

# UniTrans® - Intrinsically safe universal transmitter for hazardous environments Model IUT-10 and IUT-11

WIKA Data Sheet PE 86.02



## Applications

- Process engineering
- Chemical engineering
- Plant construction

## Special Features

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

## Description

With its maximal 1 : 20 turndown ratio the UniTrans can be used in many different applications. This turndown ratio eliminates the necessity of keeping several transmitters in stock; it is much easier to turn down the transmitter instead of changing transmitters (e.g. a 100 bar transmitter can be turned down to 5 bar).

As IS - pressure transmitter the UniTrans can perfectly meet the hardest requirements of industrial pressure measurement. It is approved by the high grade CENELEC certificate complying with the ATEX and CSA approval.

### High measuring accuracy

The internal, digital signal processing allows for high measuring accuracy at fast measuring rates and pressure ranges from 20 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.



Fig. left Pressure transmitter IUT-11 (flush)  
Fig. right Pressure transmitter IUT-10 with display

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, zero point, span or inverted signal. The displayed language for transmitters with HART®-Communication is always English (other languages through configuration software).

The UniTrans also offers the possibility of a tank linearisation with up to 32 holding points.

### Power Supply

The UniTrans is fed via intrinsically safe line transformers (e.g. WIKA Model KFD2-STC4-Ex1) or via standard barriers with an input power of 12 ... 30 V. The output signal is 4 ... 20 mA, 2-wire system.

## Specifications

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

Pressure ranges <sup>1) *)</sup>	bar	0.4	1.6	6	16	40	100	250	600	1000 <sup>2)</sup>	1600 <sup>2)</sup>	2500 <sup>2)</sup>	4000 <sup>2)</sup>
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 <sup>3)</sup>	3000	4000	5000	7000
{Vacuum, gauge pressure, compound range, absolute pressure are available}													
<sup>1)</sup> Other measuring ranges (e. g. 4 bar) can be set via the respective Turn down. Even when the measuring range is present by us on (e. g. 4 bar) the standard range of (6 bar) can be set again by a reset.													
<sup>2)</sup> Only Model IUT-10.													
<sup>3)</sup> For Model IUT-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		(other materials see WIKA diaphragm seal program)											
■ Wetted parts		Stainless steel (pressure ranges > 16 bar additional Elgiloy <sup>®</sup> )											
➢ Model IUT-10		Stainless steel {Hastelloy C4}; O-ring: NBR {FPM/FKM or EPDM}											
➢ Model IUT-11		Highly resistive, fibreglass-enforced plastic (PBT); {Aluminium}											
■ Case		Synthetic oil {Halocarbon oil for oxygen applications}											
Internal transmission fluid <sup>4)</sup>		{Listed by FDA for Food & Beverage}											
<sup>4)</sup> Not for IUT-10 with pressure ranges > 16 bar													
Power supply U <sub>B</sub>	DC V	12 ... 30											
Signal output and maximum load R <sub>A</sub>		4 ... 20 mA, 2-wire, optionally with modulated communication signal HART <sup>®</sup>											
Adjustability Zero Point / Span		R <sub>A</sub> ≤ (U <sub>B</sub> - 12 V) / 0.023 A with R <sub>A</sub> in Ohm and U <sub>B</sub> in Volt											
Internal measuring rate	Hz	Zero: -2.5 ... 99 % / Span: Turn down of 1 : 20 (1 : 2 for pressure ranges > 1000 bar)											
Accuracy <sup>5)</sup>	% of span	≤ 0.1 (≤ 0.3 for pressure ranges > 1000 bar)											
<sup>5)</sup> 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.													
Behavior with Turn down (1 : k)		Turn down of up to 1 : 5 No change of accuracy											
Turn down of 1 : 5 to 1 : 20		The accuracy must be multiplied by the factor (k / 5)											
[Calculation example for TD = 1 : 15] Accuracy = 0.1 x (15 : 5) = 0.3													
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 Compensated temp. range		See safety-related max. values											
Overall deviation	%	-20 ... + 80 °C   - 4 ... +176 °F											
Temperature coefficients		At +10 ... +40 °C (50 ... 104 °F): ≤ 0.15 (≤ 0.5 for pressure ranges > 1000 bar)											
(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 (compensated temp. range)											
■ Mean TC of range	% of span	≤ 0.1 / 10 K (compensated temp. range)											
Damping (display and signal)	s	0 ... 40 (adjustable)											
Explosion protection		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					
Certificate No.	Display	(DMT 99 ATEX E 091 U)						(DMT 99 ATEX E 091 U)					
	Transmitter	(DMT 99 ATEX E 093)						(DMT 99 ATEX E 093)					
Safety-related max. values:													
■ Power supply U <sub>i</sub>	DC V	30						30					
■ Short circuit rating I <sub>i</sub>	mA	100						93					
■ Power limitation P <sub>i</sub>	mW	750						697					
■ Medium temperature <sup>*)</sup>		-40 ... +105 °C			-40 ... +221 °F			-40 ... +60 °C			-40 ... +140 °F		
■ Ambient temperature		-40 ... +70 °C <sup>6) 7)</sup>			-40 ... +158 °F <sup>7)</sup>			-40 ... +60 °C <sup>6) 7)</sup>			-40 ... +140 °F <sup>7)</sup>		
■ Storage temperature		-40 ... + 85 °C <sup>8)</sup>			-40 ... +185 °F <sup>8)</sup>			-40 ... +85 °C <sup>8)</sup>			-40 ... +185 °F <sup>8)</sup>		
<sup>6)</sup> Permissible temperature range in non hazardous area -40 ... +85 °C / -40 ... +185 °F													
<sup>7)</sup> -20 ... +70 °C / -4 ... +158 °F with display													
<sup>8)</sup> -35 ... +85 °C / -31 ... +185 °F with display													
■ Internal capacity Ci/inductivity Li	nF / μH	9 / very low											
CE-conformity		89/336/EWG interference emission and immunity see EN 61 326, Interference emission limit class A and B, EN 50 014 (general part), EN 50 020 (intrinsic safety), EN 50 284 (Zone 0), {EN 50 281-1 (dust)}											

## Specifications

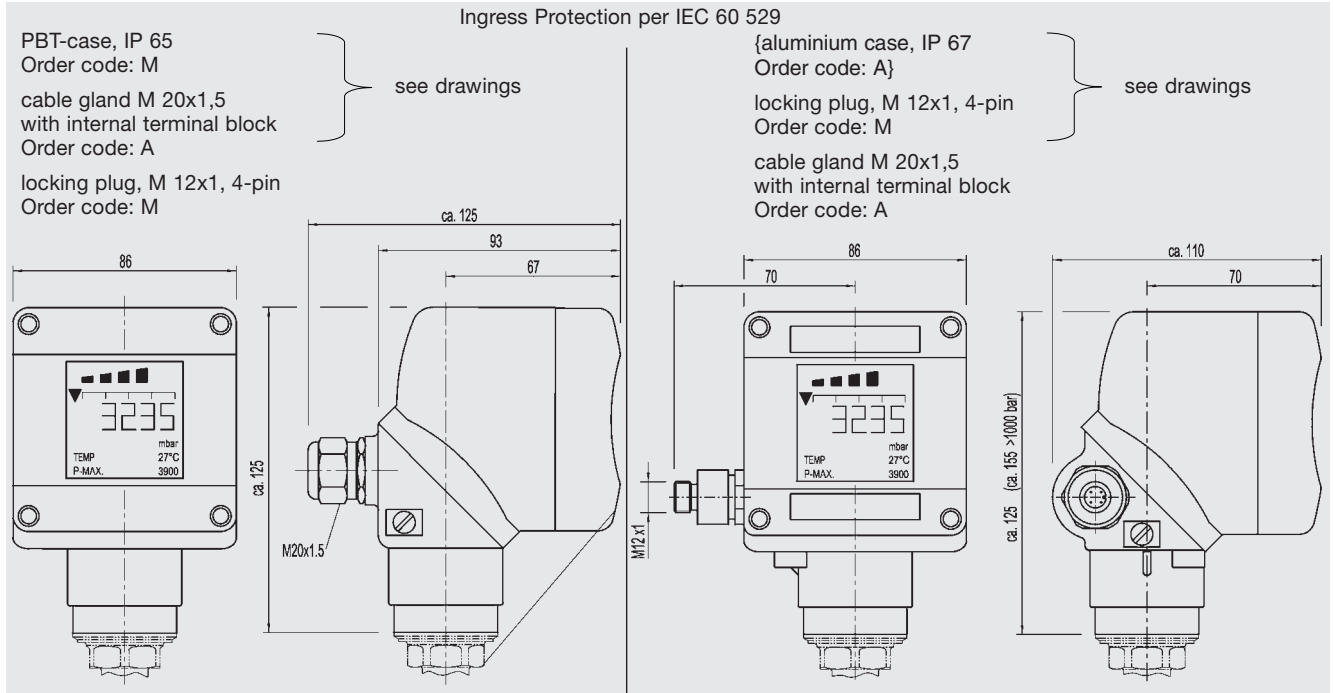
## Model IUT-10, standard version / IUT-11, flush diaphragm

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 {Aluminum version approx. 1.0}

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

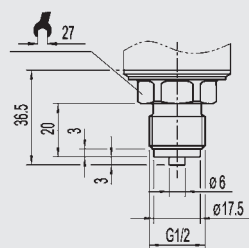
{ } Items in curved brackets are optional extras for additional price.

## Dimensions in mm

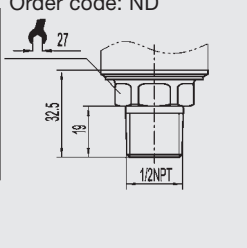


### Pressure connections IUT-10

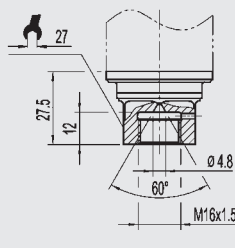
G 1/2  
EN 837  
max. 1600 bar  
Order code: GD



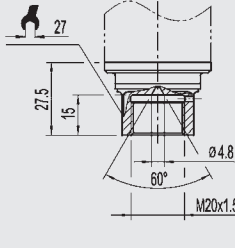
1/2 NPT  
per „Nominal size for US  
standard tapered pipe thread  
NPT“, max. 1600 bar  
Order code: ND



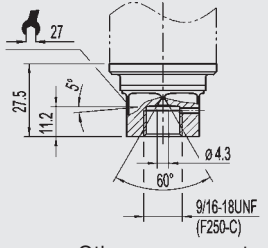
M 16x1,5 female <sup>1)</sup>  
from 1600 bar  
Order code: ML



M 20x1,5 <sup>1)</sup>  
from 1600 bar  
Order code: MI



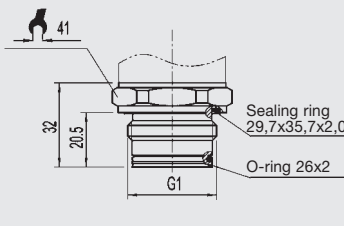
9/16-18 UNF female <sup>1)</sup>  
from 1600 bar  
Bestellcode: VZ



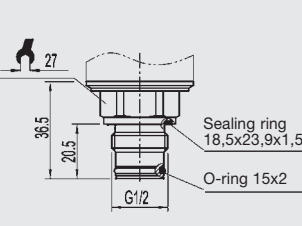
Others on request

### Pressure connections IUT-11, flush diaphragm

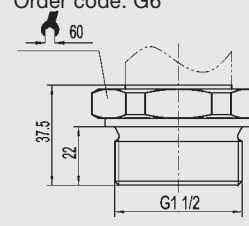
G 1  
0 ... 0.4 up to 0 ... 1.6 bar  
Order code: 85



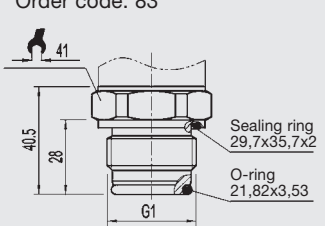
G 1/2  
> 1.6 bar  
Order code: 86



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



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



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](http://www.wika.de) -Service**

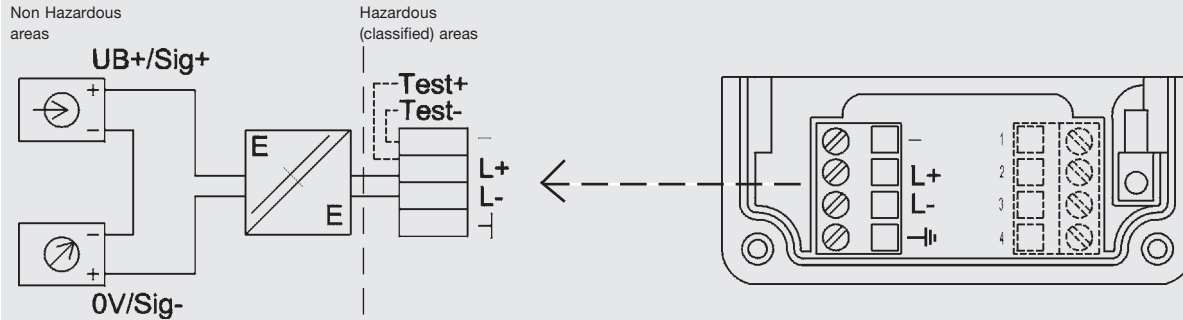
1) The respective values for your mounting position please find in the documentation of your high-pressure equipment supplier.

2) European Hygienic Equipment Design Group

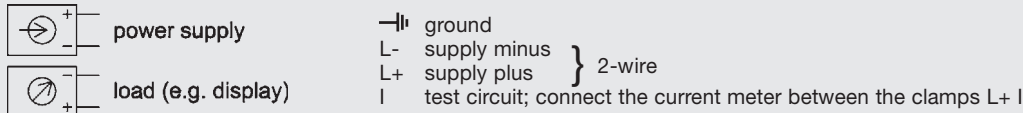
{ } Items in curved brackets are optional extras for additional price.

## Wiring details

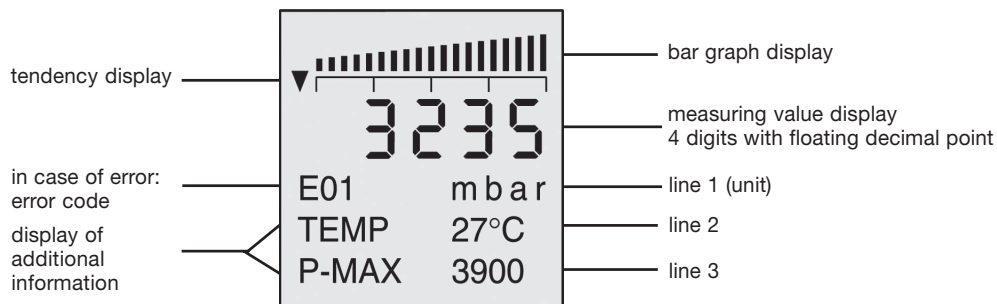
### 2-wire



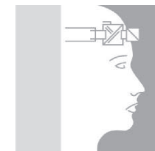
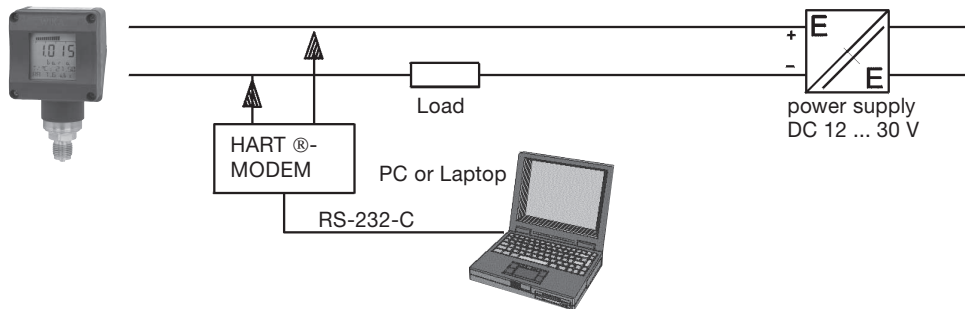
#### Legend:



## Random example of the optional display

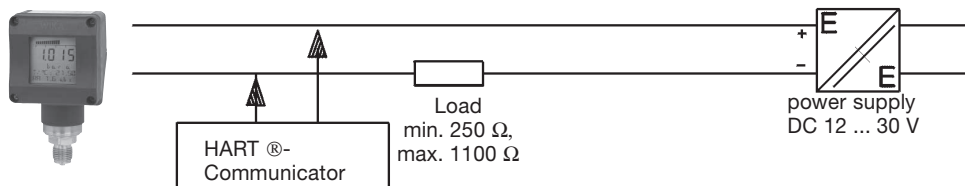


## Communication between PC and transmitter for versions with HART® -communication signal



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

## Communication between HART® communicator and transmitter



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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