



## OEM radar transmitter, for aggressive media level measurement

- Compact for level measurement up to 20 m
- 4 ... 20 mA/Hart 2 wires
- Adjustable with PC
- ATEX approvals

Type 8136 can be combined with...



Universal PI

controller eControl





Type 8635 Side Control EEx









PBT, Stainless steel 316L/PC

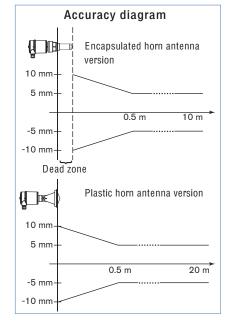
NBR / Stainless steel 316Ti/316L (1.4571/1.4435)

Stainless steel 304 (1.4301) / Stainless steel 316L (1.4435)

Type 8644 Valve islands

The Type 8136 is a non-contact radar level transmitter for continuous level measurement. The unit is available in two versions:

- with encapsulated horn antenna particularly suitable for level measurement of aggressive liquids in small vessels.
- with plastic horn antenna particularly suitable for flow measurement in open flumes or gauge measurement in waters.



#### General data

#### Materials

Housing / Cover Seal ring / Ground terminal Mounting strap / Fixing screws Wetted parts

Encapsulated horn antenna version Plastic horn antenna version Process fitting

Process fitting / Antenna / Seal PVDF / PVDF (completely encapsulated) / FKM Stainless steel 316L (1.4435)

Horn antenna / Focussing lens	PBT-GF30 / PP				
Display *	LCD in full dot matrix (in option)				
Process fitting	Thread G 1"1/2 A or NPT 1"1/2 (Encapsulated hom antenna version) Mounting strap 170 mm (Plastic horn antenna version)				
Max. torque mounting boss	4 Nm (mounting screws - strap on the sensor housing)				
Electrical connection	Cable glands M20 x 1.5				
Measuring type	Distance between process fitting and product surface				
Min. dielectric figure	ยr > 1.6				
Dead zone	50 mm <sup>1)</sup>				
Measuring range	0.05 up to 10 m (Encapsulated horn antenna version) 0 up to 20 m (Plastic horn antenna version)				
Process temperature	-40 up to +80°C				
Vessel pressure	-1 up to 3 bar (-100 up to 300 kPa)				
Vibration resistance	Mechanical vibrations with 4.g and 5100 Hz				
Temperature coefficient	0.03%/10K (Average temperature coefficient of the zero signal - temperature error)				
Resolution	max. 1mm				
Frequency	K-band (26 GHZ technology)				
Interval	approx. 1s				
Beam angle at 3dB	22° (Encapsulated horn antenna vers.); 10° (Plastic horn antenna vers.)				
Adjustment time	> 1 S (dependent on the parameter adjustment)				
Accuracy	± 5 mm (see diagramm)				

<sup>\*</sup> to be ordered separately

<sup>1)</sup> Encapsulated horn antenna version. In products with low dielectric value up to 50 cm.

Electrical data					
Power supply	14 to 36 V DC or 14 to 30 V DC (EEx ia instrument)				
Permissible residual ripple	< 100 Hz: U <sub>ss</sub> <1 V 100 Hz10 kHz: U <sub>ss</sub> <10 mV				
Output signal	420 mA/HART				
Resolution	1.6 A				
Fault signal	current output unchanged; 20.5 mA; 22 mA < 3.6 mA (adjustable)				
Current limitation	22 mA				
Load	see load diagram				
Damping (63% of the input variable)	0999 s, adjustable				
Fulfilled NAMUR recommendation	NE 43				
Environment					
Ambient temperature	-40 to +80°C (operation and storage)				
Relative humidity	20-80 %; non condensated				
Standards and approvals					
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened				
Overvoltage category	III				
Protection class	II				
Standard EMC Security NAMUR Approvals	EN61326 EN61010-1 NE 21; NE 43 ATEX : EN50014; EN50020; EN50284 WHG FM (in progress)				
Specifications EEx					
⟨x⟩ - Protection	Categories 1/2 G or 2G				
⟨x⟩ - Certification	EEx ia IIC T6				
Conformity specifications <sup>1)</sup> Power supply Ui	30 V				

131 mA

983 mW

negligible

negligible

-40 up to +55°C (depend on categories)

#### 1) homologation certificate PTB 03 ATEX 2060 X

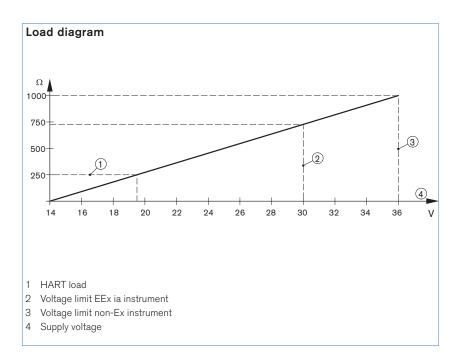
Short circuit rating li

Ambient temperature

Power limitation Pi

Internal capacity Ci

Internal inductivity Li





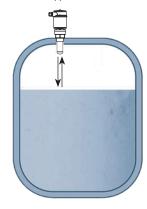
### **Target applications**

### Dosing and processing systems

Level measurement:

The radar measuring principle is particularly suitable for continuous level measurement of toxic and corrosive substances. The measurement is non-contacting, i.e. there is no direct contact with the medium.

Due to the very small process connection and the PVDF encapsulated antenna, the 8136 radar sensor is ideal for this application.



#### Open flumes

Flow measurement for heavy demands:

Radar sensors like the Type 8136 are also suitable for flow measurement in open flumes. For wastewater treatment in chemical plants, where wastewater temperatures change drastically or where solvents are contained in the wastewater, the use of radar sensors is recommended.





#### Principle of operation

The radar transmitter consists of an electronic housing, a process fitting element the antenna and a sensor. The antenna emits short radar pulses with a duration of approximate 1 ns to the measured product. These pulses are reflected by the product surface and received by the antenna as echoes. Radar waves travel at the speed of light. The running time of the radar pulses from emission to reception is proportional to the distance and hence to the level. The determined level is converted into an output signal and transmitted as an measured value.

The transmitter can be adjusted with:

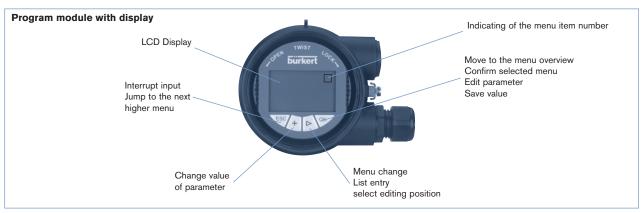
- the program module with display
- the suitable Bürkert DTM in conjunction with adjustment software according to the FDT/DTM standard, e.g. PACTware™ and PC.
- a HART handheld

The entered parameters are generally saved in the transmitter Type 8136. Optionally, parameters may also be uploaded and downloaded with the program module with display or in PACTware™



Set up with program module with display

The program module with display can be inserted into the transmitter and removed again at any time. It is not necessary to interrupt the power supply. The transmitter is ajusted via the four keys of the program module with display.



Set up with PACTware™ / DTM and HART communication

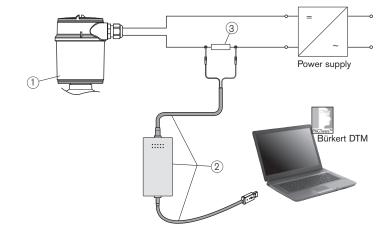
The transmitter can be operated directly on the instrument via PACTware™ or via the HART signal on the signal cable. An interface adapter is necessary for the adjustment with PACTware™. For the setup of the Type 8136, DTM-Collection in the actual version must be used. The basic version of this DTM Collection incl. PACTware™ is available as a free-of-charge download from the Internet at www.burkert.com.

Connecting the PC via HART to the signal cable

- 1. Transmitter 8136
- 2. HART-USB Modem
- 3. Resistance 250 Ohm

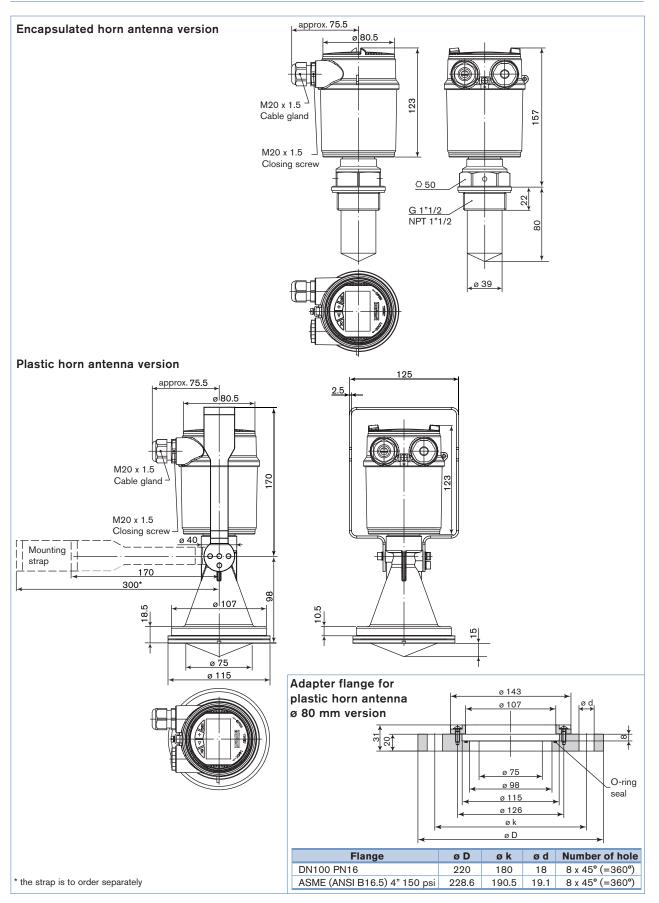
Necessary components:

- Transmitter 8136
- PC with PACTware<sup>™</sup> and suitable Bürkert DTM
- HART-USB Modem from the market
- Resistance approx. 250 Ohms
- Power supply unit



# burkert

## Dimensions [mm]





### Ordering chart for compact transmitter Type 8136

Specifications	Voltage supply	Output	Antenna version	Process connection	Electrical	Item no. without program module no display
Standard version	14-36 V DC	4-20 mA/HART	Encapsulated horn	G 1" 1/2	Cable gland M 20 x 1.5	560 146
		(2 wires)	- 40 mm	NPT 1" 1/2	Cable gland M 20 x 1.5	560 148
			Plastic horn - 80 mm	Mounting strap or adapter flange	Cable gland M 20 x 1.5	560 150
EEx version -	14-30 V DC	4-20 mA/HART	Encapsulated horn	G 1" 1/2	Cable gland M 20 x 1.5	560 147
ATEX approval		(2 wires)	- 40 mm	NPT 1" 1/2	Cable gland M 20 x 1.5	560 149
			Plastic horn - 80 mm	Mounting strap or adapter flange	Cable gland M 20 x 1.5	560 151

Further versions on request

Please also use the "request for quotation" form on page 6 for ordering a customized transmitter. go to page



Process connection

Tri-Clamp® 2", 3" bolting DN50, DN80 PN3, DIN 11851 / 316L

without compression flange, with compression flange DN80PN16, ANSI3", JIS DN80 10K / PPH

adapter flange DN150PN16 FKM / PPH ANSI4" 150PSI FKM /PPH ANSI6" 150PSI FKM /PPH

JIS DN100 10K FKM /PPH JIS DN150 10K FKM /PPH



Approvals
FM agreement (in progress)

## Ordering chart - accessories for transmitter Type 8136 (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	
Program module with display	559 279
Hart-USB Modem	560 177
Mounting strap 300 mm	559 839
Adapter flange DN100PN16 FKM / PPH	560 437
Adapter flange ASME (ANSI B 16.5) 4" 150 PSI FKM /PPH	560 436

ATEX approvalWHG approval

■ FM approval



#### Customized transmitter Type 8136 - request for quotation Note Please fill in and send to your local Bürkert Sales Centre with your inquiry or order. before printing out the form. Company: Contact person: Customer No.: Department: Address: Tel. / Fax.: Postcode / Town: E-mail: Radar level transmitter 8136 Quantity: Desired delivery date: ☐ Encapsulated horn in PVDF Plastic horn in PP Antenna ■ Process fitting connection: with without **Compression flange** G 1"1/2 NPT 1"1/2 **External thread** Tri-Clamp® 2" PN3 3" PN3 **Bolting** DN50 PN3 DN80 PN3 ☐ 170 mm 300 mm **Mounting strap** ANSI 4" ☐ JIS DN100 10K Adapter flange ■ DN100 PN16 ☐ JIS DN150 10K ■ DN150 PN16 ANSI 6" Yes ☐ No ■ Program module and display

☐ No

☐ No

Yes

Yes

in progress



To find your nearest Bürkert facility, click on the orange box  $\rightarrow$ 

www.burkert.com

In case of special application conditions, please consult for advice.

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