ABB ABB Series Service Manual

AI830A

1. Description

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3. Product Information

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The AI830/AI830A can be used with Pt100, Cu10, Ni100, Ni120 or resistive sensors. Linearization and conversion of the temperature to Centigrade or Fahrenheit is performed on the module.

Every channel can be individually configured. The MainsFreq parameter is used to set mains frequency filter cycle time. This will give a notch filter at the frequency specified (50 Hz or 60 Hz).

Features and benefits

8 channels for RTD (Pt100, Cu10, Ni100 and Ni120 and resistor) inputs

3-wire connection to RTDs

14 Bit resolution

Inputs are monitored for open-circuit, shortcircuit and has a input grounded sensor

MTUs that match this product

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TU810V1

General info

Article number 3BSE040662R1

Type Analog Input

Signal specification 3-wire RTD: Pt100, Cu10, NI100, Ni120 and resistive potentiometer

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 See table in S800 Modules and Termination Units, 3BSE020924-xxx

Isolation Groupwise isolated from ground

Error Error dependent of the field cable resistance: Rerr = R* (0.005 + ΔR/100) Terr°C = Rerr / (R0 * TCR) Terr°F = Terr°C * 1.8

Temperature drift See table in S800 Modules and Termination Units, 3BSE020924-xxx

Update cycle time 150 + 95 * (number of active channels) ms

CMRR, 50Hz, 60Hz >120 dB (at 10Ω load)

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 70 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 Open-circuit, short-circuit,

reference channel, internal power supply

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, TU830, TU833

Keying code AF

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.)