

# OEM pressure transducer

## Thin-film technology

### Model TTF-1

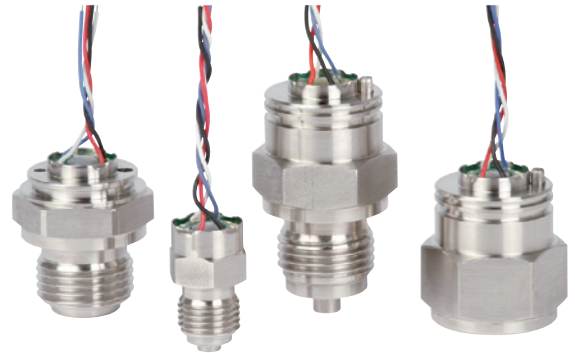
WIKA data sheet PE 81.16

#### Applications

- Applications with limited mounting space
- Hydraulic applications
- Assembly for pressure transmitters, pressure switches and digital pressure gauges

#### Special features

- Measuring ranges 0 ... 10 bar to 0 ... 1,000 bar
- Non-linearity < 0.5 % of span
- Wetted parts from stainless steel
- Medium temperature -40 ... +125 °C
- Output signal in mV/V



OEM pressure transducer model TTF-1, with various process connections

#### Description

##### Robust sensor element

The cylindrical measuring cell, as standard, is made from robust stainless steel and as a result exhibits high overpressure and burst pressure safety. For specific applications suitable materials are optionally available.

Using thin-film technology a Wheatstone measuring bridge is applied to the diaphragm of the measuring cell. Thin-film technology, compared to other technologies, enables a particularly high long-term stability, since the bonding is made at an atomic level.

The model TTF-1 pressure transducer is made up of a dry measuring cell, which is welded directly to the pressure connection. As a result, the TTF-1 has no weak points as would occur, for example, when sealing with O-rings or adhesive bonding.

##### Customer-specific designs

A large selection of standard designs is already available and is manufactured on a flexible production line. This flexibility in manufacturing enables us to offer custom designs from a minimum order quantity of 1,000 pieces.

##### Technical aspects

The measuring cell is temperature compensated between -40 ... +100 °C and offers a linear output signal.

Since the output signal is available as the pure bridge signal, the final accuracy of the customer application can be set by the customer via appropriate compensation of the zero point and span offsets.

## Measuring ranges

Relative pressure [bar]			
<b>Measuring range</b>	<b>0 ... 10</b>	<b>0 ... 16</b>	<b>0 ... 25</b>
Overpressure limit	20	32	50
Burst pressure	100	160	250
<b>Measuring range</b>	<b>0 ... 40</b>	<b>0 ... 60</b>	<b>0 ... 100</b>
Overpressure limit	80	120	200
Burst pressure	400	550	800
<b>Measuring range</b>	<b>0 ... 160</b>	<b>0 ... 250</b>	<b>0 ... 400</b>
Overpressure limit	320	500	800
Burst pressure	1,000	1,200	1,700
<b>Measuring range</b>	<b>0 ... 600</b>	<b>0 ... 1,000</b>	
Overpressure limit	1,200	1,500	
Burst pressure	2,400	3,000	

Other measuring ranges on request.

## Vacuum tightness

Yes

## Output signals

Measuring range [bar]

■ 0 ... 10	1.4 ... 2.6 mV/V
■ 0 ... 16 and 0 ... 25	1.5 ... 2.5 mV/V
■ 0 ... 40 up to 0 ... 160	1.6 ... 2.4 mV/V
■ 0 ... 250 up to 0 ... 1,000	1.7 ... 2.3 mV/V

## Voltage supply

### Power supply

DC 6 ... 10 V

## Reference conditions (per IEC 61298-1)

### Temperature

15 ... 25 °C

### Atmospheric pressure

860 ... 1,060 mbar

### Humidity

45 ... 75 % relative

### Power supply

DC 10 V

### Mounting position

Any

## Time response

### Settling time (10 ... 90 %)

< 1 ms

## Accuracy data

### Zero offset

max.  $\pm 0.5$  mV/V

### Bridge resistance

$6.5 \pm 1.3$  k $\Omega$

### Temperature error

Compensated temperature range: -40 ... +100 °C

Mean temperature coefficient

- Zero point:  $\pm 0.1$  % of span/10 K
- Span:  $\pm 0.1$  % of span/10 K

### Non-linearity, typical

Measuring range [bar]

■ 0 ... 10	+0.50 % of span
■ 0 ... 16	+0.40 % of span
■ 0 ... 25	+0.40 % of span
■ 0 ... 40	+0.35 % of span
■ 0 ... 60	+0.30 % of span
■ 0 ... 100	+0.25 % of span
■ 0 ... 160	+0.22 % of span
■ 0 ... 250	+0.20 % of span
■ 0 ... 400	+0.18 % of span
■ 0 ... 600	+0.15 % of span
■ 0 ... 1,000	+0.12 % of span

### Hysteresis

$\leq 0.1$  % of span

### Long-term stability

$\leq 0.2$  % of span/year

## Operating conditions

### Permissible temperature ranges

Medium: -40 ... +125 °C

Ambient: -40 ... +100 °C

Storage: -40 ... +100 °C

### Service life

> 100 million load cycles

## Process connections

Many different process connections are available on request. Examples are listed under "Dimensions in mm".

## Electrical connections

Available connections	Standard lengths
Wire with JST connector	32, 65, 87 mm
Wire with FCI blade terminal	120, 140 mm drilled
Wires	60, 80, 110, 170, 220, 340 mm

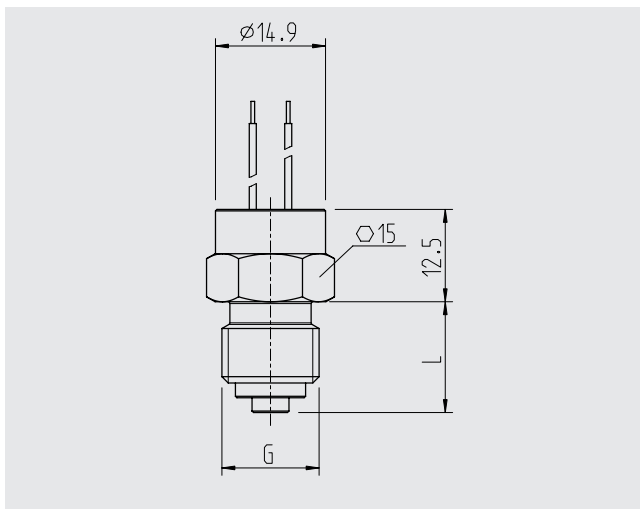
Others on request

### Pin assignment

Connection	U+	U-	S+	S-
Wires with JST connector	Pin 1 red	Pin 2 blue	Pin 3 white	Pin 4 black
Wires with FCI blade terminal	Pin 1 black	Pin 2 red	Pin 3 white	Pin 4 blue
Wires	black	white	red	blue

## Dimensions in mm

### Example designs



G	L
G ¼ B per EN 837	15
¾-24 UNF	10

## Electrical protective measures

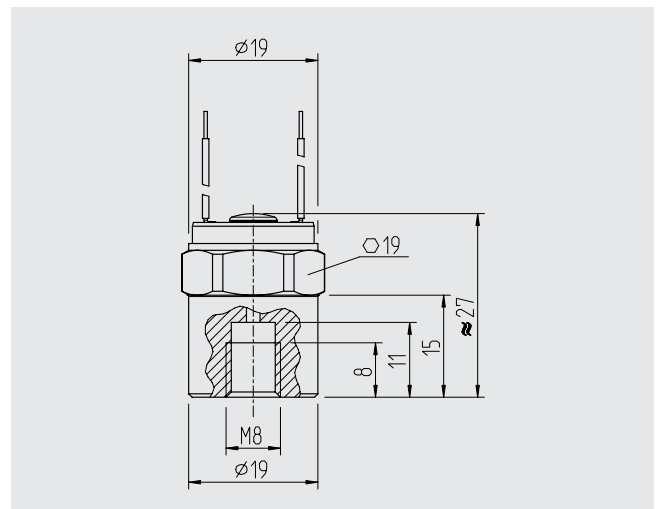
**High-voltage strength**  
AC 500 V

**Insulation resistance**  
≥ 300 MΩ

## Materials

### Wetted parts

Stainless steel, other materials on request



### Ordering information

Measuring range / Electrical connection / Process connection

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