network gives you deterministic, repeatable transfers of all mission-critical control data in addition to supporting transfers of non-time-critical data.

ControlNet Network Considerations

Adapter	Considerations
1734-ACNR	A total of 63 POINT I/O modules can be assembled on a single ControlNet node. Expansion power supplies may be used to provide additional POINTBus backplane current. Up to 25 direct connections and 5 rack connections are allowed.

The 1734-ACNR ControlNet adapter provides high-speed transfer of time critical data between controllers and I/O devices. It manages data transfers between controllers on the ControlNet network and POINT I/O modules plugged into the POINTBus backplane. The ControlNet network allows the exchange of messages between ControlNet products compliant with the ControlNet International specification. The 1734-ACNR adapter features include a variety of control system solutions, local communication network access through the network access port (NAP), and redundant media. It requires Series C POINT I/O modules or later.

The 1734-ACNR adapter requires a typical 24V DC power supply with a maximum of 10.2 W of power. It provides a maximum backplane current of 1.0 A at 5V DC. Backplane current can be extended beyond 1.0 A with a 1734-EP24DC backplane extension power supply. The 1734-EP24DC can supply up to an additional 1.3 A of backplane current. Multiple 1734-EP24DC power supplies can be used to reach the maximum limit of 63 POINT I/O modules if 25 or fewer of these modules are analog or specialty modules.

The adapter supports 25 direct and 5 rack I/O connections to the POINT I/O modules. From a single 1734-ACNR adapter, multiple controllers establish I/O connections, up to a maximum of 5 rack I/O connections per adapter. Direct connections must be used with analog and specialty modules. Multiple rack connections permit multiple controllers to connect to I/O over a single 1734-ACNR adapter. The number of connections that can be supported on a network depends on the ControlNet parameters (NUT, RPI, and API) and the POINT I/O configuration by itself (number and types of I/O modules).

The following example shows a single POINT I/O ControlNet adapter with 5 connections and 8 I/O modules. The POINT I/O modules are monitored by the 5 controllers on the ControlNet network. The POINT I/O modules in:

- slots 1, 3, and 5 are controlled by the first controller.
- slots 2 and 4 by the second controller.
- slot 6 by the third controller.
- slot 7 by the fourth controller.

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 ±5% (4.75…5.25V).

(3) 1300 mA @ 5V DC ±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

power units to provide more POINTBus current for modules to the right of the supply.

- 24…5V DC converter (1734-EP24DC)
  120/240V AC to 5V DC converter (1734-EPAC)
- 1.3 A, 5V DC output (extend backplane power)
- Starts new voltage distribution
- Partitioning
- Dark-gray color for easy visual inspection and identification

You can use the 1734-EP24DC or 1734-EPAC expansion power supply only with POINT I/O adapters. Do not use it with the 1734-PDN or 1734D series communication interfaces.

1734 Expansion Power Supplies Technical Specifications

	1734-EP24DC	**1734-EPAC**
Field side power requirements, max	400 mA @ 24V DC (+20% = 28.8V DC max)	200 mA @ 120V AC, 100 mA @ 240V AC
Inrush current, max	6 A for 10 ms	2 A for 6 ms
POINTBus output current rating	Horizontal mounting: 1 A @ 5V DC for 10…19.2V input 1.3 A @ 5V DC for 19.2…28.8V input Vertical mounting: 1 A @ 5V DC for 10…28.8V input	Horizontal DIN rail mounting: 1.3 A @ 5.2V DC Vertical DIN rail mounting: 1.0 A @ 5.2V DC
Overvoltage protection, inputs	Reverse polarity protected	MOV and fuse protected
PowersSupply interruption protection	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 @ 85V with max load
Power supply input voltage, nom	24V DC	120/240V AC
Operating voltage range	10…28.8V DC	85…264V AC
Power consumption, max	9.8 W @ 28.8V DC	15.1 W @ 264V AC
Power dissipation, max	3.0 W @ 28.8V DC	8.4 W @ 264V AC
Thermal dissipation, max	10.0 BTU/hr @ 28.8V DC	28.7 BTU/hr @ 264V AC
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 2600V DC for 60 s, User power to system, User power to Chassis ground, system to Chassis ground	264V (continuous), Reinforced Insulation Type Type tested @ 3250V DC for 60 s, User power to system
Field power supply voltage range	10…28.8V DC	120…240V AC
Field power supply current, max	10 A	10 A

Mounting Requirements

Step 5 - Select:

- appropriate number of DIN rails based on the number of modules and the physical requirements

The producer/consumer model multicasts messages. This means that multiple nodes can consume the same data at the same time from a single device. Where you place POINT I/O modules in the control system determines how the modules exchange data.

For a Rockwell Automation controller to control 1734 I/O, the I/O must be on one of the following:

- the same network as the controller.
- a ControlNet network that is local to that controller.
- an EtherNet/IP network that is local to that controller.

Power Supply Distance Rating

Place modules to the right of the power supply. Each 1734 I/O module can be placed in any of the slots right of the power supply until the usable backplane current of that supply has been exhausted. An adapter provides 1000 mA current to the POINTBus backplane. The 1734-EP24DC or 1734-EPAC Expansion power supply provides up to 1300 mA. I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 220 mA or more.

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

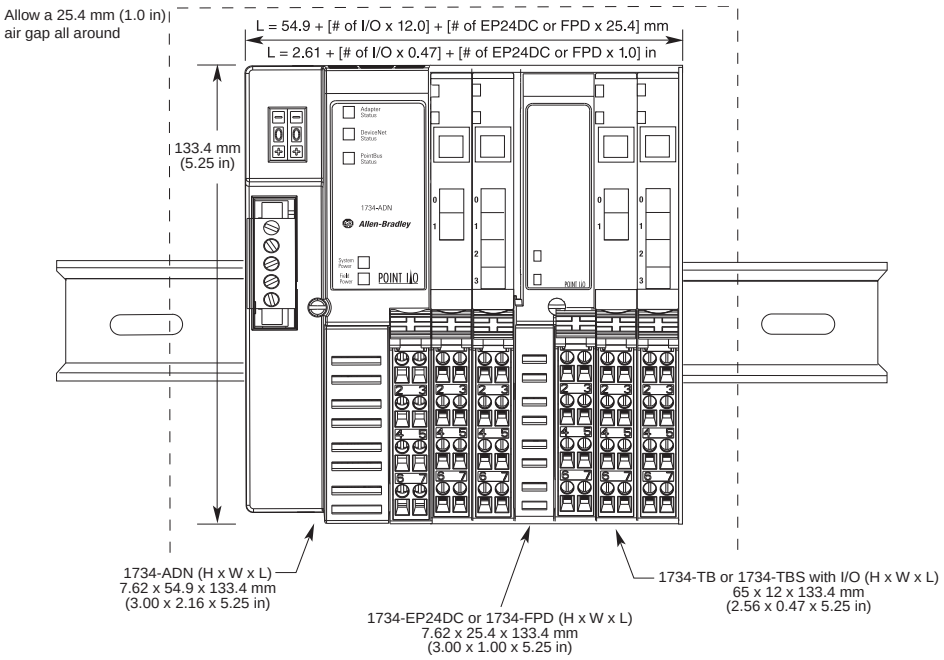
Maximum Size Layout

	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.