

AI820

ABB Ability™ System 800xA® hardware selector



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

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
Oversupply categories	IEC/EN 60664-1, EN 50178
Equipment class	Class I according to IEC 61140; (earth protected)
RoHS compliance	EU RoHS, UAE RoHS, CN RoHS
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.)

Related products



TU810V1



TU812V1



TU814V1



TU830V1



TU833

solutions.abb/800xA
solutions.abb/controlsystems

800xA and Symphony Plus is a registered trademark of ABB. All rights to other trademarks reside with their respective owners.

We reserve the right to make technical changes to the products or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not assume any responsibility for any errors or incomplete information in this document.

We reserve all rights to this document and the items and images it contains. The reproduction, disclosure to third parties or the use of the content of this document – including parts thereof – are prohibited without ABB's prior written permission.

Copyright© 2026 ABB All rights reserved