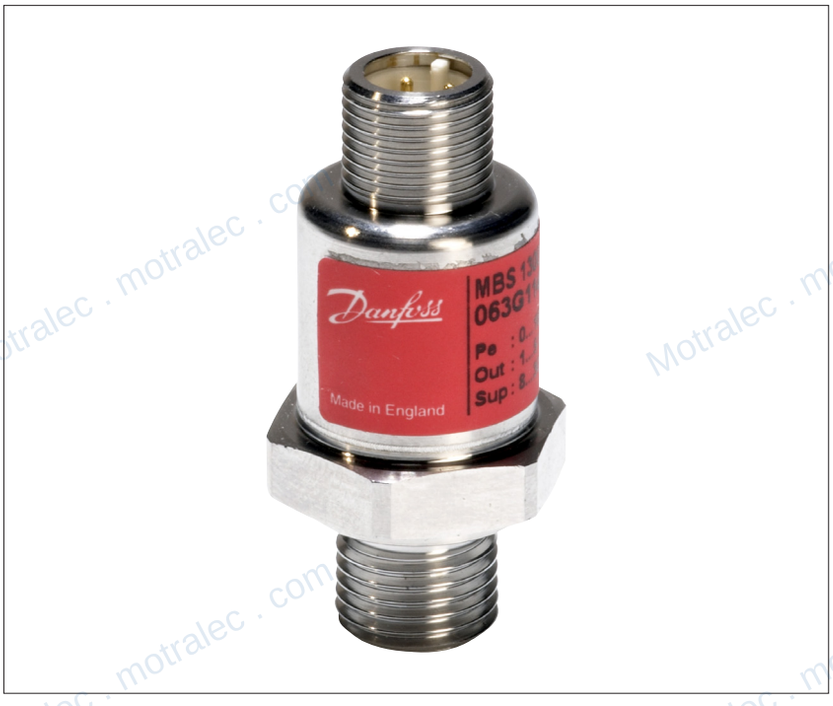
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ENGINEERING TOMORROW

Data sheet

OEM Dual output Transmitters for heavy-duty applications, Type MBS 1300 and MBS 1350



MBS 1300 Series is a dual output transmitter. Output 1 gives a pressure signal where as output 2 gives a temperature signal. The Series consists of two versions:

- MBS 1300 – without integrated pulse-snubber
- MBS 1350 – with integrated pulse-snubber

The integrated pulse-snubber offers a high degree of protection against cavitations and liquid hammer, and the well thought out design results in excellent vibration stability and an exceptional robustness. The high degree of EMI protection equips the pressure transmitter to meet most requirements.

Features

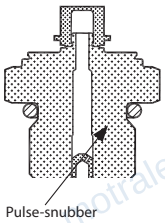
- Designed for use in severe OEM applications
- For medium and ambient temperatures up to 125 °C
- All standard output signals: 1 – 5 V, 1 – 6 V, 10 – 90% ratiometric voltage
- Wetted parts made of stainless steel
- A wide range of pressure and electrical connections
- EMC protection up to 100 V/m

Approvals

UL 508 recognized
ISO 7637 pulse 1 - 4

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Pulse-snubber in MBS 1350



Application

Cavitation, liquid hammer and pressure peaks may occur in liquid filled 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.

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.

Technical data

Performance (EN 60770)

Pressure measurement

Accuracy (incl. nonlinearity, hysteresis and repeatability)	± 0.5% FS
Thermal zero point shift	<± 0.15% FS/10K
Thermal span shift	<± 0.15% FS/10K
Response time liquids (10 – 90%)	> 0.5 ms
Durability, P: 10 – 90% FS	>10 × 106 cycles

Temperature measurement

Accuracy @ 20 °C	± 0.5% FS
TEB - 20 – 80 °C	± 3.0% FS*

* As the temperature is measured on the thinfilm element, the true response to fluid temperature depends on the installation details, such as the "bulk metal" surrounding e.g. manifold.

Overload and burst pressure – without pulse-snubber (MBS 1300)

Nominal pressure [bar]	10	16	25	40	60	100	160	250	400	500	600	1000*	1600*	2200*
Overload pressure	30	48	80	80	140	200	320	500	800	1400	1400	2000	2500	3000
Burst pressure	400	640	800	800	1400	2000	1600	2500	4000	>4000	>4000	>4000	>4000	>4000

* Only available with M12 × 1 1.5 P high pressure port, type FC06. Please contact Danfoss.

Overload and burst pressure – with integrated pulse-snubber (MBS 1350)

Nominal pressure [bar]	10	16	25	40	60	100	160	250	400	500	600
Overload pressure	30	48	120	120	210	300	480	750	1200	2100	2100
Burst pressure	400	640	800	800	1400	2000	1600	2500	4000	>4000	>4000

*Electrical specifications**

Nom. output signal (Short-circuit protected)	**1 – 5 1 – 6 V**	**10 – 90% ratiometric**
Supply voltage [U^B], polarity protected	8 – 30 V	5 V ± 0.5 V
Supply – current consumption	4.5 mA	4.5 mA
Output impedance	≤ 90 Ω	≤ 90 Ω
Load [R_L] (connected to 0 V)	R_L ≥ 10 kΩ	R_L ≥ 5 kΩ
Load [R_L] (connected to + V)	Not possible	R_L ≥ 5 kΩ

* 4 – 20 mA and any output 0 – XX V not possible!

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Technical data

Environmental conditions

Media temperature range		-40 – 125 °C
Ambient temperature range		See page 6
Compensated temperature range		-40 – 125 °C
Transport temperature range		-55 – 150 °C
EMC – Emission		EN 61326-2-3
EMC Directive		2004/108/Ec
EMC – Immunity RF field	100 V/m, 26 Mhz – 1 Ghz	EN 61326-2-3 Cable < 30 m
	3 V/m, 1.4 GHz – 2.7 GHz	
Electrical performance comply with		ISO 7637 pulse 1 – 4, 24 V
Vibration stability	20 g, 10 – 2000 Hz, sinus	EN 60068-2-6
Shock resistance	100 g	EN 60068-2-27
Enclosure (depending on electrical connection)		See page 6

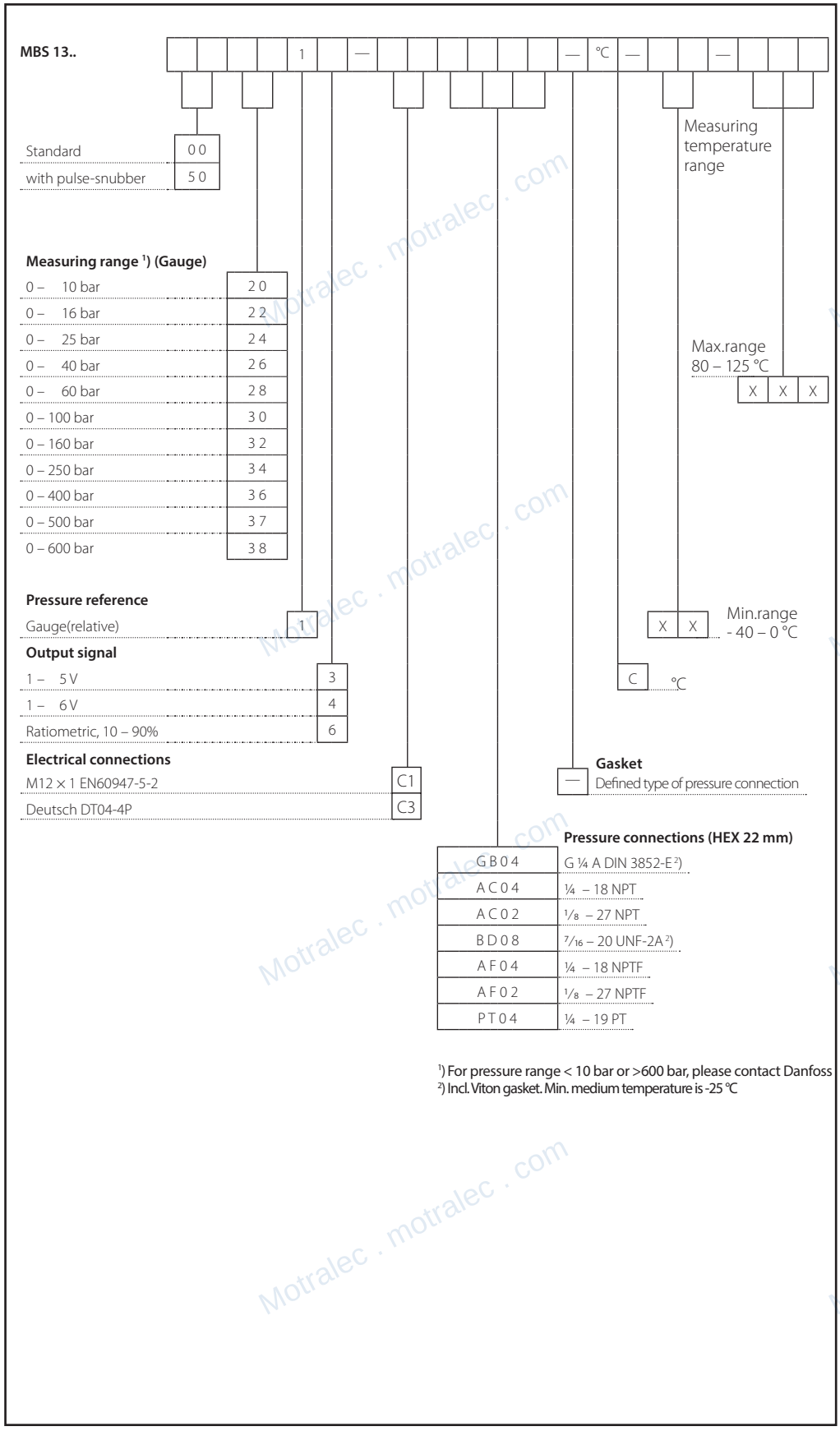
Mechanical conditions

Materials	Wetted parts	17 – 4 PH
	Enclosure	AISI 304 or plastic
	Pressure connection	17 – 4 PH
	Electrical connection	See page 6

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Ordering standard

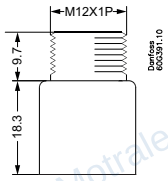


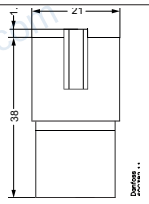
1) For pressure range < 10 bar or >600 bar, please contact Danfoss
2) Incl. Viton gasket. Min. medium temperature is -25 °C

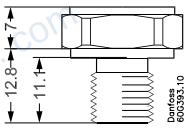
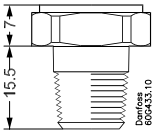
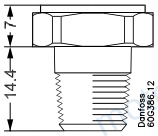
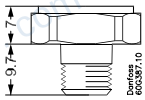
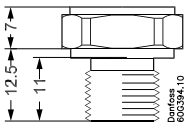
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Dimensions / Combinations*

Type code	C1	C3
Note: The diameter of all housings is 19 mm.	M12 × 1 EN60947-5-2	Deutsch DT04-4P





					
Note: HEX is 22 mm across flats.	7/16 – 20 UNF-2A	1/4 – 19 Pt	1/4 – 18 NPT / NPTF	1/8 – 27 NPT / NPTF	G 1/4 A DIN 3852-E
Type code	**BD08**	**PT04**	**AC04 / AF04**	**AC02 / AF02**	**GB04**
Recommended torque [2]	18 – 20 Nm	2 – 3 turns after fnger tightend	2 – 3 turns after fnger tightend	2 – 3 turns after fnger tightend	30 – 35 Nm

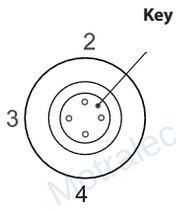
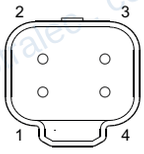
* For other combinations please contact Danfoss

[2] Depends of different parameters as packing material, mating material, thread lubrication and pressure level.

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Electrical connections

Type code	C1	C3
	 M12x1 EN60947-5-2	 Deutsch DT04-4P
Ambient temperature, 1 – 5 V, 1 – 6 V, ratiometric 10 – 90%	-40 – 125 °C	-40 – 125 °C
Enclosure (IP protection fulfilled together with mating connector)	IP67	IP67
Material	SS, PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Gold (Au) plated
Electrical connections, 1 – 5 V, 1 – 6 V, ratiometric 10 – 90%	Pin 1: + supply Pin 2: output pressure Pin 3: ÷ supply Pin 4: output temperature	Pin 1: ÷ supply Pin 2: + supply Pin 3: output temperature Pin 4: output pressure

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