



General purpose high pressure radar level transmitter

- Compact for level measurement up to 30 m
- 4 ... 20 mA/Hart 2 wires
- Adjustable with PC
- ATEX approvals

Type 8137 can be combined with...





controller eControl



Type 8635 SideControl EEx



Type 2712 (8630) Continuous TopControl system



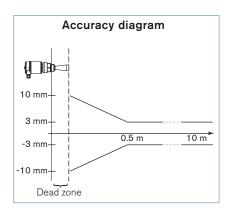
Type 8644 Valve islands



The Type 8137 is a non-contact radar level transmitter for continuous level measurement.

The unit is available in two versions:

- with thread and horn antenna (ø 40 mm) particularly suitable for use in small tanks and process vessels for measurement of practically any product.
- with flange and horn antenna (ø 40 or 75 mm) particularly suitable for use in storage tanks and process vessels for measurement of products such as solvent, hydrocarbos and fuels under extremely difficult process conditions.



General	data
Mataria	le.

General data			
Materials Housing / Cover Seal ring / Ground terminal Wetted parts Process fitting Seal (threaded version) Antenna Antenna cone	PBT, Stainless steel 316L / PC NBR / Stainless steel 316Ti/316L (1.4571/1.4435) Stainless steel 316L Klingersil C-4400 Stainless steel 316L PTFE (TFM 1600 PTFE)		
Seal (antenna system)	FKM		
Display *	LCD in full dot matrix (in option)		
Process fitting	Thread G 1"1/2 A or NPT 1"1/2 Flange DN50 or 100 DIN2501, 2" or 4" ANSI B16.5		
Electrical connection	Cable glands M20 x 1.5		
Measuring type	Distance between process fitting and product surface		
Min. dielectric figure	er > 1.6		
Dead zone	50 mm		
Measuring range	0.05 up to 10 m (recommended - antenna with ø 40 mm) 0.05 up to 30 m (recommended - antenna with ø 75 mm)		
Process temperature	-40 up to +130°C		
Vessel pressure	-1 up to 40 bar (-100 up to 4000 kPa) or according flange rules		
Vibration resistance	Mechanical vibrations with 4.g and 5100 Hz		
Temperature coefficient	0.03%/10K (Average temperature coefficient of the zero signal		

- temperature error)

K-band (26 GHZ technology)

22° (antenna with ø 40 mm) $10^{\rm o}$ (antenna with ø 75 mm)

± 3 mm (see diagramm)

max. 1mm

approx. 1s

Adjustment time

Beam angle at 3dB

Resolution

Frequency

Interval

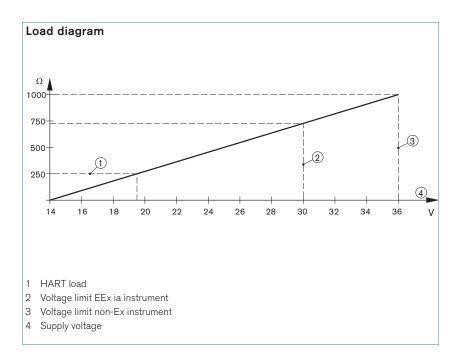
> 1 s (dependent on the parameter adjustment)

Accuracy to be ordered separately

Electrical data					
Power supply	14 to 36 V DC or 14 to 30 V DC (EEx ia instrument)				
Permissible residual ripple	< 100 Hz: U _{ss} <1 V 100 Hz10 kHz: U _{ss} <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			
⟨Ex⟩ - Protection	Categories 1/2 G or 2G		
⟨Ex⟩ - Certification	EEx ia IIC T6		
Conformity specifications ¹⁾			
Power supply Ui	30 V		
Short circuit rating li	131 mA		
Power limitation Pi	983 mW		
Ambient temperature	-40 up to +55°C (depend on categories)		
Internal capacity Ci	negligible		
Internal inductivity Li	negligible		

1) homologation certificate PTB 03 ATEX 2060 X

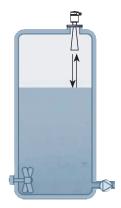




Target applications

In storage tanks

Lacquers, paints and thinners are stored in tanks up to 15 m high. These substances require no pre-treatment and are fed directly to incinerators via smaller day tanks. Agitators inside the tanks prevent fibrous materials and colour pigments from clumping and settling on the bottom. The 8137 radar sensor is the ideal solution here for level measurement. The radar measurement is unaffected by the ambient conditions, such as strong vapour emission of the waste, and delivers accurate measuring results even when the agitators are in motion.



■ In the digester, in the decanter

The bauxite is decomposed by adding thinned caustic soda and mixing it thoroughly with the bauxite in the digester. To achieve an optimal utilisation of the process, it is important to regulate the filling level in a fixed range. Contactless radar technology has all the right prerequisites for this measurement task. The 8137 radar sensor records the current level and passes it on to the control system. Even the rotating agitator blades do not disrupt the measurement. Also in the decanter, which immediately follows the digester, the 8137 reliably performs its service in temperatures up to 200°C and pressures up to 40 bar. The steam atmosphere prevailing in the vessel does not affect the measurement either.





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 8137. 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

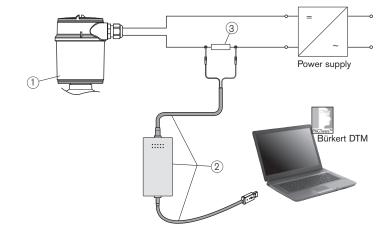
The transmitter can be operated directly on the instrument via PACTware™ or via the HART signal on the signal cable. An interface adapter is necessary for the adjustment with PACTware™. For the setup of the Type 8137, DTM-Collection in the actual version must be used. The basic version of this DTM Collection 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 8137
- 2. HART-USB Modem
- 3. Resistance 250 Ohm

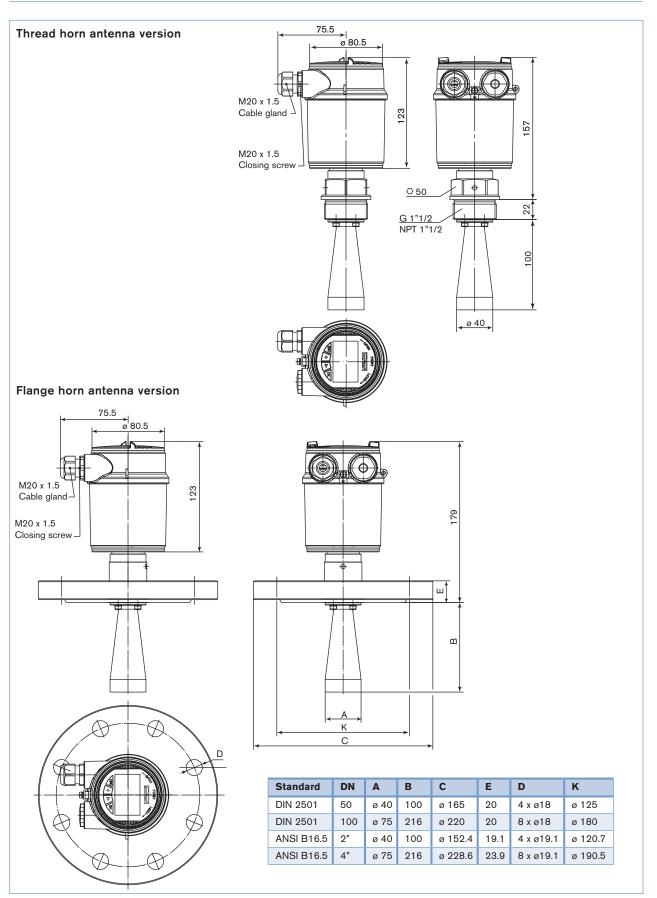
Necessary components:

- Transmitter 8137
- PC with PACTware[™] and suitable Bürkert DTM
- HART-USB Modem from the market
- Resistance approx. 250 Ohm
- Power supply unit



burkert

Dimensions [mm]





Ordering chart for compact transmitter Type 8137

Specifications	Voltage supply	Output	Antenna version	Process connection	Electrical connection	without program module no display
Standard version	14-36 V DC	4-20 mA/HART	ø 40 mm	G 1" 1/2	Cable gland M 20 x 1.5	560 157
		(2 wires)		NPT 1" 1/2	Cable gland M 20 x 1.5	560 159
				Flange DN50 DIN2501 /16 bar	Cable gland M 20 x 1.5	560 161
				Flange 2" ANSI B16.5 / 150 PSI	Cable gland M 20 x 1.5	560 163
			ø 75 mm	Flange DN100 DIN2501 /16 bar	Cable gland M 20 x 1.5	560 165
				Flange 4" ANSI B16.5 / 150 PSI	Cable gland M 20 x 1.5	560 167
EEx version -	14-30 V DC	4-20 mA/HART	ø 40 mm	G 1" 1/2	Cable gland M 20 x 1.5	560 158
ATEX approval		(2 wires)		NPT 1" 1/2	Cable gland M 20 x 1.5	560 160
				Flange DN50 DIN2501 /16 bar	Cable gland M 20 x 1.5	560 162
				Flange 2" ANSI B16.5 / 150 PSI	Cable gland M 20 x 1.5	560 164
			ø 75 mm	Flange DN100 DIN2501 /16 bar	Cable gland M 20 x 1.5	560 166
				Flange 4" ANSI B16.5 / 150 PSI	Cable gland M 20 x 1.5	560 168

Further versions on request

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

Process connection
Flange DN8

DN80PN40 Form C DIN2501 DN150PN40 Form C DIN2501 DN200PN40 Form C DIN2501 3" 150 lb RF; ANSI B16.5 6" 150 lb RF; ANSI B16.5 8" 150 lb RF; ANSI B16.5

Additional
Antenna ø 48 mm, 95 mm

Approvals
FM agreement in progress

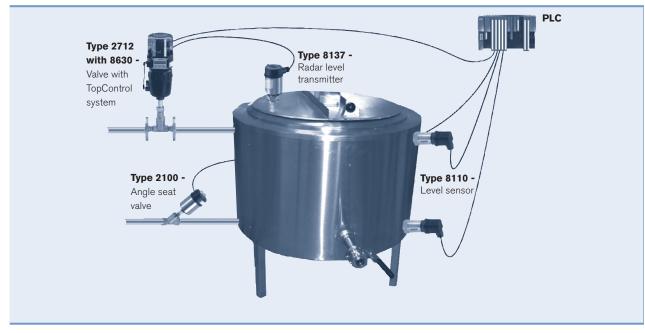
Ordering chart - accessories for transmitter Type 8137 (has to be ordered separately)

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
Hart-USB Modem	560 177



Customized transmitter Type 8137 - request for quotation 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: Postcode / Town:

Radar level transmitter 8137					
Quantity:	Desired delivery date:				
■ Antenna	_	☐ Horn ø 75 mm (30 m) ☐ Horn ø 95 mm (30 m)	Parabolic ø 245 mm (35 m)		
Process fitting connection:					
External thread	G 1"1/2	NPT 1"1/2			
Flange	DN50 PN40, Form C, DIN2501		2" 150 lb RF, ANSI B16.5		
	□ DN80 PN40, Form C, DIN2501		3" 150 lb RF, ANSI B16.5		
	DN100 PN40, Form C, DIN2501		4" 150 lb RF, ANSI B16.5		
	☐ DN150 PN40, Form C, DIN2501		6" 150 lb RF, ANSI B16.5		
	DN200 PN40, Form C, DIN2501		8" 150 lb RF, ANSI B16.5		
■ Program module and display	Yes	No			
■ ATEX approval	Yes	No			
■WHG approval	Yes	□ No			
■ FM approval	in progress				



*To find your nearest Bürkert facility, click on the orange box ightarrow

www.burkert.com

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

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