ABB ABB Series Service Manual

AI845

1. Description

The AI845 Analog Input Module for single or redundant applications. The module has 8 channels. Each channel can be either a voltage or current input when MTU TU844 or TU845 is used, when other MTUs are used all channels become voltage or current inputs.

3. Product Information

The AI845 Analog Input Module for single or redundant applications. The module has 8 channels. Each channel can be either a voltage or current input when MTU TU844 or TU845 is used, when other MTUs are used all channels become voltage or current inputs.

The voltage and current input is able to withstand an overvoltage or undervoltage of at least 11 V d.c. The input resistance for voltage input is greater than 10 M ohm and the input resistance for current input is 250 ohm.

The module distributes the external HART compatible transmitter supply to each channel. This adds a simple connection to distribute the supply to 2-wire or 3-wire transmitters. The transmitter power is supervised and current limited.

Features and benefits

8 channels for 0...20 mA, 4...20 mA, 0...5 V or 1...5 V d.c., single ended unipolar inputs

Single or redundant operation

1 group of 8 channels isolated from ground

12 Bit resolution

Current limited transmitter supply per channel

Advanced on-board diagnostics

HART pass-through communication

MTUs that match this product

,

TU810V1

General info

Article number 3BSE023675R1

Type Analog Input

Signal specification 0..20mA, 4..20 mA, 0..5 V, 1..5 V

Number of channels 8

Signal type Unipolar single ended

HART Yes

SOE No

Redundancy Yes

High integrity No

Intrinsic safety No

Mechanics S800

Detailed data

Resolution 12 bit

Input impedance 10 MΩ (voltage input)

250 Ω (current input)

Isolation Groupwise isolated from ground

Under/over range 0 / +15% (0..20 mA, 0..5 V), -12.5% / +15% (4..20 mA, 1..5 V)

Error Max. 0.1%

Temperature drift Max. 50 ppm/°C

Input filter (rise time 0-90%) 290 ms

Update cycle time 10 ms

Current limiting Built in current limited transmitter power

Maximum field cable length 600 meters (656 yards)

Max input voltage (non destructive) 11 V d.c.

NMRR, 50Hz, 60Hz > 40 dB

Rated insulation voltage 50 V

Dielectric test voltage 500 V a.c.

Power dissipation 3.5 W

Current consumption +5 V Modulebus 100 mA

Current consumption +24 V Modulebus 50 mA

Current consumption +24 V external Max. 265 mA (22 mA + transmitter current * 1.32)

Diagnostics

Front LED’s F(ault), R(un), W(arning)

Supervision Module error: analog read back, reference voltage, internal power supply, checksum, watchdog and memory error

Internal channel error: low pass filter´, multiplexer, test channel error

External channel error: external power supply low, transmitter power, external shunt error

Status indication of supervision Module Error, Module Warning, Channel error

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 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, TU835, TU838, TU844, TU845, TU854

Keying code CC

Dimensions

Width 45 mm (1.77”)

Depth 102 mm (4.01”), 111 mm (4.37”) including connector

Height 119 mm (4.7”)

Weight 0.23 kg (0.51 lbs.)