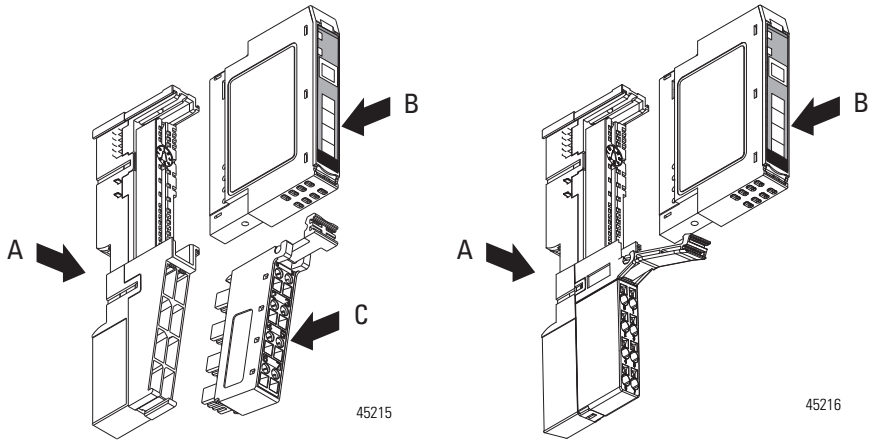
POINT I/O Family

Overview

The POINT I/O family has modular I/O modules that are ideal for applications where flexibility and low-cost of ownership are key for successful control system design and operation. As a key element in the Rockwell Automation Integrated Architecture, its comprehensive diagnostics and configurable features allow the product to be easily applied to any automation system and reduce engineering costs through standardization. It can be used in remote device panels, local control panels, and can be accessed from many locations including the Internet. This product has just-what-you-need granularity in 1 to 8 points to reduce system cost and size.

Available features include Channel Level Diagnostics for quick troubleshooting, multiple termination options and flexibility to save money, cabinet space and commissioning/troubleshooting time, the ability to mix/match Safety I/O on the same bus, and available DeviceLogix for local control, fast response time. Self-Configuring modules are also available to reduce/simplify your design and your inventory.

The POINT I/O System



1734-TOP or 1734-TOPS
One-piece Terminal Base with Screw or Spring Clamp

The base (A) mounts onto the DIN rail and provides the backplane. The POINT I/O module (B) snaps into the base. The removable terminal block (C) also snaps into the base and provides the wiring and terminations for field-side connections, as well as system power for the backplane.

POINT I/O has 4 major components:

- I/O modules provide the field interface and system-interface circuitry
- Communication interface modules provide the network-interface circuitry
- Terminal base units provide the wiring and signal termination for field-side connections and system power for the backplane
- Power distribution modules provide the expandability of the POINT I/O system and the flexibility to mix a variety of signal types

1734 POINT I/O modules offer 1 to 8 points per module. The I/O modules are interfaced to a network through a communication interface, which includes a built-in power supply that converts incoming 24V DC power to 5V DC backplane power. Each type of communication interface (Network Adaptor) supports a maximum of 13 to 17 I/O modules, with a maximum of 10 A field power. The I/O modules receive power from the power supply through the backplane. With an external power supply, you can expand a POINT I/O assembly up to a maximum of 63 I/O modules or 504 channels.

POINT I/O Features

Adapters	• ControlNet • DeviceNet • EtherNet I/P • Profibus
I/O Types	• Digital • Analog • AC/DC • Thermocouple • RTD • Specialty
Module Density	1…8 points
Specialty Modules	• Encoder • 1 MHz Counter In • Counter In with Outputs • Serial RS232 • RS485 • RS422 • Channel Isolated Thermocouple • RTD • Serial Synchronous Interface (SSI) • Address Reserve • 4 Channel IO-Link Master
Module Features	• Channel-level diagnostics (LED indicator and electronic) • Channel-level alarm and annunciation (electronic) • Channel-level open-wire detection with electronic feedback • Channel-level short-circuit detection with electronic feedback • Parameter-level explicit messaging • Removal and insertion under power (RIUP) • Horizontal or vertical mounting without derating • Automatic Device Replacement • Add-On-Profiles in RSLogix 5000
Network Connectivity	• DeviceNet (including SubNet connectivity) • ControlNet (Logix controller only) • EtherNet/IP (Logix controller only) • PROFIBUS DP • OPC/DDE Data Monitoring¨
Environmental Style	Class I, Division 2/Zone 2, Marine Certification, European ATEX Zone 2 3G
Modules per Node, max	Up to 63

Specify a POINT I/O System

Follow these steps as you specify your POINT I/O system:

	Step	Remember to select
✓	**1 Select a communication interface** Choose the interface module for your operating system.	• the appropriate interface module • a communication interface that meets the power requirements of your system
✓	**2 Select I/O devices based on field devices** • location of the device • number of points needed • appropriate catalog number • number of points available per module • number of modules	• I/O modules – some have diagnostic features, electronic fusing, isolated inputs/outputs, and unique configurable features
✓	**3 Select a wiring base assembly** Choose the appropriate wiring base assembly	• the appropriate wiring base assembly: Single piece screw, single piece spring, or RTB (Removable Terminal Base)
✓	**4 Select optional power components** Choose optional components to extend backplane power or change the field power distribution source.	• additional power components as necessary • adequate power capacity to meet I/O module backplane current requirements
✓	**5 Determine mounting requirements** Determine needed dimensions based on the communication interface chosen.	• the appropriate number of DIN rails based on the number of modules and the physical locations of those modules • horizontal or vertical mounting with no thermal derating

Select POINT I/O Modules

Step 2 - Select:

- I/O modules – some modules have diagnostic features, electronic fusing, or individually isolated inputs/outputs

Select POINT I/O Modules

The POINT I/O family provides a wide range of input and output modules to span many applications, from high-speed digital to process control. POINT I/O modules support producer/consumer technology, which allows input information and output status to be shared among multiple Logix controllers.

Each POINT I/O module mounts adjacent to the network adapter or another I/O module and removable terminal block (RTB) to connect all field-side wiring. The RTBs are part of the terminal base assembly. They are not included with the I/O modules and must be ordered separately.

The POINT family of I/O modules includes:

- 1734 digital I/O modules.
- 1734 analog I/O modules.
- 1734 specialty I/O modules.
- 1734 wiring systems.
- 1734 network communication adapters.
- 1734 POINT Guard I/O modules.

Digital I/O Modules

Choose digital I/O modules when you need:

- a wide variety of voltage interface capabilities
- isolated and non-isolated module types
- point-level output fault states
- choice of direct-connect or rack-optimized communications
- field-side diagnostics (on select modules)

Most output modules have built-in surge suppression to reduce the effects of high-voltage transients. However, we recommend that you use an additional suppression device if an output is being used to control inductive devices, such as:

- relays
- motor starters
- solenoids
- motors

Additional suppression is especially important if your inductive device is in series with or parallel to hard contacts, such as push buttons or selector switches.

Digital DC Input Modules

1734 Digital DC Input Modules Technical Specifications

	1734-IB2	1734-IB4	1734-IB4D	1734-IB8	1734-IV2	1734-IV4	1734-IV8
	Sinking Input Modules				**Sourcing Input Modules**		
Number of inputs	2	4	4	8	2	4	8
Diagnostics	—	—	Yes	—	—	—	—
Voltage, on-state input, nom	24V DC						
Voltage, on-state input, min	10V DC						
Voltage, on-state input, max	28.8V DC						
Input delay time, on to off	0.5 ms hardware + (0…65 ms selectable)[1]						
Current, on-state input, min	2 mA						
Current, on-state input, max	5 mA						
Current, off-state input, max	1.5 mA						
POINTBus current (mA)	75 mA max @ 5V DC		50 mA max @ 5V DC	75 mA max @ 5V DC			
Power dissipation, max	0.7 W @ 28.8V DC	1.0 W @ 28.8V DC	0.6 W max @ 28.8V DC	1.6 W @ 28.8V DC	0.7 W @ 28.8V DC	1.0 W @ 28.8V DC	1.6 W @ 28.8V DC
Thermal dissipation, max	2.4 BTU/hr @ 28.8V DC	3.4 BTU/hr @ 28.8V DC	1.9 BTU/hr @ 28.8V DC	5.5 BTU/hr @ 28.8V DC	2.4 BTU/hr @ 28.8V DC	3.4 BTU/hr @ 28.8V DC	5.5 BTU/hr @ 28.8V DC
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS						

(1) Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

Digital DC Output Modules

1734 Digital DC Output Modules Technical Specifications

	1734-OB2[1]	1734-OB2E	1734-OB2EP	1734-OB4[1]	1734-OB4E	1734-OB8[1]	1734-OB8E	1734-OV2E	1734-OV4E	1734-OV8E
	Sourcing Output Modules							**Sinking Output Modules**		
Number of outputs	2			4	4	8		2	4	8
Diagnostics	—	Yes	Yes	—	Yes	—	Yes	Yes	Yes	Yes
Electronically protected	Yes									
Voltage, on-state output, nom	24V DC									
Voltage, on-state output, min	10V DC									

Digital I/O Modules Environmental Specifications

1734 Digital I/O Modules Environmental Specifications

Attribute	Value
Operating temperature	-20…55 °C (-4…131 °F)
Nonoperating temperature	-40…85 °C (-40…185 °F)
Relative humidity	5…95% noncondensing
Operating shock	30 g
Nonoperating shock	50 g
Vibration	5 g at 10…500 Hz
Enclosure type rating	None (open-style)
Mounting type	DIN-rail
Certifications (when product is marked)	CE, C-Tick, c-UL-us

Self-Configurable Modules

1734 DC Configurable Input/Output Modules Technical Specifications

	1734-8CFG	1734-8CFGDLX (with DeviceLogix
Number of inputs/iutputs	8	8
Voltage, on-state input, nom		
Voltage, on-state input, min	11V DC	
Voltage, on-state input, max		
Current, on-state input, min	2.0 mA	
Current, on-state input, max	5.0 mA	
Input filter	Each input independently settable in 1 ms intervals (truncated to 1 ms resolution). Default value is 1000 ms.	
Voltage, on-state output, nom	24V DC	
Voltage, on-state output, min	10V DC	
Voltage, on-state output, max	28.8V DC	
POINTBus current	100 mA @ 5V DC	
Power dissipation, max	2.6 W @ 28.8V DC	
Thermal dissipation, max	8.9 BTU/hr @ 28.8V DC	
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS	

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

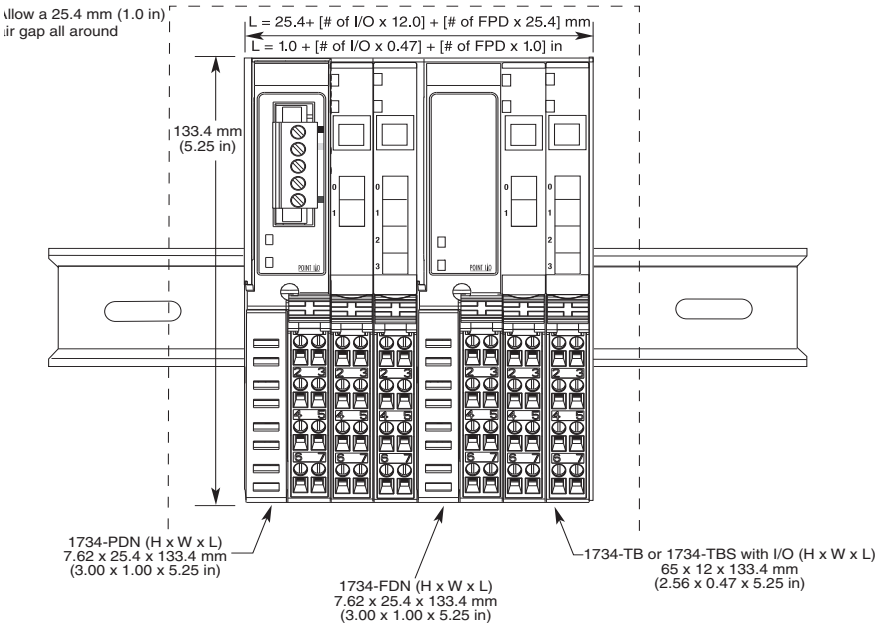
	POINTBus current	No. of I/O Modules with 24V DC Backplane Current (@ 75 mA each), max	No. of I/O Modules with Expansion Power Supplies, max	No. of I/O Module Connections, max
1734-PDN on DeviceNet network	1300 mA	Up to 17	Expansion power supply not allowed	Not to exceed scanner capacity
1734-ADN(X) on 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 25 direct
1734-AENT on EtherNet/IP network	1000 mA	Up to 13	63	31 total connections (reduced to 20 with safety connections present) including 5 rack/enhanced rack
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).

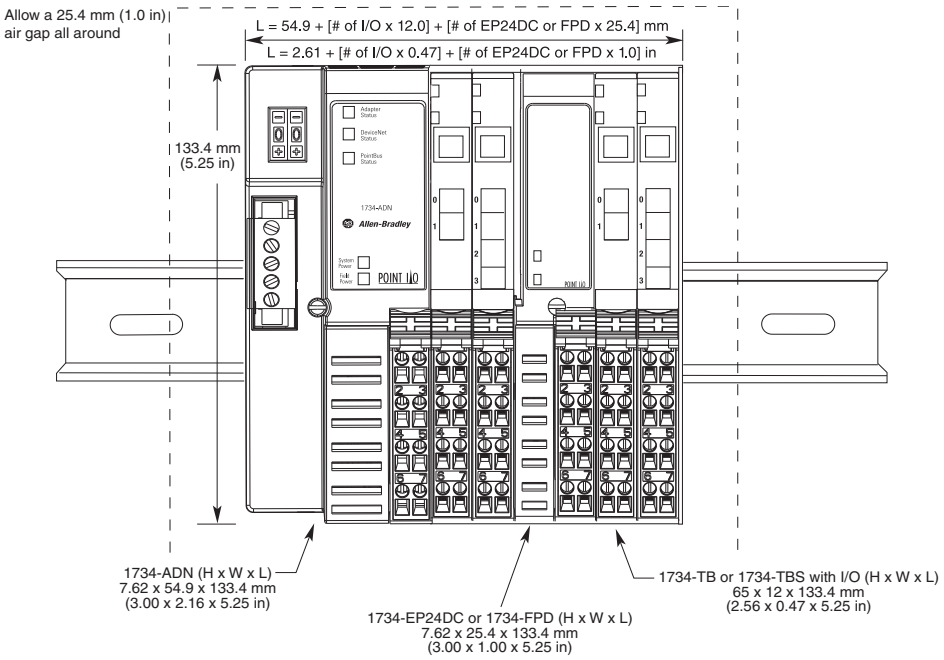
Approximate Mounting Dimensions

POINT I/O with 1734-PDN 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.

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.

	Cat. No.	Description
Bases	1734-TB, 1734-TBS	Wiring Base Assembly with 8 Point Cage-Clamp Removable Terminal Block Installation Instructions, publication 1734-IN511
	1734-TBS, 1734-TB3S, 1734-RTBS, 1734-RTB3S	Wiring Base Assembly with 12 Point Cage-Clamp Removable Terminal Block Installation Instructions, publication 1734-IN013
	1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S	POINT I/O One-piece Terminal Bases Installation Instructions, publication 1734-IN028
	1734-TBCJC	Cold Junction Compensation Wiring Base Assembly Installation Instructions, publication 1734-IN583
Power Units	1734-FPD	Field Potential Distributor Module Installation Instructions, publication 1734-IN059
	1734-EP24DC	24V DC Expansion Power Supply Installation Instructions, publication 1734-IN058
	1734-EPAC	120/240V AC Expansion Power Supply Installation Instructions, publication 1734-IN017
Safety	1734-IB8S, 1734-OB8S, 1734-IE4S	POINT Guard I/O Safety Modules Installation and User Manual, publication 1734-UM013