

Data sheet

Low pressure transmitter for marine applications, Type MBS 9300



Compact pressure transmitter programme, MBS 9300 is designed for use in marine applications e.g. crankcase and turbocharger filters monitoring as well as applications within level measurement.

The programme covers 4 – 20 mA output signal, gauge versions, measuring span from 40 – 250 mbar as well as bidirectional ranges e.g. -70 – 70 mbar etc.

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

Features

- Compact design
- Pressure span from 40 – 250 mbar
- Bidirectional ranges available (flexible zero point) e.g. -70 – 70 mbar or -20 – 80 mbar etc.
- Digital temperature compensated
- Output signal: 4 – 20 mA
- Excellent shock and vibration robustness
- Reverse polarity protection
- With build-in clipping function on request
- Self-diagnostics
- Enclosure and wetted parts of stainless steel (AISI 316L)
- 10 international marine approvals
- Customer specific versions on request

Approvals

Lloyds Register of Shipping, LRS
 Germanischer Lloyd, GL
 Det Norske Veritas, DNV
 Registro Italiano Navale, RINA
 Bureau Veritas, BV

Nippon Kaiji Kyokai, NKK
 American Bureau of Shipping, ABS
 Korean Register of Shipping, KR
 China Classification Society, CCS
 Russian Maritime Register of Shipping, RMRS

Technical data
Performance (EN 60770)

	0 – 40	0 – 60	0 – 100	0 – 150	0 – 250	Units
Pressure range	0 – 40	0 – 60	0 – 100	0 – 150	0 – 250	mbar
Accuracy @ 25 °C (incl. non-linearity, hysteresis and repeatability)	± 2	± 1.5	± 1	± 0.5	± 0.5	% FS typ.
Non-linearity (BFSL)	≤ ± 0.2	≤ ± 0.2	≤ ± 0.2	≤ ± 0.2	≤ ± 0.2	% FS
Hysteresis and repeatability	≤ ± 0.2	≤ ± 0.2	≤ ± 0.1	≤ ± 0.1	≤ ± 0.1	% FS
Total error band (TEB) within compensated temperature range	± 5	± 3	± 2	± 1.5	± 1.5	% FS
Mounting position error for 180° rotation	≤ ± 1.25	≤ ± 0.8	≤ ± 0.5	≤ ± 0.35	≤ ± 0.2	% FS
Overload pressure (static)	85	55	35	20	10	× FS
Burst pressure	1000	800	500	300	200	× FS
Response time						< 2 ms
Resolution						Infinite
Durability P: 10 – 90% FS @ 25 °C						10 × 10 ⁶ pressure cycles

Electrical specifications

Nom. output signal (short circuit protected)	4 – 20 mA
Supply voltage [U _B], reverse polarity protected	9 – 32 V d.c.
Supply voltage dependency	< ± 0.05% FS / 10 V
Load [R _L] (load connected to 0 V)	R _L ≤ (U _B - 8 V) / 0.02 A

Environmental specifications

Media temperature range ¹⁾	-25 – 100 °C		
Ambient temperature range	See page 3		
Compensated temperature range	0 – 80 °C		
Transport / storage temperature range	-40 – 125 °C		
EMC - Emission	EN 61000-6-3 and EN61236-1		
EMC Immunity	EN 61000-6-2 and EN61236-1		
Vibration stability	Sinusoidal	15.9 mm-pp, 2 Hz – 25 Hz 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 / 1 ms	IEC 60068-2-27
	Free fall	1 m	IEC 60068-2-32
Enclosure (depending on electrical connection)	See page 3		

Mechanical specifications

Net weight	0.2 – 0.3 kg
Electrical connector	See page 3
Pressure connection	see page 3
Materials, wetted parts	EN 10088; 1.4404 (AISI 316 L)

¹⁾ Depending gasket material

Viton: - 20 to 100 °C

NBR: -25 to 85 °C

Dimensions / Combinations

Type code: Electrical connection	1		
	EN 175301-803-A, Pg 9		
Type code: Pressure connection	FA09 DIN 3852-E-M 14x1.5, Gasket: DIN 3869-14	GB08 DIN 3852-E-G½ Gasket: DIN 3869-14	GB04 DIN 3852-E-G1/4 Gasket: DIN 3869-14
Recommended torque:	25 Nm		

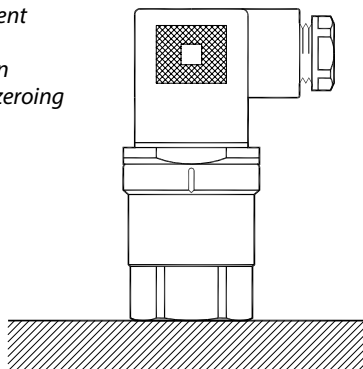
Electrical connection

Type code:	0 and 1
	EN 175301-803-A,
Ambient temperature	-25 – 100 °C
Enclosure	IP65
Materials	Glass filled polyamid, PA 6.6
Electrical connection 4 –20 mA (2 wire)	Pin 1: + supply Pin 2: - supply Pin 3: Not used Earth: Connected to transmitter enclosure

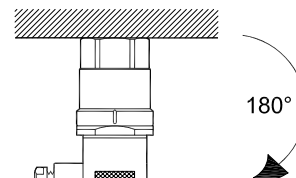
For proper ventilation of atmospheric reference pressure a vented cable is recommended.

Recommended mounting position

Error due to different mounting than recommended can be eliminated by zeroing in user hardware



See mounting position error for 180° rotation on page 2



Ordering

Type 9300		1 1 -	
Pressure range		1	Gasket, Viton
-20 – 20 mbar	A 1	2	Gasket, NBR
-30 – 30 mbar	A 2	Pressure connection	
-70 – 70 mbar	A 3	G B 0 8	DIN 3852-E-G1/2, gasket DIN 3869-14
0 – 40 mbar	B 1	G B 0 4	DIN 3852-E-G1/4, gasket DIN 3869-14
0 – 60 mbar	B 2	F A 0 9	DIN 3852-E-M14 x1.5, gasket DIN 3869-14
0 – 100 mbar	B 3	Electrical connection	
0 – 150 mbar	B 4	0	No plug (EN175301-803-A)
0 – 250 mbar	B 5	1	Plug Pg 9 (EN 175301-803-A)
Pressure reference			
Gauge (relative)	1		
Output signal			
4 – 20 mA	1		

Non-standard build-up codes on request. However, minimum order quantities may apply. Please contact your local Danfoss office for further information.