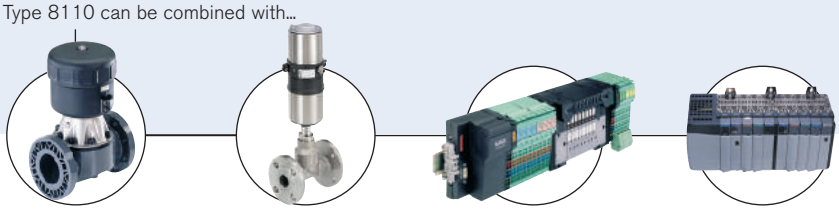
bürkert
FLUID CONTROL SYSTEMS

Vibrating level switch

- For universal use as overfill or dry run protection system
- Setup without adjustment
- Smallest mounting dimensions

Type 8110 can be combined with...



Type 2030
Diaphragm valve

Type 8802-GD
ELEMENT globe control Valve system

Type 8644
Valve islands with electronic I/O

PLC

The 8110 is a vibrating level switch for liquids, using a tuning fork for level detection.

It is designed for industrial use in areas of process technology and can be used in liquids. Typical applications are overfill or dry run protection.

The small tuning fork (40 mm of length) allows the use in vessels, tanks and pipes.

Due to the simple and rugged measuring system, the 8110 is virtually unaffected by the chemical and physical features of the liquid. It works even under unfavourable conditions such as turbulences, air bubbles, foam generation, buildup or varying products.

i Further versions on request

- Clamp 1", 1"1/2 connection
- DIN 11851 DN25, DN40, DN50 connection
- SMS 1145 DN38 connection
- Quick on connection (IP65)
- Ra < 0.8 µm for G or NPT threaded connection

General data	
Materials	
Tuning fork and fitting	Stainless steel 316L (1.4435)
Process seal / Housing	Klingersil® C 4400/ Stainless steel 316L and plastic PEI
Weight	Approx. 250 g
Electrical connections	Cable plug acc. to EN 175301-803 or M12 x 1 male fixed connector
Process fitting	Thread G or NPT, 1/2", 3/4" or 1"; clamp 2"
Surface finishing quality	Ra < 3.2 µm (thread) / Ra < 0.8 µm (Clamp)
Dynamic viscosity / Density	0.1 to 10000 mPa.s / 0.7 to 2.5 g/cm³
Medium temperature	-40 to 100°C (150°C for Clamp process connection)
Medium pressure	-1 to 64 bar
Accuracy	
Hysteresis	Approx. 2 mm with vertical installation
Delay time / Frequency	Approx. 500 ms / Approx. 1200 Hz
Output	Transistor output PNP or contactless electronic switch

Electrical data - Sensor with PNP transistor output	
Power supply / power consumption	10-55 V DC / max. 0.5 W
Load current	Max. 250 mA (output - overload and permanently short circuit proof)
Voltage loss	Max. 1 V DC
Turn-on voltage	Max. 55 V DC
Blocking current	<10 µA
Mode	Min./max changeover by electrical connection Max.: overfill protection - Min.: dry run protection LED indication: green and red

Electrical data - Sensor with contactless electronic switch output	
Power supply	20 to 253 V AC, 50/60 Hz or 20 to 253 V DC
Domestic current requirement	Approx. 3 mA (via the load circuit) (Not with PLC)
Load current	Min. 10 mA - Max. 250 mA
Mode	Min./max changeover by electrical connection Max.: overfill protection - Min.: dry run protection

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Environment	
Ambient temperature	
Operating	-40 to +70°C
Storage	-40 to +80°C

Standards and approvals	
Protection class	IP65 with cable plug EN175301-803 mounted and tightened IP66/IP67 with M12 x 1, plug mounted
Standard	
EMC	EN 61326
Security	EN 61010-1
Approvals	WHG (Overfill protection)

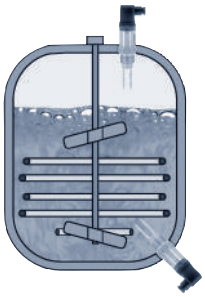
Target applications with type 8110

Chemical industry - solvents

Beside the continuous level measurement, level detection is a main safety characteristics for storage tanks.
Many modern sensors for continuous level measurement, however, are approved as overfill protection system, but a second, physically different measuring principle offers optimum safety and redundancy.
Thanks to the manifold application possibilities, the Type 8110 vibrating level switch is ideal for all applications concerning stock-keeping of liquids. A number of electrical and mechanical versions ensures simple integration into existing processing systems.

Advantages:
- various electrical versions
- product-independent
- universal level detection for all liquids.

Chemical industry - reactors



Thanks to the manifold application possibilities, the Type 8110 vibrating level switch is ideal for all applications concerning stock-keeping of liquids.
A number of electrical and mechanical versions ensures simple integration into existing processing systems.

Advantages:
- various electrical versions
- product-independent
- completely gas-tight
- high reliability
- universal level detection for all liquids.

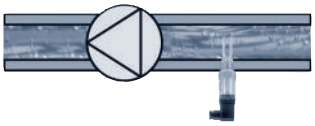
Water/sewage water plants

Chemicals are required for sewage water treatment. They are used for precipitation. Phosphate and nitrate are sedimented and separated. For the sludge treatment and neutralization, acids and solvents are stored apart from lime water and ferric chloride. These substances are subject to the regulations for water-endangering substances. Therefore overfill protection systems must be mounted on storage tanks.

To avoid overfilling of vessels with toxic products, sensors for level detection are an important safety element.

Advantages:
- high reproductibility

Pipelines



Monitoring of levels is also important in pipelines as dry running often causes damages or failure of the pumps.

The Type 8110 level switch is recommended as dry run protection system, e.g. for drinking water pumps. With a fork of only 40 mm length, this level switch functions reliably - even with small tube diameters.

Advantages:
- universal level detection for all liquids
- adjustement and maintenance-free

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Principle of operation

The tuning fork is piezoelectrically energised and vibrates at its mechanical resonance frequency of approx. 1200 Hz. When the tuning fork is submerged in the product, the frequency changes. This change is detected by the integrated oscillator and converted into a switching command. The integrated fault monitoring detects the following faults:

- interruption of the connection cable to the piezoelectric elements
- extreme material wear on the tuning fork
- break of the tuning fork
- abscence of vibration.

If one of these faults is detected or in case the power supply fails, the electronics takes on a defined switching condition, e.g. the output transistor blocks (safe condition).

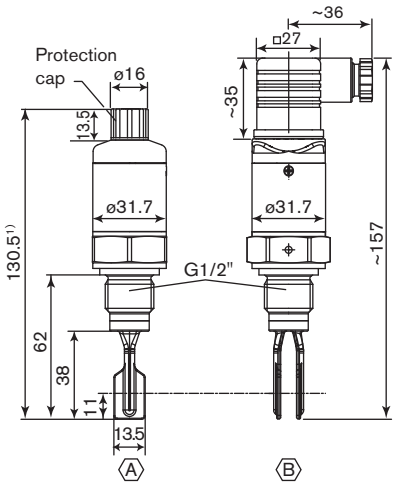
Installation

Inflowing material:
If the Type 8110 vibrating level switch is mounted in the filling stream, unwanted switching signals can be generated. Mount the switch at a location in the vessel where no disturbing influence from e.g. filling openings, agitators, etc, can occur.

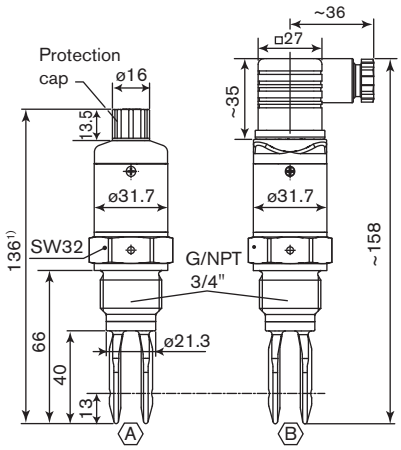
Flow:
If there is movement within the product, the tuning fork of the switch should be mounted in such a way that the surfaces of the fork are parallel to the product movement.

Dimensions [mm]

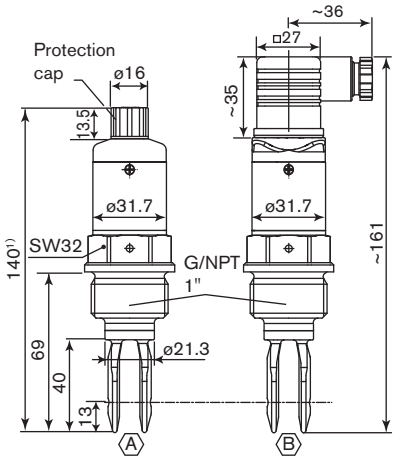
Thread G1/2" or NPT1/2"



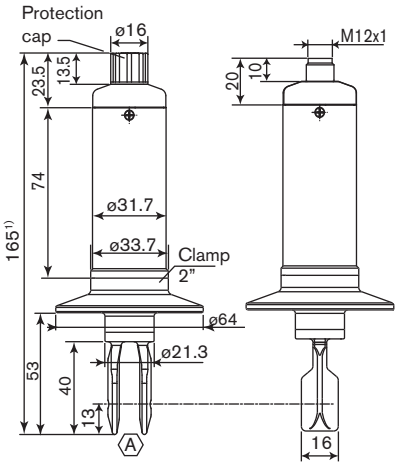
Thread G3/4" or NPT3/4"



Thread G1" or NPT1"



Clamp 2"



¹⁾ Keep in mind that the total length is increased by the cable connection

Ⓐ M12 x 1 Ⓑ Cable plug EN175301-803

Ordering chart for the vibrating level switch Type 8110

Output	Power supply	Process connection	Electrical connection	Item no.
Transistor PNP	10 - 55 V DC	G 1/2"	Cable plug EN 175301-803	563 554
			Multipin M12 x 1	563 474
		NPT 1/2"	Cable plug EN 175301-803	563 556
			Multipin M12 x 1	563 555
		G 3/4"	Cable plug EN 175301-803	555 291
			Multipin M12 x 1	555 290
		NPT 3/4"	Cable plug EN 175301-803	560 986
			Multipin M12 x 1	557 154
		G 1"	Cable plug EN 175301-803	555 293
			Multipin M12 x 1	555 292
		NPT 1"	Multipin M12 x 1	557 155
		Clamp 2"	Multipin M12 x 1	555 294
Contactless electronic switch (Not with PLC)	20 - 253 V AC, 50/60 Hz or 20 -253 V DC	G 3/4"	Cable plug EN 175301-803	555 296
		G 1"	Cable plug EN 175301-803	555 298

Other versions on request

Ordering chart for accessories for sensor Type 8110 (to be ordered separately)

Specifications	Item no.
5 pin M 12 female connector moulded on cable (2 m, shielded)	438 680
5 pin M 12 female cable connector with plastic threaded locking ring	917 116

Interconnection possibilities with other Bürkert devices

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Customized sensor Type 8110 - 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:

Vibrating level switch 8110

Quantity: _____ **Desired delivery date:** _____

■ **Process fitting connection:**

External thread
- ☐ G 1/2"
- ☐ G 3/4"
- ☐ G 1"
- ☐ NPT 1/2"
- ☐ NPT 3/4"
- ☐ NPT 1"

Clamp
- ☐ 1"
- ☐ 1"1/2
- ☐ 2"

DIN 11851
- ☐ DN25
- ☐ DN40
- ☐ DN50

SMS 1145
- ☐ DN38

■ **Special rugosity**
- ☐ No
- ☐ Yes with Ra ext. = 0.8 µm

■ **Electrical connection**
- ☐ Cable plug EN175301-803
- ☐ Multipin M12 x 1
- ☐ Quick On

■ **Output signal and power supply**
- ☐ Transistor PNP and 10 - 55 V DC
- ☐ Contactless electronic and 20 - 253 V AC/DC

reset form

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

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