

Process transmitter

Model UPT-20, with pressure port

Model UPT-21, with flush diaphragm

WIKA data sheet PE 86.05



For further approvals,
see page 10



Applications

- Control and process technology
- Machine building and plant construction
- Pharmaceutical and hygienic industries
- Food industry
- Chemical, petrochemical industry

Special features

- Multi-functional display
- Simple menu navigation
- Conductive plastic case or stainless steel case (optionally with electropolished surface)
- Large LC display, rotatable
- Approvals for hazardous areas



Process transmitter, model UPT-10

Configurator



Description

The model UPT-2x is a process transmitter for a wide range of industrial applications. The instrument is characterised by integrated temperature compensation, reliable accuracy and simple configuration.

Complete measuring location from one source

Industrial measuring locations include several components. In addition to the measuring instrument itself, process connections, valves and other attachments must be planned. WIKA provides customised 3D models for plant planning and supplies the complete measuring location around the UPT-2x with preassembled assemblies. This keeps engineering effort for the user minimal. The user receives a tested measuring location from a single source, including installation, calibration and repair service.

Stable signal under varying temperatures

In many applications, the measuring location is exposed to a wide range of temperatures, for example due to process conditions, weather or the mounting situation. It is essential that the measuring signal remains stable and accurate. The UPT-2x ensures this through integrated temperature compensation in the range of 10 ... 70 °C – here no additional temperature error occurs for measuring ranges up to 1,000 bar. For example, with clamp connections the temperature error is compensated or avoided over a wide range.

Easy to operate on site

At many measuring locations, the mounting position makes direct access to the instrument difficult. The UPT-2x makes on-site operation easier thanks to its large display with easily readable digits, as well as a high-contrast segment display for the measured value and warning messages. A bargraph display makes it possible to quickly assess the current pressure value. A lean, intuitively understandable menu structure and four control buttons allow simple configuration directly on the instrument – even without instructions. This enables settings to be made quickly and measured values to be clearly read, even from up to 5 m away.

Suitable connections depending on the process

For the UPT-2x, a wide selection of process connections is available, for example for hygienic processes or use with diaphragm seals. Suitable adapter systems also allow individual solutions to be implemented at short notice. Users thus receive a suitable process connection without having to plan for additional adapters or seals. This reduces installation effort and avoids possible performance losses at the measuring location.

Specifications

Overview of versions	
Model UPT-20	■ Process connection with pressure port ■ Diaphragm seal assembly for demanding process conditions ■ Aseptic process connection for sterile processes
Model UPT-21	Process connection with flush diaphragm
Display and operating unit	■ Without ■ With → See table „Anzeige- und Bedieneinheit, Typ DI-PT-U (Option)“
Non-Ex version	
Case	■ Plastic (PBT) with conductive surface per EN 60079-0:2012, night blue RAL5022 ■ Stainless steel 1.4308 (CF-8), precision-cast (suitable for chemical and petrochemical industries) ■ Stainless steel 1.4308 (CF-8), electropolished surface (suitable for pharmaceutical, food and hygienic industries) ■ Plastic (PBT) with conductive surface per EN 60079-0:2012, night blue RAL5022 ■ Stainless steel, coated with epoxy resin ■ Stainless steel, electropolished and coated with epoxy resin
Ex version	
Case	■ Stainless steel, coated with epoxy resin ■ Stainless steel, electropolished and coated with epoxy resin

Accuracy specifications	
Accuracy	■ 0.15 % of span ■ 0.1 % of span ■ 0.2 % of span ■ 0.5 % of span (> 1,000 bar [15,000 psi]) → Accuracy 0.1 % not available for gold-plated sensors
Measuring deviation	Per IEC 61298-2 → Accuracy including non-linearity, hysteresis, non-repeatability, zero point offset and end value deviation, temperature effects and long-term stability
Zero point error	< 0.1 % of the measuring range
Zero point setting	-20 ... +95 % (downwards, the adjustability is always limited by the minimum pressure of 0 bar abs. [0 psi abs.])
Adjustability of span	
Measuring ranges ≤ 1,000 bar [15,000 psi]	-120 ... +120 % with a difference between zero point and span of max. 120 % of the nominal measuring range
Measuring ranges > 1,000 bar [15,000 psi]	Max. (0 bar abs. [0 psi abs.]) ... +105 % (downwards, the adjustability is always limited by the minimum pressure of 0 bar abs. [0 psi abs.])

Accuracy specifications		
Turndown ratio	Unlimited	
Measuring ranges $\leq 1,000$ bar [15,000 psi]	Maximum recommended turndown 20:1	
Measuring ranges $> 1,000$ bar [15,000 psi]	Maximum recommended turndown 2:1	
Influence of mounting position		
Mounting correction	-20 ... +20 %	
Non-repeatability		
Measuring ranges $\leq 1,000$ bar [15,000 psi]	≤ 0.1 % of span	
Measuring ranges $> 1,000$ bar [15,000 psi]	≤ 0.5 % of span	
Behaviour with turndown ¹⁾		
Measuring ranges from 0 ... 1.6 bar to 0 ... 1,000 bar [0 ... 25 psi to 0 ... 15,000 psi]	TD $\leq 5:1$	No influence on the accuracy
	TD $> 5:1$... $\leq 100:1$	GES = GG x TD / 5
Measuring ranges < 1.6 bar [30 psi]	TD = 1:1	No influence on the accuracy
	TD $> 1:1$... $\leq 100:1$	GES = GG x (TD + 4) / 5
Measuring ranges $> 1,000$ bar [15,000 psi]	≤ 0.5 x TD	
Long-term stability		
Measuring ranges < 1 bar [14.5 psi]	0.35 %/year	
Measuring ranges ≥ 1 bar [14.5 psi]	0.15 %/year	
Measuring ranges ≥ 1.6 bar [30 psi]	0.1 %/year	
Measuring ranges ≥ 40 bar [600 psi]	0.1 %/year	
Measuring ranges $> 1,000$ bar [15,000 psi]	≤ 0.5 %/year	
Thermal change, zero point / span (reference temperature 20 °C [68 °F])		
In the temperature-compensated range 10 ... 70 °C [50 ... 158 °F]	No additional temperature error (only applies to measuring ranges up to 1,000 bar [15,000 psi])	
Outside the compensated range	Typical < 0.1 %/10 K (for $> 1,000$ bar [15,000 psi]: 0.2 %/10 K)	
Thermal change of the current output (reference temperature 20 °C [68 °F])		
< 18 °C and > 28 °C [< 64 °F and > 82 °F]	0.1 %/10 K (max. 0.15 %/10 K)	
Reference conditions per IEC 61298-1		
Ambient temperature	23 °C ± 2 °C [73 °F ± 7 °F]	
Atmospheric pressure	860 ... 1,060 mbar [86 ... 106 kPa, 12.5 ... 15.4 psi]	
Humidity	45 ... 75 % relative humidity	
Mounting position	Vertical, diaphragm points downward	
Auxiliary power	DC 23 ... 25 V	
Characteristic curve determination	Terminal method per IEC 61298-2	
Curve characteristics	Linear	

- 1) Legend
GES: Overall accuracy via turndown
GG: Accuracy (e.g. 0.15 %)
TD: Turndown factor (e.g. 4:1 corresponds to TD factor 4)

Measuring ranges, gauge pressure

bar	
0 ... 0.4	0 ... 250
0 ... 1.6	0 ... 600
0 ... 16	0 ... 1,000 ¹⁾
0 ... 40	0 ... 2,500
0 ... 100	0 ... 4,000

1) Not with SIL IEC 61058:2010

psi	
0 ... 1.6	0 ... 30
0 ... 6	0 ... 100
0 ... 16	0 ... 300
0 ... 40	0 ... 500

Measuring ranges, absolute pressure

bar	
0 ... 1.6	0 ... 16
0 ... 6	0 ... 40

psi	
0 ... 30	0 ... 300
0 ... 100	0 ... 500

Vacuum and special measuring ranges

bar	
-1 ... 0	-1 ... +5
-0.2 ... +0.2	-1 ... +15
-1 ... +0.6	-1 ... +40

psi	
-14.5 ... 0	-14.5 ... +300
-14.5 ... +15	-14.5 ... +600
-14.5 ... +100	-

→ For measuring ranges above 600 bar [10,000 psi] only the model UPT-20 is available.

Other measuring ranges can be set via turndown, see table ["Genauigkeitsangaben"](#)

For example, a 0 ... 40 bar [0 ... 500 psi] instrument can also be used from -1 ... +40 bar [-14.5 ... +500 psi].

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

Further details on: measuring ranges	
Pressure type	bar psi
Overpressure limit	The overpressure limit is based on the measuring range. Depending on the selected process connection and the seal, restrictions in the overpressure limit can result.
Overload safety range (without cooling element)	
Measuring ranges ≤ 40 bar [500 psi]	3 times
Measuring ranges 40 ... 1,000 bar [500 ... 15,000 psi]	2 times
Measuring ranges 1,600 bar [30,000 psi]	1.5 times
Measuring ranges 2,500 bar [50,000 psi]	1.4 times
Measuring ranges 4,000 bar [60,000 psi]	1.25 times
Vacuum resistance	Yes → Oxygen applications must be checked.

Process connection model UPT-20		
Standard	Thread size	Max. nominal pressure
EN 837	G ¾ B, male	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
	G ½ B, male	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
	M20 x 1.5, male	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
ANSI / ASME B1.20.1	½ NPT, male	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
	½ NPT, female	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
	¼ NPT, male	≤ 0 ... 1,000 bar [0 ... 15,000 psi]
-	M16 x 1.5 mm female with sealing cone	≥ 0 ... 100 bar [0 ... 1,500 psi]
	M20 x 1.5 mm female with sealing cone	≥ 0 ... 1,600 bar [0 ... 23,200 psi]
	9/16-18 UNF female F 250-C	≥ 0 ... 100 bar [0 ... 1,500 psi]
	1 1/8 -12 UNF female F 562-C	≥ 0 ... 100 bar [0 ... 1,500 psi]

Process connection model UPT-21		
Standard	Thread size	Max. nominal pressure
-	G ½ B, male	0 ... 6 to 0 ... 600 bar [0 ... 100 to 0 ... 5,000 psi]
	G 1 B, male	≤ 0 ... 1.6 bar [0 ... 30 psi]
	G 1 ½ B, male	≤ 0 ... 1.6 bar [0 ... 30 psi]
	G 1 hygienic, male ^{1) 2)}	≤ 0 ... 16 bar [0 ... 100 psi]
	G 1 hygienic with cooling element ²⁾	≤ 0 ... 16 bar [0 ... 100 psi]
	M44 x 1.25 with union nut	≤ 0 ... 40 bar [0 ... 500 psi]
DIN 32676 (TRI-CLAMP®)	DN 1½ with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi] 3)
	DN 2 with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi] 3)
	DN 40 with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi] 3)
	DN 50 with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi] 3)
DIN 11851 (grooved union nut with conical coupling) ⁴⁾	DN 25 with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi]
	DN 40 with cooling element for 150 °C [302 °F]	≤ 0 ... 40 bar [0 ... 500 psi]
	DN 50 with cooling element for 150 °C [302 °F]	≤ 0 ... 25 bar [0 ... 500 psi]
NEUMO BioConnect®	DN 40 form V with cooling element for 150 °C [302 °F]	≤ 0 ... 16 bar [0 ... 500 psi]
VARINLINE®	Form N with cooling element for 150 °C [302 °F], DN 40 ... 50	≤ 0 ... 16 bar [0 ... 500 psi]
	Form F with cooling element for 150 °C [302 °F], DN 25	≤ 0 ... 16 bar [0 ... 500 psi]

1) Also available as a high-temperature version up to 150 °C [302 °F].

2) Suitable for WIKA adapter system model 910.61, → see data sheet AC 09.20

3) For the maximum pressure, the permissible pressure rating of the clamp must be observed.

4) For 3-A-compliant connection with process connections with milk thread fittings per DIN 11851, profile seals from SKS Komponenten BV or Kieselmann GmbH have to be used.

Further details on: process connection		
Pressure port diameter	3.5 mm	
Material		
Model UPT-20	Measuring ranges ≤ 40 bar [500 psi]	Stainless steel 1.4404 / 316L
	Measuring ranges > 40 bar [500 psi]	Stainless steel 1.4404 / 316L
	Measuring ranges > 1,000 bar [15,000 psi]	Stainless steel 1.4534 / 904L
Model UPT-21	Measuring ranges: all	Stainless steel 1.4435 / 316L
		Hastelloy® HC276 / 2.4819
		Diaphragm: gold-plated ¹⁾
Seal		
Possible restrictions	NBR	-20 ... 105 °C [4 ... 221 °F]
	EPDM	-40 ... 105 °C [40 ... 221 °F]
	EPDM, advanced	-40 ... 150 °C [40 ... 302 °F]
	FKM, advanced	-20 ... 150 °C [4 ... 302 °F]
	FKM	-20 ... 105 °C [4 ... 221 °F]
Process connection adapter	→ See table „Zubehör und Ersatzteile“	

1) Accuracy 0.1 % not available for gold-plated sensors.

→ All connections are NACE MR0103 and MR0175 compatible. No NACE for measuring ranges $> 1,000$ bar [15,000 psi].

Details must be tested separately in the respective application. The specified values for the overpressure limit serve only as a rough orientation. The values depend on the temperature, the seal used, the selected torque, the type and the material of the mating thread and the prevailing operating conditions.

Output signal		
Signal type	4 ... 20 mA 4 ... 20 mA (HART®7 signal)	
Load	≤ U+ - 12 V / 0.023 A (non-Ex) ≤ U+ - 14 V / 0.023 A (Ex) U+ = Applied auxiliary power, see „Hilfsenergie“	
Signal damping	0 ... 99.9 s, adjustable After the set damping time the instrument outputs 63 % of the applied pressure as output signal.	
Signal clamping	3.8 ... 20.5 in accordance with NAMUR 4 ... 20 mA	
Time response / Dynamic behaviour		
Settling time	Without HART®	60 ms
	With HART®	80 ms
Measurement interval	Without HART®	20 ms
	With HART®	50 ms
Current value for signalling per NAMUR NE 043	3.8 mA ... 20.5 mA	

Communication	
Protocol	HART®
HART®	
Device version	Version 1 (HW: 1.*.*, SW 1.*.*)
Corresponding DD (Device Description)	AMS, PDM, FC475
Output signal	> load > PV, primary value (digital HART® measured value)
Communications protocol	HART® Version 7
Integration software	Yes

Display and operating unit, model DI-PT-U			
Type of display	LC display → Only this display may be used for the process transmitter; for order number, see accessories.		
Display range	Main display		
	Segment display		
	Additional display (selectable via menu, three-line display area)		
Character size	14 mm [0.55 in]		
Number of lines, digits	4 ½ (main display)		
Colour configuration			
Background	Light grey		
Digits	Black		
Menu language	English, German, French, Spanish		
Units	Adjustable		
Pressure units	bar psi mbar MPa kPa hPa	Pa mH ₂ O mmH ₂ O ftH ₂ O inH ₂ O mHg	mmHg inHg kg/cm2 g/cm2 Torr
Level units	m cm	mm ft	in
Volume units	l m3	gal inch3	ft3 %
Free unit	A free character string (6 digits) can be defined as a unit.		
Bar graph	20 segments, radial, pressure gauge simulation		
Refresh rate	200 ms		
Operating state	Display via symbols		
Operating temperature	By using the display and operating unit, the operating temperature is restricted to -20 ... +60 °C [-4 ... +140 °F]		
Storage temperature	-40 ... +80 °C [-40 ... +176 °F]		
Operation	4 buttons for accessing and adjusting the settings		
Upgradable	Yes → See „Zubehör und Ersatzteile“		
Ingress protection per IEC 60529	■ IP20 (loose) ■ IP40 (built-in without cover)		
Material	Case from ABS, window from polyester film		

Voltage supply and performance data		
Power consumption	Max. ~0.6 W at 24 V, approx. 0.85 W at 36 V	
Current supply	4 ... 20 mA 2-wire; max. ~23 mA (with HART®)	
Overvoltage resistance per EN 61010-1	2 (model 500 V)	
Surge protection	■ Without ■ Module in cable gland (reduces ingress protection to IP65)	
Electrical safety	■ Reverse polarity protection ■ Protection class 3 (SELV) ■ EMC per EN 61326-1 ■ NAMUR NE21	
Settling time	Approx. 60 ms	Without HART®
	Approx. 80 ms	With HART®
Step response time	< 100 ms	
Rise time	20 ms	Without HART®
	50 ms	With HART®
Switch-on time	< 1 s to first valid measuring signal	
Warm-up time	A few minutes recommended for highest accuracy	
Response time	< 0.1 s	
Start-up drift	< 0.1 % FSO after approx. 15 min uptime	

Electrical connection		
Connection type	Cable glands M20 x 1.5 Angular connector DIN 175301-803A, with mating connector Circular connector M12 x 1 (4-pin), without mating connector	
Spring-loaded terminals	Wire cross-section:	
	Wire or stranded wire: 0.2 ... 2.5 mm ² (AWG 24 ... 14)	
	Stranded wire with end splice: 0.2 ... 1.5 mm ² (AWG 24 ... 16)	
Cable glands M20 x 1.5		
Plastic, PA	Seal	NBR
	Cable diameter	6 ... 12 mm [0.24 ... 0.47 in]
	Ingress protection per IEC 60529	IP66/67
Brass, nickel-plated	Seal	NBR
	Cable diameter	5 ... 9 mm [0.2 ... 0.35 in]
	Ingress protection per IEC 60529	IP66/67
Stainless steel cable gland	Seal	NBR
	Cable diameter	7 ... 12 mm [0.28 ... 0.47 in]
	Ingress protection per IEC 60529	IP66/67
Stainless steel cable gland in hygienic design	Seal	FDA-compliant
	Cable diameter	6 ... 12 mm [0.24 ... 0.47 in]
	Ingress protection per IEC 60529	IP66/67
Angular connector DIN 175301-803A, with mating connector	Wire cross-section	Max. 1.5 mm2 (AWG 16)
	Ingress protection per IEC 60529	IP65 ¹⁾
Circular connector M12 x 1 (4-pin), without mating connector	Ingress protection per IEC 60529	IP65 ¹⁾
Conduit ½ NPT with blind plug ²⁾	Ingress protection per IEC 60529	IP66/67
Reverse polarity protection	Yes	
Insulation voltage per EN 61010-1, Cat. 2	Approx. AC 500 V	
Insulation resistance R _{is}	≥ 100 Ω at DC 500 V	

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

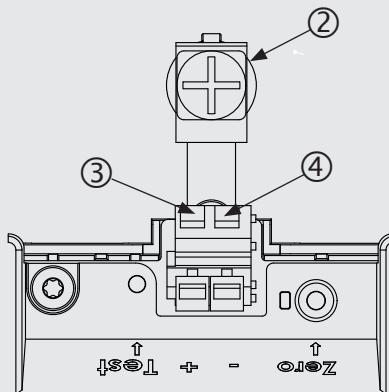
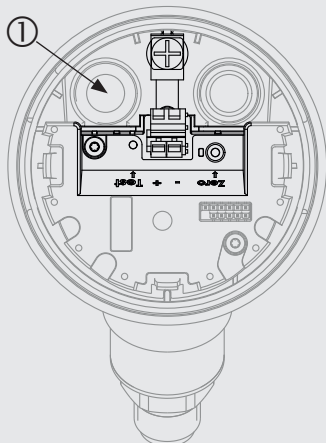
2) Only with stainless steel 1.4308 (CF-8), precision-cast housing

Pin assignment

Cable gland M20 x 1.5 and spring-loaded terminals

Outlet for connection cable

Pin assignment



- ① Cable gland
- ② Shield
- ③ Positive power supply terminal
- ④ Negative power supply terminal

Legend

- U+ Positive power supply terminal
- U- Negative power supply terminal

Material

Material (wetted) model UPT-20

Measuring ranges ≤ 40 bar [500 psi]	Process connection: stainless steel 1.4404 (316L), UNS: S31603	Sensor: stainless steel 1.4404 (316L), UNS: S31603
Measuring ranges > 40 bar [500 psi]	Process connection: stainless steel 1.4404 (316L), UNS: S31603	Sensor: Elgiloy® 2.4711 / R30003
Measuring ranges $> 1,000$ bar [15,000 psi]	Process connection: stainless steel 1.4534 (904L) UNS: S31603	Process connection: stainless steel 1.4534 (904L) UNS: S31603

Material (wetted) model UPT-21

All measuring ranges	■ Process connection: stainless steel 1.4435 / 316L	Diaphragm: Process connection: stainless steel 1.4534 (904L) UNS: S31603
	■ Process connection: Hastelloy® HC276 / 2.4819	Diaphragm: Hastelloy HC276 / 2.4819 / N06022
	■ Process connection: gold-plated	Diaphragm: gold-plated
	→ Accuracy 0.1 % not available for gold-plated sensors	

Pressure transmission medium model UPT-20

Measuring ranges ≤ 40 bar [500 psi]	Synthetic oil (halocarbon oil KN21 for oxygen applications)
Measuring ranges > 40 bar [500 psi]	Dry measuring cell

Pressure transmission medium model UPT-21

Synthetic oil

Operating conditions

Place of use	Suitable for internal and external operation, exposure to direct sunlight is permitted
Medium temperature range/limit	
Oxygen application	-20 ... +60 °C [-4 ... +140 °F]
Model UPT-20	■ -40 ... +85 °C [-40 ... +185 °F] ■ -40 ... +105 °C [-40 ... +221 °F] at max. 40 °C [104 °F] ambient temperature ■ -40 ... +120 °C [-40 ... +248 °F] at max. 30 °C [86 °F] ambient temperature
Model UPT-21 without cooling element	■ 85 °C [185 °F] at max. 80 °C [176 °F] ambient temperature ■ 105 °C [221 °F] at max. 40 °C [104 °F] ambient temperature ■ 120 °C [248 °F] at max. 30 °C [86 °F] ambient temperature

Operating conditions		
Model UPT-21 with cooling element	■ 85 °C [185 °F] at max. 80 °C [176 °F] ambient temperature ■ 120 °C [248 °F] at max. 50 °C [122 °F] ambient temperature ■ 150 °C [302 °F] at max. 40 °C [104 °F] ambient temperature	
Ambient temperature range	■ -20 ... +60 °C [-4 ... +140 °F]	With digital indicator
	■ -40 ... +80 °C [-40 ... +176 °F]	Without digital indicator
	■ -30 ... +80 °C [-22 ... +176 °F] ¹⁾	-
Storage temperature range	-40 ... +80 °C [-40 ... +176 °F]	
Restrictions to medium temperature due to sealing material		
Model UPT-21	NBR	-20 ... +105 °C [-4 ... +221 °F]
	FKM	-20 ... +105 °C [-4 ... +221 °F]
		-20 ... +150 °C [-4 ... +302 °F] ²⁾
	EPDM	-40 ... +105 °C [-40 ... +221 °F]
		-40 ... +150 °C [-40 ... +302 °F] ¹⁾
Humidity	≤ 97 % relative humidity	
Condensation	Non-condensing	
Vibration resistance	4g (5 ... 100 Hz) per GL characteristic curve 2	
Shock resistance		
Measuring ranges ≤ 1,000 bar [15,000 psi]	150g (3.2 ms) per IEC 60068-2-27	
Measuring ranges > 1,000 bar [15,000 psi]	20g at 4.6 ms	
Mounting position	Lower mount	
Operating altitude	≤ 2,000 m [6,562 ft] above sea level	
Ingress protection of the complete instrument (IP code) per IEC 60529	■ IP66/67 ■ IP65 (versions with circular connector, angular connector or surge protection)	
	→ The ingress protection only applies with closed case head and closed cable glands	
Pollution degree	3	
Overvoltage category	II	

1) With angular connector or circular connector: -30 ... +80 °C [-22 ... +176 °F]

2) Process connection with cooling element

Version for special media		
Food	FDA-listed, food-compatible system fill fluid	
Oil- and grease-free	Per G93:2019 level D (< 220 mg/m ²)	
Oxygen, oil- and grease-free	■ Per G93:2019 level D (< 220 mg/m ²)	
	■ Particle < 1,000 µm	
Hydrogen	Measuring ranges	≥ 100 bar [1,450 psi]
	Material (wetted)	316L and Elgiloy (2.4711)
	With the measurement of hydrogen, preferably, a gold-plated diaphragm should be used.	
	If this is not technically possible, a higher long-term drift should be expected. Use with pressures ≥ 1,000 bar [≥ 14,500 psi] is not permissible.	

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	EMC Directive EN 61326 emission (group 1, class B) and immunity (industrial application)	
	Pressure Equipment Directive	
	RoHS directive	

Optional approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	ATEX directive Hazardous areas - Ex i Zone 1 gas II 2G Ex ia IIC T4/T5/T6 Gb Zone 2 gas II 3G Ex ic IIC T4/T5/T6 Gc Zone 1 mounting to zone 0 gas II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb Zone 21 dust II 2D Ex ia IIIC T135 °C Db Zone 21 mounting to zone 20 dust II 1/2D Ex ia IIIC T135 °C Da/Db	
	IECEx Hazardous areas - Ex i Zone 1 gas Ex ia IIC T6 ... T3 Gb X Zone 2 gas Ex ic IIC T6 ... T3 Gc X Zone 1 mounting to zone 0 gas Ga/Gb Ex ia IIC T6 ... T3 X Zone 21 dust Ex ia IIIC T135°C Db X	International
	EAC	Eurasian Economic Community
	EMC Directive	
	Pressure Equipment Directive	
	Hazardous areas - Ex i Zone 1 gas Ex ia IIC T6 ... T3 Gb X Zone 2 gas Ex ic IIC T6 ... T3 Gc X Zone 1 mounting to zone 0 gas Ga/Gb Ex ia IIC T6 ... T3 X Zone 21 dust Ex ia IIIC T135°C Db X	
	Ex Ukraine	Ukraine
	Mining industry	
	Hazardous areas - Ex i Zone 1 mounting to zone 0 gas II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb Zone 21 mounting to zone 20 dust II 1/2D IP6X T130 °C/T95 °C/T80 °C	
-	PAC Ukraine Metrology, measurement technology	Ukraine
	PAC Uzbekistan Metrology, measurement technology	Uzbekistan
	KCs Hazardous areas - Ex i Zone 1 Ex ia IIC T3 ... T6 Zone 1 mounting to zone 0 Ex ia IIC T3 ... T6 Zone 21 mounting to zone 20 dust Ex iD A21 135 °C Zone 21 Ex iD A21 135 °C - Ex n Zone 2 Ex nL IIC T3 ... T6	Korea
	3-A Hygienic design This instrument is 3-A-marked, based on a third party verification for conformance to the 3-A standard.	USA

Logo	Description	Region
	EHEDG Hygienic design	European Union
-	CRN Safety (e.g. electr. safety, overpressure, ...)	Canada

Manufacturer's declaration

Logo	Description
-	Manufacturer's declaration regarding regulation (EC) 1935/2004
-	Manufacturer's declaration regarding regulation (EC) 2023/2006 (GMP)

Certificates

Description	
Test certificate	Test certificate for measurement accuracy included in the scope of delivery (5 measuring points in the scaled range)
Certificates	■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)
Calibration ¹⁾	■ Factory calibration certificate ■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)
Recommended calibration interval	1 year (dependent on conditions of use)

1) Calibration is carried out, as standard, at 6 temperatures evenly distributed over the temperature range. On request, special points are also possible.

→ For approvals and certificates, see website

Recommendations

Description	
NAMUR	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
NACE	NACE is a term for an organisation (National Association of Corrosion Engineers) concerned with the topic of corrosion. The results of this organisation are published as NACE standards and regularly updated.
	The instruments and, in particular, the weld seams fulfil: ■ NACE MR0103 - Applications in oil refineries ■ NACE MR0175 - Oil extraction and processing
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.

Safety-related characteristic values (Ex)

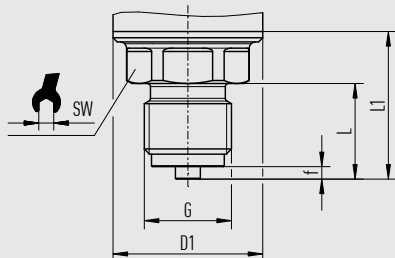
Safety-related characteristic values (Ex)	
Ex marking	
Connection values of sensor circuit	
Max. supply voltage U ₊	DC 14 ... 30 V
Max. input voltage U _i	DC 30 V
Max. input current I _i	100 mA
Max. input power P _i (gas)	1,000 mW
Max. input power P _i (dust)	■ 750 mW ■ 650 mW ■ 550 mW → Depending on the maximum ambient temperature
Effective internal capacitance C _i	11 nF
Effective internal inductance L _i	100 µH

Ambient temperature ranges		
Temperature class	Max. medium temperature	Ambient temperature
Max. surface temperature		
T4	120 °C [248 °F]	-40 ≤ Ta ≤ +50 °C [-40 ≤ Ta ≤ +122 °F]
T3	150 °C [302 °F]	-40 ≤ Ta ≤ +40 °C [-40 ≤ Ta ≤ +104 °F]
T6, T5	-40 ≤ Ta ≤ +60 °C [-40 ≤ Ta ≤ +140 °F]	-40 ≤ Ta ≤ +60 °C [-40 ≤ Ta ≤ +140 °F]
T4	-40 ≤ Ta ≤ +80 °C [-40 ≤ Ta ≤ +176 °F]	-40 ≤ Ta ≤ +80 °C [-40 ≤ Ta ≤ +176 °F]
Max. input power P _i		
750 mW	-40 ≤ Ta ≤ +40 °C [-40 ≤ Ta ≤ +104 °F]	-40 ≤ Ta ≤ +40 °C [-40 ≤ Ta ≤ +104 °F]
650 mW	-40 ≤ Ta ≤ +70 °C [-40 ≤ Ta ≤ +158 °F]	-40 ≤ Ta ≤ +70 °C [-40 ≤ Ta ≤ +158 °F]
550 mW	-40 ≤ Ta ≤ +80 °C [-40 ≤ Ta ≤ +176 °F]	-40 ≤ Ta ≤ +80 °C [-40 ≤ Ta ≤ +176 °F]

Dimensions in mm [in]

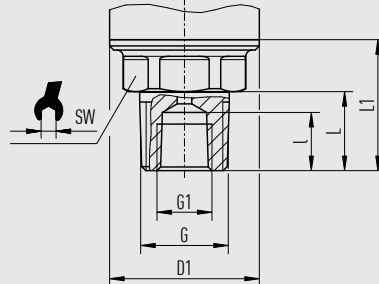
Process connections for model UPT-20

EN 837



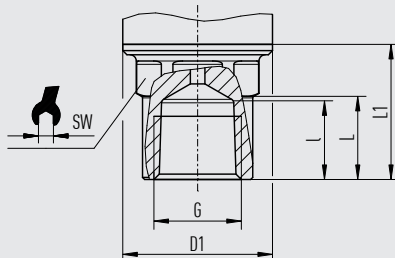
G	L	L1	f	D1	SW
G 3/8 B	21 [0.827]	33.5 [1.319]	3 [0.118]	36 [1.417]	27 [1.063]

ANSI / ASME B1.20.1



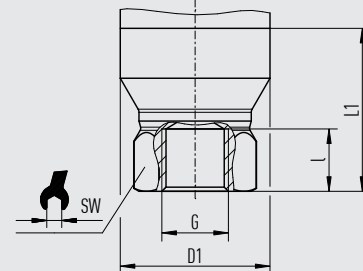
G	G1	I	L	L1	D1	SW
1/2 NPT, male	1/4 NPT female	14 [0.551]	19 [0.748]	31.5 [1.240]	36 [1.417]	27 [1.063]

ANSI / ASME B1.20.1



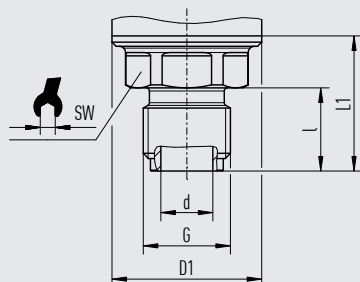
G	I	L	L1	D1	SW
Measuring ranges ≤ 40 bar [500 psi]					
1/2 NPT female	20 [0.787]	19 [0.748]	26.5 [1.043]	36 [1.417]	27 [1.063]
Measuring ranges > 40 bar [500 psi]					
1/2 NPT female	20 [0.787]	19 [0.748]	40.5 [1.595]	36 [1.417]	41 [1.614]

High-pressure connection



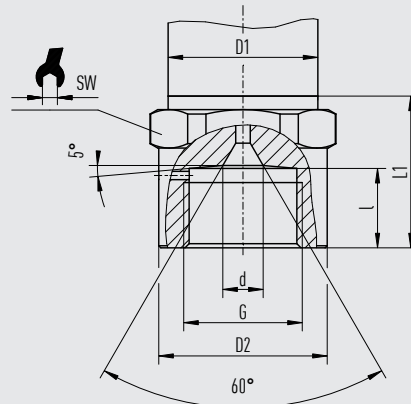
G	I	L1	D1	SW
M16 x 1.5	15 [0.591]	39.2 [1.543]	36 [1.417]	27 [1.063]
M20 x 1.5	15 [0.591]	39.2 [1.543]	36 [1.417]	27 [1.063]

G 1/2 with 12.5 mm bore

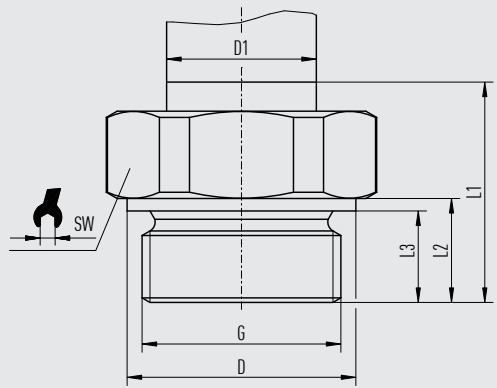


G	d	L	L1	D1	SW
G 1/2 B	12.5 [0.492]	20 [0.787]	32.5 [1.280]	36 [1.417]	27 [1.063]

High-pressure connection

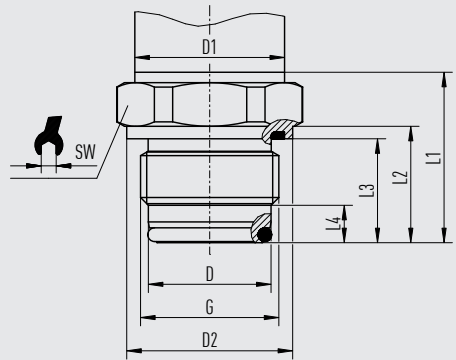


G	I	L1	d	D1	D2	SW
1 1/8 - 12 UNF female F 562-C	19.1 [0.752]	36.5 [1.437]	9.7 [0.382]	36 [1.417]	40.5 [1.595]	41 [1.614]



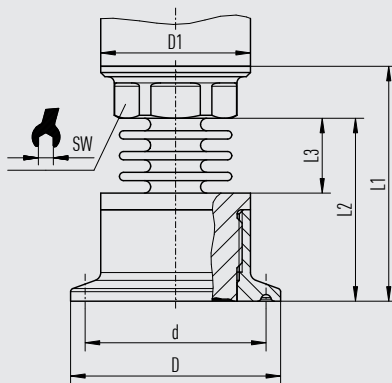
G	L1	L2	L3	D	D1	SW
G 1 ½ B	53 [2.087]	25 [0.984]	22 [0.866]	55 [2.165]	36 [1.417]	60 [2.362]

Hygienic



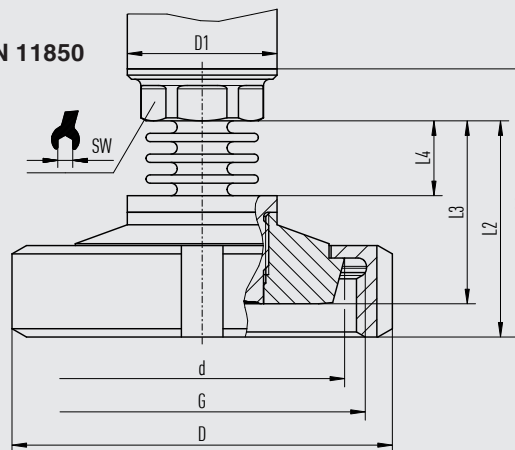
G	L1	L2	L3	L4	D	D1	D2	SW
G ½ B	41 [1.614]	28 [1.102]	20.5 [0.807]	9 [0.354]	29.5 [1.161]	36 [1.417]	39.9 [1.571]	41 [1.614]

Clamp connection (clamp)



Process connection	DN	D	d	D1	L1	L2	L3	SW
DIN 32676 TRI-CLAMP® 2)	1 ½	50.5 [1.99]	43.5 [1.71]	36 [1.417]	56.5 [2.224]	44 [1.732]	18 [0.709]	27 [1.063]
	2	64 [2.52]	56.6 [2.23]	36 [1.417]	50.5 [1.988]	44 [1.732]	18 [0.709]	27 [1.063]
	40	50.5 [1.99]	43.5 [1.71]	36 [1.417]	56.5 [2.224]	44 [1.732]	18 [0.709]	27 [1.063]
	50	64 [2.52]	56.6 [2.23]	36 [1.417]	56.5 [2.224]	44 [1.732]	18 [0.709]	27 [1.063]

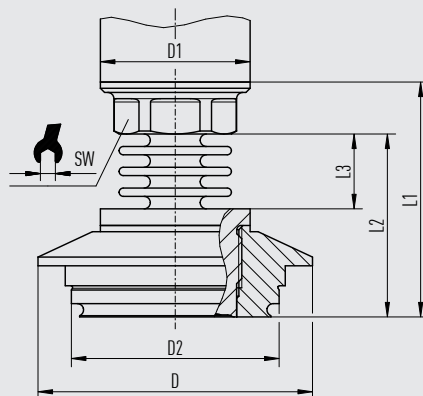
Grooved union nut DIN 11851
With conical coupling, for pipes per DIN 11850



Process connection	DN	G	D	d	D1	L1	L2	L3	L4	SW
DIN 11851	25	Rd 52 x 1/6	63 [2.480]	44 [1.73]	36 [1.417]	63.5 [2.500]	51 [2.010]	41 [1.614]	18 [0.709]	27 [1.063]
	40	Rd 65 x 1/6	78 [3.071]	56 [2.205]	36 [1.417]	63.5 [2.500]	51 [2.010]	41 [1.614]	18 [0.709]	27 [1.063]
	50	Rd 78 x 1/6	92 [3.622]	68.5 [2.697]	36 [1.417]	64.5 [2.539]	52 [2.047]	41 [1.614]	18 [0.709]	27 [1.063]

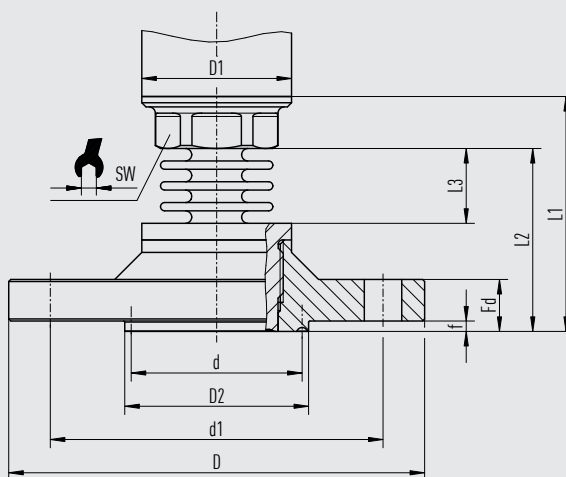
For 3-A-compliant connection with process connections with milk thread fittings per DIN 11851, profile seals from SKS Komponenten BV or Kieselmann GmbH have to be used.

VARINLINE®



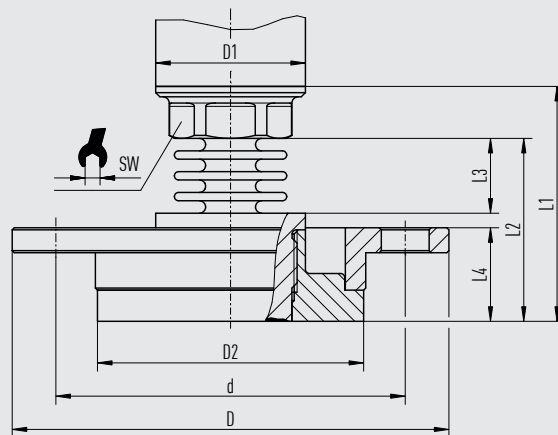
Process connection	Form	D	D1	D2	L1	L2	L3	SW
VARINLINE®	F	50 [1.97]	36 [1.417]	50 [1.97]	56.5 [2.224]	44 [1.732]	18 [0.709]	27 [1.063]
	N	68 [2.68]	36 [1.417]	68 [2.68]	56.5 [2.224]	44 [1.732]	18 [0.709]	27 [1.063]

NEUMO BioConnect®



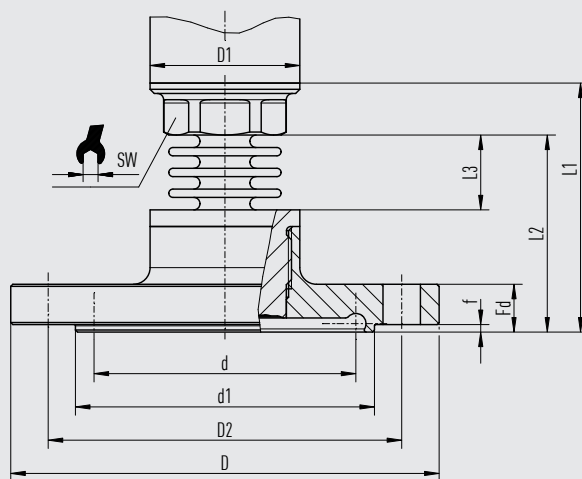
Process connection	DN	D	d	D1	d1	D2	L1	L2	L3	Fd	d	SW
BioConnect®	40	100 [3.937]	41.1 [1.618]	36 [1.417]	80 [3.150]	44.2 [1.740]	56.5 [2.224]	44 [1.732]	18 [0.709]	12.5 [0.492]	2.5 [0.098]	27 [1.063]

DRD retainer flange



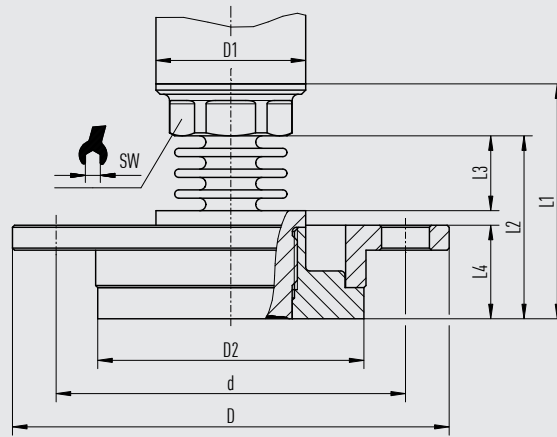
Process connection	DN	D	d	D1	D2	L1	L2	L3	L4	SW
DRD retainer flange	40	105 [4.134]	84 [3.307]	36 [1.417]	64 [2.520]	56.5 [2.224]	44 [1.732]	18 [0.709]	22.5 [0.886]	27 [1.063]

Aseptic flange



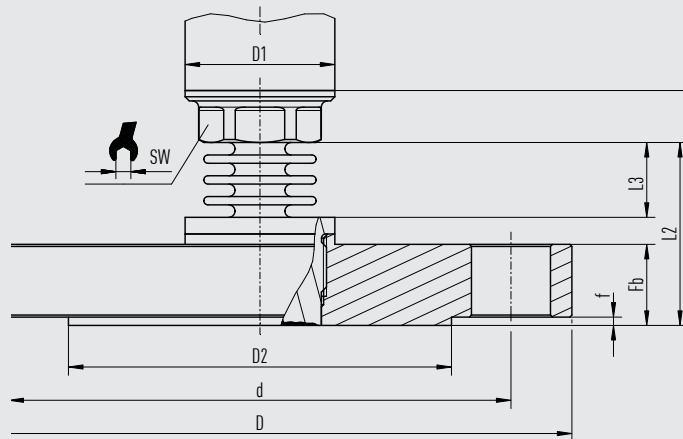
Process connection	DN	D	d	D1	D2	d1	L1	L2	L3	f	Fd	SW
Aseptic flange	60.3	103 [4.055]	63 [2.480]	36 [1.417]	85 [3.347]	71.9 [2.831]	59.9 [2.358]	47.4 [1.866]	18 [0.709]	1.8 [0.071]	11.5 [0.453]	27 [1.063]

Flange EN 1092-1



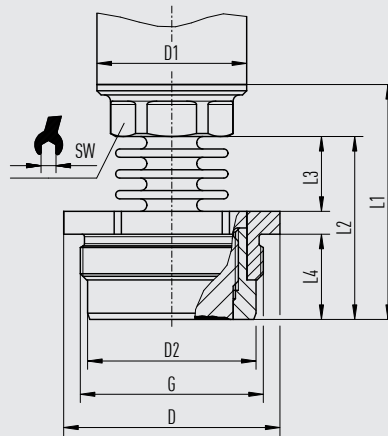
Process connection	DN	D	d	D1	D2	L1	L2	L3	f	Fd	SW
Flange per EN 1092-1 PN 1 ...40	50	165 [6.496]	125 [4.921]	36 [1.417]	102 [4.016]	56.5 [2.224]	44 [1.732]	18 [0.709]	2 [0.079]	18 [0.709]	27 [1.063]

Flange per ASME B16.5



Process connection	DN	D	d	D1	D2	L1	L2	L3	f	Fb	SW
Flange per ASME B16.5	2"	150 [5.906]	120.7 [4.752]	36 [1.417]	92.1 [3.626]	56.5 [2.224]	44 [1.732]	18 [0.709]	2 [0.079]	19.5 [0.768]	27 [1.063]

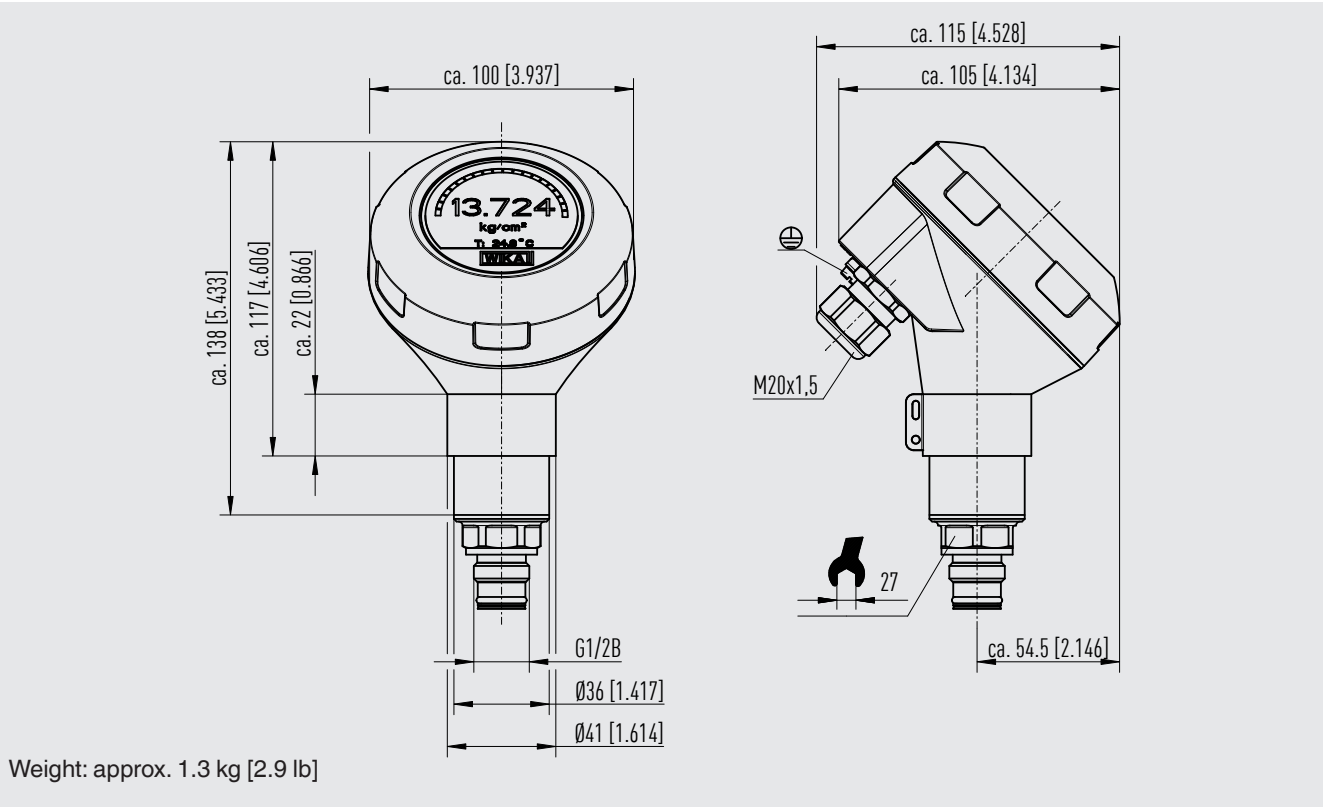
Thread M44 x 1.25 with union nut up to 150°



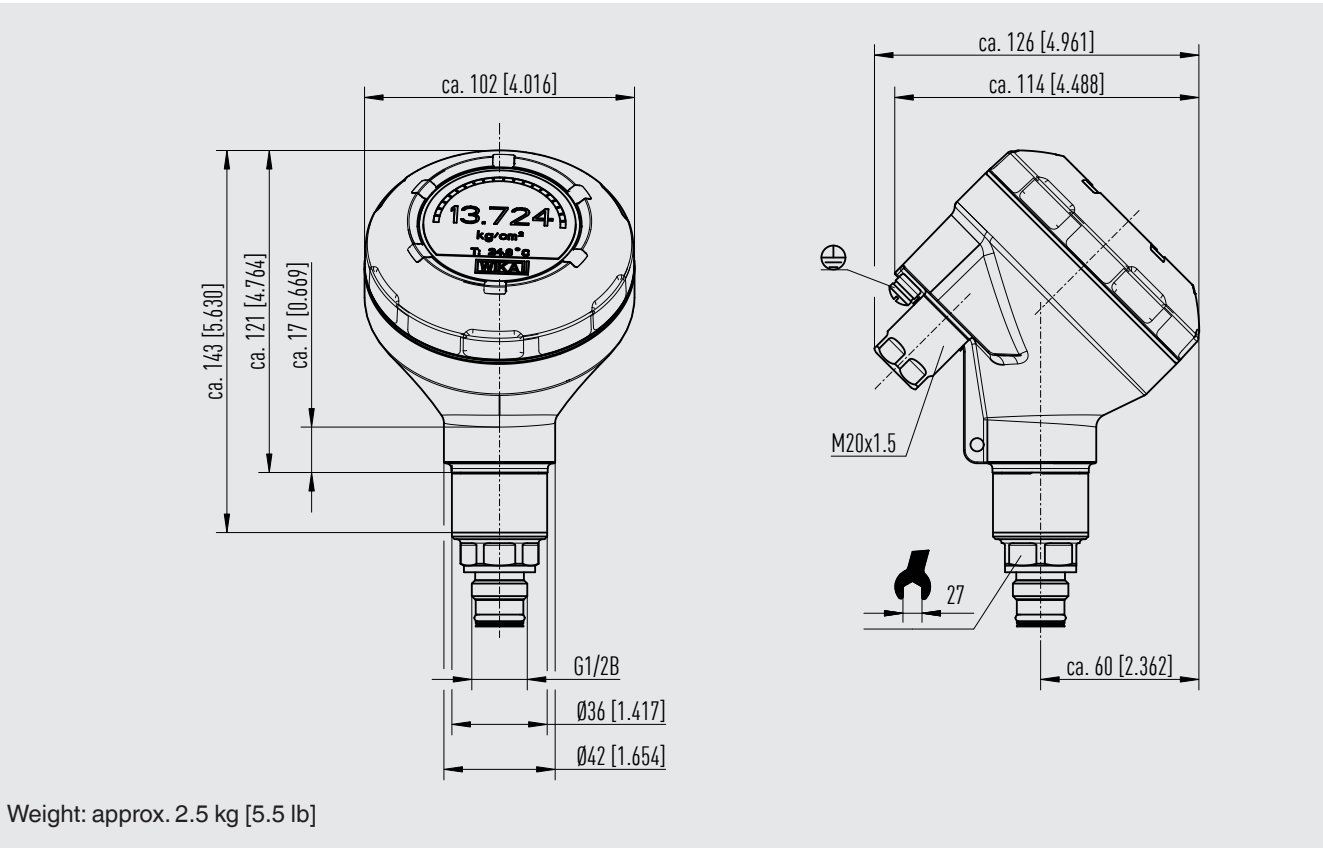
Process connection	G	D	D1	D2	L1	L2	L3	L4	SW
Thread M44 x 1.25 with union nut up to 150°	M44 x 1.25	52 [2.047]	36 [1.417]	40.5 [1.595]	56.5 [2.224]	44 [1.732]	18 [0.709]	20.5 [0.807]	46 [1.811]

→ For further information on process connections, see technical information IN 00.14.

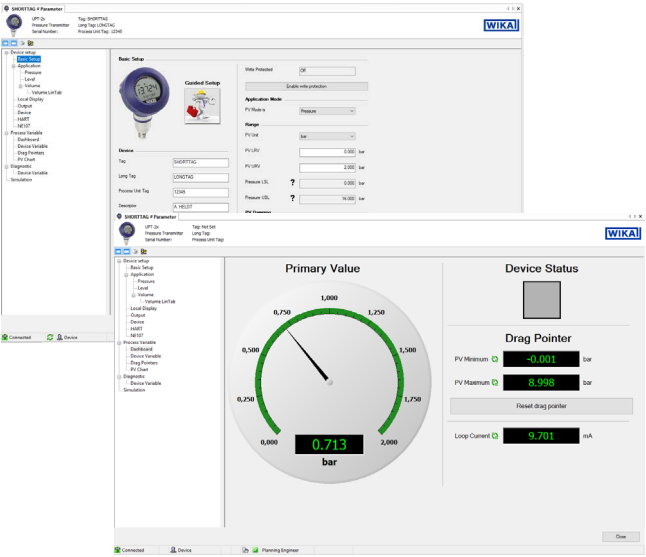
Plastic case, models UPT-20 and UPT-21



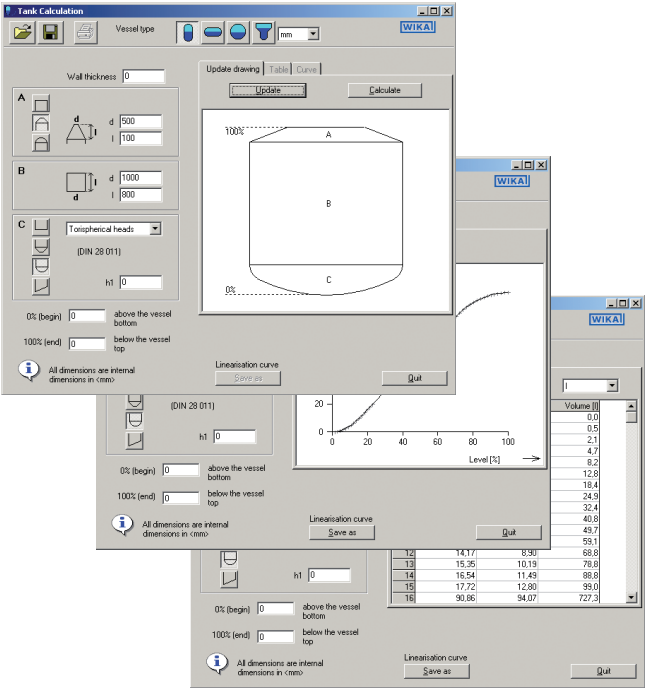
Stainless steel case and hygienic M20 x 1.5 cable gland, models UPT-20 and UPT-21



User interface DTM



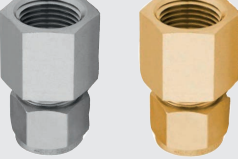
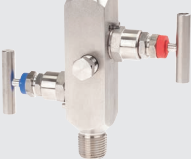
For HART® output signals, a DTM is available in accordance with the FDT standard. The DTM provides a self-explanatory and clear user interface for all setup and control processes of the transmitter. For testing purposes, it is also possible to simulate process values and archive the parameter data. Recording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

Description		Order number
	Display module, model DIH52-F 5-digit display, 20-segment bar graph, without separate auxiliary 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 possible using HART® standard commands. 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
	Welding socket	-
	For G ½ flush process connection	1192299
	For G 1 flush process connection	1192264
	For G 1 ½ flush process connection	2158982
	For G 1 hygienic flush process connection	14070973
	Instrument mounting bracket for wall and pipe mounting (for pipes up to 2"), stainless steel, weight: approx. 0.4 kg [0.9 lb]	14058660
	Surge protection for transmitters, 4 ... 20 mA, M20 x 1.5, series connection	14002489
	Display and operating unit, model DI-PT-U The display and operating unit can be attached in 90° steps. The display and operating unit features a main display and an additional display. The main display shows the output signal. The additional display shows different values, at the same time as the main display – these values can be selected by the user. The process transmitter can be configured via the display and operating unit. Only use this display and operating unit for installation into the process transmitter.	14090181
	Connection adapters for pressure measuring instruments → See data sheet AC 09.05	-
	Block-and-bleed valve, model IV20, IV21 → See data sheet AC 09.19	-
	Hygienic cable gland M20 x 1.5 Cable diameter: 6 ... 12 mm [0.24 ... 0.47 in]	11348691

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BioConnect® is a registered trademark of the company NEUMO.

BioControl® is a registered trademark of the company NEUMO.

VARINLINE® is a registered trademark of GEA Tuchenhausen GmbH.

Elgiloy® is a trademark of the company "Specialty Metals"

Ordering information

Model / Explosion protection / Case version / Display and operating unit / Output signal
/ Electrical connection / Measuring range / Process connection / Seal / Wetted parts /
Accuracy / Certificates / Scaling

Configurator



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We reserve the right to make modifications to the specifications and materials.

