

POINT I/O Family

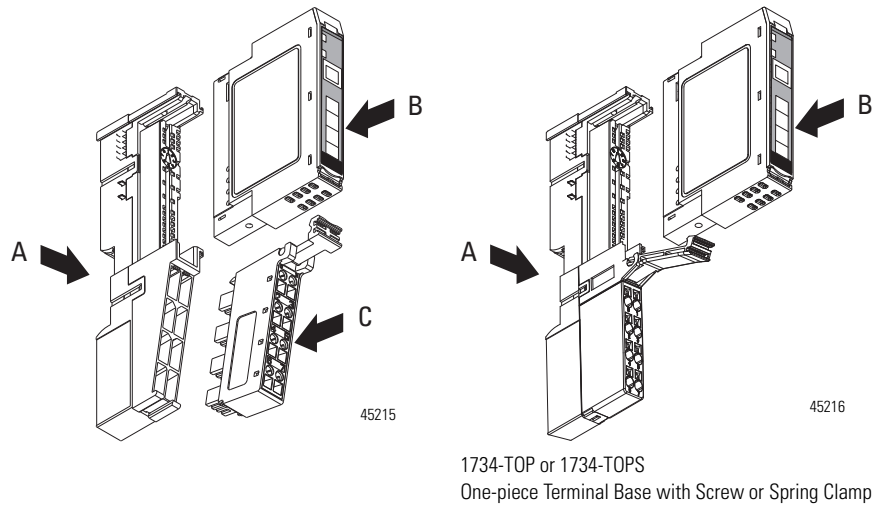
Overview



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



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	<ul style="list-style-type: none"> • ControlNet • DeviceNet • EtherNet I/P • Profibus
I/O Types	<ul style="list-style-type: none"> • Digital • Analog • AC/DC • Thermocouple • RTD • Specialty
Module Density	1...8 points
Specialty Modules	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
✓	<p>1 Select a communication interface</p> <p>Choose the interface module for your operating system.</p>	<ul style="list-style-type: none"> the appropriate interface module a communication interface that meets the power requirements of your system
✓	<p>2 Select I/O devices based on field devices</p> <ul style="list-style-type: none"> location of the device number of points needed appropriate catalog number number of points available per module number of modules 	<ul style="list-style-type: none"> I/O modules – some have diagnostic features, electronic fusing, isolated inputs/outputs, and unique configurable features
✓	<p>3 Select a wiring base assembly</p> <p>Choose the appropriate wiring base assembly</p>	<ul style="list-style-type: none"> the appropriate wiring base assembly: Single piece screw, single piece spring, or RTB (Removable Terminal Base)
✓	<p>4 Select optional power components</p> <p>Choose optional components to extend backplane power or change the field power distribution source.</p>	<ul style="list-style-type: none"> additional power components as necessary adequate power capacity to meet I/O module backplane current requirements
✓	<p>5 Determine mounting requirements</p> <p>Determine needed dimensions based on the communication interface chosen.</p>	<ul style="list-style-type: none"> 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

1734-4IOL Module Technical Specifications

Device cable length, IO-Link, max	20 m
Terminal base screw torque	0.8 Nm (7 lb-in.)
Module location	1734-TB, 1734-TBS, 1734-TB3, 1734-TB3S, 1734-TOP, 1734-TOPS, 1734-TOP3, or 1734-TOP3S wiring base assembly
POINTBus current, max	100 mA @ 5V DC
Power dissipation, max	1.5 W @ 28.8V DC
Thermal dissipation, max	5.12 BTU/hr @ 28.8V DC
Isolation voltage	50V (continuous), Basic Insulation Type Tested at 2121V DC for 60 s, field-side to system. No isolation between individual channels.
Field power bus supply, nom	24V DC
Field power bus supply, min	19.2V DC
Field power bus supply, max	28.8V DC
Indicators	1 green/red – module status indicator 1 green/red – network status indicator 4 yellow – channel status indicators 4 green – IO-Link status indicators
Wiring category ⁽¹⁾	2 – on signal ports
Wire size	0.25...2.5 mm ² (22...14 AWG) solid or stranded copper wire rated at 75 °C (167 °F), or greater. 1.2 mm (3/64 in.) insulation max
Wire type	Copper
Dimensions, approx., HxWxD	56 x 12 x 75.5 mm (2.21 x 0.47 x 2.97 in.)
Weight, approx.	36 g (1.27 oz)
Enclosure type rating	None (open-style)
Keyswitch position	2 (specialty)

⁽¹⁾ Use this conductor category information for planning conductor routing as described in Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#).

Specialty I/O Modules Environmental Specifications**1734 Specialty 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

1734-IB8S, 1734-OB8S, 1734-IE4S – Technical Specifications

Attribute	1734-IB8S	1734-OB8S	1734-IE4S
POINTBus			
POINTBus current, max	175 mA	190 mA	110 mA @ 5V
Power dissipation, max	2.44 W	3.02 W	2.2 W
Thermal dissipation	8.34 BTU/hrr	10.32 BTU/hr	7.5 BTU/hr
Isolation voltage	50V (continuous), Basic Insulation Type between field side and system No isolation between individual channels Type tested @ 707V DC for 60 s		50V continuous- basic Insulation Type, I/O and field power to system Type tested @ 500V AC for 60 seconds. No isolation between individual I/O or I/O to field power.
Power bus, operating supply voltage, nom	24V DC		
Power bus, operating voltage range	19.2...28.8V DC		
Input filter time, OFF to ON ⁽¹⁾	0...126 ms (in 6 ms increments)		
Input filter time, ON to OFF ⁽¹⁾			
Terminal base screw torque	See terminal base specifications		
Indicators	1 yellow lock status indicator 1 green/yellow power status indicator 8 I/O channel status indicators		4 analog input (yellow/red) 4 sensor power (green/red) 1 power (green/yellow)

⁽¹⁾ Input off-to-on filter time is the time from a valid input signal to recognition by the module. Input on-to-off time is the time from a valid input signal to recognition by the module.

1734-IB8S, 1734-OB8S, and 1734-IE4S Physical Specifications

Attribute	Value
Keyswitch positions (left and right)	1734-IB8S: Key 1 = 8 (left); Key 2 = 1 (right) 1734-OB8S: Key 1 = 8 (left); Key 2 = 2 (right) 1734-IE4S: Key 1 = 8 (left); Key 2 = 3 (right)
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, 1734-TOPS, 1734-TOP3, 1734-TOP3S
Pilot duty rating	Not rated (1734-OB8S and 1734-IE4S)
North America temp code	T4 (1734-OB8S and 1734-IB8S) T4A (1734-IE4S)
IEC temp code	T4
Enclosure type rating	None (open-style)
Wiring category ⁽¹⁾	2 – on signal ports (1734-IB8S, 1734-OB8S, 1734-IE4S) 1 – on power ports (1734-IE4S only)

Select a Terminal Base Assembly

Step 3 - Select:

- the appropriate terminal base unit for your module

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The POINT I/O system follows a No Tools design approach. The I/O mounting base, removable terminal block (RTB), and I/O module may be assembled as a system without tools.

Terminal Base Assembly

The POINT I/O mounting base mounts directly on the DIN-rail, either vertically or horizontally, and forms the interconnect for the POINTBus backplane communication and field power-bus distribution. The mechanical keying of the mounting base prevents incorrect module placement. The I/O mounting base and removable terminal block are sold together (pre-assembled) as a single unit called a Terminal Base Assembly.

The pins on the 1734-TB terminal base assembly are independent of each other. The connections for the 1734-TB and 1734-TB3 are determined by the 1734 module being used.

Terminal Base Pins

1734-TB, -TBS, -TOP, -TOPS

0	1
2	3
4	5
6	7

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1734-TB3, -TB3S, -TOP3, -TOP3S

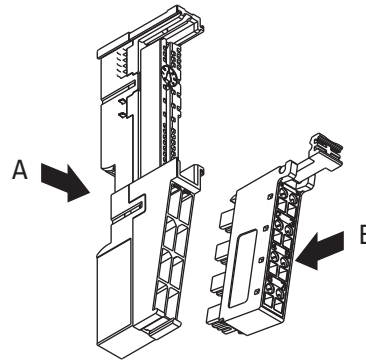
0	1
2	3
4	5
6	7
8	9
10	11

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Pins 4, 5, 8, and 9 are connected together.
 Pins 6, 7, 10, and 11 are connected together.

Each assembly includes a removable terminal block (RTB) provides 8 or 12 separate terminal locations for field wiring. The RTB also provides vertical access to wire and screw terminations. A separate terminal point is provided for each wire, including a shield ground terminal point for 2-point analog modules.

POINT I/O Removable Terminal Base Assembly



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Each terminal base assembly includes a base (A) that mounts onto the DIN-rail and a removable terminal block (B) for I/O wiring.

Once the RTB is wired properly, you never need to rewire terminations. The RTB separates independently of the I/O mounting base and I/O module to facilitate rapid installation and commissioning of the system. Each terminal is numbered on the bottom of the RTB to simplify troubleshooting during commissioning or maintenance cycles. Spare or replacement RTBs can be ordered separate from the terminal base assembly.

Terminal Base Assemblies

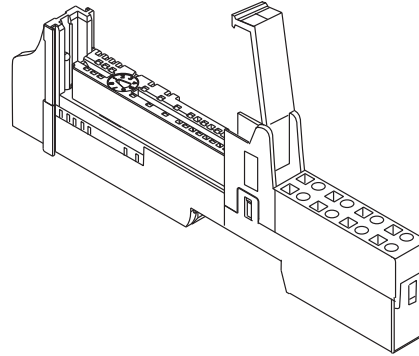
Terminal Base Assembly Cat. No.	Description	Terminal Base Screw Torque	Replacement RTB Cat. No.
1734-TB	Mounting base with 8-terminal cage-clamp RTB	0.6 Nm (7 lb-in)	1734-RTB
1734-TBS	Mounting base with 8-terminal spring-clamp RTB		1734-RTBS
1734-TB3	Mounting base with 12-terminal cage-clamp RTB		1734-RTB3
1734-TB3S	Mounting base with 12-terminal spring-clamp RTB		1734-RTB3S
1734-TBCJC ⁽¹⁾	Mounting base with cold-junction compensation RTB	0.5...0.6 Nm (5...7 lb-in)	1734-RTBCJC ⁽¹⁾

⁽¹⁾ For use with the 1734-IT21 thermocouple input module.

One-piece Terminal Bases

The POINT I/O one-piece terminal base is a mounting base with an integrated terminal block.

POINT I/O One-piece Terminal Base



1734 One-piece Terminal Bases

Cat. No.	Description	Terminal Base Screw Torque
1734-TOP	8-terminal screw-clamp terminal base	0.6 Nm (7 lb-in)
1734-TOPS	8-terminal spring-clamp terminal base	
1734-TOP3	12-terminal screw-clamp terminal base	
1734-TOP3S	12-terminal spring-clamp terminal base	