 Pressure transmitter, MBS 1200 / MBS 1250

Pressure transmitter

MBS 1200 / MBS 1250

For heavy-duty applications

Description

The compact OEM pressure transmitter programme is designed for use in severe hydraulic applications. The programme consists of two series:

- MBS 1200 – without integrated pulse-snubber
- MBS 1250 – 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 & benefits

- Designed for use in severe OEM applications
- For medium and ambient temperatures up to 125 °C
- All standard output signals: 4 – 20 mA, 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 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
- Dual output transmitter – for further information please contact Danfoss

Approvals

- UL 508 recognized
- ISO 7637 pulse 1 - 4

Applications

Pulse-snubber in MBS 1250



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.

Ordering

Product code numbers



Note: 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.

Note: For a detailed overview of our existing code numbers, please visit the Danfoss Product Store at store.danfoss.com. You can use the filtering options to find the right sensor for your specific needs.

Product details

General data

Performance (EN 60770)

Accuracy (incl. nonlinearity, hysteresis and repeatability)	$\pm 0.5\%$ FS
Thermal zero point shift	$<\pm 0.15\%$ FS / 10K
Thermal span shift	$<\pm 0.15\%$ FS / 10K
Response time liquids (10 – 90%)	> 0.5 ms
Durability, P: 10 – 90% FS	$>10 \times 10^6$ cycles

Overload and burst pressure – without pulse-snubber (MBS 1200)

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 1250)

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)	4 – 20 mA (2 wire)	0 – 5, 1 – 5 1 – 6 V	0 – 10 V	10 – 90% ratiometric
Supply voltage [UB], polarity protected	8 – 30 V	8 – 30 V	12 – 30 V	5 V \pm 0.5 V
Supply – current consumption	–	4.5 mA	4.5 mA	4.5 mA
Output impedance	–	$\leq 90 \Omega$	$\leq 90 \Omega$	$\leq 90 \Omega$
Load [R_L] (connected to 0 V)	See chart below	$R_L \geq 10 \text{ k}\Omega$	$R_L \geq 10 \text{ k}\Omega$	$R_L \geq 5 \text{ k}\Omega$
Load [R_L] (connected to + V)	See chart below	Not possible	Not possible	$R_L \geq 5 \text{ k}\Omega$

4 – 20 mA output – min. / max. resistance vs. supply voltage



Note: Loop current should not exceed 22 mA continuous or 25 mA temporarily due to pressure peaks.

Environmental conditions






Media temperature range	- 40 – 125 °C	
Ambient temperature range	See Electrical connections	
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, 24V	
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 Electrical connections	






Mechanical conditions

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

Dimensions

Dimensions / Combinations *

Type code	C1	C2	C3	C4	C7
	M12 x 1 EN60947-5-2	Round Packard Metri-Pack	Deutsch DT04-4P	AMP Superseal 1.5	Deutsch DT04-3P
	 Image	 Image	 Image	 Image	 Image
Note: The diameter of all housings is 19 mm.					

Note: HEX is 22 mm across flats.	 Image	 Image	 Image	 Image	 Image
	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 finger tightend	2 – 3 turns after finger tightend	2 – 3 turns after finger tightend	30 – 35 Nm
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* For other combinations please contact Danfoss

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

Connections

Electrical connections

Type code	C1	C2	C3	C4	C7
	M12x1 EN60947-5-2  Image	Round Packard Metri-Pack  Image	Deutsch DT04-4P  Image	AMP Superseal 1.5  Image	Deutsch DT04-3P  Image
Ambient temperature -20 mA	-40 – 100 °C	-40 – 100 °C	-40 – 100 °C	-40 – 100 °C	-40 – 100 °C



Ambient temperature, 0 – 5 V, 1 – 5 V, 1 – 6 V, 0 – 10 V, ratio metric 10 – 90 %	- 40 – 125 °C	- 40 – 125 °C	- 40 – 125 °C	- 40 – 125 °C	- 40 – 125 °C
Enclosure (IP protection in full field together with mounting connector)	IP67	IP67	IP67	IP67	IP67



Material	SS, PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Tin (Sn) plated	Glass filled PBT 30% GFR Gold (Au) plated	Glass filled PBT 30% GFR Tin (Sn) plated	Glass filled PBT 30% GFR Tin (Sn) plated
Electrical connections, 4 - 20 mA (2 wire)	<p>Pin 1: + supply Pin 2: not connect Pin 3: ÷ supply Pin 4: PE, connected to MBS enclosure</p>	<p>Pin A: ÷ supply Pin B: + supply Pin C: do not connect</p>	<p>Pin 1: ÷ supply Pin 2: + supply Pin 3: PE, connected to MBS enclosure Pin 4: do not connect</p>	<p>Pin 1: do not connect Pin 2: ÷ supply Pin 3: + supply</p>	<p>Pin A: + supply Pin B: ÷ supply Pin C: do not connect</p>
Electrical connections, 0 - 5 V, 1 - 5 V, 1 - 6 V, 0 - 10 V, ratiometric 10 - 90 %	<p>Pin 1: + supply Pin 2: output Pin 3: ÷ supply Pin 4: PE, connected to MBS enclosure</p>	<p>Pin A: ÷ supply Pin B: + supply Pin C: output</p>	<p>Pin 1: ÷ supply Pin 2: + supply Pin 3: PE, connected to MBS enclosure Pin 4: output</p>	<p>Pin 1: output Pin 2: ÷ supply Pin 3: + supply</p>	<p>Pin A: + supply Pin B: ÷ supply Pin C: output</p>

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Electrical Safety Certificate	UL E311982	UL - Underwriters Laboratories inc.	
Manufacturer's Declaration	Danfoss MD 063R1012.00	Danfoss	China RoHS
EU-UK Declaration	Danfoss EU-UK 063R1011.05	Danfoss	EMC
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	Pressure
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
Manufacturer's Declaration	Danfoss MD 063R1014.AB	Danfoss	MTBF
UA Declaration	Danfoss UA 2024-07-25 cooling sensors	Danfoss	LVD
EAC Declaration	EAC KZ 7100841.13.12.00005	EAC - Eurasian Customs Union	EMC
Export Control Declaration	Pressure & Temperature Sensors	Danfoss	

Contact details

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