

Technical Data

Original Instructions



Allen-Bradley

by ROCKWELL AUTOMATION

1719 Ex I/O

Communication Adapter Catalog Number 1719-AENTR

I/O Module Catalog Numbers 1719-IJ, 1719-IBN8B, 1719-IBN8, 1719-IF4HB, 1719-IR4B, 1719-IT4B, 1719-OB2, 1719-OB2L, 1719-CF4H

Power Supply Catalog Number 1719-PSDC

Backplane Catalog Numbers 1719-A22, 1719-A8, 1719-A24

Terminal Block Catalog Numbers 1719-TB6, 1719-TB6S, 1719-TB8, 1719-TB8S, 1719-TB8Sx2, 1719-TB8x2SA, 1719-TB8x2, 1719-TB6F, 1719-TB8F, 1719-TB8x2F

Connection Cable Catalog Number 1719-CBL

Placeholder Module Catalog Number 1719-ARM

Separation Plate Catalog Number 1719-SP1

Topic	Page
Summary of Changes	2
1719 Ex I/O Communication Adapter	6
1719 Ex I/O Digital Input	8
1719 Ex I/O Analog Input	11
1719 Ex I/O Analog Input/Output	16
1719 Ex I/O Digital Output	19
1719 Ex I/O Power Supply	21
1719 Ex I/O Backplane	23
1719 Ex I/O Terminal Blocks	24
1719 Ex I/O Connection Cable	25
1719 Ex I/O Placeholder	26
1719 Ex I/O Separation Plate	26
Additional Resources	27



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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Corrected AWG range for 1719-IBN8, Connection specification	10

1719 Ex I/O Products

Communication Adapter

Type	Function	Features
1719-AENTR	The EtherNet/IP™ adapter forms the interface between the I/O modules on the backplane and the process control system. It supports all single width and dual width I/O modules. Thereby signals from NAMUR sensors, mechanical contacts, high-power solenoid drivers, power relays, sounders, and alarm LEDs are transported to the higher-level bus system. The adapter supports HART.	• Communication through EtherNet/IP • HART communication through EtherNet/IP • Interface between the I/O modules and the PCS/PLC • Installation in Zone 2 or Class I, Div. 2, or safe area • Nonvolatile memory for configuration and parameter settings • Permanently self-monitoring • Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Digital Input Modules

Type	Function	Features
1719-IJ	The device accepts digital input signals of NAMUR sensors or mechanical contacts from the hazardous area. Open and short-circuit line faults are detected. The intrinsically safe inputs are galvanically isolated from the bus and the power supply.	• 1-channel (1719-IJ); 8-channel (1719-IBN8B, 1719-IBN8) • Input Ex ia • Input for frequency, counter, direction of rotation (1719-IJ) • Digital input max 15 kHz (1719-IJ) • Dry contact or NAMUR inputs (1719-IBN8B, 1719-IBN8) • Installation in Zone 2 or Class I, Div. 2, or safe area • Line fault detection (LFD) • Permanently self-monitoring • Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾ • Module can be exchanged under voltage when the area is nonhazardous
1719-IBN8B		
1719-IBN8		

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Analog Input Modules

Type	Function	Features
1719-IF4HB	The transmitter power supply feeds 2-wire transmitters. Active signals from separately powered field devices and 4-wire transmitters can be connected. Open and short-circuit line faults are detected. The intrinsically safe inputs are galvanically isolated from the bus and the power supply.	• 4-channel • Inputs Ex ia • Power supply for 2-wire transmitters with 4 mA...20 mA (1719-IF4HB) • Converter for 2-, 3-, and 4-wire RTDs (Pt100...Pt1000), slide wire sensors and so on (1719-IR4B)
1719-IR4B	The RTD converter accepts 2-, 3-, 4-wire RTD signals (Pt100...Pt1000) and slide-wire sensors from the field. Ni100 through Ni1000 can also be connected. Open and short-circuit line faults are detected. The intrinsically safe inputs are galvanically isolated from the bus and the power supply.	• Converter for thermocouples and mV-signals (1719-IT4B) • Supply circuit 15V (20 mA) (1719-IF4HB) • Input from active signals of 4-wire transmitters (1719-IF4HB) • Installation in Zone 2 or Class I, Div. 2, or safe area • HART communication (1719-IF4HB) • Line fault detection (LFD) (1719-IF4HB, 1719-IR4B, 1719-IT4B): one LED per channel (1719-IF4HB)
1719-IT4B	The thermocouple converter accepts thermocouple or mV signals from the field. Open circuit line fault alarms are detected. The intrinsically safe inputs are galvanically isolated from the bus and the power supply. There is a functional isolation between the channels.	• Permanently self-monitoring • Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾ • Module can be exchanged under voltage when the area is nonhazardous

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Configurable Analog Input/Output Modules

Type	Function	Features
1719-CF4H	The device is a configurable analog input/analog output module. The module can operate in the following modes: - As an analog input (AI) it feeds 2-wire transmitters. - As an analog output (AO) it can drive proportional valves, I/P converters, or local indicators. The intrinsically safe signals are galvanically isolated from the bus and the power supply.	4-channel - Inputs Ex ia, Outputs Ex ia - Installation in Zone 2 or Class I, Div. 2, or safe area - Analog input, analog output - Supply circuit 21.5V (4 mA) - HART communication - Line fault detection (LFD): one LED per channel - Permanently self-monitoring - Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾ - Module can be exchanged under voltage when the area is nonhazardous

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Digital Output Modules

Type	Function	Features
1719-OB2 1719-OB2L	The digital output features two independent channels. The device can be used to drive solenoids, sounders, or LEDs. Open and short-circuit line faults are detected in on and off state. The intrinsically safe outputs are galvanically isolated from the bus and the power supply. The output can be switched off via a contact. This can be used for safety applications.	- Outputs Ex ia - Installation in Zone 2 or Class I, Div. 2, or safe area 2-channel - Line fault detection (LFD); one LED per channel - Positive or negative logic selectable - Permanently self-monitoring - Output with deactivation feature - Can be configured in High Current mode - Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾ - Module can be exchanged under voltage when the area is nonhazardous

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Power Supply Module

Type	Function	Features
1719-PSDC	The power supply provides power for the I/O modules and adapters mounted on the backplane. Power supplies can be connected in parallel to achieve redundancy. Two power supplies may be needed, depending on the number and power consumption of the modules used. A third power supply then handles redundancy. Input supply and output supply are galvanically isolated from each other (EN 61010-1).	- Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾ - Installation in Zone 2 or Class I, Div. 2, or safe area - Use up to three 1719-PSDC power supplies for N+1 redundancy - Power supply of I/O modules and adapters - Module can be exchanged under voltage when the area is nonhazardous

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Terminal Blocks

Type	Function	Features
1719-TB6 1719-TB6S 1719-TB8 1719-TB8S 1719-TB8x2 1719-TB8Sx2 1719-TB8x2SA 1719-TB6F 1719-TB8F 1719-TB8x2F	Terminal blocks are wired to the field devices, attached to the front sockets of the I/O modules, and tightened using the screws. Terminal blocks can come in the form of side screw terminals, front screw terminals, or spring terminals.	- Side screw terminal (1719-TB6, 1719-TB8, 1719-TB8x2) - Front screw terminal (1719-TB6F, 1719-TB8F, 1719-TB8x2F) - Spring terminal (1719-TB6S, 1719-TB8S, 1719-TB8Sx2, 1719-TB8x2SA) - For 1719 Ex I/O modules 6-pole, Labeled 1...6 (1719-TB6, 1719-TB6S, 1719-TB6F) 8-pole, Labeled 1...8 (1719-TB8, 1719-TB8S, 1719-TB8F) 2 x 8-pole, Labeled 1...8 and 9...16 (1719-TB8x2, 1719-TB8Sx2, 1719-TB8x2SA, 1719-TB8x2F) - Color blue - For Ex ia or Ex ib applications

Connection Cable

Type	Function	Features
1719-CBL	Extension backplanes are delivered with a 1-m-long double ended cordset. The double-ended cordset establishes the connection to the base backplane.	- Connection of base and extension backplanes - For 1719 Ex I/O modules

Placeholder

Type	Function	Features
1719-ARM	Placeholder modules are used to cover empty slots on the backplane and fix unused field wiring, if needed. This module does not reserve an address. This module can be placed in any sequence on the chassis.	- Placeholder module - Blue screw terminal - Permits vertical or horizontal mounting in Zone 2 ⁽¹⁾

(1) If you mount the backplane vertically, position the power supplies at the top to achieve a favorable heat distribution.

Separation Plate

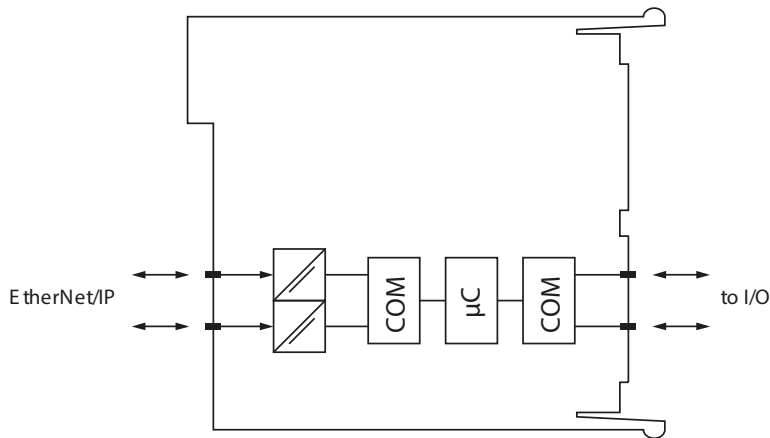
Type	Function	Features
1719-SP1	The separation plate helps ensure that intrinsically safe and non-intrinsically safe circuits meet the minimum distance.	Ensures a clearance of 50 mm between intrinsically safe circuits and non-intrinsically safe circuits, as required by IEC 60079-14 and IEC 60079-11.

1719 Ex I/O Modules

Type	Catalog Number	Description	Page
Communication Adapter	1719-AENTR	Ex I/O EtherNet/IP Adapter	6
Digital Input	1719-IJ	Ex I/O Frequency Counter	8
	1719-IBN8B	Ex I/O 8 Point Digital Input NAMUR Wide	9
	1719-IBN8	Ex I/O 8 Point Digital Input NAMUR	
Analog Input	1719-IF4HB	Ex I/O 4 Channel HART Analog Input Wide	11
	1719-IR4B	Ex I/O 4 Channel RTD Input Wide	
	1719-IT4B	Ex I/O 4 Channel Thermocouple Input Wide	
Configurable Analog Input/Output	1719-CF4H	Ex I/O 4 Channel HART Analog Configurable	16
Digital Output	1719-OB2	Ex I/O 2 Point Digital Output 23V	19
	1719-OB2L	Ex I/O 2 Point Digital Output 16.5V	
Power Supply	1719-PSDC	Ex I/O DC Power Supply	21
Backplane	1719-A22	Ex I/O 22 Slot Base Chassis	23
	1719-A8	Ex I/O 8 Slot Base Chassis	
	1719-A24	Ex I/O 24 Slot Extension Chassis	
Terminal Blocks	1719-TB6	Ex I/O 6 Pole Screw Terminal	24
	1719-TB6S	Ex I/O 6 Pole Spring Terminal	
	1719-TB8	Ex I/O 8 Pole Screw Terminal	
	1719-TB8S	Ex I/O 8 Pole Spring Terminal	
	1719-TB8x2	Ex I/O 2x8 Pole Screw Terminal	
	1719-TB8Sx2	Ex I/O 2x8 Pole Spring Terminal	
	1719-TB8x2SA	Ex I/O 2x8 Pole Spring Terminal for 1719-IBN8	
	1719-TB6F	Ex I/O 6 Pole Front Screw Terminal	
	1719-TB8F	Ex I/O 8 Pole Front Screw Terminal	
	1719-TB8x2F	Ex I/O 2x8 Pole Front Screw Terminal	
Connection Cable	1719-CBL	Ex I/O Chassis Extension Cable 1 m	25
Placeholder	1719-ARM	Ex I/O Empty Slot Cover	26
Separation Plate	1719-SP1	Ex I/O Separation Plate	26

1719 Ex I/O Communication Adapter

1719-AENTR Ex I/O EtherNet/IP Adapter - Connection



Technical Specifications

Attribute	1719-AENTR
Supply	
Connection	Backplane bus
Rated voltage	U _n Use only in connection with the power supply module 1719-PSDC
Power dissipation	3.0 W
Power consumption	3.0 W
Fieldbus Interface	
Fieldbus type	EtherNet/IP
Ethernet Interface	
Connection type	RJ-45, via front connector
Transfer rate max	Full Duplex 10 Mbps; Full duplex 100 Mbps; Half Duplex 100 Mbps
Station connection	Directly to PCS or PLC or via hubs or switches
Bus length	≤ 100 m (≤ 328 ft) (CAT 7 cable) SF/UTP in accordance with ISO/IEC 11801
Addressing	IP address assigned via Ethernet
Ethernet address	IP V4 address (ex works standard: 0.0.0.0, auto IP, DHCP)
Supported I/O modules	All 1719 remote I/O modules
HART communication	Via Ethernet
Internal Bus	
Connection	Backplane bus
Indicators/Settings	
LED indicator	OK LED (Adapter Status): Steady off: No Power - The adapter has no power. Steady green: Adapter and rack operational - Adapter and all modules in the rack are operating without fault. Steady red: Fault - At least one module in the rack has detected a fault. Examine the display or the other modules in the rack for their status indicator condition. Flashing green/red: Self test - The adapter is booting up or performing power on self tests. NET LED (Network Status): Steady off: No power, no IP address - The adapter has no power or no IP address has been assigned or obtained. Steady green: Connected - The adapter has at least one established connection (either to itself or to an I/O module). Flashing green: No connections - The adapter has an IP address, but there are no established connections (either to itself or an I/O module). Flashing red: Connection timeout - One or more of the connections (either to itself or to an I/O module) has timed out. Steady red: Duplicate IP - The adapter has detected that its IP address is already in use. Flashing green/red: Self test - The adapter is booting up or performing power on self tests LINK1 LED (Link Status Port 1): Steady off: No Link - No link is established on this port. Flashing green: Activity - Indicates activity on this port. LINK2 LED (Link Status Port 2): Steady off: No Link - No link is established on this port. Flashing green: Activity - Indicates activity on this port.

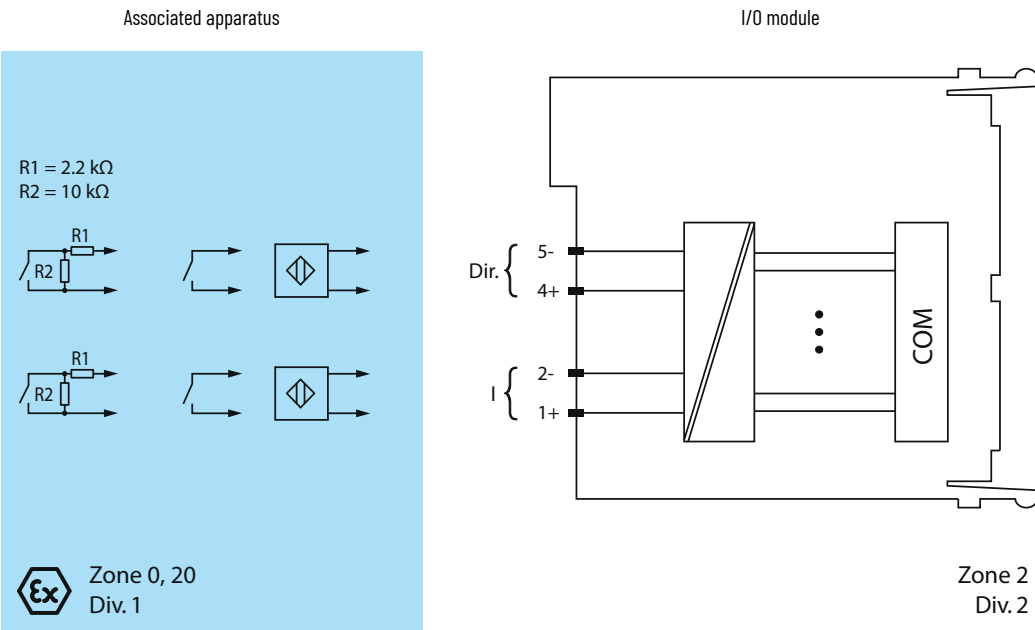
Zone 2
Div. 2

Technical Specifications (Continued)

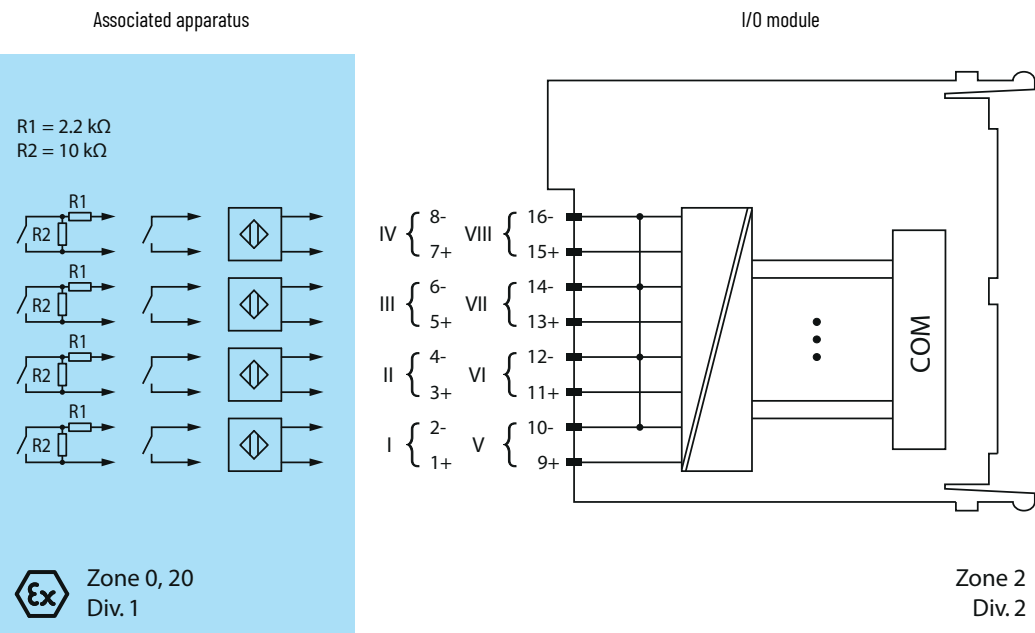
Attribute	1719-AENTR
Directive Conformity	
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Degree of protection	IEC 60529
Fieldbus standard	IEEE 802.3
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-56
Ambient Conditions	
Ambient temperature	-20...+60 °C (-4...+140 °F)
Storage temperature	-25...+85 °C (-13...+185 °F)
Relative humidity	95% noncondensing
Shock resistance	Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	Designed for operation in environmental conditions according to ISA-S71.04-1985, severity level G3
Mechanical Specifications	
Degree of protection	IP20 (module), mounted on backplane
Connection	Via backplane
Mass approx	150 g (5.29 oz)
Dimensions approx	32 x 100 x 103 mm (1.26 x 3.9 x 4 in)
Data for Application in Connection with Ex-areas	
Type Examination Certificate Group, category, type of protection	DEMKO 16 ATEX 1780X Ⓔ II 3 G Ex nA IIC T4 Gc
Directive conformity Directive 2014/34/EU	EN 60079-0:2012+A11:2013; General Requirements EN 60079-15:2010; Potentially explosive atmospheres, protection "n"
International Approvals	
UL approval	E106378
IECEX approval Approved for	IECEX UL 16.0141X Ex nA IIC T4 Gc
General Information	
System information	The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .

1719 Ex I/O Digital Input

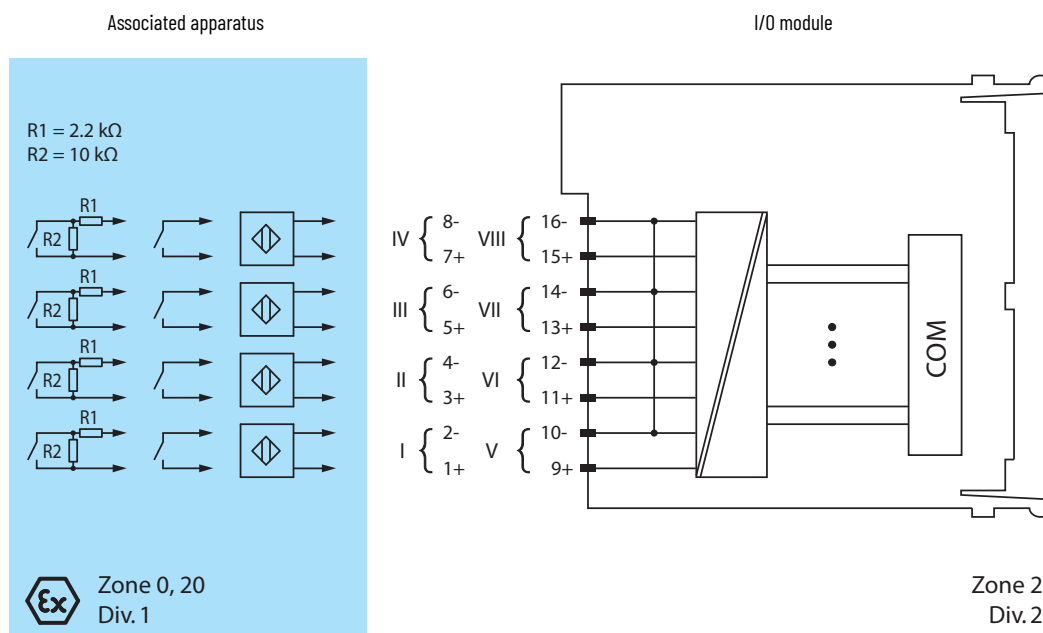
1719-IJ Ex I/O Frequency Counter - Connection



1719-IBN8B Ex I/O 8 Point Digital Input NAMUR Wide - Connection



1719-IBN8 Ex I/O 8 Point Digital Input NAMUR - Connection



Technical Specifications

Attribute	1719-IJ	1719-IBN8B	1719-IBN8
Supply			
Connection	Backplane bus		
Rated voltage	U _n	12V DC, only in connection with the power supply 1719-PSDC	
Power dissipation	0.6 W	1.0 W	1.5 W
Power consumption	0.6 W	1.0 W	1.5 W
Wires			
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)		—
Wire type	Shielded		
Wire size	0.14...1.5 mm ² (26...16 AWG)		0.14...0.5 mm ² (26...20 AWG)
Internal Bus			
Connection	Backplane bus		
Interface	Manufacturer-specific bus to standard adapter		
Input			
Number of channels	1	8	
Suitable sensors	Frequency, counter, direction of rotation, NAMUR proximity switches, mechanical contacts	Mechanical contacts, NAMUR proximity switches	
Connection	Channel I: 1+, 2-; Direction: 4+, 5-	Channel I: 1+, 2-; Channel II: 3+, 4-; Channel III: 5+, 6-; Channel IV: 7+, 8-; Channel V: 9+, 10-; Channel VI: 11+, 12-; Channel VII: 13+, 14-; Channel VIII: 15+, 16-	
Rated values	According to EN 60947-5-6 (NAMUR)		
Switching point/switching hysteresis	1.2...2.1 mA / ± 0.2 mA		
Voltage	8.2V		
Internal resistor	1 kΩ		
Line fault detection	Can be switched on/off for each channel via the Add-on Profile		
Connection	Mechanical switch with additional resistors (see connection diagram), proximity switches without additional wiring		
Short-circuit	< 360 Ω		
Open-circuit	< 0.35 mA		
Operating frequency	0...15 kHz in frequency mode 0...40 Hz in frequency + counter mode	—	
Minimum pulse duration	—	1 ms	15 ms

Technical Specifications (Continued)

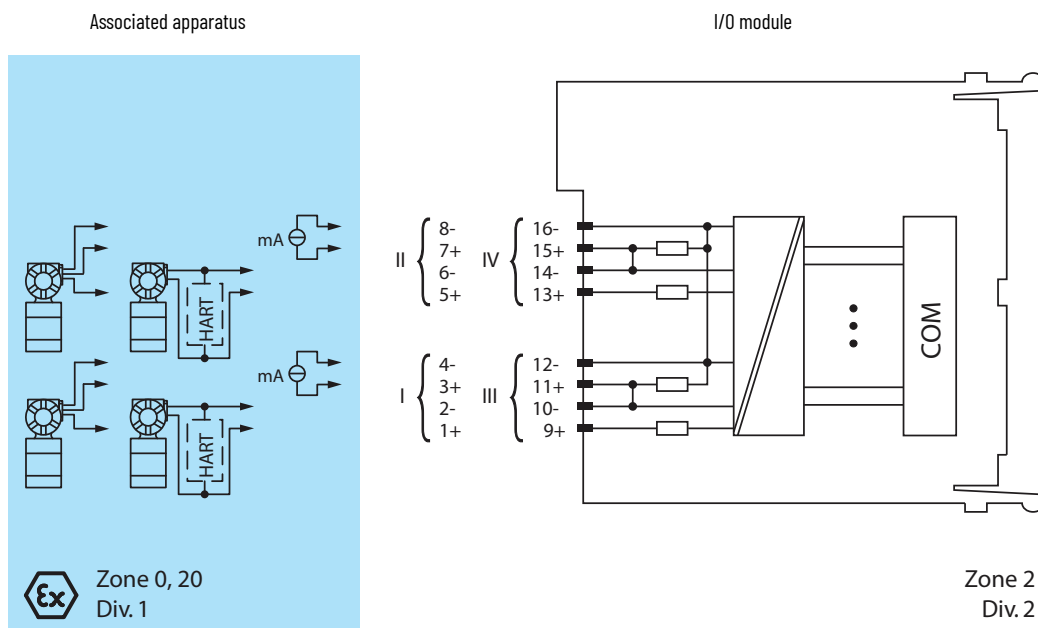
Attribute	1719-IJ	1719-IBN8B	1719-IBN8
Indicators/Settings			
LED indicator	Power LED (P) green: supply Status LED (I) red: line fault		Power LED (P) green: supply Diagnostic LED (I) red: module fault, red flashing: communication error, white flashing: requests parameters from adapter Status LED (1...8) red: line fault (lead breakage or short circuit), yellow: signal (per channel)
Coding	Optional mechanical coding via front socket using coding pins (1719-CP). For more information see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .		—
Directive Conformity			
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013		
Conformity			
Electromagnetic compatibility	NE 21		
Degree of protection	IEC 60529		
Environmental test	EN 60068-2-14		
Shock resistance	EN 60068-2-27		
Vibration resistance	EN 60068-2-6		
Damaging gas	EN 60068-2-42		
Relative humidity	EN 60068-2-56		
Ambient Conditions			
Ambient temperature	-20...+60 °C (-4...+140 °F)		
Storage temperature	-25...+85 °C (-13...+185 °F)		
Relative humidity	95% noncondensing		
Shock resistance	Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18		
Vibration resistance	Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance		
Damaging gas	Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3		
Mechanical Specifications			
Degree of protection	IP20 when mounted on backplane		
Connection	Removable front connector with screw flange (accessory) Wiring connection (for all terminals): 0.14...1.5 mm ² (26...16 AWG)		Removable front connector (accessory) Wiring connection via spring terminal only: 0.14...0.5 mm ² (26...20 AWG)
Mass approx	90 g (3.17 oz)	130 g (4.59 oz)	90 g (3.17 oz)
Dimensions approx	16 x 100 x 103 mm (0.63 x 3.9 x 4 in)	32 x 100 x 103 mm (1.26 x 3.9 x 4 in)	16 x 100 x 103 mm (0.63 x 3.9 x 4 in)
Data for Application in Connection with Ex-areas			
EC-Type Examination Certificate Group, category, type of protection	PTB 03 ATEX 2042 ⚡ II (1) G [Ex ia] IIC ⚡ II (1) D [Ex ia] IIIC		EXA 13 ATEX 0036X ⚡ II 3(1) G Ex nA [ia Ga] IIC T4 Gc ⚡ II (1) D [Ex ia Da] IIIC
Input Voltage Current Power	U ₀ I ₀ P ₀ 10.5V 23.3 mA 61.2 mW (linear characteristic)	14.9V 15.7 mA 58.2 mW (linear characteristic)	10V 13 mA 33 mW (linear characteristic)
Statement of conformity Group, category, type of protection, temperature class	PF 08 CERT 1234 X ⚡ II 3 G Ex nA IIC T4 Gc		—
Electrical isolation Input/power supply, internal bus	Safe electrical isolation according to EN 60079-11, voltage peak value 375V		
Directive conformity Directive 2014/34/EU	EN 60079-0:2012+A11:2013; General Requirements EN 60079-11:2012; Equipment protection by intrinsic safety "i" EN 60079-15:2010; Potentially explosive atmospheres, protection "n"		
International Approvals			
UL approval	E106378		
IECEx approval Approved for	BVS 09.0037X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC		EXA 13.0003X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC

Technical Specifications (Continued)

Attribute	1719-IJ	1719-IBN8B	1719-IBN8
General Information			
System information	The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.		
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .		

1719 Ex I/O Analog Input

1719-IF4HB Ex I/O 4 Channel HART Analog Input Wide - Connection



Technical Specifications

Attribute	1719-IF4HB
Supply	
Connection	Backplane bus
Rated voltage	U_n 12V DC, only in connection with the power supply 1719-PSDC
Power dissipation	2 W
Power consumption	3 W
Wires	
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)
Wire type	Shielded
Wire size	0.14...1.5 mm ² (26...16 AWG)
Internal Bus	
Connection	Backplane bus
Interface	Manufacturer-specific bus to standard adapter
Input	
Number of channels	4
Suitable field devices	Transmitters for pressure, differential pressure, level, flow, temperature, and so on.

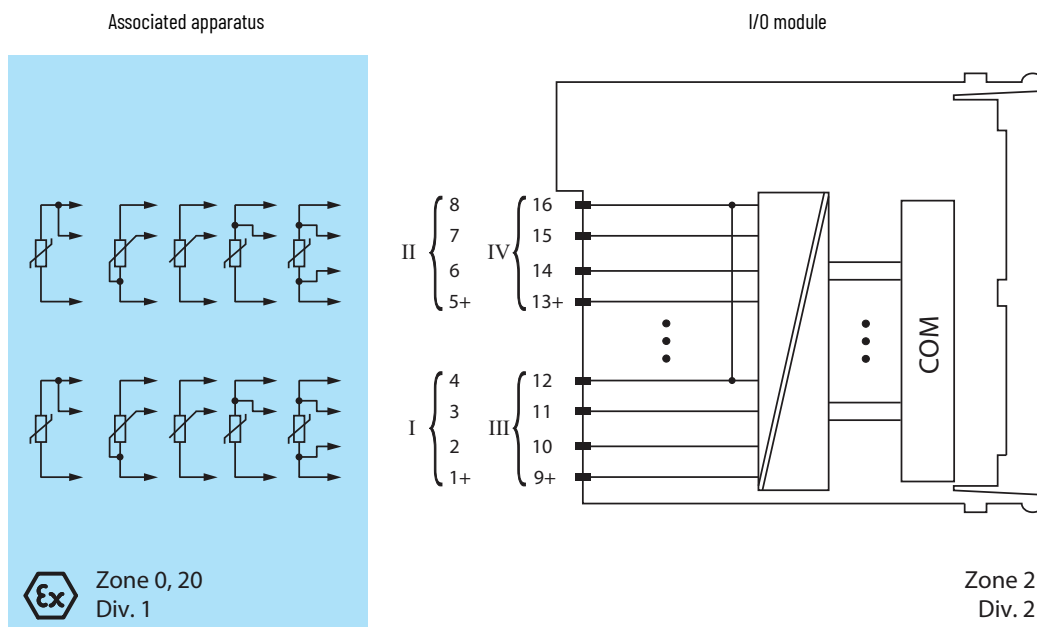
Technical Specifications (Continued)

Attribute	1719-IF4HB
Connection	2-wire transmitter (HART): Supply circuit: Channel I 1+, 2-; Channel II 5+, 6-; Channel III 9+, 10-; Channel IV 13+, 14- 3-wire transmitter: Supply circuit: Channel I 1+, 4-; Channel II 5+, 8-; Channel III 9+, 12-; Channel IV 13+, 16- Measuring circuit: Channel I 3+, 4-; Channel II 7+, 8-; Channel III 11+, 12-; Channel IV 15+, 16- 4-wire transmitter (separately powered): Measuring circuit: Channel I 3+, 4-; Channel II 7+, 8-; Channel III 11+, 12-; Channel IV 15+, 16-
Input resistance	15 Ω (Channel I: 3, 4; Channel II: 7, 8; Channel III: 11, 12; Channel IV: 15, 16)
Line fault detection	Can be switched on/off for each channel via the Add-on Profile, configurable via the Add-on Profile
Short-circuit	> 21 mA
Open-circuit	< 1 mA
Transmitter supply voltage	$\geq$ 15V at 20 mA; 21.5V at 4 mA
Transfer Characteristics	
Deviation After calibration Influence of ambient temperature	0.1% of the signal range at 20 °C (68 °F) 0.1%/10 K of the signal range
Resolution	12 Bit (0...26 mA)
Refresh time	100 ms
Indicators/Settings	
LED indicator	Power LED (P) green: supply Diagnostic LED (I) red: module fault, red flashing: communication error, white flashing: requests parameters from the adapter Status LED (1...4) red: line fault (lead breakage or short-circuit)
Coding	Optional mechanical coding via front socket using coding pins (1719-CP). For more information see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .
Directive Conformity	
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-78
Ambient Conditions	
Ambient temperature	-20...+60 °C (-4...+140 °F)
Storage temperature	-25...+85 °C (-13...+185 °F)
Relative humidity	95% noncondensing
Shock resistance	Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance	Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration $\pm$ 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration $\pm$ 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas	Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3
Mechanical Specifications	
Degree of protection	IP20 when mounted on backplane
Connection	Removable front connector with screw flange (accessory) Wiring connection (for all terminals): 0.14...1.5 mm ² (26...16 AWG)
Mass approx	150 g (5.29 oz)
Dimensions approx	32 x 100 x 103 mm (1.26 x 3.9 x 4 in)
Data for Application in Connection with Ex-areas	
EC-Type Examination Certificate Group, category, type of protection, temperature class	BVS 12 ATEX E 024 X Ⓔ II 3(1) G Ex nA [ia Ga] IIC T4 Gc Ⓔ II (1) D [Ex ia Da] IIIC

Technical Specifications (Continued)

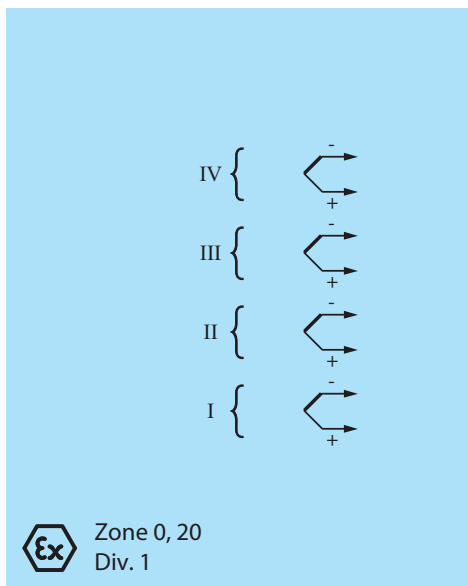
Attribute		1719-IF4HB
Supply	Voltage	U_o 27V
	Current	I_o 90 mA
	Power	P_o 588 mW (linear characteristic)
Input	Voltage	U_o 0.7V
	Current	I_o 2.78 mA
	Power	P_o 2 mW (trapezoid characteristic curve)
Electrical isolation Input/power supply, internal bus		Safe electrical isolation according to EN 60079-11, voltage peak value 375V
Directive conformity Directive 2014/34/EU		EN 60079-0:2012+A11:2013; General Requirements EN 60079-11:2012; Equipment protection by intrinsic safety "i" EN 60079-15:2010; Potentially explosive atmospheres, protection "n" EN 60079-26:2015; Equipment with equipment protection level (EPL) Ga
International Approvals		
UL approval		E106378
IECEx approval Approved for		BVS 12.0055X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
General Information		
System information		The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .

1719-IR4B Ex I/O 4 Channel RTD Input - Connection

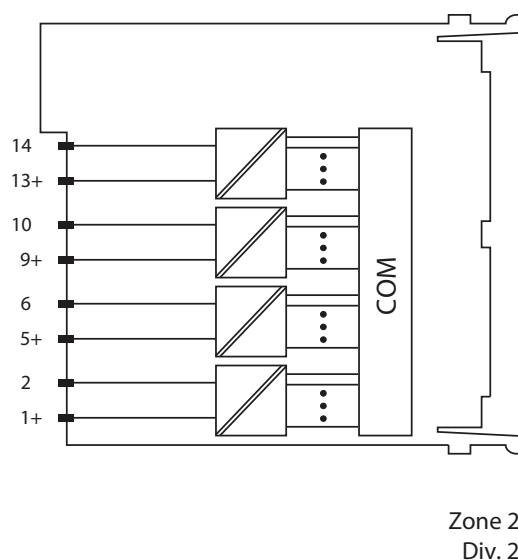


1719-IT4B Ex I/O 4 Channel Thermocouple Input - Connection

Associated apparatus



I/O module



Technical Specifications

Attribute	1719-IR4B	1719-IT4B
Supply		
Connection	Backplane bus	
Rated voltage	U _n	12V DC, only in connection with the power supply 1719-PSDC
Power dissipation	0.40 W	0.70 W
Power consumption	0.40 W	0.70 W
Wires		
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)	
Wire type	Shielded	
Wire size	0.14...1.5 mm ² (26...16 AWG)	
Internal Bus		
Connection	Backplane bus	
Interface	Manufacturer-specific bus to standard adapter	
Input		
Number of channels	4	
Suitable sensors	2-, 3-, 4-wire connection, thermocouple, slide wire sensors	Thermocouples U, B, E, T, K, S, R, L, J, N, Pallaplat, and mV sources
Connection	Channel I: resistance/potentiometer input 1...4 Channel II: resistance/potentiometer input 5...8 Channel III: resistance/potentiometer input 9...12 Channel IV: resistance/potentiometer input 13...16 The actual connection and terminals in use depend on the wiring mode (2-, 3-, or 4-wire mode)	Channel I: 1+, 2-; Channel II: 5+, 6-; Channel III: 9+, 10-; Channel IV: 13+, 14-
Lead resistance	≤ 50 Ω per strand	—
Measurement range	Pt100 (18...390 Ω) (500 Ω incl. line resistance) Pt200 (37...780 Ω) Pt500 (92...1952 Ω) Pt1000 (185...3905 Ω) Ni100 (69...270 Ω) Ni500 (345...1350 Ω) Ni1000 (690...2700 Ω)	-65...+75 mV

Technical Specifications (Continued)

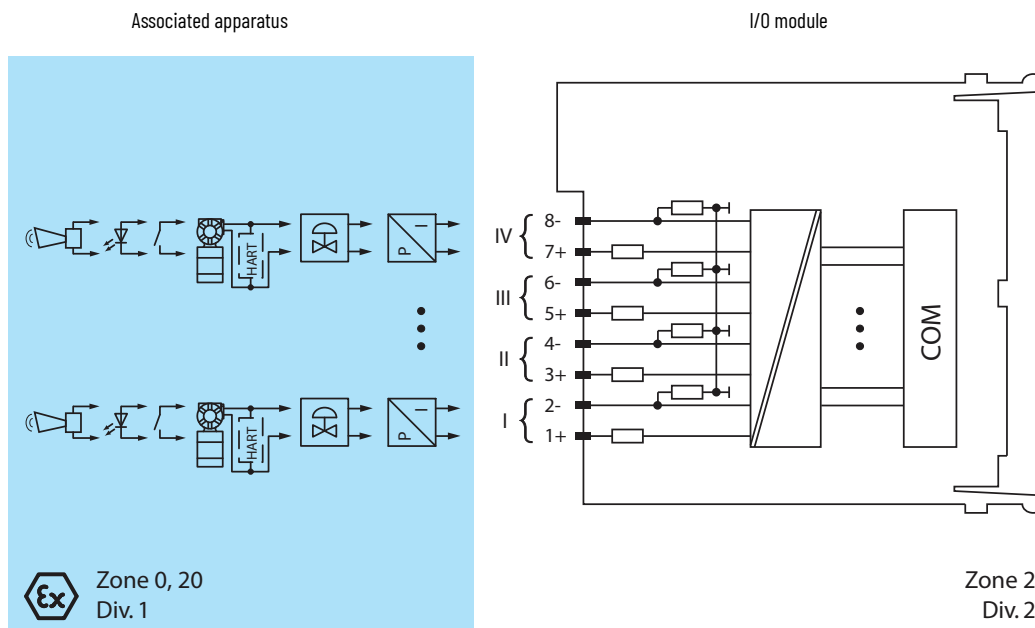
Attribute	1719-IR4B	1719-IT4B
Temperature coefficient	Pt100 – 385 Pt200 – 385 Pt500 – 385 Pt1000 – 385 Ni100 – 618 Ni500 – 618 Ni1000 – 618	—
Slide-wire sensor	0...10000 Ω	—
Measuring current	200 μA	—
Line fault detection	Can be switched on/off for each channel via the Add-on Profile	
Short-circuit	< 10 Ω	—
Open-circuit	> 650 Ω (for Pt100, Ni100); values of other sensors on request	—
Smallest span	50 Ω for 0.1% accuracy	5 mV for 0.1% accuracy
Linearity error	0.1%	
Conversion time	≤ 500 ms (for 4 x 2-wire or 4 x 4-wire measurement) ≤ 1 s (for 4 x 3-wire Pt100)	≤ 300 ms (4 channels) without LFD ≤ 600 ms (4-channel) with LFD
Busy after download	5...15 s	—
Compensation (reference junction CJC)	—	Internal cold junction compensation or external cold junction compensation
Transfer Characteristics		
Deviation Influence of ambient temperature max	0.1%/10 K	
Indicators/Settings		
LED indicator	Power LED (P) green: supply Status LED (I) red: line fault (collective alarm), red flashing: communication error	
Coding	Optional mechanical coding via front socket using coding pins (1719-CP). For more information see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .	
Directive Conformity		
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013	
Conformity		
Electromagnetic compatibility	NE 21	
Degree of protection	IEC 60529	
Environmental test	EN 60068-2-14	
Shock resistance	EN 60068-2-27	
Vibration resistance	EN 60068-2-6	
Damaging gas	EN 60068-2-42	
Relative humidity	EN 60068-2-56	
Ambient Conditions		
Ambient temperature	-20...+60 °C (-4...+140 °F)	
Storage temperature	-25...+85 °C (-13...+185 °F)	
Relative humidity	95% noncondensing	
Shock resistance	Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18	
Vibration resistance	Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance	
Damaging gas	Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3	
Mechanical Specifications		
Degree of protection	IP20 when mounted on backplane	
Connection	Removable front connector with screw flange (accessory) Wiring connection (for all terminals): 0.14...1.5 mm ² (26...16 AWG)	
Mass approx	150 g (5.29 oz)	
Dimensions approx	32 x 100 x 103 mm (1.26 x 3.9 x 4 in)	

Technical Specifications (Continued)

Attribute		1719-IR4B	1719-IT4B
Data for Application in Connection with Ex-areas			
EC-Type Examination Certificate Group, category, type of protection, temperature class		PTB 03 ATEX 2042 Ⓔ II (1) G [Ex ia] IIC Ⓔ II (1) D [Ex ia] IIIC	
Input			
Voltage	U ₀	7.14V	1V
Current	I ₀	70 mA	71 mA
Power	P ₀	123 mW (linear characteristic)	62 mW (trapezoid characteristic curve)
Statement of conformity Group, category, type of protection, temperature class		PF 08 CERT 1234 X Ⓔ II 3 G Ex nA IIC T4 Gc	
Electrical isolation			
Input/input		—	Functional insulation according to IEC 60664-1, rated insulation voltage 50V, testing voltage 500V
Input/power supply, internal bus		Safe electrical isolation according to EN 60079-11, voltage peak value 375V	
Directive conformity Directive 2014/34/EU		EN 60079-0:2012+A11:2013; General Requirements EN 60079-11:2012; Equipment protection by intrinsic safety “i” EN 60079-15:2010; Potentially explosive atmospheres, protection “n”	
International Approvals			
UL approval		ET06378	
IECEx approval Approved for		BVS 09.0037X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC	
General Information			
System information		The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.	
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .	

1719 Ex I/O Analog Input/Output

1719-CF4H Ex I/O 4 Channel HART Analog Configurable - Connection



Technical Specifications

Attribute	1719-CF4H
Supply	
Connection	Backplane bus
Rated voltage U_n	12V DC, only in connection with the power supply 1719-PSDC
Power dissipation	2 W
Power consumption	3 W
Wires	
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)
Wire type	Shielded
Wire size	0.14...1.5 mm ² (26...16 AWG)
Internal Bus	
Connection	Backplane bus
Interface	Manufacturer-specific bus to standard adapter
Connections	
Total number of channels	4
Input connection	Analog input (HART): Channel I: 1+, 2-; Channel II: 3+, 4-; Channel III: 5+, 6-; Channel IV: 7+, 8-
Output connection	Analog output (HART): Channel I: 1+, 2-; Channel II: 3+, 4-; Channel III: 5+, 6-; Channel IV: 7+, 8-
Analog Input	
Suitable field devices	Transmitters for pressure, differential pressure, level, flow, temperature, and so on.
Transmitter supply voltage	≥ 15V at 20 mA; 21.5V at 4 mA
Line fault detection Short-circuit Open-circuit	Can be switched on/off for each channel via the Add-on Profile or the configuration assembly > 21 mA < 1 mA
Analog Output	
Suitable field devices	Proportional valves, IP converters, local indicators
Line fault detection Short-circuit Open-circuit	Can be switched on/off for each channel via the Add-on Profile or the configuration assembly < 50 Ω Deviation of preset output value > 0.5 mA
Load max	750 Ω
Transfer Characteristics	
Deviation Influence of ambient temperature	0.1% of the signal range at 20 °C (68 °F) 0.1%/10 K of the signal range
Refresh time approx	100 ms (4 channels)
Indicators/Settings	
LED indicator	Power LED (P) green: supply Diagnostic LED (I) red: module fault, red flashing: communication error, white flashing: requests parameters from the adapter Status LED (1..4) red: line fault (lead breakage or short circuit) Configuration LED (AI, AO) white: selected channel mode
Coding	Optional mechanical coding via front socket using coding pins (1719-CP). For more information see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .
Directive Conformity	
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013
Conformity	
Electromagnetic compatibility	NE 21
Degree of protection	IEC 60529
Environmental test	EN 60068-2-14
Shock resistance	EN 60068-2-27
Vibration resistance	EN 60068-2-6
Damaging gas	EN 60068-2-42
Relative humidity	EN 60068-2-78
Ambient Conditions	
Ambient temperature	-20...+60 °C (-4...+140 °F)
Storage temperature	-25...+85 °C (-13...+185 °F)

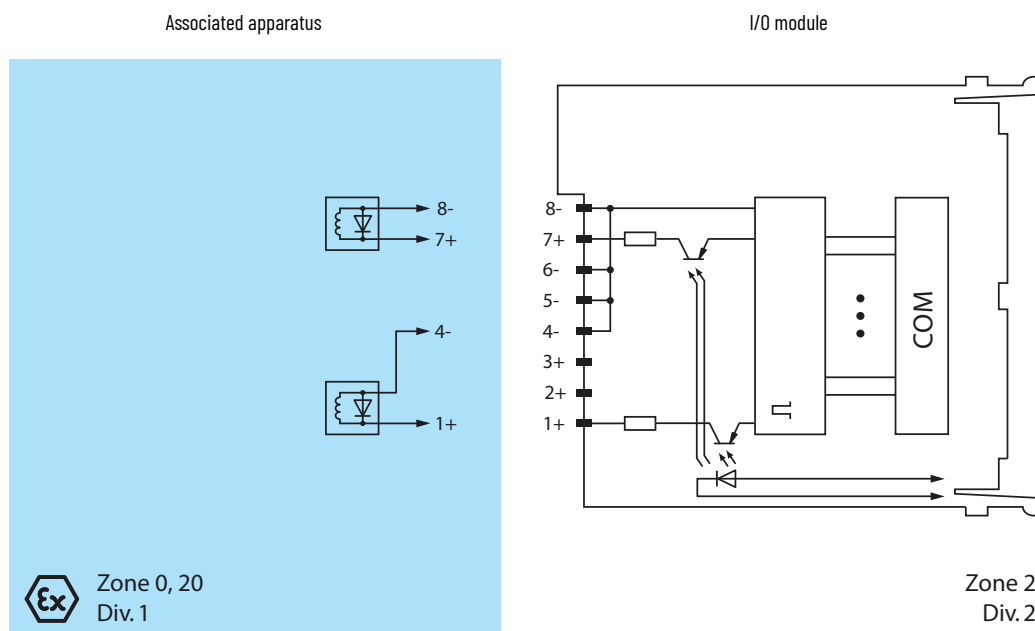
Technical Specifications (Continued)

Attribute		1719-CF4H
Relative humidity		95% noncondensing
Shock resistance		Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3
Mechanical Specifications		
Degree of protection		IP20 when mounted on backplane
Connection		Removable front connector with screw flange (accessory) Wiring connection (for all terminals): 0.14...1.5 mm ² (26...16 AWG)
Mass approx		100 g (3.53 oz)
Dimensions approx		16 x 100 x 103 mm (0.63 x 3.9 x 4 in)
Data for Application in Connection with Ex-areas		
EC-Type Examination Certificate Group, category, type of protection, temperature class		BVS 11 ATEX E 116 X Ⓔ II 3(1) G Ex nA [ia Ga] IIC T4 Gc Ⓔ II (1) D [Ex ia Da] IIIC
Input		
Voltage	U _o	27V
Current	I _o	87 mA
Power	P _o	575 mW (linear characteristic)
Output		
Voltage	U _o	27V
Current	I _o	87 mA
Power	P _o	575 mW (linear characteristic)
Electrical isolation		
Rated voltage	U _m	250V field circuits to control and supply circuits
Input/power supply, internal bus		Safe electrical isolation according to EN 60079-11, voltage peak value 375V
Output/power supply, internal bus		Safe electrical isolation according to EN 60079-11, voltage peak value 375V
Directive conformity		EN 60079-0:2012+A11:2013; General Requirements
Directive 2014/34/EU		EN 60079-11:2012; Equipment protection by intrinsic safety "i" EN 60079-15:2010; Potentially explosive atmospheres, protection "n"
International Approvals		
UL approval		E106378
IECEx approval Approved for		BVS 11.0068X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC
General Information		
System information		The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .

1719 Ex I/O Digital Output

1719-OB2 Ex I/O 2 Point Digital Output 23V - Connection

1719-OB2L Ex I/O 2 Point Digital Output 16.5V - Connection



Technical Specifications

Attribute	1719-OB2		1719-OB2L
Supply			
Connection	Backplane bus		
Rated voltage	U _n	Use only in connection with the power supply 1719-PSDC	
Power dissipation	2 W		2 W
Power consumption	3 W		3 W
Wires			
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)		
Wire type	Shielded		
Wire size	0.14...1.5 mm ² (26...16 AWG)		
Internal Bus			
Connection	Backplane bus		
Interface	Manufacturer-specific bus to standard adapter		
Output			
Number of channels	2		
Suitable field devices	Solenoid valves, acoustic alarms, and LED indicators (without line fault detection)		
Connection	Channel I: 1+, 4/5/6/8-; Channel II: 7+, 4/5/6/8-		
Internal resistor	R _i	258 Ω (single mode), 129 Ω (parallel mode)	131 Ω (single mode), 66 Ω (parallel mode)
Open loop voltage	U _s	23V	16.5V
Current limit	I _{max}	40 mA (single mode), 80 mA (parallel mode)	50 mA (single mode),100 mA (parallel mode)
Response time	10 ms (depending on bus cycle time)		
Line fault detection	Can be switched on/off for each channel via the Add-on Profile, also when turned off (every 2.5 s the valve is turned on for 5 ms)		
Short-circuit	< 50 Ω		
Open-circuit	> 10 kΩ		

Technical Specifications (Continued)

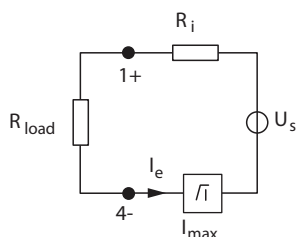
Attribute		1719-0B2	1719-0B2L
Indicators/Settings			
LED indicator		Power LED (P) green: supply Diagnostic LED (I) red: module fault, red flashing: communication error, white flashing: requests parameters from the adapter Status LED (1, 2) red: line fault (lead breakage or short circuit), yellow: state of digital I/O (0/1) Mode LED (M) white: Parallel operation of outputs	
Coding		Optional mechanical coding via front socket using coding pins (1719-CP). For more information see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .	
Directive Conformity			
Electromagnetic compatibility Directive 2014/30/EU		EN 61326-1:2013	
Conformity			
Electromagnetic compatibility		NE 21	
Degree of protection		IEC 60529	
Environmental test		EN 60068-2-14	
Shock resistance		EN 60068-2-27	
Vibration resistance		EN 60068-2-6	
Damaging gas		EN 60068-2-42	
Relative humidity		EN 60068-2-56	
Ambient Conditions			
Ambient temperature		-20...+60 °C (-4...+140 °F)	
Storage temperature		-25...+85 °C (-13...+185 °F)	
Relative humidity		95% noncondensing	
Shock resistance		Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18	
Vibration resistance		Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance	
Damaging gas		Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3	
Mechanical Specifications			
Degree of protection		IP20 when mounted on backplane	
Connection		Removable front connector with screw flange (accessory) Wiring connection (for all terminals): 0.14...1.5 mm ² (26...16 AWG)	
Mass approx		150 g (5.29 oz)	
Dimensions approx		16 x 100 x 103 mm (0.63 x 3.9 x 4 in)	
Data for Application in Connection with Ex-areas			
EC-Type Examination Certificate Group, category, type of protection, temperature class		EXA 16 ATEX 0025X Ⓔ II 3(1) G Ex nA [ia Ga] IIC T4 Gc Ⓔ II (1) D [Ex ia Da] IIIC	
Output			
Voltage	U _o	24.2V	17.8V
Current	I _o	108 mA	162 mA
Power	P _o	654 mW	721 mW
Output (both channels parallel)			
Voltage	U _o	24.2V	17.8V
Current	I _o	216 mA	324 mA
Power	P _o	1307 mW	1442 mW
Electrical isolation Output/power supply, internal bus		Safe electrical isolation according to EN 60079-11, voltage peak value 375V	
Directive conformity Directive 2014/34/EU		EN 60079-0:2012+A11:2013; General Requirements EN 60079-11:2012; Equipment protection by intrinsic safety "i" EN 60079-15:2010; Potentially explosive atmospheres, protection "n"	
International Approvals			
UL approval		E106378	
IECEx approval Approved for		IECEx EXA 16.0010X Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIIC	

Technical Specifications (Continued)

Attribute	1719-OB2	1719-OB2L
General Information		
System information	The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.	
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .	

1719-OB2, 1719-OB2L - Output Data

Load calculation

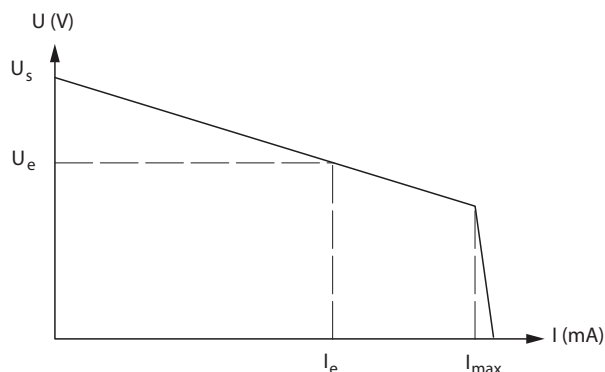


$$R_{load} = \text{Field loop resistance}$$

$$U_e = U_s - R_i \times I_e$$

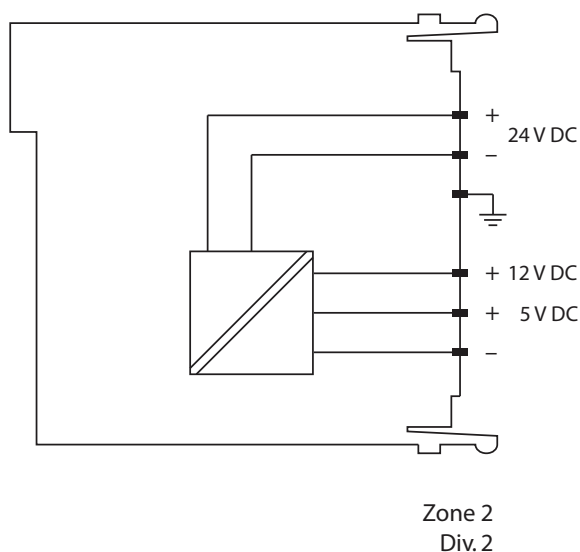
$$I_e = U_s / (R_i + R_{load})$$

Output characteristics



1719 Ex I/O Power Supply

1719-PSDC Ex I/O DC Power Supply - Connection



Technical Specifications

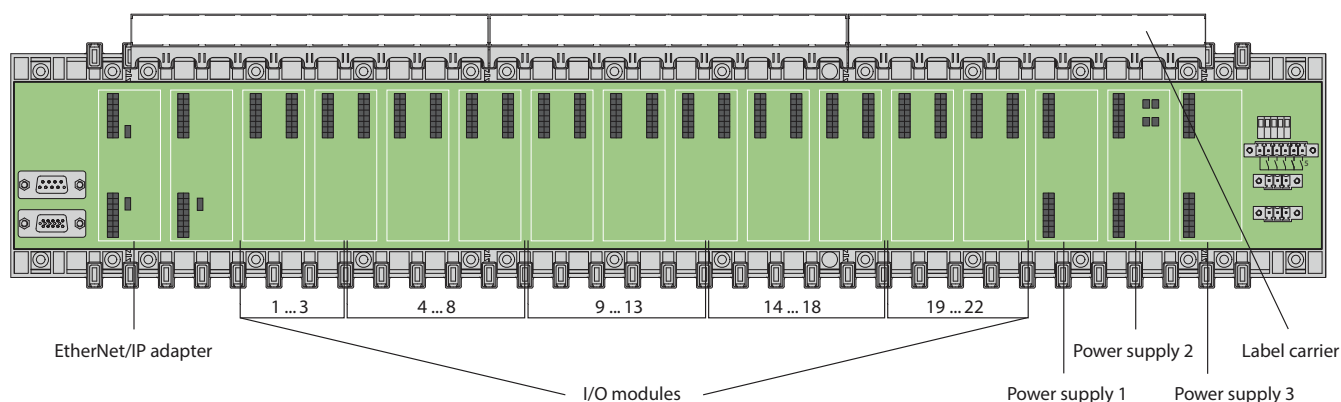
Attribute	1719-PSDC
Supply	
Rated voltage U_n	24V DC (18...32V DC) SELV/PELV
Power dissipation approx	15% of power consumption

Technical Specifications (Continued)

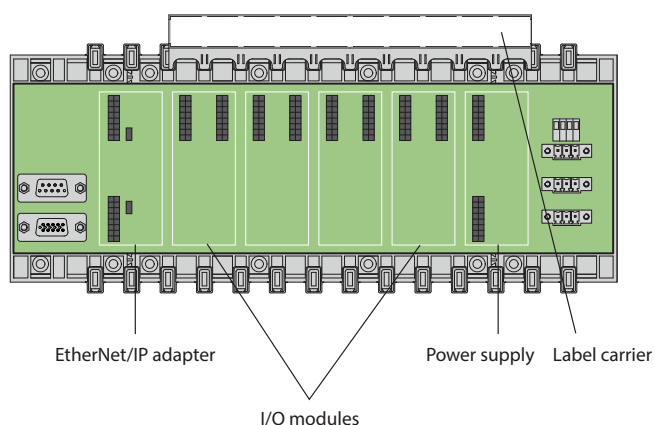
Attribute		1719-PSDC
Power consumption max		30 W for Zone 2 or Div 2 applications 45 W for applications in safe area Parallel connection with other 1719-PSDC (automatic power sharing)
Inrush current		1.5 A (10 ms)
Output		
Voltage		12V DC + 4/- 2%
Power max		25 W for Zone 2 or Div 2 applications 39 W for applications in safe area
Indicators/Settings		
LED indicator		Power LED (P) green: OFF in case of loss of 24V or 12V or 5V
Directive Conformity		
Electromagnetic compatibility Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21
Degree of protection		IEC 60529
Environmental test		EN 60068-2-14
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Damaging gas		EN 60068-2-42
Relative humidity		EN 60068-2-78
Ambient Conditions		
Ambient temperature		-20...+60 °C (-4...+140 °F)
Storage temperature		-25...+85 °C (-13...+185 °F)
Relative humidity		95% noncondensing
Shock resistance		Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18
Vibration resistance		Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance
Damaging gas		Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3
Mechanical Specifications		
Degree of protection		IP20 (module), mounted on backplane
Mass approx		220 g (7.76 oz)
Dimensions approx		32 x 100 x 103 mm (1.26 x 3.9 x 4 in)
Data for Application in Connection with Ex-areas		
Statement of conformity Group, category, type of protection, temperature class		PF 08 CERT 1234 X ⊕ II 3 G Ex nA IIC T4 Gc
Electrical isolation Output/power supply, internal bus		EN 60950-1 (safety requirement < 60V, external power supply SELV/PELV)
Directive conformity Directive 2014/30/EU		EN 60079-0:2012+AT1:2013; General Requirements EN 60079-15:2010; Potentially explosive atmospheres, protection "n"
International Approvals		
UL approval		E106378
IECEx approval Approved for		BVS 09.0037X Ex nA IIC T4 Gc
General Information		
System information		The module has to be mounted in appropriate backplanes (1719-A**) in Zone 2, Div 2 or nonhazardous areas. The corresponding declaration of conformity has to be observed. For use in hazardous areas (e. g. Zone 2, Zone 22 or Div. 2) the module must be installed in an appropriate enclosure. For use in nonhazardous areas, the modules must be installed in a cabinet; no hazardous area rating is required for the cabinet.
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .

1719 Ex I/O Backplane

1719-A22 Ex I/O 22 Slot Base Chassis - Assembly



1719-A8 Ex I/O 8 Slot Base Chassis - Assembly



Technical Specifications

Attribute	1719-A22	1719-A8	1719-A24
General Specifications			
Suitable components	Compatible with extension chassis 1719-A24		Compatible with base chassis 1719-A22 or 1719-A8
Available Slots			
Supply	3	1	3
Output deactivation of I/O modules	Five areas or segments slots 1...3, 4...8, 9...13, 14...18, 19...22	One area or segment slot 1...8	Five areas or segments <i>when used with 1719-A22 base backplane:</i> slots 23...27, 28...32, 33...37, 38...42, 43...46 <i>when used with 1719-A8 base backplane:</i> slots 9...13, 14...18, 19...23, 24...28, 29...32
I/O modules (single width) max	22	8	24
I/O modules (dual width) max	11	4	12
Supply			
Maximum safe voltage	U _m	60V DC (SELV/PELV)	
Input voltage range	U	18...32V DC (SELV/PELV)	
Redundancy ⁽¹⁾	Yes		
N+1 power supply redundancy	Yes	No	Yes
Fieldbus Interface			
Fieldbus type	EtherNet/IP		
Device Level Ring	Yes		

Technical Specifications (Continued)

Attribute	1719-A22	1719-A8	1719-A24
Directive Conformity			
Electromagnetic compatibility Directive 2014/30/EU	EN 61326-1:2013		
Conformity			
Electromagnetic compatibility	NE 21		
Degree of protection	IEC 60529		
Ambient Conditions			
Ambient temperature	-20...+60 °C (-4...+140 °F)		
Storage temperature	-25...+85 °C (-13...+185 °F)		
Relative humidity	95% non-condensing		
Shock resistance	Shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18		
Vibration resistance	Frequency range 10...150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration ± 0.075 mm/1 g; 10 cycles Frequency range 5...100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 1 mm/0.7 g; 90 minutes at each resonance		
Damaging gas	Designed for operation in environmental conditions per ISA-S71.04-1985 severity level G3		
Mechanical Specifications			
Degree of protection	IP20		
Mass approx	2170 g (76.54 oz)	1010 g (35.63 oz)	1800 g (63.49 oz)
Dimensions approx	(W x H x D) 605 x 127 x 80 mm (23.8 x 5 x 3.15 in), without modules	(W x H x D) 275 x 127 x 80 mm (10.8 x 5 x 3.15 in), without modules	(W x H x D) 605 x 127 x 80 mm (23.8 x 5 x 3.15 in), without modules
Data for Application in Connection with Ex-areas			
EC-Type Examination Certificate Group, category, type of protection, temperature class	BVS 16 ATEX E 089 X Ⓔ II 3 G Ex nA IIC T4 Gc		
Directive conformity Directive 2014/34/EU	EN 60079-0:2012+A11:2013; General Requirements EN 60079-15:2010; Potentially explosive atmospheres, protection “n”		
International Approvals			
UL approval	E106378		
IECEX approval Approved for	IECEX BVS 16.0047 X Ex nA IIC T4 Gc		
General Information			
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For certification information and links to control drawings with complete entity parameter details, see the 1719 Certification Bulletin, publication 1719-CT001 .		

(1) For more information, see 1719 Ex I/O Installation Instructions, publication [1719-IN001](#).

1719 Ex I/O Terminal Blocks

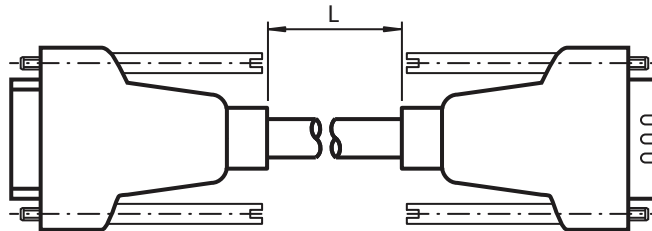
1719-TB6 Ex I/O 6 Pole Screw Terminal
 1719-TB6S Ex I/O 6 Pole Spring Terminal
 1719-TB8 Ex I/O 8 Pole Screw Terminal
 1719-TB8S Ex I/O 8 Pole Spring Terminal
 1719-TB8x2 Ex I/O 2x8 Pole Screw Terminal
 1719-TB8Sx2 Ex I/O 2x8 Pole Spring Terminal
 1719-TB8x2SA Ex I/O 2x8 Pole Spring Terminal for 1719-IBN8
 1719-TB6F Ex I/O 6 Pole Front Screw Terminal
 1719-TB8F Ex I/O 8 Pole Front Screw Terminal
 1719-TB8x2F Ex I/O 2x8 Pole Front Screw Terminal

Technical Specifications

Attribute	1719-TB6	1719-TB6S	1719-TB8	1719-TB8x2	1719-TB8S	1719-TB8Sx2	1719-TB8x2SA	1719-TB6F	1719-TB8F	1719-TB8x2F
General Specifications										
Number of poles	6		8	16	8	16		6	8	16
Wires										
Terminal screw torque	0.22...0.25 N•m (1.95...2.21 lb•in)		—	0.22...0.25 N•m (1.95...2.21 lb•in)		—		0.22...0.25 N•m (1.95...2.21 lb•in)		
Wire type	Shielded									
Wire size	0.14...1.5 mm ² (26...16 AWG)						0.14...0.5 mm ² (26...20 AWG)	0.14...1.5 mm ² (26...16 AWG)		
Mechanical Specifications										
Core cross-section	0.14...1.5 mm ² (26...16 AWG)						0.14...0.5 mm ² (26...20 AWG)	0.14...1.5 mm ² (26...16 AWG)		
Housing	Blue									
Mass approx	5 g (0.18 oz)						4.6 g (0.16 oz)	5 g (0.18 oz)		
Dimensions approx	(W x H x D) 33.3 x 11.1 x 15.3 mm (1.31 x 0.44 x 0.60 in)	(W x H x D) 33.3 x 12.4 x 20.8 mm (1.31 x 0.49 x 0.82 in)	(W x H x D) 40.9 x 11.1 x 15.3 mm (1.61 x 0.44 x 0.60 in)		(W x H x D) 40.9 x 12.4 x 20.8 mm (1.61 x 0.49 x 0.82 in)		(W x H x D) 20.6 x 11.75 x 19.2 mm (0.81 x 0.46 x 0.76 in)	(W x H x D) 33.3 x 12.3 x 21.7 mm (1.31 x 0.48 x 0.85 in)	(W x H x D) 40.9 x 12.3 x 21.7 mm (1.61 x 0.48 x 0.85 in)	
Construction type	Side screw terminal	Spring terminal	Side screw terminal		Spring terminal			Front screw terminal		

1719 Ex I/O Connection Cable

1719-CBL Ex I/O Chassis Extension Cable 1 m - Dimensions



Technical Specifications

Attribute	1719-CBL
General Specifications	
Number of pins	15
Connection 1	Male connector
Threading 1	Sub-D
Connection 2	Socket
Threading 2	Sub-D
Ambient Conditions	
Ambient temperature	-20...+60 °C (-4...+140 °F)
Storage temperature	-25...+85 °C (-13...+185 °F)
Mechanical Specifications	
Cable Color Length	Black 100 cm (39.4 in)
Mass	135 g (4.76 oz)

1719 Ex I/O Placeholder

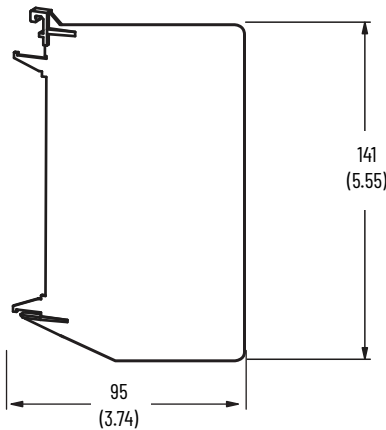
1719-ARM Ex I/O Empty Slot Cover

Technical Specifications

Attribute	1719-ARM
Input	
Connection	8-pin connector
Mechanical Specifications	
Mass approx	65 Mass approx (2.29 oz)
Dimensions approx	16 x 100 x 103 mm (0.63 x 3.9 x 4 in)

1719 Ex I/O Separation Plate

1719-SP1 Separation Plate



Technical Specifications

Attribute	1719-SP1
Mechanical Specifications	
Dimensions approx	95 x 141 x 3 mm (3.74 x 5.55 x 0.12 in)
Mass approx	20 g (0.70 oz)
General Information	
System information	IEC 60079-14 and IEC 60079-11 require that a thread dimension of at least 50 mm must always be maintained between intrinsically safe and non-intrinsically safe circuits. When using the 1719-A8 chassis with the first I/O slot next to the adapter occupied with an I/O module, install a separation plate (1719-SP1) between the adapter and the first I/O module slot to help ensure that intrinsically safe and non-intrinsically safe circuits meet the minimum distance.
Supplementary information	For detailed instructions on installing the separation plate, see 1719 Ex I/O Installation Instructions, publication 1719-IN001 .

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
1719 Ex I/O Installation Instructions, publication 1719-IN001	Describes how to install and wire the 1719 Ex I/O input and output modules.
1719 Ex I/O User Manual, publication 1719-UM001	Provides information on using the 1719 Ex I/O modules, backplanes, and accessories.
1719 Certification Bulletin, publication 1719-CT001	Provides 1719 Ex I/O certification information and links to control drawings.
EtherNet/IP Network Devices User Manual, ENET-UM006	Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications .	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at rok.auto/literature.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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