DATA SHEET

AI835A

ABB Ability™ System 800xA® 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
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	TU810, TU812, TU814, TU818, TU830, TU833
Keying code	BA

Dimensions	
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.)

Related products

	TU810V1		TU812V1
	TU814V1		TU830V1
	TU833		

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