

# Miniature pressure transmitter Model M-10, standard version Model M-11, version with flush diaphragm

WIKA data sheet PE 81.25



for further Approvals  
see page 3

## Applications

- Machine building
- Hydraulics and pneumatics
- General industrial applications

## Special features

- Measuring ranges from 0 ... 16 to 0 ... 1,000 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 angular connector  
Fig. centre: Model M-11 with circular connector M12 x 1  
Fig. right: Model M-10 with cable outlet

## Description

### Slender

The model M-10 or M-11 pressure transmitter is one of the thinnest and smallest industrial pressure transmitters on the market. It therefore offers the ideal solution for applications where mounting space is limited.

### Robust

Despite their slender and compact design, the models M-10 and M-11 are designed for high pressure ranges up to 1,000 bar.

The thin-film measuring cell, through the optimised design of its process connection, guarantees a high measurement performance, even with dynamic loads and extreme pressure spikes.

### Precise

The models M-10 and M-11 offer an accuracy of 0.5 %. Along with an exceptional long-term stability, reliable acquisition of the measured values is ensured.

### Flush

The model M-11 pressure transmitter features a flush process connection, which sets it apart from other miniaturised pressure transmitters.

This process connection is especially suited to measurement in highly viscous, contaminated or crystallising media.

## Measuring ranges

Relative pressure						
bar	<b>Measuring range</b>	<b>0 ... 16 <sup>1)</sup></b>	<b>0 ... 25</b>	<b>0 ... 40</b>	<b>0 ... 60</b>	<b>0 ... 100</b>
	Overpressure limit	32	50	80	120	200
	<b>Measuring range</b>	<b>0 ... 160</b>	<b>0 ... 250</b>	<b>0 ... 400</b>	<b>0 ... 600</b>	<b>0 ... 1,000 <sup>1)</sup></b>
	Overpressure limit	320	500	800	1,200	1,500
psi	<b>Measuring range</b>	<b>0 ... 500</b>	<b>0 ... 1,000</b>	<b>0 ... 3,000</b>	<b>0 ... 5,000</b>	<b>0 ... 10,000</b>
	Overpressure limit	1,000	2,000	6,000	10,000	20,000
	<b>Measuring range</b>	<b>0 ... 15,000</b>				
	Overpressure limit	20,000				

1) Only for model M-10

Other measuring ranges on request

### Vacuum tightness

Yes

## Output signal

Signal type	Signal
Current (2-wire)	4 ... 20 mA
Voltage (3-wire)	DC 1 ... 5 V DC 0.1 ... 10 V

Other output signals on request

### Load in $\Omega$

4 ... 20 mA:  $\leq (\text{power supply} - 10 \text{ V}) / 0.02 \text{ A}$

DC 1 ... 5 V:  $> 10\text{k}$

DC 0.1 ... 10 V:  $> 20\text{k}$

## Voltage supply

### Power supply

The power supply depends on the selected output signal

4 ... 20 mA: DC 10 ... 36 V

DC 1 ... 5 V: DC 8 ... 36 V

DC 0.1 ... 10 V: DC 14 ... 36 V

### Total current consumption

Current output (2-wire): Signal current, max. 25 mA

Voltage output (3-wire): 8 mA

## Reference conditions (per IEC 61298-1)

### Temperature

15 ... 25 °C

### Atmospheric pressure

860 ... 1,060 mbar

### Humidity

45 ... 75 % relative

### Power supply

DC 24 V

### Nominal position

Calibrated in vertical mounting position with process connection facing downwards.

## Accuracy specifications

### Accuracy at room temperature

≤ ±0.5 % of span

Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2).

### Non-linearity (per IEC 61298-2)

≤ ±0.2 % of span BFSL

### Non-repeatability

≤ ±0.1 % of span

### Temperature error at -20 ... +80 °C

- Mean temperature coefficient of zero point  
≤ ±0.2 % of span/10 K

The following applies to model M-11 for the measuring range 0 ... 25 bar:  
≤ ±0.3 % of span/10 K

- Mean temperature coefficient of span  
≤ ±0.2 % of span/10 K

### Long-term drift

≤ ±0.2 % of span/year

## Time response

### Settling time

≤ 4 ms

### Switch-on time

≤ 15 ms

## Operating conditions

### Ingress protection (per IEC 60529)

For ingress protections see "Electrical connections"  
The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

### Vibration resistance (per IEC 60068-2-6)

20 g (under resonance)

### Shock resistance (per IEC 60068-2-27)

800 g (mechanical shock)

### Service life

10 million load cycles

### Permissible temperatures

Medium: -40 ... +100 °C

Ambient: -40 ... +100 °C <sup>1)</sup>

Storage: -40 ... +100 °C <sup>1)</sup>

<sup>1)</sup> Instruments with cable outlet are only suitable for an ambient and storage temperature of -40 ... +80 °C

## Process connections

### ■ Model M-10

Standard	Thread size
EN 837	G ¼ B
DIN 3852-E	G ¼ A <sup>1)</sup>
ANSI/ASME B1.20.1	¼ NPT

<sup>1)</sup> Maximum overpressure limit 600 bar

### ■ Model M-11

Standard	Thread size
-	G ¼ B flush <sup>1)</sup>

<sup>1)</sup> Flush process connections only possible for measuring ranges from 0 ... 25 to 0 ... 600 bar.

### Sealings

G ¼ A: FPM/FKM

G ¼ B: without sealing

¼ NPT: without sealing

G ¼ B flush: NBR <sup>1)</sup>

<sup>1)</sup> Minimum permissible medium and ambient temperature -30 °C

# Electrical connections

## Specifications

Designation	Ingress protection	Wire cross-section	Cable diameter	Cable material
<b>Circular connector M12 x 1 (4-pin)</b>	Measuring range < 100 bar: IP 65 <sup>1)</sup> Measuring range > 100 bar: IP 67	-	-	-
<b>Angular connector DIN EN 175301-803 C</b>	IP 65 <sup>2)</sup>	-	1.5 ... 6.0 mm	-
<b>Cable outlet, 2 m <sup>3) 4)</sup></b>	Measuring range < 100 bar: IP 65 <sup>1)</sup> Measuring range > 100 bar: IP 67	3 x 0.14 mm <sup>2 5)</sup>	4.5 ... 5.0 mm	PUR

1) IP 67 on request

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

3) Permissible ambient temperature -40 ... + 80 °C

4) Cable length of 1.5 m on request

5) For wire cross-section to max. 0.3 mm<sup>2</sup>, approx. AWG 22 with end splices

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

## Short-circuit resistance

S<sub>+</sub> vs. 0V


## Reverse polarity protection


U<sub>B</sub> vs. 0V

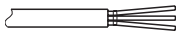
## Insulation voltage

DC 500 V

## Connection diagrams

Circular connector M12 x 1 (4-pin)			
		2-wire	3-wire
	<b>U<sub>B</sub></b>	1	1
	<b>0V</b>	3	3
	<b>S<sub>+</sub></b>	-	4

Angular connector DIN 175301-803 C			
		2-wire	3-wire
	<b>U<sub>B</sub></b>	1	1
	<b>0V</b>	2	2
	<b>S<sub>+</sub></b>	-	3

Cable outlet, 2 m			
		2-wire	3-wire
	<b>U<sub>B</sub></b>	brown	brown
	<b>0V</b>	green	green
	<b>S<sub>+</sub></b>	-	white

## Materials

### Wetted parts

Stainless steel

For sealing materials see "Process connections"

### Non-wetted parts

Stainless steel

### Internal transmission fluid (only model M-11)

Synthetic oil

## CE conformity

### EMC directive

2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application)

### Pressure equipment directive

97/23/EC

## Approvals

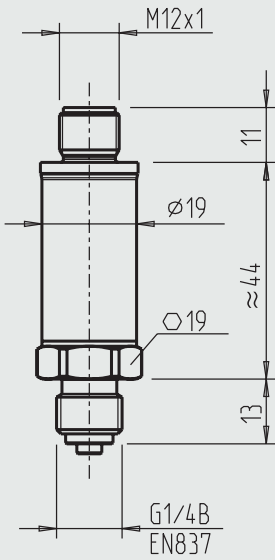
- **cCSAus**, safety (e.g. electr. safety, overpressure, ...),  
Canada, USA
- **GOST-R**, import certificate, Russia
- **CRN**, safety (e.g. electr. safety, overpressure, ...), Canada

Approvals see website

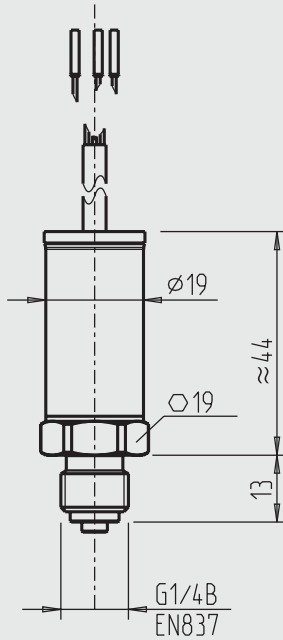
# Dimensions in mm

## Pressure transmitters

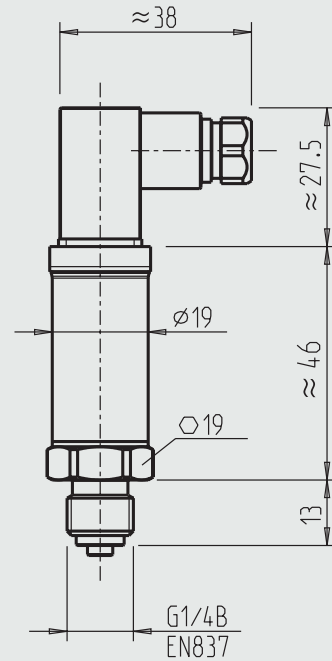
with circular connector M12 x 1



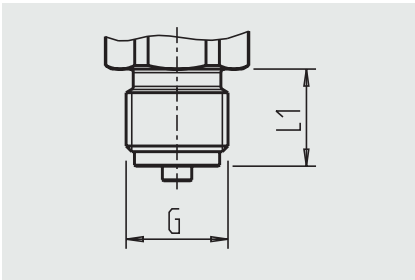
with cable outlet, cable length 2 m



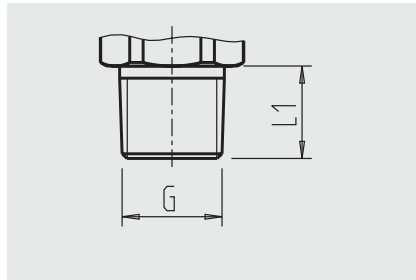
with angular connector  
DIN EN 175301-803 C



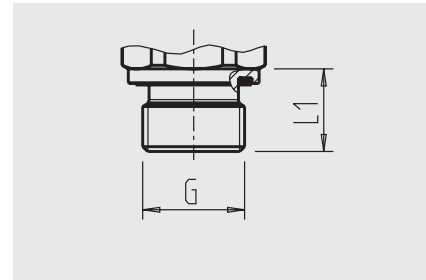
## Process connections for model M-10



G	L1
G 1/4 B EN 837	13

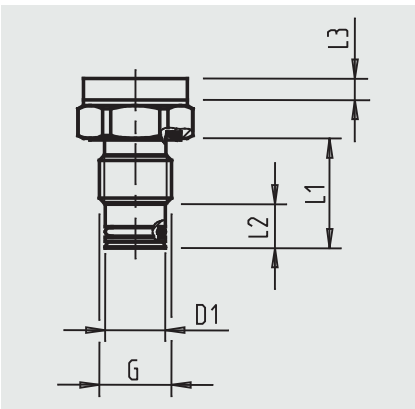


G	L1
1/4 NPT	13



G	L1
G 1/4 A DIN 3882-E	14

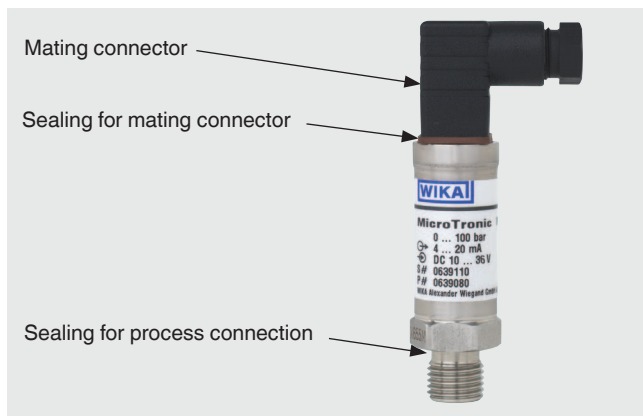
## Process connection for model M-11



G	L1	L2	L3	D1
G 1/4 B	20	8	3.9	10.9

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

## Accessories and spare parts



### Mating connector

Designation	Order number		
	without cable	with 2 m cable	with 5 m cable
<b>Angular connector DIN 175301-803 C</b>	1439081	11225823	11250194
<b>Circular connector M12 x 1, 4-pin</b>			
■ straight	2421262	11250780	11250259
■ angled	2421270	11250798	11250232

### Sealings for mating connector

Designation	Order number
<b>Angular connector DIN 175301-803 C</b>	11437881

### Sealings for process connection

Designation	Order number
<b>G ¼ B flush, O-ring</b>	0477940
<b>G ¼ B flush, form seal</b>	1537857
<b>G ¼ A DIN 3852-E</b>	1576534

Only use the accessories and spare parts listed, otherwise it could lead to the loss of the approval.

### Ordering information

Measuring range / Output signal / Process connection / Electrical connection

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