

High Pressure Transmitter type MBS 6000

Features



- Typical applications
 - High pressure fuel injection
 - High pressure hydraulics
- Designed for use in harsh environments
- Resistant to cavitation, liquid hammer and pressure peaks
- Overload pressure 1.5 times measuring range
- Enclosure stainless steel (AISI 316L)
- Wetted parts stainless steel (AISI 630)
- Pressure ranges from 0 up to 3000 bar
- All standard output signals: 4 - 20 mA, and voltage outputs
- Self-diagnostic feature
- Temperature compensated
- High vibration stability
- CE-marked: EMC protected in accordance with EU EMC directive
- High IP protection
- For medium and ambient temperature up to 125°C

Description

The design ensures that the transmitters are accurate and reliable, even in extreme environments with pressure peaks, vibration, temperature fluctuations and EMC interference.

The robust product design withstands humidity cycles and heavy vibration.

Technical data

Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)	±1.5% FS
Non-linearity BFSL (conformity)	≤ ±0.2% FS
Hysteresis and repeatability	≤ ±0.1% FS
Thermal zero point shift	≤ ±0.15% FS/10K
Thermal sensitivity (span) shift	≤ ±0.15% FS/10K
Response time	< 4 ms
Overload pressure (static)	> 1.5 × FS (Max. 4500 bar)
Burst pressure	> 2 × FS (Max. 8000 bar)

Electrical specifications

	Nom. output signal (short-circuit protected)			
	4 → 20 mA (2-wire)	0 → 5, 1 → 5, 1 → 6 V	0 → 10 V, 1 → 10 V	10 → 90% of supply
Nominal supply voltage [U _B], polarity protected	12 → 24 V d.c.	12 → 24 V d.c.	24 V d.c.	5 V d.c. (Nom.)
Supply voltage limits	8 → 36 V d.c.	8 → 30 V d.c.	13 → 30 V d.c.	4.75 → 5.25 V d.c.
Supply - current consumption	-	≤ 9 mA	≤ 9 mA	≤ 6 mA
Supply voltage dependency	≤ ±0.05% FS/10 V			
Current limitation	22mA ±0.5 mA	-	-	-
Output impedance	-	≤ 25 Ω	≤ 25 Ω	≤ 25 Ω
Load [R _L] (load connected to 0V)	R _L ≤ (U _B -8V)/ 0.02A	R _L ≥ 10 kΩ	R _L ≥ 15 kΩ	R _L ≥ 5 kΩ at 5 V d.c.
Self-diagnostic output signals at: Reverse polarity	0 mA	0 V	0 V	0 V
Pressure above max. range	22 ±0.5 mA	>6 V >7 V	>10 V	4.625 ±0.075 V
Pressure below min. range		0 V	0 V	0.375 ±0.075 V
Intern. transmitter failure (special option)	>24 ±0.5 mA			4.75 ± 0.075 V

Environmental conditions

Medium temperature range	-40 → +125°C	
Ambient temperature range (depending on electrical connection)	see page 5 and 6	
Compensated temperature range	+20 → 125°C	
Storage temperature	-50 → 125°C	
EMC - Emission	EN 61000-6-3	
EMC Immunity 4-20 mA: RF field 10 v/m, 26 MHz- 2 GHz others: RF field 10 v/m, 26 MHz- 1 GHz	EN 61000-6-2 No impact on accuracy	
Insulation resistance	> 100 MΩ at 100 V d.c.	
Vibration stability	Sinusoidal 15.9 mm-pp, 5 Hz-25 Hz 20 g, 25 Hz - 2 kHz	IEC 60068-2-6
	Random 7.5 g _{rms} , 5 Hz - 1 kHz	IEC 60068-2-34, IEC 60068-2-36
Shock resistance	Shock 500 g / 1 ms	IEC 60068 - 2 - 27
	Free fall 1 m	IEC 60068 - 2 - 32
Enclosure (depending on electrical connection)	see page 5	

Mechanical characteristics

Materials	Wetted parts	EN 10088 - 1.4454 (AISI 630)
	Enclosure	DIN 17440 - 1.4404 (AISI 316 L)
	Pressure connection	see page 3 and 4
	Electrical connections	see page 3 and 4
Weight		0.2 kg

Dimensions

Type code	A1	A6	A2	A3	A5
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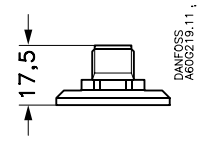
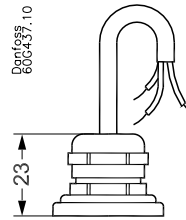
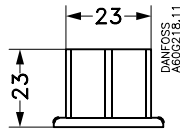
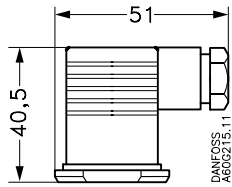
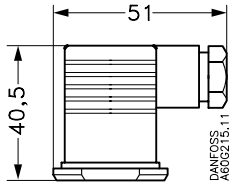
DIN 43650 Pg 9

DIN 43650 Pg 11

Econoseal 173065-2

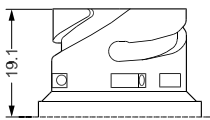
Screened cable

M12 x 1

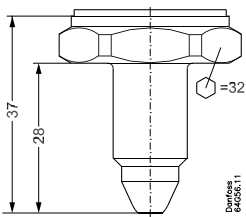
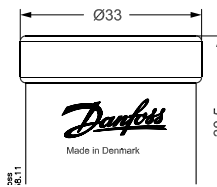
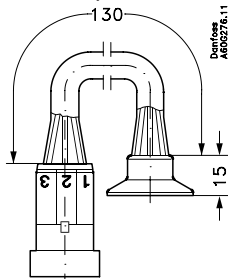


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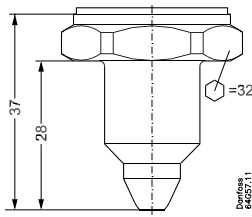
Bayonet ISO



Flying Leads with AMP superseal



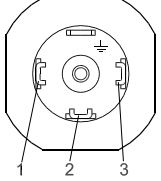
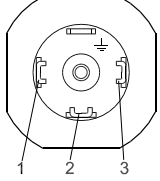
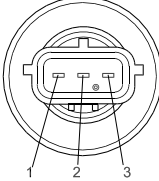
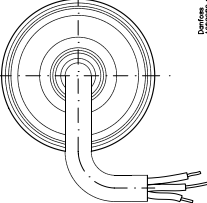
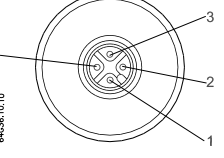
M14 x 1.5 ISO29741
SAE J1949

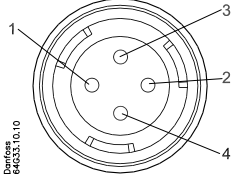
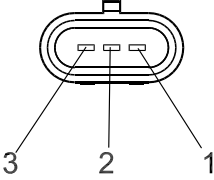


M18 x 1.5 ISO29741
SAE J1949

Type code	HP08	HP12			
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Electrical connections

Type code				
A1	A6	A2	A3	A5
DIN 43650 A EN 175301-803 incl. Pg 9 plug 	DIN 43650 A EN 17530-803 incl. Pg 11 plug 	AMP Econoseal, 173065-2 J Series male, excl. female plug 	Screened cable 2 m 	M12x1 EN 60947-5-2 male, excl. female plug 
<i>Ambient temperature 4-20 mA</i>				
-40 → +105 °C	-40 → +105 °C	-40 → +105 °C	-30 → +85 °C	-25 → +90 °C
<i>Ambient temperature 0 - 5V, 1 - 5V, 1 - 6V, 0 - 10V, ratiometric</i>				
-40 → +125 °C	-40 → +125 °C	-40 → +105 °C	-30 → +85 °C	-25 → +90 °C
<i>Enclosure</i>				
IP 65	IP 65	IP 67	IP 67	IP 67
<i>Materials</i>				
Glass filled polyamid, PA 6.6	Glass filled polyamid, PA 6.6	Glass filled polyamid, PA 6.6	Poliolyfin cable with PE shrinkage tubing	Nickel plated brass, CuZn/Ni
<i>Electrical connection, 4 - 20 mA output (2 wire)</i>				
Pin1: + supply Pin 2: ÷ supply Pin 3: Not used Earth: Connected to MBS housing	Pin1: + supply Pin 2: ÷ supply Pin 3: Not used Earth: Connected to MBS housing	Pin1: + supply Pin 2: ÷ supply Pin 3: Not used	Brown wire: + supply Black wire: ÷ supply Red wire: Not used Orange wire: Not used Screen: Not connected to MBS housing	Pin 1: + supply Pin 2: Not used Pin 3: Not used Pin 4: ÷ supply
<i>Electrical connection, 0 - 5V, 1 - 5V, 1 - 6V, 0 - 10V, 1 - 10V, ratiometric output</i>				
Pin 1: + supply Pin 2: ÷ supply Pin 3: Output Earth: Connected to MBS housing	Pin 1: + supply Pin 2: ÷ supply Pin 3: Output Earth: Connected to MBS housing	Pin1: + supply Pin 2: ÷ supply Pin 3: Output	Brown wire: Output Black wire: ÷ supply Red wire: + supply Orange: Not used Screen: Not connected to MBS housing	Pin 1: + supply Pin 2: Not used Pin 3: Output Pin 4: ÷ supply

Type code				
A7	A8			
Bayonet ISO 15170-A1-3-2 Au male excl. female plug	Flying leads, 125 mm with AMP superseal 282105-1. 1.5 series, male excl. female plug			
				
Ambient temperature 4-20 mA				
-40 → +105 °C	-30 → +85 °C			
Ambient temperature 0 - 5V, 1 - 5V, 1 - 6V, 0 - 10V, ratiometric				
-40 → +125 °C	-30 → +85 °C			
Enclosure				
IP 67/IP 69K	IP 67			
Materials				
Glass filled polyester, PBT	Glass filled PUR			
Electrical connection, 4 - 20 mA output (2 wire)				
Pin 1: +supply Pin 2: Not used Pin 3: Not used Pin 4: -supply	Pin 1: +supply Pin 2: -supply Pin 3: Not used			
Electrical connection, 0 - 5V, 1 - 5 V, 1 - 6 V, 0 - 10 V, 1 - 10 V, ratiometric output				
Pin 1: +supply Pin 2: Output Pin 3: Ventilation Pin 4: -supply	Pin 1: +supply Pin 2: -supply Pin 3: Output			

Female part:
Recommended hardness: [HRC] 50 or higher

