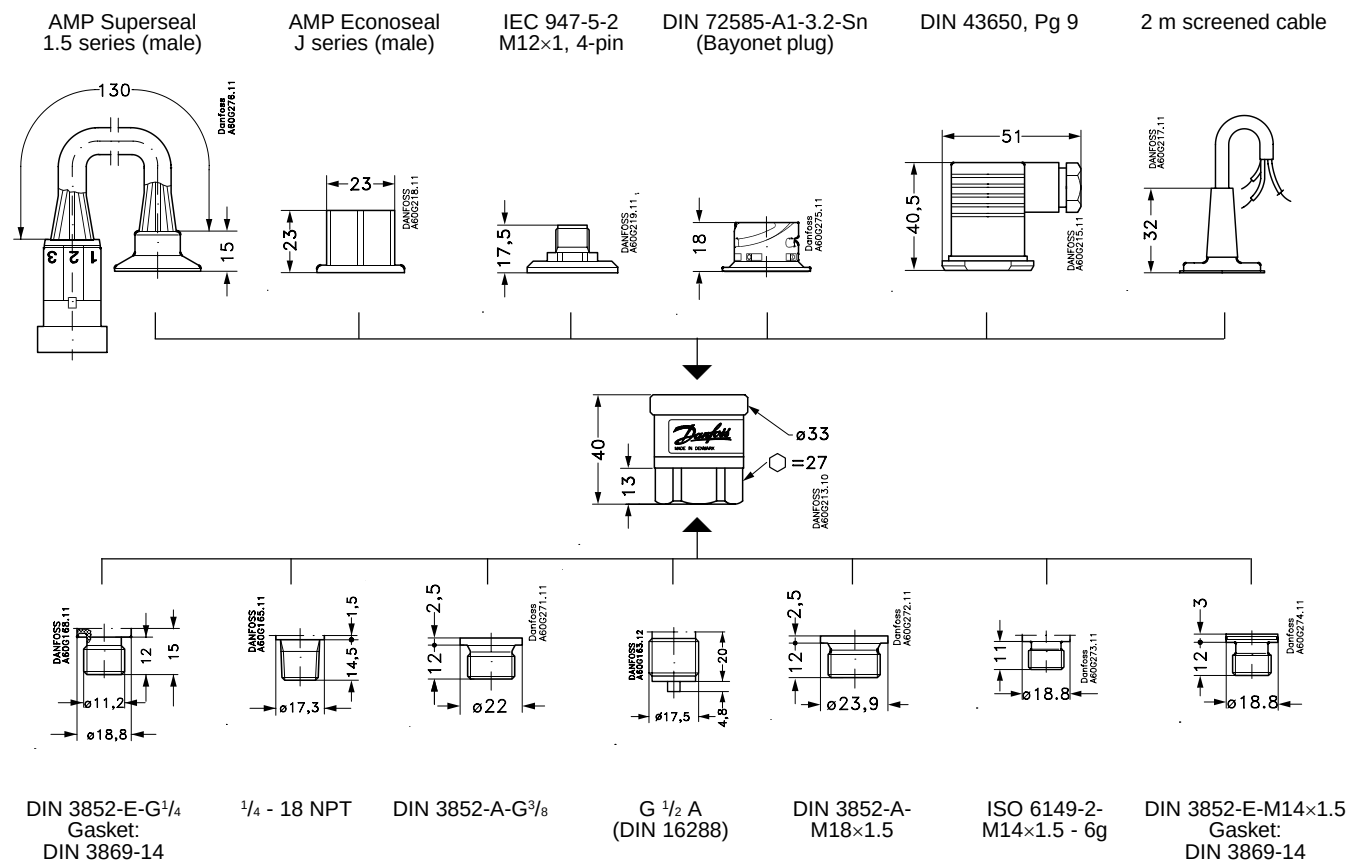


Heavy duty, high temperature pressure transmitters Type MBS 3250



- 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

Dimensions



Technical data

Main specifications

Pressure connections	see page 1							
Measuring ranges [bar]	0-1 0-25	0-1.6 0-40	0-2.5 0-60	0-4 0-100	0-6 0-160	0-10 0-250	0-16 0-400	0-600
Output signals	4-20 mA		0-5 V		1-5 V		1-6 V 0-10 V	
Electrical connections	see page 3							

Performance (IEC 770)

Accuracy	$\pm 0.5\%$ FS (typ.) $\pm 1\%$ FS (max.)	
Non-linearity (best fit straight line)	$\leq \pm 0.2\%$ FS	
Hysteresis and repeatability	$\leq \pm 0.1\%$ FS	
Thermal error band (compensated temperature range)	$\leq \pm 1\%$ FS	
Response time	Liquids with viscosity < 100 cSt	< 4 ms
	Air and gases	< 35 ms
Overload (static) and burst pressure	Min. 6×FS Max overload: 1500 bar Max. burst: 2000 bar	
Durability, P: 10-90% FS	>10×10 ⁶ cycles	

Electrical specifications

	Nom. output signal (short-circuit protected)		
	4 to 20 mA	0-5, 1-5, 1-6 V dc	0-10 V dc
Supply voltage [U _B], polarity protected	8 to 34 V dc	9 to 30 V dc	15 to 30 V dc
Supply - current consumption	-	≤ 5 mA	≤ 8 mA
Supply voltage dependency	$\leq \pm 0.05\%$ FS/10 V		
Current limitation (linear output up to 1.5x nom. range)	34 mA (typ.)	-	
Output impedance	-	$\leq 25\Omega$	
Load [R _L] (load to 0V)	$R_L \leq (U_B - 8V)/0.02$	$R_L \geq 5$ k Ω	$R_L \geq 10$ k Ω

Environmental conditions

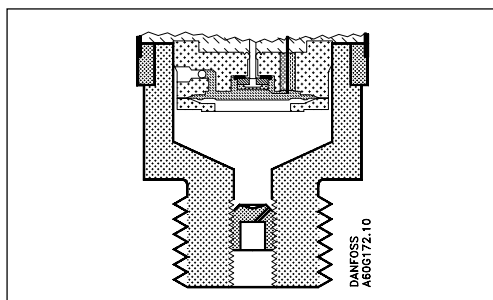
Environmental conditions				
Medium temperature range (depending on gasket material)			-40 to +125°C	
Ambient temperature range (depending on electrical connection)			see page 3	
Compensated temperature range			0 to +100°C	
Transport temperature range			-50 to +125°C	
EMC - Emission			EN 50081-1	
EMC - Immunity	Electrostatic discharge	Air mode 8 kV	EN 50082-2 (IEC 801-2)	
		Contact mode 4 kV	EN 50082-2 (IEC 801-2)	
	RF field	10 V/m, 26 MHz - 1 GHz	EN 50082-2 (IEC 801-3)	
		conducted	10 V _{rms} , 150 kHz - 30 MHz	EN 50082-2 (IEC 801-6)
	Transient	burst	4 kV (CM), Clamp	EN 50082-2 (IEC 801-4)
		surge	1 kV (CM,DM), R _g = 42 Ω	EN 50082-2 (IEC 801-5)
Insulation resistance			> 100 MΩ at 100 V dc	
Mains frequency test		500 V, 50 Hz	SEN 361503	
Vibration stability	Sinusoidal	20 g, 25 Hz - 2 kHz	IEC 68-2-6	
	Random	7.5 g _{rms} , 5 Hz - 1 kHz	IEC 68-2-34, IEC 68-2-36	
Shock resistance	Shock	500 g / 1 ms	IEC 68-2-27	
	Free fall		IEC 68-2-32	
Enclosure (depending on electrical connection)			see page 3	

Mechanical characteristics

Materials	Wetted parts	DIN 17440-1.4404 (AISI 316 L)
	Enclosure	DIN 17440-1.4404 (AISI 316 L)
Weight (depending on pressure connection and electrical connection)		0.2-0.3 kg

Application and media conditions

MBS 3250 with integrated pulse-snubber is specially suited for hydraulic applications where cavitation, liquid hammer or pressure peaks may occur – influences that often cause a short but extreme excess of the measuring range of the transmitter. The integrated pulse-snubber is in principle designed as a nozzle mounted in the passage between the measured medium and the pressure sensitive element of the transmitter.



Application

Cavitation, liquid hammer and pressure peaks may occur in 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 viscosities up to 100 cSt, the response time will not exceed 4 ms.

Electrical connections

DIN 43650, Pg 9	AMP Econoseal J series (male)	IEC 947-5-2 M12×1	DIN 72585-A1-3.2-Sn (Bayonet plug)	AMP Superseal 1.5 series (male)	2 m screened cable
<i>Ambient temperature, 4-20 mA output</i>					
-40 to +100 °C	-40 to +100 °C	-25 to +90 °C	-40 to +100 °C	-40 to +100 °C	-30 to +85 °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	-25 to +90 °C	-40 to +125 °C	-40 to +125 °C	-30 to +85 °C
<i>Enclosure</i>					
IP 65	IP 67	IP 67	IP 67 / IP 69K	IP 67	IP67
<i>Materials</i>					
Glass filled polyamid, PA 6.6	Glass filled polyamid, PA 6.6 ¹⁾	Nickel plated brass, CuZn/Ni	Glass filled polyester, PBT	Glass filled polyamid, PA 6.6 ²⁾	Polyolifin cable with PE shrinkage tubing
<i>Electrical connection, 4-20 mA output (2 wire)</i>					
Pin 1: +supply Pin 2: ÷supply Pin 3: Not used Earth: Connected to MBS housing	Pin 1: +supply Pin 2: ÷supply Pin 3: Not used	Pin 1: +supply Pin 2: Not used Pin 3: Not used Pin 4: ÷supply	Pin 1: +supply Pin 2: ÷supply Pin 3: Ventilation Pin 4: Not used	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 housing
<i>Electrical connection, 0-5V, 1-5V, 1-6V, 0-10V output</i>					
Pin 1: +supply Pin 2: ÷supply Pin 3: Output Earth: Connected to MBS housing	Pin 1: +supply Pin 2: ÷supply Pin 3: Output	Pin 1: +supply Pin 2: not used Pin 3: Output Pin 4: ÷supply	Pin 1: +supply Pin 2: Output Pin 3: Ventilation Pin 4: ÷supply	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 housing

¹⁾ Female plug: Glass filled polyester, PBT

²⁾ Wire: PETFE (teflon)
Protection sleeve: PBT mesh (polyester)

Ordering Standard Versions

With 4-20 mA output, DIN 3852-E-G¹/₄ pressure connection and DIN 43650, Pg9 plug

Measuring range Pe (gauge)	Overload (Static)	Burst pressure	Type	Code no.
0-1 bar	6 bar	100 bar	MBS 3250-1011-1GB04-1	060G1859
0-1.6 bar	12 bar	100 bar	MBS 3250-1211-1GB04-1	060G1860
0-2.5 bar	24 bar	100 bar	MBS 3250-1411-1GB04-1	060G1861
0-4 bar	24 bar	100 bar	MBS 3250-1611-1GB04-1	060G1862
0-6 bar	60 bar	100 bar	MBS 3250-1811-1GB04-1	060G1863
0-10 bar	60 bar	100 bar	MBS 3250-2011-1GB04-1	060G1791
0-16 bar	150 bar	150 bar	MBS 3250-2211-1GB04-1	060G1864
0-25 bar	150 bar	150 bar	MBS 3250-2411-1GB04-1	060G1865
0-40 bar	300 bar	400 bar	MBS 3250-2611-1GB04-1	060G1790
0-60 bar	360 bar	800 bar	MBS 3250-2811-1GB04-1	060G1866
0-100 bar	600 bar	1200 bar	MBS 3250-3011-1GB04-1	060G1867
0-160 bar	1200 bar	1200 bar	MBS 3250-3211-1GB04-1	060G1868
0-250 bar	1500 bar	2000 bar	MBS 3250-3411-1GB04-1	060G1779
0-400 bar	1500 bar	2000 bar	MBS 3250-3611-1GB04-1	060G1869
0-600 bar	1500 bar	2000 bar	MBS 3250-3811-1GB04-1	060G1778

Ordering

MBS 3250-

Measuring range
0 - 1 bar 1 0
0 - 1.6 bar 1 2
0 - 2.5 bar 1 4
0 - 4 bar 1 6
0 - 6 bar 1 8
0 - 10 bar 2 0
0 - 16 bar 2 2
0 - 25 bar 2 4
0 - 40 bar 2 6
0 - 60 bar 2 8
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

Pressure reference
Gauge (relative) 1
Absolute 2

Output signal
4-20 mA 1
0-5 V 2
1-5 V 3
1-6 V 4
0-10 V 5

Pressure connection
E B 0 6
E B 0 8
E C 0 4
F A 0 8
F A 0 9
G A 1 2
G B 0 4

Gasket / O-ring material
..... No gasket (see pressure connections)
..... Viton (medium temp.: -20 to +125 °C)

Electrical connection
Plug, DIN 43650, Pg 9
* Plug, AMP Econoseal, J series, male, excl. female plug
Screened cable, 2 m
* Plug, IEC 947-5-2, M12×1 male, excl. female plug
Plug, DIN 72585-A1-3.2-Sn male, excl. female plug
* Plug, AMP Superseal 1.5 series male, excl. female plug

Other versions on request

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