

- The DeviceNet network offers low-cost, high-speed access to plant-floor data from a broad range of plant-floor devices and a significant reduction in wiring.



Select a Network

You can configure your system for information exchange between a range of devices and computing platforms and operating systems.

Application requirements	Network	Select
<ul style="list-style-type: none"> • Plant management (material handling) • Configuration, data collection, and control on a single, high-speed network • Time-critical applications with no established schedule • Data sent regularly • Internet/Intranet connection • Close IT & Manufacturing Integration • Built-in switch, or high availability requirement (2-port AENTR) 	EtherNet/IP	1734-AENT 1734-AENTR
<ul style="list-style-type: none"> • High-speed transfer of time-critical data between controllers and I/O devices • Deterministic and repeatable data delivery • Media redundancy • Controller redundancy • Intrinsic safety 	ControlNet	1734-ACNR
<ul style="list-style-type: none"> • Connections of low-level devices directly to plant-floor controllers, without interfacing them • Data sent as needed • More diagnostics for improved data collection and fault detection • Less wiring and reduced start-up time than a traditional, hard-wired system • High noise resistance, and power over network 	DeviceNet	1734-ADN 1734-ADN(X) 1734-PDN
<ul style="list-style-type: none"> • Connecting to an existing PROFIBUS DP 5 m (16.4 ft) bus, 12 MB network 	PROFIBUS	1734-APB

EtherNet I/P Network

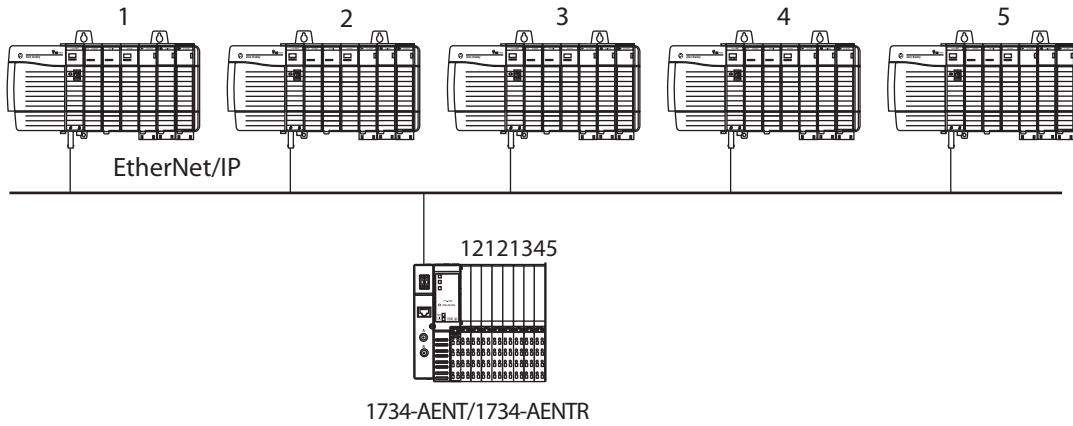
The Ethernet Industrial (EtherNet/IP) network protocol is an open industrial-networking standard that supports both real-time I/O messaging and message exchange. It emerged due to the high demand for using the Ethernet network for control applications. The EtherNet/IP network uses off-the-shelf Ethernet communication chips and physical media. The EtherNet/IP network provides excellent drive and I/O control performance along with HMI information processing and many commercial technologies.

EtherNet/IP Network Considerations

Adapter	Considerations
1734-AENT 1734-AENTR	<p>A total of 63 POINT I/O modules can be assembled on a single EtherNet/IP node.</p> <p>Expansion power supplies may be used to provide additional POINTBus backplane current.</p> <p>Refer to the User Manual to determine the ratings for direct and rack connections allowed.</p>

The 1734-AENT/1734-AENTR adapter supports direct- and rack-optimized connections. A direct connection is a real-time data transfer link between the controller and whatever module occupies the slot that the configuration data references. Direct-connection messaging occurs at a cyclic rate specified by the requested packet interval (RPI) during configuration. A rack-optimized connection is a grouping of data from more than one I/O module into a single block of data sent over a single connection at the same data rate. Rack-optimized connections reduce the total number of connections needed to transfer data when using many I/O modules in a system.

Assume a system contains 8 digital I/O modules interfaced to a 1734-AENT/1734-AENTR adapter. If you used direct connections to transfer data to each of these modules, you need 8 connections — one to each of the 8 I/O modules. If you use a rack-optimized connection to transfer the data, you need only a single connection — the connection to the 1734-AENT/1734-AENTR adapter.



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1734-AENT/1734-AENTR Technical Specifications

	1734-AENT/1734-AENTR
Input voltage, nom.	24V DC
Input voltage range	10...28.8V DC
Field side power requirements	400 mA @ 24V DC (+20% = 28.8V DC)
Inrush current	6 A for 10 ms
POINTBus current (mA)	800 (1734-AENTR) 1000 (1734-AENT)
Power consumption @ 24V	4.5 W
Power dissipation, max.	2.8 W @ 28.8V
Input overvoltage protection	Reverse polarity protected
Interruption	Output voltage will stay within specifications when input drops out for 10 ms @ 10V with max load.

ControlNet Network

The ControlNet network is an open, state-of-the-art control network that meets the demands of real-time, high-throughput applications. The ControlNet network uses the proven Common Industrial Protocol (CIP) to combine the functionality of an I/O network and a peer-to-peer network providing high-speed performance for both functions. The ControlNet

Select a Power Supply Unit

Step 4 - Select:

- the appropriate power unit

POINT I/O Communication Adapters page 53
 Expansion Power Supplies page 54
 Field Power Distributor page 57

Power units are divided into three categories:

- Communication adapter with built-in power supply (DC-DC)
- Expansion power supply
- Field power distributor

POINT I/O Communication Adapters

POINT I/O communication adapters have built-in POINTBus power supplies. All POINT I/O modules are powered from the POINTBus backplane by either an adapter or expansion power supply.

1734 Communication Adapters Power Specifications

	1734-AENT(R)	1734-ACNR	1734-PDN	1734-ADN(X)	1734-APB
Input voltage, nom	24V DC	24V DC	24V DC	24V DC	24V DC
Input voltage range	10...28.8V DC	10...28.8V DC	11...25V DC DeviceNet specification	10...28.8V DC	10...28.8V DC
Field side power requirements	400 mA @ 24V DC (+20% = 28.8V DC)	425 mA @ 24V DC (+20% = 28.8V DC)	400 mA @ 24V DC (+4% = 25V DC)	400 mA @ 24V DC (+20% = 28.8V DC)	400 mA @ 24V DC (+20% = 28.8V DC)
Inrush current	6 A for 10 ms	6 A for 10 ms	6 A for 5 ms	6 A for 10 ms	6 A for 10 ms
POINTBus current (mA)	700 ⁽¹⁾	1000 ⁽²⁾	1300 ⁽³⁾	1000 ⁽²⁾	1000 ⁽²⁾
Power consumption at 24V	4.5 W	8.0 W	8.0 W	8.0 W	8.0 W

1734 Communication Adapters Power Specifications

	1734-AENT(R)	1734-ACNR	1734-PDN	1734-ADN(X)	1734-APB
Power dissipation, max	2.8 W @ 28.8V	2.8 W @ 28.8V	1.2 W @ 25V	2.8 W @ 28.8V	2.8 W @ 28.8V
Input overvoltage protection	Reverse polarity protected				
Interruption	Output voltage will stay within specifications when input drops out for 10 ms @ 10V with max load.	—		Output voltage will stay within specifications when input drops out for 10 ms @ 10V with max load.	

⁽¹⁾ 700 mA when input voltage < 17V DC.

⁽²⁾ 1000 mA @ 5V DC \pm 5% (4.75...5.25V).

⁽³⁾ 1300 mA @ 5V DC \pm 5% (4.75...5.25V).

Expansion Power Supplies

The 1734-EP24DC or 1734-EPAC expansion power supplies provides two services:

- Breaks the field power distribution at the left of the power supply (1734-EP24DC or 1734-EPAC) from the field power distribution to the right of the power supply (1734-EP24DC or 1734-EPAC)
- Adds an additional 1.3 A of current to the POINTBus for I/O modules to the right of the power supply (1734-EP24DC or 1734-EPAC)

The expansion power unit maintains the integrity of the POINT I/O backplane by not interrupting the POINTBus data.

The 1734-EP24DC expansion power unit passes 24V DC field power on the POINTBus backplane to the I/O modules to the right of it. The 1734-EPAC expansion power unit passes 120/240V AC field power on the POINTBus backplane to the I/O modules to the right of it. These units extend the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 17 I/O modules. The expansion power units separate field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- separating field power between input and output modules.
- separating field power to the analog and digital modules.
- grouping modules to perform a specific task or function.

You can use multiple expansion power units with the 1734-ADN, 1734-ADNX, 1734-ACNR, 1734-AENT, and 1734-APB communication adapters to assemble a full system. For instance, if you are using the 1734-ADN adapter, you can use a 1734-EP24DC or 1734-EPAC expansion power unit to add additional modules.

For example, if you have a 36 module system with a 1734-ADN adapter, you have to add at least two or more 1734-EP24DC or 1734-EPAC expansion

Use the following table to plan the maximum size layout of your POINT I/O system.

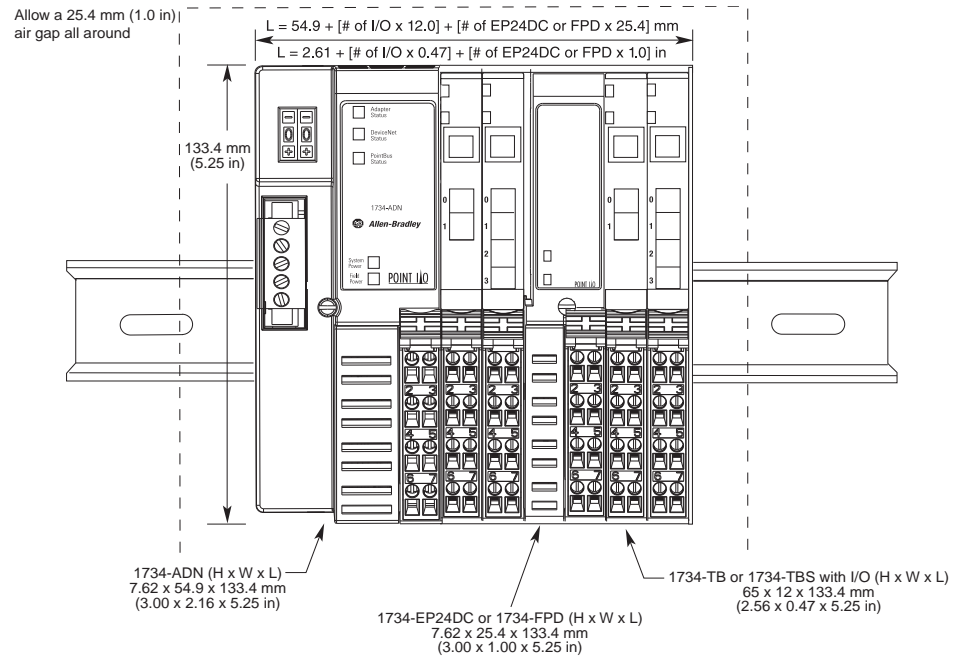
Maximum Size Layout

	POINTBus current	No. of I/O Modules with 24V DC Backplane Current (@ 75 mA each), max	No. of I/O Modules with Expansion Power Supplies, max	No. of I/O Module Connections, max
1734-PDN on DeviceNet network	1300 mA	Up to 17	Expansion power supply not allowed	Not to exceed scanner capacity
1734-ADN(X) on DeviceNet network	1000 mA	Up to 13	63	Not to exceed scanner capacity
1734-ACNR on ControlNet network	1000 mA	Up to 13	63	5 rack and 20 direct
1734-AENT on EtherNet/IP network	1000 mA	Up to 13	63	20 total connections including rack and direct
1734-APB on PROFIBUS network	1000 mA	Up to 13	63	Not to exceed scanner capacity
1734-EP24DC Expansion Power	Horizontal mounting: 1000 mA @ 5V DC for 10...19.2V 1300 mA @ 5V DC for 19.2...28.8V	Up to 17	63	Not to exceed scanner capacity
	Vertical mounting: 1000 mA @ 5V DC for 10...28.8V	Up to 17	63	Not to exceed scanner capacity
1734-EPAC Expansion Power	Horizontal mounting: 1300 mA @ 5.2V DC	Up to 17	63	Not to exceed scanner capacity
	Vertical mounting: 1000 MA @ 5.2V DC	Up to 17	63	Not to exceed scanner capacity

Mount the POINT I/O System

Mount the POINT I/O system on a DIN rail in the horizontal or vertical orientation. Use steel, 35 x 75.5 mm DIN rails (Cat. No. 199-DR1; 46277-3; EN 50022). The DIN rails for all POINT I/O system components must be mounted on a common, conductive surface to ensure proper electro-magnetic interference (EMI) performance. Secure DIN rail approximately every 200 mm (7.87 in).

POINT I/O with 1734-ADN(X), 1734-ACNR, 1734-AENT, 1734-APB Mounting Dimensions



IMPORTANT

When mounting the 1734-IB8S, 1734-OB8S, and 1734-IE4S modules, ensure that there is 2 in. of clearance space above the POINT rail.