

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ALLEN-BRADLEY

1797-IE8H

EIGHT CHANNEL HART ANALOG INPUT MODULE

Used with the applicable FLEX Ex configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Rockwell 1797-IN005J-EN-P, August 2017, selected pages 3, 40, 41, 42

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication [SGI-1.1](#) available from your local Rockwell Automation sales office or online at <http://literature.rockwellautomation.com>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequences.
SHOCK HAZARD 	Labels may be located on or inside the equipment (for example, drive or motor) to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be located on or inside the equipment (for example, drive or motor) to alert people that surfaces may be dangerous temperatures.

Specification 1797-IE8 and -IE8NF (Continued)

Agency Certification	
CENELEC	II (1) 2G Ex ib[ia] IIC T4 II (1) D [Ex iaD]
U, C-UL	Class I, Groups A, B, C and D; Class II, Groups E, F and G; Class III hazardous Locations. Class I, Zone 1, AEx ib[ia] IIC T4.
FM	Intrinsically safe Class I, Div 1, Groups A, B, C, D, T4. Associated Apparatus with intrinsically safe Connections Class I, II, III, Div 1, Groups A--G Intrinsically safe Class I, Zone 1, AEx ib[ia] IIC T4.
INMETRO	BR-Ex ia/ib IIB/IIC T4
IECEX	[Zone 0] Ex ib[ia] IIC T4 [Ex iaD]
Certificates	
CENELEC	DMT 98 ATEX E 020 X  
UL, C-UL	File No.: E197983  Class I Division 1 Hazardous
FM	FM Certificate Number 3009806 
INMETRO	05/UL-BRAE-0013X (1797-IE8 only) 
IECEX	IECEX BVS 09.0030X

Specifications - 1797-IE8H

Number of Inputs	8 single-ended, non-isolated
IS Input type	Ex ia IIB/IIC T4 AEx ia IIC T4 Class I, Division I Groups A-G T4 (FM only)
IS Module type	Ex ib IIB/IIC T4 AEx ib IIC T4 Class I, Division I Groups A-D T4 (FM only)
Resolution	16 bits
Transfer Characteristics	
Accuracy at 20 °C (68 °F)	0.1% of output signal range
Temperature Drift	0.05%/C of output signal range

Functional Data Range	>17V @ 22 mA >23V @ 0 mA
Data Format	Configurable
Step Response to 99% of FS	80 ms
Module from Adapter Best/Worst Update Time	200 ms/1600 μ s
Indicators	8 red fault indicators 8 yellow channel indicators 1 green power indicator
Inputs (Intrinsically Safe) (Terminals: 0...2; 4...6; 8...10; 12...14; 17...19; 21...23; 25...27; 29...31)	$U_o \leq 24.4V$ $I_o \leq 92.5 mA$ $P_o \leq 565 mW$
Isolation Path Input to Power Supply Input to Flexbus Input to Input Power Supply to Flexbus	Isolation Type Galvanic to DIN EN60079-11 Galvanic to DIN EN60079-11 None Galvanic to DIN EN60079-11
Power Supply (+V, -V intrinsically safe) (Terminals: 34/50 (+): 35/51 (-))	$U_i \leq 9.5V dc$ $I_i \leq 1 A$ $L_i = \text{Negligible}$ $C_i = 120 nF$
Module Field-side Power Consumption	7.1 W
Power Dissipation	3.9 W
Thermal Dissipation	13.5 BTU/hr
Module Location	Cat. No. 1797-TB3 or 1797-TB3S
Conductor Wire Size	4 mm ² (12 AWG) stranded max 1.2 mm (3/64 in.) insulation max
Dimensions Metric Imperial	46 mm x 94 mm x 75 mm (1.8 in. x 3.7 in. x 2.95 in.)
Weight	200 g (approximately)
Keyswitch Position	8
Environmental Conditions	
Operational Temperature	-20...+70 °C (-4...+158 °F)
Storage Temperature	-40...+85 °C (-40...+185 °F)
Relative Humidity	5...95% noncondensing
Shock Operating	Tested to 15 g peak acceleration, 11(+1) ms pulse width
Nonoperating	Tested to 15 g peak acceleration, 11(+1) ms pulse width
Vibration	Tested 2 g @ 10...500 Hz per IEC68-2-6

Agency Certification	
CENELEC	II (1) 2G Ex ib[ia] IIC T4 II (1) D [Ex iaD]
FM	Intrinsically safe Class I, Div 1, Groups A, B, C, D, T4. Associated Apparatus with intrinsically safe Connections Class I, II, III, Div 1, Groups A--G
IECEx	Intrinsically safe Class I, Zone 1, AEx ib[ia] IIC T4. [Zone 0] Ex ib[ia] IIC T4 [Ex iaD]
Certificates	
CENELEC	DMT 98 ATEX E 020 X 
FM	FM Certificate Number 3009806 
IECEx	IECEx BVS 09.0030X

Entity Parameters

1797-IE8 and 1797-IE8NF CE, CENELEC I/O Entity Parameters

Measurement input (sig to -) for channels 0...7 (terminals: 1...2; 5...6; 9...10; 13...14; 18...19; 22...23; 26...27; 30...31)

	Protection	Group	Allowed Capacitance	Allowed Inductance
$U_0 = 5V$ $I_0 = 1\text{ mA}$ $P_0 = 1.3\text{ mW}$ $U_i = 28V$ $I_i = 110\text{ mA}$ C_i and L_i negligible	Ex ia	IIB	1000 μF	1 H
		IIC	100 μF	1 H

Source output (+ to sig) for ch 0 to ch 7

(terminals: 0 to 1; 4 to 5; 8 to 9; 12 to 13; 17 to 18; 21 to 22; 25 to 26; 29 to 30)

	Protection	Group	Allowed Capacitance	Allowed Inductance
$U_0 = 23.7V$ $I_0 = 92.5\text{ mA}$ $P_0 = 548\text{ mW}$	Ex ia	IIB	560 nF	10 mH
		IIC	66 nF	2.5 mH