


## Guided microwave level transmitter - sanitary version

- Universal level transmitter for liquids and bulk materials
- 4...20 mA/Hart - 2 wires
- Insensitive to dust and steam
- ATEX approvals 

Type 8186 can be combined with...



**Type 8611**

Universal PI  
controller eControl



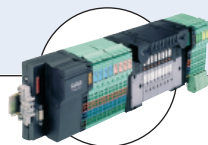
**Type 8635**

SideControl EEx



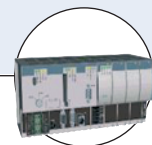
**Type 2712 (8630)**

Continuous  
TopControl system



**Type 8644**

Valve islands



**PLC**

The Type 8186 is a level transmitter with rod probe, designed for continuous level measurement. The unit is suitable for liquids, but also for solids, for industrial use in all areas of process technology. It can be used in corrosive liquids. Even process conditions such as strong steam generation, density fluctuations or changes of the dielectric constant do not influence the accuracy of the measurement.

Buildup or condensation on the probe or vessel wall do not influence the measuring result.

### General data

#### Materials

Housing / Cover  
Seal ring / Ground terminal  
Inner conductor , Rod-ø 10 mm  
Wetted parts  
Process fitting / process seal  
Rod-ø 10 mm

PBT, Stainless steel 316L / PC  
NBR / Stainless steel 316L  
Stainless steel 316L (1.4435)

#### Display

LCD in full dot matrix

#### Weight

Housing  
Rod-ø 10 mm

890 g  
approx. 350 g/m

#### Process fitting

Clamp 2" or DIN 11851 DN 50

#### Length

0.3 ... 4 m - Lateral load: 4 Nm

#### Electrical connections

Cable gland M20 x 1.5

#### Measuring type

Level of liquids and solids

#### Min. dielectric figure

$\epsilon_r > 1.6$

#### Dead zone

From top of probe: 80 mm - from bottom of probe: 0 mm

#### Measuring range

0.08 ... 4 m (See measuring range diagram, on next page)

#### Process temperature

-40 up to 150°C (flange temperature)

#### Process pressure

-1 to 16 bar (-100...1600 kPa) (depends on the process fitting)

#### Temperature drift

0.06%/10K (Relating to the max. measuring range)

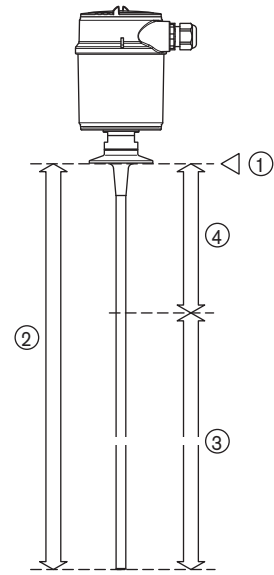
#### Accuracy

See accuracy diagram, on next page

Electrical data	
<b>Power supply</b>	14 to 36 V DC or 14 to 30 V DC (EEx ia instrument)
<b>Lightening power consumption</b>	approx. 80 mW
<b>Permissible residual ripple</b>	< 100 Hz: $U_{ss} < 1$ V 100 Hz...10 kHz: $U_{ss} < 10$ mV
<b>Output signal</b>	4...20 mA/HART
<b>Resolution</b>	1.6 mA
<b>Fault signal</b>	current output unchanged; 20.5 mA; 22 mA < 3.6 mA (adjustable)
<b>Current limitation</b>	22 mA
<b>Load</b>	see load diagram
<b>Integration time</b> (63% of the input variable)	0...999 s, adjustable
<b>Fulfilled NAMUR recommendation</b>	NE 43
Environment	
<b>Ambient temperature</b> with display, adjustment elements	-20 up to +70°C (operation and storage)
<b>Relative humidity</b>	45-75 %; non condensated
Standards and approvals	
<b>Protection</b>	IP66/IP67 with M20 x 1.5 gland mounted and tightened
<b>Overvoltage category</b>	III
<b>Protection class</b>	II
<b>Standard</b>	
EMC	EN61326
Security	EN61010-1
ATEX	EN50014; EN50020; EN50284
NAMUR	NE 21; NE 43
<b>Approvals</b>	FDA
Specifications EEx	
Ⓢ - <b>Protection</b>	Categories 1/2 G or 2G
Ⓢ - <b>Certification</b>	EEx ia IIC T6
<b>Conformity specifications<sup>1)</sup></b>	
Power supply $U_i$	30 V
Short circuit rating $I_i$	131 mA
Power limitation $P_i$	983 mW
Ambient temperature	-20 up to +41°C (depend on categories)
Internal capacity $C_i$	negligible
Internal inductivity $L_i$	negligible

1) homologation certificate PTB 07 ATEX 2007 X

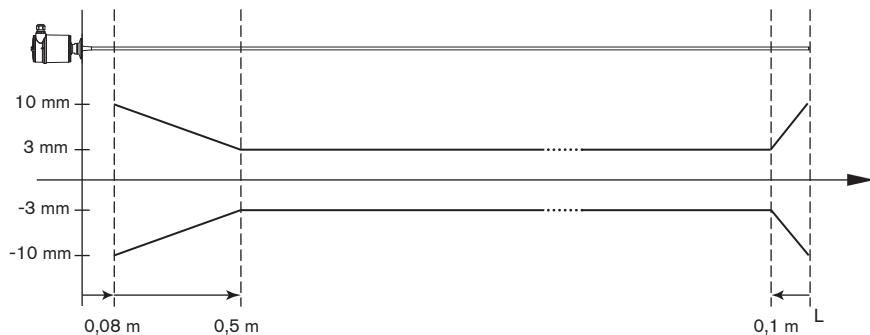
## Measuring range diagram

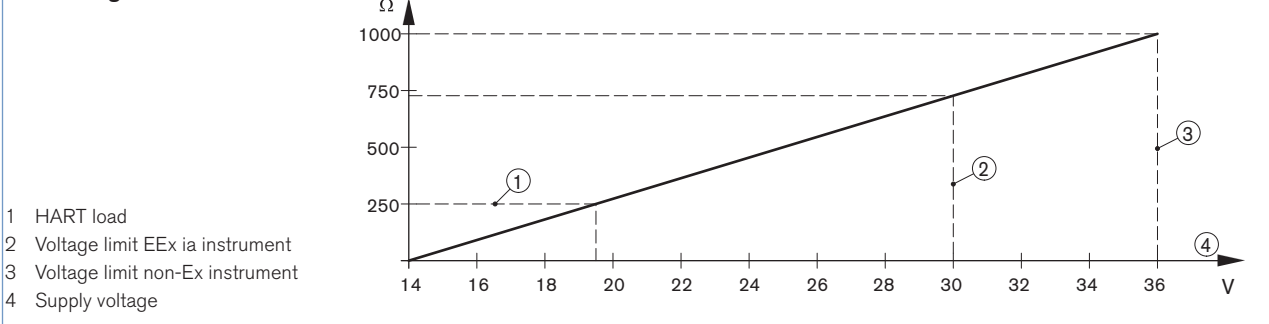


- 1 Reference plane
- 2 Probe length
- 3 Measuring range
- 4 Upper dead band

## Accuracy diagram

## Rod probe version



**Load diagram****Principle of operation**

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

**Target applications with Type 8186****Foodstuffs and animal feed**

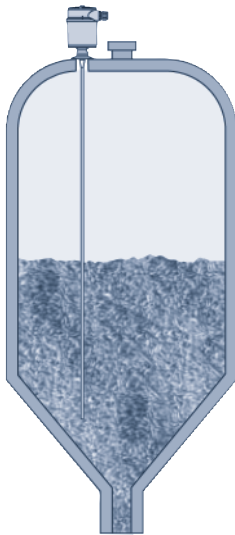
Products such as beer, milk, wine, cereals, sugar, flour, coffee, cornflakes, cacao, instant powder, animal feed - liquids or bulk solids levels must be measured everywhere in the food industry.

The microwave principle works independent of products characteristics such as moisture, intense dust or noise generation density, temperature, overpressure, foal, dielectric value and the shape of the material cone.

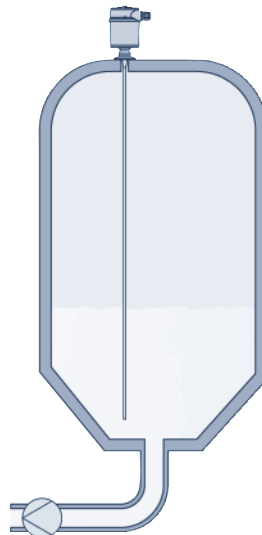
**Chemical industrie**

Many finished products in the chemical industry are produced as powder, granules, pellets, solvents.... The different and sometimes fluctuating product characteristics place heavy demands on the level measurement.

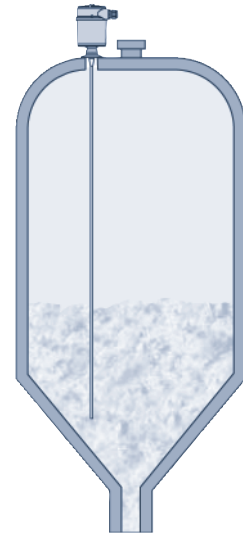
The measuring result is influenced neither by fluctuating product quality nor by dust generation, density, temperature, overpressure, foam or buildup.

**Application examples**

Level measurement in a grain silo



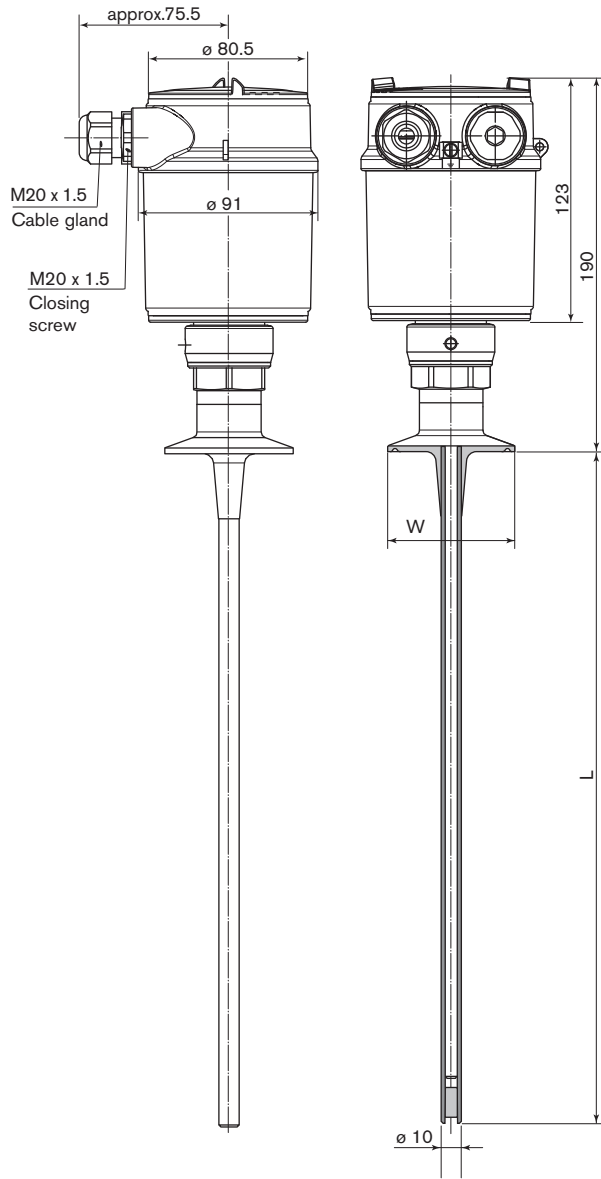
Level measurement in a milk vessel



Level measurement of plastic granules

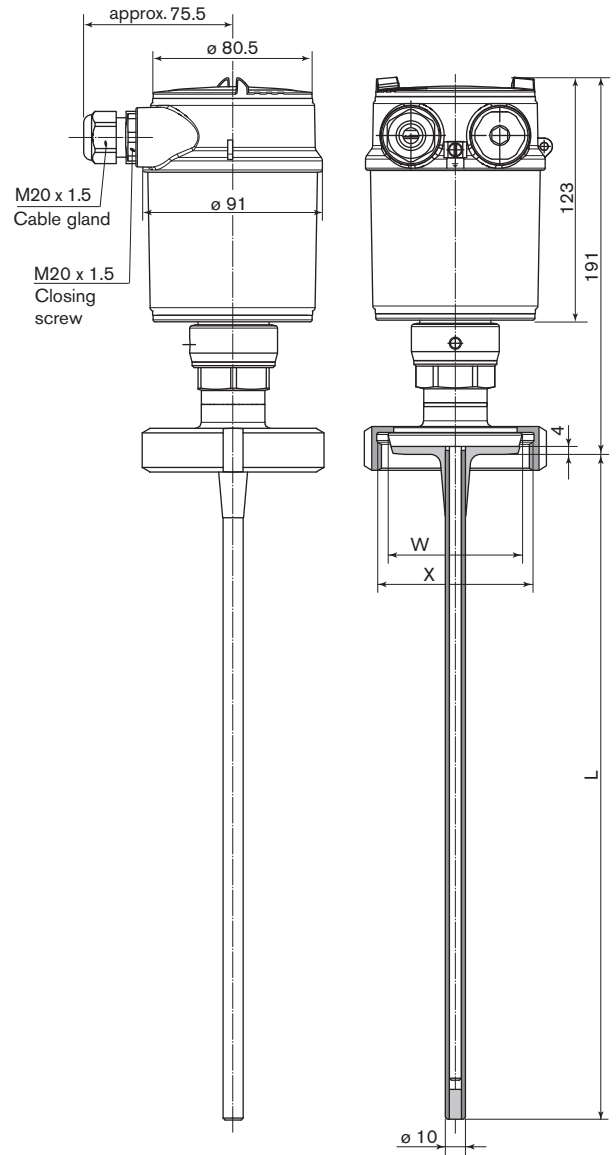
Dimensions [mm]

with Clamp connection



Clamp connection	W
1", 1 1/2"	ø 50.5
2"	ø 64.0
2 1/2"	ø 77.5
3"	ø 91.0

with DIN 11851 connection



DIN 11851 connection	W	X
DN 32	ø 50.0	Rd 58x1/6
DN 40	ø 56.0	Rd 65x1/6
DN 50	ø 68.5	Rd 78x1/6
DN 65	ø 86.0	Rd 95x1/6

## Ordering chart for compact transmitter Type 8186

Specifications	Voltage supply	Output	Probe	Length	Electrical connection	Item no. with program module and display	Item no. without program module no display
Clamp 2"	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 253	559 271
				2 m	Cable gland M 20 x 1.5	558 255	559 273
DIN 11851 DN50	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 254	559 272
				2 m	Cable gland M 20 x 1.5	558 256	559 274
EEx version - ATEX approval - Clamp 2"	14-30 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 257	559 275
				2 m	Cable gland M 20 x 1.5	558 259	559 277
EEx version - ATEX approval - DIN 11851 DN50	14-30 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 258	559 276
				2 m	Cable gland M 20 x 1.5	558 260	559 278

 **Further versions on request**
**Port connection**

Clamp 1"1/2, 2"1/2, 3"  
DIN 11851 DN 32, DN 40, DN 65

## Ordering chart - accessories for transmitter Type 8186 (has to be ordered separately)

Specifications	Item no.
Set with 2 reductions M 20 x 1.5 / NPT1/2" + 2 neoprene flat seals for cable gland + 2 screw-plugs M 20 x 1.5	551 782
Program module with display	559 279

**Guided microwave level transmitter Type 8186 - request for quotation**

**Note**  
You can fill out the fields directly in the PDF file before printing out the form.

Please fill in and send to your local Bürkert Sales Centre with your inquiry or order.

Company:	Contact person:
Customer No.:	Department:
Address:	Tel. / Fax.:
Postcode / Town:	E-mail:

**Guided microwave level transmitter 8186**

Quantity:  Desired delivery date:

■ **Process fitting connection:**

**Clamp**     1"1/2     2"     2"1/2     3"

**DIN 11851**     DN 32     DN 40     DN 50     DN 65

■ **Sensor version:**

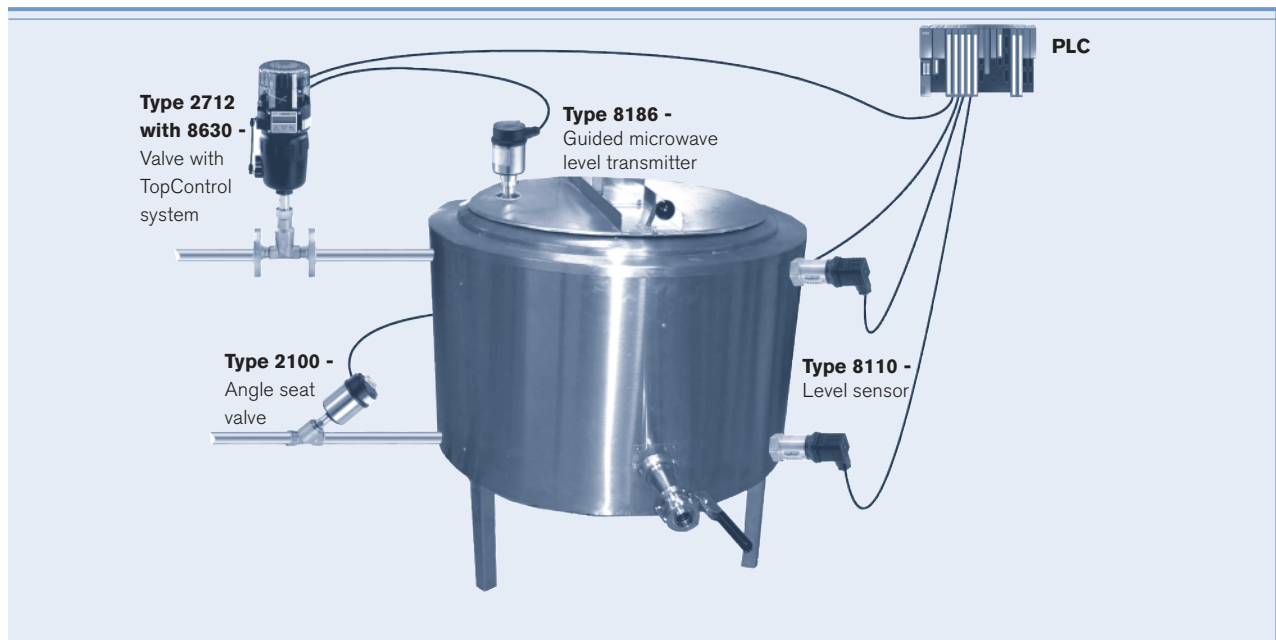
**Length**     1 m     2 m  
 Spec. length  mm (multiple of 200 mm between 600 and 4000 mm for Rod version -

■ **Program module and display**     Yes     No

■ **ATEX approval**     Yes     No

■ **FDA approval**     Yes     No

**Interconnection possibilities with other Bürkert devices**



\*To find your nearest Bürkert facility, click on the orange box → [www.burkert.com](http://www.burkert.com)

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