

Pressure transmitter type MBS 33M



The Danfoss MBS 33M pressure transmitter is designed for direct installation at the measuring point. It has been developed to monitor and regulate pressure in maritime and industrial environments.

The output signal is an amplified, linearized and temperature-compensated current signal of 4 to 20 mA. The signal can be transmitted over a long distance without difficulty.

Application

The MBS 33M pressure transmitter is designed for operation in harsh environments.

The climatic environment

The pressure transmitter is reliable, even when subjected to extreme humidity and temperature. The enclosure is filled with a silicone compound, which gives maximum protection against dust and moisture.

The electrical environment

The pressure transmitter has a built-in HF filter which gives high protection against electro-magnetic noise.

The mechanical environment

The construction make the pressure transmitter resistant to pressure peaks, overpressure, and vibration up to 20 g ($g = 9.81 \text{ m/s}^2$) in the frequency range 20 Hz to 2 kHz.

Applications

Diesel engines, gears, compressors, pumps, boilers, generator sets, hydraulic and pneumatic control systems, lifts, powerpacks.

Description

The MBS 33M pressure transmitter has a stainless steel enclosure and diaphragm.

Accuracy class 1.

The pressure range is from 1 to 600 bar.

The pressure connection is G $\frac{1}{2}$ A, the supply voltage 10 to 30 V d.c. and the output signal 4 to 20 mA.

Electrical connection is by DIN plug (43650) or with 2 m fixed cable.

The transmitters are available in two versions:
a: relative (gauge) pressure transmitter
b: absolute pressure transmitter

The relative pressure transmitters use atmospheric pressure as reference.

The absolute pressure transmitters use perfect vacuum as reference.

Approvals

- Lloyd's Register of Shipping
- Det Norske Veritas
- Germanischer Lloyd
- Registro Italiano Navale
- American Bureau of Shipping

- Bureau Veritas
- Nippon Kaiji Kyokai
- Polski Rejestr. Stufk ow
- Russian Maritime Register of Shipping

Technical data

Performance (IEC 770)

Accuracy (at reference conditions)	$\leq \pm 0.3\%$ FS (typ.) $\leq \pm 0.8\%$ FS (max.)
Non-linearity (Best fit straight line)	$\leq \pm 0.2\%$ FS
Hysteresis and repeatability	$\leq \pm 0.1\%$ FS
Thermal zero point shift	$\leq \pm 0.1\%$ FS/10K (typ.) $\leq \pm 0.2\%$ FS/10K (max.)
Thermal sensitivity (span) shift	$\leq \pm 0.1\%$ FS/10K (typ.) $\leq \pm 0.2\%$ FS/10K (max.)
Response time (liquids)	< 4 ms

Electrical specifications for 4-20 mA output signal

Nom. output signal	4 to 20 mA
Supply voltage, V_{supply} (polarity protected)	10 to 30 V d.c.
Voltage dependency	$\leq \pm 0.05\%$ FS/10V
Current limitation (linear output signal up to 1.5 × nom. range)	approx. 28 mA
Max load R_L (field of operation)	$R_L \leq \frac{V_{\text{supply}} - 10 \text{ V}}{0.02 \text{ A}}$ [Ω]

Environmental conditions

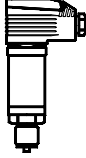
Operating temperature range	-40 to 85°C			
Compensated temperature range	0 to 80°C			
Transport temperature range	-50 to 85°C			
EMC - Emission	EN 50081-1			
EMC - Immunity	Electrostatic discharge	Air mode 8 kV Contact mode 4 kV	EN 50082-2 (IEC 801-2)	
	RF field	10 V/m, 26 MHz - 1 GHz	EN 50082-2 (IEC 801-3)	
		conducted	10 V _{rms} , 150 kHz - 30 MHz	EN 50082-2 (IEC 801-6)
	Transient	burst	4 kV (CM), Clamp	EN 50082-2 (IEC 801-4)
		surge	1 kV (CM,DM), Rg = 42 Ω	EN 50082-2 (IEC 801-5)
Insulation resistance		> 100 M Ω at 100 V d.c.		
Mains frequency test	500 V, 50 Hz	SEN 361503		
Vibration stability	Sinusoidal	20 g, 25 Hz - 2 kHz	IEC 68-2-6	
	Random	7,5 g _{rms} , 5 Hz - 1 kHz	IEC 68-2-34, IEC 68-2-36	
Shock resistance	Shock	500 g / 1 ms	IEC 68-2-27	
	Free fall		IEC 68-2-32	
Enclosure	DIN 43650 Plug		IP 65 - IEC 529	
	2 m cable		IP 67 - IEC 529	

Mechanical characteristics


Materials	Wetted parts	DIN 17440-1.4404 (AISI 316 L)
	Enclosure	DIN 17440-1.4404 (AISI 316 L)
Weight		0.2 kg

Code numbers

For relative pressure

	Operating range bar	Max. test pressure bar	Min. bursting pressure* bar	Code no.
 Plug version Gauge pressure	0 - 1	2	50	060G3121
	0 - 1,6	8	50	060G3122
	0 - 2,5	8	50	060G3123
	0 - 4	8	50	060G3124
	0 - 6	20	50	060G3125
	0 - 10	20	50	060G3126
	0 - 16	50	100	060G3127
	0 - 25	50	100	060G3128
	0 - 40	80	800	060G3129
	0 - 60	200	800	060G3130
	0 - 100	200	800	060G3131
	0 - 160	320	800	060G3132
	0 - 250	600	1600	060G3133
	0 - 400	600	1600	060G3134
	0 - 600	900	2400	060G3135

For relative pressure

	Operating range bar	Max. test pressure bar	Min. bursting pressure* bar	Code no.
 Cable version	0 - 4	8	200	060G3139
	0 - 6	20	200	060G3140
	0 - 10	20	200	060G3141
	0 - 16	50	200	060G3142
	0 - 25	50	200	060G3143
	0 - 40	80	800	060G3144
	0 - 60	200	800	060G3145
	0 - 100	200	800	060G3146
	0 - 160	320	800	060G3147
	0 - 250	600	1600	060G3148
	0 - 400	600	1600	060G3149
	0 - 600	900	2400	060G3150

*) The bursting pressure is the pressure the transmitter will withstand, mechanically, without leaking.

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