

Pressure transmitter for general applications

Model S-10, standard version

Model S-11, flush diaphragm

WIKA Data Sheet PE 81.01



Applications

- Mechanical engineering
- Hydraulics / Pneumatics
- General industrial applications
- Food & Beverage

Special Features

- Pressure ranges from 0 ... 0.1 bar to 0 ... 1000 bar
- Various industrial standard signal outputs
- Wiring with connector or flying leads
- Stock program for short delivery times
- Vacuum tight

Description

This series of pressure transmitters has been carefully designed to cover the majority of industrial applications with instruments readily available from stock.

Compact design and robust construction make these instruments suitable for all applications in machine construction, process control, laboratory or quality and materials testing equipment.

There is an extraordinary range of instrument variants resulting from the fact that various mechanical and electrical connections can be combined with each other to almost any extent.

Structure

All wetted parts are made of stainless steel and are hermetically welded. Therefore there is no need for additional sealing material, which could possibly react with the pressure medium. The compact case is also made of stainless steel and provides IP 65 ingress protection (special versions up to IP 68).



Fig. left Pressure transmitter S-10

Fig. center Pressure transmitter S-11

Fig. right Pressure transmitter S-11 with cooling element

The transmitters can be supplied with a non-stabilized direct voltage of 10 (14) ... 30 V and provide standard industrial output signals.

The model S-11 with flush diaphragm is particularly suitable for the measurement of viscous fluids or media containing particulates that may clog the pressure connection of standard industrial transmitters. Thus, a trouble-free pressure measurement is ensured. Pressure transmitters with flush diaphragm are available in pressure ranges from 0 ... 0.1 bar to 0 ... 600 bar. For applications with higher temperature requirements an integrated cooling element enables medium temperatures of up to 150 °C (302 °F).

For the pressure ranges from 0 ... 0.25 bar up to 0 ... 1000 bar the pressure transmitters can be delivered for oxygen applications (technical safety check of the BAM, Bundesanstalt für Materialforschung und -prüfung available).

Specifications

Model S-10 / S-11

Pressure ranges ^{*)}	bar	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Over pressure safety	bar	1	1.5	2	2	4	5	10	10	17	35	35
Burst pressure	bar	2	2	2.4	2.4	4.8	6	12	12	20.5	42	42
Pressure ranges ^{*)}	bar	16	25	40	60	100	160	250	400	600	1000 ¹⁾	
Over pressure safety	bar	80	50	80	120	200	320	500	800	1200	1500	
Burst pressure	bar	96	96	400	550	800	1000	1200	1700 ²⁾	2400 ²⁾	3000	
	{Vacuum, gauge pressure, compound range, absolute pressure, other pressure ranges and units are available}											
	1) Only model S-10.											
	2) For model S-11: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies											
Materials												
■ Wetted parts												
» Model S-10 ^{*)}		Stainless steel										
» Model S-11		Stainless steel O-ring: NBR ³⁾ {FPM/FKM}										
■ Case		Stainless steel										
■ Internal transmission fluid ⁴⁾		Synthetic oil {Halocarbon oil for oxygen applications}										
		³⁾ O-ring made of FPM/FKM for Model S-11 with integrated cooling element.										
		⁴⁾ Not for S-10 with pressure ranges > 25 bar.										
Power supply U+	U+ in VDC	10 ... 30 (14 ... 30 with signal output 0 ... 10 V)										
Signal output and	RA in Ohm	4 ... 20 mA, 2-wire RA ≤ (U+ – 10 V) / 0.02 A										
maximum ohmic load RA		0 ... 20 mA, 3-wire RA ≤ (U+ – 3 V) / 0.02 A										
		0 ... 5 V, 3-wire RA > 5 k										
		0 ... 10 V, 3-wire RA > 10 k										
		{other signal outputs on request}										
Adjustability zero/span	%	± 5 using potentiometers inside the instrument										
Response time (10 ... 90 %)	ms	≤ 1 (≤ 10 ms at medium temperatures below < -30 °C for pressure ranges up to 25 bar or with flush diaphragm)										
Insulation voltage	VDC	500 ⁵⁾										
		⁵⁾ NEC Class 02 power supply (low voltage and low current max. 100 VA even under fault conditions)										
Accuracy ⁶⁾	% of span	≤ 0.5 {0.25} ⁷⁾										
		⁶⁾ Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2)										
		Adjusted in vertical mounting position with lower pressure connection										
		⁷⁾ Accuracy { } for pressure ranges ≥ 0,25 bar										
Non-linearity	% of span	≤ 0.2 (BFSL) according to IEC 61298-2										
Non-repeatability	% of span	≤ 0.1										
1-year stability	% of span	≤ 0.2 (at reference conditions)										
Permissible temperature of												
■ Medium ⁸⁾ ^{*)}		-30 ... +100 °C {-40 ... +125 °C}						-22 ... +212 °F {-40 ... +257 °F}				
»S-11 with cooling element		-20 ... +150 °C						-4 ... +302 °F				
■ Ambience ⁸⁾		-20 ... +80 °C						-4 ... +176 °F				
»S-11 with cooling element		-20 ... +80 °C						-4 ... +176 °F				
■ Storage ⁸⁾		-40 ... +100 °C						-40 ... +212 °F				
»S-11 with cooling element		-20 ... +100 °C						-4 ... +212°F				
		⁸⁾ Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3										
Rated temperature range		0 ... +80 °C						32 ... +176 °F				
Temperature coefficients within rated temperature range												
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure range ≤ 0.25 bar)										
■ Mean TC of range	% of span	≤ 0.2 / 10 K										
CE-conformity												
■ Pressure equipment directive		97/23/EC										
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations)										
Shock resistance	g	1000 according to IEC 60068-2-27 (mechanical shock)										
Vibration resistance	g	20 according to IEC 60068-2-6 (vibration under resonance)										

Specifications

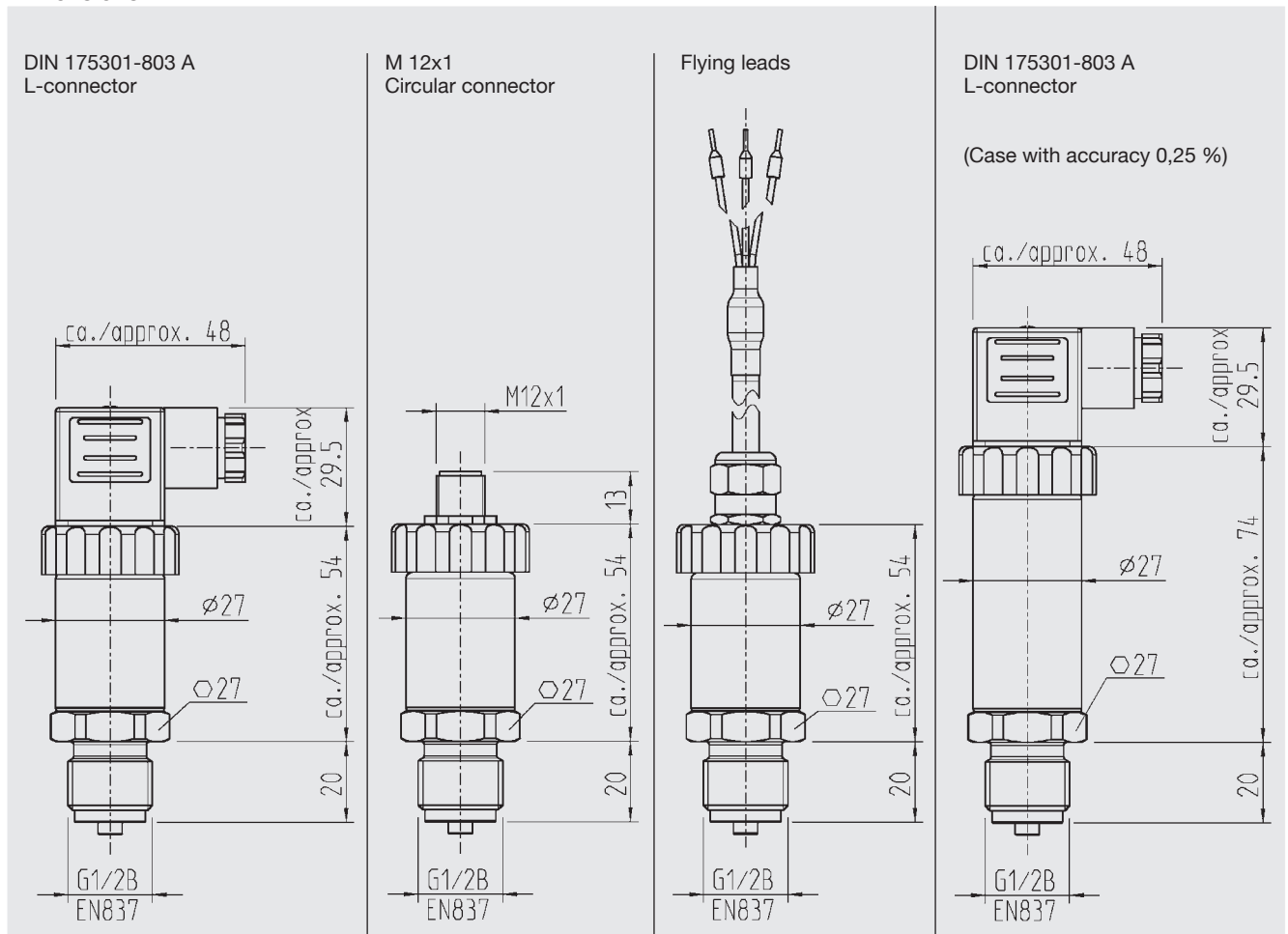
Model S-10 / S-11

Wiring protection		
■ Overvoltage protection	VDC	36
■ Short-circuit proofness		S+ towards U-
■ Reverse polarity protection		U+ towards U-
Weight		
	kg	Approx. 0.2
		Approx. 0.3 with option accuracy 0.25% of span due to longer case

*) In an oxygen version model S-11 is not available. In an oxygen version model S-10 is only available in gauge pressure ranges ≥ 0.25 bar with media temperatures between $-20 \dots +60$ °C / $-4 \dots +140$ °F and using stainless steel or 2.4711 wetted parts.

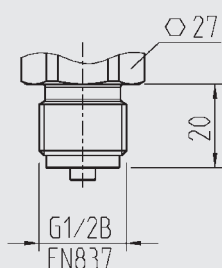
{ } Items in curved brackets are optional extras for additional price

Dimensions in mm

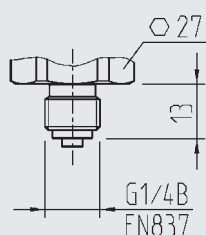


Pressure connections S-10

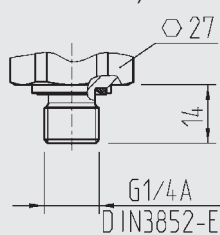
G 1/2
EN 837



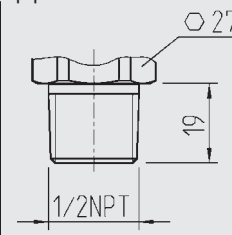
G 1/4
EN 837



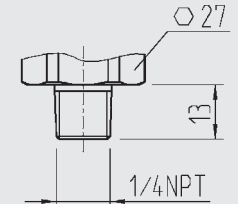
G 1/4
DIN 3852-E
(over pressure safety
max. 600 bar)



1/2 NPT
per „Nominal size for US
standard tapered
pipe thread NPT“



1/4 NPT
per „Nominal size for US
standard tapered pipe
thread NPT“



Others on request

For installation and safety instructions see the operating instructions for this product.

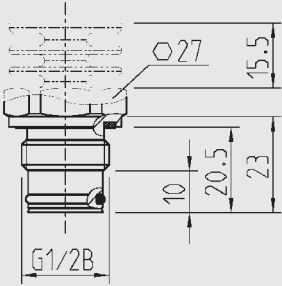
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de - Download

*) Connectors are not included in delivery.

Dimensions in mm

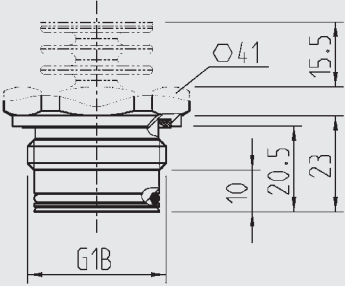
Pressure connections S-11, flush diaphragm

G 1/2 B
with or without cooling element
0 ... 2.5 up to 0 ... 600 bar
(over pressure safety max. 600 bar)



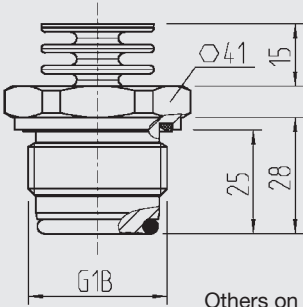
Technical drawing of G 1/2 B pressure connection showing dimensions: top flange diameter 27, flange thickness 15.5, body diameter 10, body length 20.5, and total length 23. The connection is labeled G1/2B.

G 1B
with or without cooling element
0 ... 0.1 up to 0 ... 1.6 bar



Technical drawing of G 1B pressure connection showing dimensions: top flange diameter 41, flange thickness 15.5, body diameter 10, body length 20.5, and total length 23. The connection is labeled G1B.

G 1B
according to EHEDG **)
with cooling element, up to 150 °C
up to 25 bar



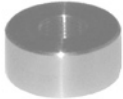
Technical drawing of G 1B pressure connection with cooling element showing dimensions: top flange diameter 41, flange thickness 15, body diameter 25, body length 28, and total length 28. The connection is labeled G1B. Note: Others on request.

For installation and safety instructions see the operating instructions for this product.
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**) European Hygienic Equipment Design Group

Electrical connections									
	L-connector DIN 175301-803 A			Circular connector M12x1, 4-pin			Flying leads with 1.5 m of cable		
									
2-wire	U+ = 1	U- = 2		U+ = 1	U- = 3		U+ = brown	U- = green	
3-wire	U+ = 1	U- = 2	S+ = 3	U+ = 1	U- = 3	S+ = 4	U+ = brown	U- = green	S+ = white
Cable screen							grey		
Wire gauge	up to max. 1.5 mm2			-			0.5 mm2 (AWG 20)		
Diameter of cable	6-8 mm (ship approval: 10-14 mm)			-			6.8 mm		
Ingress protection per IEC 60 529	IP 65			IP 67			IP 67 or IP 68		
The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.									

Accessories

Order-No.		
		S-11
	11 92 299	G 1/2 Weld-on adaptor
	11 92 264	G 1 Weld-on adaptor

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.
Modifications may take place and materials specified may be replaced by others without prior notice.

