

Data sheet

Pressure transmitter for industrial applications

MBS 4500



The high accuracy pressure transmitter MBS 4500 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 to 0 – 600 bar zero and span adjustment. A rotatable plug connection and 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
- Enclosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) or absolute from 0 up to 600 bar
- Output signal: 4 – 20 mA
- A wide range of pressure connections
- Temperature compensated and laser calibrated
- Accuracy 0.5% FS
- Zero and span adjustment

Technical data
Performance (EN 60770)

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)	
Durability, P: 10 – 90% FS	> 10 × 10 ⁶ cycles	
Zero point adjustment	0 – 1 to 0 – 10 bar measuring range	-5 – 20% FS
	0 – 16 to 0 – 40 bar measuring range	-5 – 10% FS
	0 – 60 to 0 – 600 bar measuring range	-2.5 – 5% FS
Span adjustment	0 – 1 to 0 – 600 bar measuring range	-5 – 5% FS

Electrical specifications

Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U _B], polarity protected	10 – 30 V DC
Supply voltage dependency	≤ ± 0.1% FS/10 V
Current limitation (linear output signal up to 1.5 × rated range)	28 mA (typ.)
Load [R _L] (load connected to 0 V)	$R_L \leq \frac{(U_B - 10 V)}{0.02 A} [\Omega]$

Environmental conditions

Sensor temperature range	Normal	-40 – 85 °C	
Medium temperature range		115 – (0.35 × Ambient temp.)	
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 100 V	
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	7.5 g _{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	

Technical data
(continued)

Mechanical characteristics

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

Ordering standard

MBS 4500

Measuring range	
0 – 1.0 bar	10
0 – 1.6 bar	12
0 – 2.5 bar	14
0 – 4.0 bar	16
0 – 6.0 bar	18
0 – 10 bar	20
0 – 16 bar	22
0 – 25 bar	24
0 – 40 bar	26
0 – 60 bar	28
0 – 100 bar	30
0 – 160 bar	32
0 – 250 bar	34
0 – 400 bar	36
0 – 600 bar	38

Gasket / O-ring material	
0	No gasket
2	Gasket, NBR -40° – 85°C
4	O-ring, NBR -40° – 85°C

Pressure connection	
A B 0 4	G ¼ A (EN 837)
A B 0 6	G ⅜ A (EN 837)
A B 0 8	G ½ A (EN 837)
A C 0 4	¼ – 18 NPT
A C 0 8	½ – 14 NPT
G B 0 4	DIN 3852-E-G ¼; Gasket: DIN 3869-14 NBR

Electrical connection
Figures refer to plug and standard PIN configuration - see page 5
Plug Pg 9 (EN175301-803-A)

Output signal
4 – 20 mA

Pressure reference	
Gauge (relative)	1
Absolute	2

Preferred version

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.

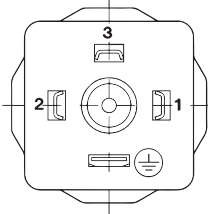
Dimensions/Combinations

Type code	A1
	<p>EN175301-803-A, Pg 9</p>

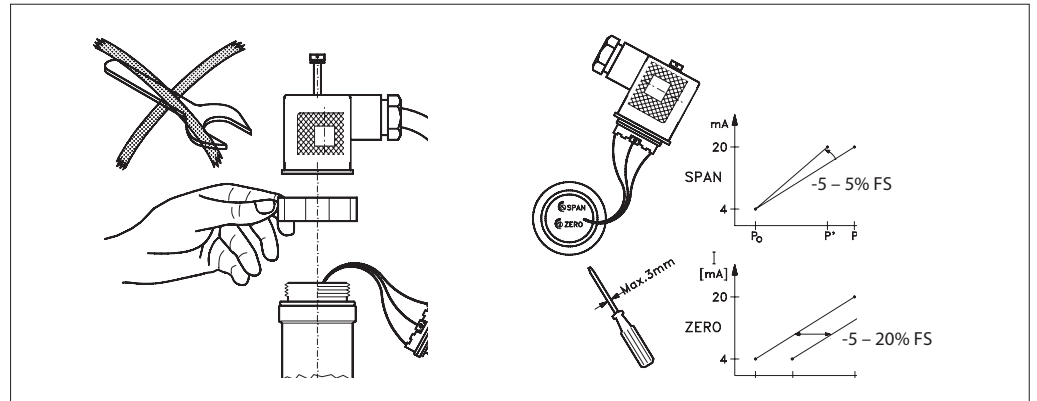
	G 1/4 A (EN 837)	G 3/8 A (EN 837)	G 1/2 A (EN 837)	1/4 - 18 NPT	1/2 - 14 NPT	DIN 3852-E-G 1/4 Gasket: DIN 3869-14
Type code	AB04	AB06	AB08	AC04	AC08	GB04
Recommended torque ¹⁾	30 – 35 Nm	30 – 35 Nm	30 – 35 Nm	2 – 3 turns after finger tightened	2 – 3 turns after finger tightened	30 – 35 Nm

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

Electrical connection

Type code, page 4	A1
	 <p data-bbox="1002 629 1158 678">EN 175301-803-A, Pg 9</p>
<p data-bbox="469 759 600 862">Electrical connection, 4 – 20 mA output (2 wire)</p>	<p data-bbox="1018 723 1150 797">Pin 1: + supply Pin 2: ÷ supply Pin 3: not used</p> <p data-bbox="1007 875 1161 925">Earth: Connected to MBS enclosure</p>

Adjustment



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