Digital AC Input Modules

1734 Digital AC Input Modules Technical Specifications

	1734-IA2	1734-IA4	1734-IM2	1734-IM4
Number of inputs	2 (1 group of 2)	2 (1 group of 4)	2 (1 group of 2)	2 (1 group of 4)
Voltage, on-state input, nom	120V AC		220V AC	
Voltage, on-state input, min	65V AC		159V AC	
Voltage, on-state input, max	132V AC		264V AC	
Input delay time, on to off	20 ms hardware filter plus 0…65 ms digital filter programmable in increments of 1 ms[1]			
Current, on-state input, min	4.0 mA @ 65V AC, 60 Hz		6.2 mA @ 159V AC, 60 Hz	
Input impedance, nom	10.6 kΩ		22.3 kΩ	
Current, off-state input, max	2.7 mA @ 43V AC		2.9 mA	
POINTBus current	75 mA @ 5V DC			
Power dissipation, max	0.1 W @ 132V AC			
Thermal dissipation, max	3.4 BTU @ 132V AC			
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 AC Output Modules

1734 Digital AC Output Modules Technical Specifications

	1734-OA2	1734-OA4
Number of outputs	2	4
Voltage, on-state output, nom	120V AC; 220V AC	
Voltage, on-state output, min	74V AC	
Voltage, on-state output, max	264V AC	
Output current rating	1.5 A (2 channels @ 0.75 A each)	2.0 A (750 mA per output, 2.0 A max per module)
POINTBus current	75 mA @ 5V DC	
Power dissipation, max	2 W @ 264V AC	3.5 W @ 264V AC
Thermal dissipation, max	6.8 BTU @ 264V AC	11.69 BTU @ 264V AC
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS	

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									

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
Voltage, on-state output, max	28.8V DC									
Output current rating, max	2.0 A per module, 1.0 A per channel		4.0 A per module, 2.0 A per channel	3.0 A per module, 1.0 A per channel				2.0 A max per module, 1.0 A per output	3.0 A per module, 1.0 A per output	3.0 A per module, 1.0 A per channel
POINTBus current (mA)	75									
Power dissipation, max	0.8 W @ 28.8V DC		3.4 W @ 28.8V DC	1.2 W @ 28.8V DC		2.0 W @ 28.8V DC		0.8 W max @ 28.8V DC	1.2 W max @ 28.8V DC	2.0 W max @ 28.8V DC
Thermal dissipation, max	2.7 BTU/hr @ 28.8V DC		11.6 BTU/hr @ 28.8V DC	4.1 BTU/hr @ 28.8V DC		6.8 BTU/hr @ 28.8V DC		2.7 BTU/hr @ 28.8V DC	4.1 BTU/hr @ 28.8V DC	6.8 BTU/hr @ 28.8V DC
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS									

(1) Non-diagnostic, standard output modules.

Digital Contact Modules

1734 Digital Contact Modules Technical Specifications

	1734-OW2	1734-OW4	1734-OX2
Number of outputs	2 N.O. relays	4 N.O. relays	2 Form C (N.O./N.C.) relays, isolated
Output delay time, on to off, max	26 ms[1]		10 ms[1]
Contact resistance, initial	30 mΩ		
Leakage current, off-state output, max	1.2 mA and bleed resistor through snubber circuit @ 240V AC		1.2 mA and bleed resistor through snubber circuit @ 240V AC
POINTBus current (mA)	80		100
Power dissipation, max	0.5 W		
Thermal dissipation, max	1.7 BTU/hr		
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS		

(1) Time from valid output off signal to relay deenergization by module.

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	

Self-Configurable Modules Environmental Specifications

1734 DC Configurable Input/Output 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

Analog and Temperature I/O Modules

The POINT I/O analog and temperature I/O modules support: on-board, channel-level data alarming (four set-points per channel); scaling to engineering units; channel-level diagnostics (electronic bits and LED indicators); and integer format.

Analog and temperature input modules support the following configurable parameters and diagnostics:

- open-wire detection with LED and electronic reporting
- four-alarm and annunciation set-points: low alarm; high alarm; low/low alarm; high/high alarm calibration mode detection and electronic reporting
- underrange detection and electronic reporting
- overrange detection and electronic reporting
- channel signal range and on-board scaling (scaling to any 16-bit integer under-/over-range alarms)
- filter type (notch for A/D, or first-order low-pass digital filter)
- temperature scale (Celcius, Fahrenheit, Kelvin, Rankine, or custom)
- channel update rate (step response plus 0…10,000 ms filter setting)

Choose analog or temperature I/O modules when you need:

- On-board scaling eliminates the need to scale the data in the controller, preserving controller processing time and power for more important tasks, such as I/O control, communications, or other user-driven functions.
- Over- and underrange detections and indications eliminate the need to test values in the control program, saving valuable processing power of the controller.
- Ability to individually configure each channel of the output module to hold its last value or assume a user-defined value on a fault condition.
- Ability to individually enable and disable channels improves module performance.
- Selectable input filters lets you select from several different filter frequencies for each channel that best meets the performance needs of your application based on environmental limitations
- Selectable response to broken input sensor feature provides feedback to the controller that a field device is not connected or operating properly. This lets you specify corrective action based on the bit or channel condition.
- The modules share a high accuracy rating of ±0.1% of full-scale accuracy at 25 °C (77 °F).

Analog Input Modules

1734 Analog Input Modules Technical Specifications

	1734-IE2C	1734-IE2V	1734-IE4C	1734-IE8C
Number of inputs	2		4	8
Input signal range	4…20 mA 0…20 mA	0…10V ±10V	4…20 mA 0…20 mA	4…20 mA 0…20 mA
Input resolution	16 bits - over 21 mA 0.32 μA/cnt	15 bits plus sign 320 μV/cnt in unipolar or bipolar mode	16 bits - 0…21 mA 0.32 μA/cnt	
Data format	Signed integer			
Accuracy	Current Input: 0.1% Full Scale @ 25 °C(1)	Voltage Input: 0.1% Full Scale @ 25 °C(1)	Current Input: 0.1% Full Scale @ 25 °C(1)	
Accuracy drift w/temp.	Current Input: 30 ppm/°C	5 ppm/°C	30 ppm/°C	
Step response, per channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz		50 ms @ Notch = 60 Hz (default) 60 ms @ Notch = 50 Hz 30 ms @ Notch = 100 Hz 25 ms @ Notch = 120 Hz 15 ms @ Notch = 200 Hz 12.5 ms @ Notch = 240 Hz 10 ms @ Notch = 300 Hz 7.5 ms @ Notch = 400 Hz 6.25 ms @ Notch = 480 Hz	
Input conversion type	Delta Sigma		Sigma Delta	
POINTBus current	75 mA @ 5V DC			
Power dissipation, max	0.6 W @ 28.8V DC	0.75 W @ 28.8V DC	0.6 W @ 28.8V DC	
Thermal dissipation, max	2.0 BTU/hr @ 28.8V DC	2.5 BTU/hr @ 28.8V DC	2.0 BTU/hr @ 28.8V DC	
Keyswitch position	3			
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS			

(1) Includes offset, gain, non-linearity and repeatability error terms.

Temperature Input Modules

POINT I/O temperature modules can detect and communicate these electronic conditions:

Overrange alarm	• The channel overrange alarm is set if the input is greater than the maximum temperature (thermocouple or RTD range dependent), millivolt (+75V) or resistance (600 Ω) range value, or above the maximum range of the thermocouple or RTD. • The cold-junction compensator has its own over-range alarm. If the CJC temperature goes above 70 °C (158 °F), the over-range alarm is set.
Underrange alarm	• The channel underrange alarm is set if the input is less than the minimum temperature (thermocouple or RTD range dependent), millivolt (-75 mV) or resistance (10 Ω) range value, or below the minimum range of the thermocouple or RTD. • The cold-junction compensator has its own underrange alarm. If the CJC temperature goes below 0 °C (32 °F), the under-range alarm is set.
Level alarm (low-low, low, high, high-high)	• When the channel input goes below a low alarm or above a high alarm, a bit is set in the data table. All alarm status bits can be read individually or by reading the channel status byte (bits 2…5 for channel 0; bits 10…13 for channel 1). • Each channel alarm can be configured individually.
Open-wire alarm	• The module has the ability to check for a broken or detached wire. In any mode, if a broken/detached lead is detected, the data value is forced to maximum and the over-range alarm is set. Once the alarm is issued, it remains active as long as the input signal is faulted.

Cold-junction Compensation (1734-IT2I only)

When using thermocouples, cold-junction compensation is required at the termination of the thermocouple wire. Cold-junction can be accomplished in three ways:

- Enter an estimated temperature
- Use a 1734-TBCJC mounting base (recommended)
- Use external cold-junction compensators

Entering an estimated temperature is the least accurate way for cold-junction compensation. Using external compensators is the most expensive way, while using the 1734-TBCJC provides the easiest and most accurate method.

An open cold-junction compensator causes the input point to the maximum temperature value for the selected input type. This causes an alarm to be set. Once the alarm is issued, it remains active as long as the input signal is faulted (above maximum).

Set the cold-junction enable bit on the 1734-IT2I module to enable or disable the cold-junction linearization. If enabled, the proper cold-junction compensation value is applied to the selected thermocouple. If disabled, the data (CJ temperature) is still available but is not applied to the input. If the 1734-TBCJC is not available, this parameter should be set to disabled. A cold-junction value can be added using the cold-junction offset parameter.

Noise Filtering (1734-IR2)

You can select the type and amount of noise filtering on each individual channel.

- Notch filter of analog to digital converter
- First-order, low-pass digital filter

Choose the filter that provides you with the update and step response that most closely matches your system requirements.

1734 Analog Temperature Input Modules Technical Specifications

	1734-IR2	**1734-IR2E**	**1734-IT2I**
Number of inputs	2 RTD	2 high resolution RTD	2 thermocouple
Input signal range	0…600 Ω	0…220 Ω	±75 mV
Input resolution	16 bits 9.5 mΩ/cnt 0.03 °C/cnt (pt 385 @ 25 °C)	16 bits 2.4 mΩ/cnt 0.006 °C/cnt (Pt385 @ 25 °C)	15 bits + sign 2.5 mV/cnt(1)
Data format	Signed integer		
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

1734 Analog Temperature Input Modules Technical Specifications

	1734-IR2	1734-IR2E	1734-IT2I
Accuracy	Current Input: 0.1% Full Scale @ 25 °C Voltage Input: 0.1% Full Scale @ 25 °C		
Input update rate, per module	20 ms @ Notch = 50 Hz 17 ms @ Notch = 60 Hz (default) 10 ms @ Notch = 100 Hz 8 ms @ Notch = 120 Hz 5 ms @ Notch = 200 Hz 4 ms @ Notch = 240 Hz 3 ms @ Notch = 300 Hz 3 ms @ Notch = 400 Hz 2 ms @ Notch = 480 Hz		
Step response, per channel	60 ms @ Notch = 50 Hz 50 ms @ Notch = 60 Hz 30 ms @ Notch = 100 Hz 25 ms @ Notch = 120 Hz 15 ms @ Notch = 200 Hz 13 ms @ Notch = 240 Hz 10 ms @ Notch = 300 Hz 8 ms @ Notch = 400 Hz 6 ms @ Notch = 480 Hz		
Input impedance	—		100 kΩ
Input resistance	—		1 MΩ
Input conversion type	Delta Sigma		
Common mode rejection ratio	120 dB		
Normal mode rejection ratio	-100 dB, -3 dB Notch filter: 13.1 Hz @ Notch = 50 Hz 15.7 Hz @ Notch = 60 Hz 26.2 Hz @ Notch = 100 Hz 31.4 Hz @ Notch = 120 Hz 52.4 Hz @ Notch = 200 Hz 62.9 Hz @ Notch = 240 Hz 78.6 Hz @ Notch = 300 Hz 104.8 Hz @ Notch = 400 Hz 125.7 Hz @ Notch = 380 Hz		-60 dB, -3 dB Notch filter: 13.1 Hz @ Notch = 50 Hz 15.7 Hz @ Notch = 60 Hz 26.2 Hz @ Notch = 100 Hz 31.4 Hz @ Notch = 120 Hz 52.4 Hz @ Notch = 200 Hz 62.9 Hz @ Notch = 240 Hz 78.6 Hz @ Notch = 300 Hz 104.8 Hz @ Notch = 400 Hz 125.7 Hz @ Notch = 380 Hz
Overvoltage protection, inputs	No input protection		Input not overvoltage protected
Input calibration	Factory calibrated		
POINTBus current	220 mA @ 5V DC		175 mA @ 5V DC
Power dissipation, max	1.0 W		
Thermal dissipation, max	3.3 BTU/hr		
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 2200V DC for 60 s, I/O to system		
External DC supply voltage, nom	24V DC		—
External DC supply voltage range	10…28.8V DC		—

1734 Analog Temperature Input Modules Technical Specifications

	1734-IR2	1734-IR2E	1734-IT2I
External DC supply current, nom	15 mA @ 24V DC		—
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS		1734-TBCJC
Keyswitch position	6		

(1) Includes offset, gain, non-linearity and repeatability error terms.

Analog Output Modules

1734 Analog Output Modules Technical Specifications

	1734-OE2C	1734-OE2V	1734-OE4C
Number of outputs	2		4
Output signal range	4…20 mA 0…20 mA	0…10V ±10V	4…20 mA 0…20 mA
Output resolution	13 bits - over 0…21 mA 2.5 μA/cnt	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode	16 bits - over 0…21 mA 2.5 μA/cnt
Data format	Signed integer		
Accuracy	Current output: 0.1% Full Scale @ 25 °C(1)	Voltage output: 0.1% Full Scale @ 25 °C(1)	Current output: 0.1% Full Scale @ 25 °C(1)
Accuracy drift w/temp.	Current output: 30 ppm/°C	Voltage output: 5 ppm/ °C	Current output: <50 ppm/°C
Step response to 63% of FS, output	Current output: 24 μs	Voltage output: 20 μs	Current output: 40 μs
Output conversion rate	16 μs	20 μs	1 μs
POINTBus current	75 mA @ 5V DC		
Power dissipation, max	750 Ω load on each output - 1.23W 0 Ω load on each output - 1.83W	1.0W	750 Ω load on each output - 1.86W 0 Ω load on each channel - 2.15W
Thermal dissipation, max	750 Ω load on each output - 4.19 BTU/hr 0 Ω load on each output - 6.24 BTU/hr	3.4 BTU/hr	750 Ω load on each output - 6.34 BTU/hr 0 Ω load on each channel 7.33 BTU/hr
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS		
Keyswitch position	4		

(1) Includes offset, gain, non-linearity and repeatability error terms.

Analog and Temperature I/O Modules Environmental Specifications

1734 Analog and Temperature 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 @ 10...500 Hz
Enclosure type rating	None (open-style)
Mounting type	DIN Rail
Certifications (when product is marked)	c-UL-us, CE, C-Tick, Ex

Specialty I/O Modules

1734-232ASC and 1734-485ASC Serial Interface Modules

The 1734-232ASC and 1734-485ASC serial interface modules offer a serial-link communication interface solution for peripheral products with RS-232 (use the 1734-232ASC), RS-485, and RS-422 ports (use the 1734-485ASC). These modules allow a device with serial-interface output (for example, bar code readers) to communicate up to 128 bytes of ASCII data onto any network supported by the POINT I/O system. Each module is a single-channel, full-duplex interface and is rated for up to 38.4 Kbps. LED indicators on the modules offer diagnostics for the module, POINTBus backplane, and transmit/receive status indication.

1734 Serial Interface Modules Technical Specifications

	1734-232ASC, 1734-485ASC
Number of serial channels	1
POINTBus current (mA)	75
Power dissipation	0.75 W @ 28.8V DC
Thermal dissipation	2.5 BTU/hr max @ 28.8V DC
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
Keyswitch position	2 (specialty)
Serial port parameters	
Serial character framing	7N2, 7E1, 7O1, 8N1, 8N2, 8E1, 8O1, 7E2, 7O2
Serial port comm speed	9600 bps, 1200 bps, 2400 bps, 4800 bps, 19.2 kbps, 38.4 kbps

1734 Serial Interface Modules Technical Specifications

	1734-232ASC, 1734-485ASC
Serial port receive from ASCII device	
Number of receive chars, max	1…128
ReceiverRecord start mode	No, exclude, include start delimiter
Receive start delimiter	ASCII character
Receive record end mode	No, exclude, include end delimiter
Receive end delimiter	ASCII character
Send (produce) on DeviceNet to Master	
Receive string data type	Array, short_string, string
Pad mode	Pad mode disabled, enabled
Pad character	ASCII character
Receive swap mode	Disabled, 16-bit, 24-bit, 32-bit swap
DeviceNet handshake mode	Master/slave handshake, produce immediate
Produce assembly size	4…132
Serial data size	0…128 bytes
Receive transaction ID	0…255
Serial port transmit to ASCII device	
Number of transmit chars, max	1…128
Transmit end delimiter mode	No, exclude, include end delimiter
Transmit end delimiter character	ASCII character
Consume on DeviceNet from Master	
Consume string data type	Array, short_string, string
Transmit swap mode	Disabled, 16-bit, 24-bit, 32-bit swap
DeviceNet record header mode	Transmit handshake/immediate
Consume assembly size	4…132
Serial port transmit/explicit messages from configuration tool	
Transmit serial data string size	0…128 bytes
Transmitted serial data length	0…128 bytes
Transmit transaction ID	0…255
Status	TX FIFO overflow, RX FIFO overflow, RX parity error, handshake error, new data flag

1734-SSI Synchronous Serial Interface Module with Absolute Encoder

The 1734-SSI module collects serial data from industrial absolute-position encoding sensors that use standard SSI protocol. The SSI module is inserted

into a POINT I/O terminal base that provides common power, communications, and wiring connections for the SSI sensors.

1734-SSI Module Technical Specifications

	1734-SSI
Number of SSI channels	1
POINTBus current	110 mA
Power dissipation, max	0.94 W
Thermal dissipation, max	—
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
Keyswitch position	2
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 1250V AC for 60 s, field side to system
External DC supply voltage, nom	10…28.8V DC
Encoder type	Any absolute encoder supporting standard SSI protocol including linear, rotary, and optical distance measuring devices
SSI data rate	125 kHz, 250 kHz, 500 kHz, 1 MHz, 2 MHz (software selectable)
SSI bits per word	2…31 (software selectable)
SSI word length	4 bytes (32 bits)
SSI word delay time	16 µs…64 ms (software selectable)(1)
SSI features	Gray or binary code capable with gray to binary conversion, increasing or decreasing SSI count indication, 2 SSI word comparator values, SSI word latching with I1 input
SSI cable type	UL CM/AWM 2464/CSA Type CMG FT4 or similar cable utilizing shielded twisted pairs for D± and C± connections. See sensor manufacturer for actual cable required for the SSI sensor under use. I1 input can be wired separate from SSI cable.
SSI cable length	Depends on desired SSI data rate: 125 kHz…320 m(1050 ft) 250 kHz…160 m (525 ft) 500 kHz…60 m (195 ft) 1 MHz…20 m (65 ft) 2 MHz…8 m (25 ft)
SSI sensor power (at V+/- terminals)	10…28.8V DC common with field power voltage, 0.75A DC maximum with short circuit protection
SSI clock drive current, max (out of C+/- terminals)	750 mA
Input I1 category/type	Similar to IEC Type 3, sourcing
Voltage, on-state input, min	0V DC
Voltage, on-state input, max	Field Power Supply Voltage minus 10V

1734-SSI Module Technical Specifications

	1734-SSI
Current, on-state input, min	2 mA
Current, on-state input, nom	4 mA (Field Power Supply Voltage = 24V DC)
Current, on-state input, max	5 mA
Voltage, off-state input, min	Field Power Supply Voltage minus 5V
Voltage, off-state input, max	Equal to Field Power Supply Voltage
Current, off-state input, max	1.2 mA
Input impedance, nom	3.6 kΩ
Input impedance, max	4.7 kΩ
Input filter time, nom	0.5 ms
Field power supply voltage range	10…28.8V DC

(1) Time between successive SSI words (Tp). Also called Dwell Time.

1734-ARM Address Reserve Module

The 1734-ARM address reserve module reserves address and slot numbers to maintain the numbering schemes of purchased I/O module sets. Non-parameterized, signal modules' structure and address location are retained when replaced with a signal module. The 1734-ARM has no module configuration and does not communicate I/O data.

1734-ARM Module Technical Specifications

	1734-ARM
POINTBus current (mA)	75
Power dissipation, max	0.375 W @ 5V DC
Thermal dissipation, max	1.3 BTU/hr @ 5V DC
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS
Keyswitch position	Use the keyswitch position of the removed module

1734-CTM Common Terminal and 1734-VTM Voltage Terminal Modules

The POINT I/O Common Terminal Module (1734-CTM) and Voltage Terminal Module (1734-VTM) provide expansion of the termination capability of POINT I/O. Install the Common and Voltage Terminal Modules on a 1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS terminal base assembly to

provide support for higher density (8 channel) POINT I/O modules and management of wiring of field devices to the POINT I/O solution.

1734 Terminal Modules Technical Specifications

	1734-CTM	1734-VTM
POINTBus current (mA)	—	
Power dissipation	—	
Thermal dissipation	—	
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS	
Keyswitch position	5	
Isolation voltage	250V (continuous), Basic Insulation Type Type tested at 1600V DC for 60 s, field-side to system	
Field power supply voltage range	10…28.8V DC, 120/240V AC	
Field power supply current, max	2 A per point, 4 A module	
Terminal base screw torque	Determined by installed terminal block	
Field wiring terminations	0 - Common 1 - Common 2 - Common 3 - Common 4 - Common 5 - Common 6 - Common 7 - Common	0 - Voltage out 1 - Voltage out 2 - Voltage out 3 - Voltage out 4 - Voltage out 5 - Voltage out 6 - Voltage out 7 - Voltage out

1734-4IOL 4 Channel IO-Link Master Module

The POINT I/O 4 Channel IO-Link Master module provides four channels that can be individually configured as IO-Link master or as a standard digital I/O module. The IO-Link channel master module can be configured to fit any IO-Link and/or discrete application.

In IO-Link Master mode, the module supports four channels for IO-Link master communication with IO-Link compatible devices. In standard digital I/O mode, the module supports four channels of digital input or output. Digital input channels support IEC61131-2 type 1 input. Channels can also be disabled if not in use.

1734-4IOL Module Technical Specifications

	1734-4IOL
Number of inputs	4 single-ended, non-mutual isolated, configurable
Number of outputs	
Communication rate, IO-Link	4.8 kB; 38.4 kB; 230.4 kB

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 mm2 (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 Specialty I/O Modules Environmental Specifications

Vibration	5 g @ 10…500 Hz
Enclosure type rating	None (open-style)
Mounting type	DIN Rail
Certifications	c-UL-us, CE, RCM, KC

Counter Modules

The POINT I/O counter modules serve as signal conditioners and function blocks (that is, counters) between the customer process signals on the mounting base, and the POINTBus backplane containing the command information. The three main functional blocks are the customer digital I/O interface, the counter ASIC, and the microprocessor.

The counter modules accept feedback from:

- Encoders (either single-ended or differential)
- Pulse generators
- Mechanical limit switches
- Frequencies up to 1 MHz

A filter is available with four settings: 50 Hz, 500 Hz, 5 kHz, 50 kHz. The filter can be turned off to achieve the fastest counting rate.

The modules return the count or frequency in the form of a 24-bit binary number (0…16,777,215) expressed in a 32-bit word. Each counter has a user-selectable preset and rollover value associated with it.

The counter modules operate in the following modes.

- Counter mode — read incoming single-phase pulses, return a binary count.
- Encoder mode — read incoming two-phase quadrature pulses, return a binary count.
- Period/rate mode — count internal clocks during the on period, return a frequency (1734-VHSC24 and 1734-VHSC5 outputs are updated only at the end of the period).
- Continuous/rate mode — count internal clocks during the on period, return a frequency (1734-VHSC24 and 1734-VHSC5 outputs are updated continuously during this period).
- Rate measurement mode — read pulses during the sample period, return a frequency.
- Pulse width modulation (PWM) mode — generate a pulse width modulated signal (1734-VHSC24 and 1734-VHSC5 only).
- Pulse generator mode — generates a pulse of defined width, returns width and quantity of trigger (1734-VHSC24 and 1734-VHSC5 only).

The operation of the counter and encoder modes is nearly identical. The difference between the two modes is in the type of feedback (one-phase versus two-phase) for the count direction (up or down). In encoder mode, a transition is expected on B for counting to proceed in a direction. In counter mode, the B input may be left at a static level. All operating modes are selected by writing appropriate configuration data to the module.

1734 Incremental Encoder Modules Technical Specifications

	1734-IJ	1734-IK
Number of counters	1	
Input frequency, max	1.0 MHz counter and encoder X1 configurations (no filter) 500 kHz encoder X2 configuration (no filter) 250 kHz encoder X4 configuration (no filter)	
Voltage category/type, input	5V DC A/Areturn, B/Breturn, Z/Zreturn	24V DC A/Areturn, B/Breturn, Z/Zreturn
Current, off-state input, max	≤0.250 mA	≤0.250 mA
Voltage, off-state input, max	≤1.25V DC	≤1.8V DC
Current, on-state input, min	≥5 mA	
Current, on-state input, max	25.7 mA @ 6V DC 19.1 mA @ 5V DC	6.1 mA @ 15V DC or 10.2 mA @ 24V DC
Voltage, on-state input, min	≥2.6V DC	≥12.5V DC
Voltage, on-state input, max	≤6V DC	Refer to input derating curve
Input filter selections, per A/B/Z group	Off 10 μs (50 kHz) 100 μs (5 kHz) 1.0 ms (500 Hz) 10.0 ms (50 Hz)	
Power dissipation, max	1.1 W @ rated load	1.5 W @ rated load
Thermal dissipation, max	3.75 BTU/hr @ rated load	5.1 BTU/hr @ rated load
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS	
Keyswitch position	2	
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 1100V DC for 60 s, field-side to system	
External DC supply voltage, nom	No additional external power required to power module	

1734 VHSC Modules Technical Specifications

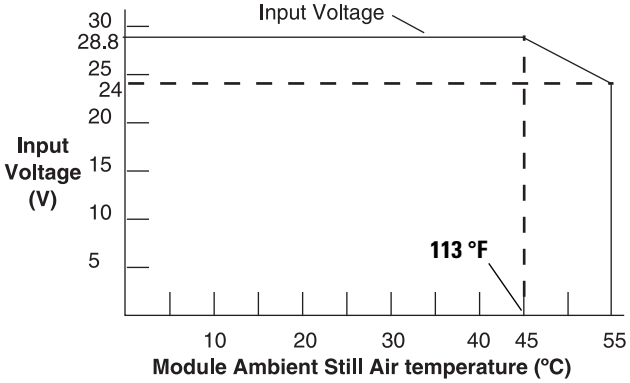
	1734-VHSC24	1734-VHSC5
Number of counters	1	
Number of compare windows	4	
Output groups	1 group of 2	
Voltage category/type, input	24V DC	5V DC
Current, off-state input, max	≤0.250 mA	≤0.250 mA

1734 VHSC Modules Technical Specifications

Voltage, off-state input, max	≤1.8V DC	≤1.25V DC
Current, on-state input, min	≥5 mA	
Current, on-state input, max	10.2 mA @ 24V DC or 6.1 mA @ 15V DC	25.7 mA @ 6V DC 19.1 mA @ 5V DC
Voltage, on-state input, min	≥12.5V DC	≥2.6V DC
Voltage, on-state Input, max	Refer to input derating curve	≥2.6V DC
Input filter selections	Off 10 µs (50 kHz) 100 µs (5 kHz) 1.0 ms (500 Hz) 10.0 ms (50 Hz)	
Input frequency, max	1.0 MHz counter and encoder X1 configurations (no filter) 500 kHz encoder X2 configuration (no filter) 250 kHz encoder X4 configuration (no filter)	
Output delay time off to on	25 µs (load dependent)	
Power dissipation, max	1.9 W @ rated load	1.5 W @ rated load
Thermal dissipation, max	6.5 BTU/hr @ rated load	5.1 BTU/hr @ rated load
Terminal base unit	1734-TB, 1734-TBS, 1734-TOP, or 1734-TOPS	
Keyswitch position	2	
Isolation voltage	50V (continuous), Basic Insulation Type Type tested at 1100V DC for 60 s, field-side to system	
External DC supply voltage, nom	No additional external power required to power module(1)	

(1) Does not represent power required to supply outputs.

1734-VHSC24 Input Derating Curve



Note: Exceeding the maximum input voltage can cause permanent damage to the input.