

# AI835A

## Compact Product Suite hardware selector



The AI835/AI835A 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, N, R, S and T, for AI835A also D, L and U.

One of the channels (Channel 8) may be configured for "Cold Junction" (ambient) temperature measurements, thus serving as CJ-channel for Ch. 1...7. The junction temperature may be measured locally on the MTUs screw terminals, or on a connection unit distant form the device.

Alternatively, a fix junction temperature for the module may be set by the user (as parameter) or for AI835A also from the application. Channel 8 may be used in the same manner as Ch. 1...7 when no CJ-temperature measurement is needed.

### Features and benefits

- 8 differential input channels for thermocouple/mV.
- Channel 8 can be designated as the CJ-channel (4-wire Pt100 RTD)
- Variety of thermocouples with the following characteristics: B, C, E, J, K, N, R, S and T for AI835A also D, L and U
- 15 Bit resolution (A/D)
- Inputs are monitored for wire-break open-circuit

#### General info

Article number	3BSE051306R1
Type	Analog Input
Signal specification	-30..75 mV linear; TC types B, C, D, E, J, K, L, N, R, S, T and U
Number of channels	8
Signal type	See table in S800 Modules and Termination Units, 3BSE020924
HART	No
SOE	No
Redundancy	No
High integrity	No
Intrinsic safety	No
Mechanics	S800

#### Detailed data

Resolution	15 bits
Input impedance	> 1 MΩ
Isolation	Groupwise isolated from ground
Error	Max. 0.1%
Temperature drift	Typ. 5 ppm/°C, Max. 7 ppm/°C
Update cycle time	280 + 80 * (number of active channels) ms at 50 Hz; 250 + 70 * (number of active channels) ms at 60 Hz
Maximum field cable length	600 meters (656 yards)
CMRR, 50Hz, 60Hz	120 dB
NMRR, 50Hz, 60Hz	> 60 dB
Rated insulation voltage	50 V
Dielectric test voltage	500 V a.c.
Power dissipation	1.6 W
Current consumption +5 V Modulebus	75 mA
Current consumption +24 V Modulebus	50 mA
Current consumption +24 V external	0

#### Diagnostics

Front LED's	F(ault), R(un), W(arning)
Supervision	Module error': reference channels, power supply low Channel error: open-circuit CJ-channel (ch 8): < -40 °C (-40°F) and > 100 °C (212°F)
Status indication of supervision	Module Error, Module Warning, Channel error (8)

#### Environment and certification

CE mark	Yes
Electrical safety	EN 61010-1, UL 61010-1, EN 61010-2-201, UL 61010-2-201
Hazardous Location	C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2
Marine certification	ABS, BV, DNV, LR
Temperature, Operating	0 to +55 °C (+32 to +131 °F), approvals are issued for +5 to +55 °C
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 and EN 61000-6-2
Oversupply categories	IEC/EN 60664-1, EN 50178
Equipment class	Class I according to IEC 61140; (earth protected)
RoHS compliance	EU RoHS, UAE RoHS, CN RoHS
WEEE compliance	DIRECTIVE/2012/19/EU

#### Compatibility

Use with MTU	TU810, TU812, TU814, TU818, TU830, TU833
Keying code	BA

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**Dimensions**

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Width	45 mm (1.77")
Depth	102 mm (4.01"), 111 mm (4.37") including connector
Height	119 mm (4.7")
Weight	0.22 kg (0.49 lbs.)

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