

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) | $R_L \leq \frac{(U_B - 10 \text{ V})}{0.02 \text{ A}}$ [Ω] |

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.

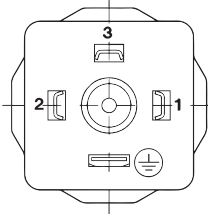
Dimensions/Combinations

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

| | G ¼ A (EN 837) | G ¾ A (EN 837) | G ½ A (EN 837) | ¼ – 18 NPT | ½ – 14 NPT | DIN 3852-E-G ¼ 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

