High-quality pressure transmitter for general industrial applications
Model S-10

for further approvals see page 4

Applications

- Machine building
- Hydraulics and pneumatics
- Pumps
- Chemical industry

Special features

- Measuring ranges from 0 ... 0.1 to 0 ... 1,000 bar
- Non-linearity 0.2 % of span (BFSL)
- Output signals: 4 ... 20 mA, DC 0 ... 10 V, DC 0 ... 5 V and others
- Electrical connections: Angular connector form A, circular connector M12 x 1, various cable outlets and others
- Zero point and span adjustable via internal potentiometer



Pressure transmitter model S-10

Description

The model S-10 pressure transmitter for general industrial applications is the ideal solution for customers with demanding measuring requirements. It features a very good accuracy, a robust design and an exceptional number of variants, meaning it can be suited to the widest range of applications.

Versatile
The model S-10 offers continuous measuring ranges between 0 ... 0.1 and 0 ... 1,000 bar in all the major units. These measuring ranges can be combined in almost any way with all the standard industry output signals, the most common international process connections and a wide number of electrical connections.
Furthermore, it offers numerous options, such as different accuracy classes, extended temperature ranges and customer-specific pin assignments.

High quality
The robust design turns the model S-10 into a very high quality product, which even the most adverse environmental conditions cannot affect. Whether with the lowest temperatures when used outdoors, with extreme shock and vibration in machine building or with aggressive media in the chemical industry, this transmitter can meet all requirements.

Availability
All variants described in this data sheet are available on very short lead times. For particularly urgent demands, there is a sizeable stock available.

Data sheets showing similar products:
Ex pressure transmitter; model IS-2x; see data sheet PE 81.50
Pressure transmitter for general industrial applications; model A-10; see data sheet PE 81.60
OEM pressure transmitter for general industrial applications; model O-10; see data sheet PE 81.65
Flush pressure transmitter for viscous and solids-containing media; model S-11; see data sheet PE 81.02

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Measuring ranges

Relative pressure								
bar	**Measuring range**	**0 ... 0.1**	**0 ... 0.16**	**0 ... 0.25**	**0 ... 0.4**	**0 ... 0.6**	**0 ... 1**	**0 ... 1.6**
	Overpressure limit	1	1.5	2	2	4	5	10
	Measuring range	**0 ... 2.5**	**0 ... 4**	**0 ... 6**	**0 ... 10**	**0 ... 16**	**0 ... 25**	**0 ... 40**
	Overpressure limit	10	17	35	35	80	50	80
	Measuring range	**0 ... 60**	**0 ... 100**	**0 ... 160**	**0 ... 250**	**0 ... 400**	**0 ... 600**	**0 ... 1,000**
	Overpressure limit	120	200	320	500	800	1,200	1,500
psi	**Measuring range**	**0 ... 5**	**0 ... 10**	**0 ... 15**	**0 ... 20**	**0 ... 25**	**0 ... 30**	**0 ... 50**
	Overpressure limit	29	29	72.5	145	145	145	240
	Measuring range	**0 ... 60**	**0 ... 100**	**0 ... 150**	**0 ... 160**	**0 ... 170**	**0 ... 200**	**0 ... 250**
	Overpressure limit	240	500	500	1,160	1,160	1,160	1,160
	Measuring range	**0 ... 300**	**0 ... 400**	**0 ... 500**	**0 ... 600**	**0 ... 750**	**0 ... 800**	**0 ... 1,000**
	Overpressure limit	1,160	1,160	1,160	1,160	1,740	1,740	1,740
	Measuring range	**0 ... 1,500**	**0 ... 1,600**	**0 ... 2,000**	**0 ... 3,000**	**0 ... 4,000**	**0 ... 5,000**	**0 ... 6,000**
	Overpressure limit	2,900	4,600	4,600	7,200	7,200	11,600	11,600
	Measuring range	**0 ... 7,500**	**0 ... 8,000**	**0 ... 10,000**	**0 ... 15,000**			
	Overpressure limit	17,400	17,400	17,400	21,700			

Absolute pressure								
bar	**Measuring range**	**0 ... 0.25**	**0 ... 0.4**	**0 ... 0.6**	**0 ... 1**	**0 ... 1.6**	**0 ... 2.5**	**0 ... 4**
	Overpressure limit	2	2	4	5	10	10	17
	Measuring range	**0 ... 6**	**0 ... 10**	**0 ... 16**	**0 ... 25**	**0.8 ... 1.2**		
	Overpressure limit	35	35	80	80	5		
psi	**Measuring range**	**0 ... 15**	**0 ... 25**	**0 ... 50**	**0 ... 100**	**0 ... 250**		
	Overpressure limit	72.5	145	240	500	1,160		

Vacuum and +/- measuring range						
bar	**Measuring range**	**-0.6 ... 0**	**-0.4 ... 0**	**-0.25 ... 0**	**-0.16 ... 0**	**-0.1 ... 0**
	Overpressure limit	4	2	2	1.5	1
	Measuring range	**-1 ... 0**	**-1 ... +0.6**	**-1 ... +1.5**	**-1 ... +3**	**-1 ... +5**
	Overpressure limit	5	10	10	17	35
	Measuring range	**-1 ... +9**	**-1 ... +15**	**-1 ... +24**		
	Overpressure limit	35	80	50		
psi	**Measuring range**	**- 15 inHg ... 0**	**-30 inHg ... 0**	**-30 inHg ... +15**	**-30 inHg ... +30**	**-30 inHg ... +60**
	Overpressure limit	72.5	72.5	145	240	240
	Measuring range	**-30 inHg ... +100**	**-30 inHg ... +160**	**-30 inHg ... +200**	**-30 inHg ... +300**	
	Overpressure limit	500	1,160	1,160	1,160	

The given measuring ranges are also available in kg/cm² and MPa.
Burst pressures on request

Vacuum tightness
Yes

Output signals

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

Other output signals on request.

Load in Ω

- Current output (2-wire):
  ≤ (power supply - 10 V) / 0.02 A
- Current output (3-wire):
  ≤ (power supply - 3 V) / 0.02 A
- Voltage output (3-wire):
  > maximum output signal / 1 mA

Voltage supply

Power supply
The power supply depends on the selected output signal

- 4 ... 20 mA: DC 10 ...30 V
- 20 ... 4 mA: DC 10 ...30 V
- 0 ... 20 mA: DC 10 ...30 V
- DC 0 ... 5 V: DC 10 ...30 V
- DC 1 ... 5 V: DC 10 ...30 V
- DC 0 ... 10 V: DC 14 ... 30 V
- DC 0.5 ... 4.5 V ratiometric: DC 4.5 ...5.5 V

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
Calibrated in vertical mounting position with pressure connection facing downwards.

Accuracy specifications

Non-linearity (per IEC 61298-2)
≤ ± 0.2 % of span BFSL

Non-repeatability
≤ ±0.1 % of span

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

Accuracy	
Standard	≤ ±0.50 % of span
Option	≤ ±0.25 % of span [1]

1) Only for measuring ranges ≥ 0.25 bar

Adjustability of zero point and span
Adjustment is made using potentiometers inside the instrument.

- Zero point: ± 5 %
- Span: ± 5 %

Temperature error at 0 ... 80 °C

- Mean temperature coefficient of zero point:
  - Measuring ranges ≤ 0.25 bar: ≤ 0.4 % of span/10 K
  - Measuring ranges > 0.25 bar: ≤ 0.2 % of span/10 K
- Mean temperature coefficient of span:
  ≤ 0.2 % of span/10 K

Long-term stability at reference conditions
≤ ±0.2 % of span/year

Time response

Settling time

- ≤ 1 ms
- ≤ 2 ms for output signal DC 0.5…4.5 V ratiometric and measuring ranges < 400 mbar, 10 psi

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

Shock resistance (per IEC 60068-2-27)
1,000 g (mechanical)

Temperatures

Permissible temperature ranges		
	Standard	Option
Medium	-30 ... +100 °C	-40 ... +125 °C
Ambient	-20 ... +80 °C	-20 ... +80 °C
Storage	-40 ... +100 °C	-40 ... +100 °C

Materials

Wetted parts
Stainless steel

Non-wetted parts
- Case: Stainless steel
- Internal pressure transmission medium: Synthetic oil
- Clamping nut: PA
- Angular connector: PA
- O-rings at the clamping nut: NBR
- Flat gasket: VMQ

Instruments with a measuring range of > 25 bar relative do not contain any pressure transmission medium (dry measuring cell).

Process connections

Standard	Thread size
EN 837	G ¼ B
	G ½ B
DIN 3852-E	G ¼ A [1)]
-	G ¼ female
ANSI/ASME B1.20.1	¼ NPT
	½ NPT
SAE J514 E	7/16-20 UNF with 74° taper
-	M20 x 1.5
-	G ½ male / G ¼ female
ISO 7	R ¼

1) Maximum overpressure limit 600 bar

Other process connections on request

Approvals, directives and certificates

Approvals
- CSA
- GOST

For further approvals see www.wika.com

CE conformity
- EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)
- Pressure equipment directive 97/23/EC

Electrical connections

Available connections

Electrical connection	Ingress protection	Wire cross-section	Cable diameter	Cable lengths
Angular connector DIN 175301-803 A	IP 65	max. 1.5 mm²	6 ... 8 mm	-
Angular connector DIN 175301-803 with ½ NPT	IP 65	max. 1.5 mm²	-	-
Circular connector M12 x 1 (4-pin)	IP 67	-	-	-
Bayonet connector (6-pin)	IP 67	-	-	-
½ NPT conduit male, with cable outlet	IP 67	3 x 0.5 mm²	6.8 mm	1.5 m, 3 m, 5 m, 10 m, 5 ft, 10 ft, 20 ft, 30 ft, others on request
Cable outlet				
■ Standard	IP 67	3 x 0.5 mm²	6.8 mm	1.5 m, 3 m, 5 m, 10 m, 5 ft, 10 ft, 20 ft, 30 ft, others on request
■ not adjustable	IP 68	3 x 0.5 mm²	6.8 mm	1.5 m, 3 m, 5 m, 10 m, 5 ft, 10 ft, 20 ft, 30 ft, others on request
■ adjustable	IP 68	3 x 0.5 mm²	6.8 mm	1.5 m, 3 m, 5 m, 10 m, 5 ft, 10 ft, 20 ft, 30 ft, others on request

Short-circuit resistance
S_+ vs. U-

Reverse polarity protection
U_+ vs. U-

Overvoltage protection
DC 36 V

Insulation voltage
DC 500 V

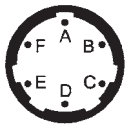
Connection diagrams

Angular connector DIN 175301-803 A



	2-wire	3-wire
U_+	1	1
U-	2	2
S_+	-	3

Bayonet connector (6-pin)



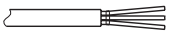
	2-wire	3-wire
U_+	A	A
U-	B	B
S_+	-	C

Angular connector DIN 175301-803 with ½ NPT



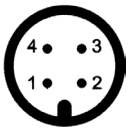
	2-wire	3-wire
U_+	1	1
U-	2	2
S_+	-	3

½ NPT conduit male, with cable outlet



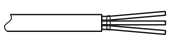
	2-wire	3-wire
U_+	red	red
U-	black	black
S_+	-	brown

Circular connector M12 x 1 (4-pin)



	2-wire	3-wire
U_+	1	1
U-	3	3
S_+	-	4

Cable outlets

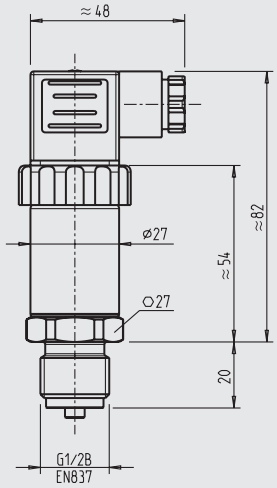


	2-wire	3-wire
U_+	brown	brown
U-	green	green
S_+	-	white
Shield	grey	grey

Dimensions in mm

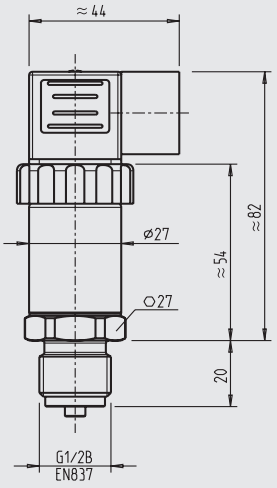
Pressure transmitter model S-10

with angular connector DIN 175301-803 A



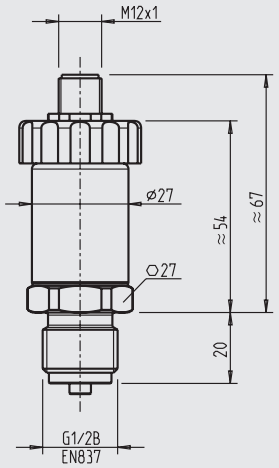
Weight: approx. 0.2 kg

with angular connector DIN 175301-803 with ½ NPT



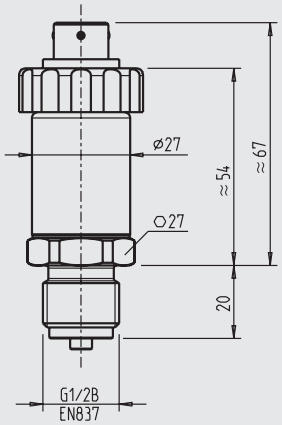
Weight: approx. 0.2 kg

with circular connector M12 x 1 (4-pin)



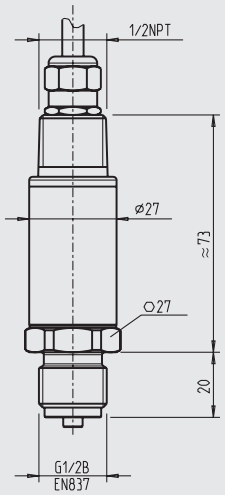
Weight: approx. 0.2 kg

with bayonet connector (6-pin)



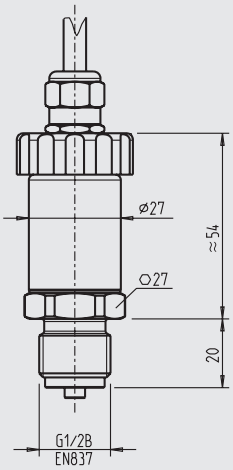
Weight: approx. 0.2 kg

with ½ NPT conduit male, with cable outlet



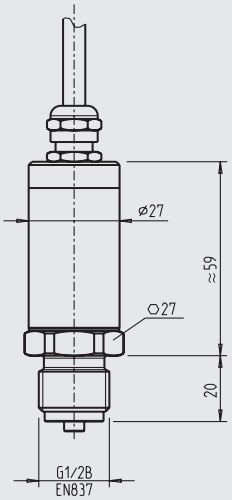
Weight: approx. 0.2 kg

with cable outlet, standard



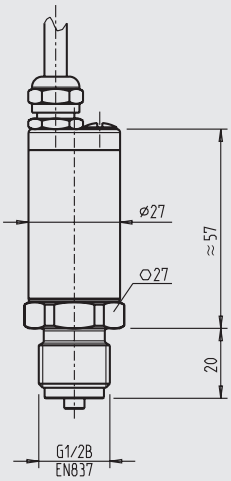
Weight: approx. 0.2 kg

with cable outlet, not adjustable



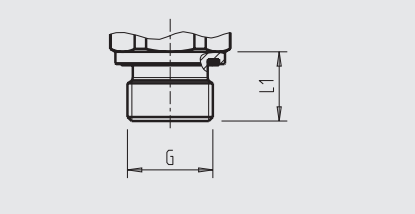
Weight: approx. 0.2 kg

with cable outlet, adjustable

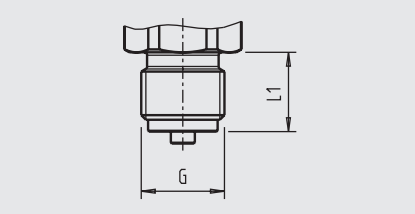


Weight: approx. 0.2 kg

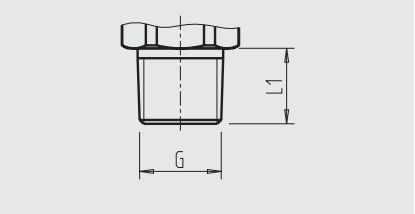
Process connections



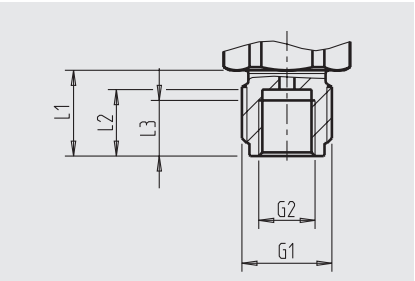
G	L1
G ¼ A	12



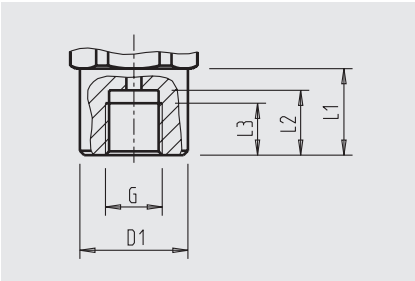
G	L1
G ¼ B	13
G ½ B	20
M20 x 1.5	20



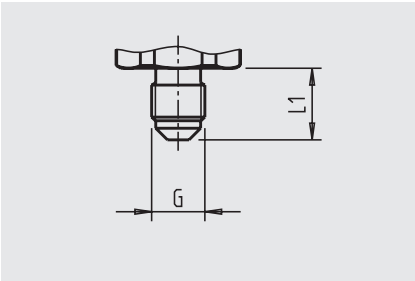
G	L1
¼ NPT	13
½ NPT	19
R ¼	13



G1	G2	L1	L2	L3
G ½ B	G ¼	20	15.5	13



G	D1	L1	L2	L3
G ¼ female	25	20	15	12



G	L1
7/16-20 UNF with 74° taper	15

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

Accessories and spare parts

Mating connector

Description	Order number		
	without cable	with 2 m cable	with 5 m cable
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

Mating connector	Order number
Angular connector DIN 175301-803 A	1576240

Sealings for process connection

Thread size	Order number			
	Cu	Stainless steel	NBR	FKM
G ¼ B EN 837	11250810	11250844	-	-
G ½ B EN 837	11250861	11251042	-	-
G ¼ A DIN 3852-E	-	-	1537857	1576534
M20 x 1.5	11250861	11251042	-	-

Ordering information

Model / Measuring range / Output signal / Accuracy / Electrical connection / Medium temperature / Process connection

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