bürkert
FLUID CONTROL SYSTEMS

Guided microwave level transmitter

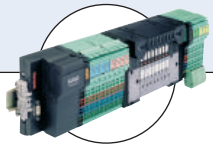
- Universal level transmitter for liquids and bulk materials
- 4...20 mA/Hart - 2 wires
- Insensitive to dust and steam
- ATEX approvals

Type 8185 can be combined with

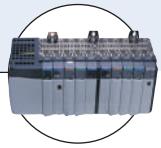
Type 8635
SideControl Ex

Type 2035
Diaphragm valve

Type 2301 (8692)
Continuous TopControl system



Type 8644
Valve islands



PLC

The Type 8185 is a level transmitter with cable or 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.
With measuring range of up to 32 m, the transmitter 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.
Buildup or condensation on the probe or vessel wall do not influence the measuring result.

General data	
Materials	
Housing / Cover	PBT, Stainless steel 316L / PC
Seal ring / Ground terminal	NBR / Stainless steel 316L
Wetted parts	
Process fitting / process seal	Stainless steel 316L (1.4435) and PCTFE / FKM
Inner conductor	
(up to the separation cable/rod)	Stainless steel 1.4462
Rod-ø 6 mm	Stainless steel 316L (1.4435)
Cable-ø 4 mm with gravity weight	Stainless steel 316 (1.4401)
Display	LCD in full dot matrix
Weight	
Housing	890 g
Rod-ø 6 mm	approx. 220 g/m
Cable-ø 4 mm	approx. 80 g/m
Gravity weight (only with cable version)	approx. 325 g
Process fitting	Thread G or NPT - 3/4", 1"
Length	
Rod-ø 6 mm	0.3 ... 4 m - Lateral load: 4 Nm
Cable-ø 4 mm	1 ... 32 m - Max. tensile load: 5 KN
Electrical connections	Cable gland M20 x 1.5
Measuring type	Level of liquids and solids
Min. dielectric figure	εr > 1.6
Dead zone	
Rod-ø 6 mm	From top of probe: 80 mm - from bottom of probe: 0 mm
Cable-ø 4 mm	From top of probe: 150 mm - from bottom of probe: 250 mm
Measuring range	0.08 ... 4 m or 0.15 ... 32 m (see diagram on next page)
Process temperature	-40 up to 150°C *(-40 to 302 °F)*
Process pressure	-1 up to 40 bar *(-14.51 to 580.1 PSI)* (-100...4000 kPa) (depends on the process fitting)
Temperature drift	0.06%/10K (Relating to the max. measuring range)
Accuracy	See accuracy diagram, on next page

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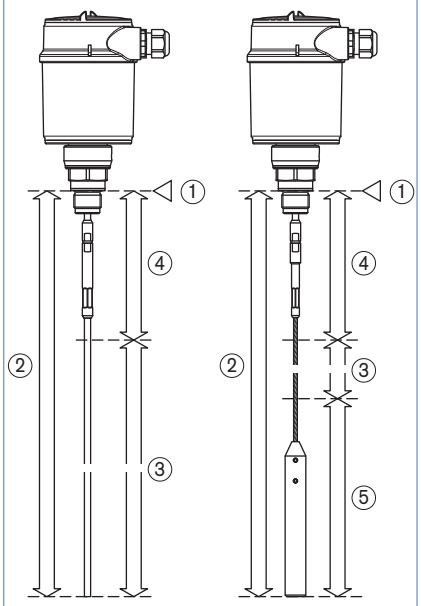
Electrical data	
Power supply	14 to 36 V DC or 14 to 30 V DC (Ex ia instrument)
Lightening power consumption	approx. 80 mW
Permissible residual ripple	< 100 Hz: U_{ss} < 1 V 100 Hz...10 kHz: U_{ss} < 10 m V
Output signal	4...20 mA/HART
Resolution	1.6 µA
Fault signal	current output unchanged; 20.5 mA; 22 mA < 3.6 mA (adjustable)
Current limitation	22 mA
Load	see load diagram
Integration time (63% of the input variable)	0...999 s, adjustable
Fulfilled NAMUR recommendation	NE 43
Environment	
Ambient temperature with display, adjustment elements	 -20 up to +70°C *(-4 to 158 °F)* (operation and storage)
Relative humidity	45-75 %; 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 Security ATEX[1)] NAMUR	 EN61326 EN61010-1 EN50014; EN50020; EN50284 NE 21; NE 43
Specifications Ex	
⟨Ex⟩ - Protection	Categories 1/2 G or 2G
⟨Ex⟩ - Certification	Ex ia IIC T6
Conformity specifications[1)] Power supply Ui Short circuit rating Ii Power limitation Pi Ambient temperature Internal capacity Ci Internal inductivity Li	 30 V 131 mA 983 mW -20 up to +41°C *(-4 to 105.8)* (depend on categories) negligible negligible

1) homologation certificate PTB 07 ATEX 2007 X

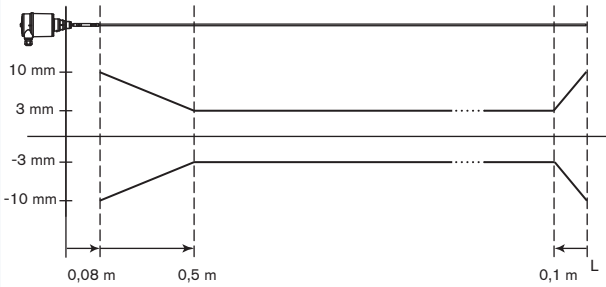
Measuring range diagram



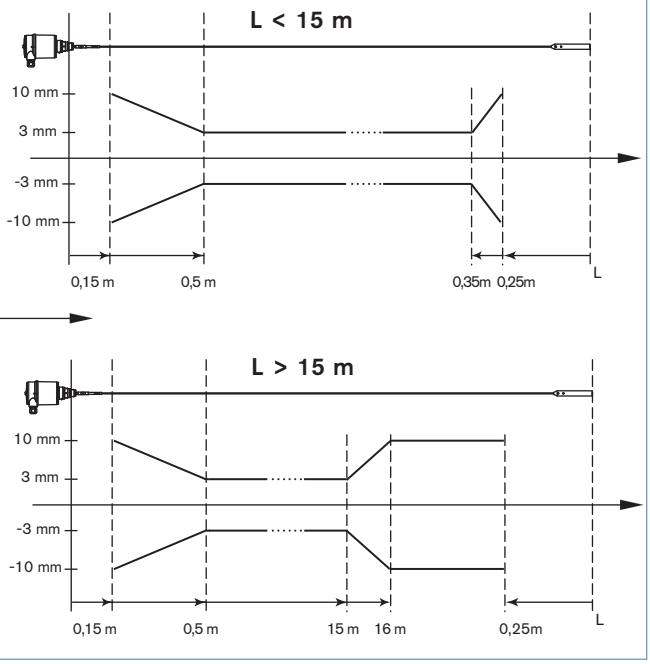
1 Reference plane
2 Probe length
3 Measuring range
4 Upper dead band
5 Lower dead zone
(only with cable versions)

Accuracy diagram

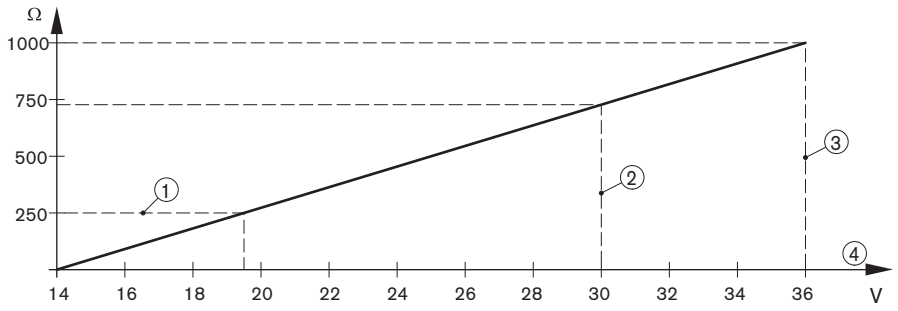
Rod probe version



Cable probe version



Load diagram



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

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 cable and rod versions can be adapted individually to the local requirements.

Target applications with Type 8185

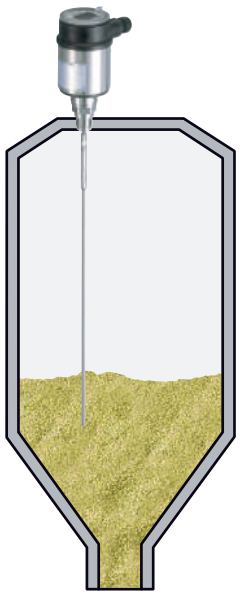
Foodstuffs and animal feed

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.

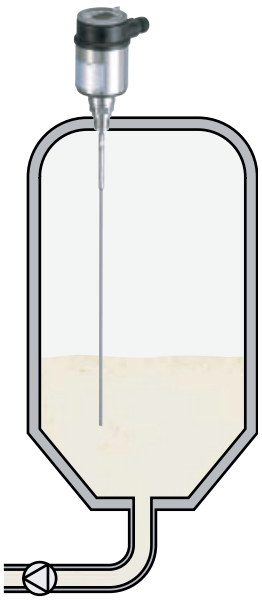
Chemical industries

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.

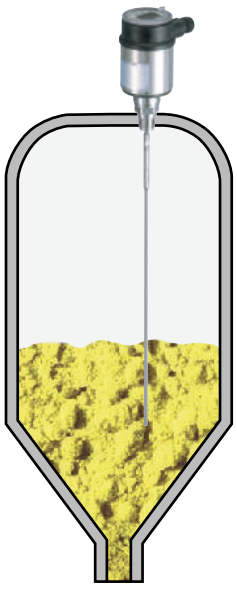
Application examples



Level measurement in a grain silo



Level measurement in a milk vessel



Level measurement of plastic granules

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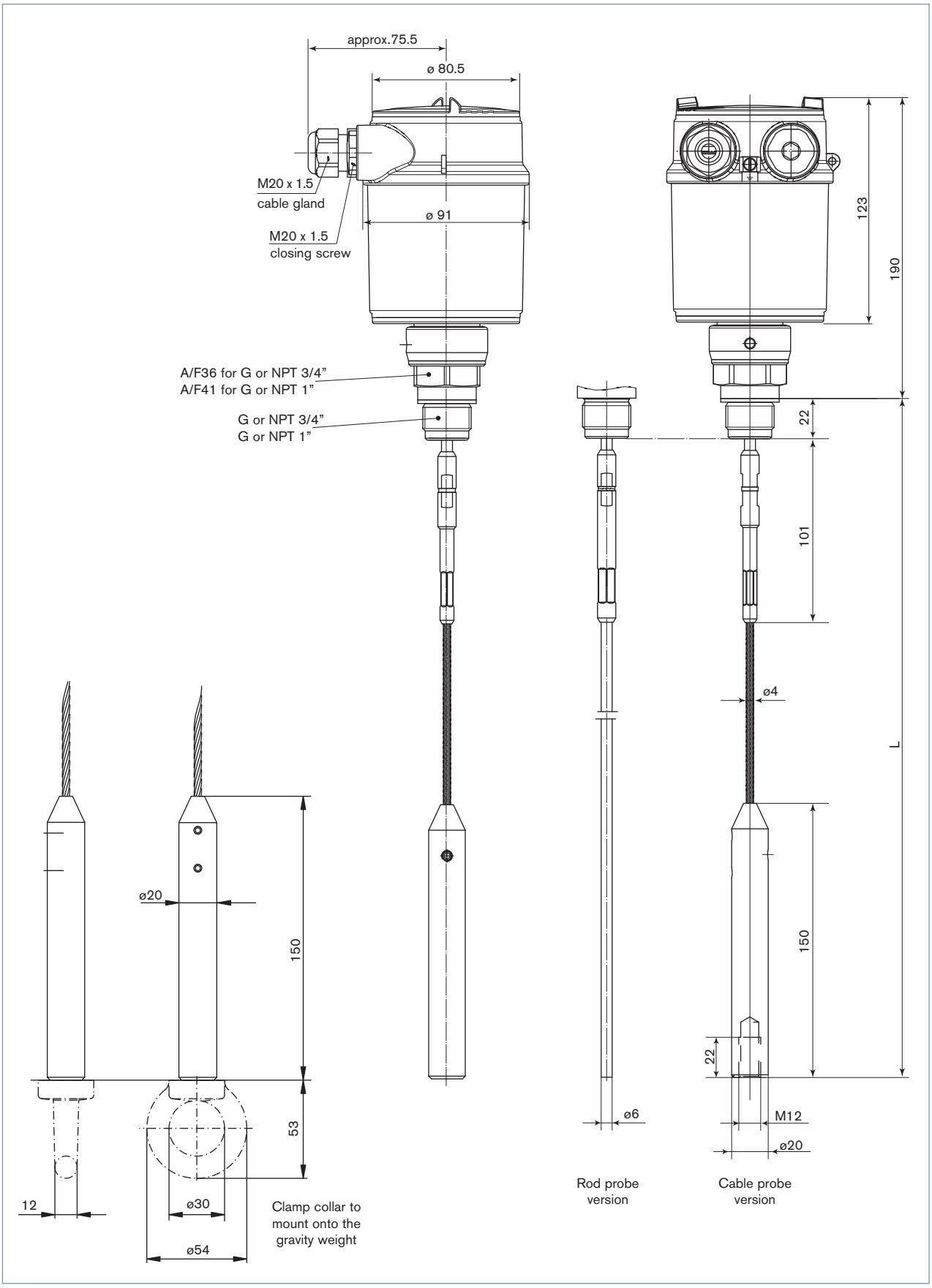
Dimensions [mm]



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Ordering chart for compact transmitter Type 8185

Specifications	Voltage supply	Output	Probe	Length	Electrical connection	Item no. with program module and display	Item no. without program module no display
G 3/4" mounting thread	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 229	559 247
				2 m	Cable gland M 20 x 1.5	558 233	559 251
			Cable	5 m	Cable gland M 20 x 1.5	558 241	559 259
				10 m	Cable gland M 20 x 1.5	558 245	559 263
G 1" mounting thread	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 231	559 249
				2 m	Cable gland M 20 x 1.5	558 235	559 253
			Cable	5 m	Cable gland M 20 x 1.5	558 243	559 261
				10 m	Cable gland M 20 x 1.5	558 247	559 265
NPT 3/4" mounting thread	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 230	559 248
				2 m	Cable gland M 20 x 1.5	558 234	559 252
			Cable	5 m	Cable gland M 20 x 1.5	558 242	559 260
				10 m	Cable gland M 20 x 1.5	558 246	559 264
NPT 1" mounting thread	14-36 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 232	559 250
				2 m	Cable gland M 20 x 1.5	558 236	559 254
			Cable	5 m	Cable gland M 20 x 1.5	558 244	559 262
				10 m	Cable gland M 20 x 1.5	558 248	559 266
Ex version - ATEX approval G 3/4" mounting thread	14-30 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 237	559 255
				2 m	Cable gland M 20 x 1.5	558 239	559 257
			Cable	5 m	Cable gland M 20 x 1.5	558 249	559 267
				10 m	Cable gland M 20 x 1.5	558 251	559 269
Ex version - ATEX approval G 1" mounting thread	14-30 V DC	4-20 mA/HART (2 wires)	Rod	1 m	Cable gland M 20 x 1.5	558 238	559 256
				2 m	Cable gland M 20 x 1.5	558 240	559 258
			Cable	5 m	Cable gland M 20 x 1.5	558 250	559 268
				10 m	Cable gland M 20 x 1.5	558 252	559 270

Further versions on request

Port connection
Thread G or NPT 1"1/2
Flange DN25, DN40, DN50, DN80, DN100, DN150
Flange 1", 1"1/2, 2", 3", 4", 6"

Ordering chart - accessories for transmitter Type 8185 (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
Spare cable with gravity weight - 10 m	560 769
Spare rod - 2 m	on request
Clamp collar	559 765
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

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Guided microwave level transmitter Type 8185 - 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 8185

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

■ **Process fitting connection:**

External thread	☐ G 3/4"	☐ G 1"	☐ G 1"1/2
	☐ NPT 3/4"	☐ NPT 1"	☐ NPT 1"1/2
Flange	☐ DN 25	☐ DN 40	☐ DN 50
	☐ DN 80	☐ DN 100	☐ DN 150
	☐ ANSI 1"	☐ ANSI 1"1/2	☐ ANSI 2"
	☐ ANSI 3"	☐ ANSI 4"	☐ ANSI 6"

■ **Sensor version:**

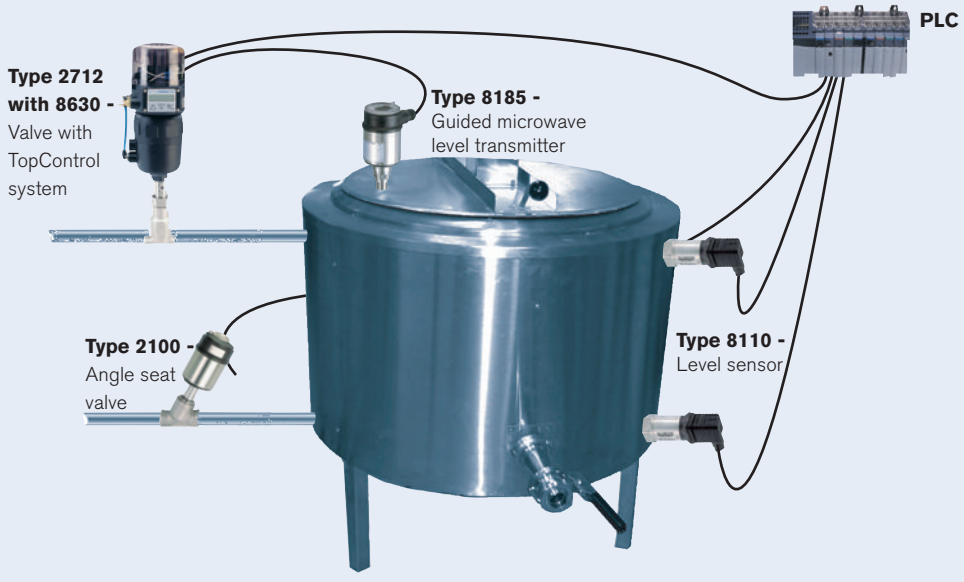
Probe	☐ Rod	☐ Cable		
Length	☐ 1 m	☐ 2 m	☐ 5 m	☐ 10 m
	☐ Spec. length ☐	mm (multiple of 200 mm between 600 and 4000 mm for Rod version - (multiple of 200 mm between 1000 and 32000 mm for cable version)		

■ **Program module and display** ☐ Yes ☐ No

■ **ATEX approval** ☐ Yes ☐ No

reset form

Interconnection possibilities with other Bürkert devices



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

Subject to alteration.

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