DATA SHEET

AI893
Freelance hardware selector

The AI893 Analog Input Module has 8 channels. The module includes Intrinsic Safety protection components on each channel for connection to process equipment in hazardous areas without the need for additional external devices.

The module can be configured for either 2 or 3-wire RTD sensors or for TC sensors. In TC mode, channel 8 be used for Cold Junction (ambient) temperature measurements, thus serving as CJ-channel for channel 1...7. The junction temperature may be measured locally on the MTUs screw terminals, or on a connection unit distant from the device. The cold junction temperature is measured with a 3-wire Pt 100 sensor. Alternatively, a fix junction temperature for the module may be set by the user (as parameter). Channel 8 may be used in the same manner as channel 1-7 when no CJ-temperature measurement is needed.

TU890 and TU891 Compact MTU can be used with this module and it enables three wire connection to the process devices without additional terminals. TU890 for Ex applications and TU891 for non Ex applications.

Features and benefits

- 8 differential input channels for 2 or 3-wire RTD and Thermocouple.
- 1 group of 8 channels isolated from ground.
- 15 Bit + sign resolution.
- Ex certified inputs.

General info	
Article number	3BSC690141R1
Type	Analog Input
Signal specification	RTD or TC
Number of channels	8
Signal type	Differential
HART	No
SOE	No
Redundancy	No
High integrity	No
Intrinsic safety	Yes
Mechanics	S800

Detailed data	
Resolution	15 bit + sign
Input impedance	>10 MΩ
Isolation	Groupwise isolated from ground
Error	TC/mV: <20 µV ; RTD (0-400 Ω): <0.1 Ω ; RTD (0-4000 Ω): <1 Ω
Temperature drift	TC/mV: <20 µV/10°C ; RTD (0-400 Ω): <0.1 Ω/10°C ; RTD (0-4000 Ω): <1 Ω/10°C
Update cycle time	(no of active channels) x 125 + 125 ms
Common mode voltage input	+/- 5V
CMRR, 50Hz, 60Hz	>100 dB
NMRR, 50Hz, 60Hz	>80 dB
Rated insulation voltage	50 V
Dielectric test voltage	500 V a.c.
Power dissipation	0.5 W
Current consumption +5 V Modulebus	Typ. 90 mA, Max. <125 mA

Diagnostics	
Front LED's	F(ault), R(un), W(arning)
Supervision	Open circuit, Short circuit for RTD

Environment and certification	
CE mark	Yes
Electrical safety	EN 61010-1, EN 61010-2-201
Hazardous Location	ATEX/IECEx Zone 2 with interface to Zone 0, cFMus C1, Div 2/Zone 2 with interface to C1, C2, C3 Div 1/Zone 0
Marine certification	-
Temperature, Operating	0 to +55 °C (+32 to +131 °F)
Temperature, Storage	-40 to +70 °C (-40 to +158 °F)
Pollution degree	Degree 2, IEC 60664-1
Corrosion protection	ISA-S71.04: G3
Relative humidity	5 to 95 %, non-condensing
Max ambient temperature	55 °C (131 °F), for vertical mounting in compact MTU 40 °C (104 °F)
Protection class	IP20 according to IEC 60529
Mechanical operating conditions	IEC/EN 61131-2
EMC	EN 61000-6-4, EN 61000-6-2
Overvoltage categories	IEC/EN 60664-1, EN 50178
Equipment class	Class I according to IEC 61140; (earth protected)
RoHS compliance	DIRECTIVE/2011/65/EU (EN 50581:2012)
WEEE compliance	DIRECTIVE/2012/19/EU

Compatibility	
Use with MTU	TU890, TU891
Keying code	BA

Intrinsic Safety parameters	
U0 (Groups CENELEC USA)	IIC
I0 (Groups CENELEC USA)	IIB
P0 (Groups CENELEC USA)	IIA
U0 - C0 (uF)	1.41
U0 -L0 (mH)	88
U0 -L/R (uH/O)	586
I0 - C0 (uF)	9
I0 -L0 (mH)	352
I0 -L/R (uH/O)	2347
P0 - C0 (uF)	36
P0 -L0 (mH)	706
P0 -L/R (uH/O)	4707

Dimensions	
Width	45 mm (1.77”)
Depth	102 mm (4.01”), 111 mm (4.37”) including connector
Height	119 mm (4.7”)
Weight	0.16 kg (0.35 lbs.)

Related products

TU890

TU891

solutions.abb/freelance
solutions.abb/controlsystems