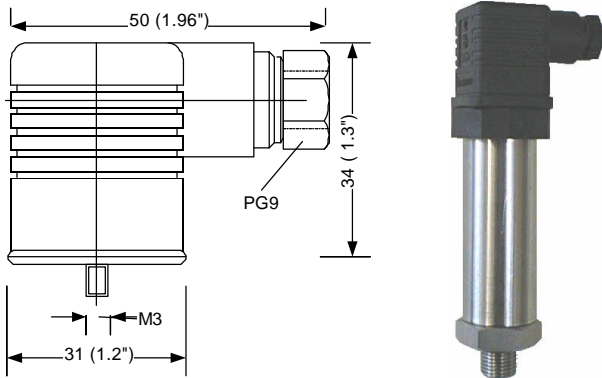


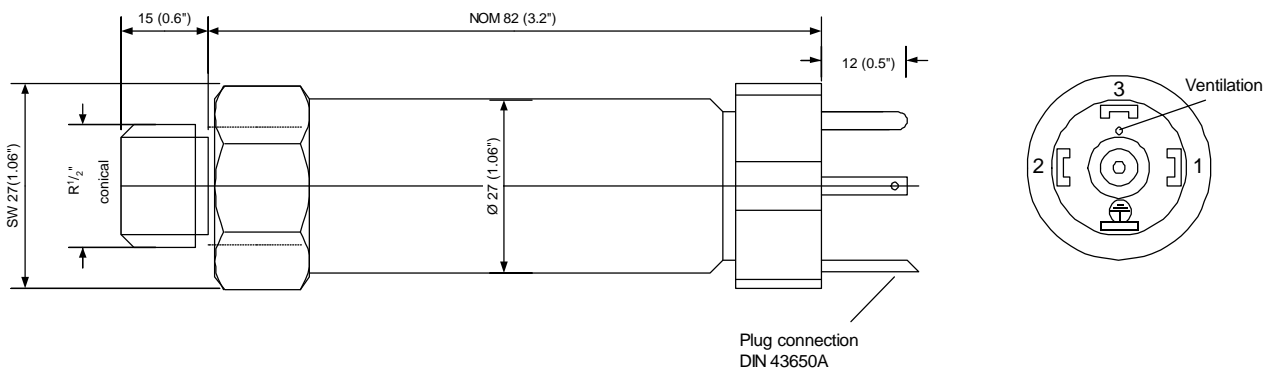


Dimensions



Type	Measurement Range		Order No.
	[bar]	[psi]	
MPUGRN.002	0.2	3	0065773.002
MPUGRN.005	0.5	7.5	0065773.003
MPUGRN.010	1	15	0065773.004
MPUGRN.020	2	30	0065773.005

Table 1: Measurement Ranges



Dimensions in mm (inch)

Short Description

The pressure transducer made of stainless steel with 4 ... 20mA output and 2-wire technique serves as continuous measurement of pressure and level. The pressure transducer contains a temperature compensated piezoresistive relative pressure measuring cell.

The pressure transducer is suitable for level measurements in open and closed containers (reservoir), level measurements using the bubble process as well as for measuring pressure in transport lines.

Technical Data

Unless otherwise noted at: $+V_s=15V$, $R_B=100\Omega$, $T_{amb}=25^\circ C$ (77°F)

Type:	MPUGRN.	002	005	010	020
Measurement range FS (incl. prepressure)	[bar]	0.2	0.5	1	2
	[psi]	3	7.5	15	30
	[mWS]	2	5	10	20
	[ft]	6	15	30	60
Proof pressure ³⁾	[bar]	1.4	2	2	4
Non-Linearity and hysteresis (BSL) ⁵⁾	@ 25°C (77°F) [± % FS]	typ. 0.2 max. 0.3	typ. 0.15 max. 0.25	typ. 0.15 max. 0.25	typ. 0.15 max. 0.25
Repeatability	[± % FS]	typ. 0.1	typ. 0.1	typ. 0.1	typ. 0.1
Long term stability ⁶⁾	[± % FS/a]	typ. 0.2	typ. 0.2	typ. 0.2	typ. 0.2
Thermal effects ⁴⁾ 0 ... 70 °C (32 ... 158 °F)	Offset [± %FS/°C]	typ. 0.05 max. 0.08	typ. 0.03 max. 0.04	typ. 0.02 max. 0.03	typ. 0.02 max. 0.03
	Span ⁷⁾ [± %FS/°C]	typ. 0.02 max. 0.04	typ. 0.02 max. 0.04	typ. 0.02 max. 0.04	typ. 0.02 max. 0.04

Measurement Range Independent Technical Data

- Output current: 4 ... 20mA, proportional to applied pressure
- Adjustment of offset: 4.0mA ± 0.1mA
- Adjustment of span ²⁾ : 16.0mA ± 0.1mA
- Output impedance: typ. 0.1Ω
- Response time (10 ... 90% FS): typ. 1ms
- Output noise (0<f<1kHz): typ. 0.04% FS
- Supply voltage $+V_s$ ¹⁾ : DC 9V ... 36V
- Power supply rejection (offset and span): typ. 0.05% FS/V
- Permissible load in current output ¹⁾ : $R_B [\Omega] \leq (+V_s [V] - 9 [V]) / 0,02 [A]$
- Resistance load of extension cable MPZVK: 75mΩ/m (0.5mm² / approx. 20 AWG)
- Overvoltage protection ⁸⁾ : Integrated fine protection in signal current circuit for transients in acc. to EN 61000-4-5 up to 500V.
- Reverse polarity protection: Integrated reverse polarity protection in signal current circuit.
- Dielectric strength case/electronic: DC 500V
- Protection class: IP65 (NEMA 4)
- Operating temperature range ⁹⁾ : -25°C ... 70°C (-13°F ... 158°F)
- Storage temperature range: -40°C ... 85°C (-40°F ... 185°F)
- Compensated temperature range: 0°C ... 70°C (32°F ... 158°F)
- Acid resistance: pH5 ... pH9, lower/higher values on request
- Threaded connection: G_c1/2" (conical), with turning adaptation SW27
- Cable coupling: Connection with DIN 43650A, PG9

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Electromagnetic capability in accordance with EN50082-2 7)

	Test conditions	Interference
Radiated, radio frequency electromagnetic field immunity (RFI)	IEC801-3: Grade 3 10V/m, 1MHz ... 1000MHz unmodulated and 80% modulated	< 1% FS
Electrical fast transient/burst immunity (EFT)	IEC801-4: Grade 3 ±2kV	< 1% FS
Electrostatic discharge immunity (ESD)	IEC801-2: Grade 3 ±8kV, contact discharge	< 1% FS

Note: The unit doesn't include a coarse protection (i.e. ASBG.48). The coarse protection has to be planned externally.

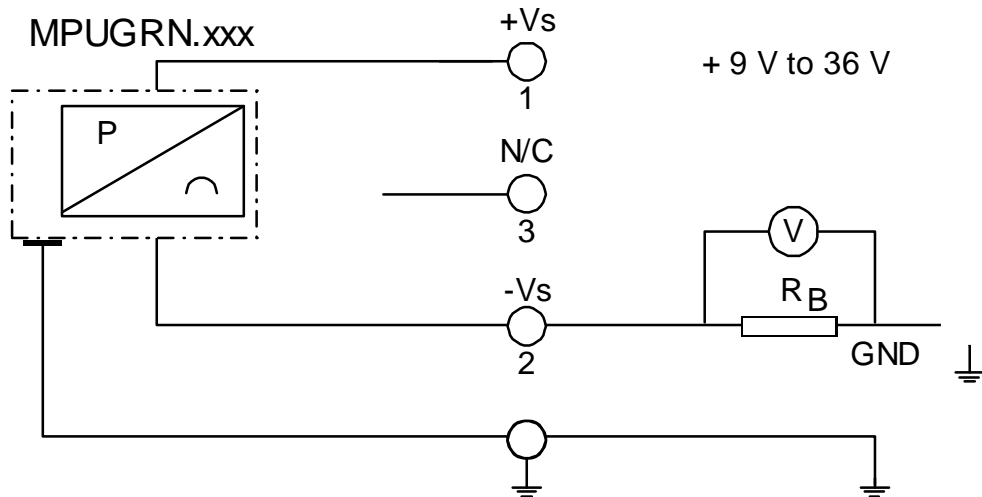
Construction of Pressure Transducer

The housing material consists of rust and acid resistant steel 1.4305 (SS303), the pressure transmitting separating membrane of corrosion resistant steel 1.4435 (316L).

The used sealings are of perbunane.

Important note: To avoid damage of the separating membrane, do not touch the membrane.

Standard Schematic



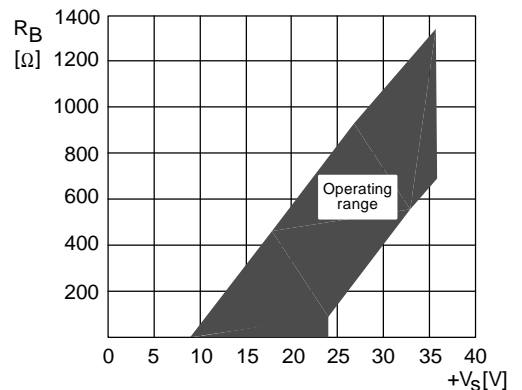
Load Limitation 1)

$$R_B [\Omega] \leq (+V_s [V] - 9 [V]) / 0.02 [A]$$

Standard Settings

The submersible transmitters have the following standard settings ex works:

- Current range: 4 ... 20mA
- Zero point: 0
- Full scale adjustment: nominal measurement range FS [bar]



Possible variants of calibration for the measurement ranges:

Type	[bar]	[psi]	[mWS]	[ft]
MPUGRN.002	0...0.2 bar	0...3 psi	0...2 mWS	0...6 ft
MPUGRN.005	0...0.5 bar	0...7.5 psi	0...5 mWS	0...15 ft
MPUGRN.010	0...1 bar	0...15 psi	0...10 mWS	0...30 ft
MPUGRN.020	0...2 bar	0...30 psi	0...20 mWS	0...60 ft

Ordering information: Only the measurement ranges mentioned above are obtainable. User defined ranges can not be ordered.

Accessories

	Abbreviation	Order No.
• Branch box (small) IP54 (NEMA3)	MPZAD	00 65 195.001
• Branch box complete, IP65 (IP67) (NEMA4)	MPZAD.002	00 65 194.001
• Branch box IP65 (NEMA4) with 1 overvolt. prot. ASBG.48	MPZADU.002	00 65 193.001
• Branch box with 1 overvolt. prot. ASBG.48 IP54 (NEMA3)	MPZADU	00 65 207.001

Specification Notes (for all Devices):

- 1) The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. The maximum supply voltage is DC 36V. On supply over 24V there must be a load resistance of min. 100Ω in the signal current circuit. For more details see the load limitation diagram.
- 2) Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure (FS).
- 3) Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.
- 4) Thermal effects tested and guaranteed from 0°C ... 70°C relativ to 25°C. All specifications shown are relativ to 25°C.
- 5) Non-Linearity refers to the **Best Straight Line** fit measured for offset, full scale span and ½ full scale span.
- 6) Change after one year or 10⁶ pressure cycles at reference conditions.
- 7) Tests are in accordance with EN50082-2, Jan. 93. The EMC protection is given only when the cable shield ist mounted correctly.
- 8) For field use with extension cables lengths ≥ 5m (16ft) or within a building with cable lengths ≥ 100m (330ft), an overvoltage protection ASBG.48 or a branch box MPZADU.xxx must be used.
- 9) Reduced performance outside the compensated temperature range.

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