

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.

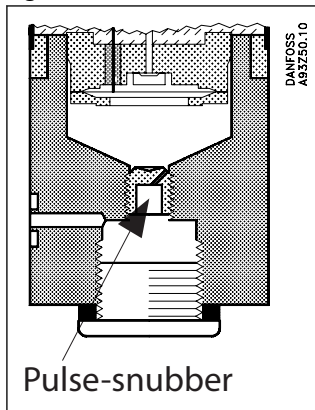
### Features

- Enclosure 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 <sup>6</sup> cycles

**Table 2: Electrical specifications**

Features		Description
Nom. output signal (short-circuit protected)		4 – 20 mA
Supply voltage [U <sub>b</sub> ], 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 <sub>L</sub> ] (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 20 g, 25 Hz – 2 kHz
	Random	7.5 grms, 5 Hz – 1 kHz
Shock resistance	Shock	500 g / 1 ms
	Free fall	1 m
Enclosure		IP65

**Table 4: Mechanical characteristics**

<b>Materials</b>	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
<b>Net weight</b>		0.25 kg

## Guideline for installations at high media temperature

Figure 2: installations at high media temperature

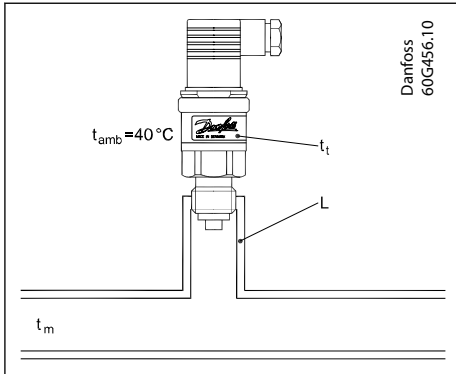
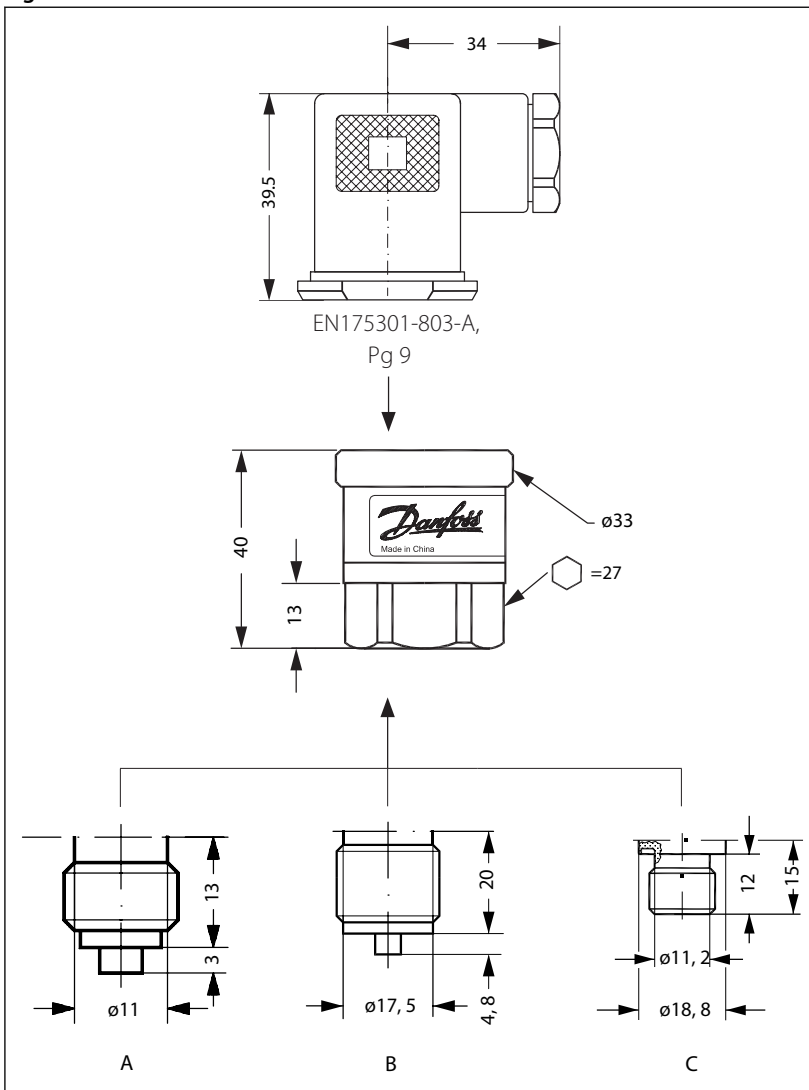


Table 5: Electrical connections

Medium temperature (t <sub>m</sub> ) 120 °C	
Heat isolator (L)	Transmitter temperature (t <sub>t</sub> )
2 cm	85 °C
5 cm	75 °C
10 cm	70 °C

## Dimension

Figure 3: Dimension



## Pressure transmitter, Type MBS 1700 and MBS 1750

<b>A</b>	G 1/4 A (EN 837)(MBS 1700)
<b>B</b>	G 1/2 A (EN 837)(MBS 1700)
<b>C</b>	G 1/4 (DIN 3852-E) Gasket DIN 3869-14-NBR(MBS 1750)

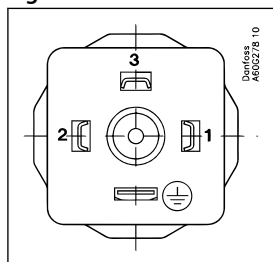
**Table 6: Torque Specification**

Type code	MBS 1700	MBS 1750
Recommended torque <sup>(1)</sup>	30 – 35 Nm	30 – 35 Nm


<sup>(1)</sup> 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 <sub>e</sub> <sup>(1)</sup> [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			060G6104
0 – 10		G ½ A EN 837	060G6105
0 – 16			060G6106
0 – 25			060G6107

<sup>(1)</sup> Relative / gauge

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

Measuring range P <sub>e</sub> <sup>(1)</sup> [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

<sup>(1)</sup> Sealed gauge

## Certificates, declarations and approvals

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**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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