



Pressure transmitters for heavy duty applications

Type MBS 3250

Features



- Designed for use in harsh industrial environments
- For medium and ambient temperatures up to 125 °C
- With integrated pulse-snubber. Protected against cavitation, liquid hammering and pressure peaks
- All standard output signals: 4-20 mA, 0-5 V, 1-5 V, 1-6 V, 0-10 V
- Enclosure and wetted parts of AISI 316L
- A wide range of pressure and electrical connections
- Temperature compensated, linearized and laser adjusted

Description

The compact heavy duty pressure transmitter MBS 3250 with integrated pulse-snubber is designed for use in hydraulic applications with severe medium influences like cavitation, liquid hammer or pressure peaks and offers a reliable pressure measurement, even under harsh environmental conditions.

The flexible pressure transmitter programme covers different output signals, absolute and gauge (relative) versions, measuring ranges from 0-1 to 0-600 bar and a wide range of pressure and electrical connections.

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

Ordering

standard versions

Output: 4 - 20mA

Pressure connection :

DIN 3852-E-G¹/₄

Plug: EN 175301-803-A, Pg 9

Measuring range Pe [bar]	Overload pressure (Static) [bar]	Burst pressure Pe [bar]	Type	Code no.
0-1.6	12	100	MBS 3250-1211-1GB04-1	060G1860
0-2.5	24	100	MBS 3250-1411-1GB04-1	060G1861
0-4	24	100	MBS 3250-1611-1GB04-1	060G1862
0-6	60	100	MBS 3250-1811-1GB04-1	060G1863
0-10	60	100	MBS 3250-2011-1GB04-1	060G1791
0-16	150	150	MBS 3250-2211-1GB04-1	060G1864
0-25	150	150	MBS 3250-2411-1GB04-1	060G1865
0-40	300	400	MBS 3250-2611-1GB04-1	060G1790
0-60	360	800	MBS 3250-2811-1GB04-1	060G1866
0-100	600	1200	MBS 3250-3011-1GB04-1	060G1867
0-160	1200	1200	MBS 3250-3211-1GB04-1	060G1868
0-250	1500	2000	MBS 3250-3411-1GB04-1	060G1779
0-400	1500	2000	MBS 3250-3611-1GB04-1	060G1869
0-600	1500	2000	MBS 3250-3811-1GB04-1	060G1778

Technical data
Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)	±0.5% FS (typ.) ±1% FS (max.)	
Non-linearity (best fit straight line)	≤ ±0.2% FS	
Hysteresis and repeatability	≤ ±0.1% FS	
Thermal error band (compensated temperature range)	≤ ±1% FS	
Response time	Liquids with viscosity < 100 cSt	< 4 ms
	Air and gases	< 35 ms
Overload pressure (static)	Min. 6xFS (max. 1500 bar)	
Burst pressure	>6xFS (max. 2000 bar)	
Durability, P: 10-90% FS	>10x10 ⁶ cycles	

Electrical specifications

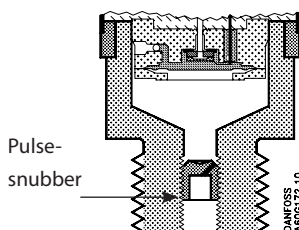
U _B	Nom. output signal (short-circuit protected)		
	4-20 mA	0-5, 1-5, 1-6 V d.c	0-10 V, 1-10 V d.c.
Supply voltage [U _{BP} , polarity protected]	9 - 32 V d.c.	10 - 30 V d.c.	15 - 30 V d.c.
Supply – current consumption	–	≤ 5 mA	≤ 8 mA
Supply voltage dependency	≤ ±0.05% FS/10 V		
Current limitation	28 mA (typ.)	–	
Output impedance	–	≤ 25 Ω	
Load [R _L] (load connected to 0 V)	R _L ≤ (U _B -9V)/0.02 A	R _L ≥ 10 kA	R _L ≥ 15 kA

Environmental conditions

Media temperature range (depending on gasket material)	-40 - +125°C	
Ambient temperature range (depending on electrical connection)	see page 5	
Compensated temperature range	0 - +100°C	
Transport temperature range	-50 - +125°C	
EMC – Emission	EN 61000-6-3	
EMC – Immunity	EN 61000-6-2	
Insulation resistance	> 100 Mohm at 100 V d.c	
Mains frequency test	SEN 361503	
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz-25 Hz 20 g, 25 Hz-2 kHz
	Random	7.5 grms, 5 Hz-1 kHz
	Shock	500 g/1 ms
Shock resistance	Shock	500 g/1 ms
	Free fall	IEC 60068-2-32
Enclosure (depending on electrical connection)	see page 5	

Mechanical conditions

Materials	Wetted parts	EN 10088-1 ; 1.4404 (AISI316L)
	Enclosure	EN 10088-1 ; 1.4404 (AISI316L)
	Pressure connection	see page 4
	Electrical connections	see page 5
Weight (depending on pressure connection and electrical connection)		0.2-0.3 kg

Application and media conditions

Application

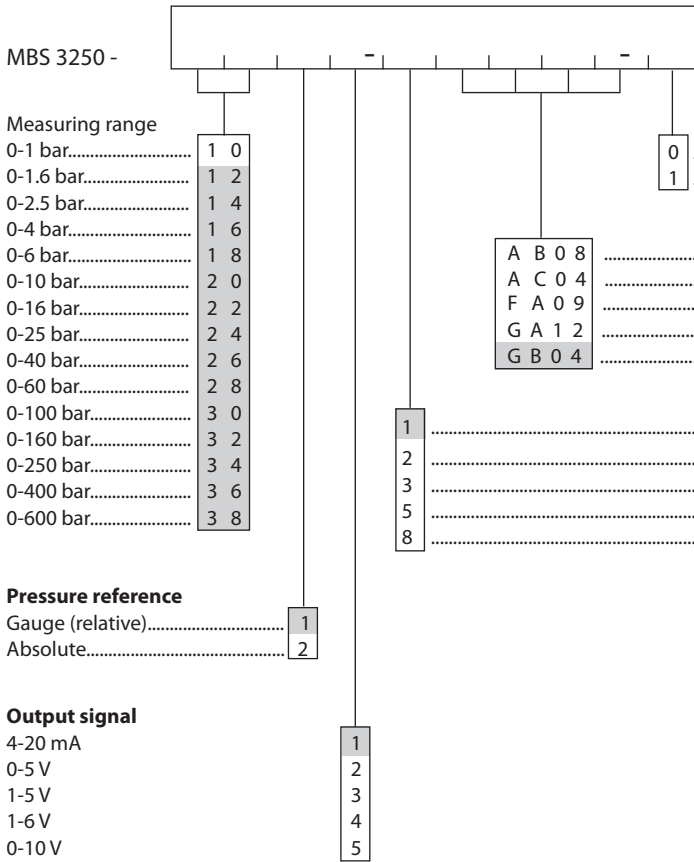
Cavitation, liquid hammer and pressure peaks may occur in liquid filled hydraulic systems with changes in flow velocity, e.g. fast closing of a valve or pump starts and stops.

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 (0.3 mm). The media viscosity has only little effect on the response time. Even at a viscosities up to 100 cSt, the response time will not exceed 4 ms.

Ordering



Gasket/O-ring material

0 No gaskets (see pressure connections)
 1 Viton (media temp.: -20 to +125°C)

Pressure connection

G ½ A (EN 837), excl. gasket
 ¼" - 18 NPT, excl. gasket
 DIN 3852-E-M14x1.5, gasket: DIN 3869-14
 DIN 3852-A-M18x1.5, excl. gasket
 DIN 3852-E-G¼, gasket: DIN 3869-14

Electrical connection

Plug EN175301-803-A, Pg 9
 *)Plug, AMP Econoseal, J series, male, excl. female plug
 Screened cable, 2 m
 *)Plug, IEC 60947-5-2, M12x1, male, excl. female plug
 *) Plug, AMP Superseal 1.5 series male, excl. female plug

* Gauge versions only available as sealed gauge versions

Preferred versions

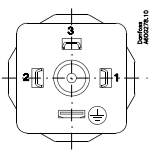
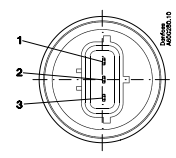
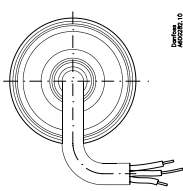
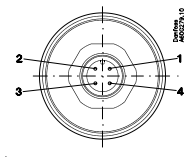
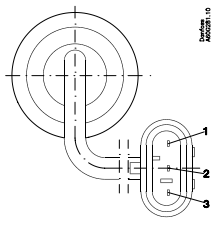
Non-standard build-up combinations may be selected. However, minimum order quantities may apply. Please contact your local Danfoss office for further information or for request on other versions.

Dimensions/Combinations

Type Code	1	2	3	5	8
	EN175301-803-A, Pg 9	AMP Econoseal	2 m screened cable	EN 60947 - 5 - 2 4-pin; M12 x 1	AMP Superseal
	G ½ A (EN 837)	¼ - 18 NPT	DIN 3852-E-M14x1.5 Gasket: DIN 3869-14-NBR	DIN 3852-A-M18x1.5, excl. gasket	DIN 3852-E-G ¼ Gasket: DIN 3869-14-NBR
Type Code	AB08	AC04	FA09	GA12	GB04
Recommended torque 1)	30-35 Nm	2-3 turns after finger tightened	30-35 Nm	30-35 Nm	30-35 Nm

1) Depends of different parameters as packing material, mating material, thread lubrication and pressure level.

Electrical connections

Type code page 4				
1	2	3	5	8
EN 175301-803-A, Pg 9 	AMP Econoseal J series (male) 	2 m screened cable 	IEC 60947-5-2 4-pin; M12 x 1 	AMP Superseal 1.5 series (male) 
<i>Ambient temperature, 4-20 mA output</i>				
-40 to +100 °C	-40 to +100 °C	-30 to +85 °C	-25 to +90 °C	-40 to +100 °C
<i>Ambient temperature, 0-5 V, 1-5 V, 1-6 V and 0-10 V output</i>				
-40 to +125 °C	-40 to +105 °C	-30 to +85 °C	-25 to +90 °C	-40 to +125 °C
<i>Enclosure (IP protection fulfilled together with mating connector)</i>				
IP 65	IP 67	IP 67	IP 67	IP 67
<i>Materials</i>				
Glass filled polyamid, PA 6.6	Glass filled polyamid, PA 6.6 ¹⁾	Polyolifin cable with PE shrinkage tubing	Nickel plated brass, CuZn/Ni	Glass filled polyamid, PA 6.6 ²⁾
<i>Electrical connection, 4-20 mA output (2 wire)</i>				
Pin 1: +supply Pin 2: ÷supply Pin 3: Not used Earth: Connected to MBS enclosure	Pin 1: +supply Pin 2: ÷supply Pin 3: Not used	Brown wire: +supply Black wire: ÷supply Red wire: Not used Orange: Not used Screen: Not connected to MBS enclosure	Pin 1: +supply Pin 2: Not used Pin 3: Not used Pin 4: ÷supply	Pin 1: +supply Pin 2: ÷supply Pin 3: Not used
<i>Electrical connection, 0-5 V, 1-5 V, 1-6 V, 0-10 V output</i>				
Pin 1: +supply Pin 2: ÷supply Pin 3: Output Earth: Connected to MBS enclosure	Pin 1: +supply Pin 2: ÷supply Pin 3: Output	Brown wire: Output Black wire: ÷supply Red wire: + supply Orange: Not used Screen: Not connected to MBS enclosure	Pin 1: +supply Pin 2: not used Pin 3: Output Pin 4: ÷supply	Pin 1: +supply Pin 2: ÷supply Pin 3: Output

¹⁾ Female plug: Glass filled polyester, PBT

²⁾ Wire: PETFE (teflon)

Protection sleeve: PBT mesh (polyester)

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