



8 x 4 to 20 mA in Ex i In the Ex i version, the MODEX 8 x 4 to 20 mA module with 8 analogue inputs enables 8 analogue intrinsically safe signals to be fed in or evaluated. For example, intrinsically safe two-wire transmitters or active 4 - 20 mA signals can be imported as signals. **4 x 4 to 20 mA in & out Ex i** In the Ex i version, the MODEX 4 x 4 to 20 mA module with 4 analogue inputs enables 4 analogue intrinsically safe signals to be fed in or evaluated and additionally the control of intrinsically safe actuators using 4 x 4 to 20 mA outputs. The input signal has 16-bit resolution and is transmitted with high interference resistance. Both modules are connected to the process control system via the PROFIBUS-DP. Coding rotary switches are available for addressing the module. Diagnostics data indicating the status of the outputs with respect to a disconnection or short-circuit can also be transmitted in addition to the user data. This is also displayed on the module itself using LEDs.

Explosion protection

Marking ATEX	II 2(1)G Ex db e [ia Ga] IIC/IIB Gb I M2 Ex db e [ia Ma] I Mb
Certification	PTB 97 ATEX 1066 U TÜV 01 ATEX 1724
Marking IECEx	Ex db e [ia Ga] IIC/IIB Gb Ex db e [ia Ma] I Mb
Certification	IECEx PTB 11.0082U IECEx TUN 11.0026X
Marking CSA	Class I Zone 1 IIC A/Ex d e [ia] IIC Gb
Certification	CSA 2011-2484303U
Other approvals and certificates, see www.bartec.de	
Installation	Type 17-6583-.H./.... II (1) G / II (1) D [Ex ia Ga] IIC/IIB [Ex ia Da] IIC/IIB For further data see test certificates.
Safety data	$U_0 = 26.7 \text{ V}$ $I_0 = 89.9 \text{ mA}$ $P_0 = 600 \text{ mW}$ $L_0 = 5 \text{ mH (IIC)}/18 \text{ mH (IIB)}$ $C_0 = 93 \text{ nF (IIC)}/720 \text{ nF (IIB)}$ External 4 to 20 mA-signals $U_i = 50 \text{ V}$ $I_i = 87.7 \text{ mA}$

Technical data

Construction	Flameproof, clip-on enclosure to TH 35	
Enclosure material	High-quality thermoplastic	
Protection class	Electronic assembly	IP 66 EN/IEC 60529
	Terminals	IP 20 EN/IEC 60529
	Terminals with cover	IP 30 EN/IEC 60529
Terminals	2.5 mm ² , fine stranded	
Device designation	Front plate for labelling	
Displays	LEDs on front panel	
Storage temperature	-40 °C to +60 °C	
Ambient temperature	-25 °C to +60 °C at T4	
Weight	2.1 kg	

Electrical data

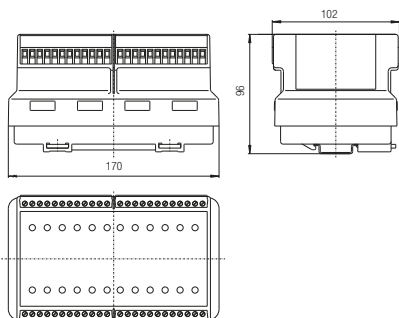
Supply voltage electronics (L +, L-)	DC 24 V (20 to 30 V)
Power consumption (L +, L-)	7.8 W
Reverse polarity protection (L +, L-)	Yes
Power dissipation	max. 4.9 W (Module)
Galvanic isolation	Power supply//bus//circuitry//inputs
Bus interface	RS485 with screw terminals
Displays	Status ON, BF, SF Inputs 8 x LEDs LED yellow, sensor active LED red, open circuit/short circuit

Inputs/outputs

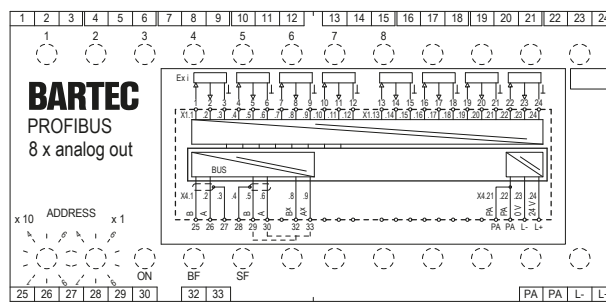
Signal range	4 to 20 mA		
Transmission range	Current	Range 4 to 20 mA	
	24 mA	FFFF _{hex}	65535 dec. Valve at short circuit 7FFF _{hex}
	20 mA	D554 _{hex}	54612 dec. 7FFF _{hex}
	4 mA	2AAA _{hex}	10922 dec. Valve at open circuit 8000 _{hex}
	0 mA	0000 _{hex}	0 8000 _{hex}

Resolution	16 bit
Precision	± 0.1 % (with a shielded cable)
Line monitoring	Group error message for each Channel via bus
Input Channel data	
Supply for 2-wire transmitter	$U_a = 16 \text{ V to } 20 \text{ mA}$, all Channels are short-circuit proof at the same time
Input resistance	External 4 to 20 mA-signals: $R_i = 234 \Omega + \text{approx. } 2 \text{ V (3 diodes)}$
Conversion time	< 70 ms
Output Channels	
Output resistance	$R_o = 367 \Omega$
Quantising	366.2 nA/LSB
Load	< 500 Ω

Dimensions/mounting positions



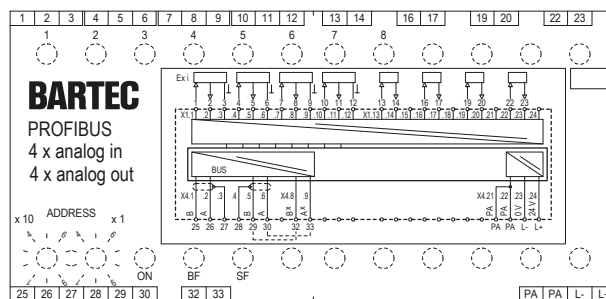
Wiring diagram/terminal assignment 8 x 4 to 20 mA in



Note

Last bus module in system	Bridge A-A ^x (terminals 30, 33) Bridge B-B ^x (terminals 29, 32)
GSD file	BARX2302.gsd (8 x 4 to 20 mA in) BARX2303.gsd (4 x 4 to 20 mA in/out)
Download	http://automation.bartec.de

Wiring diagram/terminal assignment 4 x 4 to 20 mA in/out



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Ordering information

PROFIBUS Interface 8 x 4 to 20 mA in	07-7331-230H/0000
PROFIBUS Interface 4 x 4 to 20 mA in/out (16 bit)	07-7331-230H/1010
Technical data subject to change without notice.	