Level measurement device with guided radar

- Universal level measurement device for liquids
- Liquid interface measurement
- Insensitive to dust and steam
- 4...20 mA/HART, 2 wires
- ATEX/IECEx certifications

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

Type 8619 ▸
multiCELL – multi-channel/ multi-function transmitter/ controller

Type 8611 ▸
eCONTROL – Universal controller

Type 8802 ▸
ELEMENT continuous control valve systems – overview

Type 8644 ▸
AirLINE SP electropneumatic automation system

Type 8793 ▸
Digital electropneumatic Process Controller SideCONTROL

Type description

The Type 8188 is a level measurement device with cable, rod, both interchangeable probe or with coax probe, designed for continuous level measurement.

The unit is suitable for liquids, for industrial use in all areas of process technology. With a measuring range up to 75 m, the 8188 is best suited for tall vessels.

Even process conditions such as strong steam generation, density fluctuations or changes of the dielectric constant do not influence the accuracy of the measurement. Build-up or condensation on the probe or vessel wall do not influence the measuring result.

A liquid interface measurement is also possible with the Type 8188, typically an oil/ water interface.

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

Visit product website ▸

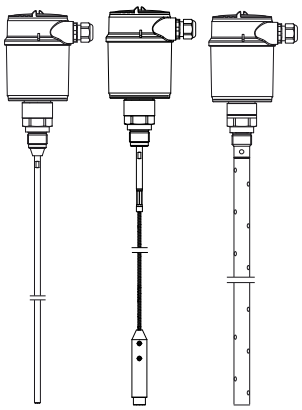
Table of contents

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

1. General technical data

1.1. About the device:

The device is available with a rod, cable or coaxial measuring probe. The technical data depends on the variant of the level measurement device with guided radar.



1.2. All variants

Product properties	
Material	
Make sure the device materials are compatible with the fluid you are using. Further information can be found in chapter "3.1. Bürkert resistApp" on page 7.	
Non-wetted parts	
Cover	PC transparent
Housing	Plastic PBT (Polyester), PPS and stainless steel 316L (1.4404)
Grounding terminal and screw	Stainless steel 316L
Seal	Between housing and cover: EPDM
Cable gland	PA
Blind plug	PA
Wetted parts	
Seal	NBR with aramid fibres
Dimensions	Further information can be found in chapter "4. Dimensions" on page 8.
Measured quantity	Level of liquids. For solids applications, contact your Bürkert sales office.
Measuring range	Further information can be found in chapter "5.1. Measuring range and blocking distance diagram" on page 11.
Damping (63 % of the input variable)	0...999 s, adjustable
Product accessories	
Display/configuration module	LCD in full dot matrix Further information can be found in chapter "7.4. Ordering chart accessories" on page 17.
Performance data	
Blocking distance	Further information can be found in chapter "5.1. Measuring range and blocking distance diagram" on page 11.
Measuring range resolution	< 1 mm
Measurement deviation [1,) 2,)]	According to DIN EN 60770-1: ± 2 mm Further information can be found in chapter "5.2. Measurement deviation diagram" on page 12.
Non-repeatability	≤ ± 1 mm (max.)
Measuring cycle time	< 500 ms
Step response time [3,)]	≤ 3 s
Temperature drift	• Digital output: ± 3 mm/10 K related to the max. measuring range or max. 10 mm • Current output: < 0.03 %/10K related to the 16 mA span or ≤ 0.3 %
Filling/emptying speed	Max. 1 m/min

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

Electrical data	
Operating voltage (U_n)	• Without display/configuration module: – 9.6...35 V DC – 9.6...30 V DC (Ex ia instrument) • With display/configuration module: – 16...35 V DC – 16...30 V DC (Ex ia instrument)
Power source (not supplied)	Limited power source according to UL/EN 62368-1 standards or limited energy circuit according to UL/EN 61010-1 paragraph 9.4
DC reverse polarity protection	Yes
Residual ripple (for DC)	For 9.6 V < U_n < 18 V: ≤ 0.7 V_{eff} (16...400 Hz) For 18 V < U_n < 35 V: ≤ 1.0 V_{eff} (16...400 Hz)
Overvoltage category according to IEC 61010-1	Category III
Protection class according to IEC 61010-1	Class III
Starting current	≤ 3.6 mA, ≤ 10 mA for 5 ms after the switching on
Load resistor	(U_n - $U_{min.}$)/0.022 A
Output	4...20 mA/HART
Output signal range	3.8...20.5 mA/HART (default setting)
Signal resolution	0.3 µA
Output current	Max. 21.5 mA
Fault signal	Current output: last valid measured value, ≥ 21 mA or < 3.6 mA (adjustable)
Voltage supply cable	• Cable diameter: 5...9 mm • Wire cross-section (spring-loaded terminals): – Massive wire, stranded wire: 0.2...2.5 mm² (AWG 24...14) – Stranded wire with end sleeve: 0.2...1.5 mm² (AWG 24...16)
Product connections	
Process connection	Thread G or NPT: ¾, 1
Electrical connection	Cable gland M20 × 1.5
Approvals and conformities	
Directives	
CE directive	Further information on the CE Directive can be found in chapter "2.3. Standards" on page 6.
NAMUR recommendation	• NE21 – Electromagnetic compatibility of equipment • NE43 – Signal level for fault information from measuring transducers • NE53 - Compatibility of field devices and display/adjustment components • NE107 - Self-monitoring and diagnosis of field devices
Explosion protection	ATEX/IECEx: EN IEC 60079-0, EN 60079-11, EN 60079-26 Further information can be found in chapter "2.4. Explosion protection" on page 7.
Environment and installation	
Ambient temperature	Operation and storage: - 40...+ 80 °C (- 40...+ 176 °F) (with display/configuration module)
Temperature derating	Depending on the device variant. Further information can be found in chapter "5.3. Temperature derating diagram" on page 14.
Relative air humidity	20...85 %, without condensation
Height above sea level	Max. 2000 m (by default; max. 5000 m with connected overvoltage protection)
Degree of protection according to IEC/EN 60529	IP66/IP67 with cable plug mounted and tightened M20 × 1.5
Pollution degree	Degree 4 (when used with fulfilled housing protection)

1.) Depending on the mounting conditions, deviations can occur which can be rectified by adapting the adjustment or changing the measured value offset in the DTM service mode.
2.) The blocking distances can be optimized by a false signal suppression.
3.) Time span a sudden measuring distance change by max. 0.5 m in liquid applications, until the output signal signal has taken for the first time 90 % of the final value (IEC 61298-2).

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

1.3. Variant with rod probe

Product properties	
Material	
Wetted parts	
Process connection	• Stainless steel 316L (1.4404 or 1.4435) and PPS (variant up to 6 bar) • Stainless steel 316L (1.4404 or 1.4435) and PEEK (variant up to 40 bar)
Probe	Rod-Ø 8 mm in stainless steel 316L (1.4404 or 1.4435)
Seal	Process seal on the instrument side (rod lead-through) in EPDM
Weight	Housing: 890 g Rod-Ø 8 mm: approx. 400 g/m
Probe length	0.3...6 m (lateral load: 10 Nm)
Medium data	
Process temperature	• -40...+80 °C (-40...+176 °F) (for variant up to 6 bar) • -40...+150 °C (-40...+302 °F) (for variant up to 40 bar)
Process pressure	• -1...+6 bar (-100...+600 kPa/-14.5...+87 psig) (for process connection in stainless steel 316L (1.4404 or 1.4435) and PPS) • -1...+40 bar (-100...+4000 kPa/-14.5...+580 psig) (for process connection in stainless steel 316L (1.4404 or 1.4435) and PEEK)
Dielectric constant	$\varepsilon_r > 1.6$

1.4. Variant with cable variant and gravity weight

Product properties	
Material	
Wetted parts	
Process connection	• Stainless steel 316L (1.4404 or 1.4435) and PPS (variant up to 6 bar) • Stainless steel 316L (1.4404 or 1.4435) and PEEK (variant up to 40 bar)
Inner conductor	Up to separation cable: stainless steel 316L (1.4404 or 1.4435)
Probe	Cable-Ø 4 mm with gravity weight in stainless steel 316L (1.4404 or 1.4435)
Seal	Process seal on the instrument side (cable lead-through) in EPDM
Weight	• Housing: 890 g • Cable-Ø 4 mm: approx. 60 g/m • Gravity weight: approx. 200 g
Probe length	0.5...75 m (max. tensile load: 2.5 KN)
Medium data	
Process temperature	• -40...+80 °C (-40...+176 °F) (for variant up to 6 bar) • -40...+150 °C (-40...+302 °F) (for variant up to 40 bar)
Process pressure	• -1...+6 bar (-100...+600 kPa/-14.5...+87 psig) (for process connection in stainless steel 316L (1.4404 or 1.4435) and PPS) • -1...+40 bar (-100...+4000 kPa/-14.5...+580 psig) (for process connection in stainless steel 316L (1.4404 or 1.4435) and PEEK)
Dielectric constant	$\varepsilon_r > 1.6$

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

1.5. Variant with coaxial probe

Product properties	
Material	
Wetted parts	
Process connection	Stainless steel 316L (1.4404 or 1.4435) and PEEK
Inner conductor	Up to separation rod: stainless steel 316L (1.4404 or 1.4435)
Probe	Coaxial-Ø 21.3 mm (tube) in stainless steel 316L (1.4404 or 1.4435)
Seal	Process seal on the instrument side (rod lead-through) in EPDM
Weight	• Housing: 890 g • Coaxial-Ø 21.3 mm: approx. 1110 g/m
Probe length	0.3...6 m (lateral load: 60 Nm)
Medium data	
Process temperature	- 40...+ 150 °C (- 40...+ 302 °F)
Process pressure	- 1...+ 40 bar (- 100...+ 4000 kPa/- 14.5...+ 580 psig)
Dynamic viscosity η	0.1...500 mPa s (requirement: with density 1)
Dielectric constant	$\varepsilon_r > 1.4$

2. Approvals and conformities

2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants can be supplied with the below mentioned approvals or conformities.

2.2. Conformity

In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

2.4. Explosion protection

Note:
Devices with Ex certification have different technical data, see **Supplement ATEX/IECEx Type 8188** ▶ under “User manuals”.

Approval	Description
	Optional: Explosion protection Ex marking of the components according to: **ATEX:** TÜV 19 ATEX 260229X • II 1G Ex ia IIC T6...T1 Ga resp. • II 1/2G Ex ia IIC T6...T1 Ga/Gb resp. • II 2G Ex ia IIC T6...T1 Gb **IECEx:** IECEx TUN 19.0021X • Ex ia IIC T6...T1 Ga resp. • Ex ia IIC T6...T1 Ga/Gb resp. • Ex ia IIC T6...T1 Gb Measures for compliance with ATEX/IECEx requirements: see **Additional manual/Supplement ATEX/IECEx Type 8188** ▶ under “User manuals”. The Ex. certification is only valid if the Bürkert device is used as described in the additional manual/supplement. Any unauthorized modifications made to the device will invalidate the Ex certification.

3. Materials

3.1. Bürkert resistApp

Bürkert resistApp – Chemical resistance chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

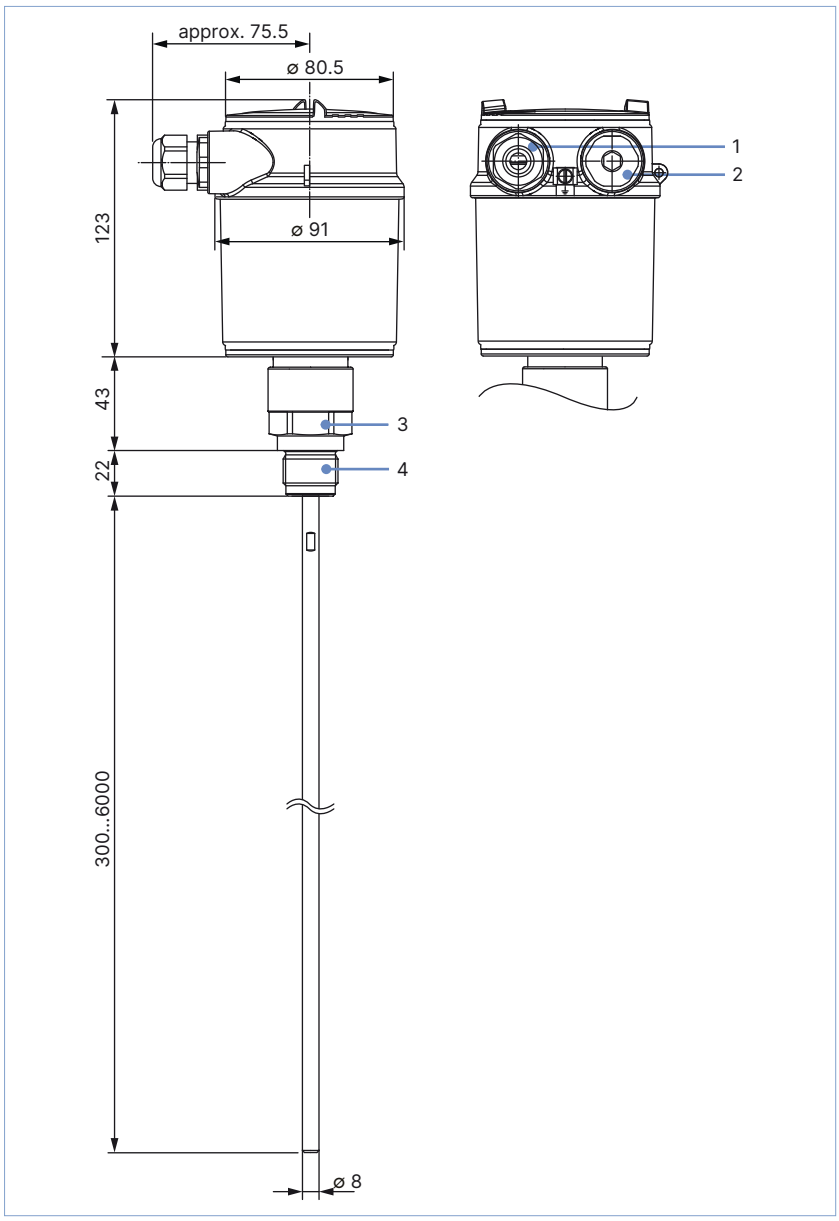
Start chemical resistance check

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

4. Dimensions

4.1. Variant with rod probe

Note:
Dimensions in mm, unless otherwise stated

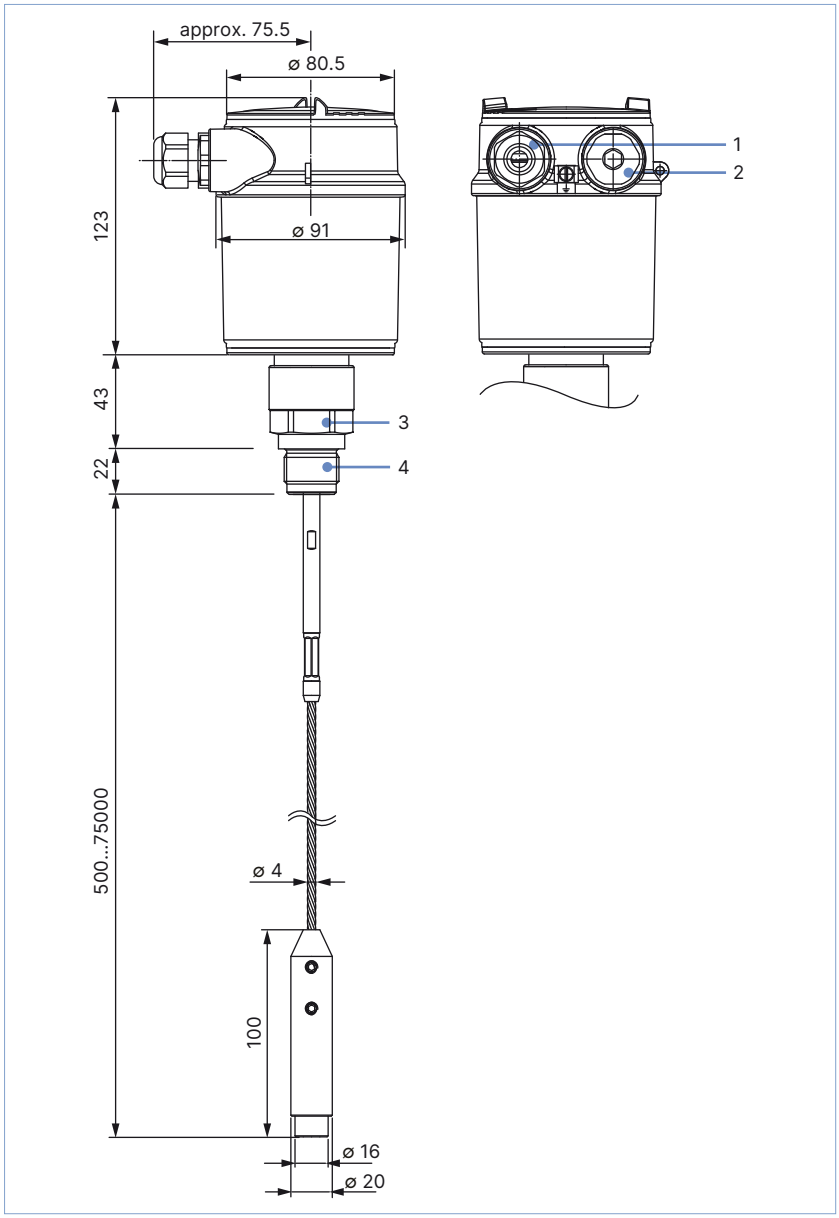


No.	Element
1	Cable gland M20 × 1.5
2	Blind plug M20 × 1.5
3	AF36 for G or NPT ¾ AF41 for G or NPT 1
4	G or NPT ¾ G or NPT 1

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

4.2. Variant with cable probe and gravity weight

Note:
Dimensions in mm, unless otherwise stated

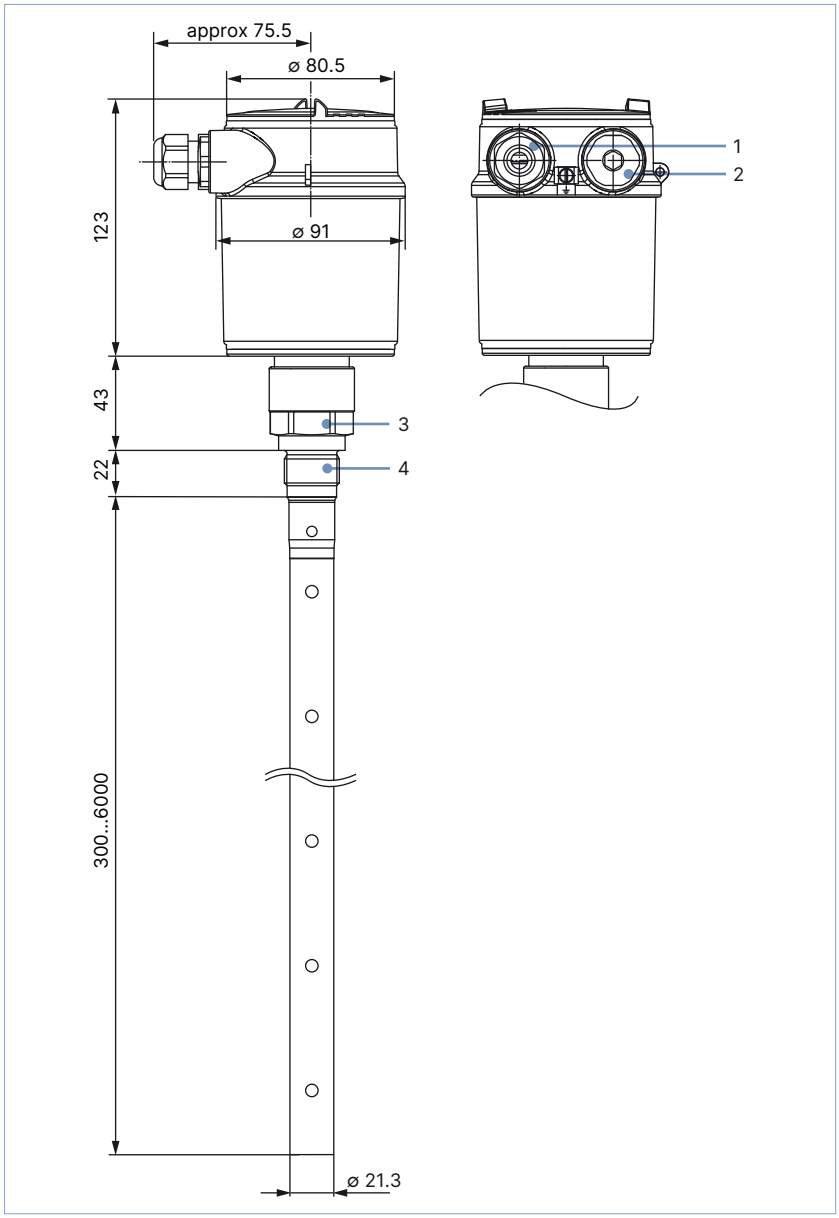


No.	Element
1	Cable gland M20 × 1.5
2	Blind plug M20 × 1.5
3	AF36 for G or NPT ¾ AF41 for G or NPT 1
4	G or NPT ¾ G or NPT 1

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

4.3. Variant with coaxial probe

Note:
Dimensions in mm, unless otherwise stated

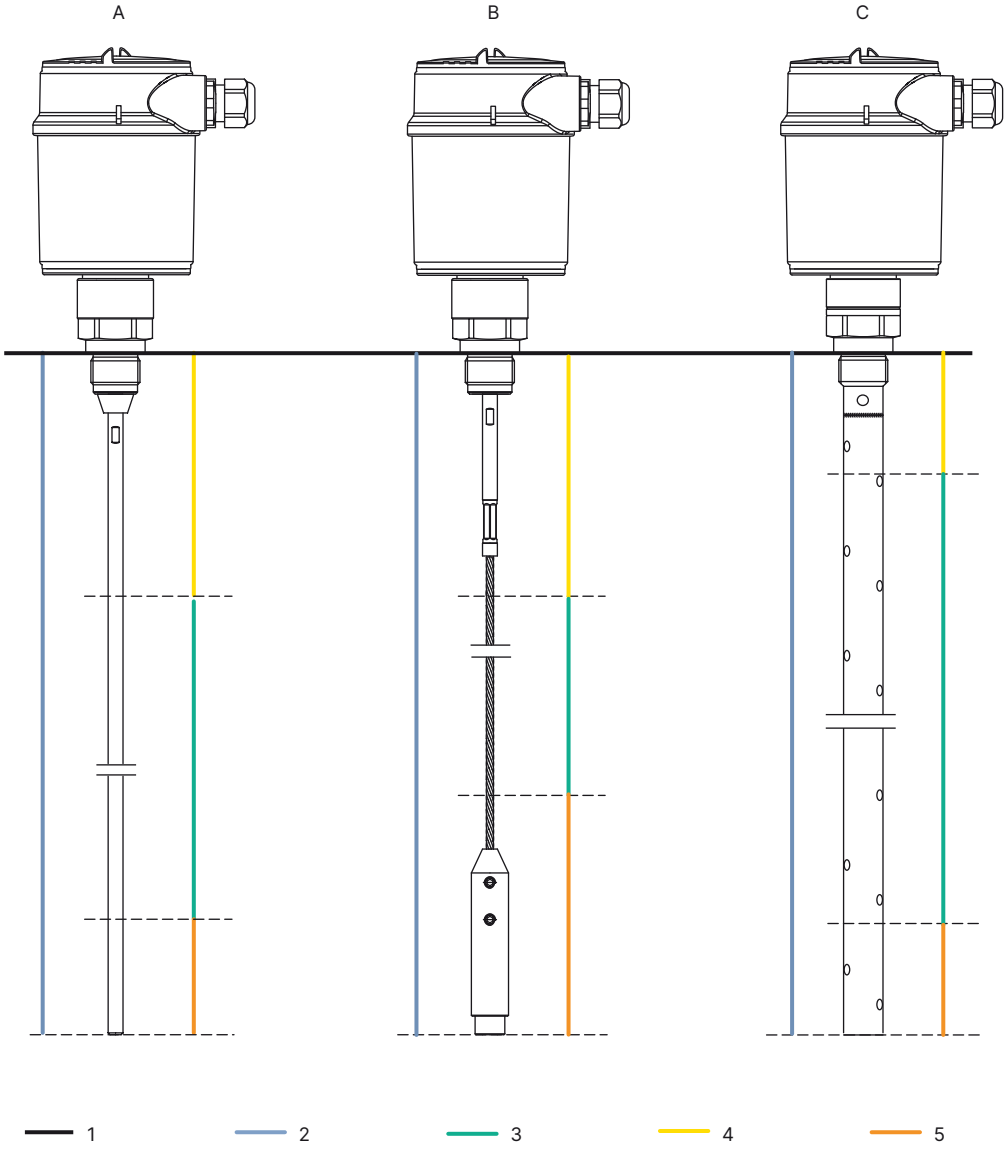


No.	Element
1	Cable gland M20 × 1.5
2	Blind plug M20 × 1.5
3	AF36 for G or NPT ¾ AF41 for G or NPT 1
4	G or NPT ¾ G or NPT 1

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

5. Performance specifications

5.1. Measuring range and blocking distance diagram



Range length				
No.	**Description**	**A: rod variant**	**B: cable variant**	**C: coaxial variant**
1	Reference plane	–	–	–
2	Measuring probe length	0.3...6 m	0.5...75 m	0.3...6 m
3	Measurement range	In water: 0.08...6 m In oil: 0.15...5.95 m	In water: 0.08...75 m In oil: 0.15...74.85 m	In water: 0.03...6 m In oil: 0.10...5.95 m
4	Upper blocking distance	In water: 0.08 m In oil: 0.15 m	In water: 0.08 m In oil: 0.15 m	In water: 0.03 m In oil: 0.10 m
5	Lower blocking distance	In water: 0 m In oil: 0.05 m	In water: 0 m In oil: 0.15 m	In water: 0 m In oil: 0.05 m

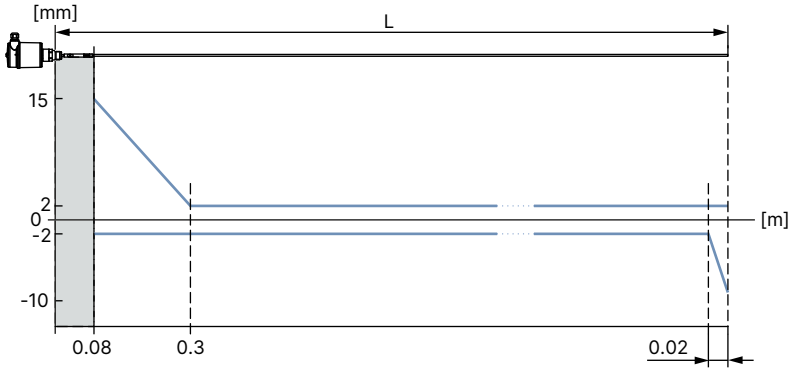
DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

5.2. Measurement deviation diagram

Variant with rod probe in water

Note:

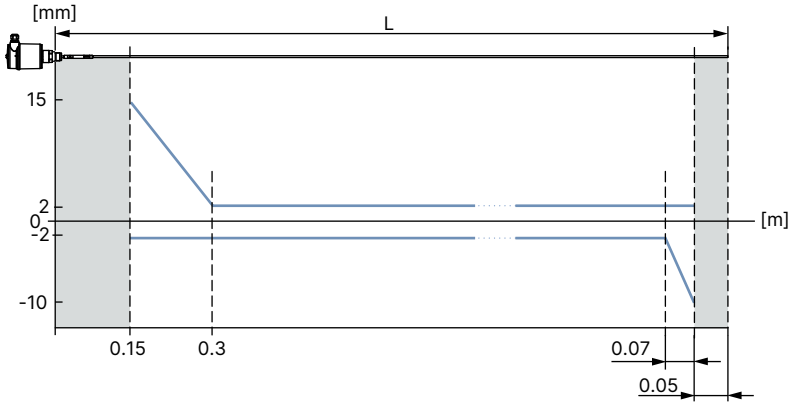
- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.



Variant with rod probe in oil

Note:

- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.

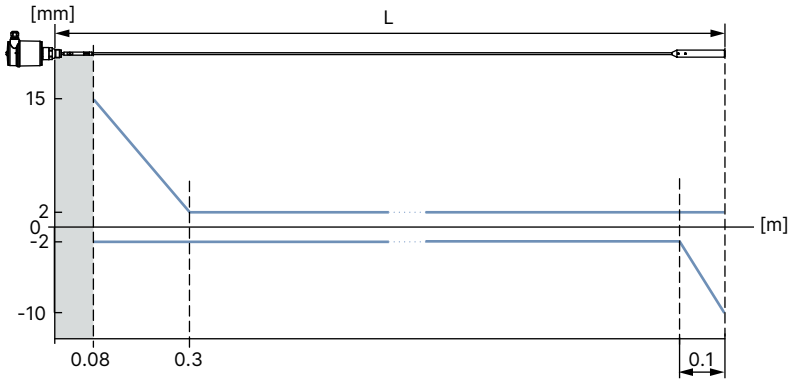


DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

Variant with cable probe in water

Note:

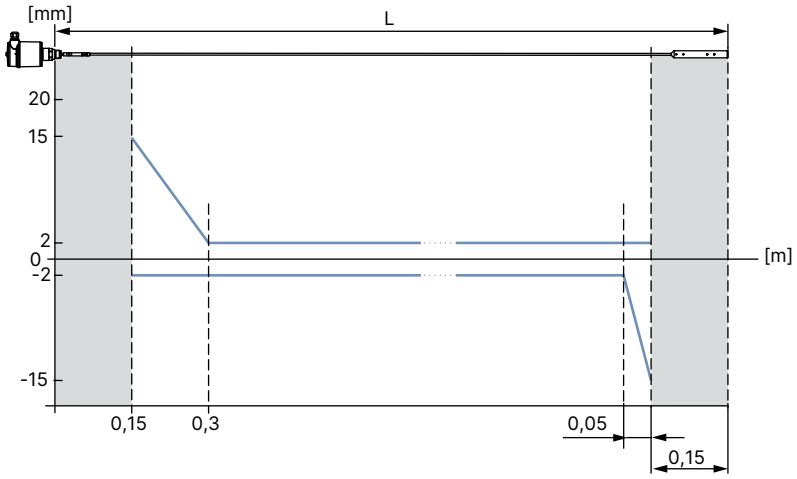
- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.



Variant with cable probe in oil

Note:

- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.

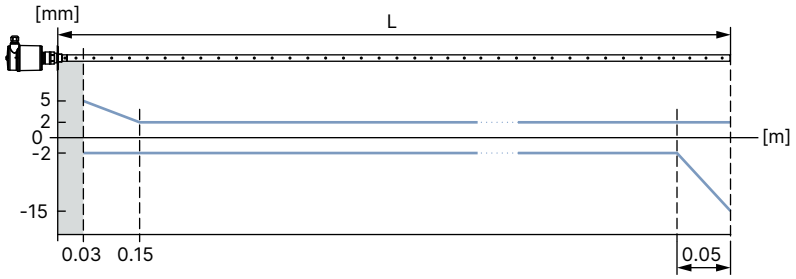


DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

Variant with coaxial probe in water

Note:

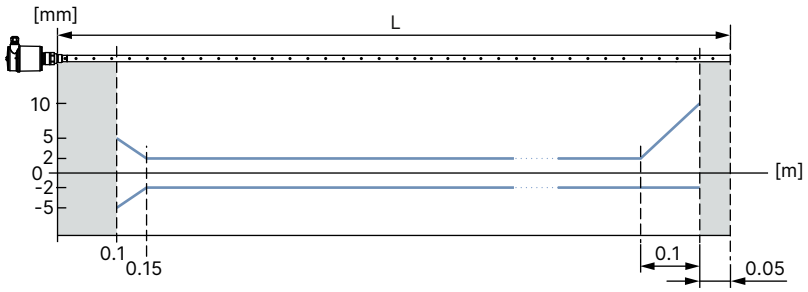
- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.



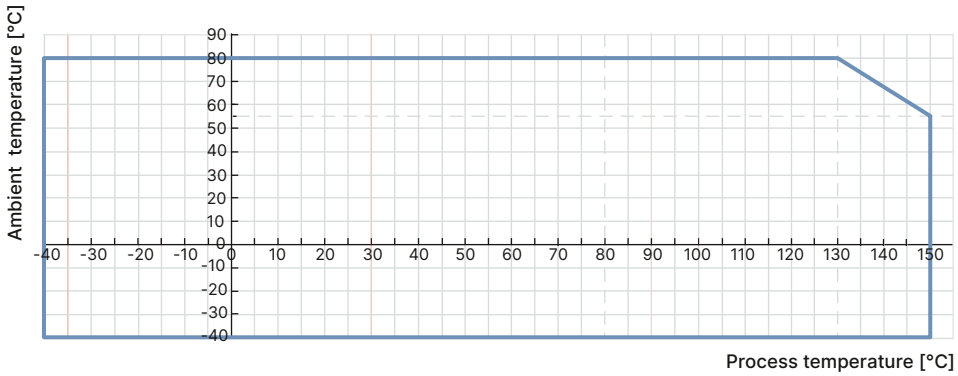
Variant with coaxial probe in oil

Note:

- The blocking distance is indicated by the grey area in the diagram. No measurement is possible in this area.
- The length L represents the length of the probe.



5.3. Temperature derating diagram



DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

6. Product operation

6.1. Measuring principle

High frequency microwave pulses are guided along a steel cable, a rod or a coaxial cable. When they reach the product surface, the microwave pulses are reflected and received by the processing electronics. The running time is evaluated by the instrument and outputted as distance. Time consuming adjustment with medium is not necessary. The instruments are pre-set to the ordered probe length.
The shortenable cable, rod and coaxial variants can be adapted individually to the local requirements.

6.2. Product operation notes

The measuring device can be adjusted with:

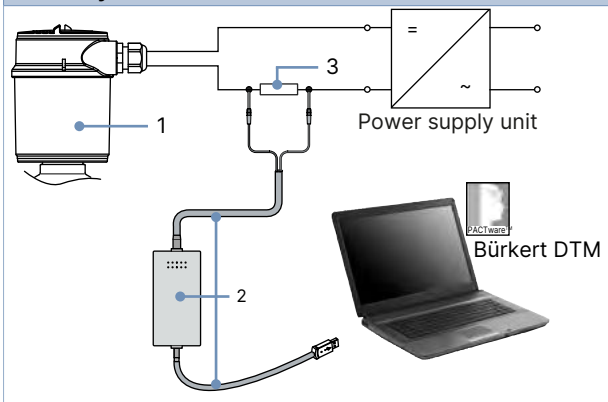
- The display/configuration module
- The suitable Bürkert DTM in conjunction with a software according to the FDT/DTM standard, e.g. PACTware™ and PC
- With a HART handheld

The entered parameters are generally saved in the measuring device Type 8188. Optionally, parameters may also be uploaded and downloaded with the display/configuration module or saved in a file by using PACTware™/Type 8188-DTM.

Set up with display/configuration module

Display/configuration module	Description
	The display/configuration module can be inserted into the measuring device and removed again at any time. It is not necessary to interrupt the power supply. The measuring device is adjusted via the four keys of the display/configuration module.

Set up with PACTware™/DTM and HART communication

Assembly	Description
	The measuring device can be operated thanks to PACTware™, via HART communication. An interface adapter is necessary for the adjustment with PACTware™. For the setup of the Type 8188, the DTM in the actual version must be used. The basic version of DTM incl. PACTware™ is available as a free-of-charge download from the internet at **www.burkert.com** ▶. **Connecting the PC via HART** **No. / Description** **1** Measuring device Type 8188 **2** HART-USB Modem **3** Resistance 250 Ω Necessary components: • Measuring device Type 8188 • PC with PACTware™ and suitable Bürkert DTM • HART-USB Modem • Resistance approx. 250 Ω • Power supply unit

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

7. Ordering information

7.1. Bürkert eShop

Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

7.2. Bürkert product filter

Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements?
Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

7.3. Ordering chart

Note:
The following variants are supplied with display/configuration module.

Description	Operating voltage	Sensor variant	Probe length	Output	Electrical connection	Article no.
Standard variant						
G ¾ mounting thread, PN 6, temp. max. 80 °C	16...35 V DC	Rod	1 m	4...20 mA/HART (2 wires)	Cable gland M20 × 1.5	565800
			2 m			565804
		Cable	5 m			565812
			10 m			565816
		Coaxial	1 m			565823
			2 m			565824
G 1 mounting thread, PN 40, temp. max. 150 °C		Rod	1 m			565802
			2 m			565806
		Cable	5 m			565814
			10 m			565818
		Coaxial	1 m			565825
			2 m			565826
NPT ¾ mounting thread, PN 6, temp. max. 80 °C		Rod	1 m			565801
			2 m			565805
		Cable	5 m			565813
			10 m			565817
		Coaxial	1 m			565827
			2 m			565828
NPT 1 mounting thread, PN 40, temp. max. 150 °C		Rod	1 m			565803
			2 m			565807
		Cable	5 m			565815
			10 m			565819
		Coaxial	1 m			565829
			2 m			565830

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025

Description	Operating voltage	Sensor variant	Probe length	Output	Electrical connection	Article no.
Ex variant - ATEX certification						
G ¾ mounting thread, PN 6, temp. max. 80 °C	16...30 V DC	Rod	1 m	4...20 mA/HART (2 wires)	Cable gland M20 × 1.5	565808
			2 m			565810
		Cable	5 m			565820
		Coaxial	1 m			565831
			2 m			565832
G 1 mounting thread, PN 40, temp. max. 150 °C	16...30 V DC	Rod	1 m			565809
			2 m			565811
		Cable	5 m			565821
		Coaxial	1 m			565833
			2 m			565834
Ex variant - IECex certification						
NPT ¾ mounting thread, PN 6, temp. max. 80 °C	16...30 V DC	Rod	1 m	4...20 mA/HART (2 wires)	Cable gland M20 × 1.5	565839
			2 m			565840
		Cable	5 m			565841
		Coaxial	1 m			565835
			2 m			565836
NPT 1 mounting thread, PN 40, temp. max. 150 °C	16...30 V DC	Rod	1 m			565842
			2 m			565843
		Cable	5 m			565844
		Coaxial	1 m			565837
			2 m			565838

Further variants on request

Material
- FFKM
- Alloy C22 (2.4602)

Temperature
- 40...+ 200 °C

Process connection
- Thread G or NPT ½ (PN 40 ,150 °C), 1½
- Flange DN 25, DN 40, DN 50, DN 80, DN 100, DN 150
- Flange 1", 1 ½", 2", 3", 4", 6"

Additional
With display

7.4. Ordering chart accessories

Description	Article no.
Set with two adapters M20 × 1.5 /NPT ½, two neoprene flat seals for cable gland or plug and two screw plugs M20 × 1.5	551782
Hart-USB Modem	560177
Set with a display/configuration module, a transparent cover and a sealing ring	559279
Set with a transparent cover and a sealing ring	561006

DTS 1000244851 EN Version: N Status: RL (released | freigegeben | valide) printed: 23.09.2025