ENGINEERING
TOMORROW

Data Sheet

Pressure transmitter
Type **MBS 1700** and **MBS 1750**

For general purpose

The compact pressure transmitters MBS 1700 and MBS 1750 are designed for use as a general purpose transmitter, and offers a reliable pressure measurement, even under harsh environmental conditions.

The version MBS 1750 with integrated pulse-snubber is designed for use in applications with severe medium influences like cavitation, liquid hammer or pressure peaks and offers a reliable pressure measurement, even under harsh environmental conditions.

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

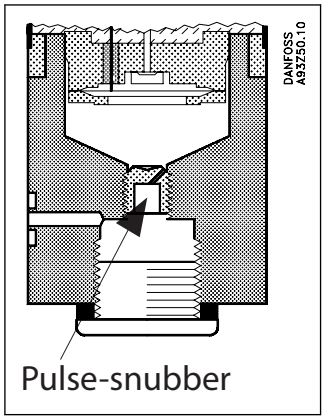
Features

- Enslosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) from 0 – 25 bar
- Output signal: 4 – 20 mA
- Pressure connections:
  - G 1/4A & G 1/2A EN837 (MBS 1700)
  - G 1/4 DIN 3852-E, Gasket DIN 3869-15 (MBS 1750)
- Fully digitally compensated

Application

Application and media conditions (MBS 1750)

Figure 1: MBS 1750



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.

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 limited to the start-up period until the dead volume behind the nozzle orifice is filled. 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.

Product specification

Technical data

Table 1: Performance (EN 60770)

Features		Description
Accuracy (incl. non-linearity, hysteresis and repeatability)		≤ ± 0.5% FS (typ.)
		≤ ± 1.0% 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	Air and gases (MBS 1700)	< 4 ms
	Air and gases (MBS 1750)	< 35 ms
Overload pressure (static)		6 × FS (max. 1500 bar)
Burst pressure		6 × FS (max. 2000 bar)
Power-up time		< 50 ms
Durability, P: 10 – 90% FS		> 10 × 10^6 cycles

Table 2: Electrical specifications

Features	Description
Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U_B], polarity protected	9 – 32 V d.c.
Supply – current consumption	–
Supply voltage dependency	≤ ± 0.1% FS/10 V
Current limitation	22.4 mA (typ.)
Output impedance	–
Load [R_L] (load connected to 0 V)	$R_L \leq (U_B - 9\ V)/0.02\ A\ [\Omega]$

Table 3: Environmental conditions

Features			Description
Sensor temperature range		Normal	-40 – 85 °C
media temperature range			-40 – 85 °C
Ambient temperature range			-40 – 85 °C
Compensated temperature range			0 – 80 °C
Transport / storage 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			Based on SEN 361503
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz-25 Hz	IEC 60068-2-6
		20 g, 25 Hz – 2 kHz	
	Random	7.5 grms , 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			IP65

Table 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	Glass filled polyamid PA 6.6
Net weight		0.25 kg

Guideline for installations at high media temperature

Figure 2: installations at high media temperature

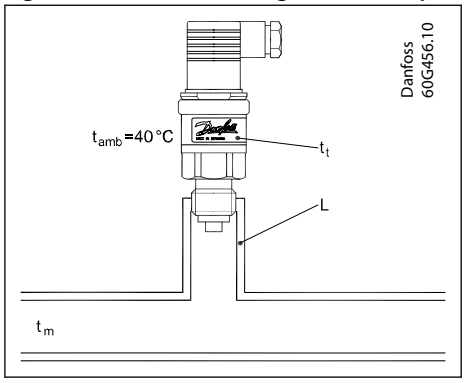
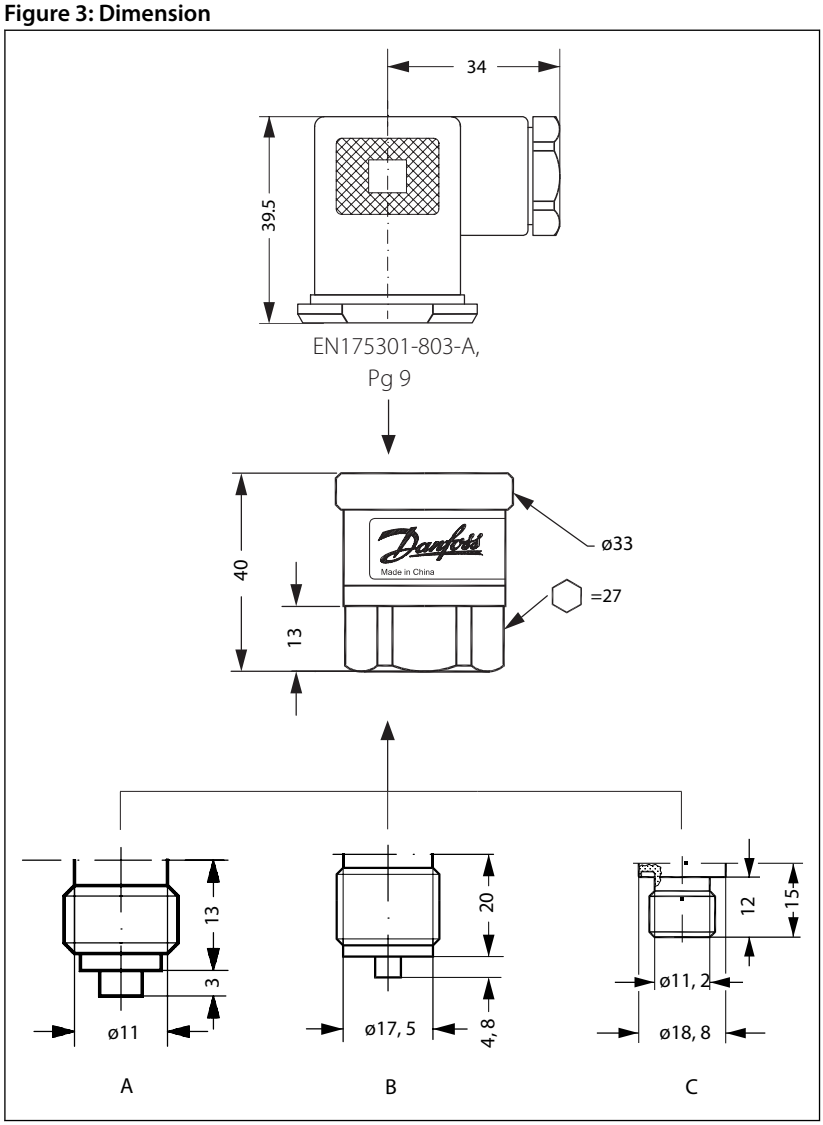


Table 5: Electrical connections

Medium temperature (tm) 120 °C	
Heat isolator (L)	Transmitter temperature (t^t)
2 cm	85 °C
5 cm	75 °C
10 cm	70 °C

Dimension

Figure 3: Dimension



A	G ¼ A (EN 837)(MBS 1700)
B	G ½ A (EN 837)(MBS 1700)
C	G ¼ (DIN 3852-E) Gasket DIN 3869-14-NBR(MBS 1750)

Table 6: Torque Specification

Type code	MBS 1700	MBS 1750
Recommended torque[1]	30 – 35 Nm	30 – 35 Nm

[1] Depends on different parameters as packing material, mating material, thread lubrication and pressure level

Electrical connection

Figure 4: EN 175301-803-A,

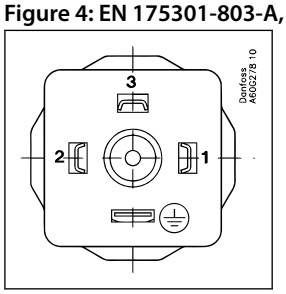


Table 7: Electrical connections

Type code	A1
Ambient temperature	-40 – 85 °C
Enclosure (IP protection fulfilled together with mating connector)	IP65
Material	Glass filled polyamid, PA 6.6
Electrical connection, 4 – 20 mA output (2 wire)	Pin 1: + supply Pin 2: ÷ supply Pin 3: Not used ⏚ Earth: Connected to MBS enclosure

Ordering

Table 8: Plug; Pg 9 (EN 175301-803-A)

Measuring range P_e [1] [bar]	Output signal	Pressure connection	Code No.
0 – 6	4 – 20 mA	G ¼ A EN 837	060G6100
0 – 10			060G6101
0 – 16			060G6102
0 – 25			060G6103
0 – 6		G ½ A EN 837	060G6104
0 – 10			060G6105
0 – 16			060G6106
0 – 25			060G6107

[1] Relative / gauge

Table 9: Plug; Pg 9 (EN 175301-803-A)

Measuring range P_e [1] [bar]	Output signal	Pressure connection	Code No.
0 – 60	4 – 20 mA	DIN 3852-E G ¼ Gasket DIN 3869-14	060G6108
0 – 100			060G6112
0 – 160			060G6109
0 – 250			060G6110
0 – 400			060G6111

[1] Sealed gauge

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.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 10: Valid approvals

File name	Document type	Document topic	Approval authority
OC.C.30.004.A 59728-1	Measuring - Performance Certificate		GOST
060R9400.02	EU Declaration	EMCD/ROHS	Danfoss
060R3160.00	Manufacturers Declaration	China RoHS	Danfoss
064R9402.00	Manufacturers Declaration	PED	Danfoss
UL E494625	Electrical - Safety Certificate		UL

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