



Kompaktný snímač tlaku MBS 4701
použiteľný v potenciálne výbušnom prostredí:
zóna 0, zóna 1 and zóna 2 (plyny a para)

Typ MBS 4201, MBS 4251, MBS 4701 a MBS 4751

Vlastnosti



- Výstupný signál 4–20 mA
- Merací rozsah 0 –600 bar
- S nastaviteľnou nulou a rozpätím
- Široká škála tlakových pripojení
- Ex II 1G EEx ia IIC T4 – T6 v súlade s ATEX 100a
- Použiteľné v potenciálne výbušnom prostredí: zóna 0, zóna 1 and zóna 2 (plyny a para)

Popis MBS 4701

Vnútorne bezpečné tlakové senzory MBS 4701 sú navrhnuté pre použitie v ťažkej prevádzke a prostredí s nebezpečenstvom výbuchu. EEx ia IIC T6 podľa ATEX 100a. Výstupný signál 4–20mA. Verzia pre meranie absolútneho aj relatívneho tlaku. Rozsah merania 0–1bar až 0–600 barov. Možnosť nastavenia od nuly a rozpätia. Široká škála tlakových pripojení. Vynikajúca odolnosť proti vibráciám, robustná konštrukcia, ochrana podľa smernice EMC / EMI. Konštruovaný pre vysoké teploty prostredia v náročných priemyselných aplikáciách.

Objednávky štandardné verzie MBS 4701

Measuring range Pe ¹⁾ [bar]	Type no.	Code no.
0-1	MBS 4701-1011-1AB08	060G4303
0-1.6	MBS 4701-1211-1AB08	060G4300
0-2.5	MBS 4701-1411-1AB08	060G4304
0-4	MBS 4701-1611-1AB08	060G4305
0-6	MBS 4701-1811-1AB08	060G4306
0-10	MBS 4701-2011-1AB08	060G4307
0-16	MBS 4701-2211-1AB08	060G4301
0-25	MBS 4701-2411-1AB08	060G4308
0-40	MBS 4701-2611-1AB08	060G4309
0-60	MBS 4701-2811-1AB08	060G4302
0-100	MBS 4701-3011-1AB08	060G4310

MBS 4751 with pulse snubber

0-160 bar	MBS 4751-3211-1AB08	060G4311
0-250 bar	MBS 4751-3411-1AB08	060G4312
0-400 bar	MBS 4751-3611-1AB08	060G4313
0-600 bar	MBS 4751-3811-1AB08	060G4314

1) Relative/ gauge



Technická dokumentácia

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Technické dáta

Performance (EN 60770)

MBS type	Standard version		With zero point and span adjustment	
	MBS 4201	MBS 4251	MBS 4701	MBS 4751
	-	with pulse snubber	-	with pulse snubber
Accuracy (incl. non-linearity, hysteresis and repeatability)	±1% FS	±1% FS	±0.5% FS	±0.5% FS
Non-linearity BFSL (conformity)	≤ ±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	< 4 ms	< 4 ms
	Air and gases	< 4 ms	< 35 ms	< 4 ms
Overload pressure (static)	6 × FS (max. 1500 bar)			
Burst pressure	> 6 × FS (max. 2000 bar)			
Durability, P: 10-90% FS	> 10 ⁶ cycles			
Zero point adjustment	0-1 to 0-10 bar measuring range	-	-	-5 to +20 % FS
	0-16 to 0-40 bar measuring range	-	-	-5 to +10% FS
	0-60 to 0-600 bar measuring range	-	-	-2.5 to +5% FS
Span adjustment	0-1 to 0-600 bar measuring range	-	-	-5 to +5% FS

Electrical specifications

Nom. output signal (short circuit protected)	4 to 20 mA
Supply voltage, UB (polarity protected)	10 to 28 V dc
Supply voltage dependency	≤ ±0.05% FS/10 V
Current limitation (linear output signal up to 1.5 × rated range)	30-35 mA
Load [R _L] (load connected to 0 V)	$R_L \leq \frac{U_b - 10 V}{0.02 A} [\Omega]$

Environmental conditions

Media temperature range	See page 5			
Ambient temperature range	See page 5			
Compensated temperature range	0 to + 100°C			
Transport temperature range	Plug version/cable version -50 to +100°C/-30 to +80°C			
EMC - Emission	EN 61000-6-3			
EMC Immunity	Electrostatic discharge	Air mode	8kV	EN 61000-6-2
		Contact mode	4 kV	EN 61000-6-2
	RF	Field	10 V/m, 26 MHz - 1 GHz	EN 61000-6-2
		Conducted	10 V _{rms} , 150 kHz - 30 MHz	EN 61000-6-2 1)
	Transient	Burst	4 kV (CM), Clamp	EN 61000-6-2
Surge		1 kV (CM, DM) Rg = 42 Ω	EN 61000-6-2	
Insulation resistance			> 100 MΩ at 100 V	
Vibration stability	Sinusoidal	20 g, 25 Hz - 2 kHz	IEC 60068-2-6	
	Random	7.5 g _{rms} , 5 Hz - 1 kHz	IEC 60068-2-64	
Shock resistance	Shock	500 g/1ms	IEC 60068 - 2 - 27	
	Free fall		IEC 60068 - 2 - 32	
Enclosure (depending on electrical connection)			See page 5	

1) In the frequency range of 150 kHz - 3 MHz the error is > 1 % FS

Mechanical characteristics

Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
Weight (depending on pressure connection)		0.2 - 0.3 kg



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Ordering special versions

MBS 4201 -
 MBS 4251 -
 MBS 4701 -
 MBS 4751 -

Measuring range

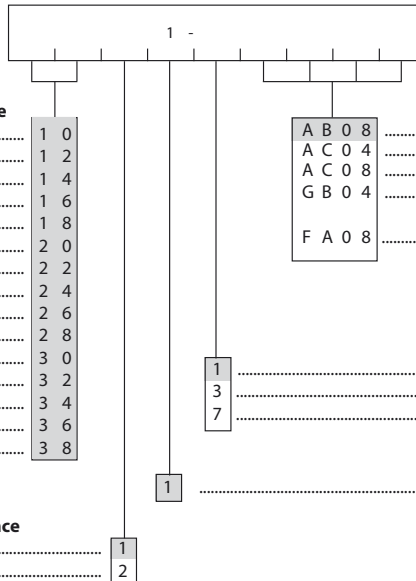
0 - 1 bar	1 0
0 - 1.6 bar	1 2
0 - 2.5 bar	1 4
0 - 4 bar	1 6
0 - 6 bar	1 8
0 - 10 bar	2 0
0 - 16 bar	2 2
0 - 25 bar	2 4
0 - 40 bar	2 6
0 - 60 bar	2 8
0 - 100 bar	3 0
0 - 160 bar	3 2
0 - 250 bar	3 4
0 - 400 bar	3 6
0 - 600 bar	3 8

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 request on other versions.

Pressure reference

Gauge (relative)	1
Absolute	2



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
F A 0 8	ISO 6149-2, M14 x 1.5-6g, O-ring NBR

Pressure connection

G ½ A (EN 837)
 ¼ - 18 NPT
 ½ - 14 NPT
 DIN 3852-E-G ¼
 Gasket: DIN 3869-14 NBR
 ISO 6149-2, M14 x 1.5-6g, O-ring NBR

Electrical connection

Figures refer to plug and standard PIN configuration - see page 5
 1 Plug Pg 9 (EN175301-803-A)
 3 Screened cable, 2 m¹⁾
 7 ISO 15170-A1-3.2-Sn, male¹⁾
 (Bayonet plug)

Output signal

4 - 20 mA

¹⁾ MBS 4201 and MBS 4251 only

Dimensions / Combinations

Type code	Non adjustable versions MBS 4201, MBS 4251			Adjustable versions MBS 4701, MBS 4751
	1	3	7	1
	EN175301-803-A, Pg 9	2 m cable	ISO 15170-A1-3.2-Sn (Bayonet plug)	EN175301-803-A, Pg 9
	DIN 3852-E-G ¼ Gasket DIN 3869-14-NBR	G ½ A (EN 837)	¼ - 18 NPT	½ - 14 NPT
	GB04	AB08	AC04	AC08
Recommended torque 1)	30-35 Nm	30-35 Nm	2-3 turns after finger tightened	2-3 turns after finger tightened
				FA08
				ISO 6149-2 M14 x 1.5 - 6g Incl. O-ring NBR
				30-35 Nm

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



Technická dokumentácia

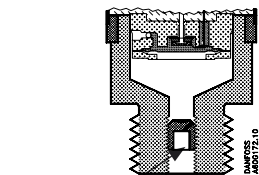
Snímač tlaku typ MBS 4201, MBS 4251, MBS 4701 a MBS 4751

Electrical connections

Type code page 4				
	1	3	7	
	EN 175301-803-A	Cable versions	ISO 15170-A1-3-2-Sn (bayonet plug)	
Ambient temperature	-40 to + 85°C	-30 to + 85°C	-40 to + 85°C	
Material	Glass filled Polyamid, PA 6.6	PVC cable	Glass filled Polyester, PBT	
Enclosure 1)	IP 65	IP67	IP67/IP69K	
Ex-certification - Conformity specifications				
Ambient temperature				
Eex ia IIC T4	-40 to 100°C	-30 to 80°C	-40 to 100°C	
Eex ia IIC T5	-40 to 75°C	-30 to 75°C	-40 to 75°C	
Eex ia IIC T6	-40 to 50°C	-30 to 50°C	-40 to 50°C	
Medium temperature				
Eex ia IIC T4	-40 to 125°C	-40 to 125°C	-40 to 125°C	
Eex ia IIC T5	-40 to 95°C	-40 to 95°C	-40 to 95°C	
Eex ia IIC T6	-40 to 50°C	-40 to 50°C	-40 to 50°C	
Power supply	Ui	28 V dc	28 V dc	
Short circuit rating	Ii	100 mA	100 mA	
Power limitation	Pi	0.7 W	0.7 W	
Internal capacity	Ci	≤ 40 nF	≤ 40 nF	
Internal inductivity	Li	≤ 0.1 mH	≤ 0.1 mH	
Electrical connection, 4-20 mA output (2 wire)				
Standard configuration	Pin 1: + Supply Pin 2: - Supply Pin 3: Not used Earth: Connected to MBS enclosure	Black 1: + Supply Black 2: - Supply Screen: Not connected to MBS enclosure	Pin 1: + Supply Pin 2: - Supply Pin 3: Ventilation Pin 4: Not used	

1) (IP protection fulfilled together with mating connector)

MBS 4251 and MBS 4751
Application and media conditions



Pulse snubber

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 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 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.