ABB ABB Series Service Manual

AI820

1. Description

The AI820 Analog Input Module has 4 differential, bipolar current/voltage inputs. Each channel can be either a voltage or current input. The current inputs can withstand an accidental maximum normal mode 30 V d.c. connection. To protect the current input circuit against dangerous input levels, that is, by accidentally connecting a 24 V source, the resistor rating of the 250W current sense resistors is about 5 Watts. This is intended only to temporarily protect one channel at a time.

3. Product Information

The AI820 Analog Input Module has 4 differential, bipolar current/voltage inputs. Each channel can be either a voltage or current input. The current inputs can withstand an accidental maximum normal mode 30 V d.c. connection. To protect the current input circuit against dangerous input levels, that is, by accidentally connecting a 24 V source, the resistor rating of the 250W current sense resistors is about 5 Watts. This is intended only to temporarily protect one channel at a time.

The module distributes the external transmitter supply to each channel. This adds a simple connection (with extended MTUs) to distribute the supply to external 2 wire transmitters. There is no current limiting on the transmitter power terminals.

All 4 channels are isolated from the ModuleBus in one group. Power to the input stages is converted from the 24 V on the ModuleBus.

Features and benefits

4 channels for -20...+20 mA, 0...20 mA, 4...20 mA, -10...+10 V, 0...10 V, 2...10 V, -5...+5 V, 0...5 V, 1...5 V d.c. bipolar differential inputs

One group of 4 channels isolated from ground

14 Bit resolution plus sign

Input shunt resistors protected to 30 V d.c.

The input withstand HART communication

MTUs that match this product

,

TU810V1

General info

Article number 3BSE008544R1

Type Analog Input

Signal specification -20..+20 mA, 0(4)..20 mA, -10..+10 V, 0(2)..10 V

Number of channels 4

Signal type Bipolar differential

HART No

SOE No

Redundancy No

High integrity No

Intrinsic safety No

Mechanics S800

Detailed data

Resolution 14 bit plus sign

Input impedance 200 kΩ ± 25% (voltage mode, common mode)

800 kΩ ± 25% (voltage mode, normal mode)

250 Ω (current input)

Isolation Groupwise isolated from ground (RIV=50 V)

Under/over range ± 15%

Error Max. 0.1%

Temperature drift Voltage: Max. 70 ppm/°C Current: Max. 50 ppm/°C

Input filter (rise time 0-90%) 40 ms

Current limiting Transmitter power can be current limited by the MTU

Maximum field cable length 600 meters (656 yards)

Dielectric test voltage 500 V a.c.

Power dissipation 1.7 W

Current consumption +5 V Modulebus 80 mA

Current consumption +24 V Modulebus 0

Current consumption +24 V external 70 mA

Diagnostics

Front LED’s F(ault), R(un), W(arning)

Supervision Internal Power Supply

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 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, 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 BB

Dimensions

Width 45 mm (1.77”)

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

Height 119 mm (4.7”)

Weight 0.2 kg (0.44 lbs.)