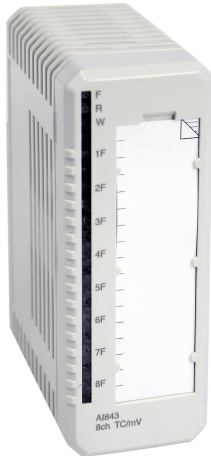


# AI843

## Compact Product Suite hardware selector



The AI843 Thermocouple/mV Input Module provides 8 differential input channels for Thermocouple/mV measurements. Measurement ranges configurable per channel are: -30 mV to +75 mV linear, or TC Types B, C, E, J, K, L, N, R, S, T and U. A separate Pt100 channel is used for “Cold Junction” (ambient) temperature measurements, thus serving as CJ-channel for Ch. 1...8.

The junction temperature may be measured locally on the MTUs screw terminals, or on a connection unit distant from the device. Alternatively, a fix junction temperature for the module may be set by the user (as parameter) or a junction temperature set by the application.

### Features and benefits

- 8 differential input channels for thermocouple/mV
- Single or redundant operation
- A separate channel is used as CJ-channel (4-wire Pt100 RTD)
- Variety of thermocouples with the following characteristics: B, C, E, J, K, L, N, R, S, T and U
- 16 Bit resolution (A/D converter)
- Inputs are monitored for wire-break open-circuit

## More info

### Signal range / linearization

Input Type	Temperature Range
TC type B (1)	44...1820°C, 111.2...3308°F
TC type C	0...2300°C, 32...4172°F
TC type D	0...2300°C, 32...4172°F
TC type E (1)	-270...1000°C, -454...1832°F
TC type J (1)	-210...1200°C, -346...2192°F
TC type K (1)	-270...1372°C, -454...2501.6°F
TC type L	-200...900°C, -328...1652°F
TC type N (1)	-270...1300°C, -454...2372°F
TC type R (1)	-50...1768°C, -58...3214.4°F
TC type S (1)	-50...1768°C, -58...3214.4°F
TC type T (1)	-270...400°C, -454...752°F
TC type U	-200...600°C, -328...1112°F
Linear range	-30...75 mV
Pt100 RTD (for CJC) (2)	-40...100°C, -40...212°F

(1) Linearization per IEC 584-1 1995, and following ITS 90 requirements.

(2) Sensor Type applies to Cold Junction channel only, for the measuring of the Cold Junction Compensation temperature.

### General info

Type	Analog Input
Signal specification	-30..75 mVlinear, TC types B, C, E, J, K, L, N, R, S, T and U
Article number	3BSE028925R1
Number of channels	8
Signal type	See table
HART	No
SOE	No
Redundancy	Yes
High integrity	No
Intrinsic safety	No
Mechanics	S800

<b>Detailed data</b>	
Resolution	16 bits
Input impedance	> 1 MΩ
Isolation	Groupwise isolated from ground
Error	Max. 0.1%
Temperature drift	Typ. 10 ppm/°C, Max. 25 ppm/°C
Input filter (rise time 0-90%)	1.1 kHz
Update cycle time	320 + 80 * (no of active channels) ms at 50 Hz 267 + 67 * (no of active channels) at 60 Hz
Maximum field cable length	600 meters (656 yards) or max. 500 Ω
CMRR, 50Hz, 60Hz	100 dB
NMRR, 50Hz, 60Hz	> 40 dB
Rated insulation voltage	50 V
Dielectric test voltage	500 V a.c.
Power dissipation	1.5 W
Current consumption +5 V Modulebus	60 mA
Current consumption +24 V Modulebus	50 mA
Current consumption +24 V external	0

<b>Diagnostics</b>	
Front LED's	F(ault), R(un), W(arning)
Supervision	Module error: reference channels outside limits, power supply low Channel error: open-circuit, CJ channel error (ch 8): out of range <-40°C (-40°F) and >100°C (212°F) Junction channel Channel error Linear: none
Status indication of supervision	Module Error, Module Warning, Channel error

<b>Environment and certification</b>	
CE mark	Yes
Electrical safety	IEC 61131-2, UL 508
Hazardous Location	C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2
Marine certification	-
Protection rating	IP20 according to IEC60529
Corrosive atmosphere ISA-S71.04	G3
Climatic operating conditions	0 to +55 °C (Storage -40 to +70 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2
Pollution degree	Degree 2, IEC 60664-1
Mechanical operating conditions	IEC/EN 61131-2
EMC	EN 61000-6-4 and EN 61000-6-2
Overvoltage categories	IEC/EN 60664-1, EN 50178
Equipment class	Class I according to IEC 61140; (earth protected)
Max ambient temperature	55 °C (131 °F), for vertical mounting in compact MTU 40 °C (104 °F)
RoHS compliance	EN 50581:2012
WEEE compliance	DIRECTIVE/2012/19/EU

<b>Compability</b>	
Use with MTU	TU818, TU830, TU833, TU842, TU843
Keying code	BA

### **Intrinsic Safety parameters**

Dimensions	
Width	45 mm (1.77")
Depth	102 mm (4.01"), 111 mm (4.37") including connector
Height	119 mm (4.7")
Weight	0.157 kg (0.35 lbs.)

## Related products



**TU852**



**TU833**



**TU843**



**TU830V1**



**TU842**

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