

Pressure transmitter for general industrial applications

Model A-10

WIKA data sheet PE 81.60



Applications

- Machine building
- Machine tools
- Measurement and control technology
- Hydraulics and pneumatics
- Pumps and compressors

Special features

- Measuring ranges from 0 ... 1 to 0 ... 600 bar
- Non-linearity 0.25 % or 0.5 %
- Output 4 ... 20 mA, DC 0 ... 10 V, DC 0 ... 5 V and others
- Electrical connection: Angular connector form A and C, circular connector M12 x 1, cable outlet 2 m
- Process connection G 1/4 A DIN 3852-E, 1/4 NPT and others



Pressure transmitter model A-10

Description

The model A-10 pressure transmitter for general industrial applications is not only notable for its compact design, but it also offers excellent quality at an extremely competitive price.

The user can choose between a non-linearity of 0.25 % and 0.5 %. A free test certificate provides information on the measuring points recorded during manufacture.

The model A-10 is set up for worldwide use through the international cULus and GOST certification. The various pressure units and process connections required for particular operating conditions are available at short notice.

Measuring ranges

Relative pressure									
bar	Measuring range	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10 ¹⁾	0 ... 16 ¹⁾	0 ... 25 ¹⁾
	Overpressure limit	2	3.2	5	8	12	20	32	50
	Measuring range	0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600	
	Overpressure limit	80	120	200	320	500	800	1,200	
psi	Measuring range	0 ... 15	0 ... 25	0 ... 30	0 ... 50	0 ... 100	0 ... 160 ¹⁾	0 ... 200 ¹⁾	0 ... 300 ¹⁾
	Overpressure limit	30	60	60	100	200	290	400	600
	Measuring range	0 ... 500	0 ... 1,000	0 ... 1,500	0 ... 2,000	0 ... 3,000	0 ... 5,000	0 ... 10,000	
	Overpressure limit	1,000	1,740	2,900	4,000	6,000	10,000	17,400	

Absolute pressure									
bar	Measuring range	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25
	Overpressure limit	2	3.2	5	8	12	20	32	50
psi	Measuring range	0 ... 15	0 ... 25	0 ... 30	0 ... 50	0 ... 100	0 ... 150	0 ... 200	0 ... 300
	Overpressure limit	30	60	60	100	200	290	400	600

Vacuum and +/- measuring range									
bar	Measuring range	-1 ... 0	-1 ... +0.6	-1 ... +1.5	-1 ... +3	-1 ... +5			
	Overpressure limit	2	3.2	5	8	12			
	Measuring range	-1 ... +9	-1 ... +15	-1 ... +24					
	Overpressure limit	20	32	50					
psi	Measuring range	-30 inHG ... 0	-30 inHG ... +15	-30 inHG ... +30	-30 inHG ... +60	-30 inHG ... +100			
	Overpressure limit	30	60	60	150	250			
	Measuring range	-30 inHG ... +160	-30 inHG ... +200	-30 inHG ... +300					
	Overpressure limit	350	450	600					

1) If the medium water is measured, a higher overpressure limit is recommended.

The given measuring ranges are also available in kg/cm², MPa and kPa.
Other measuring ranges available on request

Vacuum resistance

Yes

Output signal

Signal type	Signal
Current (2-wire)	4 ... 20 mA
Voltage (3-wire)	DC 0 ... 10 V
	DC 0 ... 5 V
	DC 1 ... 5 V
	DC 0.5 ... 4.5 V
Ratiometric (3-wire)	DC 0.5 ... 4.5 V

Other output signals available on request

Depending on the signal type the following loads apply:

Signal type	Load in Ω
Current (2-wire)	≤ (power supply - 8 V) / 0.02 A
Voltage (3-wire)	> maximum output signal / 1 mA
Ratiometric (3-wire)	> 4.5k

Voltage supply

Power supply

Output signal	Power supply	
	Standard	Option
4 ... 20 mA	DC 8 ... 30 V	DC 8 ... 35 V ¹⁾
DC 0 ... 10 V	DC 14 ... 30 V	DC 14 ... 35 V
DC 0 ... 5 V	DC 8 ... 30 V	DC 8 ... 35 V
DC 1 ... 5 V	DC 8 ... 30 V	DC 8 ... 35 V
DC 0.5 ... 4.5 V	DC 8 ... 30 V	DC 8 ... 35 V
DC 0.5 ... 4.5 V ratiometric	DC 5 V ± 10 %	-

1) Not possible with non-linearity 0.25 % BFSL

The power supply for the pressure transmitter must be made via an energy-limited electrical circuit in accordance with section 9.3 of UL/EN/IEC 61010-1, or an LPS to UL/EN/IEC 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 transmitter be used at this altitude.

Total current consumption

Signal type	Total current consumption
Current (2-wire)	Signal current, max. 25 mA
Voltage (3-wire)	8 mA
Ratiometric (3-wire)	8 mA

Accuracy

Optionally the model A-10 is available with an improved non-linearity. Depending on the selected non-linearity the following values result:

	Standard	Option
Non-linearity per BFSL (IEC 61298-2)	≤ ±0.5 % of span	≤ ±0.25 % of span
Measuring deviation of the zero signal	Typical: ≤ ±0.5% of span Maximum: ≤ ±0.8 % of span	Typical: ≤ ±0.15% of span Maximum: ≤ ±0.4 % of span
Accuracy at room temperature ¹⁾	≤ ±1 % of span	≤ ±0.5 % of span ≤ ±0.6 % of span (at DC 0 ... 5 V)

1) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2), calibrated in vertical mounting position with process connection facing downwards

Non-repeatability

≤ 0.1 % of span

Signal noise

≤ ±0.3 % of span

Temperature error at 0 ... 80 °C

- Typical: 1 % of span
- Maximum: 2.5 % of span

Long-term drift

≤ ±0.1 % of span

Time response

Settling time

< 4 ms

Switch-on time

< 15 ms

Operating conditions

Ingress protection (per IEC 60529)

see table "Specifications"

Vibration resistance

- 10 g (IEC 60068-2-6, under resonance)
- 20 g available on request

Shock resistance

500 g (IEC 60068-2-27, mechanical)

Service life

10 million load cycles

Temperatures

Permissible temperature ranges		
	Standard	Option
Ambient	0 ... +80 °C	-30 ... +100 °C
Medium	0 ... +80 °C	-30 ... +100 °C
Storage	-20 ... +80 °C	-30 ... +100 °C

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

Mounting position

as required

Process connections

Standard	Thread size
EN 837	G 1/8 B ¹⁾ G 1/4 B G 1/4 female G 3/8 B G 1/2 B
DIN 3852-E ²⁾	G 1/4 A G 1/2 A M14 x 1.5
ANSI/ASME B1.20.1	1/8 NPT ¹⁾ 1/4 NPT 1/4 NPT female 1/2 NPT
DIN 16288	M20 x 1.5
ISO 7	R 1/4 R 3/8 R 1/2
KS	PT 1/4 PT 1/2 PT 3/8
SAE ^{2) 3)}	7/16-20 UNF O-ring BOSS 9/16-18 UNF O-ring BOSS

1) Maximum measuring range 400 bar

2) Maximum overpressure limit of 600 bar

3) Maximum permissible temperature -10 ... +100 °C

All process connections are available, as standard, with an entry bore of diameter 3.5 mm.

Optional diameters for:

- G 1/4 A DIN 3852-E: Ø 6 mm, Ø 0.6 mm, Ø 0.3 mm
- 1/4 NPT: Ø 6 mm, Ø 0.6 mm, Ø 0.3 mm

Sealings

For the process connections of the following standards the listed sealing materials are available.

Standard	Standard	Option
EN 837	Copper	Stainless steel
DIN 3852-E	NBR	FKM
SAE	FKM	-

The sealings listed under "Standard" are included in the delivery.

Electrical connections

Specifications

Designation	Ingress protection	Wire cross-section	Cable diameter	Cable material
Angular connector DIN 175301-803 A				
■ with mating connector	IP 65	up to max. 1.5 mm ²	6 ... 8 mm	-
■ with solid laid cable	IP 65	3 x 0.75 mm ²	6 mm	PUR
Angular connector DIN 175301-803 C				
■ with mating connector	IP 65	up to max. 0.75 mm ²	4.5 ... 6 mm	-
■ with solid laid cable	IP 65	4 x 0.75 mm ²	5.9 mm	PUR
Circular connector M12 x 1 (4-pin)				
■ without mating connector	IP 67	-	-	-
■ straight with solid laid cable	IP 67	3 x 0.34 mm ²	4.4 mm	PUR
■ angled with solid laid cable	IP 67	3 x 0.34 mm ²	4.4 mm	PUR
Cable outlet				
■ unshielded	IP 67	3 x 0.34 mm ²	4 mm	PUR
■ OEM version, unshielded	IP 67	3 x 0.14 mm ²	2.85 mm	TPU

The stated ingress protection (per IEC 60529) only applies when plugged in using mating connectors that have the appropriate ingress protection.

Mating connectors (with and without cable) are also separately available as accessories.
Cable lengths of 2 m or 5 m are available

Short-circuit resistance

S₊ vs. 0V

Reverse polarity protection

U_B vs. 0V

Insulation voltage

DC 500 V

Connection diagrams

All connectors with solid laid cable have the same colour assignment as the unshielded cable outlet.

Angular connector DIN 175301-803 A			
	2-wire	3-wire	
	U _B	1	1
	0V	2	2
	S ₊	-	3

Cable outlet, unshielded			
	2-wire	3-wire	
	U _B	brown	brown
	0V	blue	blue
	S ₊	-	black

Angular connector DIN 175301-803 C			
	2-wire	3-wire	
	U _B	1	1
	0V	2	2
	S ₊	-	3

Cable outlet, OEM version, unshielded			
	2-wire	3-wire	
	U _B	brown	brown
	0V	blue	blue
	S ₊	-	black

Circular connector M12 x 1 (4-pin)			
	2-wire	3-wire	
	U _B	1	1
	0V	3	3
	S ₊	-	4

U _B	Positive power supply terminal
0V	Ground
S ₊	Analogue output

Materials

Wetted parts

< 10 bar: Stainless steel 316L

≥ 10 bar: Stainless steel 316L and 13-8 PH

Non-wetted parts

■ Stainless steel 316L

■ HNBR

■ PA66

For sealing materials see "Process connections"

For materials for electrical connections see "Electrical connections"

Pressure transmission medium

< 0 ... 10 bar relative: Synthetic oil

≤ 0 ... 25 bar absolute: Synthetic oil

≥ 0 ... 10 bar relative: Dry measuring cell

Approvals, directives and certificates

Approvals

■ cULus

■ GOST

CE conformity

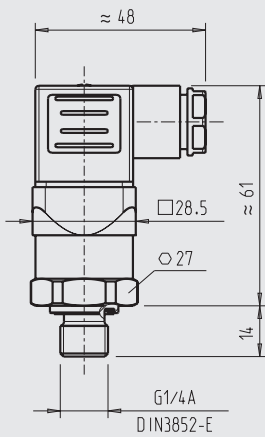
■ EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (industrial application)

■ Pressure equipment directive 97/23/EC

Dimensions in mm

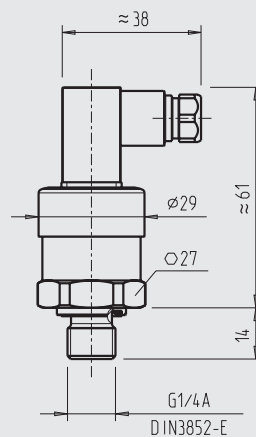
Pressure transmitters

with angular connector form A



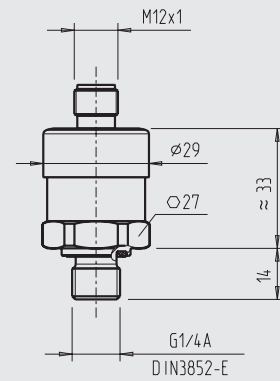
Weight: approx. 80 g

with angular connector form C



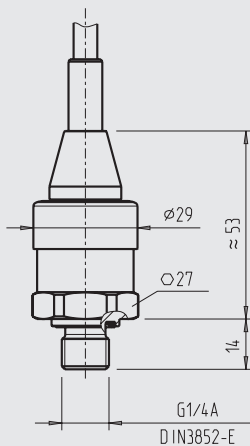
Weight: approx. 80 g

with circular connector M12 x 1



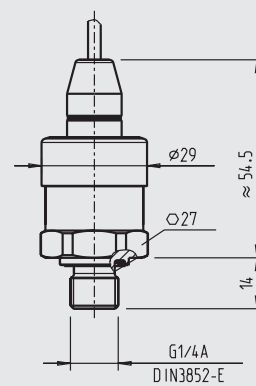
Weight: approx. 80 g

with standard cable outlet,
unshielded



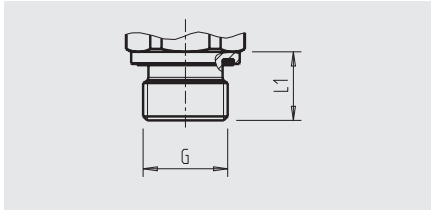
Weight: approx. 80 g

with cable outlet
OEM version, unshielded

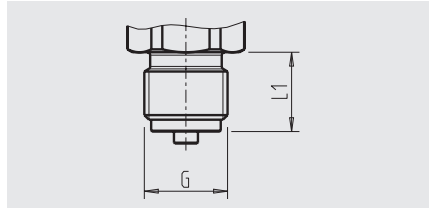


Weight: approx. 80 g

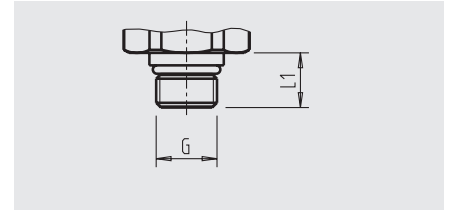
Process connections



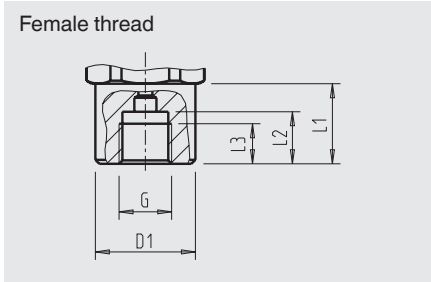
G	L1
G ¼ A DIN 3852-E	14
G ½ A DIN 3852-E	17
M14 x 1.5	14



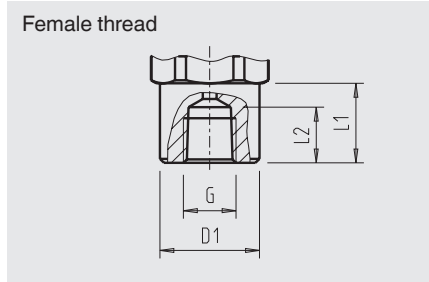
G	L1
G ¼ B EN 837	13
G ⅜ B EN 837	16
G ½ B EN 837	20
M20 x 1.5	20



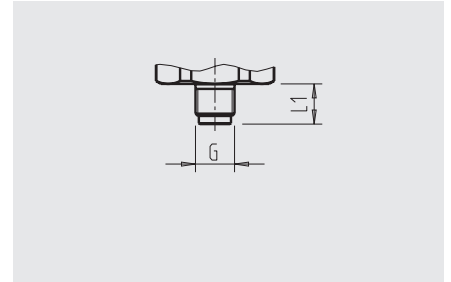
G	L1
9/16-18 UNF BOSS	12.06
7/16-20 UNF BOSS	12.85



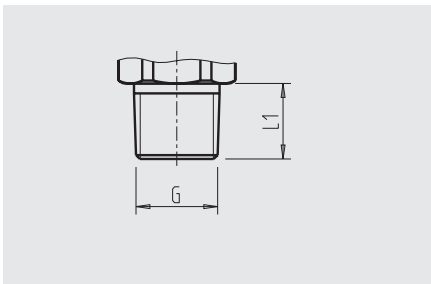
G	L1	L2	L3	D1
G ¼ EN 837	20	13	10	Ø 25



G	L1	L2	D1
¼ NPT	20	14	Ø 25



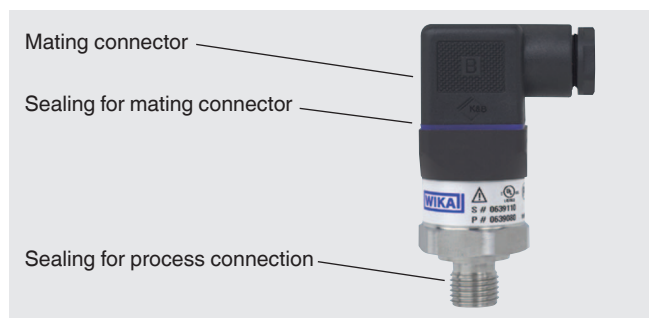
G	L1
G ⅜ B EN 837	10



G	L1
⅛ NPT	10
¼ NPT	13
½ NPT	19
R ¼	13
R ⅜	15
R ½	19
PT ¼	13
PT ⅜	15
PT ½	19

For information on tapped holes and welding sockets, see Technical Information IN 00.14 at www.wika.com

Accessories and spare parts



Mating connector

Designation	Order number		
	without cable	with 2 m cable	with 5 m cable
Angular connector DIN 175301-803 C	1439081	11225823	11250194
Angular connector DIN 175301-803 A			
■ with cable gland, metric	11427567	11225793	11250186
■ with cable gland, conduit	11022485	-	-
Circular connector M12 x 1, 4-pin			
■ straight	2421262	11250780	11250259
■ angled	2421270	11250798	11250232

Sealings for mating connectors

Designation	Order number
Angular connector DIN 175301-803 A	1576240
Angular connector DIN 175301-803 C	11169479

Sealings for process connection

Designation	Order number			
	Cu	Stainless steel	NBR	FKM
G ¼ EN 837	11250810	11250844	-	-
M14 x 1.5	11250810	11250844	-	-
G ½ EN 837	11250861	11251042	-	-
M20 x 1.5	11250861	11251042	-	-
G ⅜ EN 837	11251051	-	-	-
G ¼ DIN 3852-E	-	-	1537857	1576534
G ½ DIN 3852-E	-	-	1039067	1039075

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

Ordering information

Model / Measuring range / Output signal / Power supply / Non-linearity / Temperature range / Process connection / Sealing / Electrical connection

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