

## Features

- 2-wire connection
- Compact and robust stainless steel assembly 1.4435 (316L)
- Piezoresistive measuring element
- Standard DIN pressure ranges from 0...100 mbar to 0...25 bar
- Complies with the EMC directive 89/336/EEC
- High reliability
- Available with PE, PUR or Teflon cable
- Reverse polarity and short circuit protected
- Surge (lightning) protection according to EN 61000-4-5 as an option

## Picture



## Specifications

All specifications, unless otherwise noted, at DC 24 V supply voltage,  $R_L = 100 \Omega$ ,  $T_{amb} = 25^\circ\text{C}$  (77°F).

### Measurement Range Independent Technical Data

Type	Two wire current transmitter
Output signal	4 ... 20 mA
Response time 10 ... 90% FS	1 ms
Supply voltage	DC 9 ... 33 V
Reverse polarity protection	integrated
Supply voltage influence	< 0,1 % FS
Dielectric strength case / supply	500 V
Load resistance limitation	$R_L [\Omega] \leq (+U_B [V] - 9 [V]) / 0,02 [A]$
Load resistance influence	< 0,1 % FS
Protection class	IP68
Operating media temperature range	0°C ... +80°C (+32°F ... +176°F) standard -25°C ... +85°C (-13°F ... +185°F) option
Compensated temperature range	0°C ... +70°C (+32°F ... +158°F) standard -25°C ... +85°C (-13°F ... +185°F) option
Storage temperature range	= operating temperature range
Acid resistance	pH5 ... pH9
Weight of submersible transmitter without cable	approx. 160g (0,35 pounds) without surge protection approx. 210g (0,47 pounds) with surge protection
Measuring cell, diaphragm, housing	Stainless steel 1.4435 (316L)
Seals	Viton
<b>Connecting cable</b>	by choice PE / PUR / Teflon cable with integrated pressure compensation tube
Outside diameter	6 mm (0,24") PE / PUR; 5 mm (0,2") Teflon
Conductor	0,22 mm <sup>2</sup> (24 AWG), Cu-wire 7 x 0,20 tin-plated
Resistance	$\leq 82,9 \text{ m}\Omega/\text{m}$ (one way)
Minimum cable bending radius	100 mm (4")
Stretchforce	< 15 N
Tearforce	> 500 N

Pressure compensation tube diameter	Ø 1,4 / 0,8 mm (0,055" / 0,03") PE / PUR; Ø 1,1 / 0,6 mm (0,04" / 0,02") Teflon
PE-cable	food approved
allowable media temperature	<= 50°C (+122°F)
Weight	approx. 41 g/m (0,44 oz/ft)
PUR-cable	mechanical robust
allowable media temperature	<= 50°C (+122°F)
Weight	approx. 43 g/m (0,46 oz/ft)
Teflon-cable	
allowable media temperature	<= 85°C (+185°F)
Weight	approx. 55 g/m (0,59 oz/ft)

**Electromagnetic compability**

Emission	
Generic emission standard	EN 50081-1:1992
Emission, class B	EN 55022:1994
Immunity	
Generic immunity	EN 50082-2:1995
Electrostatic discharge	EN 61000-4-2:1995 (4 kV contact, 8 kV air)
Radiated electro-magnetic field	ENV 50140:1993 (10 V/m, 80 ... 100 MHz, 80% AM 1 kHz)
Radiated electro-magnetic field (GSM)	ENV 50204:1995 (10 V/m, 950 MHz, 200 Hz on/off)
Fast transients (burst)	EN 61000-4-4:1995 (2 kV)
Conducted radio-frequency	ENV 50141:1993 (10 V/m, 0,15 ... 80 MHz, 80% AM 1 kHz)
Surge	EN 61000-4-5:1995 (10 kA 8/20µs) [only with optional surge (lightning) protection]

**Quality Tests**

Complies with the EMC directive 89/336/EEC.

The pressure transmitter ATM fulfill the emission and immunity requirements described in the EMC directive 89/336/EEC. The conformity was tested by KEMA Nederland BV. The certificate and the test report (KEMA 54285-KRQ/ECM 96-4184) are available on request.

**Measurement Range Specific Technical Data**

Pressure range	0,1 ... 0,5 bar	> 0,5 ... 2 bar	> 2 ... 25 bar
Overpressure	3 bar	3 x FS (at least 3 bar)	3 x FS
Burst pressure	> 200 bar	> 200 bar	> 200 bar
Accuracy *	<= ±0,5 % FS	<= ±0,5 % FS	<= ±0,5 % FS
options *	(<= ±0,25 % FS)	(<= ±0,25 % FS / 0,1 % FS)	(<= ±0,25 % FS / 0,1 % FS)
Thermal shift			
Zero	0 ... +70°C	±0,06 % FS/°C	±0,03 % FS/°C
	-25 ... +85°C	±0,08 % FS/°C	±0,04 % FS/°C
Span	0 ... +70°C	±0,015 % FS/°C	±0,015 % FS/°C
	-25 ... +85°C	±0,02 % FS/°C	±0,02 % FS/°C
Long term stability (1 yr)	< 4 mbar	< 4 mbar	< 0,2 % FS

\* Zero based non-conformity according to DIN 16086, including hysteresis and repeatability

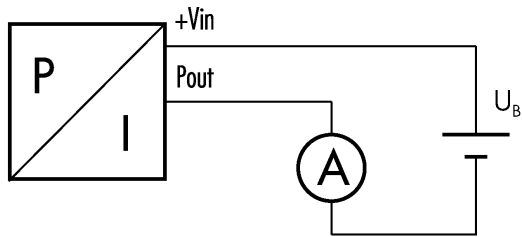
## Ordering information

Table 1:

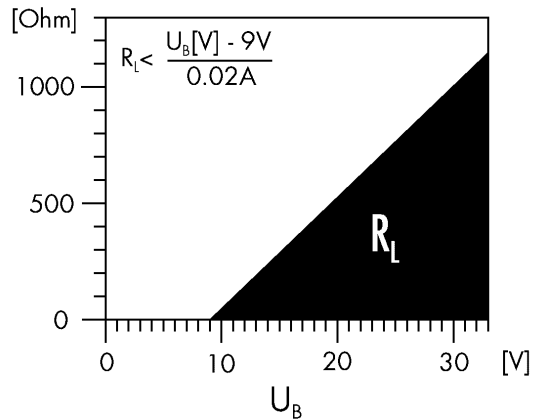
The exact order number for an article is formed from the individual optionscodes according to the table (with the BAAN-Configurator PCF or manually).

MPA	PCF Order Number																
	1/2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
<b>Type</b>																	
MPA	PA																
<b>Pressure type</b>																	
Gauge		1															
Absolut		2															
<b>Pressure range</b>																	
0 ... 100 mbar = 0 ... 1,45 psi			0	0													
0 ... 160 mbar = 0 ... 2,32 psi			0	1													
0 ... 250 mbar = 0 ... 3,63 psi			0	2													
0 ... 400 mbar = 0 ... 5,8 psi			0	3													
0 ... 600 mbar = 0 ... 8,7 psi			0	4													
0 ... 1,0 bar = 0 ... 14,5 psi			0	5													
0 ... 1,6 bar = 0 ... 23,2 psi			0	6													
0 ... 2,5 bar = 0 ... 36,25 psi			0	7													
0 ... 4,0 bar = 0 ... 58 psi			0	8													
0 ... 6,0 bar = 0 ... 87 psi			0	9													
0 ... 10 bar = 0 ... 145 psi			1	0													
0 ... 16 bar = 0 ... 232 psi			1	1													
0 ... 25 bar = 0 ... 362,5 psi			1	2													
<b>Version</b>																	
Closed version					5	5											
<b>Electrical connection</b>																	
PE cable (food approved)							1	3									
PUR cable							1	5									
Teflon cable (temp. > +50°C (+122°F))							1	1									
<b>Output signal</b>																	
4 ... 20 mA without surge (lightning) protection									0	5							
4 ... 20 mA with surge (lightning) protection									0	8							
<b>Accuracy</b>																	
±0,5 %											0						
±0,25 %											1						
±0,1 % (only for pressure ranges > 0,5 bar)											2						
<b>Temperature range</b>																	
0 ... +70°C (+32°F ... +158°F)												0					
-25 ... +85°C (-13°F ... +185°F)												1					
<b>Cable length</b>																	
Cable length in meter (always >= 001)															x	x	x

### Standard Schematic / Electrical Connections



+Vin ? white  
Pout ? yellow



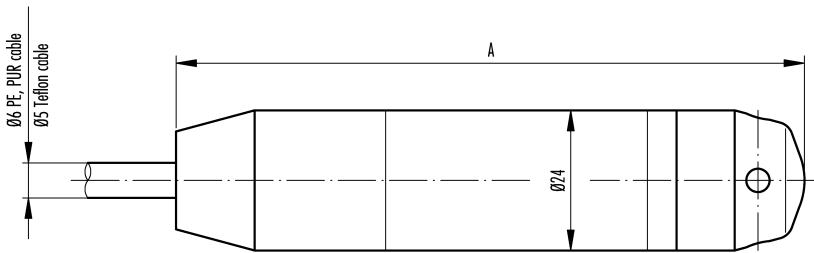
### Hints

- The load resistance  $R_L$  is the sum of load and cable resistance.
- The cable must not be tight bend or flat squeezed (because of the integrated pressure compensation tube).
- Note that humidity should not penetrate into the venting tube. Use of branch box with desiccator is recommended.
- To avoid damage of the separating membrane, do not touch the membrane.
- Only the measurement ranges mentioned above are obtainable. User defined ranges can not be ordered.
- For field use with extension cables lengths  $\geq 5m$  (16ft) or within a building with cable lengths  $\geq 100m$  (330ft), a transmitter with the surge (lightning) protection option and an overvoltage protection ASBG.48 or a branch box MPZADU.xxx (on the other side of cable) must be used.
- Conversion table for pressure units  
(value in new unit) = coefficient x (value in old unit)

coefficient	new unit					
	Pa = 1 N/m <sup>2</sup>	bar	mWS	mmHg (Torr)	psi	kp/cm <sup>2</sup>
Pa = 1 N/m <sup>2</sup>	1	10 <sup>-5</sup>	1,02 x 10 <sup>-4</sup>	7,5 x 10 <sup>-3</sup>	1,45 x 10 <sup>-4</sup>	1,02 x 10 <sup>-5</sup>
bar	10 <sup>5</sup>	1	10,2	750	14,5	1,02
mWS	9,81 x 10 <sup>3</sup>	9,81 x 10 <sup>-2</sup>	1	73,6	1,42	0,1
mmHg (Torr)	1,33 x 10 <sup>2</sup>	1,33 x 10 <sup>-3</sup>	1,36 x 10 <sup>-2</sup>	1	1,93 x 10 <sup>-2</sup>	1,36 x 10 <sup>-3</sup>
psi	6,89 x 10 <sup>3</sup>	6,89 x 10 <sup>-2</sup>	0,703	51,7	1	7,03 x 10 <sup>-2</sup>
kp/cm <sup>2</sup>	9,81 x 10 <sup>4</sup>	0,981	10	736	14,2	1

Application example 2 bar = ? psi:  
bar = "old unit", psi = "new unit",  $\Rightarrow$  "coefficient" = 14,5  
2 bar = 14,5 x 2 psi = 29 psi

## Dimensions [mm]



A = 108 mm (4,25") without surge (lightning) protection

A = 157 mm (6,2") with surge (lightning) protection

Ø 24 mm = 0,945"

## Accessories

	Abbreviation	Order No. *
Extension cable 2-wire, shielded (L [m])	MPZVK	04 60 502
Branch box (small) IP54 (NEMA3)	MPZAD	00 65 195.001
Branch box complete, IP65 (IP67) (NEMA4), with desiccator	MPZAD.002	00 65 194.001
Branch box with 1 overvolt. prot. ASBG.48, IP65 (NEMA4)	MPZADU.002	00 65 193.001
Branch box with 1 overvolt. prot. ASBG.48, IP54 (NEMA3)	MPZADU	00 65 207.001
Suspension arrangement for submersible probe	MPZHVT	00 65 717.001
Tension weight for submersible probe	MPZSG	00 65 183.001
Surge protection AC/DC 48V	ASBG.48	00 32 721.003
Heating to submersible probe 24 V	MPZHU.024	27 12 509
Thermostat to heating	MPZTH	27 12 511
Protection tube 2 m (in still waters) with heating MPZHU.024	MPZSRR.002	00 65 720.002
Protection tube 2 m (in running waters) with heating MPZHU.024	MPZSRF.002	00 65 721.002
Protection tube extension 2 m for MPZSRR.002, MPZSRF.002	MPZSRV.002	00 65 722.002
Sensor cabinet	MPZFK	00 65 543.001
Protection tube for sensor cabinet	MPZSRU	00 65 549.001
Desiccant box	MPZDES	00 65 191.001

\* The declaration of order numbers is only informative and doesn't mean any statement about keeping in stock or general availability of an article.

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