ENGINEERING TOMORROW

Data Sheet

Pressure transmitter Type **MBS 4000**

Offers high accuracy



The high accuracy pressure transmitter MBS 4000 is designed for use in almost all industrial applications, and offers a reliable pressure measurement, even under harsh environmental conditions.

The flexible pressure transmitter programme covers a 4 – 20 mA output signal, absolute or gauge (relative) versions, measuring ranges from 0 – 1.6 to 0 – 400 bar. A wide range of pressure connections.

Excellent vibration stability, robust construction, and a high degree of EMC / EMI protection equip the pressure transmitter to meet the most stringent industrial requirements.

Features

- Designed for use in severe industrial environments
- Enslosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) or absolute from 0 up to 400 bar
- Output signal: 4 – 20 mA
- A wide range of pressure connections
- Fully digitally compensated
- Accuracy 0.5% FS max.
- UL approved

Product specification

Technical data

Table 1: Performance (EN 60770)

Description	Values
Accuracy (incl. non-linearity, hysteresis and repeatability)	≤ ± 0.2% FS (typ.)
	≤ ± 0.5% FS (max.)
Non-linearity BFSL (conformity)	≤ ± 0.2% FS
Hysteresis and repeatability	≤ ± 0.1% FS
Thermal zero point shift	≤ ± 0.1% FS/10 K (typ.)
	≤ ± 0.2% FS/10 K (max.)
Thermal sensitivity (span) shift	≤ ± 0.1% FS/10 K (typ.)
	≤ ± 0.2% FS/10 K (max.)
Response time	< 4 ms
Overload pressure	6 × FS (max. 1500 bar)
Burst pressure	6 × FS (max. 2000 bar)
Power-up time	< 50 ms
Durability, P: 10 – 90% FS	> 10 ×10^6 cycles

Table 2: Electrical specifications

Description	Values
Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U_B], polarity protected	9 – 32 V DC
Supply voltage dependency	< 0.1% FS / 10 V
Output limitation	22.4 mA
Load [R_L] (load connected to 0 V)	$R_L \leq \frac{(U_B - 9\ V)}{0.02\ A}[\Omega]$

Table 3: Enviromental conditions

Description			Values
Sensor operating temperature	Normal		-40 – 85 °C
Media temperature range			-40 – 85 °C
Ambient temperature range			-40 – 85 °C
Compensated temperature range			0 – 80 °C
Transport / Storage temperature range			-50 – 85 °C
EMC – Emission			EN 61000-6-3
EMC – Immunity			EN 61000-6-2
Insulation resistance			> 100 MΩ at 500 V DC
Mains frequency test			Based on SEN 361503
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz – 25 Hz	IEC 60068-2-6
		20 g, 25 Hz – 2 kHz	
	Random	7.5g_{rms}, 5 Hz – 1 kHz	IEC 60068-2-64
Shock resistance	Shock	500 g/1 ms	IEC 60068-2-27
	Free fall	1 m	IEC 60068-2-32
Enclosure (IP protection fulfilled together with mating connector)			IP65

Table 4: Mechanical characteristics

Description		Values
Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
	Electrical connections	Glass filled polyamid, PA 6.6
Net weight (depending on pressure connection)		0.2 – 0.3 kg

Table 5: Explosive atmospheres

Description		Values
Zone 2 applications [1]	CE Ex II 3G Ex ce IIA T3 Gc -10°C<Ta<+85°C	EN60079-0; EN60079-7

[1] When used in ATEX Zone 2 areas at low temperatures the cable and plug must be protected against impact.

Electrical connection

Figure 1: Electrical connection

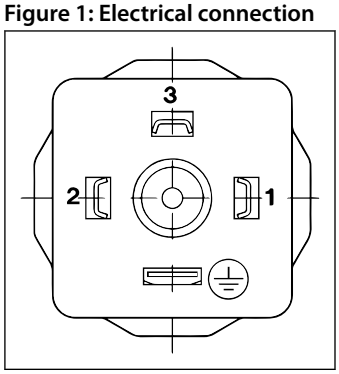
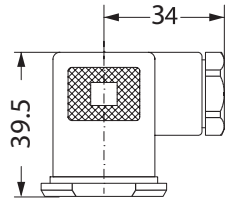


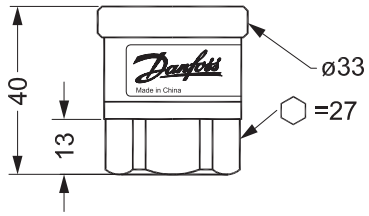
Table 6: Electrical connection

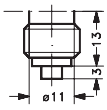
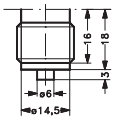
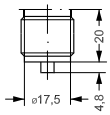
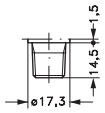
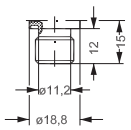
Type code	A1
	EN 175301-803-A, Pg 9
Electrical connection, 4 – 20 mA output (2 wire)	Pin 1: + supply Pin 2: ÷ supply Pin 3: not used Earth: Connected to MBS enclosure

Dimensions and weights

Figure 2: Dimensions/Combinations

Type code	A1
	 EN 175301-803-A Pg 9

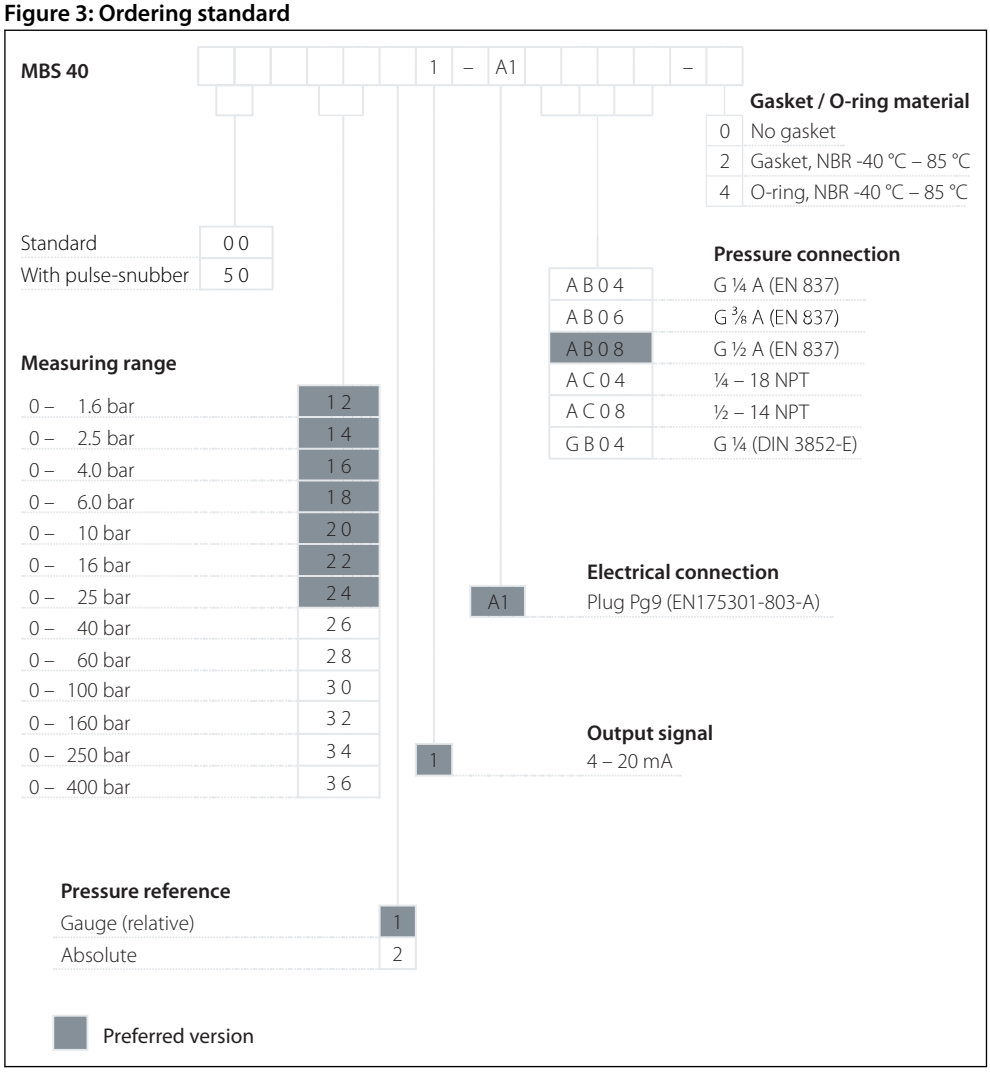


						
	G ¼ A (EN 837)	G ⅜ A (EN 837)	G ½ A (EN 837)	¼ – 18 NPT	½ – 14 NPT	G ¼ (DIN 3852-E)
Type code	**AB04**	**AB06**	**AB08**	**AC04**	**AC08**	**GB04**
Recommended torque [1])	30 – 35 Nm	30 – 35 Nm	30 – 35 Nm	2 – 3 turns after finger tightened	2 – 3 turns after finger tightened	30 – 35 Nm

[1]) Depends on different parameters such as gasket material, mating material, thread lubrication and pressure level

Ordering

Figure 3: Ordering standard



NOTE:
Non-standard build-up combinations may be selected. However, minimum order quantities may apply. Please contact your local Danfoss office for further information, or request on other versions.

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