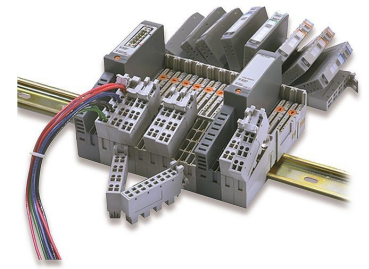


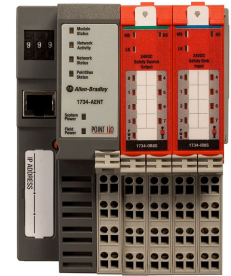
# 1734 POINT I/O

## POINT I/O

POINT I/O™ is a family of 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 easily be 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 is just-what-you-need granularity in one to eight points to reduce system cost and size.



POINT Guard I/O™ modules are safety-rated I/O modules designed to fit into the standard POINT I/O system, offering automation and safety functionality in a maximum density I/O solution. They are ideal for use in applications requiring safety and automation control. POINT Guard I/O and POINT I/O can be controlled by a single GuardLogix controller for both safety and automation control through one node. If separate safety control is required, a GuardLogix controller can be used with POINT Guard I/O modules for safety control and a ControlLogix controller can be used with POINT I/O modules for automation control. No changes are required to the POINT I/O system.



## Benefits

- Extremely fast I/O backplane uses change-of-state (COS) connections to maximize performance (polling available in configuration mode).
- Module assembly mounts horizontally or vertically (no derating required) to fit your needs.
- Compact design lets it fit into limited panel space.
- Auto Device Replacement (ADR) allows OEMs to add machine features and I/O modules without making changes to the machine's control software.
- Removal and Insertion Under Power (RIUP) makes it possible to replace a module while keeping the rest of the system running.
- Modular components install easily by sliding together; pull apart easily for maintenance and troubleshooting. No tools needed.
- Removable wiring system for economic system commissioning, troubleshooting, calibration, and diagnostics – 70% time and cost savings.
- Efficient network solutions with multiple DeviceNet interfaces, ControlNet, EtherNet/IP, and PROFIBUS DP communication adapters.
- Point Guard I/O is TÜV-certified for functional safety up to and including SIL CL 3 and Performance Level (e), Category 4.

## Analog I/O Modules

### Analog Input Modules

Cat. No.	Inputs	Signal Range	Input Resolution	Accuracy	Step Response, per Channel	Input Conversion Type	PointBus Current (mA)	External DC Supply Current, Max.	Power Dissipation, Max.	Terminal Base Unit
1734-IE2C	2 single-ended	4...20 mA 0...20 mA	16 bits - over 21 mA 0.32 µA/cnt	0.1% Full Scale at 25 °C*	70 ms at Notch = 60 Hz (default) 80 ms at Notch = 50 Hz 16 ms at Notch = 250 Hz 8 ms at Notch = 500 Hz	Delta Sigma	75 mA	10 mA	0.6 W at 28.8V DC	1734-TB or 1734-TBS
1734-IE4C	4 single-ended									
1734-IE8C	8 single-ended									
1734-IE2V	2 single-ended	0...10V ±10V	15 bits plus sign 320 µV/cnt in unipolar or bipolar mode	0.1% Full Scale at 25 °C*		Delta Sigma	75 mA	15 mA	0.75 W at 28.8V DC	1734-TB or 1734-TBS
1734-IE4S	4 single-ended, safety-rated	+/-5V DC Voltage Inputs +/-10V DC Voltage Inputs 0...20 mA Current Inputs 0...24V DC Tachometer	12 bits	Voltage Mode: ±0.5% Full Scale at 25 °C Current Mode: ±0.6% Full Scale at 25 °C Tachometer Mode: ±0.1%/ °C/100 Hz	450 ms @ Filter Frequency = 1 Hz 125 ms @ Filter Frequency = 5 Hz 72 ms @ Filter Frequency = 10 Hz 25 ms @ Filter Frequency = 50 Hz	Successive approximation	110 mA	65 mA	2.2 W	1734-TB, 1734-TOP, and 1734-TOP3

\* Includes offset, gain, non-linearity, and repeatability error terms.

## Temperature Input Modules

Cat. No.	Inputs	Signal Range	Input Resolution	Absolute Accuracy	Step Response, per Channel	Input Conversion Type	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-IR2	2 single-ended RTD	0...600 Ω	16 bits 9.5 mΩ/cnt 0.03 °C/cnt (Pt385 @ 25 °C)	0.1% Full Scale at 25 °C (77 °F)	60 ms at Notch = 50 Hz 50 ms at Notch = 60 Hz 30 ms at Notch = 100 Hz 25 ms at Notch = 120 Hz 15 ms at Notch = 200 Hz 13 ms at Notch = 240 Hz 10 ms at Notch = 300 Hz 8 ms at Notch = 400 Hz 6 ms at Notch = 480 Hz	Delta Sigma	220	1.0 W	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
1734-IR2E		0...200 Ω	[32.05 °F/cnt (Pt385 @ 77 °F)]						
1734-IT2I	2 differential Thermocouple	±75 mV	15 bits + sign 2.5 μV/cnt 15 bits + sign 2.5 μV/cnt	0.1% Full Scale at 25 °C*			175	1.0 W	1734-TBCJC

\* Includes offset, gain, non-linearity, and repeatability error terms.

### Temperature Input Modules—Additional Specifications

	1734-IR2	1734-IR2E	1734-IT2I
Number of Inputs	2 single-ended RTD		2 differential Isolated Thermocouple, Millivolt
Thermocouple Resolution	—		Type B 30...1820 °C (86...3308 °F) 3 counts/°C Type C 0...2315 °C (32...4199 °F) 6 counts/°C Type E -270...1000 °C (-454...1832 °F) 24 counts/°C Type J -210...1200 °C (-454...2192 °F) 21 counts/°C Type K -270...1372 °C (-454...2502 °F) 13 counts/°C Type N -270...1300 °C (-454...2373 °F) 11 counts/°C Type R -50...1768.1 °C (-58...3214 °F) 4 counts/°C Type S -50...1768.1 °C (-58...3214 °F) 4 counts/°C Type T -270...400 °C (-454...752 °F) 15 counts/°C
Cold Junction Compensation	—		Included in 1734-RTBCJC Remote Termination Block
Cold Junction Compensation Range	—		0...70 °C
Input Update Rate, per Module	40 ms at Notch = 50 Hz 33 ms at Notch = 60 Hz (default) 20 ms at Notch = 100 Hz 17 ms at Notch = 120 Hz 10 ms at Notch = 200 Hz 8 ms at Notch = 240 Hz 7 ms at Notch = 300 Hz 5 ms at Notch = 400 Hz 4 ms at Notch = 480 Hz		20 ms at Notch = 50 Hz 17 ms at Notch = 60 Hz (default) 10 ms at Notch = 100 Hz 8 ms at Notch = 120 Hz 5 ms at Notch = 200 Hz 4 ms at Notch = 240 Hz 3 ms at Notch = 300 Hz 3 ms at Notch = 400 Hz 2 ms at Notch = 480 Hz
Sensors Supported	100Ω Pt α = 0.00385 Euro (-200...+870 °C) 200Ω Pt α = 0.00385 Euro (-200...+630 °C) 100Ω Pt α = 0.003916 Euro (-200...+630 °C) 200Ω Pt α = 0.003916 Euro (-200...+630 °C) 10Ω Cu α = 0.00427 Euro (-200...+260 °C) 100Ω Ni α = 0.00618 Euro (-60...+250 °C) 120Ω Ni α = 0.00672 Euro (-60...+250 °C) 120Ω Ni α = 0.00618 Euro (-60...+250 °C)	100Ω Pt α = 0.00385 Euro (-200...+870 °C)	—
Data Format	Signed integer		Signed integer

### Analog Output Modules

Cat. No.	Outputs	Signal Range	Output Resolution	Absolute Accuracy	Step Response to 63% of FS	Output Conversion Rate	PointBus Current (mA)	External DC Supply Current, Nom.	Power Dissipation, Max.	Terminal Base Unit
1734-OE2C	2 single-ended	4...20 mA 0...20 mA	13 bits - over 21 mA 2.5 μA/cnt	0.1% Full Scale at 25 °C*	24 μs	16 μs	75 mA	50 mA @ 24V DC (including outputs @ 20 mA)	1.0 W at 28.8V DC	1734-TB or 1734-TBS
1734-OE4C	4 single-ended							220 mA		
1734-OE2V	2 single-ended	0...10V ±10V	14 bits (13 + sign) 1.28 mV/cnt in unipolar or bipolar mode	0.1% Full Scale at 25 °C*	20 μs	20 μs	75 mA	35 mA @ 24V DC (including outputs @ 3 mA)	1.0 W at 28.8V DC	1734-TB or 1734-TBS

\* Includes offset, gain, non-linearity, and repeatability error terms.

### Digital I/O Modules

The 1734 digital I/O modules support:

- A wide variety of voltage interface capabilities.
- Isolated and non-isolated module types.
- Point-level output fault states for short-circuit and wire-off diagnostics.

- Choice of direct-connect or rack-optimized communications.
- Field-side diagnostics on select modules.
- Safety applications up to and including SIL 3, Cat. 4, PL(e), when using 1734-IB8S or 1734-OB8S with a GuardLogix, SmartGuard 600, or GuardPLC controller.

### POINT Digital AC Input Modules

Cat. No.	Inputs	Voltage Category	Input Delay Time, On to Off	On-State Current, Min.	Input Impedance, Nom.	Off-State Current, Max.	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-IA2	2 Non-isolated, current sinking	120V AC (65V AC...132V AC)	20.0 ms hardware + (0...65 ms selectable)	4.0 mA @ 65V AC, 60 Hz	10.6 kΩ	2.7 mA @ 43V AC	75 mA	0.1 W at 132V AC	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
1734-IA4	4 Non-isolated, current sinking								
1734-IM2	2 Non-isolated, current sinking	220V AC (159V AC...264V AC)		6.2 mA @ 159V AC, 60 Hz	22.3 kΩ	2.9 mA @43V AC			
1734-IM4	4 Non-isolated, current sinking								

### POINT Digital AC Output Modules

Cat. No.	Outputs	Voltage Category	Output Current Rating	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-OA2	2 Non-isolated, current sourcing	120/220V AC (74V AC...264V AC)	1.5 A (2 channels @ 0.75 A each)	75 mA	2 W at 264V AC	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
1734-OA4	4 Non-isolated, current sourcing		2.0 A (750 mA per output)		3.5 W at 264V AC	

### POINT Digital DC Input Modules

The 1734-IB4D module is a 4-channel 24V DC input module with short-circuit and open-wire diagnostics. Catalog numbers ending with "S" are safety-rated.

Cat. No.	Inputs	Voltage Category	Input Delay Time, On to Off	On-State Current, Min.	On-State Current, Max.	Off-State Current, Max.	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-IB2	2 current sinking	24V DC (10V DC...28.8V DC)	0.5 ms hardware + (0...65 ms selectable)	2 mA	5 mA	1.5 mA	75 mA	0.7 W at 28.8V DC	1734-TB or 1734-TBS
1734-IB4	4 current sinking							1.0 W at 28.8V DC	1734-TB, 1734-TBS, 1734-TB3, or 1734-TB3S*
1734-IB4D	4 Sink, diagnostic	24V DC (11V DC...28.8V DC)	—	2 mA	15 mA	—	50 mA	0.6 W at 28.8V DC	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
1734-IB8	8 current sinking	24V DC (10V DC...28.8V DC)	0.5 ms hardware + (0...65 ms selectable)	2 mA	5 mA	1.5 mA	75 mA	1.6 W at 28.8V DC	1734-TB or 1734-TBS
1734-IB8S	8 current sinking, safety-rated	24V DC (11V DC...28.8V DC)	—	3.3 mA	5 mA	1.3 mA	175 mA	2.44 W	1734-TB, 1734-TOP, 1734-TOP3
1734-IV2	2 current sourcing	24V DC (10V DC...28.8V DC)	0.5 ms hardware + (0...65 ms selectable)	2 mA	5 mA	1.5 mA	75 mA	0.7 W at 28.8V DC	1734-TB or 1734-TBS
1734-IV4	4 current sourcing							1.0 W at 28.8V DC	1734-TB, 1734-TBS, 1734-TB3, or 1734-TB3S*
1734-IV8	8 current sourcing							1.6 W at 28.8V DC	1734-TB or 1734-TBS

\* 1734-TB3 or 1734-TB3S recommended.

### POINT Digital DC Output Modules

Catalog numbers ending with "E" are electronically protected. Catalog numbers ending with "S" are safety-rated. The 1734-OB2EP module has 24V DC electronically protected, fast-switching high-current outputs.

Cat. No.	Outputs	Voltage Category	Output Current Rating, Max.	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-OB2	2 current sourcing	24V DC (10V DC...28.8V DC)	2.0 A per module, 1.0 A per channel	75 mA	0.8 W at 28.8V DC	1734-TB or 1734-TBS
1734-OB2E	2 current sourcing, electronically protected	24V DC (10V DC...28.8V DC)	2.0 A per module, 1.0 A per channel	75 mA	0.8 W at 28.8V DC	1734-TB or 1734-TBS
1734-OB2EP	2 current sourcing, electronically protected, fast-switching high-current	24V DC (10V DC...28.8V DC)	4.0 A per module, 2.0 A per channel	75 mA	3.4 W at 28.8V DC	1734-TB or 1734-TBS
1734-OB4	4 current sourcing	24V DC (10V DC...28.8V DC)	3.0 A per module, 1.0 A per channel	75 mA	1.2 W at 28.8V DC	1734-TB or 1734-TBS
1734-OB4E	4 current sourcing, electronically protected	24V DC (10V DC...28.8V DC)	3.0 A per module, 1.0 A per channel	75 mA	1.2 W at 28.8V DC	1734-TB, 1734-TBS
1734-OB8	8 current sourcing	24V DC (10V DC...28.8V DC)	3.0 A per module, 1.0 A per channel	75 mA	2.0 W at 28.8V DC	1734-TB or 1734-TBS
1734-OB8E	8 current sourcing, electronically protected	24V DC (10V DC...28.8V DC)	3.0 A per module, 1.0 A per channel	75 mA	2.0 W at 28.8V DC	1734-TB, 1734-TBS
1734-OB8S	8 current sourcing, safety-rated	24V DC (10V DC...28.8V DC)	1 A max per point	190 mA	3.02 W	1734-TB, 1734-TOP, 1734-TOP3
1734-OV2E	2 current sinking, electronically protected	24V DC (10V DC...28.8V DC)	2.0 A max per module, 1.0 A per output	75 mA	0.8 W at 28.8V DC	1734-TB or 1734-TBS
1734-OV4E	4 current sinking, electronically protected	24V DC (10V DC...28.8V DC)	3.0 A max per module 1.0 A per output	75 mA	1.2 W at 28.8V DC	1734-TB or 1734-TBS
1734-OV8E	8 current sinking, electronically protected	24V DC (10V DC...28.8V DC)	3.0 A per module, 1.0 A per channel	75 mA	2.0 W at 28.8V DC	1734-TB, 1734-TBS

### POINT Digital DC Configurable Input/Output Module

The 1734-8CFG module is a 24V DC I/O module with 8 self-configuring points. The 1734-8CFGDLX module offers 8 self-configuring points and DeviceLogix capabilities. Each of the I/O points can be a DC input or output.

Cat. No.	Inputs/Outputs	Voltage Category	Input Voltage Range	Output Voltage Range	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-8CFG	8, self-configuring	24V DC	11V DC...28.8V DC	10V DC...28.8V DC	100 mA	2.6 W at 28.8V DC	1734-TB, 1734-TBS, 1734-TOP, 1734-TOP3
1734-8CFGDLX	8, self-configuring, with DeviceLogix 8, self-configuring, with DeviceLogix						

### POINT Digital Contact Output Modules

Cat. No.	Outputs	Voltage Range	Output Delay Time, On to Off, Max.*	Contact Resistance, Initial	Output Current Rating, Max.	Leakage Current, Off-State Output, Max	PointBus Current (mA)	Power Dissipation, Max.	Terminal Base Unit
1734-OW2	2 Form A N.O. relays	5...28.8V DC at 2.0 A resistive 48V DC at 0.5 A resistive 125V DC at 0.25 A resistive	26 ms	30 mΩ	2.0 A per channel	1.2 mA and bleed resistor thru snubber circuit @ 240V AC	80 mA	0.5 W	1734-TB or 1734-TBS
1734-OW4	4 Form A N.O. relays								
1734-OX2	2 Form C isolated N.O./N.C. relays	125V DC at 2.0 A resistive 240V DC at 2.0 A resistive	10 ms	30 mΩ	2.0 A per channel	2.0 mA and bleed resistor thru snubber circuit @ 240V AC	100 mA		

\* Time from valid output off signal to relay deenergization by module.

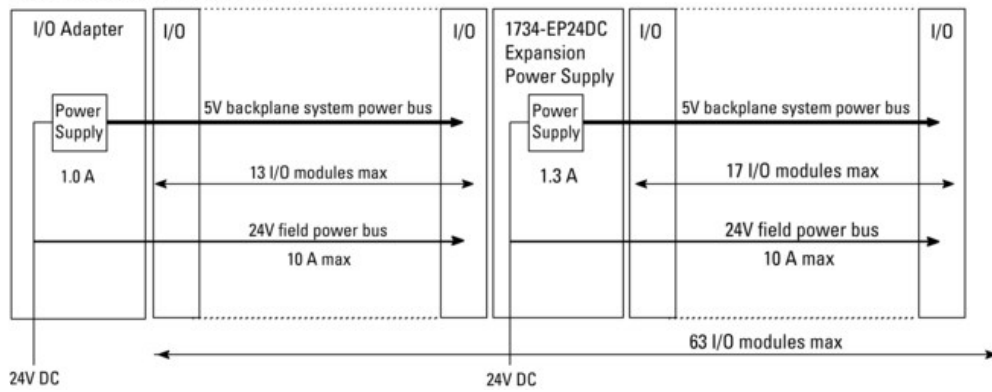
### I/O Adapter and Communication Interface Modules

POINT I/O has two classes of communication interfaces.

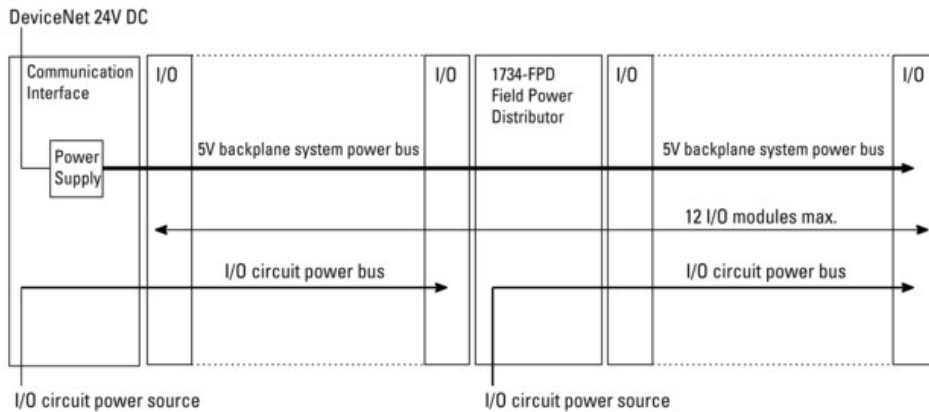
An **I/O adapter module** provides an isolated DC/DC converter between field 24V DC and 5V backplane. You can connect up to 13 I/O modules and an I/O adapter with a maximum of 10 A field power. Additional I/O modules require the use of one or more POINT I/O 24V DC expansion power units. An I/O adapter supports up to a maximum of 63 I/O modules. The I/O adapter modules are available for ControlNet, DeviceNet (with and without subnet connectivity), EtherNet/IP, or PROFIBUS DP networks.

The **DeviceNet Communication Interface module** interfaces I/O modules to the DeviceNet link and converts field 24V DC power to 5V DC backplane power. The backplane power is derived from the DeviceNet network and is not isolated. I/O circuits require a power supply specified for the I/O module connected to the right of the communication interface module. You can connect up to 13 I/O modules to the DeviceNet Communication Interface module, with a maximum of 10 A field power.

### POINT I/O with an I/O Adapter Module



### POINT I/O with Communication Interface Module



### I/O Adapter and Communication Interface Modules Product Selection

Cat. No.	Description	Compatible with POINT Guard I/O	Supports Expansion Power Supplies	Number of I/O Points, Max.*
<b>DeviceNet</b>				
1734-PDN	<b>DeviceNet Communication Interface</b> <ul style="list-style-type: none"> <li>Each POINT I/O module counts as a node on the main DeviceNet network.</li> <li>Total backplane current of I/O modules cannot exceed 1.3 A.</li> </ul>	Yes	No	136
1734-ADN	<b>DeviceNet I/O Adapter</b> <ul style="list-style-type: none"> <li>A total of 63 POINT I/O modules can be assembled on a single DeviceNet node.</li> </ul>	No	Yes	504
1734-ADNX	<b>DeviceNet I/O Adapter with Expansion Port</b> <ul style="list-style-type: none"> <li>A total of 63 POINT I/O modules can be assembled on a single DeviceNet node.</li> <li>Expansion network port allows for a DeviceNet subnet.</li> <li>Increases the reach of DeviceNet from 500 to 1500 meters.</li> <li>Increases nodes per DeviceNet scanner from 63 to more than 126 (dependent on DeviceNet scanner capacity).</li> </ul>	No	Yes	504
<b>ControlNet</b>				
1734-ACNR	<b>ControlNet I/O Adapter</b> <ul style="list-style-type: none"> <li>A total of 63 POINT I/O modules can be assembled on a single ControlNet node.</li> <li>Up to 25 direct connections and 5 rack connections are allowed.</li> </ul>	No	Yes	504
<b>EtherNet/IP</b>				
1734-AENT	<b>EtherNet/IP Twisted Pair Media I/O Adapter</b> <ul style="list-style-type: none"> <li>A total of 63 POINT I/O modules can be assembled on a single EtherNet/IP node.</li> <li>Refer to the User Manual to determine the ratings for direct and rack connections allowed.</li> </ul>	Yes	Yes	504
1734-AENTR	<b>2-Port EtherNet/IP I/O Adapter Module</b> <ul style="list-style-type: none"> <li>Includes 2 EtherNet/IP ports, configured as embedded switch.</li> <li>Supports star, tree, linear, and ring topologies.</li> <li>Up to 20 direct connections and 5 rack optimized connections (digital I/O only) are allowed.</li> <li>Total backplane current of I/O modules cannot exceed 0.8 A.</li> </ul>	Yes	Yes	504
<b>PROFIBUS DP</b>				
1734-APB	<b>PROFIBUS DP I/O Adapter</b> <ul style="list-style-type: none"> <li>A total of 63 POINT I/O modules can be assembled on a single PROFIBUS DP node.</li> </ul>	No	Yes	504

\* Using the eight-point digital I/O modules.

### Specifications

Cat. No.	Input Voltage Range	Field Side Power Requirements	Inrush Current	Power Consumption (W) at 24V	Power Dissipation, Max.	PointBus Current (mA)
1734-PDN	11...25V DC DeviceNet specification	400 mA at 24V DC (+4% = 25V DC)	6 A for 5 ms	8.0 W	1.2 W at 25V	1300*
1734-ADNX	10...28.8V DC	400 mA at 24V DC (+20% = 28.8V DC)	6 A for 10 ms	8.0 W	2.8 W at 28.8V	1000‡
1734-ACNR		425 mA at 24V DC (+20% = 28.8V DC)		8.0 W	2.8 W at 28.8V	1000‡
1734-AENT		400 mA at 24V DC (+20% = 28.8V DC)		4.5 W	2.8 W at 28.8V	700§
1734-AENTR		24V DC at 400 mA nom 12V DC at 800 mA nom 10...28.8V DC, 1000 mA max		10.4 W	6.3 W at 28.8V	800
1734-APB		400 mA at 24V DC (+20% = 28.8V DC)		8.0 W	2.8 W at 28.8V	1000‡

\* 1300 mA at 5V DC ±5% (4.75...5.25V).

‡ 1000 mA at 5V DC ±5% (4.75...5.25V).

§ 700 mA when input voltage < 17V DC.

## Power Supplies

All POINT I/O modules are powered from the backplane by a POINT I/O adapter module, which includes a built-in power supply, or an expansion power supply. For POINT I/O adapters power specifications see [I/O Adapter and Communication Interface Modules](#).

## Expansion Power Unit

The POINT I/O Expansion Power Supplies extend the backplane bus power and create a new field voltage partition segment for driving field devices for up to 17 I/O modules, depending on the current required for each module and the DIN-rail mounting position. The expansion power unit separates 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.

Cat. No.	Input Voltage	Field Side Power Requirements, Max.	Inrush Current, Max.	PointBus Output Current Rating	Power Consumption, Max.	Power Dissipation, Max.
1734-EP24DC	24V DC (10...28.8V DC)	400 mA at 24V DC (+20% = 28.8V DC max)	6 A for 10 ms	Horizontal mounting: 1 A at 5V DC for 10...19.2V input; 1.3 A @ 5V DC for 19.2...28.8V input Vertical mounting: 1 A at 5V DC for 10...28.8V input	9.8 W at 28.8V DC	3.0 W at 28.8V DC
1734-EPAC	120/240V AC (85...264V AC)	200 mA at 120V AC, 100 mA at 240V AC	2 A for 6 ms	Horizontal mounting: 1.3 A at 5.2V DC Vertical mounting: 1.0 A at 5.2V DC	15.1 W at 264V AC	8.4 W at 264V AC

## Field Power Distributor

The POINT I/O Field Power Distributor Module (1734-FPD) passes through all POINT I/O backplane signals, but does not provide additional POINTBus backplane power. The field power distributor gives you the ability to change the field power distribution source for I/O modules to the right of the field power distributor. This facilitates logical or functional partitioning of low-channel count, high I/O mix applications using any of the communication adapters. Use the field power distributor with a broad range of voltage inputs including 5V DC to 250V DC and/or 24V AC to 240V AC applications and I/O modules.

Cat. No.	Operating Voltage Range
1734-FPD	10...28.8V DC 120V/240V AC