

## Data Sheet

Pressure transmitter  
Type **MBS 4500**

For all industrial applications



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

## Product specification

### Technical data

**Table 1: Performance (EN 60770)**

| Features   | Description  |
|--|--|
| Accuracy (incl. non-linearity, hysteresis and repeatability) | ≤ ± 0.2% FS (typ.)<br>≤ ± 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.)<br>≤ ± 0.2% FS/10 K (max.) |
| Thermal sensitivity (span) shift                             | ≤ ± 0.1% FS/10 K (typ.)<br>≤ ± 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 <sup>6</sup> cycles                      |
| Zero point adjustment  | 0 – 1 to 0 – 10 bar measuring range                |
|  | 0 – 16 to 0 – 40 bar measuring range               |
|  | 0 – 60 to 0 – 600 bar measuring range              |
| Span adjustment  | 0 – 1 to 0 – 600 bar measuring range               |
|  |  |

**Table 2: Electrical specifications**

| Features  | Description                 |
|---|-----------------------------|
| Nom. output signal (short-circuit protected)                      | 4 – 20 mA                   |
| Supply voltage [U <sub>β</sub> ], 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 [RL] (load connected to 0 V)                                 | RL ≤ (UB - 10 V) [Ω] 0.02 A |

**Table 3: Environmental conditions**

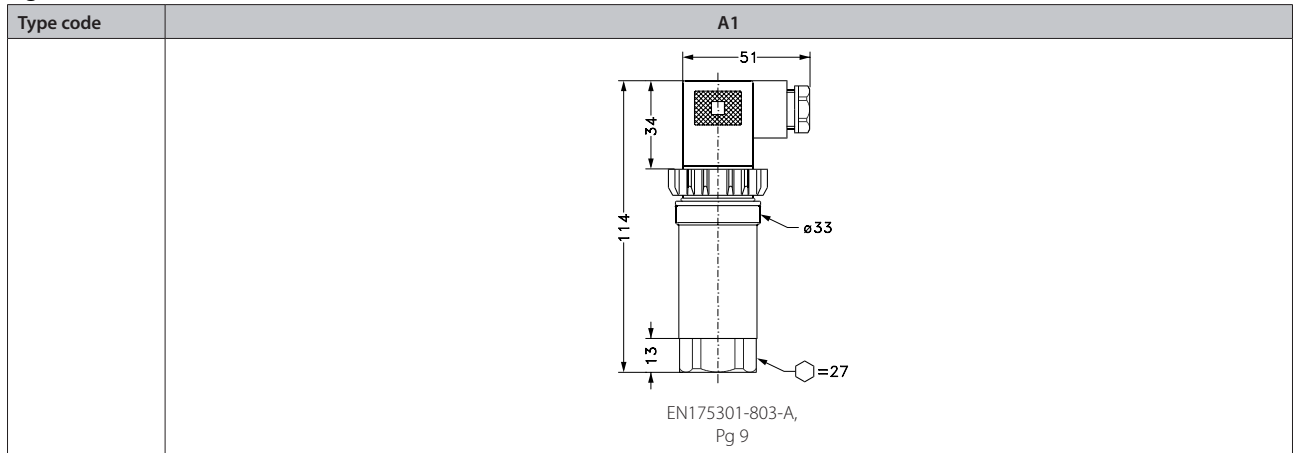
| Features   | Description                      |   |
|--|----------------------------------|---|
| Sensor temperature range   | Normal                           |   |
| Medium temperature range   | -40 – 85 °C                      |   |
| Ambient temperature range  | 115 – (0.35 × Ambient temp.)     |   |
| Compensated temperature range                                      | -40 – 85 °C                      |   |
| Transport / Storage temperature range                              | 0 – 80 °C                        |   |
| EMC – Emission   | -50 – 85 °C                      |   |
| EMC – Immunity   | EN 61000-6-3                     |   |
| Insulation resistance  | EN 61000-6-2                     |   |
| Mains frequency test   | > 100 MΩ at 100 V                |   |
| Vibration stability  | Based on SEN 361503              |   |
|  | Sinusoidal                       | 15.9 mm-pp, 5 Hz – 25 Hz<br>20 g, 25 Hz – 2 kHz |
|  | Random                           | 7.5 g <sub>rms</sub> , 5 Hz – 1 kHz             |
| Shock resistance   | IEC 60068-2-6                    |   |
|  | IEC 60068-2-64                   |   |
| Shock resistance   | Shock                            | 500 g/1 ms                                      |
|  | Free fall                        | 1 m   |
| Enclosure (IP protection fulfilled together with mating connector) | IEC 60068-2-27<br>IEC 60068-2-32 |   |
|  | IP65                             |   |

**Table 4: Mechanical characteristics**

| Features                                      | Description            |                                 |
|---|------------------------|---------------------------------|
| 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           |                                 |

## Dimensions/Combinations

Figure 1: Dimensions/Combinations



| Type code                        | A1                  |                     |                     |                                       |                                       |   |
|----------------------------------|---------------------|---------------------|---------------------|---------------------------------------|---------------------------------------|---|
|                                  |                     |                     |                     |                                       |                                       |   |
|                                  | G 1/4 A<br>(EN 837) | G 3/8 A<br>(EN 837) | G 1/2 A<br>(EN 837) | 1/4 - 18 NPT                          | 1/2 - 14 NPT                          | DIN 3852-E-G 1/4<br>Gasket: DIN 3869-14 |
| <b>Type code</b>                 | <b>AB04</b>         | <b>AB06</b>         | <b>AB08</b>         | <b>AC04</b>                           | <b>AC08</b>                           | <b>GB04</b>                             |
| Recommended torque <sup>1)</sup> | 30 – 35 Nm          | 30 – 35 Nm          | 30 – 35 Nm          | 2 – 3 turns after<br>finger tightened | 2 – 3 turns after<br>finger tightened | 30 – 35 Nm                              |

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

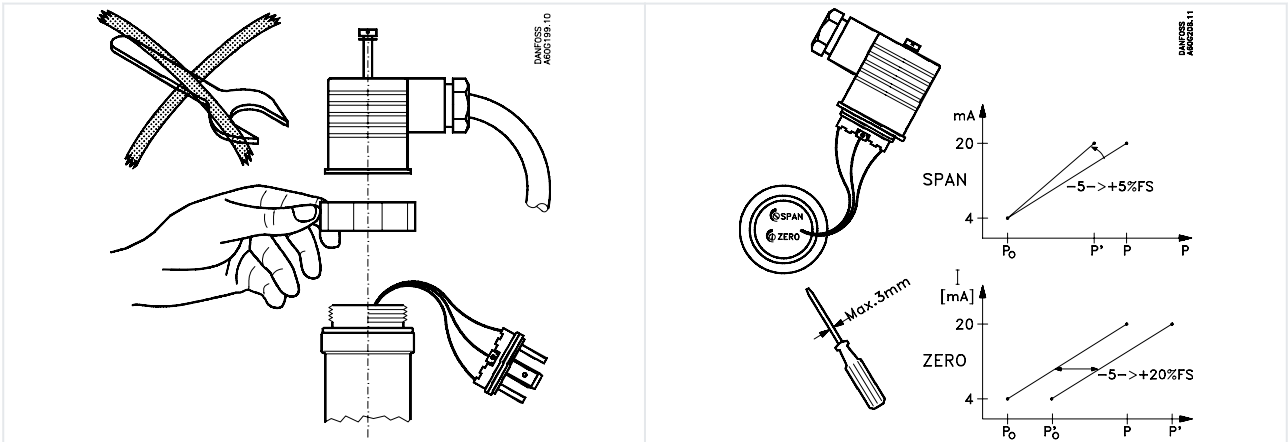
## Electrical connection

Table 5: Electrical connection

| Type   | A1  |
|--|---|
|  | <p>EN 175301-803-A</p> <p>Pin 1: + supply<br/>Pin 2: + supply<br/>Pin 3: not used<br/>Earth: Connected to MBS enclosure</p> |
| Electrical connection, 4 – 20 mA output (2 wire) |   |

## Adjustment

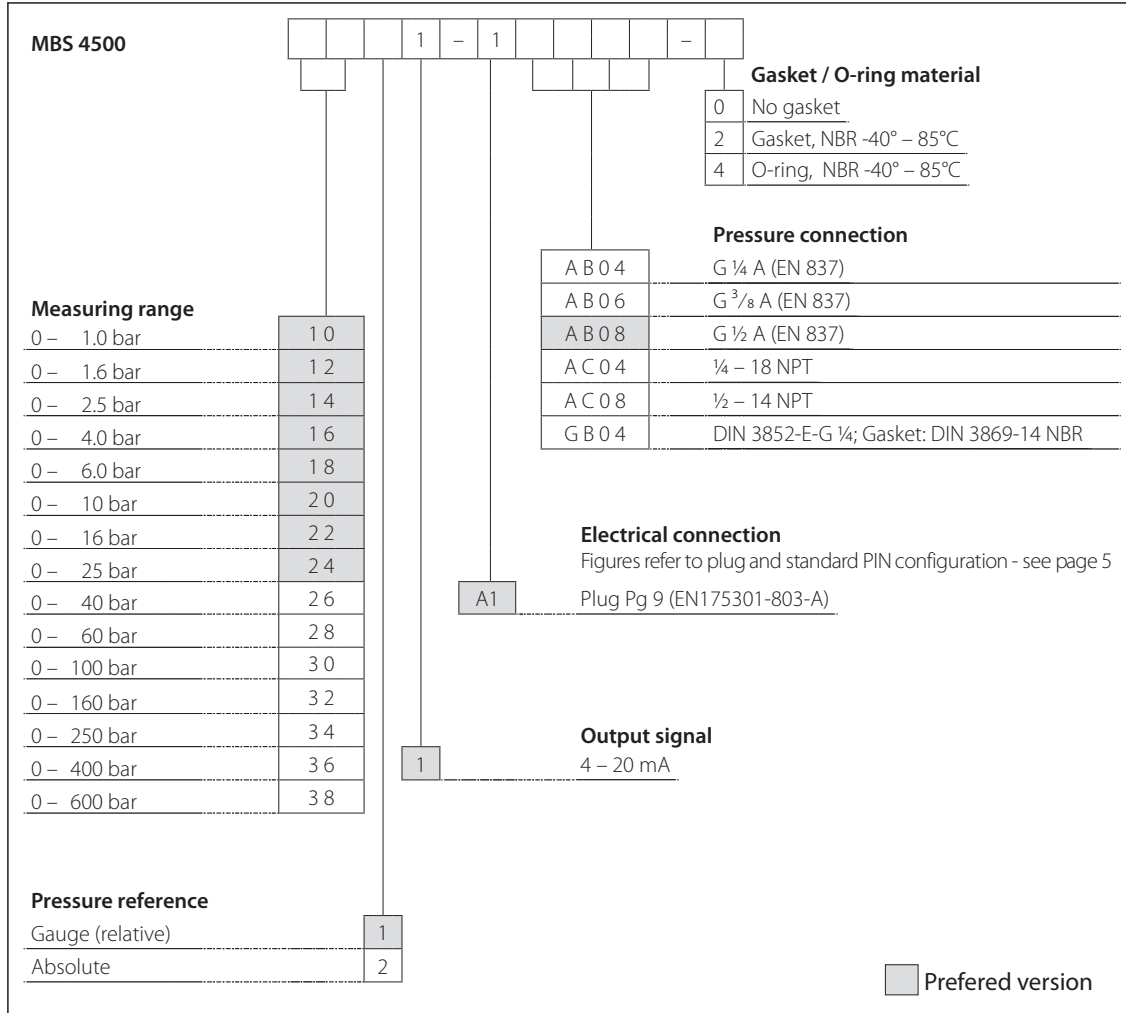
Table 6: Adjustment



**Ordering**

**Ordering standards**

Figure 2: Ordering standards



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.

## Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

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**Table 7: Certificates, declarations and approvals**

| File name             | Document type                             | Document topic | Approval authority |
|-----------------------|---|----------------|--------------------|
| UL E31024             | Electrical - Safety Certificate           |                | UL                 |
| UL E311982            | Electrical - Safety Certificate           |                | UL                 |
| B-BK-60210-1170_19    | Food and Health - Performance Certificate |                | PZH                |
| DK.C.30.018.A 31316   | Measuring - Performance Certificate       |                | GOST               |
| 0F18477.5123467890YTN | Pressure - Safety Certificate             | CRN            | TSSA               |
| 1786330               | Explosive - Safety Certificate            |                | CSA                |

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