



DMP 333

Industrial Pressure Transmitter For High Pressure

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 / 0.1 % FSO

Industrial
Pressure Transmitter

DMP 333

Nominal pressure

from 0 ... 60 bar
up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 20 mA / 0 ... 10 V
others on request

Special characteristics

- ▶ excellent long-term stability, also with high dynamic pressure loads
- ▶ insensitive to pressure peaks
- ▶ high overpressure capability

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dusts
- ▶ SIL 2 version
according to IEC 61508 / IEC 61511
- ▶ customer specific versions

The pressure transmitter type DMP 333 has been especially designed for use in hydraulic applications with high static and dynamic pressure. The transmitter is characterized by an excellent long term stability, also under fast changing pressure as well as positive and negative pressure peaks.

The modular concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions.

Thus a diversity of variations is created, meeting almost all requirements in hydraulic applications.

Preferred areas of use are



Plant and Machine Engineering

- machine tools
- hydraulic presses
- injection moulding machine
- handling equipment
- elevated platforms
- test benches



Mobile Hydraulics



DMP 333

Industrial Pressure Transmitter

Technical Data

| Input pressure range | | | | | | | |
|--|---|-----|------|------|------|------|------|
| Nominal pressure gauge ¹ / abs. | [bar] | 60 | 100 | 160 | 250 | 400 | 600 |
| Overpressure | [bar] | 210 | 600 | 600 | 1000 | 1000 | 1000 |
| Burst pressure \geq | [bar] | 420 | 1000 | 1000 | 1250 | 1250 | 1250 |
| ¹ measurement starts with ambient pressure | | | | | | | |
| Output signal / Supply | | | | | | | |
| Standard | 2-wire: 4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$ | | | | | | |
| Option IS-protection | 2-wire: 4 ... 20 mA / $V_s = 14 \dots 28 V_{DC}$ | | | | | | |
| Options 3-wire | 3-wire: 0 ... 20 mA / $V_s = 14 \dots 30 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 30 V_{DC}$ | | | | | | |
| Performance | | | | | | | |
| Accuracy ² | standard: $\leq \pm 0.35\%$ FSO option 1: $\leq \pm 0.25\%$ FSO option 2: $\leq \pm 0.1\%$ FSO | | | | | | |
| Permissible load | current 2-wire: $R_{max} = [(V_s - V_s \text{ min}) / 0.02] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$ | | | | | | |
| Influence effects | supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $\text{k}\Omega$ | | | | | | |
| Long term stability | $\leq \pm 0.1\%$ FSO / year at reference conditions | | | | | | |
| Response time | < 5 msec (with optional accuracy 0.1 % / 0.25 % FSO the response time is 200 msec) | | | | | | |
| ² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) | | | | | | | |
| Thermal effects (Offset and Span) | | | | | | | |
| Tolerance band | $\leq \pm 0.75\%$ FSO | | | | | | |
| TC, average | $\pm 0.07\%$ FSO / 10 K | | | | | | |
| in compensated range | 0 ... 70 °C | | | | | | |
| Permissible temperatures | | | | | | | |
| Permissible temperatures | medium: -25 ... 125 °C electronics / environment: -25 ... 85 °C storage: -40 ... 100 °C | | | | | | |
| Electrical protection | | | | | | | |
| Short-circuit protection | permanent | | | | | | |
| Reverse polarity protection | no damage, but also no function | | | | | | |
| Electromagnetic compatibility | emission and immunity according to EN 61326 | | | | | | |
| Mechanical stability | | | | | | | |
| Vibration | 10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6 | | | | | | |
| Shock | 100 g / 11 msec according to DIN EN 60068-2-27 | | | | | | |
| Materials | | | | | | | |
| Pressure port | stainless steel 1.4404 (316 L) | | | | | | |
| Housing | stainless steel 1.4404 (316 L) | | | | | | |
| Option compact field housing | stainless steel 1.4305 (303), cable gland brass, nickel plated others on request | | | | | | |
| Seals (media wetted) | standard: FKM options: EPDM (for $P_N \leq 160 \text{ bar}$) NBR others on request | | | | | | |
| Diaphragm | stainless steel 1.4435 (316 L) | | | | | | |
| Media wetted parts | pressure port, seals, diaphragm | | | | | | |
| Explosion protection (only for 4 ... 20 mA / 2-wire) | | | | | | | |
| Approval DX19-DMP 333 | IBExU 10 ATEX 1068 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex iaD 20 T85 °C | | | | | | |
| Safety technical maximum values | $U_i = 28 V_{DC}$, $I_i = 93 \text{ mA}$, $P_i = 660 \text{ mW}$, $C_i \approx 0 \text{ nF}$, $L_i \approx 0 \mu\text{H}$, the supply connections have an inner capacity of max. 27 nF to the housing | | | | | | |
| Ambient temperature range | -20 ... 70 °C | | | | | | |
| Connecting cables (by factory) | cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 $\mu\text{H}/\text{m}$ | | | | | | |

DMP 333

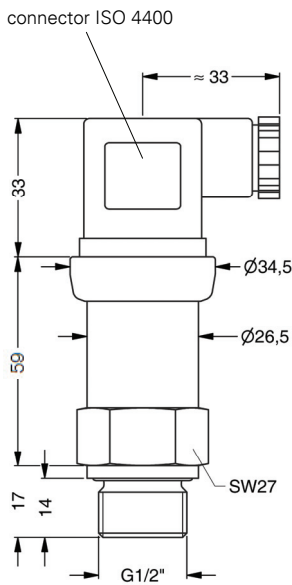
Industrial Pressure Transmitter

Technical Data

| Miscellaneous | | | | | |
|--|---|--|--|---------------------|---------------------------|
| Option SIL 2 | according to IEC 61508 / IEC 61511 | | | | |
| Current consumption | signal output current: max. 25 mA | | signal output voltage: max. 7 mA | | |
| Weight | approx. 140 g | | | | |
| Installation position | any ³ | | | | |
| Operational life | > 100 x 10 ⁶ pressure cycles | | | | |
| CE-conformity | EMC Directive: 2004/108/EC | | Pressure Equipment Directive: 97/23/EC (module A) ⁴ | | |
| ³ Pressure transmitters are calibrated in a vertical position with the pressure connection down. | | | | | |
| ⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar | | | | | |
| Wiring diagrams | | | | | |
| 2-wire-system (current) | | | 3-wire-system (current / voltage) | | |
| Pin configuration | | | | | |
| Electrical connection | ISO 4400 | Binder 723 (5-pin) | M12x1 / metal (4-pin) | field housing | cable colours (DIN 47100) |
| Supply + | 1 | 3 | 1 | IN + | wh (white) |
| Supply - | 2 | 4 | 2 | IN - | bn (brown) |
| Signal + (for 3-Leiter) | 3 | 1 | 3 | OUT + | gn (green) |
| Shield | ground pin | 5 | 4 | ⊥ | gn/ye (green / yellow) |
| Electrical connections (dimensions in mm) | | | | | |
| standard | | option | | | |
| | | | | | |
| | | | | | |
| ISO 4400 (IP 65) | | Binder Series 723 5-pin (IP 67) | | M12x1 4-pin (IP 67) | |
| | | | | | |
| | | | | | |
| | | cable outlet with PVC cable (IP 67) ⁵ | | | |
| | | | | | |
| | | | | | |
| | | compact field housing (IP 67) | | | |
| | | | | | |
| | | | | | |
| | | cable outlet, cable with ventilation tube (IP 68) ⁶ | | | |
| | | | | | |
| | | | | | |
| <p>⇒ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request</p> | | | | | |
| ⁵ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C) | | | | | |
| ⁶ different cable types and lengths available, permissible temperature depends on kind of cable | | | | | |

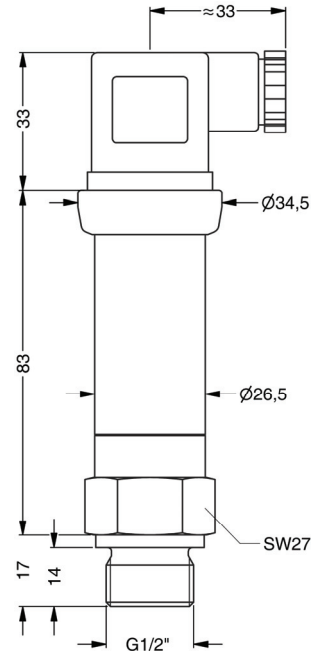
Mechanical connections (dimensions in mm)

standard for accuracy 0.35 %



G1/2" DIN 3852
with ISO 4400

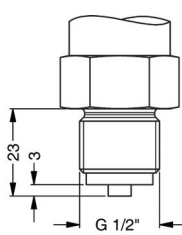
standard for accuracy 0.1 % and 0.25 %



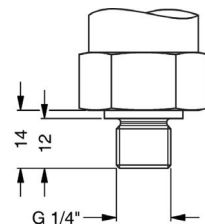
G1/2" DIN 3852
with ISO 4400

⇨ for IS- and SIL ⁷ -IS- version the length increases by 20 mm

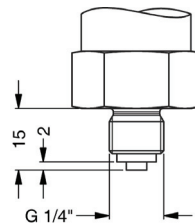
option



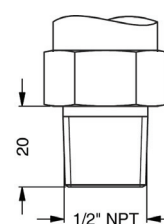
G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837



1/2" NPT

⇨ metric threads and other versions on request

⁷ not possible in combination with the accuracy 0.1% and 0.25 %

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

Ordering code DMP 333

DMP 333

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| | | | | | | | | | | | |
|--|--------|---|---|---|---|---|---|----|---|---------|---|
| Pressure | | | | | | | | | | | |
| gauge | 1 | 3 | 0 | | | | | | | | |
| absolute | 1 | 3 | 1 | | | | | | | | |
| Input [bar] | | | | | | | | | | | |
| 60 | | | | 6 | 0 | 0 | 2 | | | | |
| 100 | | | | 1 | 0 | 0 | 3 | | | | |
| 160 | | | | 1 | 6 | 0 | 3 | | | | |
| 250 | | | | 2 | 5 | 0 | 3 | | | | |
| 400 | | | | 4 | 0 | 0 | 3 | | | | |
| 600 | | | | 6 | 0 | 0 | 3 | | | | |
| customer | | | | 9 | 9 | 9 | 9 | | | consult | |
| Output | | | | | | | | | | | |
| 4 ... 20 mA / 2-wire | | | | | | | | 1 | | | |
| 0 ... 20 mA / 3-wire | | | | | | | | 2 | | | |
| 0 ... 10 V / 3-wire | | | | | | | | 3 | | | |
| Intrinsic safety 4 ... 20 mA / 2-wire | | | | | | | | E | | | |
| SIL2 4 ... 20 mA / 2-wire ² | | | | | | | | 1S | | | |
| SIL2 with Intrinsic safety | | | | | | | | ES | | | |
| 4 ... 20 mA / 2-wire ² | | | | | | | | | | | |
| customer | | | | | | | | 9 | | consult | |
| Accuracy | | | | | | | | | | | |
| standard | 0.35 % | | | | | | | 3 | | | |
| option 1 | 0.25 % | | | | | | | 2 | | | |
| option 2 | 0.10 % | | | | | | | 1 | | | |
| customer | | | | | | | | 9 | | consult | |
| Electrical connection | | | | | | | | | | | |
| Male and female plug ISO 4400 | | | | | | | | 1 | 0 | 0 | |
| Male plug Binder series 723 (5-pin) | | | | | | | | 2 | 0 | 0 | |
| Cable outlet with PVC cable ³ | | | | | | | | T | A | 0 | |
| Cable outlet ⁴ | | | | | | | | T | R | 0 | |
| Male plug M12x1 (4-pin) / metal | | | | | | | | M | 1 | 0 | |
| Compact field housing | | | | | | | | 8 | 5 | 0 | |
| stainless steel 1.4305 | | | | | | | | | | | |
| customer | | | | | | | | 9 | 9 | 9 | |
| Mechanical connection | | | | | | | | | | | |
| G1/2" DIN 3852 | | | | | | | | 1 | 0 | 0 | |
| G1/2" EN 837 | | | | | | | | 2 | 0 | 0 | |
| G1/4" DIN 3852 | | | | | | | | 3 | 0 | 0 | |
| G1/4" EN 837 | | | | | | | | 4 | 0 | 0 | |
| 1/2" NPT | | | | | | | | N | 0 | 0 | |
| customer | | | | | | | | 9 | 9 | 9 | |
| Seals | | | | | | | | | | | |
| FKM | | | | | | | | | | 1 | |
| EPDM ⁵ | | | | | | | | | | 3 | |
| NBR | | | | | | | | | | 5 | |
| customer | | | | | | | | | | 9 | |
| Special version | | | | | | | | | | | |
| standard | | | | | | | | | 0 | 0 | 0 |
| customer | | | | | | | | | 9 | 9 | 9 |

¹ measurement starts with ambient pressure

² not in combination with the accuracy 0.1%

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally without ventilation tube

⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

⁵ possible for nominal pressure ranges P_N ≤ 160 bar

This price list contains product specification; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

