



## Pressure

# Process transmitter With capacitive ceramic measuring cell Models CPT-20, CPT-21

WIKA data sheet PE 86.07



for further approvals  
see page 9

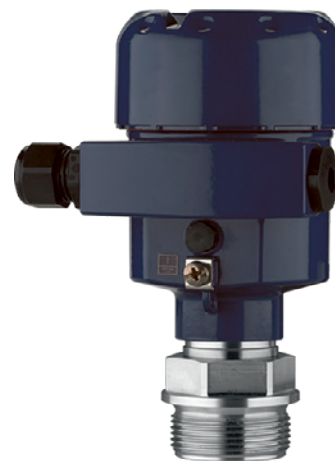


## Applications

- Chemical and petrochemical industries
- Process engineering
- Pulp and paper industry
- Water and wastewater
- Hazardous areas

## Special features

- Ex protection per ATEX and IECEx
- For applications to SIL 2 (SIL 3)
- Dry ceramic measuring cell, high overload safety
- Seven different case variants
- Configuration via EDD (Electronic Device Description) and DTM (Device Type Manager) in accordance with the FDT (Field Device Tool) concept, e.g. PACTware



Model CPT-21 with flush process connection

## Description

With its 4 ... 20 mA, 4 ... 20 mA HART®, PROFIBUS® PA or FOUNDATION Fieldbus™ output signals, combined with either intrinsic safety or flameproof enclosure ignition protection type (in accordance with ATEX and IECEx), the model CPT-2x is ideally suited to applications with the highest demands on measurement technology.

### Robust and highly accurate

The capacitive ceramic measuring cell delivers especially accurate measured values, in particular with small measuring ranges, and thus has a particularly high overload. As a result of the special sealing concept, operation in almost all industries and applications is possible without difficulties. There are seven different case variants available, and thus it is possible to select a variant suited to every operating environment.

The case itself can be rotated through 330° and is available in plastic, aluminium and stainless steel. An electropolished stainless steel case (316L) is available to meet the high demands of the food and pharmaceutical industries.

### Easy configuration and operation

Service and configuration at the instrument is carried out using the optional display and operating module, which can be fitted in four positions. The operating menu has a simple and self-explanatory structure and has thirteen selectable languages as standard. Alternatively, the operating parameters can be set using the PACTware™ free and non-proprietary configuration software. An instrument-specific DTM enables easy integration into corresponding process control systems.

## Specifications

### Measuring ranges

Gauge pressure				
bar	0 ... 0.025	0 ... 0.1	0 ... 0.4	0 ... 1
	0 ... 2.5	0 ... 5	0 ... 10	0 ... 25
	0 ... 60	0 ... 100		
psi	0 ... 0.4	0 ... 1.5	0 ... 5	0 ... 15
	0 ... 30	0 ... 75	0 ... 150	0 ... 300
	0 ... 500	0 ... 1,450		

Absolute pressure				
bar	0 ... 0.1	0 ... 0.4	0 ... 1	0 ... 2.5
	0 ... 5	0 ... 10	0 ... 25	0 ... 60
	0 ... 100			
psi	0 ... 0.4	0 ... 1.5	0 ... 5	0 ... 15
	0 ... 30	0 ... 150	0 ... 300	0 ... 900
	0 ... 1,450			

Vacuum and +/- measuring range				
bar	-0.025 ... +0.025	-0.05 ... +0.05	-0.2 ... +0.2	-0.5 ... +0.5
	-1 ... 0	-1 ... +1.5	-1 ... +5	-1 ... +10
	-1 ... +25	-1 ... +60	-1 ... +100	
psi	-0.7 ... +0.7	-3 ... +3	-7 ... +7	-14.5 ... 0
	-14.5 ... +20	-14.5 ... +75	-14.5 ... +150	-14.5 ... +300
	-14.5 ... +900	-14.5 ... +1,450		

Other measuring ranges can be set via turndown (scaling).

Maximum setting range of the pressure value: -20 ... +120 %

For example, a 0 ... 10 bar [0 ... 150 psi] instrument can also be used from -1 ... +10 bar [-14.5 ... +150 psi].

Values of less than 0 bar abs. [0 psia] cannot be set or measured.

Vacuum/overload safety	
<b>Vacuum safety</b>	Yes (from measuring range 0 ... 1 bar [0 ... 15 psi])
Minimum pressure at 0 ... 0.025 bar [0 ... 0.4 psi]	-0.05 bar [-0.8 psi]
Minimum pressure at 0 ... 0.1 bar [0 ... 1.5 psi]	-0.2 bar [-3 psi]
Minimum pressure at 0 ... 0.4 bar [0 ... 5 psi]	-0.8 bar [-14 psi]
<b>Overload safety</b>	
Measuring range ≤ 1 bar [15 psi]	35 times
Measuring range ≤ 10 bar [150 psi]	9 times
Measuring range ≤ 60 bar [900 psi]	3 times
Measuring range ≤ 100 bar [1,450 psi]	2 times

## Output signals

Output signals	
Signal types	<ul style="list-style-type: none"> <li>■ 4 ... 20 mA</li> <li>■ 4 ... 20 mA with a superimposed HART® communication signal (option: SIL qualification)</li> <li>■ HART® specification: 7.3</li> <li>■ FOUNDATION™ Fieldbus</li> <li>■ PROFIBUS® PA</li> <li>■ Slave electronics for electrical differential pressure (option: SIL qualification)</li> </ul>
Load in $\Omega$	$(U_B - U_{Bmin}) / 0.022 \text{ A}$ $U_B$ = Applied supply voltage (see table "Supply voltage") $U_{Bmin}$ = Minimum supply voltage (see table "Supply voltage")
Dampening	0.0 ... 999.9 s, adjustable After the set dampening time the instrument outputs 63 % of the applied pressure as output signal.  Example: A pressure impulse increases from 0 to 10 bar with a dampening of 2 seconds. After the 2 seconds a pressure of 6.3 bar is displayed.
Step response time	< 80 ms (= dead time < 25 ms + rise time 10 ... 90 % < 55 ms)

## Accuracy specifications

Accuracy specifications	
Accuracy at room temperature <sup>1)</sup>	0.05 % of span (option: 0.1 % or 0.2 %)
<b>Adjustability</b>	
Zero point	-20 ... +95 % (downwards, the adjustability is always limited by the minimum pressure of 0 bar abs. [0 psia])
Span	-120 ... +120 % with a difference between zero point and span of a max. 120 % of the nominal measuring range (downwards, the adjustability is always limited by the minimum pressure of 0 bar abs. [0 psia])
Turndown	Unlimited Max. turndown for SIL applications 10:1
<b>Non-linearity</b>	
Accuracy at room temperature 0.05 %	≤ 0.05 % of span BFSL (IEC 61298-2)
Accuracy at room temperature 0.1 %	≤ 0.1 % of span BFSL (IEC 61298-2)
Accuracy at room temperature 0.2 %	≤ 0.2 % of span BFSL (IEC 61298-2)
<b>Non-repeatability</b>	
Accuracy at room temperature 0.05 %	≤ 0.05 % of span BFSL (IEC 61298-2)
Accuracy at room temperature 0.1 %	≤ 0.1 % of span BFSL (IEC 61298-2)
Accuracy at room temperature 0.2 %	≤ 0.2 % of span BFSL (IEC 61298-2)
<b>Behaviour with turndown</b>	
1:1 ... 5:1	No change in accuracy
> 5:1	(basic accuracy / 5) x turndown
<b>Long-term stability at reference conditions</b>	
Measuring range 0 ... 0.025 bar [0.4 psi]	<ul style="list-style-type: none"> <li>■ &lt; 0.1 % x turndown (1 year)</li> <li>■ &lt; 0.2 % x turndown (5 years)</li> <li>■ &lt; 0.4 % x turndown (10 years)</li> </ul>
All other measuring ranges	<ul style="list-style-type: none"> <li>■ &lt; 0.05 % x turndown (1 year)</li> <li>■ &lt; 0.1 % x turndown (5 years)</li> <li>■ &lt; 0.2 % x turndown (10 years)</li> </ul>
<b>Thermal change, zero point and span (reference temperature 20 °C [68 °F])</b>	
In compensated range 0 ... 100 °C [32 ... 212 °F]	< 0.075 % / 10 K (max. 0.15 %)
Outside compensated range	< 0 °C [32 °F]: < 0.15 % / 10 K > 100 °C [212 °F]: < 0.05 % / 10 K
<b>Thermal change of the current output <sup>2)</sup> (reference temperature 20 °C [68 °F])</b>	< 0.05 % / 10 K (max. 0.15 %) for 4 ... 20 mA output at -40 ... +80 °C [-40 ... +176 °F]

Accuracy specifications	
Deviations through strong electromagnetic fields within the scope of EN 61326-1	< ±150 µA

- 1) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2). Calibrated in vertical mounting position with process connection facing downwards.  
2) Not valid for PROFIBUS® PA and FOUNDATION™ Fieldbus.

## Reference conditions (per IEC 61298-1)

Reference conditions (per IEC 61298-1)	
Temperature	15 ... 25 °C [59 ... 77 °F]
Atmospheric pressure	860 ... 1,060 mbar (86 ... 106 kPa, 12.5 ... 15.4 psig)
Air humidity	45 ... 75 % r. h.
Characteristic curve determination	Terminal method per IEC 61298-2
Curve characteristics	Linear
Reference mounting position	Vertical, diaphragm points downward

## Voltage supply

### Supply voltage (non-Ex and Ex d)

Signal type	Backlighting	
	Inactive	Active
4 ... 20 mA	DC 9.6 ... 35 V	DC 16 ... 35 V
4 ... 20 mA with a superimposed HART® communication signal	DC 9.6 ... 35 V	DC 16 ... 35 V
FOUNDATION™ Fieldbus	DC 9 ... 32 V	DC 13.5 ... 32 V
PROFIBUS® PA	DC 9.6 ... 32 V	DC 13.5 ... 32 V

### Supply voltage (Ex ia)

Signal type	Backlighting	
	Inactive	Active
4 ... 20 mA	DC 9.6 ... 30 V	DC 16 ... 30 V
4 ... 20 mA with a superimposed HART® communication signal	DC 9.6 ... 30 V	DC 16 ... 30 V
FOUNDATION™ Fieldbus	DC 9 ... 24 V (DC 9 ... 17.5 V Fisco)	DC 13.5 ... 24 V (DC 13.5 ... 17.5 V Fisco)
PROFIBUS® PA	DC 9 ... 24 V (DC 9.6 ... 17.5 V Fisco)	DC 13.5 ... 24 V (DC 13.5 ... 17.5 V Fisco)

## Process connections

Standard process connections for model CPT-20	
EN 837	<div> <div></div> G ½ <div></div> M20 x 1.5 </div>
ISO 228-1	G ¼ A female, G ½ A male
ANSI / ASME B1.20.1	¼ NPT female, ½ NPT male

Flush process connections for model CPT-21	
ISO 228-1	<ul style="list-style-type: none"> <li>■ G ½</li> <li>■ G 1 A</li> </ul>
DIN 3852-A	G 1 ½ A

Aseptic process connections for model CPT-21	
DIN 32676, ISO 2552	<ul style="list-style-type: none"> <li>■ Clamp 1"</li> <li>■ Clamp 1 ½"</li> <li>■ Clamp 2"</li> </ul>
VARIVENT®	DN 32
Threaded pipe connection per DIN 11851	<ul style="list-style-type: none"> <li>■ DN 40</li> <li>■ DN 50</li> </ul>

Flanges for model CPT-21	
DIN 2501	<ul style="list-style-type: none"> <li>■ DN 40, PN 40</li> <li>■ DN 50, PN 40</li> <li>■ DN 80, PN 40</li> </ul>
ASME B16.5	<ul style="list-style-type: none"> <li>■ 2", 150 lbs</li> <li>■ 3", 150 lbs</li> </ul>

## Materials

Materials	
<b>Wetted parts</b>	
Process connection	<ul style="list-style-type: none"> <li>■ Stainless steel 316L</li> <li>■ PVDF</li> <li>■ Alloy C22 (2.4602)</li> <li>■ Alloy C276 (2.4819)</li> <li>■ Duplex (1.4462)</li> <li>■ Titanium grade 2</li> </ul>
Diaphragm	Sapphire ceramic with glass seam (> 99.9 % Al <sub>2</sub> O <sub>3</sub> ceramic)
<b>Sealing of the measuring cell</b>	
Standard process connections	FKM (options: EPDM, FFKM)
Flush process connections	FKM (options: EPDM, FFKM)
<b>Sealing material (at process connection)</b>	Not included in delivery Exception G 1 A ISO228-1 flush with O-ring FKM (option: EPDM)

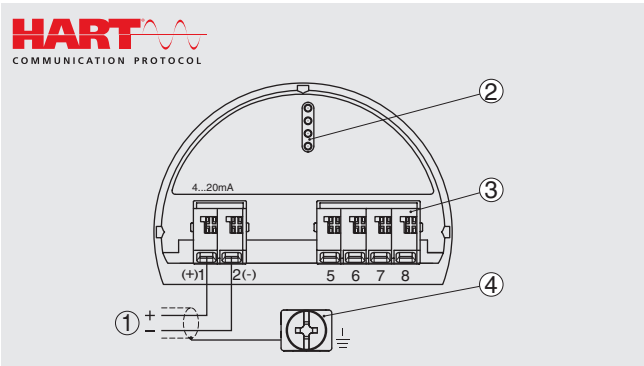
Case	Material
Single chamber case, plastic	PBT, polyester
Single chamber case, aluminium	Die-casting AlSi10Mg, powder-coated on PE basis
Single chamber case, cast stainless steel	Stainless steel 316L
Single chamber case, electropolished stainless steel, deep-drawn	Stainless steel 316L
Double chamber case, plastic	PBT, polyester
Double chamber case, aluminium	Die-casting AlSi10Mg, powder-coated on PE basis
Double chamber case, cast stainless steel	Stainless steel 316L

# Electrical connection

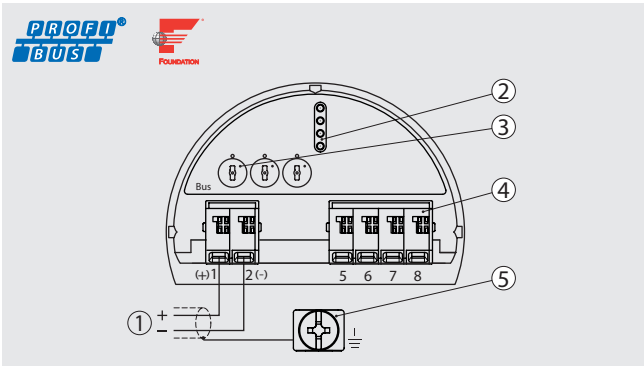
Electrical connection		
Spring-loaded terminals	Wire cross-section	<div> <div></div> <div>Wire or strand: 0.2 ... 2.5 mm<sup>2</sup> (AWG 24 ... 14)</div> <div>Strand with end splice: 0.2 ... 1.5 mm<sup>2</sup> (AWG 24 ... 16)</div> </div>
Cable glands M20 x 1.5		
Plastic, PA	Sealing	NBR
	Cable diameter	<div> <div></div> <div>5 ... 9 mm [0.2 ... 0.35 in]</div> <div>6 ... 12 mm [0.24 ... 0.47 in]</div> <div>10 ... 14 mm [0.39 ... 0.55 in]</div> </div>
Brass, nickel-plated	Sealing	NBR
	Cable diameter	9 ... 13 mm [0.35 x 0.51 in] (for armoured cable)
Stainless steel	Sealing	NBR
	Cable diameter	7 ... 12 mm [0.28 x 0.47 in]
Cable glands ½ NPT		
sealed with blind plug		
Plastic, PA	Cable diameter	5 ... 9 mm [0.2 ... 0.35 in]
Brass, nickel-plated	Cable diameter	6 ... 12 mm [0.24 ... 0.47 in]
Brass, nickel-plated	Cable diameter	9 ... 13 mm [0.35 x 0.51 in] (for armoured cable)
Angular connector DIN 175301-803A with mating connector	Wire cross-section	Max. 1.5 mm <sup>2</sup> (AWG 16)
	Ingress protection	IP65 <sup>1)</sup>
Circular connector M12 x 1 (4-pin) without mating connector	Ingress protection	IP65 <sup>1)</sup>
Electrical safety	Reverse polarity protection	

1) The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

## Connection compartment for single chamber case

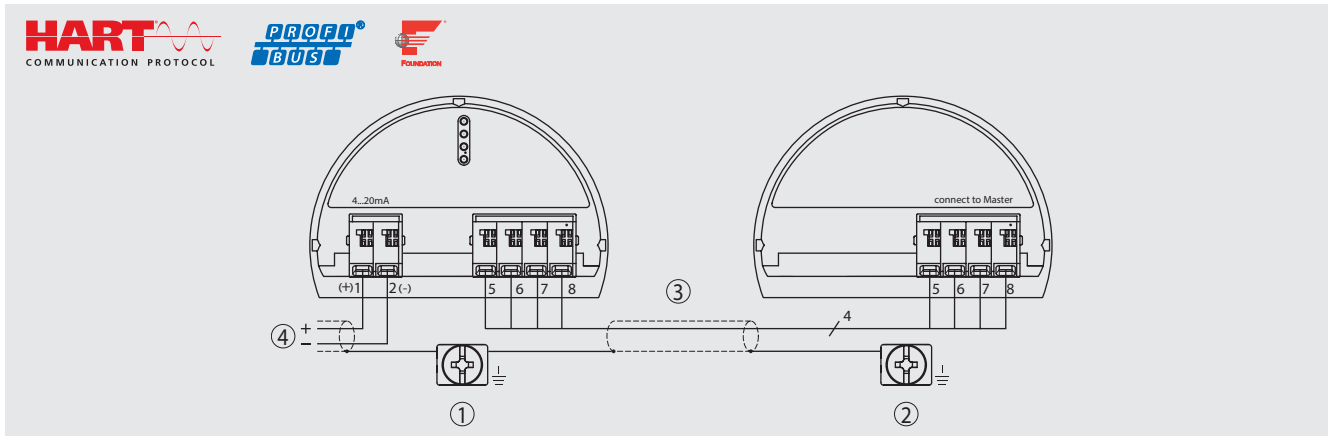


4 ... 20 mA or 4 ... 20 mA / HART®	
①	Voltage supply / signal output
②	Interface of digital display
③	Connection terminals for external display and operating unit
④	Ground terminal for cable shield



PROFIBUS® PA / FOUNDATION™ Fieldbus	
①	Voltage supply / signal output
②	Interface of digital display
③	<div> <div></div> <div>For FOUNDATION™ Fieldbus simulation switch (1 = operation with simulation release)</div> <div>For PROFIBUS® PA: Adjustment of the Profibus settings via 3 switches</div> </div>
④	Connection terminals for external display and operating unit and slave electronics for electronic differential pressure measurement
⑤	Ground terminal for cable shield

## Differential pressure measurement, master/slave



### Master/slave

①	Master
②	Slave
③	Master/slave connection cable, 4-wire (included in delivery) (standard cable length 5 m, maximum cable length 25 m)
④	Voltage supply/signal output (master) (value as with the operation of a single HART® instrument)

## Electronic differential pressure measurement with two process transmitters

Two model IPT-2x or CPT-2x process transmitters can be electrically connected into a measuring arrangement in order to be used for electronic differential pressure measurement. The measurement also functions with a combination of both models, though the instruments must both be either absolute pressure or gauge pressure instruments. Another requirement is that one of the instruments is a HART® or BUS-capable instrument that is used as the master and the other is the slave instrument. The instrument must be ordered with this specification in advance.



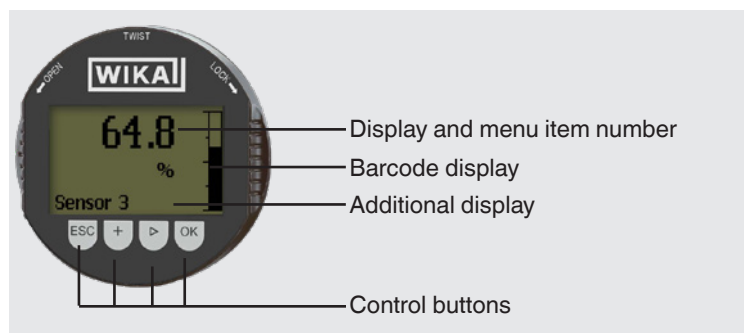
The process transmitters are connected to each other using an internal BUS cable (see figure).

The setting as a master-slave arrangement is made in the master instrument. Thus this instrument takes control of both sensors. As an output signal, the process pressure of the master and the slave, and also the differential pressure are determined.

Electronic differential pressure measurement is used in many applications for detecting the level in tanks and other vessels. Compared to measurement via a differential pressure transmitter and two capillaries, electronic differential pressure measurement involves bridging the distances between the measuring locations with a current cable, which only has a very low temperature effect on the measurement. Thus, possible temperature errors and measuring deviations are almost completely avoided.

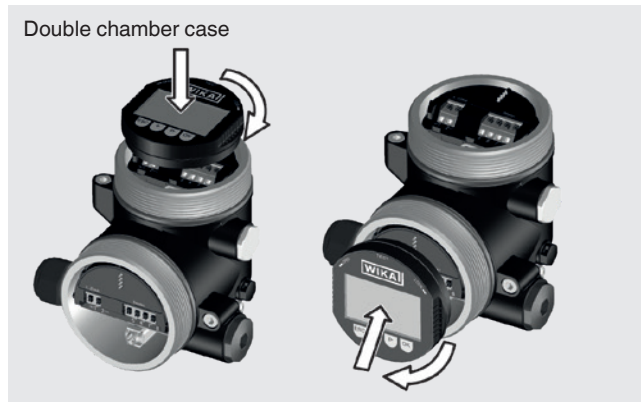
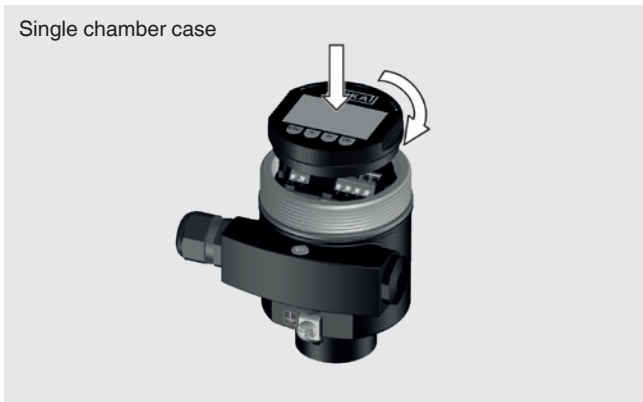
For this measurement procedure, the relation between the static pressure (process pressure) and the differential pressure to be measured is critical. If the static pressure is higher than the differential pressure by a factor of 20, the turndown causes a measurement error that is usually greater than the thermal effect with the same arrangement with capillaries.

## Display and operating unit (option)



Specifications				
Backlighting	Yes			
Background	Grey, black digits			
Upgradable	Yes (for order numbers, see "Accessories")			
Menu languages	German English French Spanish	Polish Italian Dutch	Japanese Chinese Russian	Portuguese Czech Turkish
Display size	5-digit measured value display, adjustable (option: bar graph display) Max. 5 digits, size 7 x 13 mm [0.28 x 0.51 in]			
Ingress protection per IEC/EN 60529	<ul style="list-style-type: none"> <li>■ IP20 (loose)</li> <li>■ IP40 (built-in without cover)</li> </ul>			
Material	Case from ABS, window from polyester film			

### Mounting positions








## Operating conditions

Operating conditions	
Permissible temperature ranges	Pay attention to restrictions to temperature ranges with Ex approvals
Ambient	<ul style="list-style-type: none"> <li>■ -20 ... +70 °C [-4 ... 158 °F] (with digital display)</li> <li>■ -40 ... +80 °C [-40 ... 176 °F] (without digital display)</li> </ul>
Medium	see sealing material
Storage	-60 ... +80 °C [-76 ... 176 °F]
Restrictions to medium temperature due to sealing material	For oxygen applications max. 60 °C [140 °F]
FKM	-20 ... +130 °C (option: -20 ... +150 °C) [-4 ... +266 °F (option: -4 ... +302 °F)]
EPDM	-40 ... +130 °C (option: -40 ... +150 °C) [-40 ... +266 °F (option: -40 ... +302 °F)]
FFKM	-20 ... +130 °C (option: -20 ... +150 °C) [-4 ... +266 °F (option: -4 ... +302 °F)]




Operating conditions	
<b>Vibration resistance per EN 60068-2-6 (vibration under resonance)</b>	<ul style="list-style-type: none"> <li>■ 4 g (5 ... 200 Hz) per GL characteristic curve 2</li> <li>■ 0.75 g in accordance with GL characteristic curve 1 (double chamber case from stainless steel)</li> </ul>
<b>Shock resistance per IEC 60068-2-27 (mechanical shock)</b>	<ul style="list-style-type: none"> <li>■ 50 g (2.3 ms)</li> <li>■ 2 g (for double chamber case, cast stainless steel)</li> </ul>
Instrument safety	
Ingress protection per IEC/EN 60529	<ul style="list-style-type: none"> <li>■ IP66/67</li> <li>■ IP66/IP68 (0.2 bar) for absolute pressure sensors</li> <li>■ Option: IP66/IP68 (1 bar) or IP68 (25 bar)</li> </ul>
Electrical safety	Overvoltage category III, protection class II
SIL per IEC 61508:2010	<ul style="list-style-type: none"> <li>■ Single-channel operation up to SIL 2</li> <li>■ Multi-channel operation (homogeneous, redundant) up to SIL 3</li> </ul>

## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b>	European Union
	EMC directive	
	Pressure equipment directive	
	RoHS directive	
	<b>ATEX directive</b> Hazardous areas <ul style="list-style-type: none"> <li>- Ex i Zone 0 gas [II 1G Ex ia IIC T6 ... T1 Ga]</li> <li>Zone 1 gas mounting to zone 0 gas [II 1/2G Ex ia IIC T6 ... T1 Ga/Gb]</li> <li>Zone 1 gas [II 2G Ex ia IIC T6 ... T1 Gb]</li> <li>Zone 20 dust [II 1D Ex ia IIIC T135 °C Da]</li> <li>Zone 21 dust [II 2D Ex ia IIIC T135 °C Db]</li> <li>- Ex d Zone 1 gas mounting to zone 0 gas [II 1/2G Ex db ia IIC T6 ... T1 Ga/Gb]</li> <li>Zone 2 gas [II 2G Ex db ia IIC T6 ... T1 Gb]</li> <li>Zone 21 dust [II 2D Ex tb ia IIIC T135 °C Db]</li> </ul>	
	<b>IECEx</b> Hazardous areas <ul style="list-style-type: none"> <li>- Ex i Zone 0 gas [Ex ia IIC T6 ... T1 Ga]</li> <li>Zone 1 gas mounting to zone 0 gas [Ex ia IIC T6 ... T1 Ga/Gb]</li> <li>Zone 1 gas [Ex ia IIC T6 ... T1 Gb]</li> <li>Zone 20 dust [Ex ia IIIC T135 °C Da]</li> <li>Zone 21 dust [Ex ia IIIC T135 °C Db]</li> <li>- Ex d Zone 1 gas mounting to zone 0 gas [Ex db ia IIC T6 ... T1 Ga/Gb]</li> <li>Zone 2 gas [Ex db ia IIC T6 ... T1 Gb]</li> <li>Zone 21 dust [Ex db ia tb ia IIIC T135 °C Db]</li> </ul>	International
	<b>GOST</b> Metrology, measurement technology	Russia
	<b>UkrSEPRO</b> Metrology, measurement technology	Ukraine

## Manufacturer's information and certificates

Logo	Description
	<b>SIL 2 (option) <sup>1)</sup></b> Functional safety
-	<b>NAMUR recommendations</b>
	NE21 Electromagnetic compatibility of equipment
	NE43 Signal level for failure information
	NE53 Compatibility of field instruments
	NE107 Self-monitoring and diagnostics

1) only for output signal 4 ... 20 mA with HART®

### NAMUR recommendations

NAMUR is the automation technology interest group for the process industry in Germany. The published NAMUR recommendations are considered standards in field instrumentation, and also have the character of international standards.

The instrument fulfils the requirements of the following NAMUR recommendations:

- NE21 - Electromagnetic compatibility of equipment
- NE43 - Signal level for failure information for transmitters
- NE53 - Compatibility of field instruments and display and operating components
- NE107 - Self-monitoring and diagnostics of field instruments

For further information, see [www.namur.net/en](http://www.namur.net/en)

### FDA compliant filling and sealing

The FDA is the American supervisory authority for the area of "food and drugs", which also controls all goods placed on the market. An important topic is the use of substances that can come into contact with foodstuffs. Stainless steels are generally not critical, but plastics (e.g. sealings) and liquids (e.g. pressure transmission media) for use in food, pharmaceutical and biotechnology applications must be designed in accordance with the requirements of the FDA.

Some of the substances in these instruments are classified as FDA compliant.

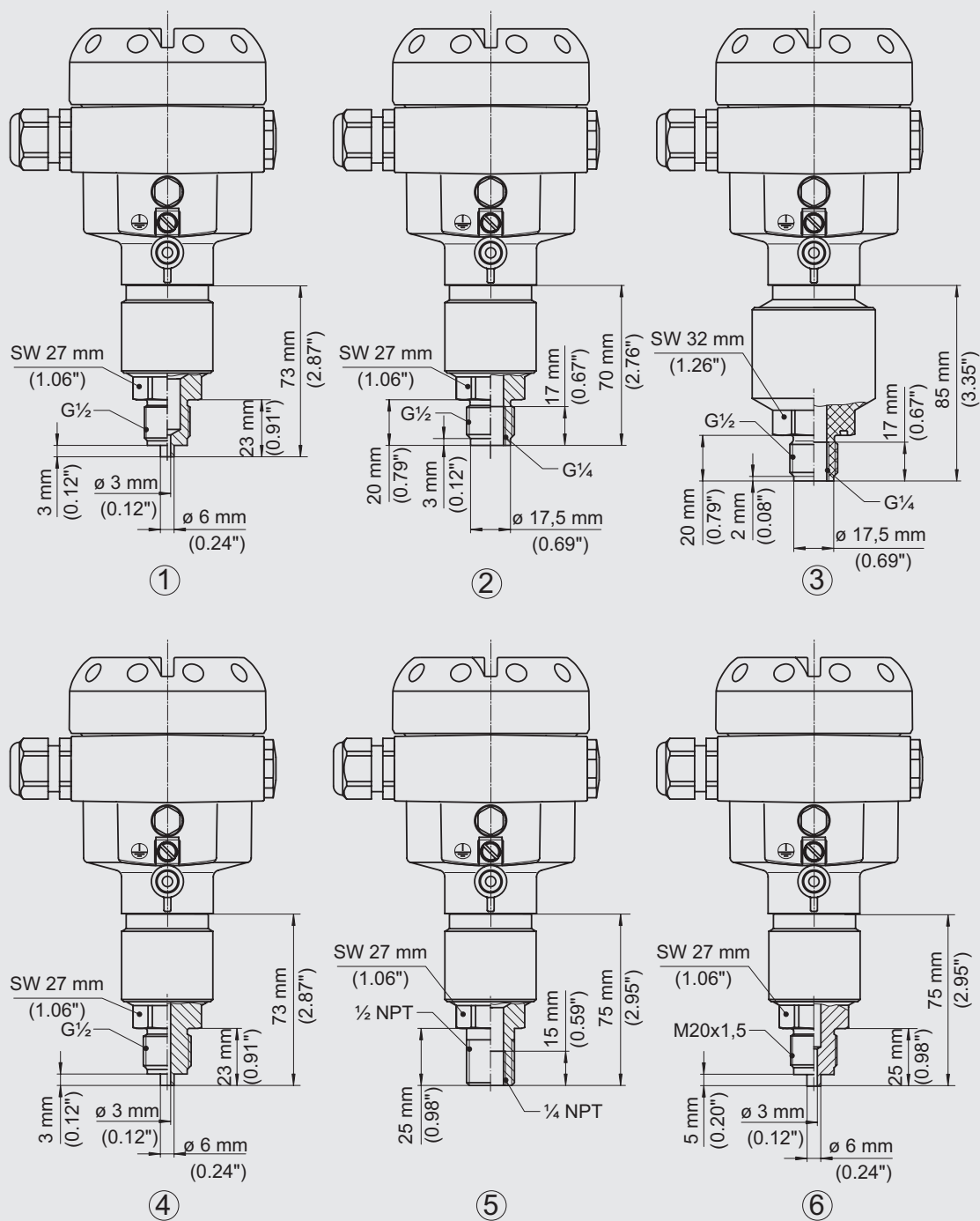
## Certificates (option)

- Test certificate for the measurement accuracy included in delivery (5 measuring points in the scaled range)
- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration per IEC 17025

→ Approvals and certificates, see website

## Dimensions in mm [in]

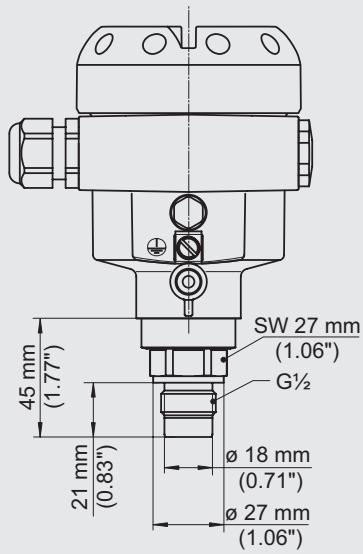
### Standard process connections for model CPT-20



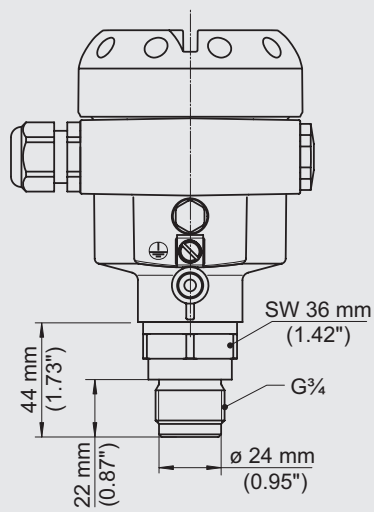
### Standard process connections for model CPT-20

①	EN 837	G 1/2
②	ISO 228-1	G 1/4 A female, G 1/2 male
③	ISO 228-1	G 1/4 A female, G 1/2 male (PVDF)
④	EN 837	G 1/2 (volume reduced)
⑤	ANSI / ASME B1.20.1	1/4 NPT female, 1/2 NPT male
⑥	EN 837	M20 x 1.5

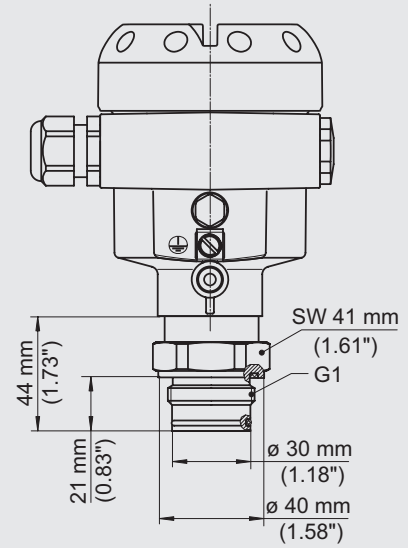
## Flush process connections for model CPT-21



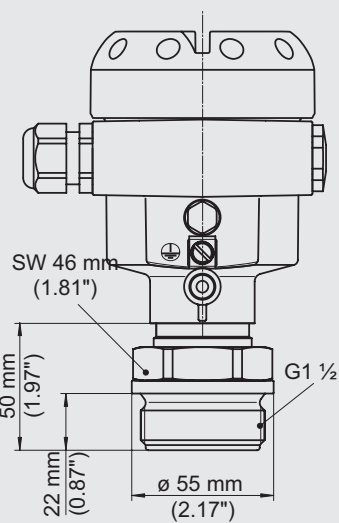
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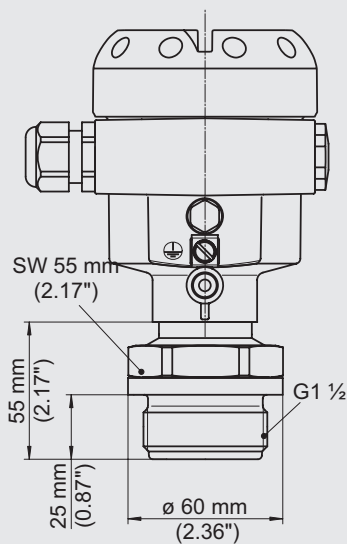
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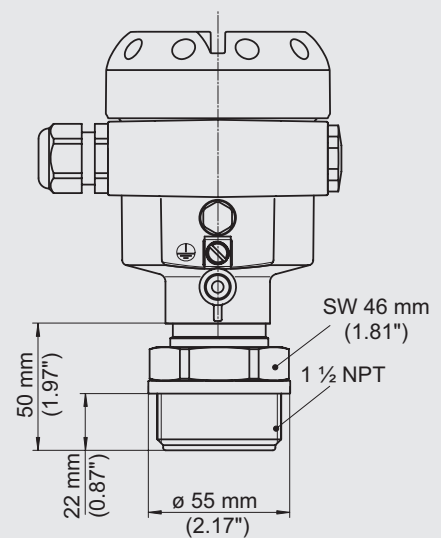
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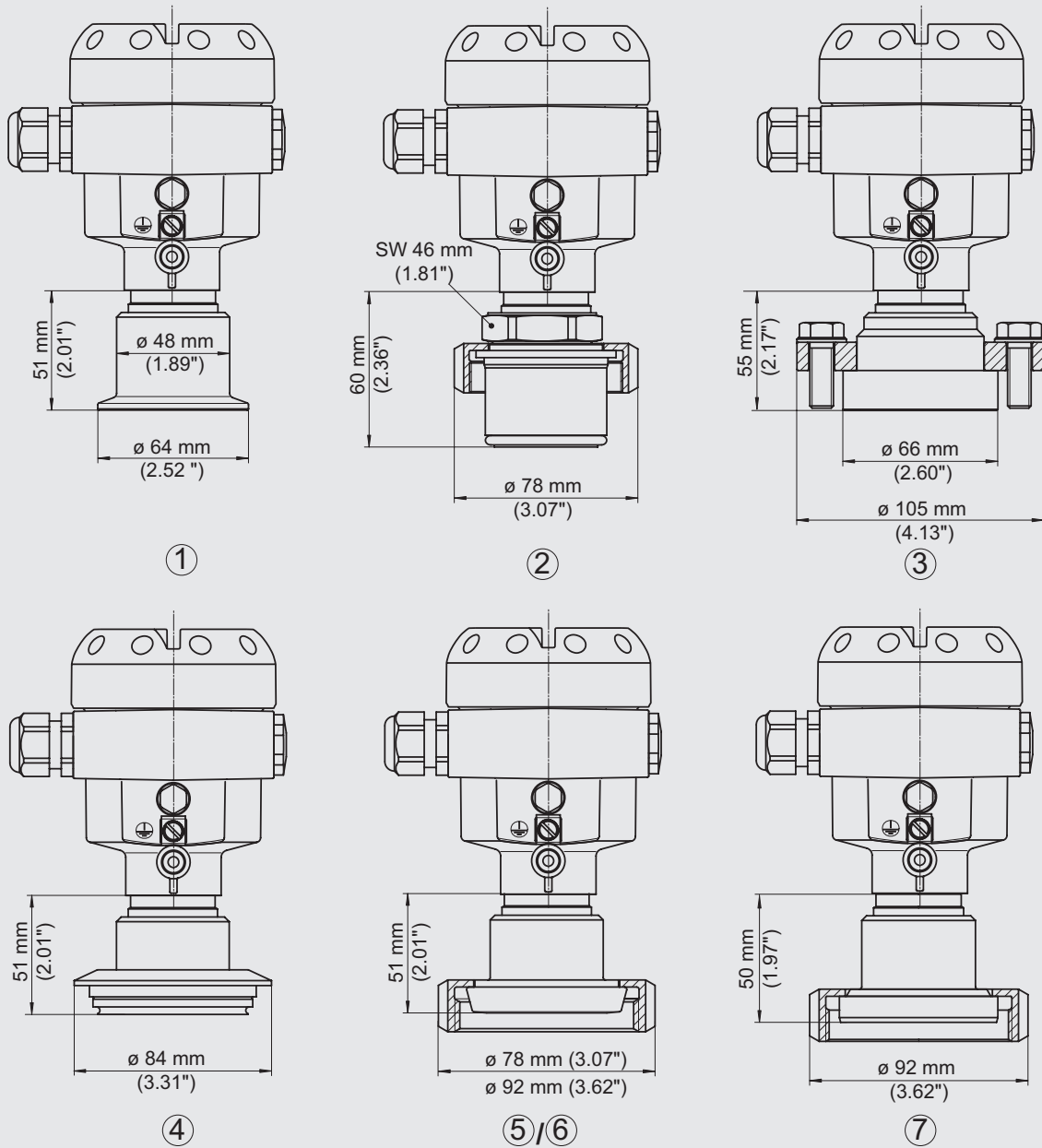


⑥

## Flush process connections for model CPT-21

①	ISO 228-1	G $\frac{1}{2}$
②	DIN 3852-E	G $\frac{3}{4}$
③	ISO 228-1	G 1 A
④	DIN 3852-A	G 1 $\frac{1}{2}$
⑤	DIN 3852-A-B	G 1 $\frac{1}{2}$ A
⑥	ANSI / ASME B1.20.1	1 $\frac{1}{2}$ NPT

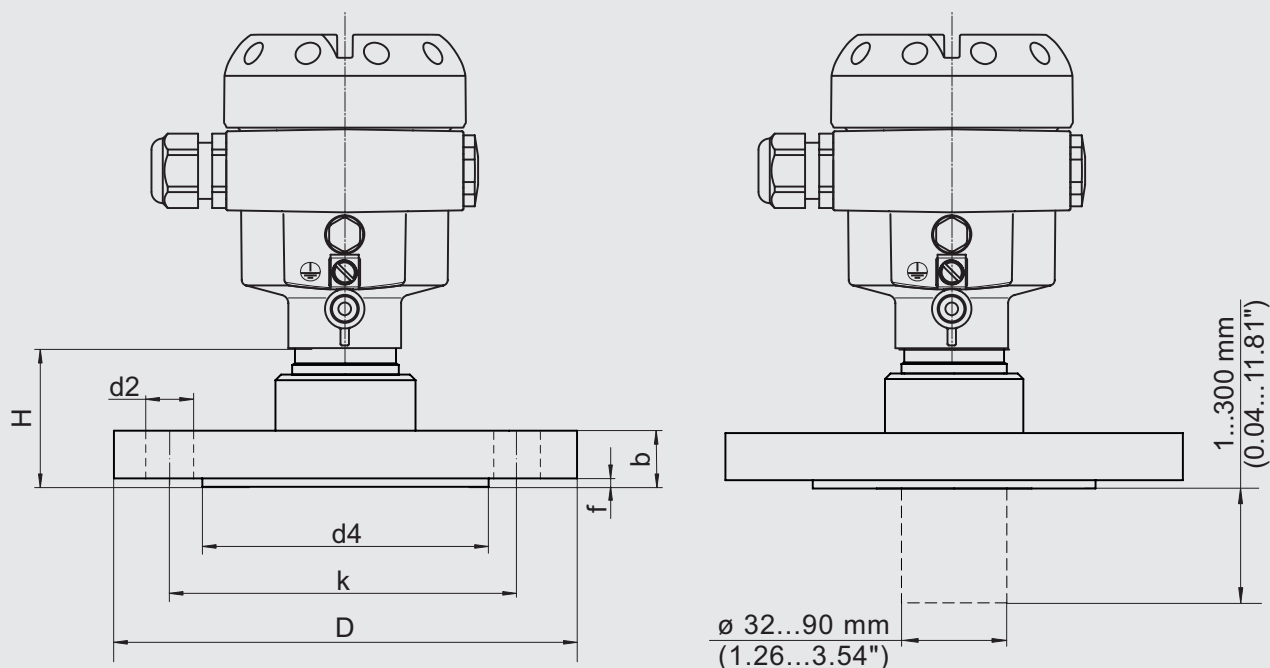
## Aseptic process connections for model CPT-21



## Aseptic process connections for model CPT-21

①	DIN 32676, ISO 2552	Clamp 2"
②	DIN 11851 with grooved union nut	Form F, DN 40
③	EN 1092-1 collar, DIN 2527	DRD, DN 25
④	VARIVENT®	DN 32
⑤	Threaded pipe connection per DIN 11851	DN 40
⑥	Threaded pipe connection per DIN 11851	DN 50
⑦	Threaded pipe connection per DIN 11864-1	DN 50

# Flanges for model CPT-21



mm	DN	PN	D	b	k	d2	d4	f	H
①	40	40	150	18	110	4xø18	88	3	50
	50	40	165	20	125	4xø18	102	3	50
	80	40	200	24	160	8xø18	138	3	51
②	2"	150 lbs	152,4	19,1	120,7	4xø19,1	91,9	3,2	51
	3"	150 lbs	190,5	23,9	152,4	8xø19,1	127	3,2	51

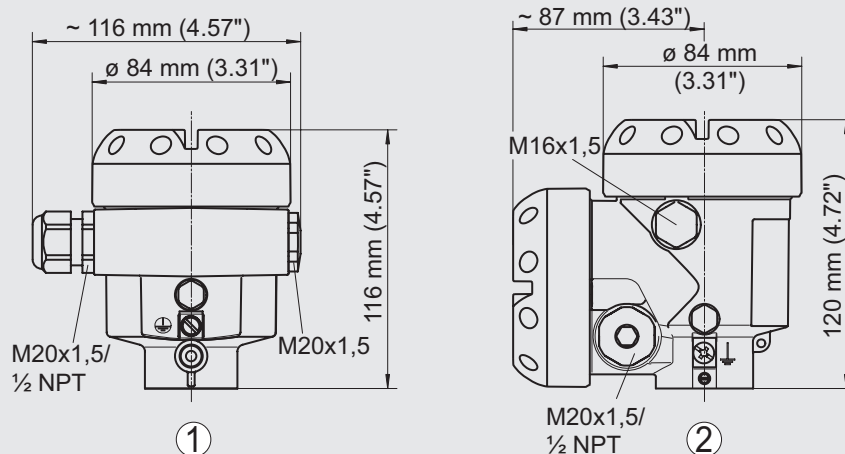
inch	DN	PN	D	b	k	d2	d4	f	H
①	40	40	5.91"	0.71"	4.33"	4xø 0.71"	3.46"	0.12"	1.97"
	50	40	6.50"	0.79"	4.92"	4xø 0.71"	4.02"	0.12"	1.97"
	80	40	7.87"	0.95"	6.30"	8xø 0.71"	5.43"	0.12"	2.01"
②	2"	150 lbs	6"	0.75"	4.75"	4xø 0.75"	3.62"	0.13"	2.01"
	3"	150 lbs	7.5"	0.94"	6"	8xø 0.75"	5"	0.13"	2.01"

## Flanges for model CPT-21

① DIN 2501

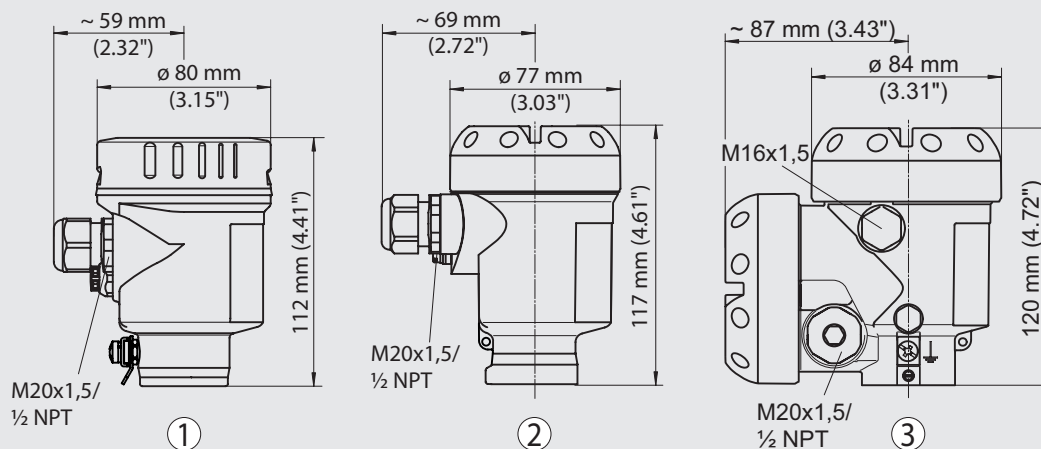
② ASME B16.5

## Case dimensions



### Case (aluminium)

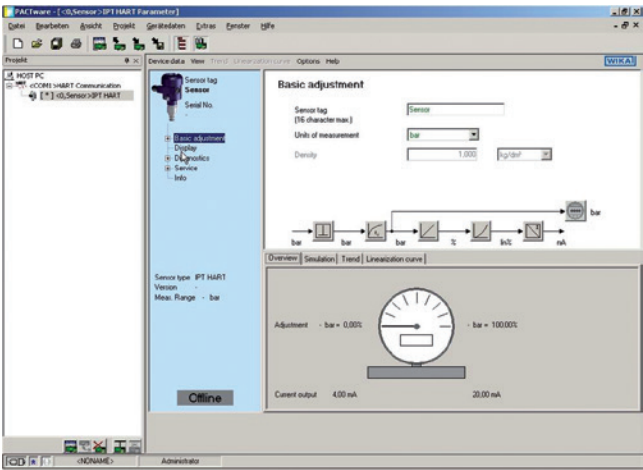
- |   |  |
|---|--|
| ① | Single chamber case, powder-coated aluminium |
| ② | Double chamber case, powder-coated aluminium |



### Case

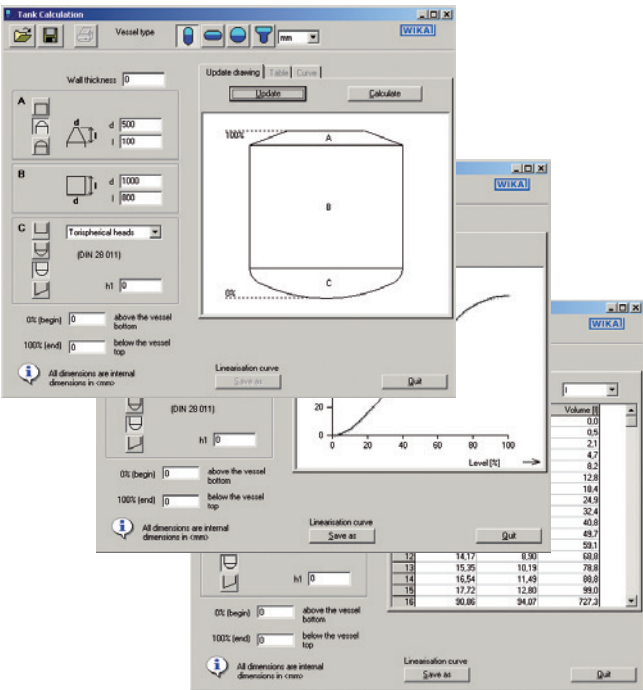
- |   |   |
|---|---|
| ① | Single chamber case, deep-drawn and electropolished stainless steel, e.g. for hygienic applications |
| ② | Single chamber case, plastic ABS or precision-cast stainless steel                                  |
| ③ | Double chamber case, plastic ABS or precision-cast stainless steel                                  |

# User interface DTM



For HART®, PROFIBUS® PA and FF output signals, a DTM is available in accordance with the FDT standard. The DTM provides a self-explanatory and clear user interface for all setup and control processes of the transmitter. For testing purposes, it is also possible to simulate process values and archive the parameter data.

Recording of the measured values is available for diagnostic purposes.









## Tank volume calculation

The additional tank volume calculation of the DTM function can be used to reproduce any optional tank geometry. The corresponding linearisation table is generated automatically. The linearisation table can be transferred directly to the transmitter.





## Accessories

Description	Order number
 <b>Display module, model DIH52-F</b> 5-digit display, 20-segment bar graph, without separate power supply, with additional HART® functionality. Automatic adjustment of measuring range and span. Secondary-master functionality: Setting the measuring range and unit of the connected transmitter using HART® standard commands possible. Optional: Explosion protection per ATEX	On request
 HART® modem for USB interface, specifically designed for use with notebooks (model 010031)	11025166
HART® modem for RS-232 interface (model 010001)	7957522
HART® modem for Bluetooth interface Ex ia IIC (model 010041)	11364254
PowerXpress HART® modem, with optional power supply (model 010031P)	14133234
 <b>Instrument mounting bracket</b> for wall or pipe mounting, stainless steel	14309986
 Overvoltage limit for transmitters, 4 ... 20 mA, 1/2 NPT, series connection, Ex i and Ex d	14013656
Overvoltage limit for transmitters, 4 ... 20 mA, M20 x 1.5, series connection, Ex i and Ex d	14002489
Overvoltage limit for transmitters, FF / PROFIBUS, 1/2 NPT, series connection, Ex i and Ex d	14013658
 Model DI-PT-R display and operating module, case cover aluminium with window	12298884
Model DI-PT-R display and operating module, case cover electropolished cast stainless steel with safety window	13315269
Model DI-PT-R display and operating module, case cover plastic with window	13315277
Model DI-PT-R display and operating module, case cover cast stainless steel with window for single chamber case	12298906
Model DI-PT-R display and operating module, case cover cast stainless steel with window for double chamber case	14045598
 Model DI-PT-E external display and operating module, aluminium case	12354954
Model DI-PT-E external display and operating module, cast stainless steel case	12355101
Model DI-PT-E external display and operating module, plastic case	14134247

## Ordering information

Model / Approval / Case design / Cable and length / Digital display / Output signal / Electrical connection / Measuring range / Process connection / Sealing concept / Sealing / Accuracy / Cleaning / Sensor filling / Certificates / Additional requirements

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