

UniTrans® Intrinsically safe universal transmitter with PROFIBUS PA Model IUT-10-5 and IUT-11-5

WIKA Data Sheet PE 86.03



Applications

- Process engineering
- Chemical engineering
- Plant construction

Special Features

- Explosion protection EEx ia IIC T6 according to ATEX and CSA
- For the use in hazardous environments:
gases, vapours and mist: zone 1, zone 2 and connection to zone 0
dust: zone 21 and zone 22 and connection to zone 20
- High measuring accuracy
- Configuration via DTM (Device Type Manager) according to the FDT (Field Device Tool) concept (e.g. PACTware) or SIMATIC PDM
- Fully welded, stainless steel diaphragm



Fig. left: Pressure transmitter IUT-11-5 (flush)

Fig. right: Pressure transmitter IUT-10-5 with display

Description

Signal output PROFIBUS PA

The field bus solution for the process automation. PROFIBUS PA enables the digital communication between automation/process, distributed control systems and field instruments.

High measuring accuracy

The internal, digital signal processing allows for high measuring accuracy at fast measuring rates and pressure ranges from 400 mbar to 4000 bar.

Multifunctional display

The optional display can be adjusted mechanically and electronically, thus guaranteeing many display variations and an optimal reading from different directions. Bargraph and trend are permanently displayed.



Only a minor modification of the case is required in order to be able to read the display from above. All standard units can be displayed. Two further lines are available for entering additional text (e.g. min./max. values or temperature at the sensor).

Configuration

With the easy-to-use menu, the user can set parameters such as language, unit, or zero/span in the transducer block or the PROFIBUS out scale (function block) etc. Operation is possible in the languages English, German or French.

Specifications

Model IUT-10-5, standard version / IUT-11-5, flush diaphragm

Pressure ranges ^{*)}	bar	0.4	1.6	6	16	40	100	250	600	1000 ¹⁾	1600 ¹⁾	2500 ¹⁾	4000 ¹⁾				
Over pressure safety	bar	2	10	35	80	80	200	500	1200	1500	2000	3000	4400				
Burst pressure	bar	2.4	12	42	96	400	800	1200	2400 ²⁾	3000	4000	5000	7000				
{Vacuum, gauge pressure, compound range, absolute pressure are available}																	
¹⁾ Only Model IUT-10-5.																	
²⁾ For Model IUT-11-5: 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		(other materials see WIKA diaphragm seal program)															
■ Wetted parts		Stainless steel (pressure ranges > 16 bar additional Elgiloy®)															
➤ Model IUT-10-5		Stainless steel {Hastelloy C4}; o-ring: NBR {FPM/FKM or EPDM}															
➤ Model IUT-11-5		Highly resistive, fibreglass-enforced plastic (PBT); {Aluminium}															
■ Case		Synthetic oil {Halocarbon oil for oxygen applications}															
Internal transmission fluid ³⁾		{Listed by FDA for Food & Beverage}															
³⁾ Not for IUT-10-5 with pressure ranges > 16 bar.																	
Signal output		PROFIBUS PA according to Profile 3.0 IEC 61158-2 transmission according to MBP (Manchester Coding, Bus Powered)															
Bit rate	kBit/s	31.25															
Bus voltage	DC V	9 ... 32 (please consider the safety related values according to EC-type examination certificate ⁴⁾)															
Max. current consumption	mA	12.9 (switching points current limiting FDE to 17 mA)															
Adjustability and Damping		According. to PROFIBUS PA-Profile															
Internal measuring rate	Hz	100															
⁴⁾ EC-type examination certificate is included with delivery, can be sent before delivery on request.																	
Accuracy ⁵⁾	% of span	≤ 0.10 (≤ 0.3 for pressure range > 1000 bar)															
⁵⁾ Including non-linearity, hysteresis, non-repeatability, 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	≤ 0.05 (≤ 0.2 for pressure ranges > 1000 bar) (BFSL) according to IEC 61298-2															
1-year stability	% of span	≤ 0.1 (at reference conditions)															
Permissible temperature of		(Please consider the safety related values according to EC-type examination certificate ⁴⁾)															
■ Medium ^{*)}		-40 ... +105 °C ⁴⁾						-40 ... +221 °F ⁴⁾									
■ Ambience		-40 ... + 80 °C (-20...+70 °C with display)						-40 ...+176 °F (-4 ...+158 °F with display)									
■ Storage		-40 ... + 85 °C (-35...+80 °C with display)						-40 ... +185 °F (-31...+176°F with display)									
Overall deviation	%	At +10 ... +40 °C (+50 ... +104 °F): ≤ 0.15 (≤ 0.5 for pressure range > 1000 bar)															
Compensated temp. range		-20 ... +80 °C						-4 ... +176 °F									
Temperature coefficients within compensated temp range:		(temp. related deviations in the range +10 ... +40 °C / +50 ... 104 °F included in the overall deviation)															
■ Mean TC of zero	% of span	≤ 0.1 / 10 K															
■ Mean TC of range	% of span	≤ 0.1 / 10 K															
 - certification acc. to FISCO-Model		The instruments are certified for environments that require category 1/2G, 2G, 3G {1/2D, 2D, 3D}															
Ignition protection type		EEx ia IIC T4						EEx ia IIC T5 / T6									
Display		(DMT 99 ATEX E 091 U)						(DMT 99 ATEX E 091 U)									
Transmitter		(DMT 02 ATEX E 103)						(DMT 02 ATEX E 103)									
Safety-related max. values:																	
■ Medium temperature ^{*)}		< 105 °C ⁴⁾				< 221 °F ⁴⁾				< 60 °C ⁴⁾				< 140 °F ⁴⁾			
■ Ambient temperature		-40 ... +80 °C				-40 ... +176 °F				-40 ... +45 °C				-40 ... +113 °F			
■ Voltage U _i	DC V	24															
■ Current I _i	mA	380															
■ Power P _i	W	5.32															
■ C _i / L _i	nF / μH	Effective internal capacitance and inductivity negligibly small															
 -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)															
Shock resistance	g	100 according to IEC 60068-2-27 (mechanical shock)															
Vibration resistance	g	5 according to IEC 60068-2-6 (vibration under resonance)															
Wiring protection		Protected against reverse polarity, short circuiting and {overvoltage} on the instrument side															
Mass	kg	Approx. 0.7 {aluminium version approx. 1.0}															

^{*)} In an oxygen version model IUT-11-5 is not available. In an oxygen version model IUT-10-5 is only available in gauge pressure ranges up to max. 1000 bar and with media temperatures between -20 ... +60 °C / -4 ... +140 °F.

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

Dimensions in mm

Ingress Protection IP per IEC 60 529

PBT-case
IP 65
Order code: M

cable gland
M 20x1,5
with internal terminal block
IP 65
Order code: A

locking plug
M 12x1, 4-pin
Order code: M

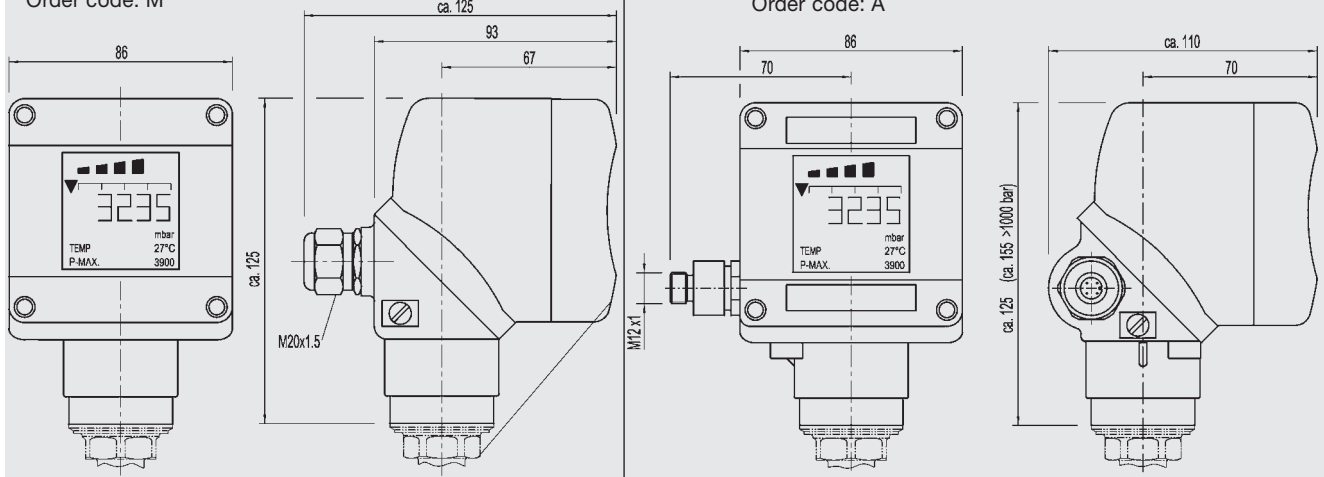
see drawings

{aluminium case
IP 67
Order code: A}

locking plug
M 12x1, 4-pin
Order code: M

see drawings

cable gland
M 20x1,5
with internal terminal block
IP 65
Order code: A



Pressure connections IUT-10-5

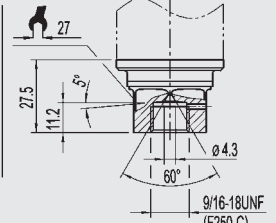
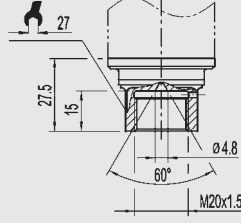
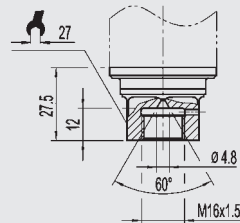
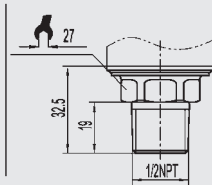
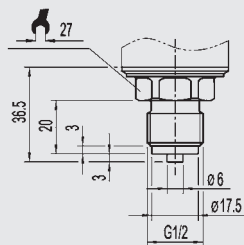
G 1/2
EN 837
max. 1600 bar
Order code: GD

1/ 2 NPT
per „Nominal size for US
standard tapered pipe
thread NPT“
max. 1600 bar
Order code: ND

M 16x1,5 female ¹⁾
from 1600 bar
Order code: ML

M 20x1,5 ¹⁾
from 1600 bar
Order code: MI

M 20x1,5 ¹⁾
ab 1600 bar
Bestellcode: MI



Others on request

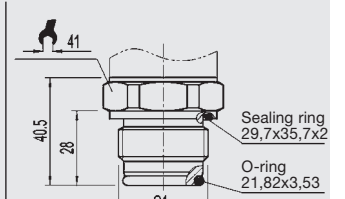
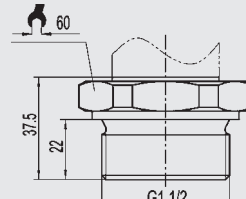
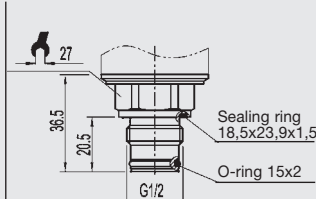
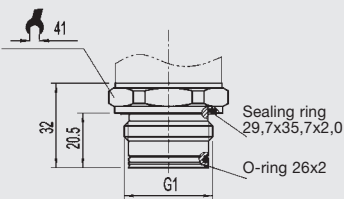
Pressure connections IUT-11-5, flush diaphragm

G 1
0 ... 0.4 up to 0 ... 1.6 bar
Order code: 85

G 1/2
> 1.6 bar
Order code: 86

G 1 1/2
without O-ring
0 ... 0.4 up to 0 ... 16 bar
Order code: G6

G 1
according to EHEDG ²⁾,
0 ... 0.4 up to 0 ... 16 bar
Order code: 83



Others on request

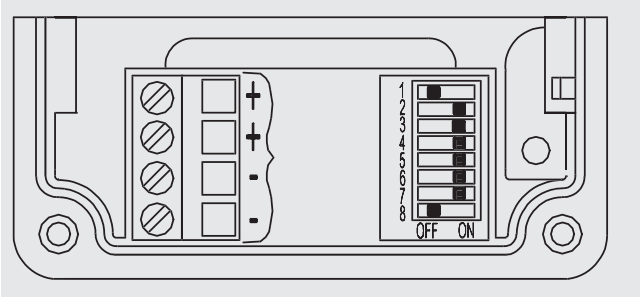
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de
-Service

1) The respective values for your mounting position please find in the documentation of your high-pressure equipment supplier.

2) European Hygienic Equipment Design Group

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

Electrical connection



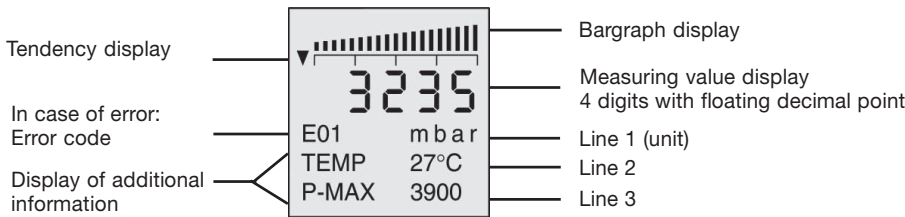
Cable gland M 20 x 1.5 with internal clamping block
(For cable diameters of 7 ... 13 mm, wire diameters up to 2.5 mm²)

Communication

Signal transmission	PROFIBUS PA: digital communication-signal, 2-wire
PROFIBUS PA	Via segment coupler connection to SPS or PC e.g. with supplied operating software PACTware
	Digital display for measured value indication
PA-function	Slave
Default address	126 (for DIP switch position see picture)

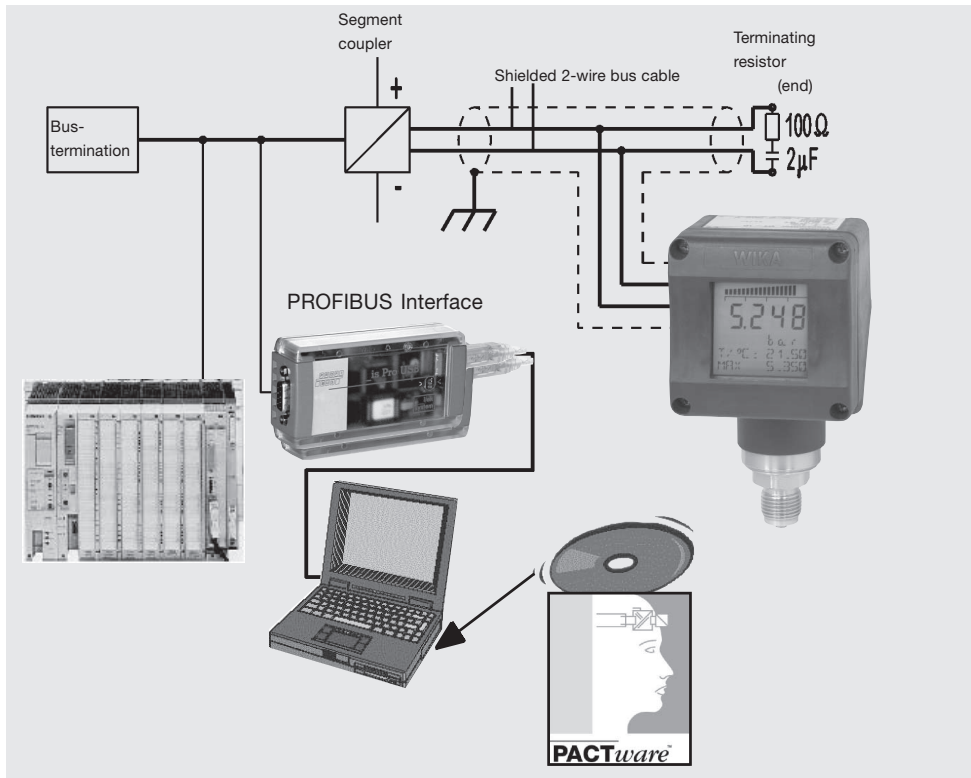
Optional display (example)

Measuring value - display mode



Communication (examples)

Communication PROFIBUS PA



PACTware
The configuration software PACTware™ starter version comes supplied with the transmitter !

The PROFIBUS-Interface _is Pro USB is available from:
ifak system GmbH
Schleiufer 11
39104 Magdeburg / Germany
Tel: +49 391 544 563-10
Fax: +49 391 544 563-99
www.ifak-system.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.



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