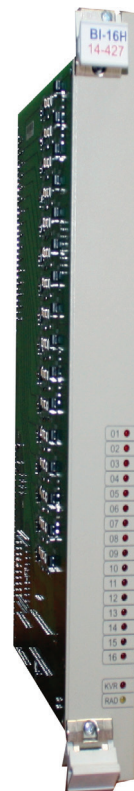# BI16H

Analog input module with support for HART communication

Basic functions

- Analog input module for Atlas devices for receiving measurements from the transmitter
- Possibility of measuring by two-wire connection - in the same circuit are the transmitter power supply and transmitter measuring, HART communication is supported
- Transmitter power supply designed to operate with 24VDC connected to the module input by two-wire connection
- Possibility of measuring by four-wire connection - transmitter power supply and measuring circuit are separated, HART communication is not supported
- Short circuit protection in sensor loops
- All inputs are isolated galvanically from each other, from the bus and on the line to the transmitter
- Measurement of milliampere currents (4-20mA)
- Software programmable filter, individually per channel
- Self test function
- LED indication for module operation/failure

Application

BI16H analog input module receives analog current signals from the process for internal processing of the Atlas Max® controller. At the same time, the transmitter is powered by the same circuit with 24VDC.

Design

Modul BI16H is designed as dual PCB Eurocard (233.4x162.5mm) with front mask dimensions 262x30mm for mounting in standard 19" racks.

Interface

Number of inputs:	16
Interface type:	Differential

Technical specifications

Measuring range of input signals:	
• Current input:	4 to 20 mA
• Input resistance:	275 Ω
A/D converter (per channel):	
• Resolution:	24 bit
• Accuracy:	+/- 0.05%
• Conversion period:	20ms

Max input sampling rate:	12,5 Hz

Galvanic isolation:
- Between channels per groups - supported
  - ○ Number of channels in each isolation group: 1
- Between channel and transmitter line – supported
- Between channel and bus - supported

Short circuit protection:
- Short circuit protection in the circuit towards transmitter – supported
  - ○ Current limitation at the short circuit:: ~30mA
- Short circuit detection – supported and software configurable
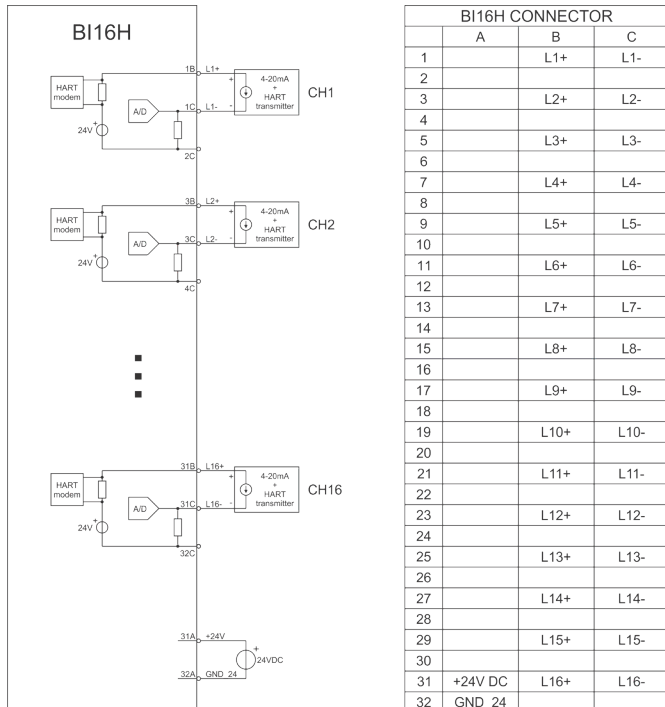
Detection beyond current range:
- Current detection < 4 mA - supported from 0-4mA and software configurable
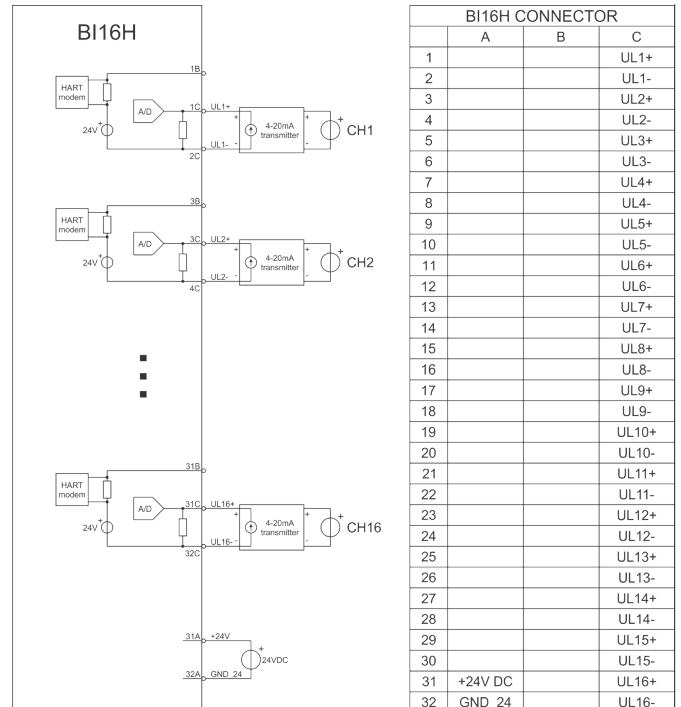- Current detection > 20mA supported from 20-30mA and software configurable

Power supply:

• Internal:	5V, 1.1A, 5.5W
• External:	(9-32V) 24W, max 1A@24V

Binding scheme for 2-wire HART transmitters

	A	B	C
	BI16H CONNECTOR		
1		L1+	L1-
2			
3		L2+	L2-
4			
5		L3+	L3-
6			
7		L4+	L4-
8			
9		L5+	L5-
10			
11		L6+	L6-
12			
13		L7+	L7-
14			
15		L8+	L8-
16			
17		L9+	L9-
18			
19		L10+	L10-
20			
21		L11+	L11-
22			
23		L12+	L12-
24			
25		L13+	L13-
26			
27		L14+	L14-
28			
29		L15+	L15-
30			
31	+24V DC	L16+	L16-
32	GND_24		

Binding scheme for 4-wire 4-20mA transmitters

	A	B	C
	BI16H CONNECTOR		
1			UL1+
2			UL1-
3			UL2+
4			UL2-
5			UL3+
6			UL3-
7			UL4+
8			UL4-
9			UL5+
10			UL5-
11			UL6+
12			UL6-
13			UL7+
14			UL7-
15			UL8+
16			UL8-
17			UL9+
18			UL9-
19			UL10+
20			UL10-
21			UL11+
22			UL11-
23			UL12+
24			UL12-
25			UL13+
26			UL13-
27			UL14+
28			UL14-
29			UL15+
30			UL15-
31	+24V DC		UL16+
32	GND_24		UL16-

Notes:
- There is no HART communication with the transmitter at 4-wire binding.
- On a single BI16H module, it is possible to combine 2-wire and 4-wire binding on different channels.