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SLC 500 SYSTEMS

SELECTION GUIDE





BULLETIN 1746 AND 1747

ALLEN-BRADLEY • ROCKWELL SOFTWARE

Rockwell Automation

Selecting a Network

You can configure your system for information exchange between a range of devices and computing platforms, and operation systems. Use the table below to help you select a network.

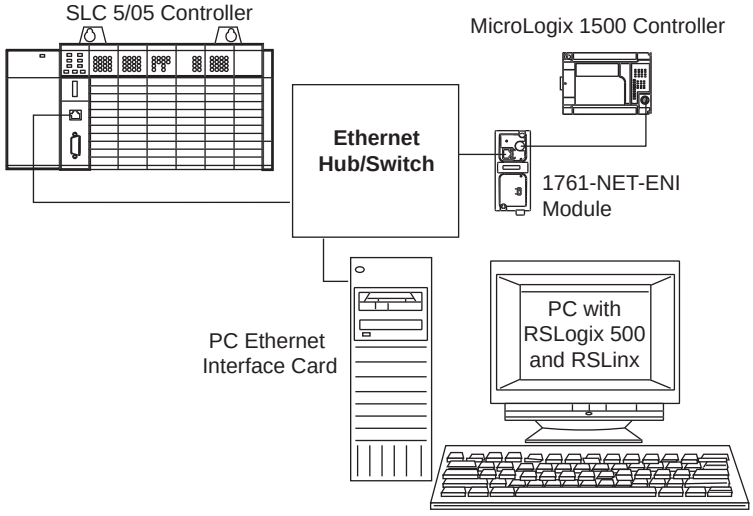
Network Selection Criteria

If your application requires	Choose this network	Select this communication / device
• High-speed data transfer between information systems and/or a large quantity of controllers • Internet/Intranet connection • Program maintenance	EtherNet/IP	• SLC 5/05 Processor, or • 1761-NET-ENI EtherNet Interface • 1761-NET-ENIW Web-Enabled EtherNet Interface
• High-speed transfer of time-critical data between controllers and I/O devices • Deterministic and repeatable data delivery • Program maintenance • Media redundancy or intrinsic safety options	ControlNet	• 1747-KFC15 ControlNet Messaging Module • 1747-SCNR ControlNet Scanner Module • 1747-ACN15 and -ACNR15 ControlNet Adapter Modules
• Connections of low-level devices directly to plant floor controllers, without the need to interface through I/O devices • More diagnostics for improved data collection and fault detection • Less wiring and reduced startup time than traditional, hard-wired systems	DeviceNet	• 1747-SDN DeviceNet Scanner Module • 1761-NET-DNI DeviceNet Interface Module
• Plant-wide and cell-level data sharing with program maintenance	Data Highway Plus (DH+)	• SLC 5/04 Processor
	DH-485	• 1747-KE DH-485/RS-232C Interface • SLC 5/01, 5/02 or 5/03 Processor with a 1747-AIC Isolated Link Coupler • SLC 5/01, 5/02 or 5/03 Processor with a 1761-NET-AIC Advanced Interface Converter • 1747-UIC USB to DH-485 Interface Converter
• Connections between controllers and I/O adapters • Distributed controllers so that each has its own I/O communications with a supervisory controller	Universal Remote I/O	• 1747-SN Remote I/O Scanner • 1747-BSN Backup Remote I/O Scanner • 1747-ASB Remote I/O Adapter • 1747-DCM Direct Communication Module
• Modems • Messages that send and receive ASCII characters to/from devices such as ASCII terminals, bar code readers, message displays, weight scales, or printers	Serial	• SLC 5/03 Processor • SLC 5/04 Processor • SLC 5/05 Processor • SLC 5/01, 5/02, or 5/03 Processor with a 1747-KE DH-485/RS-232C Interface

Ethernet Network

The TCP/IP Ethernet network is a local-area network designed for the high-speed exchange of information between computers and related devices. With its high bandwidth (10 Mbps to 100 Mbps), an Ethernet network allows many computers, controllers, and other devices to communicate over vast distances. An Ethernet network

provides enterprise-wide systems access to plant-floor data. With an Ethernet network, you can maximize communication between a wide variety of equipment.



Ethernet connectivity for SLC 500 is provided for the following:

- SLC 5/05 processor
- 1761-NET-ENI/1761-NET-ENIW

MicroLogix 1000 controllers may be used with the 1761-NET-ENI, or -ENIW, however some features are not supported:

- Email (ENI/ENIW)
- Controller store/download of device configuration (ENI/ENIW)
- Floating point value display (ENIW)
- Floating point value write from the device to the controller (ENIW)
- Integer value write from the device to the controller (ENIW)
- String file display (ENIW)

Ethernet Interface (ENI) and Web-Enabled Ethernet Interface (ENIW)

The 1761-NET-ENI module provides EtherNet/IP Messaging connectivity for all DF1 full-duplex devices. The ENI allows users to easily connect SLC 5/03 and SLC 5/04 controllers onto new or existing Ethernet networks and upload/download programs, communicate between controllers, and generate E-mail messages via SMTP (simple mail transport protocol).

Compatible devices include: MicroLogix 1000/1200/1500, PLC-5, ControlLogix, CompactLogix, and FlexLogix controllers, and computers running RSLinx.

The 1761-NET-ENIW module adds web-server capabilities, enabling the display of 4 standard data web pages with user-configurable data descriptions, and 10 userconfigurable web page links on the ENIW home page.

EtherNet Device Specifications

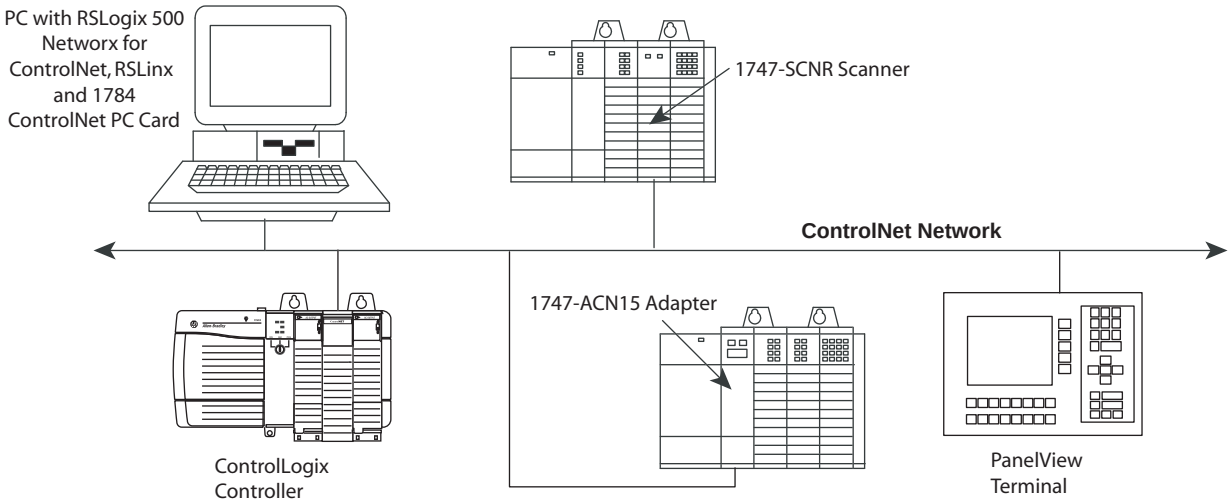
	1761-NET-ENI	1761-NET-ENIW
Description	Ethernet Interface (ENI)	Web-Enabled Ethernet Interface (ENIW)
24V DC current draw	100 mA	
Power supply DC voltage range(1)	20.4…26.4V DC	
Isolation voltage	Tested @ 710V DC for 60 s	
Inrush current, max	200 mA @ 24V	
Communication rate	10/100 Mbps(2)	
Ethernet interface	10/100Base-T(2)	

(1) When the device is connected to a MicroLogix controller, power is provided by the MicroLogix controller's communication port.

(2) Series C devices.

ControlNet Network

The ControlNet network is an open, high-speed, deterministic network used for transmitting time-critical information. It provides real-time control and messaging services for peer-to-peer communication. As a high-speed link between controllers and I/O devices, a ControlNet network combines the capabilities of existing Universal Remote I/O and DH+ networks. You can connect a variety of devices to a ControlNet network, including personal computers, controllers, operator interface devices, drives, I/O modules. A ControlNet network combines the functionality of an I/O network and a peer-to-peer messaging network. This open network provides the performance required for critical control data, such as I/O updates and controller-tocontroller interlocking. ControlNet networks also support the transfer of non-critical data, such as program uploads, downloads, and messaging.



ControlNet network connectivity for SLC 500 is provided by the following:

- 1747-KFC15 ControlNet Messaging Module
- 1747-SCNR ControlNet Scanner
- 1747-ACN15 and 1747-ACNR15 ControlNet Adapters

ControlNet Messaging Module

The 1747-KFC15 module provides the capability for an SLC 5/03, 5/04, and 5/05 processor to send or receive unscheduled ControlNet messages. With unscheduled messaging, the SLC controller program can send peer-to-peer messages or be accessed and edited over the ControlNet network using RSLogix 500 software. The 1747-KFC15 consumes 0.640 A @ 5V DC.

The ControlNet Messaging Module features:

- 4-digit, 7-segment display for node address and module status.
- RS-232 KFC to SLC cable (included).
- media redundancy via dual BNC connectors.
- power from the SLC chassis backplane.
- ability to upgrade firmware via ControlFlash.

ControlNet Scanner Module

The 1747-SCNR module provides scheduled ControlNet network connections for SLC 5/02, 5/03, 5/04, and 5/05 processors. With scheduled messaging, the SLC processor can control I/O events in real time on the ControlNet network. The 1747-SCNR module can communicate with the 1771-PLC5C, 1756-Lx controllers, and with another 1747-SCNR module via scheduled messages on the ControlNet network. The 1747-SCNR module consumes 0.900 A @ 5V DC.

The ControlNet Scanner Module features:

- media redundancy via dual BNC connectors.
- ability to upgrade firmware via ControlFlash.

The 1747-SCNR module can control 1788-CN2DN and 1788-CN2FF linking devices as well as a variety of I/O platforms. The table below indicates with a "✓" which I/O platforms the 1747-SCNR module can control.

ControlNet Scanner I/O Control Capabilities

I/O Platform	Discrete	Analog
1746	✓	✓
1756		
1771	✓	✓

ControlNet Scanner I/O Control Capabilities

I/O Platform	Discrete	Analog
1793	✓	✓
1794	✓	✓
1797	✓	✓

ControlNet Adapter Modules

The 1747-ACN15 and -ACNR15 modules enable up to three 1746 chassis of I/O modules to produce/consume scheduled I/O on the ControlNet network. Both modules are compatible with all 1746 discrete, analog, and specialty I/O, except those requiring G-file configuration, such as the 1747-SN and 1747-BSN modules. The 1747-ACN15 and ACNR15 modules consume 0.9A at 5V dc.

The ControlNet Adapter Modules feature:

- optional media redundancy via dual BNC connectors (1747-ACNR15).
- individual connection to single modules or chassis connections to groups of discrete modules.
- ability to upgrade firmware via ControlFlash.

The table below indicates with a "✓" which ControlNet controllers can communicate to the 1747-ACN via scheduled messaging.

ControlNet Adapter Communication Capabilities

Scheduled Messaging	1747-SCNR	1771-PLC5C	1756-Lx via 1756-CNB	1784-KTCS
1747-ACN(R)15 Discrete I/O	✓	✓		✓
1747-ACN(R)15 Analog I/O	✓	✓		

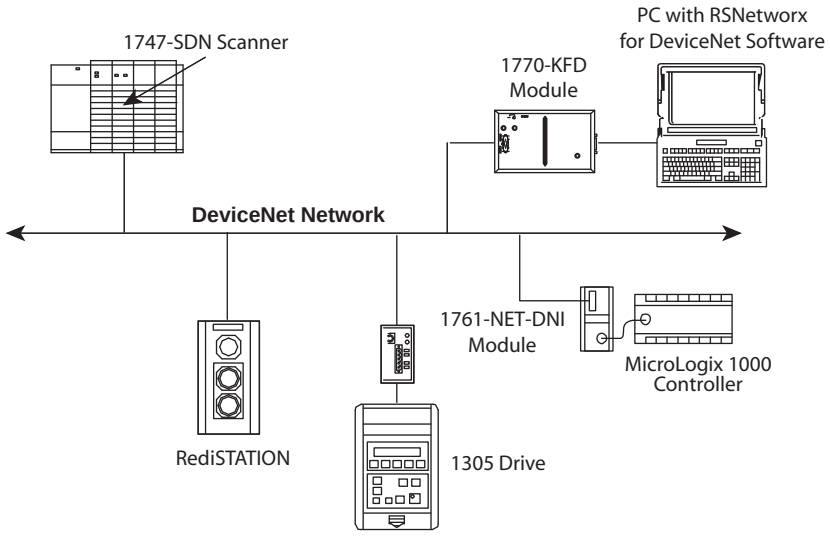
DeviceNet Network

The DeviceNet network is an open, low-level communication link that provides connections between simple industrial devices like sensors and actuators to high-level devices like controllers. Based on standard Controller Area Network (CAN) technology, this open network offers inter-operability between like devices from multiple vendors. A DeviceNet network reduces installation costs, startup/commissioning time, and system or machine downtime.

The DeviceNet network provides:

- inter-operability – simple devices from multiple vendors that meet DeviceNet standards are interchangeable.
- Common network - an open network provides common end-user solutions and reduces the need to support a wide variety of device networks.
- Lower maintenance costs – replace devices without disrupting other devices.

- Cost-effective wiring – one wire supplies communications and 24V DC power.



DeviceNet connectivity for SLC 500 is provided by the following:

- 1747-SDN DeviceNet Scanner Module
- 1761-NET-DNI DeviceNet Interface

DeviceNet Scanner Module

The 1747-SDN scanner module enables communication between an SLC 5/02 or higher processor and a maximum of 63 DeviceNet-compatible I/O devices. The scanner is the DeviceNet master, enabling data transfer between DeviceNet slave devices using the strobe and poll message mode. The SLC system supports multiple scanners in a single-processor chassis.

The 1747-SDN module supports:

- up to 150 words of input and 150 words of output data.
- all standard DeviceNet communication rates.
- the exchange of status and configuration data.

DeviceNet Scanner Specifications

Attributes	1747-SDN
Backplane current (mA) @ 5V	500 mA
Network power source requirement	125 Kbps 250 Kbps 500 Kbps
Isolation voltage	Tested @ 500V DC for 60 s

Specialty Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1746-BAS-T	150 mA	40 mA(1)	N/A	3.75 W	3.80 W
1746-BLM	110 mA	85 mA	N/A	5.00 W	5.00 W
1746-BTM	110 mA	85 mA	N/A	2.59 W	2.59 W
1746-HSCE	320 mA	0 mA	N/A	1.60 W	1.60 W
1746-HSCE2	250 mA	0 mA	N/A	1.25 W	1.25 W
1746-HSRV	300 mA	0 mA	N/A	1.50 W	1.50 W
1746-HSTP1	200 mA	90 mA	N/A	1.50 W	1.50 W
1746-INT4	110 mA	85 mA	N/A	1.26 W	1.26 W
1746-NR4	50 mA	50 mA	N/A	1.50 W	1.50 W
1746-NR8	100 mA	55 mA	N/A	1.82 W	1.82 W
1746-NT4	60 mA	40 mA	N/A	0.80 W	0.80 W
1746-NT8	120 mA	70 mA	N/A	2.28 W	2.28 W
1746-QS	1000 mA	200 mA	N/A	9.80 W	9.80 W
1746-QV	250 mA	0 mA	N/A	1.075 W	1.075 W

(1) When using the 1747-BAS or 1747-KE modules to supply power to an AIC, add 0.085 A (the current loading for the AIC) to the 1747-BAS or 1747-KE module's power supply loading value at 24V DC.

Communication Modules

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1747-ACN15	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-ACNR15	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-ASB	375 mA	0 mA	N/A	1.875 W	1.875 W
1747-BSN	800 mA	0 mA	N/A	4.00 W	4.00 W
1747-DCM	360 mA	0 mA	N/A	1.80 W	1.80 W
1747-KE	150 mA	40 mA(1)	N/A	3.75 W	3.80 W
1747-KFC15	640 mA	0 mA	N/A	3.20 W	3.20 W
1747-SCNR	900 mA	0 mA	N/A	4.50 W	4.50 W
1747-SDN	500 mA	-- mA	N/A	2.50 W	2.50 W
1747-SN	600 mA	0 mA	N/A	4.50 W	4.50 W

(1) When using the 1747-BAS or 1747-KE modules to supply power to an AIC, add 0.085 A (the current loading for the AIC) to the 1747-BAS or 1747-KE module's power supply loading value @ 24V DC.

Peripheral Devices

Catalog Number	Backplane Current (mA) @ 5V	Backplane Current (mA) @ 24V	Watts per point	Thermal dissipation, min.	Thermal dissipation, max.
1747-AIC	0 mA	85 mA	N/A	2.00 W	2.00 W
1747-UIC[1]	N/A	N/A	N/A	N/A	N/A
1747-PSD	N/A	N/A	N/A	N/A	N/A
1761-NET-AIC[2]	0 mA	0 mA	N/A	2.50 W	2.50 W
1761-NET-DNI	0 mA	0 mA	N/A	2.50 W	2.50 W
1761-NET-ENIW	0 mA	0 mA	N/A	2.50 W	2.00 W

(1) 1747-UIC power consumption is less than 100 mA.

(2) Current for the 1761-NET-AIC and 1761-NET-ENI(W) must be supplied from an external 24V DC source.