

**Conductivity transmitter baelz 1753-2 – Type FLB1
Together with conductivity probe 1750-5 – Type EL 22**



**For technical specification of the unit, see enclosed data sheet.
The data sheet is a part of this mounting and operating instructions.**

1. Danger and warning instructions

1.1 To avoid danger for persons and materials

- 1.1.1 Only use unit assemblage according to intended purpose.
- 1.1.2 Additional mountings and modifications only with our approval.
- 1.1.3 Adhere to the rules for prevention of accidents and safety instructions related to plant.
- 1.1.4 Read and observe installation and operating instructions.

1.2 Application limits

It is only allowed to use the unit assemblage according to the details of this operating instructions
Respectively according to the parameters and application cases agreed in the delivery contract.

1.3 Avoidance of danger and damages

- 1.3.1 Supply this mounting and operating instructions to appropriate department Arrival of goods, works transport, mounting and setting in operation.
- 1.3.2 When passing unit assemblage to a third party, this operating and mounting instructions must be given to the third party in his language.
- 1.3.3 **Working on unit assemblage only by skilled personnel and with special work order and if the instrument is free of tension.**
- 1.3.4 **Read, observe and keep with care this mounting and operating instructions.**

1.3.5 Observe and adhere to the bold faced precautions marked in the sections of this mounting and operating instructions.

- 1.3.6 Avoid hard touching ground and shocks, which could damage the unit, particularly the internal parts.
- 1.3.7 In case of intermediate store, take care for a dry and appropriated place where the unit is safe from damaging.

Wait until the unit assemblage is cooled down. In case of opening and disassembling unit A residual medium may escape-, also for pressure-less systems further evaporation is possible.

Operating Instructions

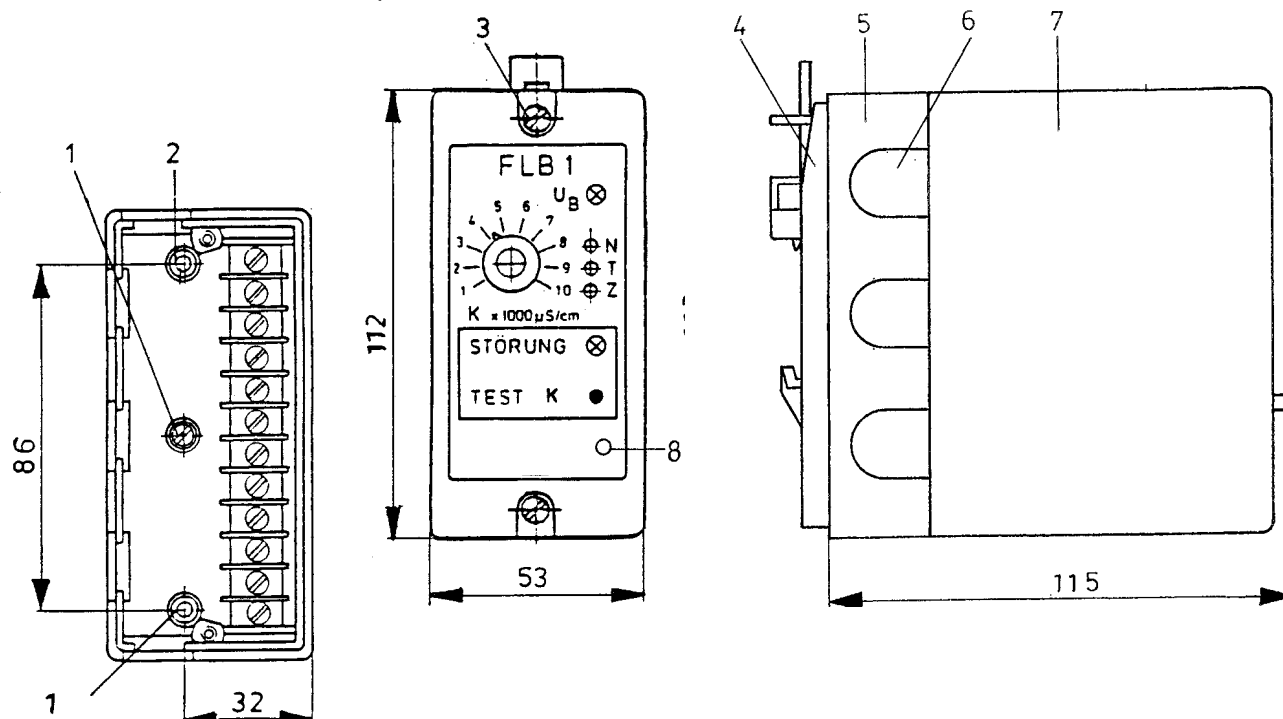
OI 1753-2

2. Dimensions

Base
(cover removed)

Front view

Side view



3. Installation

Provide environmental protection as requested by local regulations.

3.1 With mounting clip (4) on the top hat DIN rail 35 mm

- Clip controller on rail.
- Loosen screws (3) and unplug controller (7) from its base (5).

3.2 Without mounting clip

- Loosen screws (3) and unplug controller (7) from its base (5).
- Unscrew screws (1) and remove clip fastener (4).
- With drill Ø 4,3 mm perforate base (5) on marked points (2).
- Fix base (5) with 2 screws M 4 to a chassis plate.

4. Electrical connection

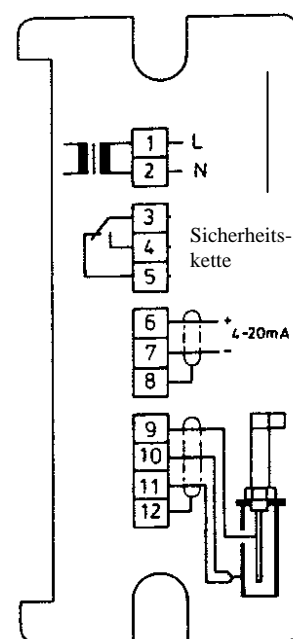
Connection as per wiring diagram on backside of controller FLB1 (7) or according external detailed wiring diagram (FLB1 with electrode).

- Push cable through cable gland (6) or take it off and pass cable through.
- Check that mains supply voltage on the name plate matches the proposed power supply.
- Screened cable is required for connection line between controller and electrode.

A suitable cable is e.g. bus safety 3x0.75 for maximum length 20 m (see advise).

Connect the screen only to controller terminal 12.

Rückplatte



Operating Instructions**OI 1753-2**

- After electrical connection – but before apply of mains supply – put controller (7) on its base (5) and fix with screws (3).
- Refer to the mounting and poerating instructions and wiring diagram for the associated probe.

5. Commissioning - Adjustment

Adjustment only if all parts of the system are completely installed.

Green indicator lamp „MAINS ON“ lights when mains supply is on.

For adjustment following measuring instruments are required:

- Multi-meter (preferably a digital multi-meter)
- Conductivity measuring instrument (preferably with temperature compensation)

5.1 Adjustment at zero

Condition: the electrode Tipp is not immersed in water. If necessary lower water level of boiler, respectively drain the pipe where the electrode is installed.

Connect multi-meter to Jack Ø 3,6 mm (8) or to controller terminals 6 and 7 and adjust with the zero adjustment potentiometer „N“ a current of 4 mA.

Caution:

- turn potentiometer clockwise to increase value
- if value of 4 mA can not be adjusted – check electrical connections according wiring diagram

5.2 Take a sample

Condition:

- boiler in working condition
- the corresponding electrode tip is immersed in boiler water

Take boiler water on cooler for taking a sample and determine the conductivity “K ist” in µS/cm at 25°C by means of conductivity measuring instrument.

5.3 Temperature balance

Condition:

- boiler in working condition
- the corresponding electrode tip is immersed in boiler water
- calculation of current to adjust according following equation:
$$I = 4 + 16 \times K \text{ is} / K \text{ max}$$

For example

K is = 2000 µS/cm; see 5.2 Take a sample

K max. = 10000 µS/cm; see range [K x 1000 µS/cm] on front side of controller

$$I = 4 \text{ mA} + (16 \text{ mA} \times 2000 / 10000) = 7,2 \text{ mA}$$

Connect multimeter to Jack Ø 3,6 mm (8) or to controller terminals 6 and 7 and adjust with the potentiometer “T” the calculated current.

Caution:

- turn potentiometer clockwise to decrease value
 - up to 20 turns in one direction could be necessary
- If calculated current can not be adjusted on potentiometer „T“, the cell constant „Z“ must be adjusted on calculated current. After this start a new adjustment as described on 5.1/5.2 and 5.3.

6. Adjustement of limit values

German rules TRD 611 for boiler specifies limit values of conductivity on boiler water corresponding to the max. allowable working pressure.

6.1 Adjustment of FLB1

- Push button „TEST K“.
If current circuit between controller terminals 3 and 4 is interrupted, a defect of controller FLB1 can be excluded.
- Check installation of corresponding electrode and connection according mounting and operating instructions and wiring diagram.

7. Advice**Coution:**

- **Take-off cover (7) only when mains supply is cut off.
Capacity of cable must not exceed 1nF.**
- To prolong lifespan of relay contacts when using inductive loads, we suggest utilization of a RC-combination usual in the trade or the use of a suitable varistor (e.g. 0.1 μ F/100 Ohm or Varistor SO7k275).
- For further informations see leaflet.