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

Applications

- Process engineering
- Chemical engineering
- Plant construction

Special features

- Explosion protection Ex ia IIIC 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.

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

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<th>Model IUT-11 flush diaphragm</th>
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<td><strong>Burst pressure</strong></td>
<td><strong>Burst pressure</strong></td>
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<tr>
<td>bar</td>
<td>0.4</td>
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<tr>
<td>bar</td>
<td>2</td>
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<td>bar</td>
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</table>

(Vacuum, gauge pressure, compound range, absolute pressure are available)

### Materials

- **Wetted parts**
  - (other materials see WIKA diaphragm seal program)
  - Model IUT-10: Stainless steel (pressure ranges > 16 bar additional Elgiloy®)
  - Model IUT-11: Stainless steel [Hastelloy C4]; O-ring: NBR 4) (FKM/EPDM or EPDM)
- **Case**
  - Highly resistive, fiberglass-enforced plastic (PBT); {Aluminum}
  - Power supply UB DC V 12 ... 30
- **Internal transmission fluid** 5)
  - Synthetic oil {Halocarbon oil for oxygen applications}
  - {Listed by FDA for Food & Beverage}

### Power supply UB DC V 12 ... 30
- Signal output 4 ... 20 mA, 2-wire, optionally with modulated communication signal HART®
- Permissible max. load \( R_A \leq (U_B - 12 \text{~V}) / 0.023 \text{~A} \) with \( R_A \) in Ohm and \( U_B \) in Volt

### Adjustability

- **Zero Point** \( \% \) -2.5 ... 99
- **Span**
  - Turn down of 1 : 20 (1 : 2 for pressure ranges > 1,000 bar)
- **Internal measuring rate** Hz 100 (≤ 10 with HART® protocol)
- **Accuracy** \% of span ≤ 0.1 5) (≤ 0.3 for pressure ranges > 1,000 bar)
- **Behavior with Turn down (1 : k)**
  - No change of accuracy
  - The accuracy must be multiplied by the factor \( (k / 5) \)
- **Non-linearity** \% of span ≤ 0.05 (≤ 0.2 for pressure ranges > 1,000 bar); (BFSL) per IEC 61298-2
- **1-year stability** \% of span ≤ 0.1 (at reference conditions)

### Permissible temperature of

- Compensated temp. range °C -20 ... +80
- Overall deviation \% at +10 ... +40 °C ≤ 0.15 (≤ 0.5 for pressure ranges > 1,000 bar)
- Temperature coefficients within compensated temp range
- Mean TC of zero \% of span ≤ 0.1 / 10 K
- Mean TC of range \% of span ≤ 0.1 / 10 K

### Damping s display and signal: 0 ... 40 (adjustable)

### Explosion protection

- The instruments are certified for environments that require category 1/2G, 2G, {1/2D, 2D}, Ex ia IIC T4 / T5 / T6
- Certificate No.
  - Display (DMT 99 ATEX E 091 U)
  - Transmitter (DMT 99 ATEX E 093)

### CE-conformity

- Pressure equipment directive 97/23/EG (Modul H)
- EMV directive 2004/108/EG, EN 61326 Emission (Grouß 1, Class B) and immunity (industrial locations)
- ATEX directive 94/9/EG, Category 1/2G, 2G, {1/2D, 2D}, Ex ia IIC

### Weight

- Protected against reverse polarity, short circuiting and (overvoltage) on the instrument side
- approx. 0.7 (Aluminum version approx. 1.0)

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1) Items in curved brackets are optional extras for additional price.
2) 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 ... +50 °C.
3) Other measuring ranges (e.g. 4 bar) can be set via the respective Turn down. Even when the measuring range is present by us (e.g. 4 bar) the standard range of (6 bar) can be set again by a reset.
4) Not for IUT-10 with pressure ranges > 16 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.
6) Permissible temperature range in non hazardous area -40 ... +85 °C / -40 ... +185 °F
7) -40 °C only with Aluminum case.

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Ingress protection IP per IEC 60529

PBT-case, IP 65
Order code: M

Cable gland M 20 x 1,5
with internal terminal block
Order code: M

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

[see drawings]

(aluminium case, IP 67
Order code: A)

Cable gland
M 20x1,5
with internal terminal block
Order code: A

[see drawings]

Pressure connections UT-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: ML

M 16x1.5 female 1)
from 1600 bar
Order code: MI

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

9/16-18 UNF female 1)
from 1600 bar
Order code: VZ

Pressure connections UT-11

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 acc. EHEDG 2)
0 ... 0,4 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

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

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Wiring details

2-wire

Non Hazardous areas

Hazardous (classified) areas

Legend:

- Power supply
- Load (e.g. display)

2-wire

UB+/Sig+

0V/Sig-

Test+

Test-

L+

L-

E

E

Random example of the optional display

- Measuring value display
  - 4 digits with floating decimal point
- Line 1 (unit)
- Line 2
- Line 3

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

Load power supply

DC 12 ... 30 V

PC or Laptop

RS-232-C

HART®-MODEM

Communication between HART® communicator and transmitter

Load

power supply

DC 12 ... 30 V

HART®-Communicator

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.