

Intrinsically Safe Pressure Transmitter

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

WIKA Data Sheet PE 81.22



Applications

- Chemical, Petrochemical
- Oil and gas refining
- Food industries
- Mechanical engineering

Special Features

- Pressure ranges from 0 ... 0,1bar to 0 ... 4000 bar
- Ex- protection EEx ia I/II C T6 according to ATEX
- Applicable in the following hazardous environments:

Gases, vapours and mist:	Connection to Zone 0, Zone 1 and Zone 2
Dust:	Connection to Zone 20, Zone 21 and Zone 22
Mining:	Category M1 and M2
- Special versions for oxygen application

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.

A stock program ensures short delivery times.



Fig. left Pressure transmitter IS-10
Fig. center Pressure transmitter IS-10 with Snap Cap
Fig. right Pressure transmitter IS-11

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.

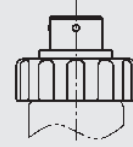
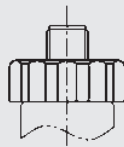
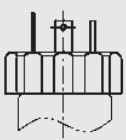
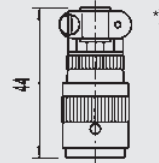
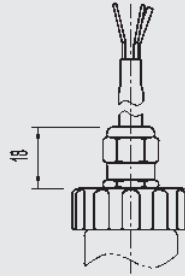
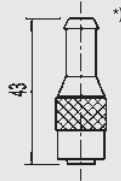
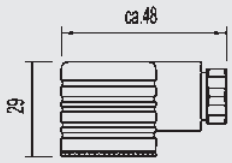
Dimensions in mm

L- connector /
DIN EN 175301-803
IP 65
Order code:
A4

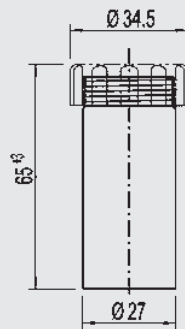
Circular connector
M 12x1, 4-pin
IP 67
Order code:
M4

Flying leads
IP 67
Order code:
DL

MIL connector
6-pin
IP 67
Order code:
C6
(not with mining)



Case



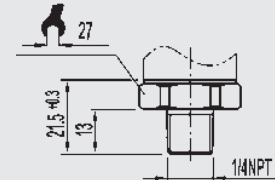
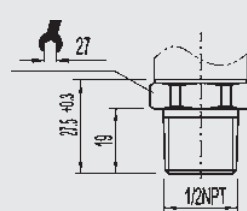
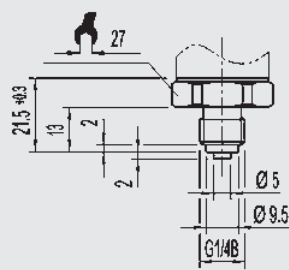
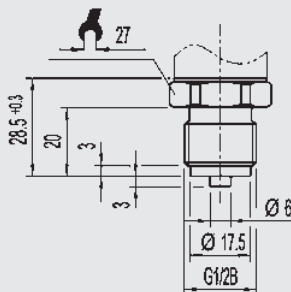
Pressure connections

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

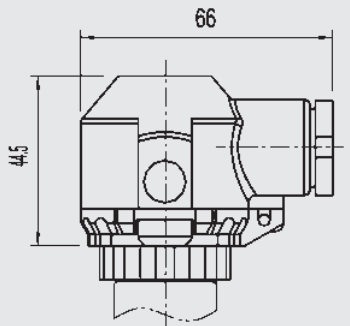
1/4 NPT
per „Nominal size for
US standard tapered
pipe thread NPT“
Order code:
NB



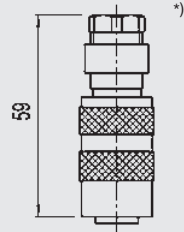
For tapped holes and welding sockets please see data sheet IN 00.14 or www.wika.de/download

*) Connectors are not included in delivery.

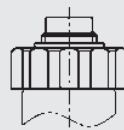
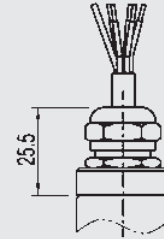
Snap Cap
 max.rotatable by 300°
 IP 67
 Order code:
 NL



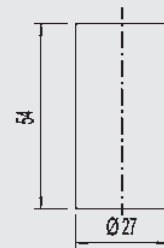
Connector 5-pin
 IP 65
 M 16x0,75
 Order code:
 B5



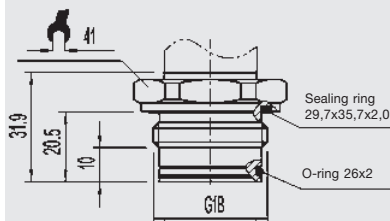
Flying leads, zero/span not adustable
 IP 68
 Order code:
 EM



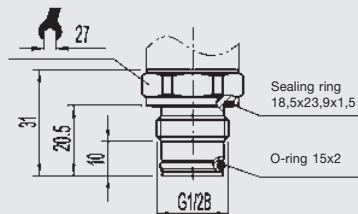
Other's on request



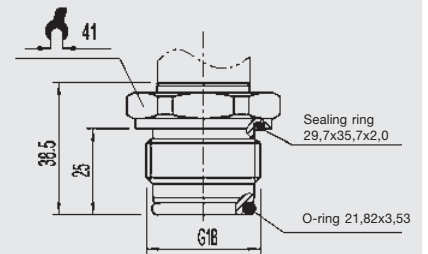
G 1 B
 0 ... 0,1 up to 0 ... 1,6 bar
 Order code:
 85



G 1/2 B
 0 ... 2,5 up to 0 ... 600 bar
 Order code:
 86



G 1 B
 acc. EHEDG¹⁾
 0 ... 0,1 up to 0 ... 16 bar
 Order code:
 83



Other's on request.

1) European Hygienic Equipment Design Group

Wiring

<p>2-wire L-Connector</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>Circular connector M 12x1</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>Flying leads with 1.5 m of vented cable</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>MIL-connector</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>Snap Cap with internal clamp of 1.5 mm² max.</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>Circular connector M 16x0,75</p>	<p>Non hazardous area Hazardous (classified) area</p>						
<p>Legend</p> <table border="1"> <tr> <td></td> <td>power supply</td> <td rowspan="2"></td> <td rowspan="2">Line transformer</td> </tr> <tr> <td></td> <td>load (e.g. display)</td> </tr> </table>			power supply		Line transformer		load (e.g. display)
	power supply		Line transformer				
	load (e.g. display)						

Specifications without model designation apply for all models.

Pressure ranges	bar	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5
Over pressure safety	bar	1	1.5	2	2	4	5	10	10
Burst pressure	bar	2	2	2.4	2.4	4.8	6	12	12
Pressure ranges	bar	4	6	10	16	25	40	60	100
Over pressure safety	bar	17	35	35	80	50	80	120	200
Burst pressure	bar	20.5	42	42	96	96	400	550	800
Pressure ranges	bar	160	250	400	600	1000 ¹⁾	1600 ¹⁾	2500 ¹⁾	4000 ¹⁾
Over pressure safety	bar	320	500	800	1200	1500	2000	3000	4400
Burst pressure	bar	1000	1200	1700 ²⁾	2400 ²⁾	3000	4000	5000	7000
{Vacuum, gauge pressure, compound range, absolute pressure are available}									
Materials		CrNi-Steel (other materials see WIKA chemical seal program)							
■ Wetted parts		CrNi- Steel							
> Model IS-10		CrNi- Steel {Hastelloy C4}							
> Model IS-11		O-ring: NBR {FPM/FKM or EPDM}							
■ Case		CrNi- Steel							
Internal transmission fluid		Synthetic oil only for pressure ranges up to 25 bar							
> Model IS-10		Synthetic oil							
> Model IS-11		{Listed by FDA for food industry}							
> Model IS-10 / IS-11		{Halocarbon oil for oxygen applications ³⁾ }							
Power supply U_B	DC V	10 < U_B ≤ 30 (with el. connection Snap Cap: 11 < U_B ≤ 30)							
Signal output and		4 ... 20 mA, 2-wire							
Maximum load R_A		R_A ≤ (U_B - 10 V) / 0.02 A - (0.14 Ohm x cable in m) with R_A in Ohm and U_B in Volt							
Adjustability zero/span	%	± 10 via potentiometers in the instrument							
Response time (10 ... 90 %)	ms	≤ 1 ⁴⁾							
Accuracy ⁵⁾	% of span	≤ 0.5 {0,25} ⁶⁾ (limit point calibration)							
	% of span	≤ 0.25 {0.125} ⁶⁾ (BFSL)							
Hysteresis	% of span	≤ 0.1							
Repeatability	% of span	≤ 0.05							
1-year stability	% of span	≤ 0.2 (at reference conditions)							
Permissible temperature of									
■ Medium ⁷⁾		-30 ... +105°C				-22 ... +221°F			
■ Ambient ⁷⁾		-30 ... +105°C				-22 ... +221°F			
■ Storage		-30 ... +105°C				-22 ... +221°F			
■ Compensated		0 ... +80°C				32 ... +176°F			
Temperature coefficients in compensated temp range									
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure range ≤ 250 mbar)							
■ Mean TC of range	% of span	≤ 0.2 / 10 K							
⚡-protection		Categories ⁷⁾ 2G {1/2D, 2D, M1, M2, 1/2G}							
Signal Output		4 ... 20 mA, 2-wire							
Ignition protection type		EEx ia I/II C T4 (DMT 00 ATEX E 045 X)		EEx ia I/II C T5 (DMT 00 ATEX E 045 X)		EEx ia I/II C T6 (DMT 00 ATEX E 045 X)			
Conformity specifications									
■ Power supply	DC V	30		30		30			
■ Short circuit rating	mA	100		100		100			
■ Power limitation	W	1		1		1			
■ Medium temperature	°C	-20 ... + 105		-20 ... +80		-20 ... +60			
■ Ambient temperature	°C	-20 ... +105		-20 ... +80		-20 ... +60			
■ Storage temperature	°C	-30 ... +105		-30 ... +105		-30 ... +105			
■ Internal capacity C_i	nF	≤ 22							
■ Internal inductivity L_i	μH	≤ 100							
For further safety information please see the EC-type test certificate (DMT 00 ATEX E 045 X)									

Specifications

Model IS-10 / IS-11

CE conformity		89/336/EWG interference emission and immunity see EN 61 326 EN 50 014 (general part), EN 50 020 (intrinsic safety), {EN 50 284 (Zone 0)}, {EN 50 281-1 (dust-Ex)}, {EN 50 303 (mining industry)}
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		Protected against reverse polarity, overvoltage and short circuiting
Ingress protection per		IEC 60 529 / EN 60 529, see page 2 and page 3
Weight	kg	Approx. 0.2

- 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.
- 3) Media temperature for oxygen version : -30 ... +60 °C / -22 ... 140 °F (IS-11 up to max. 160 bar).
Cannot be manufactured for absolute pressure ranges < 1 bar abs.
- 4) IS-10: ≤ 10 ms at medium temp. below < -30 °C for pressure ranges up to 25 bar;
IS-11: ≤ 10 ms at medium temp. below < -30 °C.
- 5) Including linearity, hysteresis and reproducibility.
Limit point Calibration in vertical mounting position with lower pressure connection.
- 6) For pressure ranges beyond 0 ... 0.25 bar.
- 7) See list of EC-type test certificate.
- { } Items in curved brackets { } are optional extras for additional price.

Hazardous areas (zone classification according to ATEX)

Group II: Electrical equipment for use in all areas (except mines) which are endangered by an explosive atmosphere.

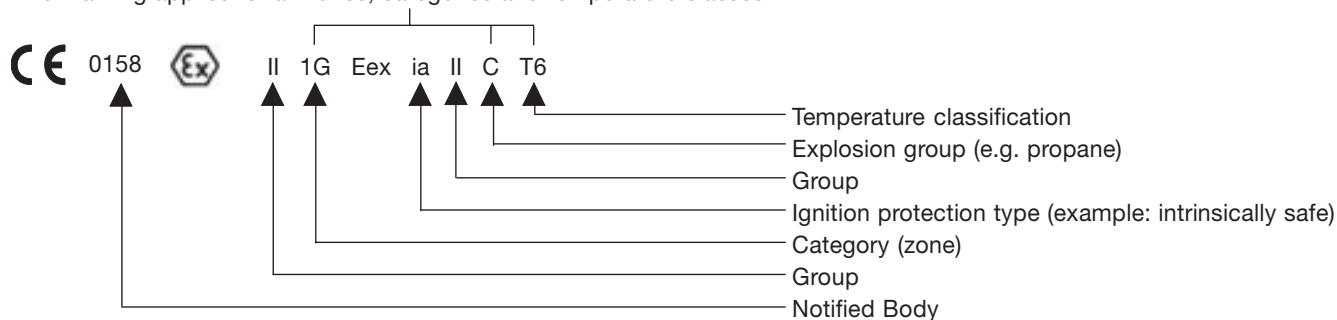
Zone	Category	Occurrence of explosive atmosphere
Zone 0	Category 1G (gas)	Continuous
Mounting to zone 0	Category 1/2 G	
Zone 20	Category 1D (dust)	Intermittent
Mounting to zone 20	Category 1/2 D	
Zone 1	Category 2G	Hazard under abnormal conditions
Zone 21	Category 2D	
Zone 2	Category 3G	
Zone 22	Category 3D	

Group I: Electrical equipment for use in mines (hazard due to mine gas)

Zone	Category	Occurrence of explosive atmosphere
	Category M1	Existing (methane, dust)
	Category M2	In high probability (methane, dust)

The new ATEX marking (example):

This marking applies for all zones, categories and temperature classes.



You can obtain further information (data sheets, instructions, etc.) via 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.

