

# Pressure transmitter

## For general industrial applications

### Model A-10

WIKA data sheet PE 81.60



#### Applications

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

#### Special features

- Measuring ranges from 0 ... 15 to 0 ... 10,000 psi (0 ... 0.6 to 0 ... 1,000 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 not only has a compact design, but it also offers excellent quality at an extremely competitive price.

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

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

## Measuring ranges

Relative pressure									
bar	<b>Measuring range</b>	0 ... 0.6	0 ... 1	0 ... 1.6	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10 <sup>1)</sup>	0 ... 16 <sup>1)</sup>
	Overpressure limit	1.2	2	3.2	5	8	12	20	32
	<b>Measuring range</b>	0 ... 25 <sup>1)</sup>	0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600
	Overpressure limit	50	80	120	200	320	500	800	1,200
	<b>Measuring range</b>	0 ... 1,000							
	Overpressure limit	1,500							
psi	<b>Measuring range</b>	0 ... 15	0 ... 25	0 ... 30	0 ... 50	0 ... 100	0 ... 160 <sup>1)</sup>	0 ... 200 <sup>1)</sup>	0 ... 300 <sup>1)</sup>
	Overpressure limit	30	60	60	100	200	290	400	600
	<b>Measuring range</b>	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	<b>Measuring range</b>	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	<b>Measuring range</b>	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	<b>Measuring range</b>	-1 ... 0		-1 ... +0.6		-1 ... +1.5		-1 ... +3		-1 ... +5
	Overpressure limit	2		3.2		5		8		12
	<b>Measuring range</b>	-1 ... +9		-1 ... +15		-1 ... +24				
	Overpressure limit	20		32		50				
psi	<b>Measuring range</b>	-30 inHg ... 0		-30 inHg ... +15		-30 inHg ... +30		-30 inHg ... +60		-30 inHg ... +100
	Overpressure limit	30		60		60		150		250
	<b>Measuring range</b>	-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/cm<sup>2</sup>, 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:

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 <sup>2)</sup>
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 $\pm$ 10 %	-

2) 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

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)	$\leq \pm 0.5$ % of span	$\leq \pm 0.25$ % of span
Measuring deviation of the zero signal	Typical: $\leq \pm 0.5$ % of span Maximum: $\leq \pm 0.8$ % of span	Typical: $\leq \pm 0.15$ % of span Maximum: $\leq \pm 0.4$ % of span
Accuracy at room temperature <sup>3)</sup>	$\leq \pm 1$ % of span	$\leq \pm 0.5$ % of span $\leq \pm 0.6$ % of span (at DC 0 ... 5 V)

3) 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

$\leq 0.1$  % of span

### Signal noise

$\leq \pm 0.3$  % of span

### Temperature error at 32 ... 176 °F (0 ... 80 °C)

■ Typical: 1 % of span

■ Maximum: 2.5 % of span

### Long-term drift

$\leq \pm 0.1$  % of span

## Time response

### Settling time

< 4 ms

### Switch-on time

< 15 ms

## Reference conditions (per IEC 61298-1)

### Temperature

59 ... 77 °F (15 ... 25 °C)

### Atmospheric pressure

12.5 ... 15.4 psi (860 ... 1,060 mbar)

### Humidity

45 ... 75 % relative

### Power supply

DC 24 V

### Mounting position

as required

## Operating conditions

### Ingress protection (per IEC 60529)

see table "Specifications"

### Vibration resistance

10 g (per IEC 60068-2-6, under resonance) <sup>4)</sup>

20 g on request <sup>5)</sup>

<sup>4)</sup> With approval GL and measuring range 0 ... 25 psi only possible with accuracy 1 %

<sup>5)</sup> With approval GL only possible with measuring ranges > 0 ... 40 psi

### Shock resistance

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

### Service life

10 million load cycles

### Temperatures

Permissible temperature ranges		
	Standard	Option
Ambient	32 ... 176 °F (0 ... +80 °C)	-22 ... 212 °F (-30 ... +100 °C)
Medium	32 ... 176 °F (0 ... +80 °C)	-22 ... 212 °F (-30 ... +100 °C)
Storage	-4 ... 176 °F (-20 ... +80 °C)	-22 ... 212 °F (-30 ... +100 °C)

## Process connections

Standard	Thread size
EN 837	G 1/8 B <sup>6)</sup>
	G 1/4 B
	G 1/4 female
	G 1/4 female, with flange connection <sup>7)</sup>
	G 3/8 B
	G 1/2 B
DIN 3852-E <sup>8)</sup>	G 1/4 A
	G 1/2 A
	M14 x 1.5
ANSI/ASME B1.20.1	1/8 NPT <sup>6)</sup>
	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 <sup>8) 9)</sup>	7/16-20 UNF O-ring BOSS

<sup>6)</sup> Maximum measuring range 5,802 psi (400 bar)

<sup>7)</sup> Maximum measuring range 1,450 psi (100 bar)

<sup>8)</sup> Maximum overpressure limit of 8,702 psi (600 bar)

<sup>9)</sup> Maximum permissible temperature 14 ... 212 °F (-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
<b>Angular connector DIN 175301-803 A</b>				
■ with mating connector	IP 65	up to max. 1.5 mm <sup>2</sup>	6 ... 8 mm	-
■ with solid laid cable	IP 65	3 x 0.75 mm <sup>2</sup>	6 mm	PUR
<b>Angular connector DIN 175301-803 C</b>				
■ with mating connector	IP 65	up to max. 0.75 mm <sup>2</sup>	4.5 ... 6 mm	-
■ with solid laid cable	IP 65	4 x 0.5 mm <sup>2</sup>	6.2 mm	PUR
<b>Circular connector M12 x 1 (4-pin)</b>				
■ without mating connector	IP 67	-	-	-
■ straight with solid laid cable	IP 67	3 x 0.34 mm <sup>2</sup>	4.3 mm	PUR
■ angled with solid laid cable	IP 67	3 x 0.34 mm <sup>2</sup>	4.3 mm	PUR
<b>Cable outlet</b>				
■ unshielded <sup>10)</sup>	IP 67	3 x 0.34 mm <sup>2</sup>	4 mm	PUR
■ OEM version, unshielded <sup>11)</sup>	IP 67	3 x 0.14 mm <sup>2</sup>	2.85 mm	TPU

10) Not possible with approval GL

11) up to max. 90 °C

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

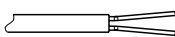
### Insulation voltage

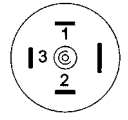
DC 500 V

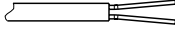
### Connection diagrams


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 <sub>B</sub>	1	1
	0V	2	2
	S+	-	3

Cable outlet, unshielded			
		2-wire	3-wire
	U <sub>B</sub>	brown	brown
	0V	blue	blue
	S+	-	black

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

Cable outlet, OEM version, unshielded			
		2-wire	3-wire
	U <sub>B</sub>	brown	brown
	0V	blue	blue
	S+	-	black

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

U <sub>B</sub>	Positive power supply terminal
0V	Negative power supply terminal
S+	Analogue output

## Materials

### Wetted parts

< 145 psi (10 bar): Stainless steel 316L

≥ 145 psi (10 bar): Stainless steel 316L and 13-8 PH

### Non-wetted parts

- Stainless steel 316L
- HNBR
- PA

For sealing materials see "Process connections"

For materials of the cables see "Electrical connections"

### Pressure transmission medium

< 0 ... 145 psi (0 ... 10 bar) relative: Synthetic oil

≤ 0 ... 363 bar (0 ... 25 bar) absolute: Synthetic oil

≥ 0 ... 145 psi (0 ... 10 bar) relative: Dry measuring cell

## CE conformity

### Pressure equipment directive

97/23/EC

### EMC directive

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

## Approvals

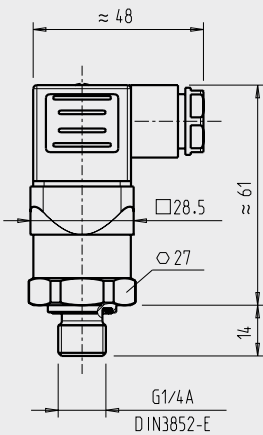
- **cULus**, safety (e.g. electr. safety, overpressure, ...), USA, Canada
- **GOST-R**, import certificate, Russia
- **GL**, ships, shipbuilding (e.g. offshore), Germany

Approvals, see website.

## Dimensions in mm

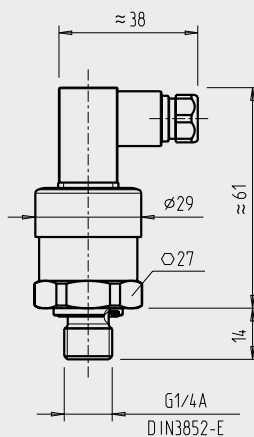
### Pressure transmitters

with angular connector form A



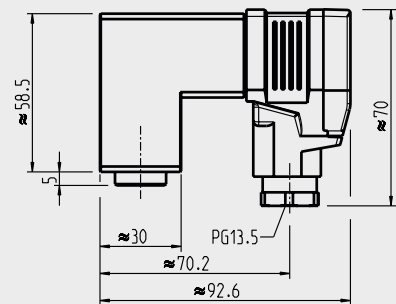
Weight: approx. 80 g

with angular connector form C



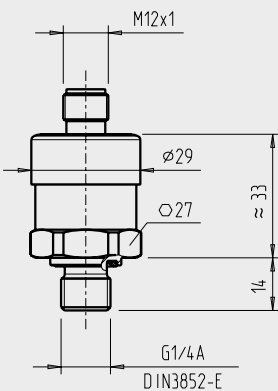
Weight: approx. 80 g

with angular connector form A, flange connection



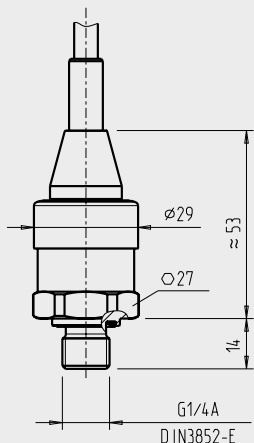
Weight: approx. 350 g

with circular connector M12 x 1



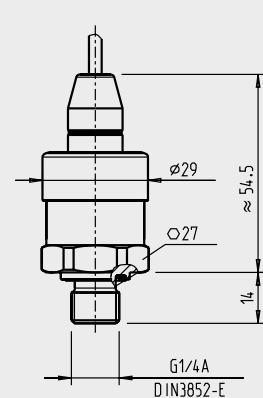
Weight: approx. 80 g

with standard cable outlet, unshielded



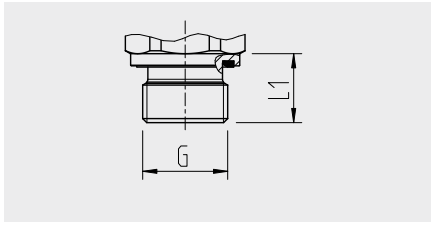
Weight: approx. 80 g

with cable outlet OEM version, unshielded

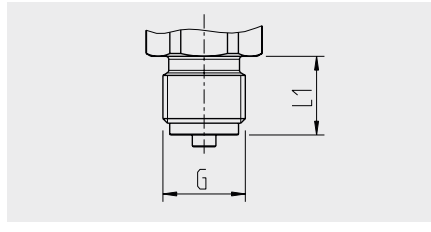


Weight: approx. 80 g

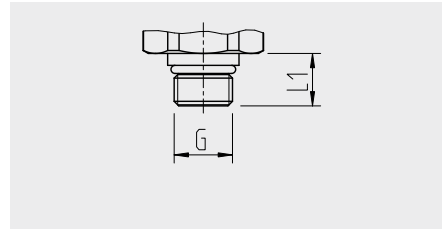
**Process connections**



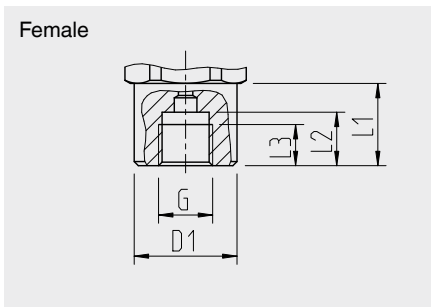
G	L1
G ¼ A DIN 3852-E	14
G ½ A DIN 3852-E	17
M14 x 1.5	14



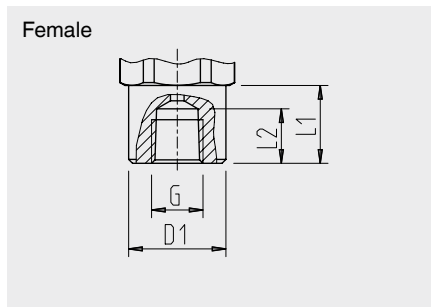
G	L1
G ¼ B EN 837	13
G ¾ B EN 837	16
G ½ B EN 837	20
M20 x 1.5	20



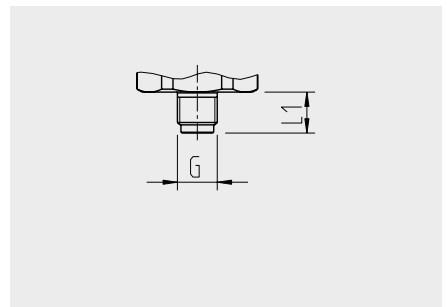
G	L1
7/16-20 UNF BOSS	12.85



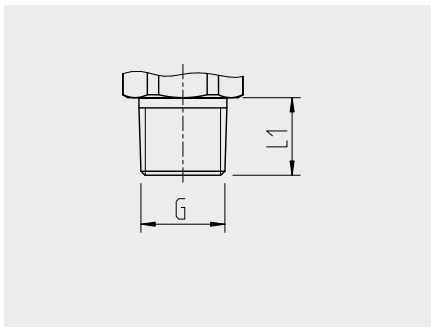
G	L1	L2	L3	D1
G ¼ EN 837	20	13	10	Ø 25



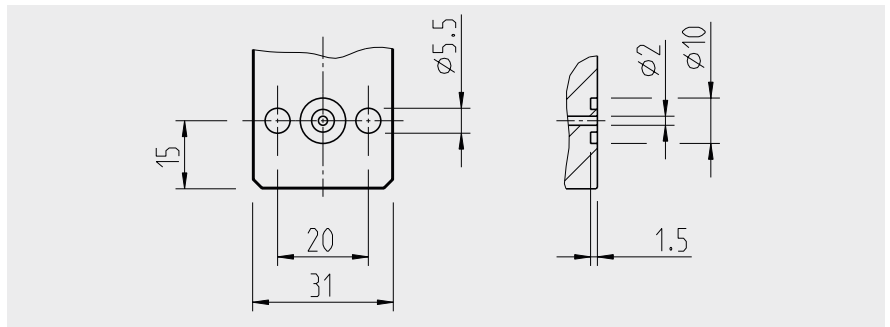
G	L1	L2	D1
¼ NPT	20	14	Ø 25



G	L1
G ¾ B EN 837	10



G	L1
¼ NPT	10
¼ NPT	13
½ NPT	19
R ¼	13
R ¾	15
R ½	19
PT ¼	13
PT ¾	15
PT ½	19



G	L1
G ¼ female, with flange connection	dimensions see drawing

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 <sup>12)</sup>	11225823	11250194
<b>Angular connector DIN 175301-803 A</b>			
■ with cable gland, metric	11427567	11225793	11250186
■ with cable gland, conduit	11022485	-	-
<b>Circular connector M12 x 1, 4-pin</b>			
■ straight	2421262	11250780	11250259
■ angled	2421270	11250798	11250232

12) Connector not permissible for A-10 with GL approval.

### 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	-	-	1537857	1576534
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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