bürkert
FLUID CONTROL SYSTEMS

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 ⟨Ex⟩

Type 8137 can be combined with...

Type 8635
SideControl Ex

Type 2035
Diaphragm valve

Type 2301 (8692)
Continuous TopControl system

Type 8644
Valve islands

PLC

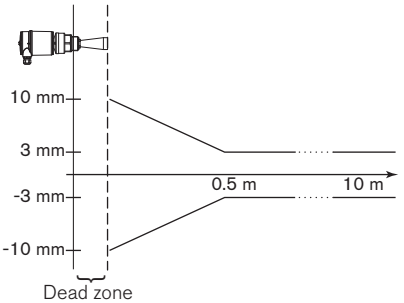
The Type 8137 is a non-contact radar level transmitter for continuous level measurement.

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, hydrocarbons and fuels under extremely difficult process conditions.

Accuracy diagram



General data	
Materials	
Housing / Cover	PBT, Stainless steel 316L / PC
Seal ring / Ground terminal	NBR / Stainless steel 316Ti/316L (1.4571/1.4435)
Wetted parts	
Process fitting	Stainless steel 316L
Seal (threaded version)	Klingersil C-4400
Antenna	Stainless steel 316L
Antenna cone	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 *(-40 to 266 °F)*
Vessel pressure	-1 up to 40 bar *(-14.51 to 580,4 PSI)* (-100 up to 4000 kPa) or according flange rules
Vibration resistance	Mechanical vibrations with 4.g and 5...100 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° (antenna with ø 40 mm) 10° (antenna with ø 75 mm)
Adjustment time	> 1 s (dependent on the parameter adjustment)
Accuracy	± 3 mm (see diagram)

* to be ordered separately

DTS 1000105438 EN Version: C validé) printed: 30.09.2010 Status: RL (released I freigegeben I

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Electrical data	
Power supply	14 to 36 V DC or 14 to 30 V DC (Ex ia instrument)
Permissible residual ripple	< 100 Hz: U_{ss}<1 V 100 Hz...10 kHz: U_{ss}<10 mV
Output signal	4...20 mA/HART
Resolution	1.6 mA
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)	0...999 s, adjustable
Fulfilled NAMUR recommendation	NE 43

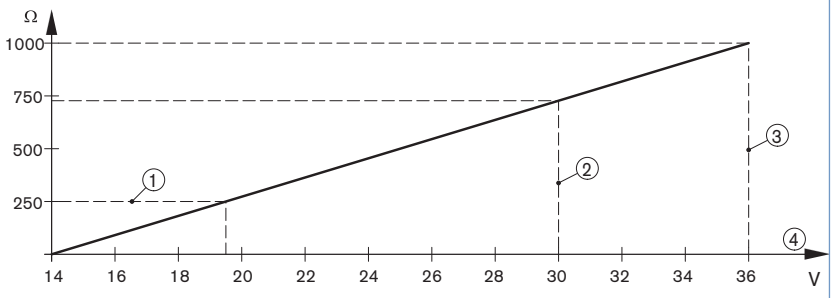
Environment	
Ambient temperature	-40 to +80°C *(-40 to 176°F)* (operation and storage)
Relative humidity	20-80 %; without condensation

Standards and approvals	
Protection	IP66/IP67 with M20 x 1.5 gland mounted and tightened
Overvoltage category	III
Protection class	II
Standard	
EMC	EN61326
Security	EN61010-1
NAMUR	NE 21; NE 43
Approvals	ATEX[1)] : EN60079-0; EN60079-11; EN60079-26 WHG (Overfill protection)

Specifications Ex	
Ⓔx - Protection	Categories 1/2 G or 2G
Ⓔx - Certification	Ex ia IIC T6
Conformity specifications[1)]	
Power supply Ui	30 V
Short circuit rating Ii	131 mA
Power limitation Pi	983 mW
Ambient temperature	-40 up to +55°C *(-40 to 131°F)* (depend on categories)
Internal capacity Ci	negligible
Internal inductivity Li	negligible

1) homologation certificate PTB 08 ATEX 2002X

Load diagram



1 HART load
2 Voltage limit Ex ia instrument
3 Voltage limit non-Ex instrument
4 Supply voltage

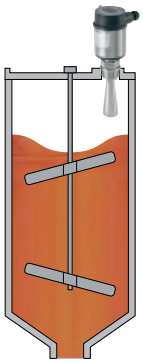
Target applications

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.



DTS 1000105438 EN Version: C validé) printed: 30.09.2010 Status: RL (released I freigegeben I

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:

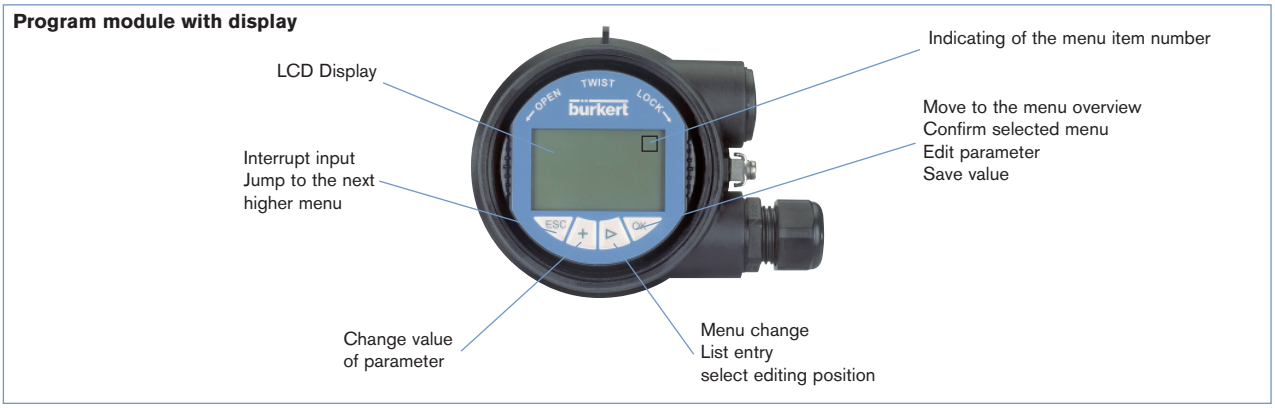
- the program module with display
- the suitable Bürkert DTM in conjunction with adjustment software according to the FDT/DTM standard, e.g. PACTware™ and PC.
- a HART handheld

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 adjusted via the four keys of the program module with display.

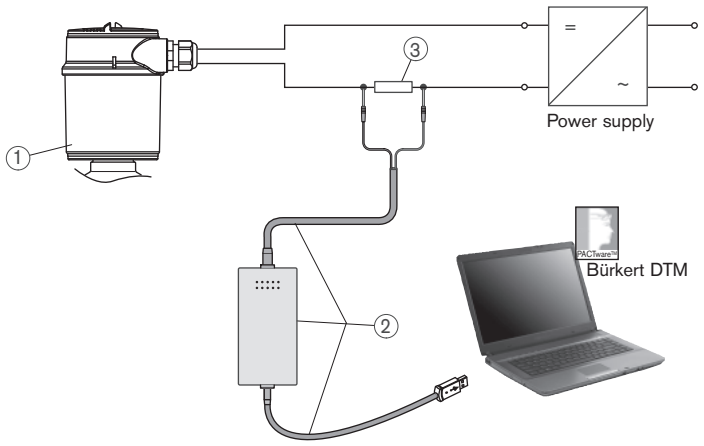
Program module with display



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

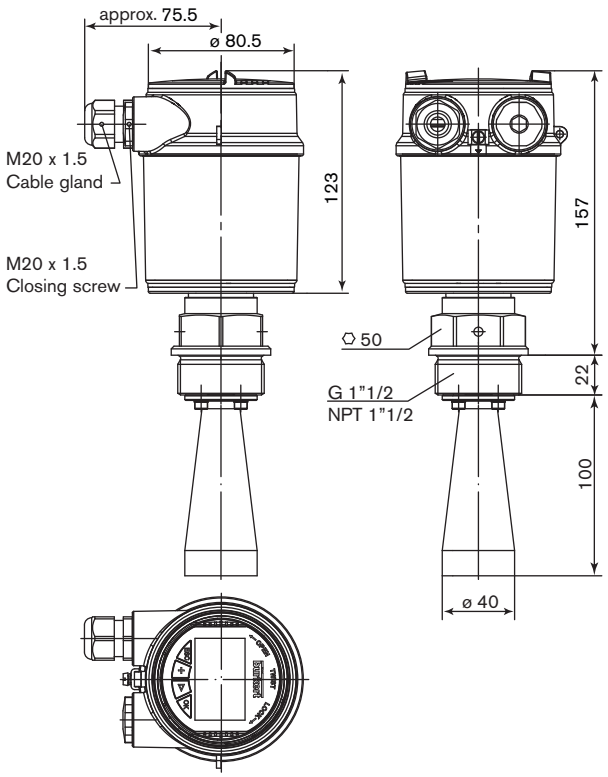


Necessary components :
- Transmitter 8137
- PC with PACTware™ and suitable Bürkert DTM
- HART-USB Modem from the market
- Resistance approx. 250 Ohm
- Power supply unit

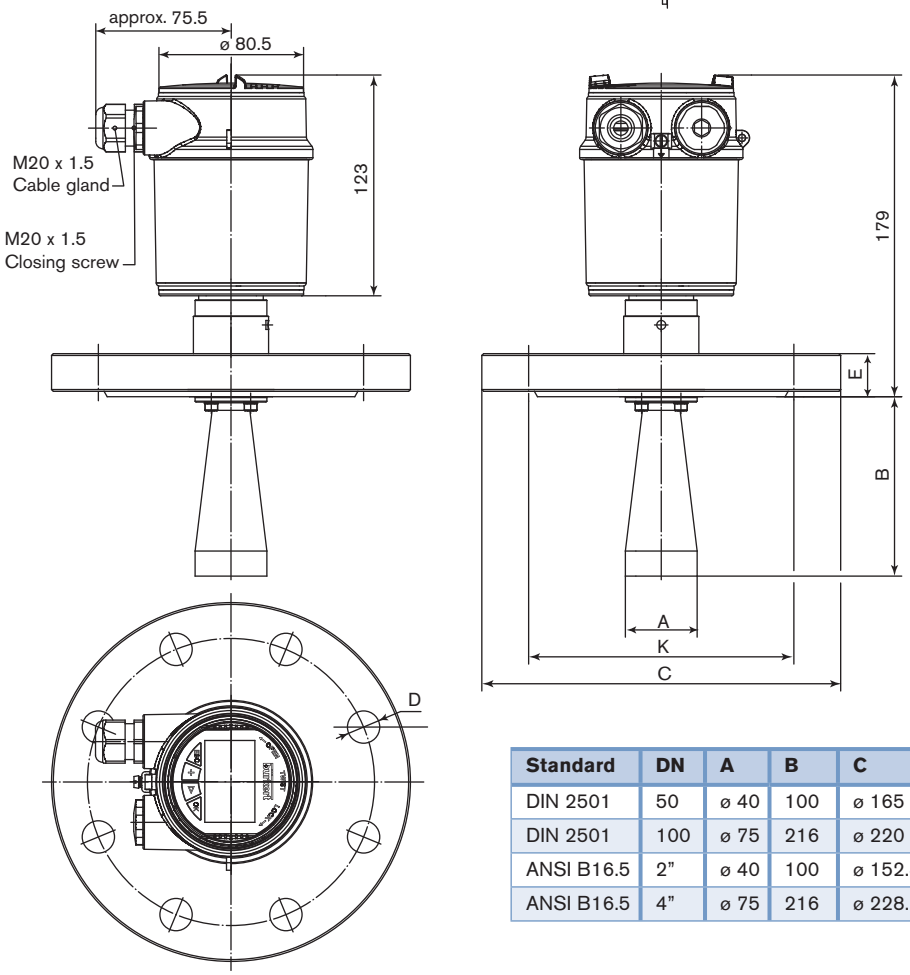
DTS 1000105438 EN Version: C validé) printed: 30.09.2010 Status: RL (released I freigegeben I

Dimensions [mm]

Thread horn antenna version



Flange horn antenna version



Standard	DN	A	B	C	E	D	K
DIN 2501	50	ø 40	100	ø 165	20	4 x ø18	ø 125
DIN 2501	100	ø 75	216	ø 220	20	8 x ø18	ø 180
ANSI B16.5	2"	ø 40	100	ø 152.4	19.1	4 x ø19.1	ø 120.7
ANSI B16.5	4"	ø 75	216	ø 228.6	23.9	8 x ø19.1	ø 190.5

DTS 1000105438 EN Version: C validé) printed: 30.09.2010 Status: RL (released I freigegeben I

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 (2 wires)	ø 40 mm	G 1" 1/2	Cable gland M 20 x 1.5	560 157
				NPT 1" 1/2	Cable gland M 20 x 1.5	560 159
				Flange DN50 DIN2501 /40 bar	Cable gland M 20 x 1.5	560 161
				Flange 2" ANSI B16.5 / 150 lb RF	Cable gland M 20 x 1.5	560 163
			ø 75 mm	Flange DN100 DIN2501 /40 bar	Cable gland M 20 x 1.5	560 165
				Flange 4" ANSI B16.5 / 150 lb RF	Cable gland M 20 x 1.5	560 167
Ex version - ATEX approval	14-30 V DC	4-20 mA/HART (2 wires)	ø 40 mm	G 1" 1/2	Cable gland M 20 x 1.5	560 158
				NPT 1" 1/2	Cable gland M 20 x 1.5	560 160
				Flange DN50 DIN2501 /40 bar	Cable gland M 20 x 1.5	560 162
				Flange 2" ANSI B16.5 / 150 lb RF	Cable gland M 20 x 1.5	560 164
			ø 75 mm	Flange DN100 DIN2501 /40 bar	Cable gland M 20 x 1.5	560 166
				Flange 4" ANSI B16.5 / 150 lb RF	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. go to page

Process connection

Flange
- 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

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
Set with a display and programming module, a transparent cover and a seal ring	559 279
Set with a transparent cover and a seal ring	561 006
Hart-USB Modem	560 177

DTS 1000105438 EN Version: C validé) printed: 30.09.2010 Status: RL (released I freigegeben I

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Customized transmitter Type 8137 - 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.

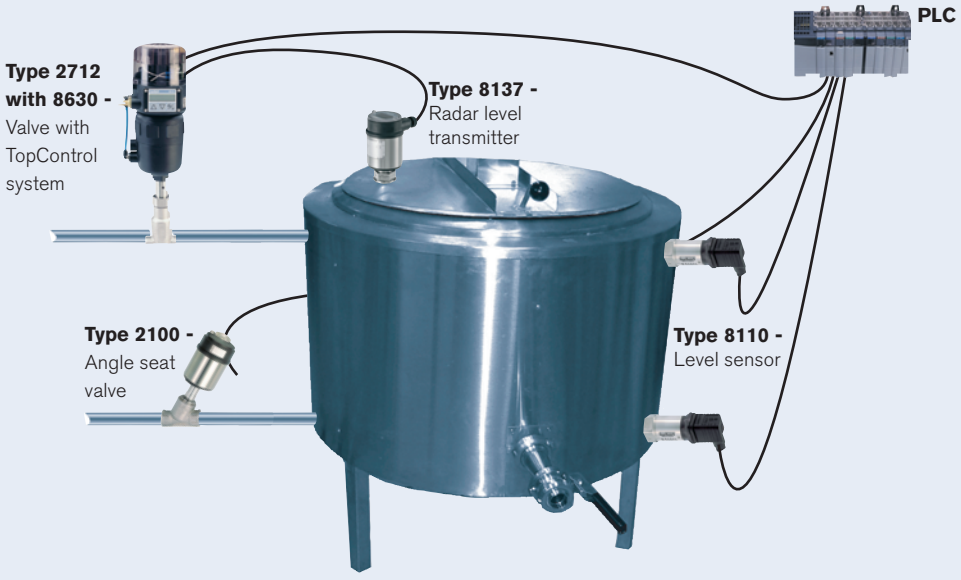
Company:	Contact person:
Customer No.:	Department:
Address:	Tel. / Fax.:
Postcode / Town:	E-mail:

Radar level transmitter 8137

Quantity: ☐ **Desired delivery date:** ☐

- **Antenna**
  - ☐ Horn ø 40 mm (10 m)
  - ☐ Horn ø 75 mm (30 m)
  - ☐ Parabolic ø 245 mm (35 m)
  - ☐ Horn ø 48 mm (15 m)
  - ☐ Horn ø 95 mm (30 m)
- **Process fitting connection:**
  - **External thread**
    - ☐ G 1”1/2
    - ☐ NPT 1”1/2
  - **Flange**
    - ☐ DN50 PN40, Form C, DIN2501
    - ☐ DN80 PN40, Form C, DIN2501
    - ☐ DN100 PN40, Form C, DIN2501
    - ☐ DN150 PN40, Form C, DIN2501
    - ☐ DN200 PN40, Form C, DIN2501
    - ☐ 2” 150 lb RF, ANSI B16.5
    - ☐ 3” 150 lb RF, ANSI B16.5
    - ☐ 4” 150 lb RF, ANSI B16.5
    - ☐ 6” 150 lb RF, ANSI B16.5
    - ☐ 8” 150 lb RF, ANSI B16.5
- **Program module and display** ☐ Yes ☐ No
- **ATEX approval** ☐ Yes ☐ No
- **WHG approval** ☐ Yes ☐ No

reset form



*To find your nearest Bürkert facility, click on the orange box → www.burkert.com

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

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