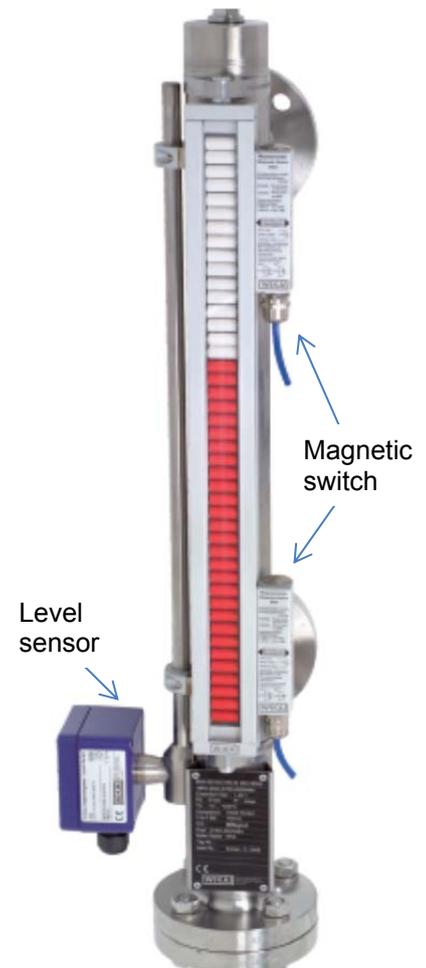


Bypass level indicator with magnetic switches baelz 1761
Bypass level indicator with level sensor baelz 1771**Content**

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1. General information

- The bypass level indicators described in the operating instructions have been designed and manufactured using state-of-the-art technology. All components are subject to stringent quality and environmental criteria during production.
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.
- The operating instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time. Pass the operating instructions onto the next operator or owner of the instrument.
- Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.
- The general terms and conditions contained in the sales documentation shall apply.
- Subject to technical modifications.



2. Design and function

2.1 Description

The bypass level indicators work according to the principle of communicating vessels.

The bypass vessel contains a float with a built-in permanent magnet.

This changes its position depending on the level of the medium.

Magnetic indicators, switches and level sensors are mounted to the outside of the bypass tube and actuated by the magnetic field.

Measurement of the level by guided wave radar is also possible.

The fitting of these options is carried out according to customer specifications in the factory.

The principle structure is described in chapter 5.3 "Commissioning".

Customer-specific versions are manufactured to order.

2.2 Scope of delivery

Cross-check scope of delivery with delivery note.

3. Safety

3.1 Explanation of symbols



DANGER!

... indicates a directly dangerous situation resulting in serious injury or death, if not avoided.



WARNING!

... indicates a potentially dangerous situation that can result in serious injury or death, if not avoided.



CAUTION!

... indicates a potentially dangerous situation that can result in light injuries or damage to property or the environment, if not avoided.



Information

... points out useful tips, recommendations and information for efficient and trouble-free operation.

3.2 Intended use

The bypass level indicator serves for continuously measuring the level of liquids in vessels. The scope of application is defined by the technical performance limits and materials.

The liquids must not have any large contamination or coarse particulates and must not have a tendency to crystallise.

Ensure that the wetted materials of the bypass level indicator are sufficiently resistant to the medium being monitored. Not suitable for dispersions, abrasive liquids, highly viscous media and colours.

This instrument is not permitted to be used in hazardous areas! For these areas, bypass level indicators with approval (e.g. in accordance with ATEX) are required.

The operating conditions specified in the operating instructions must be observed.

Do not operate the instrument in the immediate vicinity of strong electromagnetic fields or in the immediate vicinity of equipment that can be affected by magnetic fields (min. clearance 1 m).

The bypass level indicators must not be exposed to heavy mechanical strain (impact, bending, vibration).

The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.



DANGER!

Work on containers involves the danger of intoxication and suffocation. No work is allowed to be carried out unless by taking suitable personal protective measures (e.g. respiratory protection apparatus, protective outfit etc.).

3.3 Improper use

Improper use is defined as any application that exceeds the technical performance limits or is not compatible with the materials.



WARNING!

... indicates a potentially dangerous situation that can result in serious injury or death.

- ▶▶ Refrain from unauthorised modifications to the instrument.
- ▶▶ Do not use the instrument within hazardous areas.

Any use beyond or different to the intended use is considered as improper use. Do not use this instrument in safety or emergency stop devices.

3.4 Responsibility of the operator

The instrument is used in the industrial sector.

The operator is therefore responsible for legal obligations regarding safety at work.

The safety instructions within these operating instructions, as well as the safety, accident prevention and environmental protection regulations for the application area must be maintained.

To ensure safe working on the instrument, the operating company must ensure the following:

The operating personnel are regularly instructed in all topics regarding work safety, first aid and environmental protection and know the operating instructions and in particular, the safety instructions contained therein.

The operating personnel have read the operating instructions and taken note of the safety instructions contained therein.

The intended use for the application is complied with.
Following testing, improper use of the instrument is excluded.

3.5 Personnel qualification



WARNING!

Risk of injury should qualification be insufficient

Improper handling can result in considerable injury and damage to equipment.

- ▶ The activities described in these operating instructions may only be carried out by skilled personnel who have the qualifications described below.

Skilled personnel

Skilled personnel, authorised by the operator, are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and on their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognising potential hazards.

3.6 Personal protective equipment

The personal protective equipment is designed to protect the skilled personnel from hazards that could impair their safety or health during work.

When carrying out the various tasks on and with the instrument, the skilled personnel must wear personal protective equipment.

Follow the instructions displayed in the work area regarding personal protective equipment!

The requisite personal protective equipment must be provided by the operating company.

4. Transport, packaging and storage

4.1 Transport

Check the bypass level indicator for any damage that may have been caused by transport. Obvious damage must be reported immediately.

4.2 Packaging and storage

Do not remove packaging until just before commissioning.

5. Commissioning, operation

Observe all instructions given on the shipment packaging for removing the transportation safety devices.

Remove the bypass level indicator carefully from the packaging!

When unpacking, check all components for any external damage.

5.1 Mounting preparation

Detach the float attached to the bypass level indicator from the bypass chamber and remove the transport sleeve.

Remove the protection caps of the process connections.

Ensure that the sealing faces of the vessel or bypass level indicator are clean and do not show any mechanical damage.

Check the connection dimensions (centre-to-centre distance) and the alignment of the process connections on the vessel.

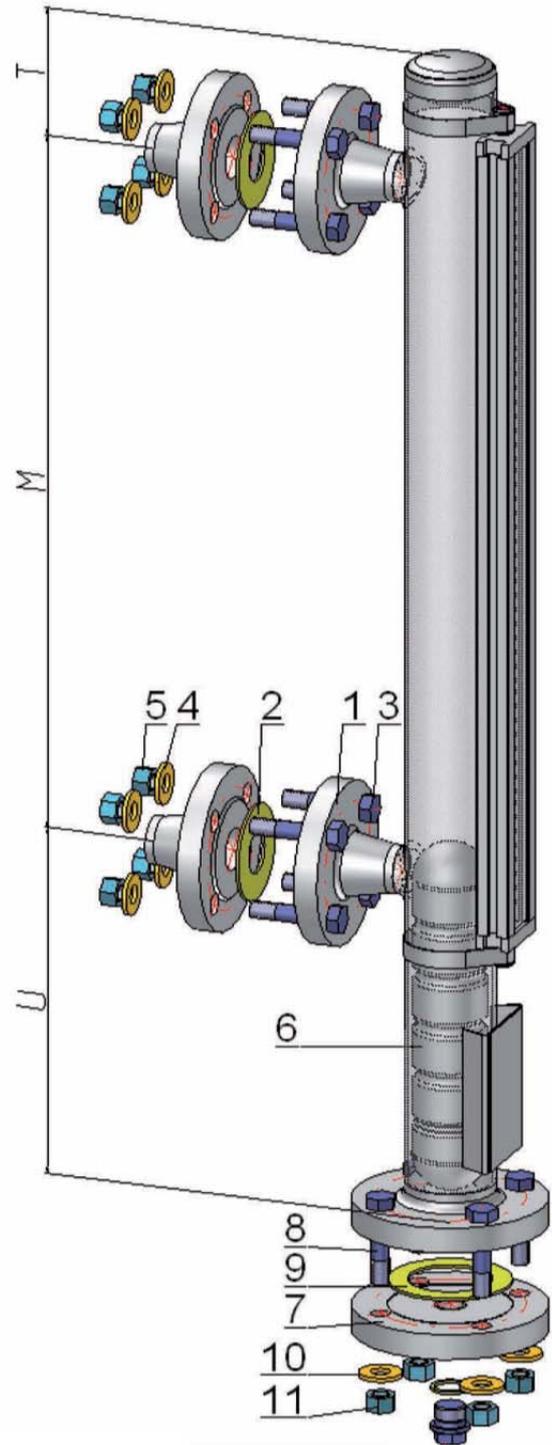
Initialisation of magnetic display and magnetic switch

Slowly move the enclosed float from bottom to top on the magnetic display and then back down again.
 Align additionally mounted magnetic switches on the basis of the same principle.
 For bypass level indicators with insulation and magnetic displays with Plexiglass attachments, the float must be moved up and down inside the tube.
 For magnetic displays with purge gas connections, these connections must have an airtight seal.
 Please refer in this case to the mounting and operating instructions for magnetic displays with purge gas connections as well.

5.2 Mounting

Observe the torque values of screws specified in pipefitting work.
 Install the bypass level indicator without tension.
 In the selection of the mounting material (sealings, screws, washers and nuts), take the process conditions into account.
 The suitability of the sealing must be specified with regard to the medium and its vapours.

- T = upper projection
- M = centre-to-centre distance
- U = lower projection



In addition, ensure it has corresponding corrosion resistance.

The bypass level indicator is mounted in a vertical position on the vessel to be monitored using the **process connections (1)** provided.

Seals (2), screws (3), washers (4) and nuts (5) suitable for the process connection must be used for mounting. If necessary, shut-off valves must be mounted between the vessel and the bypass.

Installing the float

Clean the float of anything stuck on it in the area of the float magnet system

Remove the **bottom flange (7)** and insert the **float (6)** into the tube from the bottom (the marking "top" or a legible model code marks the top side of the float)

Place the **seal (9)** onto the bottom flange.

Replace the bottom flange and fix it in place using the **screws (8)**

5.3 Commissioning

If the bypass level indicator is fitted with shut-off valves between process connections and tank, proceed as follows:

Close drain and vent fittings on the bypass level indicator

Slowly open the shut-off valve at the upper process connection

Slowly open the shut-off valve at the lower process connection as liquid flows into the bypass chamber, the float rises to the top.

The magnetic system turns the elements of the magnetic display from "light" to "dark".

The current filling level is shown after liquid equalisation between the vessel and the bypass level indicator.

Always observe the mounting and operating instructions of accessories before putting them into operation

6. Faults



The following table contains the most frequent causes of faults and the necessary countermeasures.

Faults	Causes	Measures
Bypass level indicator cannot be fitted at the planned place on the vessel	The thread sizes or flange sizes for the bypass level indicator do not match	Modification of the vessel Return to the factory
	Thread on the screwed coupling on the vessel is faulty	Rework the thread or replace the screwed coupling
	Mounting thread on the bypass level indicator is faulty	Return to the factory
	Centre-to-centre distance of the vessel does not correlate with the bypass level indicator	Modification of the vessel Return to the factory
	Process connections are not attached parallel to one another	Modification of the vessel



CAUTION!

Physical injuries and damage to property and the environment

If faults cannot be eliminated by means of the listed measures, the instrument must be taken out of operation immediately.

- ▶ Ensure that there is no longer any pressure present and protect against being put into operation accidentally.
- ▶ Contact the manufacturer.
- ▶ If a return is needed, please follow the instructions given in chapter 8.2 "Return".

7. Maintenance and cleaning

7.1 Maintenance

When used properly, bypass level indicators work maintenance-free. They must be subjected to visual inspection within the context of regular maintenance, however, and included in the tank pressure test.

**DANGER!**

Work on containers involves the danger of intoxication and suffocation. No work is allowed to be carried out unless by taking suitable personal protective measures (e.g. respiratory protection apparatus, protective outfit etc.).

Repairs must only be carried out by the manufacturer.

**Information**

Perfect functioning of the bypass level indicator can only be guaranteed when original accessories and spare parts are used.

7.2 Cleaning

**CAUTION!****Physical injuries and damage to property and the environment**

Improper cleaning may lead to physical injuries and damage to property and the environment. Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ Rinse or clean the removed instrument.
- ▶ Sufficient precautionary measures must be taken.

1. Prior to cleaning, properly disconnect the instrument from the process and the power supply.
2. Clean the instrument carefully with a moist cloth.
3. Electrical connections must not come into contact with moisture!

**CAUTION!****Damage to property**

Improper cleaning may lead to damage to the instrument!

- ▶ Do not use any aggressive cleaning agents.
- ▶ Do not use any pointed and hard objects for cleaning.

8. Dismounting, return and disposal**WARNING!****Physical injuries and damage to property and the environment through residual media**

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

- ▶ Wash or clean the dismantled instrument, in order to protect persons and the environment from exposure to residual media.

8.1 Dismounting

Only disconnect the measuring instrument once the system has been depressurised and the power disconnected!

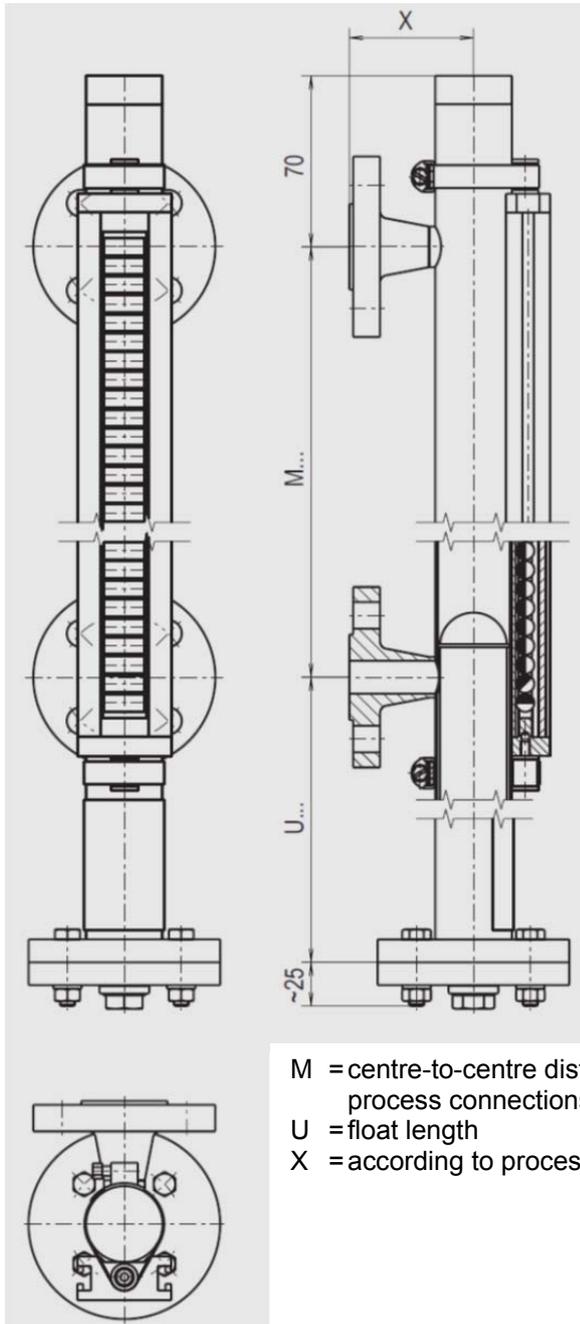
8.2 Return

Wash or clean the dismantled bypass level indicator before returning it, in order to protect personnel and the environment from exposure to residual media.

8.3 Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

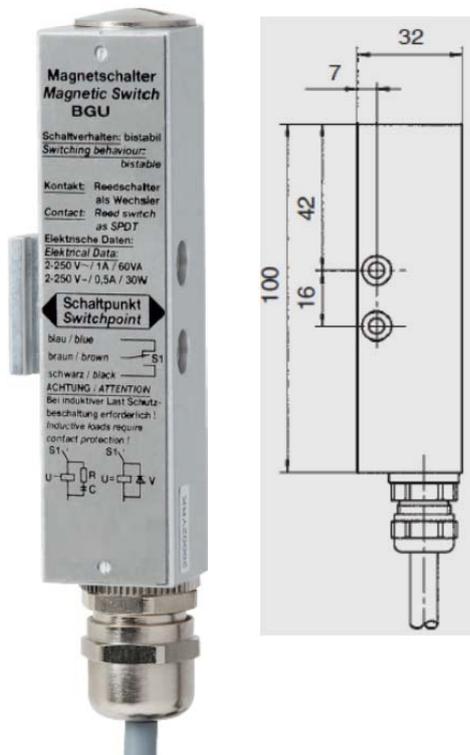


M = centre-to-centre distance
process connections
U = float length
X = according to process connection

Specification	
Bypass chamber	Ø 60.3 x 2 mm, max. 40 bar
Chamber end top	Flange connection Options: Drain plug <input type="checkbox"/> Drain valve <input type="checkbox"/> Drain flange
Chamber end bottom	Flange EN 1092-1, Options: Drain plug G 1/2"
Process connections	Flange EN 1092-1, DN 20, PN 40
Centre-to-centre distance	Standart 450mm Min. 150mm to max. 6,000mm
Material	Stainless steel 1.4571
Nominal pressure	PN40
Temperature	Max. 200°C
Float	Stainless steel 1.4571 Ø 50mm, Length 185mm
Magnetic display	Two-coloured plastic rollers
Level sensor	Reed sensor
Magnetic switches	Magnetic switch, model BGU

Operating Instructions

OI baelz 1761/1771



Specifications	
Contact	Reed contact
Contact type	1 change-over contact
Switch behaviour	Bistable
Switching power	AC 230 V, 60 VA, 1 A DC 230 V, 30 W, 0.5 A
Ambient temperature	-50 ... +180 °C
Case	Aluminium
Protection	IP 66/68