

# AI820

## Compact Product Suite 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

<b>Detailed data</b>	
Resolution	14 bit plus sign
Input impedance	200 k $\Omega$ $\pm$ 25% (voltage mode, common mode) 800 k $\Omega$ $\pm$ 25% (voltage mode, normal mode) 250 $\Omega$ (current input)
Isolation	Groupwise isolated from ground (RIV=50 V)
Under/over range	$\pm$ 15%
Error	Max. 0.1%
Temperature drift	Voltage: Max. 70 ppm/ $^{\circ}$ C Current: Max. 50 ppm/ $^{\circ}$ 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

<b>Diagnostics</b>	
Front LED's	F(ault), R(un), W(arning)
Supervision	Internal Power Supply
Status indication of supervision	Module Error, Module Warning, Channel error

<b>Environment and certification</b>	
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 $^{\circ}$ C (+32 to +131 $^{\circ}$ F), approvals are issued for +5 to +55 $^{\circ}$ C
Temperature, Storage	-40 to +70 $^{\circ}$ C (-40 to +158 $^{\circ}$ 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 $^{\circ}$ C (131 $^{\circ}$ F), for vertical mounting in compact MTU 40 $^{\circ}$ C (104 $^{\circ}$ 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

<b>Compatibility</b>	
Use with MTU	TU810, TU812, TU814, TU830, TU833
Keying code	BB

<b>Dimensions</b>	
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**

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