AC drives	
	PowerFlex 40P AC drives	
	PowerFlex 4M AC drives	

PowerFlex 5-Class Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
25B	PowerFlex 525 AC Drive	Embedded EtherNet/IP Optional: Dual Port EtherNet/IP

PowerFlex 7-Class Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
20G	PowerFlex 755 AC drives	Built-in EtherNet/IP options

PowerFlex 7-Class Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
20-COMM-E	PowerFlex 70 AC drives	Ethernet/IP adapter
	PowerFlex 700 AC drives	
	PowerFlex 700L AC drives	
	PowerFlex 700S AC drives with DriveLogix	
	PowerFlex 753 AC drives	
	PowerFlex 755 AC drives	
	PowerFlex 7000 AC drives	

PowerFlex DC Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
20-COMM-E	PowerFlex DC drives	Ethernet/IP adapter

SCANport™ Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1203-EN1	EtherNet/IP-to-SCANport module	Ethernet/IP adapter

Motion Control

Kinetix Servo Drives - EtherNet/IP Connectivity

Cat. No.	Description	Interface
2097-V3xPRx	Kinetix 300 servo drives	Built-in EtherNet/IP port
2097-V3xPRx-LM	Kinetix 350 servo drives	Built-in EtherNet/IP port
2094-EN02D-M01-Sx	Kinetix 6500 servo drives	Built-in EtherNet/IP port
2198-Hxxx-ERS	Kinetix 5500 servo drives	Built-in EtherNet/IP port

Encoders - EtherNet/IP Connectivity

Cat. No.	Product	Description
842E	EtherNet/IP multi-turn magnetic encoder	Dual-port EtherNet/IP connectivity

Power Management

Power Monitors - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1404-M405x-ENT	PowerMonitor 3000	Ethernet/IP adapter
1404-M505x-ENT		
1404-M605x-ENT		
1404-M805x-ENT		
1408-TR1A-ENT	PowerMonitor 1000	EtherNet/IP transducer
1408-TR2A-ENT		
1408-EM1A-ENT		EtherNet/IP energy monitor
1408-EM2A-ENT		
1420-V1-ENT	PowerMonitor 500	EtherNet/IP power meter
1420-V1P-ENT		
1420-V1A-ENT		
1420-V2-ENT		
1420-V2P-ENT		
1420-V2A-ENT		
1426-M5E-ENT	PowerMonitor 5000	Ethernet/IP power quality meter
1426-M6E-ENT		
1426-M8E-ENT		
1426-COMM-ENT		Ethernet accessory

Industrial Controls

Vision Sensors - EtherNet/IP Connectivity

Cat. No.	Description	Interface
48MS	MultiSight photoelectric vision sensors	Ethernet options

Motor Controls

Motor Controls - EtherNet/IP Connectivity

Cat. No.	Description	Interface
150	SMC™ smart motor controller	DPI port for connectivity to 20-COMM-E EtherNet/IP adapter
152	SMC™ Dialog Plus smart motor controller with fusible disconnect	1203-EN1 ControlNet adapter
153	SMC Dialog Plus smart motor controller with circuit breaker	1203-EN1 ControlNet adapter
193-ETN	E1 Plus overload relay	Built-in EtherNet/IP adapter with web server support
280	ArmorStart® full voltage starter	EtherNet/IP embedded switch technology
281	ArmorStart full voltage reversing starter	EtherNet/IP embedded switch technology
283	ArmorStart soft starter	EtherNet/IP communication via ArmorPOINT I/O
284	ArmorStart drive	EtherNet/IP communication via ArmorPOINT I/O
290E	ArmorStart LT full voltage motor controller	Dual-port EtherNet/IP communication
291E	ArmorStart LT full voltage reversing motor controller	Dual-port EtherNet/IP communication
294E	ArmorStart LT variable frequency drive motor controller	Dual-port EtherNet/IP communication
2100	NEMA CENTERLINE® 2100 motor control centers (MCCs)	Built-in EtherNet/IP adapter via IntelliCENTER Technology
2500	CENTERLINE 2500 motor control centers (MCCs)	Built-in EtherNet/IP adapter via IntelliCENTER Technology

Infrastructure

Switches - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1783-ETAP	Embedded switch technology	EtherNet/IP tap, 3 copper ports
1783-ETAP1F		EtherNet/IP tap, 2 copper ports, 1 fiber port
1783-ETAP2F		EtherNet/IP tap, 1 copper port, 2 fiber ports
1783-RMS06T	Stratix 8300™ switches, modular managed	6 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 3 switch
1783-RMS10T		10 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 3 switch
1783-MX08T		Expansion module, 8 copper ports
1783-MX08F		Expansion module, 8 fiber ports

Switches - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1783-MS06T	Stratix 8000™ switches, modular managed	6 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 2 switch
1783-MS10T		10 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 2 switch
1783-MX08T		Expansion module, 8 copper ports
1783-MX08F		Expansion module, 8 fiber ports
1783-EMS04T	Stratix 6000™ switches, fixed managed	4 copper ports
1783-EMS08T		8 copper ports, 1 fiber SFP slot
1783-US03T01F	Stratix 2000™ switches, unmanaged	3 copper ports, 1 fiber port
1783-US05T		5 copper ports
1783-US06T01F		6 copper ports, 1 fiber port
1783-US08T		8 copper ports
1783-BMS06SL	Stratix 5700™ switches, modular managed	6-port (4 Ethernet ports; 2 SFP slots) managed switch; lite firmware
1783-BMS06SA		6-port (4 Ethernet ports; 2 SFP slots) managed switch; full firmware
1783-BMS06TL		6-port (6 Ethernet ports) managed switch; lite firmware
1783-BMS06TA		6-port (6 Ethernet ports) managed switch; full firmware
1783-BMS06SGL		6-port (4 Ethernet ports; 2 SFP Gig slots) managed switch; lite firmware
1783-BMS06SGA		6-port (4 Ethernet ports; 2 SFP Gig slots) managed switch; full firmware
1783-BMS06TGL		6-port (4 Ethernet ports; 2 Gig ports) managed switch; full firmware
1783-BMS06TGA		6-port (4 Ethernet ports; 2 Gig ports) managed switch; full firmware
1783-BMS10CL		10-port (8 Ethernet ports; 2 combo ports) managed switch; lite firmware
1783-BMS10CA		10-port (8 Ethernet ports; 2 combo ports) managed switch; full firmware
1783-BMS10CGL		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; lite firmware
1783-BMS10CGA		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; full firmware
1783-BMS10CGP		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; full firmware; Precision Time Protocol (PTP)
1783-BMS20CL		20-port (16 Ethernet ports; 2 SFP slots; 2 combo ports) managed switch; lite firmware
1783-BMS20CA		20-port (16 Ethernet ports; 2 SFP slots; 2 combo ports) managed switch; full firmware
1783-BMS20CGL		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; lite firmware
1783-BMS20CGP		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; full firmware; PTP
1783-BMS20CGPK		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; full firmware; PTP; conformal coating
1783-RMS06T	Stratix 8300™ switches, modular managed	6 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 3 switch
1783-RMS10T		10 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 3 switch
1783-MX08T		Expansion module, 8 copper ports
1783-MX08F		Expansion module, 8 fiber ports

Switches - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1783-MS06T	Stratix 8000™ switches, modular managed	6 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 2 switch
1783-MS10T		10 copper ports (includes 2 dual-purpose ports with SFP slots), Layer 2 switch
1783-MX08T		Expansion module, 8 copper ports
1783-MX08F		Expansion module, 8 fiber ports
1783-EMS04T	Stratix 6000™ switches, fixed managed	4 copper ports
1783-EMS08T		8 copper ports, 1 fiber SFP slot
1783-US03T01F	Stratix 2000™ switches, unmanaged	3 copper ports, 1 fiber port
1783-US05T		5 copper ports
1783-US06T01F		6 copper ports, 1 fiber port
1783-US08T		8 copper ports
1783-BMS06SL	Stratix 5700™ switches, modular managed	6-port (4 Ethernet ports; 2 SFP slots) managed switch; lite firmware
1783-BMS06SA		6-port (4 Ethernet ports; 2 SFP slots) managed switch; full firmware
1783-BMS06TL		6-port (6 Ethernet ports) managed switch; lite firmware
1783-BMS06TA		6-port (6 Ethernet ports) managed switch; full firmware
1783-BMS06SGL		6-port (4 Ethernet ports; 2 SFP Gig slots) managed switch; lite firmware
1783-BMS06SGA		6-port (4 Ethernet ports; 2 SFP Gig slots) managed switch; full firmware
1783-BMS06TGL		6-port (4 Ethernet ports; 2 Gig ports) managed switch; full firmware
1783-BMS06TGA		6-port (4 Ethernet ports; 2 Gig ports) managed switch; full firmware
1783-BMS10CL		10-port (8 Ethernet ports; 2 combo ports) managed switch; lite firmware
1783-BMS10CA		10-port (8 Ethernet ports; 2 combo ports) managed switch; full firmware
1783-BMS10CGL		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; lite firmware
1783-BMS10CGA		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; full firmware
1783-BMS10CGP		10-port (8 Ethernet ports; 2 combo Gig ports) managed switch; full firmware; Precision Time Protocol (PTP)
1783-BMS20CL		20-port (16 Ethernet ports; 2 SFP slots; 2 combo ports) managed switch; lite firmware
1783-BMS20CA		20-port (16 Ethernet ports; 2 SFP slots; 2 combo ports) managed switch; full firmware
1783-BMS20CGL		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; lite firmware
1783-BMS20CGP		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; full firmware; PTP
1783-BMS20CGPK		20-port (16 Ethernet ports; 2 SFP slots; 2 combo Gig ports) managed switch; full firmware; PTP; conformal coating

Network Management - EtherNet/IP Connectivity

Cat. No.	Description	Interface
9300-ENA	Network Address Translation (NAT) device	Dual-port EtherNet/IP device

Media - EtherNet/IP Connectivity

Cat. No.	Description	Interface
1585J	In-Cabinet (RJ45) media	Ethernet RJ45 cordsets and patchcords
1585J		Ethernet RJ45 field attachable connectors
1585A		Ethernet M12 to RJ45 field attachable connectors
1585	On-Machine (M12 and Variant 1) media	M12 patchcords and cordsets
		M12 field attachables
		Variant 1 patchcords and cordsets
		Variant 1 field attachables
1585	Ethernet cable spools	Shielded or unshielded twisted pair cable spools
		600V Ethernet cable spools

Modems - EtherNet/IP Connectivity

Cat. No.	Description	Interface
9300-RADES	Ethernet modem	Remote access dial-in Ethernet modem

Time Synchronization - EtherNet/IP Connectivity

Cat No.	Description	Interface
1756-HPTIME	Time Synchronization module	Onboard GPS receiver and dual Ethernet ports for direct Ethernet time synchronization using NTP (Network Time Protocol) and PTP (Precision Time Protocol)

ControlNet Network

The ControlNet network is an open control network that meets the demands of real-time, high-throughput applications. ControlNet supports controller-to-controller interlocking and real-time control of I/O, drives, and valves. It also provides control networking in discrete and process applications including high-availability applications.

ControlNet is especially suited for these types of applications:

- Network option for ControlLogix platform
- Replacement for the remote I/O (RIO) network
- Backbone to multiple distributed DeviceNet networks
- Controller-to-controller (peer-to-peer) messaging and interlocking
- Data collection
- High-speed I/O network
- Device configuration

Additional Resources

Resource	Description
Rockwell Automation EtherNet/IP Network web pages. http://ab.rockwellautomation.com/Networks-and-Communications/ControlNet-Network	ControlNet connected products
ControlNet Fiber Media Planning and Installation Guide, publication CNET-IN001	Information for ControlNet fiber cable planning and installation
ControlNet Coax Media Planning and Installation Guide, publication CNET-IN002	Information for ControlNet coax cable planning and installation
ControlNet Ex Media Planning Installation Manual, publication CNET-IN003	Information for ControlNet Ex media planning and installation
ControlNet Modules Installation Instructions, publication CNET-IN005	Installation and start up of ControlNet module systems with Logix5000 controllers
ControlNet Network Configuration User Manual, publication CNET-UM001	Configuration of ControlNet modules system with Logix5000 controllers

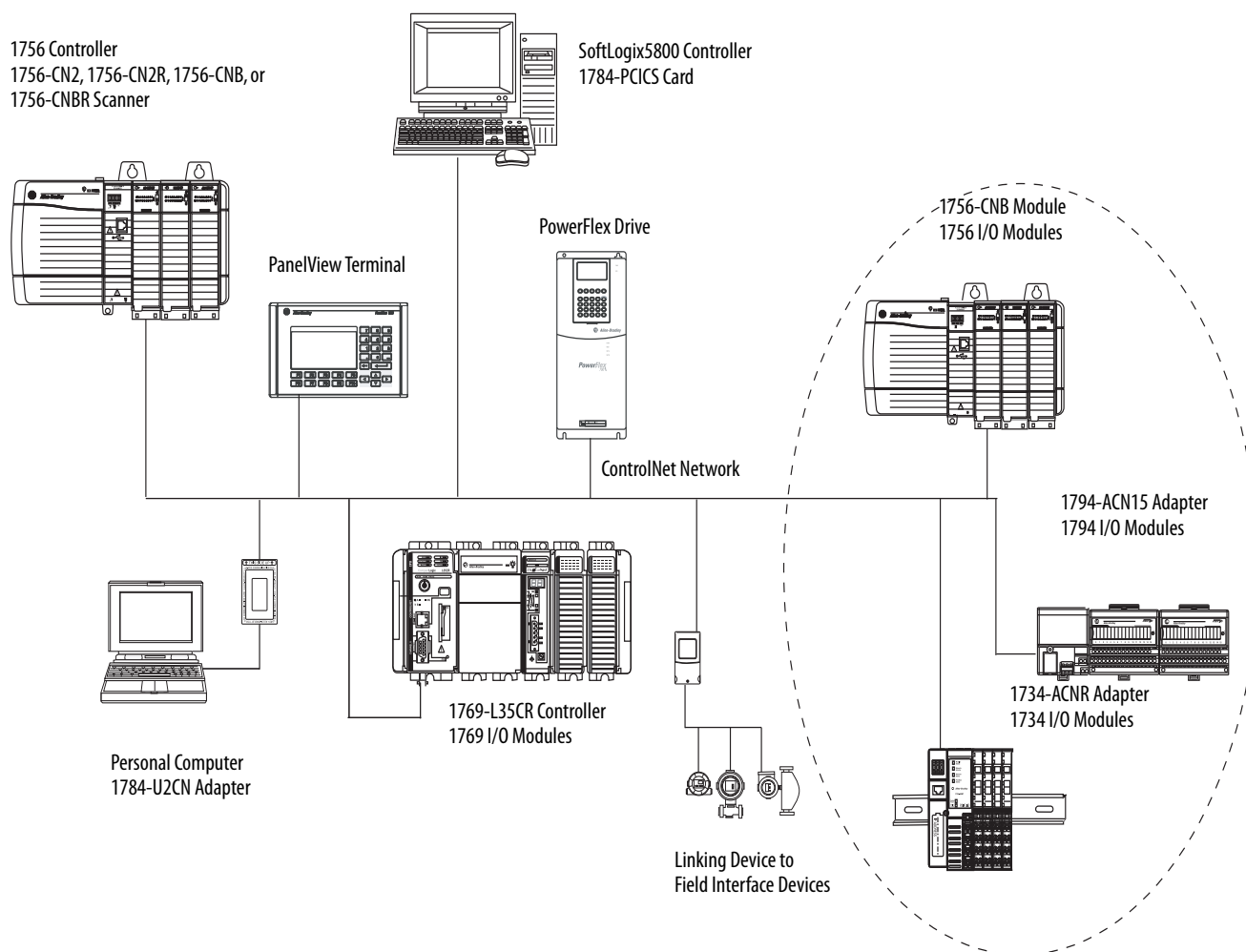
To view or download these publications, go to:

<http://www.rockwellautomation.com/literature>

To obtain a hard copy, contact your Allen-Bradley distributor or Rockwell Automation sales representative.

ControlNet Modules in a Control System

The following diagram shows how ControlNet modules can fit into a control system.



Programmable Automation Controllers

CompactLogix and Compact GuardLogix Controllers - ControlNet Connectivity

Cat. No.	Description	Logix Connections
1768-CNB	1768-L4x ControlNet communication bridge	48
1768-CNBR	1768-L4x ControlNet communication bridge, redundant media	48
1769-L32EC	1769-L3x modular CompactLogix controller with integrated ControlNet port	32
1769-L35CR	1769-L3x modular CompactLogix controller with integrated ControlNet port, redundant media	

ControlLogix and GuardLogix Controllers - ControlNet Connectivity

Cat. No.	Description	Logix Connections
1756-CN2	ControlNet communication module (standard and safety)	100
1756-CN2R	ControlNet communication module, redundant media (standard and safety)	100
1756-CN2RXT	ControlNet communication module, redundant media, extreme environment (standard and safety)	100
1756-CNB	ControlNet communication module (standard only)	40...48
1756-CNBR	ControlNet communication module, redundant media (standard only)	40...48

SoftLogix 5800 Controllers - ControlNet Connectivity

Cat. No.	Description	Interface
1789-L10	SoftLogix 5800 controllers	1784-PCICS ControlNet scanner
1789-L30		
1789-L60		

Programmable Logic Controllers

SLC 500 Controllers - ControlNet Connectivity

Cat. No.	Description	Interface
1747-L524	SLC 5™/02 controllers	1747-SCNR ControlNet scanner, redundant media
1747-L531	SLC 5/03 controllers	1747-SCNR ControlNet scanner, redundant media
1747-L532		
1747-L533		
1747-L541	SLC 5/04 controllers	1747-SCNR ControlNet scanner, redundant media
1747-L542		
1747-L543		
1747-L551	SLC 5/05 controllers	1747-SCNR ControlNet scanner, redundant media
1747-L552		
1747-L553		

PLC-5 Controllers - ControlNet Connectivity

Cat. No.	Description	Interface
1785-L11B	Standard PLC-5 controllers	• 1771-ACN15 ControlNet adapter • 1771-ACNR15 ControlNet adapter, redundant media
1785-L20B		
1785-L30B		
1785-L40B		
1785-L40L		
1785-L60B		
1785-L60L		
1785-L80B		
1785-L26B	Standard PLC-5 controllers with protected memory	• 1771-ACN15 ControlNet adapter • 1771-ACNR15 ControlNet adapter, redundant media
1785-L46B		
1785-L86B		
1785-L20C15	PLC-5 ControlNet controllers	• Built-in EtherNet/IP port • 1771-ACN15 ControlNet adapter • 1771-ACNR15 ControlNet adapter, redundant media
1785-L40C15		
1785-L46C15		
1785-L80C15		

Operator Interfaces

PanelView Plus 6 Operator Terminals - ControlNet Connectivity

Cat. No.	Description	Interface
2711P	PanelView Plus 6 terminals, 700 color	2711P-RN15S ControlNet communication module 2711P-RN15SK ControlNet communication module, conformally coated
	PanelView Plus 6 terminals, 1000 color	
	PanelView Plus 6 terminals, 1250 color	
	PanelView Plus 6 terminals, 1500 color	

PanelView Plus Operator Terminals - ControlNet Connectivity

Cat. No.	Description	Interface
2711P	PanelView Plus terminals, 400 greyscale	2711P-RN15C ControlNet communication module
	PanelView Plus terminals, 400 color	
	PanelView Plus terminals, 600 greyscale	
	PanelView Plus terminals, 600 color	

Computer Interfaces

Computer Interface Cards - ControlNet Connectivity

Cat. No.	Description	Interface
1784-U2CN	USB to ControlNet connection	USB to ControlNet cable
1784-PCIC	ControlNet communication interface, redundant media	ControlNet PCI I/O scanner card
1784-PCICS	ControlNet communication interface	
1770-KFC15	ControlNet interface for PLC-5 controllers	ControlNet to RS-232 interface module
1747-KFC15	ControlNet interface for SLC 500 controllers	

Linking Devices

Linking Devices - ControlNet Connectivity

Cat. No.	Description	Interface
1788-CN2DN	ControlNet-to-Devicenet linking device	Link a ControlNet network to a DeviceNet network
1788-CN2FFR	Foundation Fieldbus linking device	Link a ControlNet network to a Foundation Fieldbus H1 network
1788-CN2PAR	ControlNet to Profibus PA linking device	Link an ControlNet network to a Profibus PA network

I/O Platforms

In-Cabinet Distributed I/O - ControlNet Connectivity

Cat. No.	Description	Interface
1734-ACNR	POINT I/O	ControlNet I/O communication module, redundant media
1794-ACN15	FLEX I/O FLEX Ex I/O	ControlNet I/O scanner
1794-ACNR15		ControlNet I/O scanner, redundant media
1794-ACN15K		ControlNet I/O scanner, conformally coated
1794-ACNR15XT		ControlNet I/O scanner, redundant media, extreme environments

On-Machine Distributed I/O - ControlNet Connectivity

Cat. No.	Description	Interface
1738-ACNR	ArmorPoint I/O	ControlNet I/O communication module, redundant media

Chassis-Based Distributed I/O - ControlNet Connectivity

Cat. No.	Description	Interface
1756-CN2	ControlLogix I/O	ControlNet communication bridge
1756-CN2R		ControlNet communication bridge, redundant media
1756-CN2RXT		ControlNet communication bridge, redundant media, extreme environment
1756-CNB		ControlNet communication bridge
1756-CNBR		ControlNet communication bridge, redundant media
1747-SCNR	SLC I/O	ControlNet scanner

Condition Monitoring Modules

XM Modules - ControlNet Connectivity

Cat. No.	Description	Interface
1440-ACNR	1440-DYN02-01RJ Dynamic measurement module on a ControlNet network	ControlNet adapter

Drives

PowerFlex 4-Class Drives - ControlNet Connectivity

Cat. No.	Description	Interface
22B	PowerFlex 40 AC drives	Built-in ControlNet options
22C	PowerFlex 400 AC drives	

PowerFlex 4-Class Drives - ControlNet Connectivity

Cat. No.	Description	Interface
22-COMM-C	PowerFlex 4 AC drives	ControlNet adapter
	PowerFlex 40 AC drives	
	PowerFlex 400 AC drives	
	PowerFlex 40P AC drives	
	PowerFlex 4M AC drives	

PowerFlex 7-Class Drives - ControlNet Connectivity

Cat. No.	Product	Description
20-COMM-C	PowerFlex 70 AC drives	ControlNet adapter, coax ControlNet adapter, fiber
20-COMM-Q	PowerFlex 700 AC drives	
	PowerFlex 700L AC drives	
	PowerFlex 700S AC drives with DriveLogix	
	PowerFlex 7000 AC drives	
20-750-CNET	PowerFlex 753 AC drives	ControlNet adapter
	PowerFlex 755 AC drives	

PowerFlex DC Drives - ControlNet Connectivity

Cat. No.	Description	Interface
20-COMM-C	PowerFlex DC drives	ControlNet adapter

SCANport Drives - ControlNet Connectivity

Cat. No.	Description	Interface
1203-CN1	ControlNet-to-SCANport module	ControlNet adapter

Power Management

Power Monitors - ControlNet Connectivity

Cat. No.	Description	Interface
1404-M405x-CNT	PowerMonitor 3000	Built-in ControlNet adapter
1404-M505x-CNT		
1404-M605x-CNT		
1404-M805x-CNT		
1407-CGM	Combination generator control module	Built-in ControlNet adapter
1426-M5E-CNT	PowerMonitor 5000	ControlNet power quality meter
1426-M6E-CNT		
1426-M8E-CNT		
1426-COMM-CNT		ControlNet accessory

Motor Controls

Motor Controls - ControlNet Connectivity

Cat. No.	Description	Interface
150	SMC smart motor controller	DPI port for connectivity to 20-COMM-C ControlNet adapter
152	SMC Dialog Plus smart motor controller with fusible disconnect	1203-CN1 ControlNet adapter
153	SMC Dialog Plus smart motor controller with circuit breaker	1203-CN1 ControlNet adapter

Physical Media

Media - ControlNet Connectivity

Cat. No.	Description	Interface
1786	ControlNet coax media	ControlNet RG-6 quad-shield coaxial cable
		ControlNet coaxial connectors
		ControlNet coaxial tap kits
		ControlNet coaxial media toolkit
		ControlNet IP67 TNC media
1786	ControlNet fiber media	ControlNet fiber-optic cable with V-pin connectors
1797	ControlNet FLEX Ex components for hazardous locations	ControlNet intrinsically safe tap kits
		ControlNet intrinsically safe connectors
		ControlNet intrinsically safe accessories
		ControlNet coaxial barrier
1786	ControlNet repeater modules	ControlNet coax and fiber options

Media - ControlNet Connectivity

Cat. No.	Description	Interface
1797	ControlNet FLEX Ex repeater	ControlNet intrinsically safe repeaters
1786	ControlNet repeaters	ControlNet modules and adapters, coax and fiber o
1797	ControlNet FLEX Ex repeaters	ControlNet intrinsically safe modules and adapters

Notes:

DeviceNet Network

The DeviceNet network provides open, device-level control and information networking for simple industrial devices. It supports communication between sensors and actuators and higher-level devices such as programmable controllers and computers. With power and signal in a single cable, it offers simple and cost-effective wiring options.

DeviceNet technology is suited for these types of applications:

- Controlling low-density I/O
- Configuring devices
- Motor Control Centers (MCCs)
- Safety control

Additional Resources

Resource	Description
Rockwell Automation DeviceNet Network web pages. http://ab.rockwellautomation.com/Networks-and-Communications/DeviceNet-Network	DeviceNet connected products
DeviceNet Media Design and Installation Guide, publication DNET-UM072	Details on planning and troubleshooting DeviceNet media
DeviceNet Modules Installation Instructions, publication DNET-IN001	Installation and start up of DeviceNet module systems with Logix5000 controllers
Devicenet Network Configuration User Manual, publication DNET-UM004	Configuration of DeviceNet modules system with Logix5000 controllers

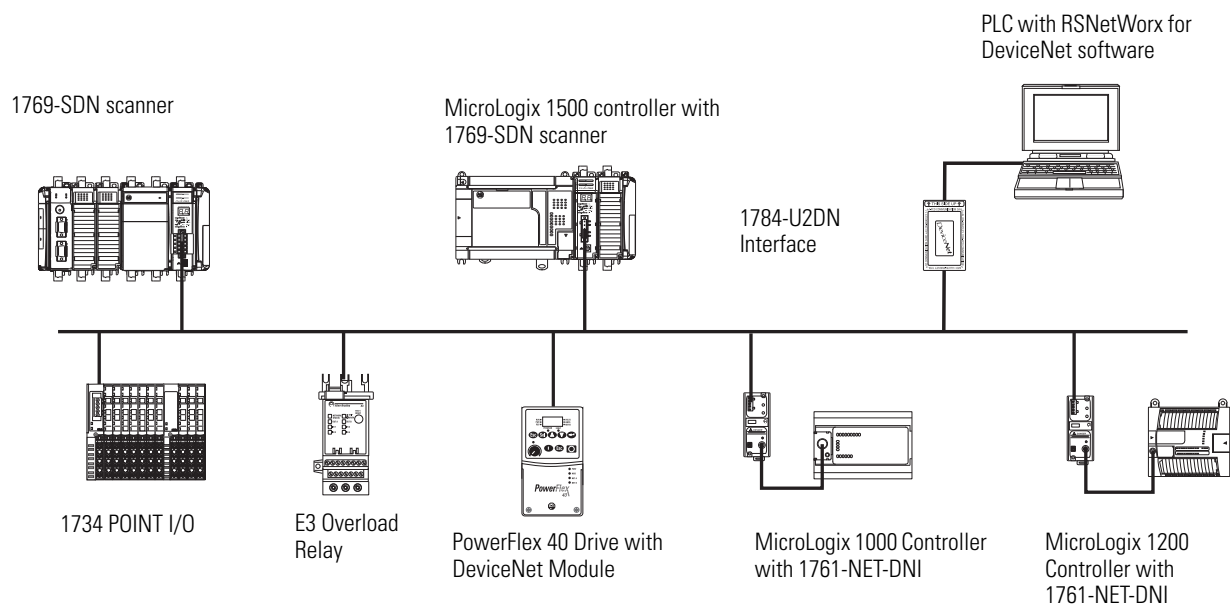
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DeviceNet Modules in a Control System

The following diagram shows how DeviceNet modules can fit into a control system.



Programmable Automation Controllers

CompactLogix Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1769-L24ER-BB1B, 1769-L24ER-QBFC1B 1769-L27ERM-QBFC1B	CompactLogix 5370 L2 controllers with integrated EtherNet/IP dual-port, Compact I/O form factor	1769-SDN DeviceNet scanner 1769-ADN DeviceNet adapter
1769-L30ER 1769-L30ERM 1769-L33ER 1769-L33ERM 1769-L36ERM	CompactLogix 5370 L3 controllers with integrated EtherNet/IP dual-port	1769-SDN DeviceNet scanner 1769-ADN DeviceNet adapter

CompactLogix and Compact GuardLogix Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1768-L43 1768-L45	1768 CompactLogix controllers	1769-SDN DeviceNet scanner 1769-ADN DeviceNet adapter
1768-L43S 1768-L45S	1768 Compact GuardLogix controllers (standard I/O only; no safety I/O)	
1769-L31 1769-L32E 1769-L35E 1769-L32C 1769-L35CR	1769 modular CompactLogix controllers	
1769-L23-QBFC1B 1769-L23E-QB1B 1769-L23E-QBFC1B	1769 packaged CompactLogix controllers	

ControlLogix and GuardLogix Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1756	1756 ControlLogix and GuardLogix controllers	1756-DNB DeviceNet scanner

SoftLogix 5800 Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1789-L10 1789-L30 1789-L60	SoftLogix 5800 controllers	1784-PCIDS DeviceNet scanner

Programmable Logic Controllers

MicroLogix Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1760	Pico controllers Pico™ GFX-70 controllers	1760-DNET DeviceNet communication module
1761	MicroLogix 1000 controllers	1761-NET-DNI DeviceNet interface
1763	MicroLogix 1100 controllers	1761-NET-DNI DeviceNet interface
1762	MicroLogix 1200 controllers	1761-NET-DNI DeviceNet interface
1766	MicroLogix 1400 controllers	1761-NET-DNI DeviceNet interface
1764	MicroLogix 1500 controllers	• 1769-SDN DeviceNet scanner • 1769-ADN DeviceNet adapter • 1761-NET-DNI DeviceNet interface

SLC 500 Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1747-L511	SLC 5/01 controller	1747-SDN DeviceNet scanner
1747-L514		
1747-L524	SLC 5/02 controller	1747-SDN DeviceNet scanner
1747-L531	SLC 5/03 controller	1747-SDN DeviceNet scanner
1747-L532		
1747-L533		
1747-L541	SLC 5/04 controller	1747-SDN DeviceNet scanner
1747-L542		
1747-L543		
1747-L551	SLC 5/05 controller	1747-SDN DeviceNet scanner
1747-L552		
1747-L553		

PLC-5 Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1785-L11B	Standard PLC-5 controller	1771-DNB DeviceNet scanner
1785-L20B		
1785-L30B		
1785-L40B		
1785-L40L		
1785-L60B		
1785-L60L		
1785-L80B		
1785-L26B	Standard PLC-5 controller with protected memory	1771-DNB DeviceNet scanner
1785-L46B		
1785-L86B		
1785-L20E	PLC-5 Ethernet controller	1771-DNB DeviceNet scanner
1785-L40E		
1785-L80E		

Safety Programmable Controllers

SmartGuard™ Controllers - DeviceNet Connectivity

Cat. No.	Description	Interface
1752-L24BBB	SmartGuard 600 controllers with integrated DeviceNet port	Built-in DeviceNet port

Computer Interfaces

Computer Interface Cards - DeviceNet Connectivity

Cat. No.	Description	Interface
1784-U2DN	USB to DeviceNet connection	USB to DeviceNet cable
1784-PCIDS	PCI card with a DeviceNet port	DeviceNet PCI I/O scanner card
1770-KFD	Connectivity to computer RS-232 port, making it a DeviceNet node	DeviceNet RS-232 PC interface
1770-KFDG		DeviceNet RS-232 PC interface with power supply adapter

Linking Devices

Linking Devices - DeviceNet Connectivity

Cat. No.	Description	Interface
1788-CN2DN	ControlNet-to-DeviceNet linking device	Link a ControlNet network to a DeviceNet network
1788-EN2DN	EtherNet/IP-to-DeviceNet Linking Device	Link an EtherNet/IP network to a DeviceNet network

I/O Platforms

In-Cabinet Distributed I/O - DeviceNet Connectivity

Cat. No.	Description	Interface
1734	POINT I/O POINT Guard I/O	Modules with DeviceLogix Smart Component Technology
1734-PDN	POINT I/O	DeviceNet I/O communication module
1734-ADN		DeviceNet I/O adapter
1734-ADNX		DeviceNet I/O adapter with expansion port
1791D	CompactBlock I/O	Modules with DeviceLogix Smart Component Technology
1791DS	CompactBlock Guard I/O	Modules with DeviceLogix Smart Component Technology
1794-ADN	FLEX I/O	DeviceNet I/O adapter
	FLEX Ex I/O	DeviceNet I/O adapter in conjunction with 1797-BIC and 1797-CEC

On-Machine Distributed I/O - DeviceNet Connectivity

Cat. No.	Description	Interface
1732D	ArmorBlock I/O	DeviceNet options
1732DS	ArmorBlock Guard I/O	DeviceNet options
1738	ArmorPoint I/O	Modules with DeviceLogix Smart Component Technology
1738-ADN12	ArmorPoint I/O	DeviceNet I/O adapter, M12 connector
1738-ADN18		DeviceNet I/O adapter, mini-connector drop
1738-ADN18P		DeviceNet I/O adapter, mini-connector pass-through
1738-ADNX		DeviceNet I/O adapter with expansion port
1799	Embedded I/O	DeviceNet options Modules with DeviceLogix Smart Component Technology

Chassis-Based Distributed I/O - DeviceNet Connectivity

Cat. No.	Description	Interface
1769-SDN	Compact I/O	DeviceNet scanner
1769-ADN		DeviceNet adapter
1756-DNB	ControlLogix I/O	DeviceNet communication bridge
1747-SDN	SLC I/O	DeviceNet scanner
1761-NET-DNI	MicroLogix I/O	1761-NET-DNI DeviceNet interface
1771-SDN	PLC-5 I/O	DeviceNet scanner

Condition Monitoring Modules

XM® Modules - DeviceNet Connectivity

Cat. No.	Description	Interface
1440-VST02-01RA	XM-120 standard dynamic measurement module	Built-in DeviceNet connectivity
1440-VST02-01RA	XM-120E eccentricity module	Built-in DeviceNet connectivity
1440-VLF02-01RA	XM-121 low frequency measurement module	Built-in DeviceNet connectivity
1440-VLF02-01RA	XM-121A absolute shaft module	Built-in DeviceNet connectivity
1440-VSE02-01RA	XM-122gse gSE vibration module	Built-in DeviceNet connectivity
1440-VAD02-01RA	XM-123 aeroderivative module	Built-in DeviceNet connectivity
1440-VDRS06-00RH	XM-160 overall vibration module	Built-in DeviceNet connectivity
1440-VDRS06-06RH	XM-161 overall vibration module with 4...20 mA outputs	Built-in DeviceNet connectivity
1440-VDRP06-00RH	XM-162 overall vibration module with -24V DC proximity probe power	Built-in DeviceNet connectivity
1440-SPD02-01RB	XM-220 dual speed module	Built-in DeviceNet connectivity
1440-TPS02-01RB	XM-320 position module	Built-in DeviceNet connectivity
1440-TPR06-00RE	XM-360 process module	Built-in DeviceNet connectivity
1440-TUN06-00RE	XM-361 temperature module with RTD or thermocouple inputs, grounded	Built-in DeviceNet connectivity
1440-TTC06-00RE	XM-362 temperature module with thermocouple inputs, isolated or grounded	Built-in DeviceNet connectivity
1440-RMA00-04RC	XM-440 master relay module Provides XM bus master capabilities that support remote, shared, and voted relay operation for distributed XM measurement modules	Built-in DeviceNet connectivity
1440-REX00-04RD	XM-441 expansion relay module Provides relay expansion and must be linked to a standard XM measurement or master relay module.	Built-in DeviceNet connectivity
1440-REX03-04RG	XM-442 voted EODS relay module Provides the relay component of an Electronic Overspeed Detection System (EODS). Three relays act as redundant shutdown relays, actuated on 2oo3 voting logic. A fourth relay, for alarm annunciation, is actuated on 1oo3 logic. overspeed alarm inputs are from three independently connected XM-220 dual speed modules.	Built-in DeviceNet connectivity
1440-PK02-05M0	XM720 packaged vibration monitor with XM-120 module	Built-in DeviceNet connectivity
1440-PK02-05M1	XM-721 packaged vibration monitor with XM-121 module	Built-in DeviceNet connectivity
1440-PK02-05M2	XM-722 packaged vibration monitor with XM-122 gSE module	Built-in DeviceNet connectivity

Power Supplies

Power Supplies - DeviceNet Connectivity

Cat. No.	Description	Interface
1606-XL	Switched mode power supplies	Standard power supplies, single- and three-phase
1606-XLP		Compact power supplies, single- and two-phase
1606-XLS		Performance power supplies, single- and three-phase
1609-U	Uninterruptible power supplies	DIN rail mounted
1497	Transformers	Control circuit transformers

Drives

PowerFlex 4-Class Drives - DeviceNet Connectivity

Cat. No.	Description	Interface
22B	PowerFlex 40 AC drives	Built-in DeviceNet options
22C	PowerFlex 400 AC drives	
22-COMM-D	PowerFlex 4 AC drives	DeviceNet adapter
	PowerFlex 40 AC drives	
	PowerFlex 400 AC drives	
	PowerFlex 40P AC drives	
	PowerFlex 4M AC drives	

PowerFlex 7-Class Drives - DeviceNet Connectivity

Cat. No.	Description	Interface
20-COMM-D	PowerFlex 70 AC drives	DeviceNet adapter
	PowerFlex 700 AC drives	
	PowerFlex 700L AC drives	
	PowerFlex 700S AC drives with DriveLogix	
	PowerFlex 7000 AC drives	
20-750-DNET	PowerFlex 753 AC drives	DeviceNet adapter
	PowerFlex 755 AC drives	

PowerFlex DC Drives - DeviceNet Connectivity

Cat. No.	Description	Interface
20-COMM-D	PowerFlex DC drives	DeviceNet adapter

Power Management

Power Monitors - DeviceNet Connectivity

Cat. No.	Description	Interface
1404-M405x-DNT	PowerMonitor 3000	Built-in DeviceNet adapter
1404-M505x-DNT		
1404-M605x-DNT		
1404-M805x-DNT		
1426-M5E-DNT	PowerMonitor 5000	DeviceNet power quality meter
1426-M6E-DNT		
1426-M8E-DNT		
1426-COMM-DNT		DeviceNet accessory

Industrial Controls

Pushbuttons and Signals - DeviceNet Connectivity

Cat. No.	Description	Interface
800F	Push-button stations with DeviceLogix Smart Component Technology	Rugged, industrially proven push-button station
800F	Pendant stations with push buttons	DeviceNet control enclosure with 24V AC/DC mini quick change
800T	DeviceLogix™ assembled stations	Enabled with DeviceLogix Smart Component Technology
855T	Control tower stack lights	Enhance safety visibly and audibly

Sensors - DeviceNet Connectivity

Cat. No.	Description	Interface
42GN	SmartSight 9000 DeviceNet sensors	For use in harsh environments such as breweries and food processing plants, with temperatures up to 70 °C (158 °F), or high-pressure washdowns and many harsh solvents
42EF	RightSight™ photoelectric sensor	For use in material handling and packaging industries where shorter sensing distances are required
871TM	Inductive proximity sensors	For use in potentially corrosive environments such as metalworking, food processing, and material handling industries
802DN	Limit switches	For use in applications that require heavy-duty pilot ratings, a high degree of versatility, and rugged, oil-tight construction
842D	Absolute rotary encoders	For use in applications that require direct connection to the DeviceNet network

Motor Controls

Motor Controls - DeviceNet Connectivity

Cat. No.	Description	Interface
100	DeviceNet starter auxiliary module	DeviceLogix Smart Component technology
150	SMC smart motor controller	DPI port for connectivity to 20-COMM-D DeviceNet adapter
152	SMC Dialog Plus smart motor controller with fusible disconnect	1203-GU6 enhanced DeviceNet adapter
153	SMC Dialog Plus smart motor controller with circuit breaker	1203-GU6 enhanced DeviceNet adapter
193-DTN	E1 Plus overload relay	Built-in DeviceNet adapter
280	ArmorStart full voltage starter	Enabled with DeviceLogix Smart Component Technology
281	ArmorStart full voltage reversing starter	Enabled with DeviceLogix Smart Component Technology
283	ArmorStart soft starter	Enabled with DeviceLogix Smart Component Technology
284	ArmorStart drive	Enabled with DeviceLogix Smart Component Technology
592	NEMA E1 Plus electronic overload relay	• Self-powered • Phase-loss protection
825-P	Modular protection system	• Pass through EtherNet/IP explicit messages and I/O for up to six DeviceNet-based devices • Options with DeviceLogix Smart Component Technology
1500	CENTERLINE 1500 Motor Control Centers (MCCs)	• Built-in DeviceNet adapter • IntelliCENTER technology
2100	NEMA CENTERLINE 2100 Motor Control Centers (MCCs)	• Built-in DeviceNet adapter • IntelliCENTER technology
2500	CENTERLINE 2500 Motor Control Centers (MCCs)	• Built-in DeviceNet adapter • IntelliCENTER technology
7700	IEC OneGear Soft starters	Motor control center and power control center options for full voltage and solid-state reduced voltage applications while supporting

Physical Media

For more information, see the On-Machine Connectivity Catalog, publication [M116-CA001](#).

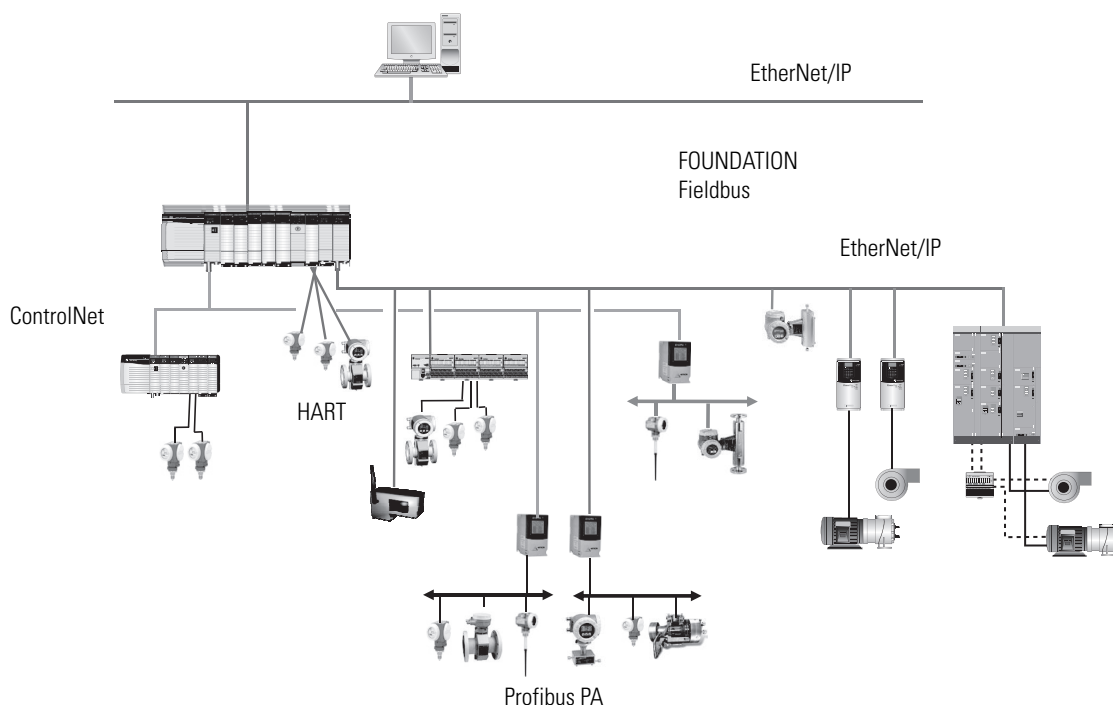
Media - DeviceNet Connectivity

Cat. No.	Description	Interface
871	Round media	Terminal chambers (field attachable connectors)
888/889		Auxiliary power patchcords, cordsets, receptacles, and bulkhead passthru
898		Auxiliary power T-port products
1485		Cable spools
		Molded patchcords, cordsets, receptacles, and bulkhead passthru
		Terminators
		T-port products
		PowerTap™ products
		DeviceBox™ products
1485	Flat media	General purpose flat media
		KwikLink™ lite media
		Heavy duty flat media

Notes:

Process Instrumentation Networks

Process instrumentation networks provide communication between process instruments and the process control system. We offer integrated PlantPAx Process Automation System support for instruments on HART, FOUNDATION Fieldbus, and Profibus PA networks.



Some field devices support a direct connection to EtherNet/IP networks. For more information, see the EtherNet/IP-enable, Promag and Promass devices available from Endress + Hauser at <http://www.us.endress.com/eh/sc/america/us/en/home.nsf/#page/Ethernet>.

Additional Resources

Resource	Description
Rockwell Automation Process Instrumentation Networks web pages. http://ab.rockwellautomation.com/Networks-and-Communications/Process	Connected products for process instrumentation networks
PlantPAx Process Automation System Selection Guide, publication PROCES-SG001	Process products

To view or download these publications, go to:

<http://www.rockwellautomation.com/literature>

To obtain a hard copy, contact your Allen-Bradley distributor or Rockwell Automation sales representative.

HART Interfaces

HART is an open protocol designed to connect analog devices.

In-Cabinet Distributed I/O - HART Connectivity

Cat. No.	Description	Interface
1734sc-IE2CH, 1734sc-IE4CH	POINT I/O	Spectrum Controls, analog input module
1794-IE8H, 1794-OE8H	FLEX I/O	FLEX analog I/O modules with the following: - Standard profiles in Studio 5000 environment - DTMs
1794-IF8IH, 1794-OF8IH		
1797-IE8H, 1797-OE8H	FLEX Ex I/O	FLEX Ex analog I/O modules with the following: - Standard profiles in Studio 5000 environment - DTMs

Chassis-Based Distributed I/O - HART Connectivity

Cat. No.	Description	Interface
1769sc-IF4IH, 1769sc-OF4IH	Compact I/O	Spectrum Controls, analog, isolated input and output modules
1756-IF8H, 1756-OF8H	ControlLogix I/O	ControlLogix analog I/O modules with the following: - Standard profiles in Studio 5000 environment - DTMs
1756-IF16H		
MV156-HART		ProSoft Technology, HART multi-drop communication interface module for ControlLogix system

HART device integration tools include the following:

- Pre-engineered controller code with Add-On Instructions that provide two-way exchange of data between faceplates and the ControlLogix controller
- Pre-configured operator faceplates that provide visualization of instruments connected to the network interface
- Integration documentation that describes the implementation, at <http://www.rockwellautomation.com/solutions/process/integrationdocs.html>

FOUNDATION Fieldbus Interfaces

The FOUNDATION Fieldbus network is a protocol designed for robust, distributed control of process control applications. Devices connected by a FOUNDATION Fieldbus network can be used for sophisticated, highly-distributed process control.

Linking Devices - FOUNDATION Fieldbus Connectivity

Cat. No.	Description	Interface
1788-EN2FFR	Foundation Fieldbus linking device	Link an EtherNet/IP network to a Foundation Fieldbus H1 network
1788-CN2FFR	Foundation Fieldbus linking device	Link a ControlNet network to a Foundation Fieldbus H1 network
1788-FBIB6	Junction box 6-way	Junction boxes
1788-FBIB4R	Redundant junction box 4-way	

FOUNDATION Fieldbus device integration tools include the following:

- Pre-engineered controller code with Add-On Instructions that provide two-way exchange of data between faceplates and the ControlLogix controller
- Pre-configured operator faceplates that provide visualization of instruments connected to the network interface
- Integration documentation that describes the implementation, at <http://www.rockwellautomation.com/solutions/process/integrationdocs.html>

Profibus PA Interfaces

The Profibus PA network is the Profibus solution for process automation. The Profibus PA network connects automation systems and process control systems with field devices such as flow, level, pressure, and temperature transmitters.

Linking Devices - Profibus PA Connectivity

Cat. No.	Description	Interface
1788-EN2PAR	PROFIBUS PA linking device	HIPROM Technologies, EtherNet/IP to Profibus PA linking device
1788-CN2PAR	PROFIBUS PA linking device	HIPROM Technologies, ControlNet to Profibus PA linking device
1788-FBIB6	Junction box 6-way	Junction boxes
1788-FBIB4R	Redundant junction box 4-way	

Profibus PA device integration tools include the following:

- Pre-engineered controller code with Add-On Instructions that provide two-way exchange of data between faceplates and ControlLogix controller
- Pre-configured operator faceplates that provide visualization of instruments connected to the network interface
- Integration documentation that describes the implementation, at <http://www.rockwellautomation.com/solutions/process/integrationdocs.html>

Notes:

Other Industrial Networks

There are a variety of other industrial automation networks, providing the flexibility to connect new applications with existing applications on networks such as Data Highway Plus, DH-485, remote I/O, and serial links. There is also in-chassis connectivity to many other networks through Encompass Partner products.

Additional Resources

Resource	Description
Rockwell Automation Other Industrial Networks web pages. http://ab.rockwellautomation.com/Networks-and-Communications/Other-Industrial-Networks	Connected products for other industrial networks

To view or download these publications, go to:

<http://www.rockwellautomation.com/literature>

To obtain a hard copy, contact your Allen-Bradley distributor or Rockwell Automation sales representative.

Data Highway Plus and Remote I/O Networks

The Data Highway Plus (DH+) network is a local area network designed to support remote programming and messaging between computers and controllers for factory-floor applications.

The remote I/O link is a local area network designed to connect controllers to remote I/O chassis and a variety of intelligent devices such as operator interfaces and AC or DC drives.

Programmable Automation Controllers

ControlLogix and GuardLogix Controllers - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1756-DHRIO	ControlLogix controllers	DH+/RIO communication module
1756-RIO		RIO communication module

Programmable Logic Controllers

SLC 500 and PLC-5 Controllers - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1747-ASB	SLC 500 controllers	Remote I/O adapter
1771-ASB	PLC-5 controllers	Remote I/O adapter

Computer Interfaces

Computer Interface Cards - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1784-PKTX	DH+ and RIO communication card	DH+ and RIO interface, 1 port
1784-PKTXD		DH+ and RIO interface, 2 ports
1784-U2DHP	USB to Data Highway Plus cable	USB to DH+ cable

Converter Devices

Converter Devices - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1771-AF	Fiber-optic converter module	Allows DH+ and RIO signals to travel over fiber-optic cable for routing through electrically noisy environments
1771-AF1	Fiber optic converter module, standalone	

I/O Platforms

Chassis-Based Distributed I/O - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1756-DHRIO	ControlLogix I/O	DH+/RIO communication module
1756-DHRIOXT		DH+/RIO communication module, extreme environments
1756-RIO		RIO communication module
1747-ASB	SLC I/O	Remote I/O adapter
1747-SN		Remote I/O scanner
1771-ASB	PLC-5 I/O	Remote I/O adapter

DH-485 Networks

The DH-485 industrial local area network is designed for factory-floor applications and uses the RS-485 transmission standard.

Programmable Automation Controllers

ControlLogix and GuardLogix Controllers - DH-485 Connectivity

Cat. No.	Description	Interface
1756-DH485	ControlLogix controllers	DH-485 communication module

Programmable Logic Controllers

MicroLogix and SLC 500 Controllers- DH-485 Connectivity

Cat. No.	Description	Interface
1761-NET-AIC	MicroLogix controllers	Advanced interface converter
1747-KE	SLC 500 controllers	RS-232-C / DH-485 interface module
1747-AIC		Isolated link coupler

Computer Interfaces

Computer Interface Cards - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1784-PKTX	DH-485 communication card	DH-485 interface, 1 port
1784-PKTXD		DH-485 interface, 2 ports
1747-UIC	USB to DH-485 converter	USB to DH-485 converter module, 2 ports

I/O Platforms

Chassis-Based Distributed I/O - DH+ and RIO Connectivity

Cat. No.	Description	Interface
1756-DH485	ControlLogix I/O	DH-485 communication module
1761-NET-AIC	MicroLogix I/O	Advanced interface converter
1747-KE	SLC I/O	RS-232-C / DH-485 interface module
1747-AIC		Isolated link coupler

Serial Networks

The serial interface modules support serial communication to peripheral products with RS-232, RS-485, or RS-422 ports. These modules let a device with serial output (such as bar code readers) to communicate with devices on industrial networks.

Modbus Support

To access a Modbus TCP network, connect through the embedded Ethernet port of a Logix controller and execute a specific ladder-logic routine. For more information, see Knowledgebase document 470365 at <http://www.rockwellautomation.com/knowledgebase/>.

To access a Modbus RTU network, connect through the serial port (if available) of a Logix controller and execute a specific ladder-logic routine. For more information, see Using Logix5000 Controllers as Masters or Slaves on Modbus Application Solution, publication [CIG-AP129](#).

I/O Platforms

In-Cabinet Distributed I/O - Serial Connectivity

Cat. No.	Description	Interface
1734-232ASC	POINT I/O	Serial communication interface solution for peripheral products with RS-232 ports
1734-485ASC		Serial communication interface solution for peripheral products with RS-485 or RS-422 ports

On-Machine Distributed I/O - Serial Connectivity

Cat. No.	Description	Interface
1738-232ASCM12	ArmorPoint I/O	Serial communication interface solution for peripheral products with RS-232 ports
1738-485ASCM12		Serial communication interface solution for peripheral products with RS-485 or RS-422 ports

Chassis-Based Distributed I/O - Serial Connectivity

Cat. No.	Description	Interface
1769-ASCII	Compact I/O	Serial communication interface to RS-232, RS-485, and RS-422 ASCII devices

Notes:

Studio 5000, Data Highway Plus, Encompass, CompactLogix, Kinetix, Compact GuardLogix, SoftLogix, MicroLogix, SLC 500, PLC-5, SmartGuard, GuardPLC, PanelView Plus, POINT I/O, POINT Guard I/O, CompactBlock, GuardLogix, FLEX I/O, FLEX Ex, ArmorBlock, ArmorPOINT, Compact I/O, ControlLogix, PowerFlex, SCANport, PowerMonitor, MultiSight, SMC, SMC Dialog Plus, ArmorStart, CENTERLINE, Stratix 2000, Stratix 5700, Stratix 6000, Stratix 8000, Stratix 8300, Pico, SmartGuard, XM, DeviceLogix, RightSight, PowerTap, DeviceBox, KWIILink, Allen-Bradley, Rockwell Software, and Rockwell Automation are trademarks of Rockwell Automation, Inc.

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