

Pressure transmitters for industrial applications

Type MBS 32 and MBS 33

Features



- Designed for use in severe industrial environments
- CE-marked: EMC protected in accordance with EU EMC Directive
- Enclosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Temperature compensated, linearized and laser adjusted
- Output signals:
 - MBS 32: 0-5 V, 1-5 V, 1-6 V or 0-10 V d.c.
 - MBS 33: 4-20 mA
- Many different pressure connections
- Electrical connection through plug or cable

Description

The standard pressure transmitter MBS 32 and MBS 33 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 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.

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

Ordering Standard versions

*MBS 33 for absolute pressure measuring,
Output signal: 4-20 mA*

Pressure connection	Measuring ranges P_{abs} [bar]	EN 175301-803 plug version, Pg 9		Cable version (2 m)	
		Type no.	Code no.	Type no.	Code no.
G 1/2 A (EN 837)	0-1	MBS 33-1021-1AB08	060G3036	MBS 33-1021-3AB08	060G3086
	0-1.6	MBS 33-1221-1AB08	060G3037	MBS 33-1221-3AB08	060G3087
	0-2.5	MBS 33-1421-1AB08	060G3038	-	-
	0-4	MBS 33-1621-1AB08	060G3039	MBS 33-1621-3AB08	060G3089
	0-6	MBS 33-1821-1AB08	060G3040	MBS 33-1821-3AB08	060G3090
	0-10	MBS 33-2021-1AB08	060G3041	MBS 33-2021-3AB08	060G3091
	0-16	MBS 33-2221-1AB08	060G3042	MBS 33-2221-3AB08	060G3092
	0-25	MBS 33-2421-1AB08	060G3043	-	-

Ordering standard versions

*MBS 33 for gauge (relative) pressure measuring
Output signal: 4-20 mA*

Pressure connection	Measuring ranges P_e [bar]	EN 175301-803 plug version, Pg 9		Cable version (2 m)	
		Type no.	Code no.	Type no.	Code no.
G 1/2 A (EN 837)	0-1	MBS 33-1011-1AB08	060G3006	MBS 33-1011-3AB08	060G3056
	0-1.6	MBS 33-1211-1AB08	060G3007	-	-
	0-2.5	MBS 33-1411-1AB08	060G3008	MBS 33-1411-3AB08	060G3058
	0-4	MBS 33-1611-1AB08	060G3009	MBS 33-1611-3AB08	060G3059
	0-6	MBS 33-1811-1AB08	060G3010	MBS 33-1811-3AB08	060G3060
	0-10	MBS 33-2011-1AB08	060G3011	MBS 33-2011-3AB08	060G3061
	0-16	MBS 33-2211-1AB08	060G3012	MBS 33-2211-3AB08	060G3062
	0-25	MBS 33-2411-1AB08	060G3013	MBS 33-2411-3AB08	060G3063
	0-40	MBS 33-2611-1AB08	060G3014	MBS 33-2611-3AB08	060G3064
	0-60	MBS 33-2811-1AB08	060G3015	MBS 33-2811-3AB08	060G3065
	0-100	MBS 33-3011-1AB08	060G3016	-	-
	0-160	MBS 33-3211-1AB08	060G3017	MBS 33-3211-3AB08	060G3067
	0-250	MBS 33-3411-1AB08	060G3018	MBS 33-3411-3AB08	060G3068
	0-400	MBS 33-3611-1AB08	060G3019	MBS 33-3611-3AB08	060G3069
	0-600	MBS 33-3811-1AB08	060G3020	-	-

*MBS 32 for absolute pressure measuring
Output signal: 0-10 V*

Pressure connection	Measuring ranges P_{abs} [bar]	EN 175301-803 plug version, Pg 9	
		Type no.	Code no.
G 1/2 A (EN 837)	0-1	MBS 32-1025-1AB08	060G1264
	0-1.6	MBS 32-1225-1AB08	060G3050
	0-2.5	MBS 32-1425-1AB08	060G1266
	0-4	MBS 32-1625-1AB08	060G1267
	0-6	MBS 32-1825-1AB08	060G1268
	0-10	MBS 32-2025-1AB08	060G1269
	0-16	MBS 32-2225-1AB08	060G1270
	0-25	MBS 32-2425-1AB08	060G1271

*MBS 32 for gauge (relative) pressure measuring
Output signal: 1-6 V or 0-10 V
EN 175301-803 plug, Pg 9*

Pressure connection	Measuring ranges P_e [bar]	1-6 V dc output signal		0-10 V dc output signal	
		Type no.	Code no.	Type no.	Code no.
G 1/2 A (EN 837)	0-1	-	-	MBS 32-1015-1AB08	060G1222
	0-1.6	-	-	MBS 32-1215-1AB08	060G1223
	0-2.5	-	-	MBS 32-1415-1AB08	060G1224
	0-4	MBS 32-1614-1AB08	060G3285	MBS 32-1615-1AB08	060G1225
	0-6	-	-	MBS 32-1815-1AB08	060G1226
	0-10	MBS 32-2014-1AB08	060G3079	MBS 32-2015-1AB08	060G2085
	0-16	MBS 32-2214-1AB08	060G1286	MBS 32-2215-1AB08	060G1228
	0-25	MBS 32-2414-1AB08	060G1287	MBS 32-2415-1AB08	060G1229
	0-40	MBS 32-2614-1AB08	060G1288	MBS 32-2615-1AB08	060G1239
	0-60	-	-	MBS 32-2815-1AB08	060G1249
	0-100	MBS 32-3014-1AB08	060G1290	-	-
	0-160	-	-	MBS 32-3215-1AB08	060G1260
	0-250	-	-	MBS 32-3415-1AB08	060G1261
	0-400	-	-	MBS 32-3615-1AB08	060G1262
	0-600	MBS 32-3814-1AB08	060G1294	MBS 32-3815-1AB08	060G1263

Technical data
Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)		±0.3% FS (typ.) ±0.8% FS (max.)
Non-linearity BFSL (conformity)		≤ ±0.2% FS
Hysteresis and repeatability		≤ ±0.1% FS
Thermal zero point shift		≤ ±0.1% FS/10K (typ.) ≤ ±0.2% FS/10K (max.)
Thermal sensitivity (span) shift		≤ ±0.1% FS/10K (typ.) ≤ ±0.2% FS/10K (max.)
Response time	Liquids with viscosity < 100 cSt	< 4 ms
	Air and gases	< 35 ms
Overload pressure (Static)		6 × FS (max. 1500 bar)
Burst pressure		> 6 × FS (max. 2000 bar)
Durability, P: 10-90% FS		>10×10 ⁶ cycles

Electrical specifications

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

Environmental conditions

Medium temperature range		-40 → +85°C	
Ambient temperature range (depending on electrical connection)		see page 4	
Compensated temperature range		0 → +80°C	
Transport temperature range		-50 → +85°C	
EMC - Emission		EN 61000-6-3	
EMC Immunity		EN 61000-6-2	
Insulation resistance		> 100 MΩ at 100 V	
Mains frequency test		SEN 361503	
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz-25 Hz	IEC 60068-2-6
		20 g, 25 Hz - 2 kHz	
Shock resistance	Shock	500 g / 1 ms	IEC 60068 - 2 - 27
	Free fall		IEC 60068 - 2 - 32
Enclosure (depending on electrical connection)		see page 4	

Mechanical characteristics

Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
	Electrical connections	see page 4
Weight (depending on pressure connection and electrical connection)		0.2 - 0.3 kg

Ordering, Special versions

MBS 32 -
MBS 33 -

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

A B 0 4	G ¼ A (EN 837)
A B 0 8	G ½ A (EN 837)
A C 0 4	¼ - 18 NPT
B A 1 2	DIN 3852/3; M18 x 1.5-6g NBR O-ring
B A 1 6	DIN 3852-E-M22 x 1.5 NBR gasket
G B 0 4	DIN 3852-E-G¼ gasket DIN 3869-14

Electrical connection

Figures refer to plug and standard PIN configuration - see page 4

1	Plug Pg 9 (EN175301-803)
3	Screened cable, 2 m

Output signal

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

¹⁾MBS 33 only

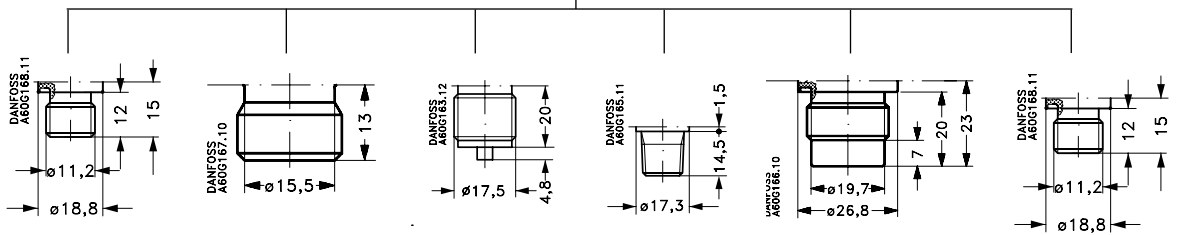
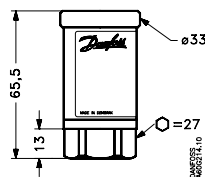
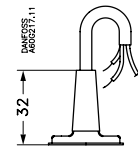
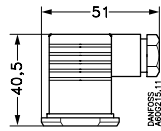
²⁾MBS 32 only

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.

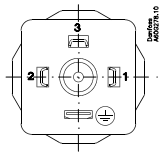
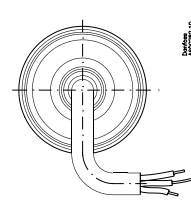
Dimensions/combinations

Type code	1	3
	EN175301-803, Pg9	2 m screened cable



	DIN 3852-G ¼ A NBR, O-ring	DIN 3852/3 M18x1.5- 6g NBR, O-ring	G ½ A (EN 837)	¼-18 NPT	DIN 3852-E-M22x1.5-6g Gasket: DIN 3869-14 NBR, O-ring	DIN 3852-E-G¼ Gasket: DIN 3869-14 NBR, O-ring
Type code	AB04	BA12	AB08	AC04	BA16	GB04

Electrical connections

Type code page 3	
1	2
EN 175301-803, Pg9 	2 m screened cable 
<i>Ambient temperature</i>	
-40 to +85 °C	-30 to +85 °C
<i>Enclosure</i>	
IP 65	IP 67
<i>Materials</i>	
Glass filled polyamid, PA 6.6	Poliolyfin cable with PE shirkage 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 enclosure	Brown wire: + supply Black wire: ÷supply Red wire: Not used Orange: Not used Screen: Not connected to MBS enclosure
<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 enclosure	Brown wire: Output Black wire: ÷supply Red wire: +supply Orange: Not used Screen: Not connected to MBS enclosure

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