ABB AI835A Manual

Brand	ABB
Product Series	ABB
Product Type	Analog Input

Description

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
MTUs that match this product
,
TU810V1

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.)