

OEM pressure sensor For industrial applications Model O-10

WIK A data sheet PE 81.65



For further approvals,
see page 8

Applications

- Hydraulics and pneumatics
- Pumps and compressors
- Machine building

Special features

- Always the ideal solution, whether standard or customer-specific
- Long-term stability – reliable measured values over the complete life cycle
- Consistent quality and delivery performance



OEM pressure sensor, model O-10

Description

Ideal for a wide range of use

The model O-10 is a low-cost pressure sensor for OEM applications at pressure ranges from 1 ... 600 bar. Due to its compact design, high precision and robustness it can be integrated into many machine designs. A wide range of process connections, signals, electrical connections and measuring ranges allows for use in virtually any plant configuration.

Customer-specific solutions are also possible.

Standard version or customer-specific version

In its standard version, the model O-10 is available at short notice and in large quantities in up to 500,000 variants. International approvals facilitate its use worldwide. OEM customers benefit from a high degree of flexibility without additional development costs. WIK A also offers straightforward customisation if required.

Measured values, stable in the long term

The model O-10 features a fully welded, dry measuring cell, it is virtually wear-free and can be used without requiring maintenance for many years. The dry measuring cell provides stable and precise measured values over the entire life cycle.

Sensor for large-volume projects

For large-volume projects, WIK A offers high delivery reliability, consistent quality and many years' experience as a high-volume supplier. State-of-the-art production lines ensure the availability of the model O-10, even in large quantities. Private-labelling solutions can also be implemented without any problems.

Specifications

Accuracy specifications	
Non-linearity per BFSL per IEC 61298-2	$\leq \pm 0.5\%$ of span ¹⁾
Accuracy	→ See "Max. measured error per IEC 61298-2"
Max. measured error per IEC 61298-2	$\leq \pm 1.2\%$ of span
Zero point error	$\leq \pm 0.5\%$ of span ²⁾
Temperature error at 0 ... 80 °C [32 ... 176 °F]	$\leq \pm 1.5\%$ of span
Long-term stability per DIN 16086	$\leq \pm 0.3\%$ of span/year
Reference conditions	Per IEC 61298-1

1) A different non-linearity applies to some measuring ranges, see "Measuring ranges".

2) A different zero point error applies to some measuring ranges, see "Measuring ranges".

Measuring ranges, gauge pressure

bar	
0 ... 1	0 ... 40
0 ... 1.6	0 ... 60
0 ... 2.5	0 ... 100
0 ... 4	0 ... 160
0 ... 6 ^{1) 2)}	0 ... 250
0 ... 10 ^{1) 2)}	0 ... 400
0 ... 16	0 ... 600
0 ... 25	-

1) Zero point error $\leq \pm 0.7\%$ of span

2) Non-linearity $\leq \pm 0.6\%$ of span BFSL

psi	
0 ... 15	0 ... 750
0 ... 25	0 ... 800
0 ... 40	0 ... 1,000
0 ... 60	0 ... 1,500
0 ... 100 ^{1) 2)}	0 ... 2,000
0 ... 160	0 ... 3,000
0 ... 200	0 ... 4,000
0 ... 250	0 ... 5,000
0 ... 300	0 ... 6,000
0 ... 400	0 ... 7,500
0 ... 500	0 ... 8,000
0 ... 600	-

1) Zero point error $\leq \pm 0.7\%$ of span

2) Non-linearity $\leq \pm 0.6\%$ of span BFSL

→ Other measuring ranges on request.

Vacuum and compound measuring range

bar	
-1 ... 0	-1 ... +9 ¹⁾
-1 ... +0.6	-1 ... +15
-1 ... +1.5	-1 ... +24
-1 ... +3	-1 ... +39
-1 ... +5 ¹⁾	-1 ... +59

1) Non-linearity $\leq \pm 0.6\%$ of span BFSL

psi	
-30 inHg ... 0	-30 inHg ... +100 ¹⁾
-30 inHg ... +10	-30 inHg ... +160
-30 inHg ... +15	-30 inHg ... +200
-30 inHg ... +25	-30 inHg ... +300
-30 inHg ... +40	-30 inHg ... +500
-30 inHg ... +60	-

1) Non-linearity $\leq \pm 0.6\%$ of span BFSL

Further details on: measuring range	
Units	■ bar ■ psi ■ kPa ■ MPa ■ kg/cm²
Maximum working pressure	→ Corresponds to the upper measuring range value / end value of the measuring range → Any permanent operation above the maximum working pressure is not permissible
Overpressure limit	The overpressure limit is based on the measuring range. Depending on the selected process connection and the seal, restrictions in overpressure limit can result. 2 times → 3 times the overpressure limit on request
Vacuum resistance	Yes

Process connection				
Standard	Thread size	Max. measuring range	Overpressure limit	Seal
EN 837	G ½ B	400 bar [5,000 psi]	572 bar [8,290 psi]	-
	G ¼ B	600 bar [8,000 psi]	1,200 bar [17,400 psi]	
	G ¼ female thread	600 bar [8,000 psi]	1,200 bar [17,400 psi]	
	G ¾ B	600 bar [8,000 psi]	1,200 bar [17,400 psi]	
DIN EN ISO 1179-2	G ¼ A	600 bar [8,000 psi]	858 bar [12,440 psi]	■ NBR ¹⁾ ■ FPM/FKM ²⁾
DIN EN ISO 9974-2	M14 x 1.5	600 bar [8,000 psi]	858 bar [12,440 psi]	
ANSI/ASME B1.20.1	½ NPT	400 bar [5,000 psi]	572 bar [8,290 psi]	-
	¼ NPT	600 bar [8,000 psi]	1,200 bar [17,400 psi]	
	¼ NPT female thread	600 bar [8,000 psi]	1,200 bar [17,400 psi]	
SAE J514 (compatible with SAE J1926 tapped holes)	7/16-20 UNF-2A, O-ring Boss	600 bar [8,000 psi]	858 bar [12,440 psi]	FPM/FKM ²⁾
	9/16-18 UNF-2A, O-ring Boss	600 bar [8,000 psi]	858 bar [12,440 psi]	

1) Minimum permissible medium and ambient temperature range -30 °C [-22 °F]

2) Minimum permissible medium and ambient temperature range -15 °C [5 °F]

→ For further information on process connections, see technical information IN 00.14.

Details must be tested separately in the respective application. The specified values for the overpressure limit serve only as a rough orientation. The values depend on the temperature, the seal used, the selected torque, the type and the material of the mating thread and the prevailing operating conditions.

Further details on: process connection	
Max. measuring range	→ See table "Process connection"
Overpressure limit	→ See table "Process connection"
Seal	→ See table "Process connection"
Pressure port diameter	3.5 mm

Output signal		
Signal type		
Current (2-wire)	4 ... 20 mA	
Voltage (3-wire)	DC 0.5 ... 4.5 V DC 0 ... 5 V DC 1 ... 5 V DC 0 ... 10 V	
Ratiometric (3-wire)	DC 0.5 ... 4.5 V	
Load in Ω		
Current (2-wire)	≤ (Auxiliary power - 8 V) / 0.02 A	
Voltage (3-wire)	> Maximum output signal / 1 mA	
Ratiometric (3-wire)	> 4.5 kΩ	
Voltage supply ¹⁾		
Auxiliary power	Output signal 4 ... 20 mA	DC 8 ... 30 V
	Output signal DC 0.5 ... 4.5 V	DC 8 ... 30 V
	Output signal DC 0 ... 5 V	DC 8 ... 30 V
	Output signal DC 1 ... 5 V	DC 8 ... 30 V
	Output signal DC 0 ... 10 V	DC 14 ... 30 V
	Output signal DC 0.5 ... 4.5 V (ratiometric)	DC 5 V ± 10 %
Current supply	Current (2-wire)	Corresponds to the value of the output signal current (4 ... 20 mA), maximum 25 mA
	Voltage (3-wire)	5 mA
Overvoltage resistance	DC 36 V	
Dynamic behaviour		
Settling time per IEC 61298-2	< 2 ms	

1) The supply for the pressure sensor must be made via a limited-energy circuit in accordance with section 9.4 of UL/IEC/EN 61010-1 or an LPS per UL/IEC/EN 60950-1 or class 2 in accordance with UL1310/UL1585 (NEC or CEC). The power supply must be suitable for operation above 2,000 m should the pressure sensor be used at this altitude.

→ Other output signals on request.

Electrical connection					
Connection type	Ingress protection (IP code) ¹⁾	Wire cross-section	Cable diameter	Cable lengths	Cable material
Angular connector DIN EN 175301-803 A ²⁾	IP65	-	-	-	-
Angular connector DIN EN 175301-803 C ²⁾	IP65	-	-	-	-
Circular connector M12 x 1 (4-pin) ²⁾	IP67	-	-	-	-
Delphi connector Metri-Pack series 150 (3-pin) ³⁾	IP67	-	-	-	-
Cable outlet					
Unshielded ⁴⁾	IP67	0.14 mm ²	3.4 mm	■ 0.5 m ■ 1 m ■ 2 m ■ 5 m	PVC
Shielded	IP67	0.14 mm ²	4.3 mm	■ 0.5 m ■ 1 m ■ 2 m ■ 5 m	PVC

1) The stated IP codes (per IEC 60529) only apply when plugged in using mating connectors that have the appropriate IP code.

2) Mating connectors are available as accessories, see "Accessories".

3) Only possible from measuring range 0 ... 60 bar.

4) Up to max. 80 °C [176 °F] permissible.

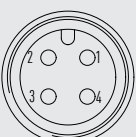
Further details on: electrical connection	
Short-circuit resistance	S+ vs. U-
Reverse polarity protection	U+ vs. U-
Insulation voltage	DC 750 V

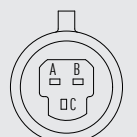
→ Other electrical connections on request.

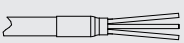
Pin assignment

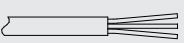
Angular connector DIN EN 175301-803 A			
		2-wire	3-wire
	U+	1	1
	U-	2	2
	S+	-	3

Angular connector DIN EN 175301-803 C			
		2-wire	3-wire
	U+	1	1
	U-	2	2
	S+	-	3

Circular connector M12 x 1			
		2-wire	3-wire
	U+	1	1
	U-	3	3
	S+	-	4

Delphi connector Metri-Pack series 150, 3-pin			
		2-wire	3-wire
	U+	B	B
	U-	A	A
	S+	-	C

Cable outlet, shielded			
		2-wire	3-wire
	U+	Brown (BN)	Brown (BN)
	U-	Blue (BU)	Blue (BU)
	S+	-	Black (BK)

Cable outlet, unshielded			
		2-wire	3-wire
	U+	Brown (BN)	Brown (BN)
	U-	Green (GN)	Green (GN)
	S+	-	White (WH)

→ Version with connected shield on request

Legend

- U+ Positive power supply terminal
- U- Negative power supply terminal
- S+ Analogue output

Material	
Material (wetted)	Stainless steel 316L and 13-8 PH
	→ Sealing materials, see "Process connection"
Material (in contact with the environment)	Stainless steel 316L and PBT GF 30
	→ Cable material, see "Electrical connection"
Oil- and grease-free	
Residual hydrocarbon	< 1,000 mg/m ²

Operating conditions	
Medium temperature limit	-30 ... +100 °C [-22 ... +212 °F]
Ambient temperature limit	-30 ... +100 °C [-22 ... +212 °F]
Storage temperature limit	-30 ... +100 °C [-22 ... +212 °F]
Humidity	0 ... 85 % relative humidity
Condensation	Non-condensing
Operating altitude	≤ 2,000 m [≤ 6,561 ft] above sea level
Pollution degree	2
Overvoltage category	I
Vibration resistance per IEC 60068-2-6	20g (20 ... 2,000 Hz, 120 min)
Shock resistance per IEC 60068-2-27	40g (6 ms), mechanical shock
Free fall per IEC 60068-2-31	1 m
Service life	10 million load cycles

→ Other temperature ranges on request.

Packaging and instrument labelling	
Packaging	Multiple packaging (up to 50 pieces possible)
Instrument labelling	■ WIKA product label, lasered ■ Customised product label on request

Approvals

Logo	Description	Country
	EU declaration of conformity	European Union
	EMC Directive	
	EN 61326 emission (group 1, class B) and immunity (industrial application)	
	Pressure Equipment Directive	
	RoHS directive	
	EAC	Eurasian Economic Community
	EMC Directive	

Optional approvals

Logo	Description	Country
	UL Safety (e.g. electr. safety, overpressure, ...)	USA and Canada
	KazInMetr Metrology, measurement technology	Kazakhstan
	UkrSEPRO Metrology, measurement technology	Ukraine
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

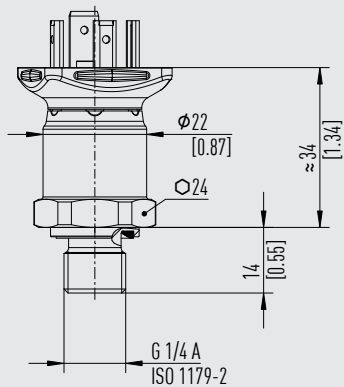
Manufacturer's declaration

Logo	Description
-	MTTF: > 100 years
-	China RoHS directive

→ For approvals and certificates, see website

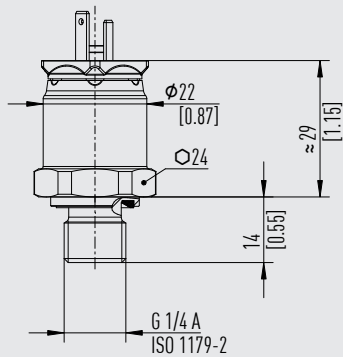
Dimensions in mm [in]

Angular connector
DIN EN 175301-803 A



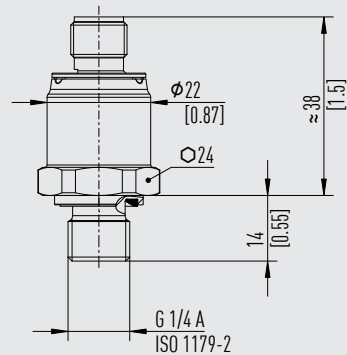
Weight: approx. 80 g [0.176 lb]

Angular connector
DIN EN 175301-803 C



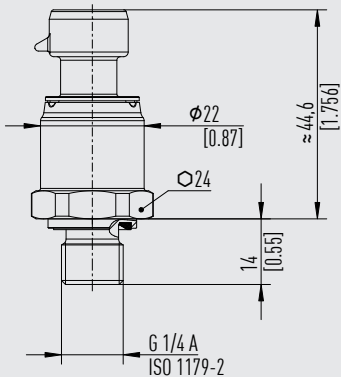
Weight: approx. 80 g [0.176 lb]

Circular connector M12 x 1



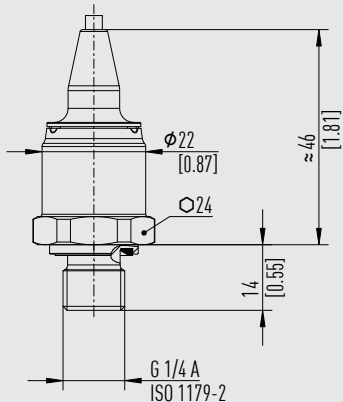
Weight: approx. 80 g [0.176 lb]

Delphi connector Metri-Pack
series 150



Weight: approx. 80 g [0.176 lb]

Cable outlet



Weight: approx. 80 g [0.176 lb]

Accessories

Description	Version	Order number
Mating connector		
Angular connector DIN EN 175301-803 A	Gland PG9	11427567
	With 2 m cable	11225793
	With 5 m cable	11250186
	Conduit ½ NPT	11022485
Angular connector DIN EN 175301-803 C	Gland PG7	1439081
Circular connector M12 x 1, 4-pin, straight	Without cable	2421262
	With 2 m cable	11250780
	With 5 m cable	11250259
Circular connector M12 x 1, 4-pin, angled	Without cable	2421270
	With 2 m cable	11250798
	With 5 m cable	11250232
Seals for mating connectors, blue (WIKA)		
Angular connector DIN EN 175301-803 A	-	1576240
Angular connector DIN EN 175301-803 C	-	11169479

→ Only use the accessories listed above, otherwise it could lead to the loss of the approval.

Ordering information

Model / Measuring range / Design / Process connection / Seal / Output signal / Electrical connection / Approval

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