



Pressure transmitter

MBS 4010

For use in non-uniform, high viscous or crystallizing media within industrial applications

Description

The high accuracy flush diaphragm pressure transmitter MBS 4010 is designed for use in non-uniform, high viscous or crystallizing media within industrial applications, and offers a reliable pressure measurement, even under harsh environmental conditions.

The flexible pressure transmitter programme covers a 4 – 20 mA output signal, absolute or gauge (relative) versions, measuring ranges from 0 – 0.25 to 0 – 60 bar.

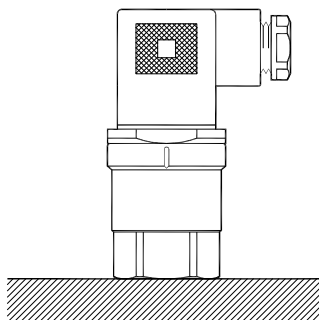
Excellent vibration stability, robust construction, and a high degree of EMC/EMI protection equip the pressure transmitter to meet the most stringent industrial requirements.

Features & benefits

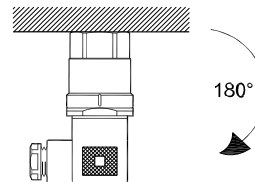
- Designed for use in severe industrial environments
- Enclosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) or absolute up to 60 bar
- Output signal: 4 – 20 mA
- Fully digitally compensated
- Accuracy 0.8% FS max
- USDA-H1 approved oil filling
- For use in ATEX Zone 2 explosive atmosphere
- UL approved

Applications

Recommended mounting position for G1A only



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



See mounting position error for 180° rotation in table "Performance (EN 60770)"



Ordering

Product code numbers

Ordering standard

MBS 4010

Measuring range

0.25 – 0.5 bar Only G1A	A 4
0 – 0.25 bar Only G1A	0 4
0 – 0.4 bar Only G1A	0 6
0 – 0.6 bar Only G1A	0 8
0 – 1.0 bar Only G1A	1 0
0 – 1.6 bar Only G1A	1 2
0 – 2.5 bar Only G1A	1 4
0 – 4.0 bar	1 6
0 – 6.0 bar	1 8
0 – 10 bar	2 0
0 – 16 bar	2 2
0 – 25 bar	2 4
0 – 40 bar Only G½A	2 6
0 – 60 bar Only G½A	2 8

Pressure reference

Gauge (relative)	1
Absolute	2

Pressure connection

C B 1 2	G½A, ISO 228-1, Flush male
C B 1 1	G1A, ISO 228-1, Flush male

Electrical connection

A1	Plug Pg9 (EN 175301-803-A)
A3	Screened cable, 2 m, Only G1/2A

Output signal

1	4 – 20 mA
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Preferred version

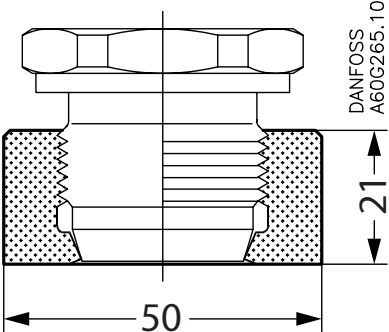
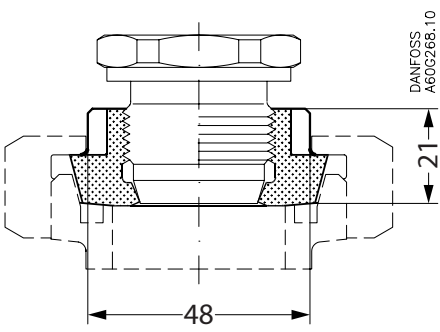
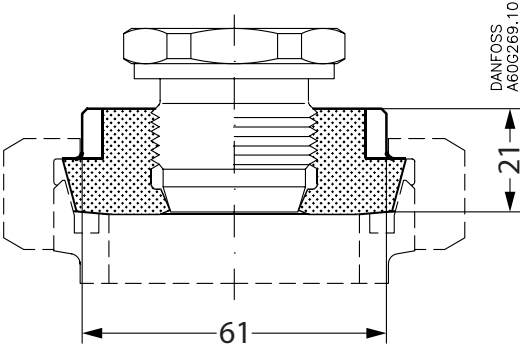
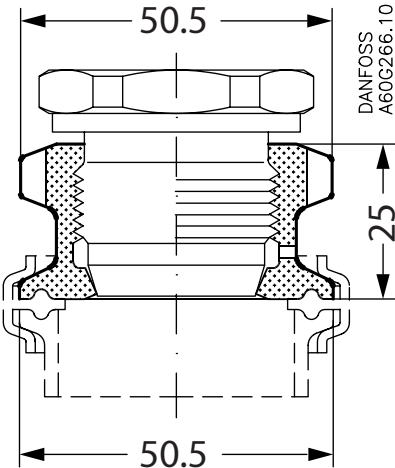
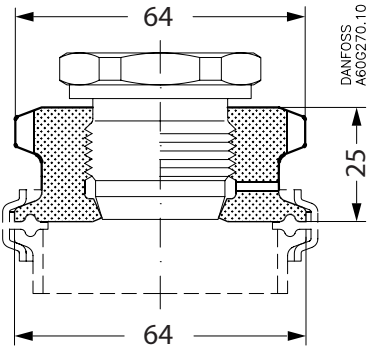
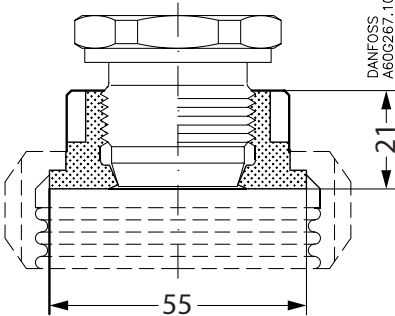
Note: Non-standard build-up combinations may be selected. However, minimum order quantities may apply. Please contact your local Danfoss office for further information or request on other versions.

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.



Accessories code numbers

Accessories for G 1A, ISO 228-1

Welding nipple for conic metal/metal seal Code no.: 060G2501	DIN 11851 (dairy connection), DN40 Code no.: 060G2505
	
DIN 11851 (dairy connection), DN50 Code no.: 060G2506	Clamp, ISO 2852, 1½ in. Code no.: 060G2502
	
Clamp, ISO 2852, 2 in. Code no.: 060G2510	SMS 1145 connection, 1½ in. Code no.: 060G2503
	

Note: Dimensions are in mm, unless stated otherwise.

Product details

General data

Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)	$\leq \pm 0.3\%$ FS (typ.)
	$\leq \pm 0.8\%$ FS (max.) See Accuracy overview below
Non-linearity BFSL (conformity)	$\leq \pm 0.2\%$ FS
Hysteresis and repeatability	$\leq \pm 0.1\%$ FS
Response time	< 4 ms
Power-up time	< 50 ms
Durability, P: 10 – 90% FS	> 10×10^6 cycles

Available measuring ranges

Pressure range [bar]	G1/2			G1A			
	Accuracy FS (max.)	Max. Overload pressure [bar]	Burst pressure [bar]	Accuracy FS (max.) ⁽¹⁾	Mounting influence for 180 °C rotation ⁽²⁾	Max. Overload pressure [bar]	Burst pressure [bar]
-0.25 – 0.50	-	-	-	$\leq \pm 1.0\%$	+ 1.2%	2	50
0.00 – 0.25	-	-	-	$\leq \pm 1.0\%$	+ 2.4%	2	50
0.00 – 0.40	-	-	-	$\leq \pm 1.0\%$	+ 1.2%	2	50
0.00 – 0.60	-	-	-	$\leq \pm 1.0\%$	+ 1.2%	2	50
0.00 – 1.00	-	-	-	$\leq \pm 1.0\%$	+ 0.6%	2	50
0.00 – 1.60	-	-	-	$\leq \pm 0.8\%$	+ 0.4%	8	50
0.00 – 2.50	-	-	-	$\leq \pm 0.8\%$	+ 0.3%	8	50
0.00 – 4.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	$\leq \pm 0.8\%$	-	8	50
0.00 – 6.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	$\leq \pm 0.8\%$	-	20	50
0.00 – 10.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	$\leq \pm 0.8\%$	-	20	50
0.00 – 16.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	$\leq \pm 0.8\%$	-	100	100
0.00 – 25.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	$\leq \pm 0.8\%$	-	100	100
0.00 – 40.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	-	-	-	-
0.00 – 60.00	$\leq \pm 0.8\%$	2 x FS	4 x FS	-	-	-	-

⁽¹⁾ At recommended mounting position

⁽²⁾ For other mounting angles please contact Danfoss for detailed calculations

Electrical specifications

Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U _B], polarity protected	9 - 32 V DC
Supply voltage dependency	4 - 20 mA: < 0.1% FS / 10 V
Output limitation (linear output signal up to 1.5 × rated range)	22.4 mA (typ.)
Load [R _L] (load connected to 0 V)	$R_L \leq (U_B - 9 \text{ V}) / 0.02 \text{ A} [\Omega]$

Environmental conditions

Sensor operating temperature	Normal	-40 – 85 °C	
	ATEX Zone 2	-10 – 85 °C	
Media temperature		-40 – 85 °C	
Ambient temperature range		-10 – 85 °C	
Compensated temperature range		0 – 80 °C	
Transport / Storage temperature range		-25 – 85 °C	
EMC – Emission		EN 61000-6-3	
EMC – Immunity		EN 61000-6-2	
Insulation resistance		> 100 MΩ at 500 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 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)		IP65	

Explosive atmospheres

Zone 2 applications ⁽³⁾	  II 3G Ex ec IIA T3 Gc -10°C<Ta<+85°C	EN60079-0; EN60079-7
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⁽³⁾ When used in ATEX Zone 2 areas at low temperatures the cable and plug must be protected against impact

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
Gasket (above thread)		DIN 3869-33-NBR
Net weight (depending on pressure connection and electrical connection)		0.4 kg

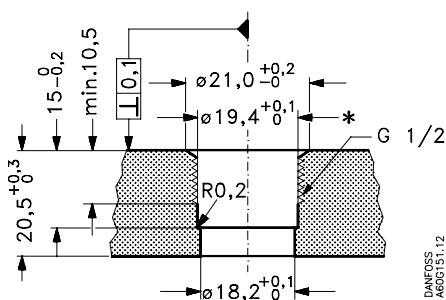
Dimensions

Dimensions/Combinations

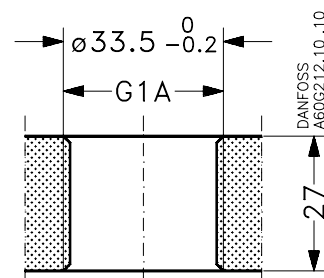
Type code	A1	A3
	EN175301-803-A, Pg	Screened cable 2m
Type code	CB12	CB11
Recommended torque	60 Nm ⁽¹⁾	60 Nm ⁽¹⁾

⁽¹⁾ Zero deviation of approx. 3 mbar can occur

Chamfer $\varnothing 19.4 +0.1$ after tapping



Thread hole for G 1A (Sealing above thread)

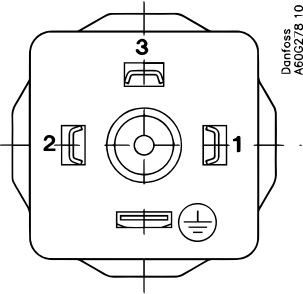
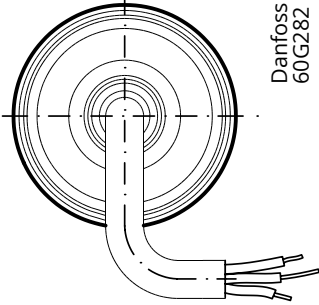


Note: Dimensions are in mm, unless stated otherwise.



Connections

Electrical connections

Type code	A1	A3
		
	EN 175301-803-A	2 m screened cable
Ambient temperature	-40 – 85 °C	-40 – 85 °C
Enclosure (IP protection fulfilled together with mating connector)	IP65	IP67
Material	Glass filled polyamid, PA 6.6	Poliolyfin cable with PE shirkage tubing
Electrical connection, 4 – 20 mA output (2 wire)	Pin1: + supply Pin 2: ÷ supply Pin 3: not used  Earth: Connected to MBS enclosure	Brown wire: + supply Black wire: ÷ supply Red wire: not used Orange: not used Screen: not connected to MBS enclosure

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
Manufacturer's Declaration	Danfoss MD 060R3160.00	Danfoss	China RoHS
Electrical Safety Certificate	UL E311982	UL - Underwriters Laboratories inc.	
EU-UK Declaration	Danfoss EU-UK 064G9615.11	Danfoss	ATEX, UK RoHS, EU RoHS, EMC
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.05-22	LLC CDC EURO TYSK - Ukraine	Pressure
UA Declaration	Danfoss UA 2024-07-25 cooling_sensors	Danfoss	EMC, LVD
Explosive Safety Certificate	UL E227388	UL - Underwriters Laboratories inc.	UL-CSA, Explosive
Electrical Safety Certificate	UL E510763	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E31024	UL - Underwriters Laboratories inc.	
Electrical Safety Certificate	UL E494625	UL - Underwriters Laboratories inc.	
UA Declaration	Danfoss UA 2023-01-10 Regulators PL01 PL04	Danfoss	PED, Pressure
Export Control Declaration	Pressure & Temperature Sensors	Danfoss	
EAC Declaration	EAC KZ 7100841.13.12.00005	EAC - Eurasian Customs Union	EMC

Contact details

Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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