

Available for Australia and New Zealand only.

Intrinsically Safe Pressure Transmitter for applications in hazardous environments

Model IS-10, standard version / IS-11, flush diaphragm

WIKA Data Sheet PE 81.22 aus



Applications

- Chemical, Petrochemical, underground mining
- Oil and gas refining
- Food & Beverage
- Mechanical engineering

Special Features

- Pressure ranges from 0 ... 0.1 bar to 0 ... 4,000 bar
- Ex- protection EEx ia I/II C T6 according to ATEX for:
 - Gases, vapours and mist: Zone 0, Zone 1 and Zone 2
 - Mining: Category M1 and M2
- ANZEx approval for:
 - Intrinsically safe Ex ia I/II C T6 IP65 / IP67
 ANZEx 04.3007X
- Special versions for oxygen application



Fig. left: Pressure transmitter IS-10

Fig. right: Pressure transmitter IS-11

Description

Hazardous environments

The intrinsically safe pressure transmitters have been specially designed to comply with the most difficult requirements of industrial applications and represent an ideal solution for almost any task in hazardous environments.

The most important features are the wide ranging certifications for hazardous applications (CENELEC certificate complying with ATEX).

Furthermore this IS pressure transmitter also has FM (USA) and CSA (Canada) approvals, and ANZEx suitable for above and underground mining applications.

A stock program ensures short delivery times.

Structure

All wetted parts are made of stainless steel and are completely welded. Therefore there are no restrictions of the sealing material based on the pressure medium.

The compact case is also made of stainless steel and provides at least IP 65 ingress protection (special versions up to IP 68).

The transmitters are supplied via appropriate intrinsically safe line transformers, or via typical zener diode barriers with an input power of 10 ... 30 V. The output signal is 4 ... 20 mA, 2-wire.

An oxygen version is available for the pressure ranges from 0 ... 0.25 bar up to 0 ... 1600 bar.

Specifications without model designation apply for all models.

Pressure ranges *)		0.1	0.16	0.25	0.4	0.6	1	1.6	2.5
Over pressure safety		1	1.5	2	2	4	5	10	10
Burst pressure		2	2	2.4	2.4	4.8	6	12	12
Pressure ranges *)		4	6	10	16	25	40	60	100
Over pressure safety		17	35	35	80	50	80	120	200
Burst pressure		20.5	42	42	96	96	400	550	800
Pressure ranges *)		160	250	400	600	1000 1)	1600 1)	2500 1)	4000 1)
Over pressure safety		320	500	800	1200	1500	2000	3000	4400
Burst pressure		1000	1200	1700 2)	2400 2)	3000	4000	5000	7000
		{Vacuum, gauge pressure, compound range, absolute pressure are available}							
		1) Only model IS-10.							
		2) For model IS-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 part									
» Model IS-10		Stainless steel							
» Model IS-11		Stainless steel O-ring: NBR {FPM/FKM or EPDM}							
■ Case		Stainless steell							
■ Internal transmission fluid 3)		Synthetic oil {Halocarbon oil for oxygen applications}							
		3) Not for IS-10 with pressure ranges > 25 bar							
Power supply UB	UB in VDC	10 < UB ≤ 30							
Signal output and		4 ... 20 mA, 2-wire							
maximum ohmic load R _A	R _A in Ohm	R _A ≤ (UB – 10 V) / 0.02 A - (length of flying leads in m x 0.14 Ohm)							
Adjustability zero/span	%	± 5 using potentiometers inside the instrument							
Response time (10 ... 90 %)	ms	≤ 1							
Dielectric strength		Insulation complies with EN 50020, 6.4, 12							
Accuracy	% of span	≤ 0.25 {0.125} 4) (BFSL)							
	% of span	≤ 0.5 {0.25} 4) 5)							
		4) Accuracy { } for pressure ranges ≥ 0.25 bar							
		5) 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							
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 6) 7) 8) 9) *)		-30 ... +105 °C				-22 ... +221 °F			
■ Ambience 6) 7) 9)		-30 ... +105 °C				-22 ... +221 °F			
■ Storage 6)		-30 ... +105 °C				-22 ... +221 °F			
		6) Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3							
		7) Other temperature ranges are possible, depending on the electrical connection; see EC-type examination certificate, e.g. -30 ... +105 °C / -22 ... +221 °F and table page 4.							
		8) Response time IS-10: 10 ms at medium temp. below -30 °C for pressure ranges up to 25 bar. Response time IS-11: 10 ms at medium temp. below -30 °C.							
Compensated temp. range		0 ... +80 °C				32 ... +176 °F			
Temperature coefficients within compensated temp range									
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure ranges ≤ 0.25 bar)							
■ Mean TC of range	% of span	≤ 0.2 / 10 K							
CE-conformity									
■ Pressure equipment directive		97/23/EC							
■ EMC directive		89/336/EEC emission (class B) and immunity according to EN 61 326							
■ Directive ATEX of equipment intended for use in potentially explosive atmospheres		94/9/EC							
Ex-protection	ATEX	Category 9) 2G {M1, M2, 1/2G}							

Specifications

Model IS-10, IS-11

Ignition protection type		EEx ia I/II C T4, EEx ia I/II C T5, EEx ia I/II C T6
		⁹⁾ Read the operating conditions and safety-relevant data in the EC-type examination certificate in any case (DMT 00 ATEX E 045 X)
Ex-protection	FM, CSA	Class I, II and III
Ignition protection type		Intrinsic safe Class I, Division 1, Group A, B, C, D and Class I, Zone 0 AEx ia II C
	ANZEx	Ex ia I/II C T6 (Ta = 60°C) IP65 / IP67 ANZEx 04.3007X
HF-immunity	V/m	10 {30}
BURST	KV	4
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)
Wiring protection		
■ Short-circuit proofness		Sig+ towards UB-
■ Reverse polarity protection		UB+ towards UB-
Weight	kg	Approx. 0,2

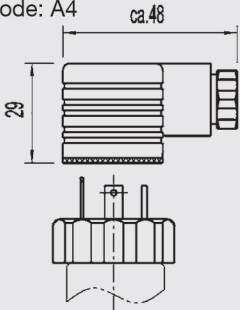
⁹⁾ In an oxygen version model IS-21 is not available. In an oxygen version model IS-20 is only available in gauge pressure ranges ≥ 0.25 bar with media temperatures between -20 ... +60 °C / -4 ... +140 °F and using stainless steel or Elgiloy® wetted parts. Cannot be manufactured for absolute pressure ranges < 1 bar abs.
{ } Items in curved brackets are optional extras for additional price.

Dimensions in mm

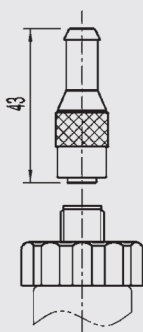
Ingress Protection IP per IEC 60529. The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.
Permissible temperature ranges depending on electrical connections; see table page 4.

Electrical connections

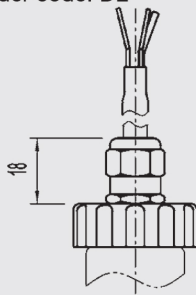
DIN 175301-803 A
L-connector
for conductor cross section
up to max. 1.5 mm²,
conductor outer diameter
6-8 mm
IP 65
Order code: A4



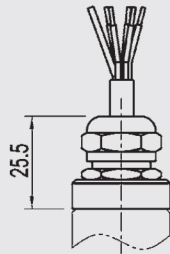
M 12x1
Circular connector
4-pin
IP 67
Order code: M4
)



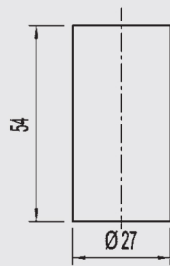
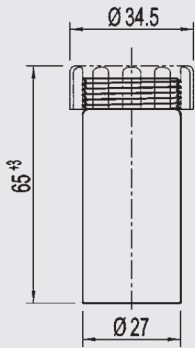
Flying leads
for conductor cross section
0.5 mm², AWG 20 with end
splices, conductor outer
diameter 6.8 mm,
PUR
IP 67
Order code: DL



Flying leads
zero/span not adjustable,
for conductor cross section
up to max. 0.5 mm², AWG 20 with
end splices, conductor outer
diameter 6.8 mm,
PUR
IP 68
Order code: EM

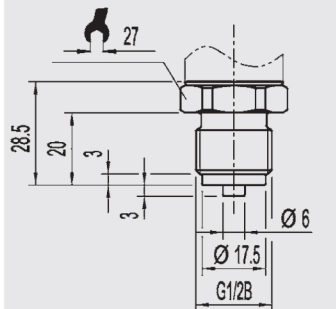


Case

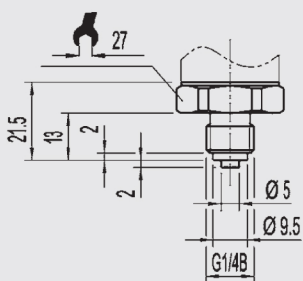


Pressure connections IS-10

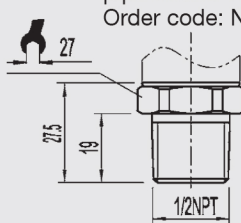
G 1/2
EN 837
Order code: GD



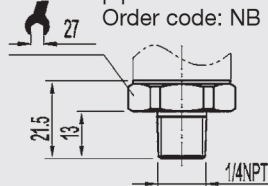
G 1/4
EN 837
Order code: GB



1/2 NPT
per „Nominal size for
US standard tapered
pipe thread NPT“
Order code: ND



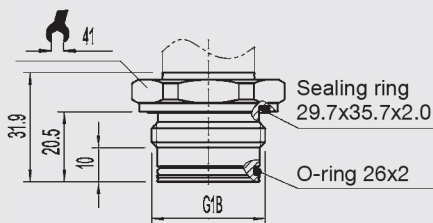
1/4 NPT
per „Nominal size for
US standard tapered
pipe thread NPT“
Order code: NB



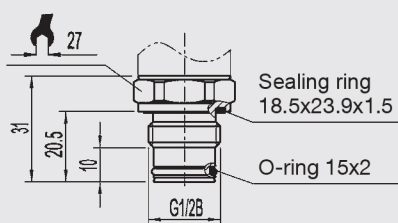
) Connectors are not included in delivery.

Pressure connections IS-11, flush diaphragm

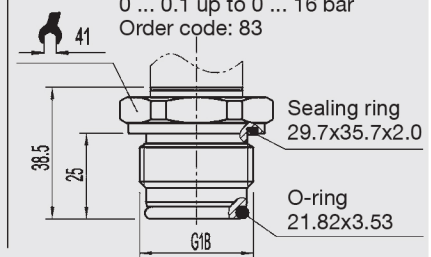
G 1
0 ... 0.1 up to 0 ... 1.6 bar
Order code: 85



G 1/2
0 ... 2.5 up to 0 ... 600 bar
Order code: 86



G 1
acc. EHEDG **) 0 ... 0.1 up to 0 ... 16 bar
Order code: 83



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 -Service

**) European Hygienic Equipment Design Group

Permissible temperature ranges depending on electrical connections

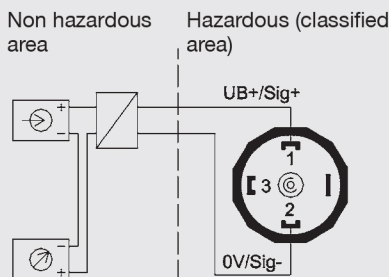
Electrical connections	Order-code	Category	Ambience-/ Medium temperature range	
DIN 175301-803 A L-Connector	A4	1/2 G ^{*)} , 2G (IIC)	-40 ... +105 °C (T4)	-40 ... +221 °F (T4)
		M1 ^{*)} , M2	-40 ... +105 °C	-40 ... +221 °F
M 12x1 Circular connector	M4	1/2 G ^{*)} , 2G (IIC)	-25 ... +90 °C (T4)	-13 ... +194 °F (T4)
		M1 ^{*)} , M2	-25 ... +90 °C	-13 ... +194 °F
Flying leads	DL	1/2 G ^{*)} , 2G (IIC)	-20 ... +80 °C (T4)	-4 ... +176 °F (T4)
		M1 ^{*)} , M2	-20 ... +80 °C	-4 ... +176 °F
Flying leads PUR zero/span not adjustable	EM	1/2 G ^{*)} , 2G (IIC)	-20 ... +80 °C (T5)	-4 ... +176 °F (T5)
		M1 ^{*)} , M2	-20 ... +80 °C	-4 ... +176 °F

*) Pressure connection according to 4.5 EN 50284

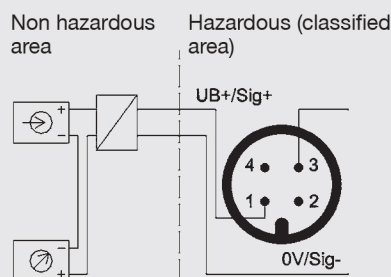
Wiring details

2-wire

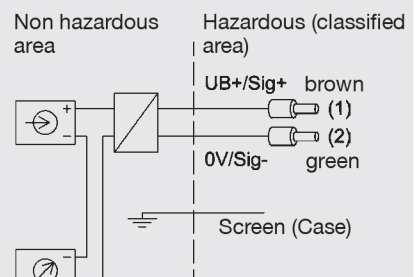
DIN 175301-803 A L-Connector



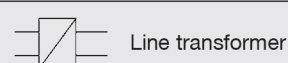
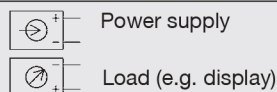
M 12x1, 4-pin Circular connector



Flying leads with 1.5 m of cable



Legend:



Further information

You can obtain further information (data sheets, instructions, etc.) via our internet address www.wika.de

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.dem derzeitigen Stand der Technik.



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