



**Pressure Transmitters  
for heavy duty applications  
MBS 8200 and MBS 8250**

**Features**



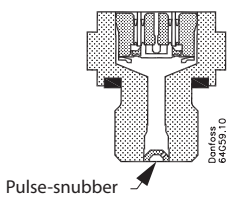
- Designed for use in harsh industrial environments
- EMC protection 100 V/m
- For media and ambient temperatures up to 125 °C
- 3.3 mA sink / source
- Reverse polarity protected
- Version with integrated pulse-snubber. Protected against cavitation, liquid hammering and pressure peaks
- Enclosure and wetted parts of AISI 316L
- Digitally temperature calibrated
- RoHS conformity

**Description**

MBS 8200 is a series of compact pressure transmitters developed to withstand the pressure pulsations and vibrations known in mobile and industrial hydraulic applications. A new technology combining piezo resistive sensor element and programmable gain amplifiers makes the MBS 8200 the obvious choice for applications demanding highest accuracy and insensitiveness against temperature variations. Further this technology enhances the functional safety by limiting the output signal at excess pressure conditions, it allows excellent sink/source capabilities and it leave the pressure transmitters unaffected by electromagnetic fields up to 100V/m.

MBS 8250 with integrated pulse-snubber is designed for use in hydraulic applications with severe media influences like cavitation, liquid hammer or pressure peaks, and offers a reliable pressure measurement, even under harsh environmental conditions.

**MBS 8250**



*Application*

Cavitation, liquid hammer and pressure peaks may occur in liquid filled hydraulic systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops. The problem may occur on the inlet and outlet side, even at rather low operating pressures.

*Media condition*

Clogging of the nozzle may occur in liquids containing particles. Mounting the transmitter in an upright position minimizes the risk of clogging, because the flow in the nozzle is restricted to the start-up period when the dead volume behind the nozzle fills, and furthermore because the nozzle orifice is relatively big (0.4 mm). The media viscosity has only little effect on the response time. Even at viscosities up to 100 cSt, the response time will not exceed 4 ms.

**Technical data**
*Performance (EN 60770)*

|   |                                 |         |
|---|---------------------------------|---------|
| Accuracy @ 25°C (incl. non-linearity, hysteresis and repeatability) | ±0.5% FS                        |         |
| Non-linearity (best fit straight line)                              | ≤ ±0.2% FS                      |         |
| Hysteresis and repeatability  | ≤ ±0.1% FS                      |         |
| Total error band inside the compensated temperature range           | ≤ ±1% FS                        |         |
| Thermal shift outside the compensated temperature range             | ≤ ±0.2% FS / 10 K               |         |
| Response time MBS 8200 (10-90%)                                     | < 2 ms                          |         |
| Response time MBS 8250 (10-90%)                                     | Liquid with viscosity < 100 cSt | < 4 ms  |
|   | Air and gases                   | < 35 ms |
| Overload pressure (static)  | Min. 6 × FS (max. 1400 bar)     |         |
| Burst pressure  | > 6 × FS (max. 2000 bar)        |         |
| Durability, P: 10-90% FS  | > 10 × 10 <sup>6</sup> cycles   |         |

*Electrical specifications*

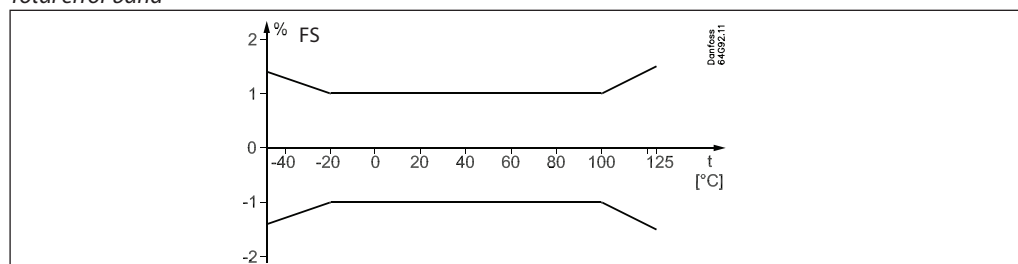
|  |   |                                |
|--|---|--------------------------------|
| Nom. output signal (short-circuit protected)         | 4 → 20 mA (2-wire)                      | Ratiometric 10 → 90% of supply |
| Supply voltage [U <sub>s</sub> ], polarity protected | 9 → 32 V d.c.<br>>32 V: Contact Danfoss | 5 V d.c. ± 0.5 V               |
| Supply - current consumption                         | -                                       | ≤ 6 mA                         |
| Supply voltage dependency                            | ≤ ±0.05% FS/10 V                        | -                              |
| Current limitation                                   | 22 mA ± 0.5 mA                          | -                              |
| Sink / source  | -                                       | 3.3 mA                         |
| Output impedance                                     | -                                       | ≤ 25 Ω                         |
| Max load [R <sub>L</sub> ] (load connected to 0 V)   | $R_L \leq (U_s - 9V) / 0.02 A$          | $R_L \geq 1.5 k\Omega$         |

*Environmental conditions*

|  |                                  |   |
|--|----------------------------------|---|
| Media temperature range  | -40 → +125°C                     |   |
| Ambient temperature range (depending on electrical connection) | See page 5                       |   |
| Compensated temperature range                                  | -20 → +100°C                     |   |
| Storage temperature  | -50 → +125°C                     |   |
| EMC - Emission   | EN 61000-6-3                     |   |
| EMC Immunity   | RF field 100 V/m, 20 MHz - 2 GHz | ISO 11452-2                                   |
|  | RF-field 20 V/m, 2 GHz - 4 GHz   |   |
| Insulation resistance  | > 100 MΩ at 500 V d.c.           |   |
| Vibration stability  | 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   | Shock                            | 500 g / 1 ms                                  |
|  | Free fall                        | 1 m   |
| Enclosure (depending on electrical connection)                 | See page 5                       |   |

*Mechanical characteristics*

|           |                        |                                 |
|-----------|------------------------|---------------------------------|
| Materials | Wetted parts           | EN 10088-1; 1.4404 (AISI 316 L) |
|           | Enclosure              | EN 10088-1; 1.4404 (AISI 316 L) |
|           | Pressure connection    | EN 10088-1; 1.4404 (AISI 316 L) |
|           | Electrical connections | See page 5                      |
| Weight    | < 0.07 kg              |                                 |

*Total error band*


Ordering

**MBS 82**

**Type**  
 Standard..... 00  
 With pulse snubber.... 50

**Measuring range**  
 0 - 100 bar..... 3 0  
 0 - 160 bar..... 3 2  
 0 - 250 bar..... 3 4  
 0 - 400 bar..... 3 6  
 0 - 600 bar..... 3 8  
 0 - 1500 psi..... 7 2  
 0 - 3000 psi..... 7 6  
 0 - 5000 psi..... 7 8  
 0 - 6000 psi..... 7 9  
 0 - 7500 psi..... 8 0  
 0 - 9000 psi..... 8 1

**Pressure reference**  
 Gauge (relative)..... 1  
 Absolute..... 2

**Output signal**  
 4 - 20 mA..... 1  
 Ratiometric, 10-90%..... 6

**Gasket**  
 .....No gasket (0)  
 .....Gasket, Viton, media temp. -20 → +125°C (1)

**Pressure connection**  
 G B 0 4 .....G 1/4, DIN 3852-E / ISO 1179-2  
 A C 0 4 .....1/4 -18 NPT, ANSI/ASME B 1.20.1, excl. gasket  
 B D 0 8 .....7/16 - 20 UNF-2A, ISO 11926-2  
 F A 0 8 .....M14 x 1.5, ISO 6149-2

**Electrical connection** (connections see page 5)  
 A 2 .....AMP Econoseal, J series, 3-pin, male, excl. female plug  
 B 2 .....AMP Junior Power Timer, 2-pin, male, excl. female plug  
 C 2 .....Round Packard Metri-Pack, 3-pin, male, excl. female plug  
 A 8 .....AMP Super seal, 3-pin, male, excl. female plug, on 125 mm. Flying leads

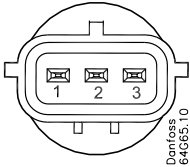
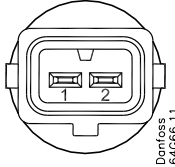
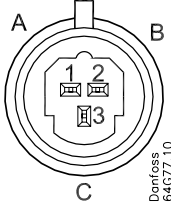
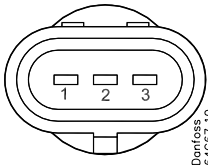
Please contact your local Danfoss office for further information or request on other versions.

Dimensions/Combinations

| Type code                             | A2  | B2                               | C2                       | A8                                 |
|---------------------------------------|---|----------------------------------|--------------------------|------------------------------------|
|                                       | AMP Econoseal                               | AMP Junior Power Timer           | Round Packard Metri-Pack | Flying leads with AMP superseal    |
| Housing:<br>Ø = 19 mm                 |   |                                  |                          |                                    |
| <br>22 mm                             |   |                                  |                          |                                    |
|                                       | G 1/4 - DIN 3852 - E<br>Gasket: DIN 3869-14 | 1/4 - 18 NPT<br>-                | 7/16-20 UNF-2A<br>O-ring | M14 x 1.5 - ISO 6149 - 2<br>O-ring |
| <b>Type code</b>                      | <b>GB04</b>                                 | <b>AC04</b>                      | <b>BD08</b>              | <b>FA08</b>                        |
| Recommend-<br>ed torque <sup>2)</sup> | 30-35 Nm                                    | 2-3 turns after finger teightend | 30-35 Nm                 | 30-35 Nm                           |

<sup>2)</sup> Depends of different parameters as packing material, mating material, thread lubrication and pressure level.

Electrical connections

| Type code  |                    | A2  | B2   | C2  | A8  |
|--|--------------------|---|--|---|---|
|  |                    | AMP Econoseal, J series male<br> | AMP Junior power timer male<br> | Round Packard Metri-Pack, male<br> | Flying leads, 125 mm with AMP superseal 1.5 series, male<br> |
| Ambient temperature  | 4 - 20 mA          | -30 → +105°C  | -30 → +105°C   | -40 → +105°C  | -40 → +105°C  |
|  | Ratiometric        | -30 → +105°C  | -  | -40 → +125°C  | -40 → +125°C  |
| Enclosure (IP protection fulfilled together with mating connector) |                    | IP 67   | IP 67  | IP 67   | IP 67   |
| Materials  |                    | Glass filled polyamide, PA 6.6<br>Sn-coated contacts  | Glass filled polyamide, PA 6.6<br>Sn-coated contacts   | Glass filled polyamide, PA 6.6<br>Sn-coated contacts  | Glass filled polyamide, PA 6.6<br>Wire: PETFE (teflon)<br>Protection sleeve: Polyester braided.<br>Sn-coated contacts                           |
| Electrical connection  | 4 - 20 mA (2 wire) | Pin1: + supply<br>Pin 2: ÷ supply<br>Pin 3: Not used  | Pin 1: + supply<br>Pin 2: ÷ supply   | Pin1(A): ÷ supply<br>Pin 2(B): + supply<br>Pin 3(C): Not used   | Pin 1: + supply<br>Pin 2: ÷ supply<br>Pin 3: Not used   |
|  | Ratiometric        | Pin 1: + supply<br>Pin 2: ÷ supply<br>Pin 3: Output   | -  | Pin 1(A): ÷ supply<br>Pin 2(B): + supply<br>Pin 3(C): Output  | Pin 1: + supply<br>Pin 2: ÷ supply<br>Pin 3: Output   |

