

# Pressure transmitter in miniature design

## Model M-10, standard version

## Model M-11, flush diaphragm

WIKA data sheet PE 81.25



### Applications

- Machine building
- Hydraulics/Pneumatics
- General industrial applications

### Special features

- Measuring ranges from 0 ... 16 bar to 0 ... 1000 bar
- Current and voltage outputs
- Ingress protection IP 65 or IP 67
- Wetted parts and case from stainless steel
- Vacuum-tight

MicroTronic®



Fig. left: Model M-10 with miniature angular connector  
Fig. centre: Model M-11 with M12 x 1, flush diaphragm  
Fig. right: Model M-10 with cable outlet

## Description

### Slender

The model M-10 pressure transmitter is one of the thinnest and smallest industrial pressure transmitters on the market and thus offers the ideal solution for applications where mounting space is limited.

### Robust

Despite its slender and compact design, the M-1x is designed for very high pressure ranges and offers measuring ranges up to 1000 bar.

### Stable

The thin-film sensor technology used enables the complete elimination of additional sealing elements. Hermetically welded and with a cleverly-aligned pressure connection design, the thin-film measuring cell guarantees a high measurement performance even with dynamic loads and extreme pressure spikes.

### Precise

Also in its accuracy, the M-10 makes its mark. The accuracy of < 0.5 % is formidable for an instrument of this size. Combined with an exceptional long-term stability, reliable acquisition of the measured value is ensured.

### Versatile

For simple connection to the process control, different analogue output signals are available. There are also various alternatives for the electrical and mechanical connections.

### Flush diaphragm

The M-11 models, with their flush diaphragm, are especially suited to measurement in highly viscous, contaminated or crystallising media. Flush diaphragm pressure transmitters are available in pressure ranges from 0 ... 25 bar up to 0 ... 600 bar.

## Specifications

## Models M-10, M-11

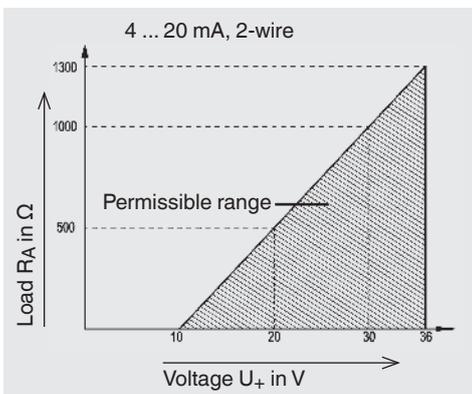
Measuring range	bar	16 <sup>1)</sup>	25	40	60	100	160	250	400	600	1000 <sup>1)</sup>
Overpressure safety	bar	32	50	80	120	200	320	500	800	1200	1500
Burst pressure	bar	160	250	400	550	800	1000	1200	1700 <sup>2)</sup>	2400 <sup>2)</sup>	3000
Material											
■ Wetted parts		Stainless steel O-Ring: NBR (only with flush diaphragm)									
■ Case		Stainless steel									
Internal transmission fluid		Synthetic oil (only with flush diaphragm)									
Power supply U <sub>+</sub>	DC	10 ... 36 V 14 ... 36 V with 0.1 ... 10 V output 8 ... 36 V with 1 ... 5 V output									
Response time (10 ... 90 %)	ms	≤ 2									
Insulation voltage	DC	500 V									
Accuracy	% of span	≤ 0.25 (BFSL) ≤ 0.5 <sup>3)</sup>									
Non-linearity	% of span	≤ 0.2 (BFSL) per IEC 61298-2									
Non-repeatability	% of span	≤ 0.1									
Long-term stability	% of span	≤ 0.2 / year (at reference conditions)									
Reference conditions											
■ Relative humidity	%	up to 90									
Permissible temperature ranges											
■ Medium	°C	-40 ... +100									
■ Ambient	°C	-40 ... +100									
■ Storage	°C	-40 ... +100									
Compensated temperature range	°C	-20 ... +85									
Temperature coefficients in the compensated temperature range											
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (model M-11: ≤ 0.3 for 25 bar measuring range)									
■ Mean TC of span	% of span	≤ 0.2 / 10 K									
CE conformity											
■ Pressure equipment directive		97/23/EC									
■ EMC directive		2004/108/EC, EN 61326 Emission (Group 1, Class B) and Immunity (industrial locations)									
Shock resistance	g	800 in accordance with IEC 60068-2-27 (mechanical shock)									
Vibration resistance	g	20 in accordance with IEC 60068-2-6 (Vibration under resonance)									
Short-circuit resistance		S <sub>+</sub> vs. U <sub>-</sub>									
Reverse polarity protection		U <sub>+</sub> vs. U <sub>-</sub>									
Weight	kg	approx. 0.05									

1) Only for model M-10.

2) For model M-11, max. 1500 bar

3) Including non-linearity, hysteresis, zero-point and full scale deviations (corresponds to measuring deviation in accordance with IEC 61298-2). Calibrated in vertical mounting position with process connection facing downwards.

## Output signal and permissible load



### Current output (2-wire)

4 ... 20 mA:  $R_A \leq (U_+ - 10 \text{ V}) / 0.02 \text{ A}$  with  $R_A$  in Ohms and  $U_+$  in Volts

### Voltage output (3-wire)

Not for M-11 with 25 bar measuring range

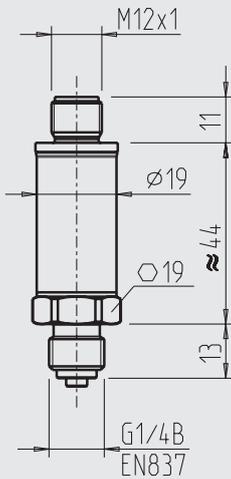
1 ... 5 V:  $R_A > 10 \text{ kOhm}$

0,1 ... 10 V:  $R_A > 20 \text{ kOhm}$

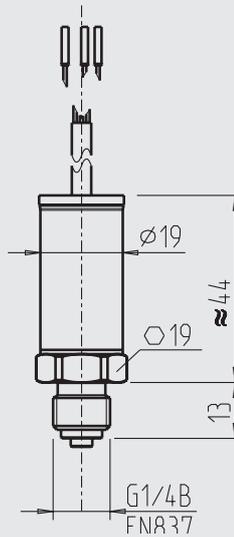
## Dimensions in mm

### Electrical connections

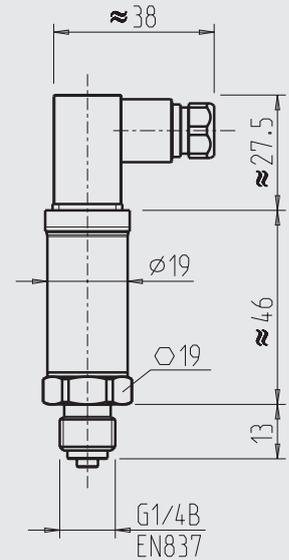
Circular connector  
M12 x 1, 4-pin



Cable outlet



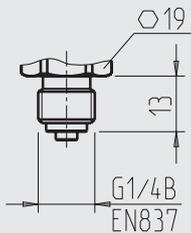
Miniature angular connector  
DIN EN 175301-803, Design C



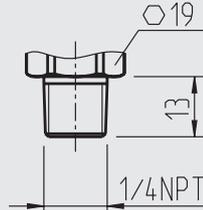
Further connections on request.

### Process connections for model M-10

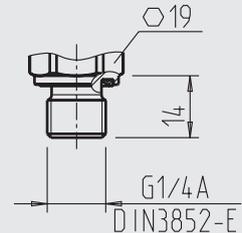
G 1/4 B  
EN 837



1/4 NPT  
ANSI/ASME B1.20.1



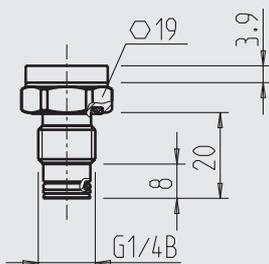
G 1/4 A  
DIN 3852-E with FPM/FKM seal  
(11.6 x 16.5 x 1.5)  
Max. overpressure safety 600 bar



Further connections on request.

### Process connection for model M-11

G 1/4 B  
0 ... 25 to 0 ... 600 bar  
with O-ring 8 x 1.5



For information on tapped holes and welding sockets, see Technical Information IN 00.14 at [www.wika.de](http://www.wika.de).

## Electrical connection

Description	Circular connector M12 x 1, 4-pin			Miniature angular connector DIN EN 175301-803, Design C			Cable outlet 2 m <sup>4)</sup>		
									
2-wire	U <sub>B</sub> = 1	U <sub>-</sub> = 3		U <sub>B</sub> = 1	U <sub>-</sub> = 2		U <sub>B</sub> = brown	U <sub>-</sub> = green	
3-wire	U <sub>B</sub> = 1	U <sub>-</sub> = 3	S <sub>+</sub> = 4	U <sub>B</sub> = 1	U <sub>-</sub> = 2	S <sub>+</sub> = 3	U <sub>B</sub> = brown	U <sub>-</sub> = green	S <sub>+</sub> = white
Wire cross-section	-			-			3 x 0.14 mm <sup>2</sup> 1)		
Cable diameter	-			1.5 ... 6 mm			4.5 ... 5.0 mm		
Ingress protection to IEC 60529	IP 65 <sup>3)</sup> for measuring range < 100 bar IP 67 for measuring range > 100 bar			IP 65 <sup>2)</sup>			IP 65 <sup>3)</sup> for measuring range < 100 bar IP 67 for measuring range up to 100 bar		
The stated ingress protection only applies when plugged-in using mating connectors that have the appropriate ingress protection.									

1) For wire cross section to a max. 0.3 mm<sup>2</sup> - approx. AWG 22 with bootlace ferrules

2) For conductor cross section to max. 0.75 mm<sup>2</sup>

3) IP 67 on request

4) Cable length 1.5 m on request

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