Overfill prevention device type BC-2

to monitor tanks with liquid operating media as an alarm feature during the filling process

Z-65.11-612

BIO

Safety level Fuel+

CONTENTS

INFORMATION FOR THE PLANT OPERATOR

Please ask your specialised company to confirm the proper installation of the overfill sensor on the installation certificate of the specialised company (see the last pages).

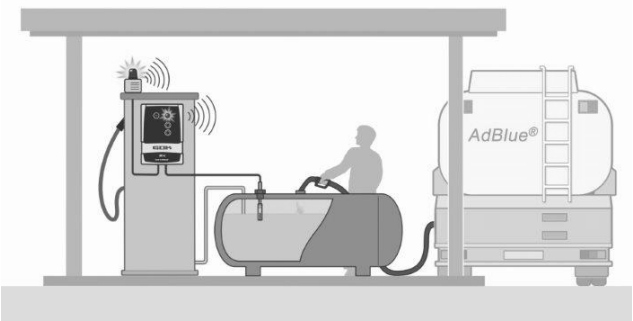
ABOUT THE MANUAL

- This manual is part of the product.
- This manual must be observed and handed over to the operator to ensure that the component operates as intended and to comply with the warranty terms.
- Keep it in a safe place while you are using the product.
- In addition to this manual, please also observe national regulations, laws and installation guidelines.

NOTICE This assembly and operating manual is aimed at users and operators of this product. These persons must have read and understood the assembly and operating manual. ⚠ The physical and psychical requirements for proper and safe handling of the product must be ensured at all times!

GENERAL PRODUCT INFORMATION

The BC-2 overfill sensor consists of an indicator and probe and is used to monitor the filling procedure of a tank for water-endangering operating media.
Before the maximum permissible filling level in the tank is reached, acoustic and optical alarms activate so that the filling procedure can end on time.
The BC-2 overfill sensor corresponds to the Zulassungsgrundsätze für Überfüllsicherungen (ZG-ÜS) of the Deutsches Institut für Bautechnik (DIBt) as well as the requirements of a overfill sensor as a safety equipment, e.g. according to DWA-A 791 (TRwS).
The BC-2 represents a safety overflow switch as an object within the meaning of the general building approval which serves, as part of an overfill sensor, to prevent overfilling of tanks.
The plant components and the signal amplifier required for the signalling and control device are not part of the BC-2 overfill sensor.



Application example
Adapter BC-1/BC-2 – AS for connecting the type BC-2 overfill prevention device to the overfill prevention mechanism (AS) of the road tanker

Observe assembly instructions for adapter BC-1/BC-2 – AS (connection overfill prevention device type BC-2 to road tanker to deactivate the filling process).

APPROVAL

- General building approval no. Z-65.11-612
- Belgium: AIB-VINCOTTE with prototype no. AV/61441225.001
- Switzerland: SVTI certificate with no. 302.006

SAFETY ADVICE

Your safety and the safety of others are very important to us. We have provided many important safety messages in this assembly and operating manual.

✓ Always read and obey all safety messages.

This is the safety alert symbol.
This symbol alerts you to potential hazards that can kill or hurt you and others.
All safety messages will follow the safety alert symbol and either the word "DANGER", "WARNING", or "CAUTION". These words mean:

⚠DANGER
describes a **personal hazard** with a **high degree of risk**.
➜ May result in **death or serious injury**.

⚠WARNING
describes a **personal hazard** with a **medium degree of risk**.
➜ May result in **death or serious injury**.

⚠CAUTION
describes a **personal hazard** with a **low degree of risk**.
➜ May result in **minor or moderate injury**.

NOTICE describes **material damage**.
➜ Has an **effect** on ongoing operation.

ⓘ describes a piece of information

✓ describes a call to action

PRODUCT-RELATED SAFETY ADVICE

⚠DANGER

May not be used in potentially explosive areas.
Can cause an explosion or serious injuries.
✓ Must be installed by a specialised company in accordance with local industrial health and safety regulations.
✓ Installation outside the defined EX protection zone.

⚠WARNING

Escaping, liquid fuels such as fuel oil:
- are hazardous to the aquatic environment
- are inflammable category 3 liquids with a flash point > 55°C
- can ignite and cause burning
- can cause injury through people falling or slipping

✓ Capture fuels during maintenance work.

⚠CAUTION

Product damaged due to flooding!
Causes malfunctions.
✓ Replace the product following flooding!

INTENDED USE

Operating media

- Waste oil
- Diesel fuel
- FAME
- Urea solution (AdBlue®)
- Bio fuel oil
- Industrial oil
- Vegetable oil
- Fuel oil
- Water or oil-water mixtures (+1°C to +70°C)
- Liquid fertiliser (AHL, ASL, HAS)
- JGS (liquid manure, semi-liquid manure and silage effluent)

You will find a **list of operating media** with descriptions, the relevant standards and the country in which they are used in the Internet at **www.gok.de/liste-der-betriebsmedien.**

Place of operation

Indicator:

- with protection type IP54, indoors and outdoors, if protected against the weather

⚠DANGER **May not be used in potentially explosive areas.**
Can cause an explosion or serious injuries.

Probe:

- for installation in non-pressurised tanks indoors and outdoors
- if the probe is used outdoors, it must be protected with suitable means against penetrating humidity

The specialised company and the operator must observe, comply with and understand all of the following instructions in this assembly and operating manual. For the system to function as intended, it must be installed professionally in compliance with the technical rules applicable to the planning, construction and operation of the entire system.
These regulations also include the accident prevention regulations of the employers' liability insurance associations, the VDE regulations, and the installation and operating instructions.

The specialist installer must enter and confirm that the safety device was installed in accordance with the assembly and operating manual and the guidelines in the general building-authority approval in the printed installation certificate.

NOTICE

INAPPROPRIATE USE

All uses exceeding the concept of intended use:

- e.g. operation with different operating media
- operation with inflammable operating media of categories 1, 2 or 3 with a flash point ≤ 55 °C[1)]
- changes to the product or parts of the product
- installation in a potentially explosive area
- installation in pressurised tanks and containers

⚠WARNING

Do not use this device for safety applications or emergency stop mechanisms or misuse it!

Injuries and damage to health and property through misuse.

✓ You must observe the information contained in these instructions, especially regarding installation, start-up and maintenance.

[1)] It is also necessary to comply with the divergent provisions/regulations of the EU member states concerning areas at risk of explosion and the flash point of the operating medium!

USER QUALIFICATION

INSTALLATION, START-UP, MAINTENANCE and RESTORATION of the product may only be commissioned to such companies constituting specialised companies for this work in the meaning of § 62 of the AwSV. This does not apply if the system is excluded from this obligation to be installed by a specialised company according to national regulations. These will simply be referred to below as "specialised company".
Work on electrical parts may be carried out only by an electrician qualified according to VDE regulations or by an electrician who is qualified according to local regulations.
The specialised company and the operator must observe, comply with and understand all of the following instructions in this assembly and operating manual.

Activity	Qualification
storing, transporting, unpacking, OPERATION, DISPOSAL	trained personnel
ASSEMBLY, START-UP, FUNCTION CHECK, MAINTENANCE, RESTORATION,	qualified personnel, customer service
ELECTRIC CONNECTION, ELECTRICAL INSTALLATION	qualified electrician
TROUBLESHOOTING	qualified personnel, customer service qualified electrician, trained personnel

Explanation of qualification

Qualified personnel
is anyone who can assess the work based on their specialist training, knowledge and experience as well as knowledge of the applicable standards, and identify possible hazards.

Electrically skilled person
is anyone capable of carrying out work on electrical systems based on their specialist training, knowledge and experience as well as knowledge of the applicable standards and provisions, and to identify and avoid possible hazards independently.

Instructed personnel
is anyone who has been instructed about their tasks to be carried out and possible hazards caused by improper behaviour, and trained, if applicable, and who has been taught about the necessary protective equipment and safety measures.

FUNCTION DESCRIPTION

- optical and acoustic alarm when touching the sensor of the probe with operating media in a tank
- acknowledgement button for the acoustic alarm
- 2 potential-free changeover relay contacts :
  - **Alarm 1**: permanently switched in case of an alarm, e.g. for connecting external signal light
  - **Alarm 2**: like **Alarm 1**, but can be acknowledged, for installation e.g.or an acoustic signal generator

⚠WARNING If the device is not operated properly or it is misused, there may be a risk of injury for the installer and the operator, risks for the device and for other property of the operator, and a risk of a malfunction of the device itself.

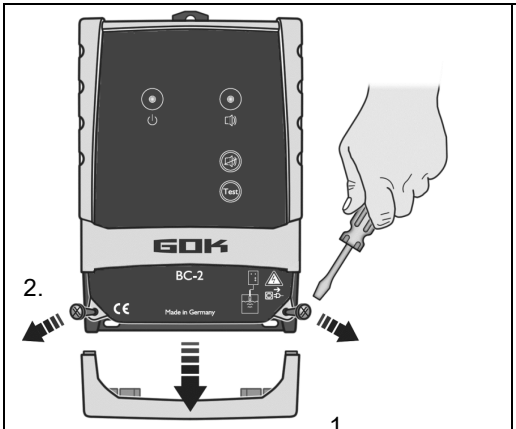
DESIGN

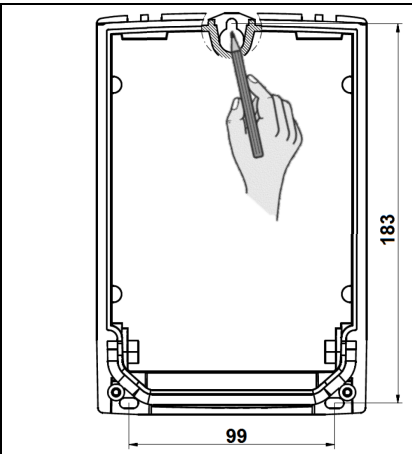
① Screw-in unit
② Probe protective pipe
③ Sensor
④ Connection cable
⑤ LED Operation
⑥ Button Reset Alarm Sound
⑦ Button Test
⑧ LED Alarm
⑨ Indicator

ASSEMBLY

Before assembly, check that the product is complete and has not suffered any damage during transport.

Mounting the display unit





NOTICE Mount the display unit to the wall in a suitable position.

1. Open the display unit by removing the bottom cover.
2. After loosening the 2 screws, open the display unit by removing the cover.
3. Mount the display unit to a smooth vertical wall by means of dowels. Mount the housing of the display unit by the four fixing holes with the enclosed screws and anchors. Take care not to damage the housing.
4. After ELECTRICAL INSTALLATION and connecting the terminals, replace the covers.

ASSEMBLY OF THE PROBE

Adjusting dimension X
The adjusting dimension X is the distance between the reference edge between the dome cover or screw-in unit and the marking ring on the protective cover of the sensor at the lower end of the probe.

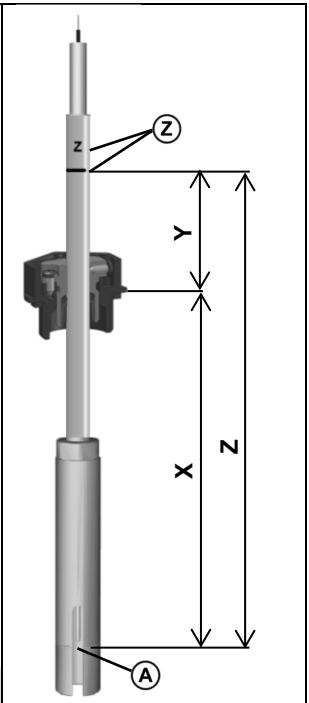
Control dimension Y
The control dimension Y results from the difference between the probe dimension Z and the adjusting dimension X. It represents the distance between the upper marking line and the reference edge of the dome cover or screw-in unit.

The probe is the part of the limit indicator that protrudes into the tank in a height-adjustable manner, which has a sensor (PTC thermistor as temperature-dependent PTC resistor) protected on the bottom. Probe lengths from 150 to 1000mm are possible. (Observe the tank permit!)

A marking line and a number Ⓩ have been embossed into the top of probe tube. The marking line and the value for Z must be visible upon installation.

The number indicates the distance from the marking line to the switching point Ⓐ (marking at the bottom of the probe) in millimetres. Probes with probe tube lengths Z = 500 to 1000mm: The probe tube protruding from the tank is to be protected from mechanical stress if necessary.

Insert the probe carefully and do not damage it!



NOTICE The probe is height-adjustable. The probe may not be shortened under any circumstances.

The probe must be installed according to the assembly and operating manual and be set to the maximum of the permissible filling volume with permissible filling level – generally ≤ 95% *(V/V)* of the rated volume of the tank as well as according to the stipulations of the building's certificate of suitability for intended use for tanks or tank systems in the case of battery tanks made of plastics*.

NOTICE If the filler line is longer than 20m, the adjusting dimension X is to be determined according to the special conditions. If necessary, contact the tank manufacturer with a specification of the special tank shape and size, as well as the length of the filler line. The criterion in this case is the overrun volume in the filler line which may not lead to an exceeding of the maximum permissible filling volume of 95% *(V/V)*.

If no information regarding is available, the adjusting dimension X can be determined by the volumetric measurement of the tank or by the calculation (see page 8).

The connection lines between the probe and the indicator may have a total length of a maximum of 100m when a suitable cable with a cross-section of 2 x 1.5mm^2 (Cu) is used.

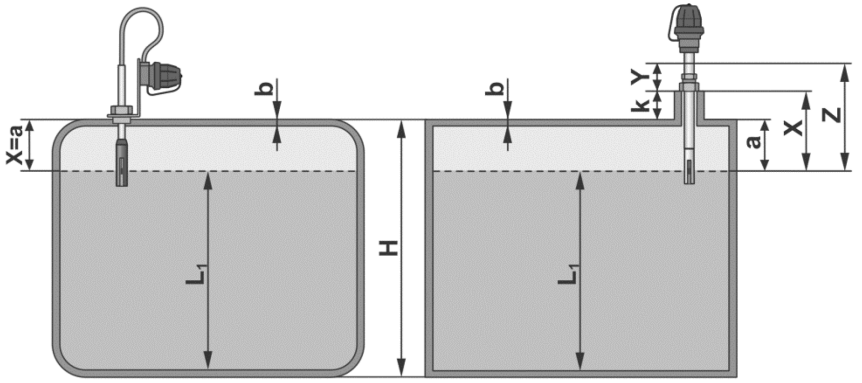
Probe:

- if the probe is used outdoors, it must be protected with suitable means against penetrating humidity (e.g. with shrinking tube attached)

✓ pull the protection over the cable and approx. 1cm over the probe and shrink it. The marking line and the value for **Z** must be visible

***** less the overrun volume for the level sensor switching time of 3 seconds

CALCULATION OPTION FOR THE ADJUSTING DIMENSION X



a = dimension a= H - L_1 - b	H = height or diameter of the tank
b = tank wall thickness	k = height bushing or threaded flange

1. Maximum volumetric flow rate of the booster pump of the road tanker		**Q_{max}**	l/min
2. Switching and closing delays of the booster pump of the road tanker		**Time**	
Level sensor according to measurement / datasheet	[1] $t_1 + t_2$= 3 s	**t_1**	s[1]
Switch / relay / or similar		**t_2**	s[1]
Booster pump, flow time		**t_3**	s
Shut-off fitting: • mechanical, manually operated time alarm to closing start + closing time:		**t_4**	s
• electrically, pneumatically, or hydraulically operated: closing time:			s
Total time (t_{ges}= 3s + t_3 + t_4):		**t_{ges}**	s
3. Overrun volume **V_4**			
Overrun volume from delays: **V_1** = **Q_{max}** • (**t_{ges}** / 60)		**V_1**	L
Overrun volume from filler line: **V_2** = (π / 4) • **D_i^2** • **L_{FL}** / 1000 **D_i** = internal pipe diameter in mm **L_{FL}** = length of the filler line in m		**V_2**	L
V_4 = **V_1** + **V_2**		**V_4**	L
4. Level **L_1**			
Volume at admissible level		**V_3**	L
Overrun volume		**V_4**	L
Volume at level **L_1** **V_5** = **V_3** - **V_4**		**V_5**	L

Then, the volume at level **V_5** value results, in combination with the calibration chart or by calculation, in the level **L_1**.
The adjusting dimension **X** must be determined taking into account* the tank shape:

Installation on tank ceiling: **X = H - L_1 - b** = mm

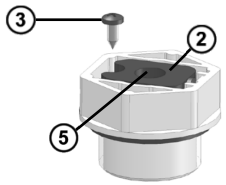
***** if applicable Take into account ADJUSTING DIMENSION **X** AND SUBSEQUENT LEAK PROTECTION LINING

Assembly insert

After having determined the adjusting dimension X, the insert must be locked.
The insert is used to fasten the probe within the tank.
The insert has locking screws which secure the probe tube against moving. Manually screw-in and fasten the insert using a gasket or sealing materials. The installation is done from above.
When adjusting the required response height of the probe (adjusting dimension X), the probe must be secured against unintentional adjustment by using the locking screw(s).

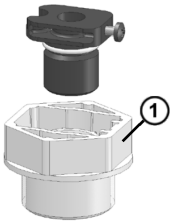
Installation of probe tube/ probe in insert G1

Ⓐ



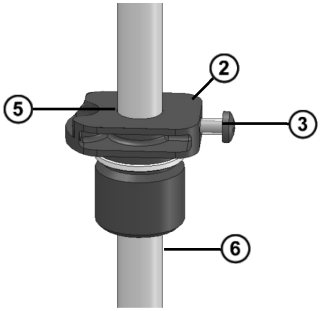
- loosen upper locking screw ③ at the probe tube mounting insert ②

Ⓑ



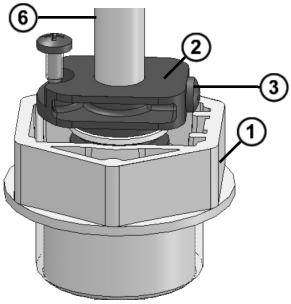
- remove ① tank insert

Ⓒ



- loosen lateral fixing screw ③ at the probe tube mounting insert ②
- insert probe tube/ probe ⑥ through the opening ⑤ at the probe tube mounting insert ②

Ⓓ

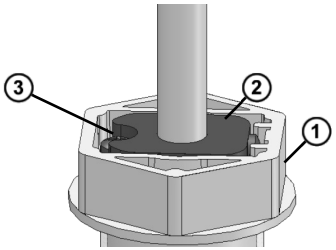


- After determining the setting dimension, fix the probe tube / probe ⑥ of the limit indicator permanently so that it is not possible to adjust this later.

✓ set the probe tube / probe ⑥ to the setting dimension, then tighten the lateral fixing screw ③

- screw in the tank insert ① into the tank

Ⓔ

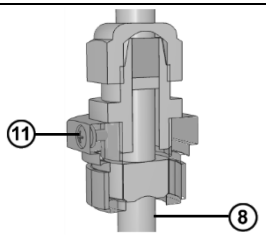


Ⓔ

- insert and tighten the probe tube mounting insert ② to the insert ① so that it is flush

✓ tightly screw the upper locking screw ③ into the probe tube mounting insert ②

Connecting threads present on the tank larger than G1 can be brought to the connecting thread G1 of the insert by using commercially available reducers. Due to the partial increase of the fitting edge, the following is applicable: **X = a + k + $k_{Reducer.}$**



Insert G 3/4
- loosen the locking screw ⑪ on the insert.
- set the determined adjusting dimension **X**.
- tighten the locking screw ⑪ so that the probe tube ⑧ cannot be moved.

ELECTRIC CONNECTION

⚠DANGER Danger to life due to electric shock!
Electric shock from touching live parts.
✓ Before opening the housing, ensure that the equipment is free of all voltage.
✓ **Only place under tension after ending all work.**

⚠ It is installed and started up by a qualified technician while the unit is open.

Electric work is always to be carried out by a trained electrician. These requirements also apply for the start-up, maintenance and repair work of the overfill sensor.

Switzerland: The installation may only be carried out by experts with knowledge in el engineering as well as regarding explosion and fire protection.

The permits, approvals, and certificates legally required for the execution of building projects are not replaced by the general building permit and this assembly and operating manual.

NOTICE
The display unit must be connected to an overcurrent protective equipment (OCP) (nominal current maximum 16 A; short-circuit current maximum 1500 A) which is easy to reach.

NOTICE If the indicator is installed in a closed housing (e.g. control cabinet), the connection of external signal generators and operating elements is required at a suitable position (alarm horn or lamp, operating light, acknowledgement button, test key).

Safety precautions for electrical components

⚠DANGER Damaged or destroyed insulation!
Can result in short circuit or electric shock.
✓ Do not use the device if the insulation is damaged!
✓ Have new insulation installed by a specialised company!

⚠CAUTION The functions and operating safety of the device are guaranteed only under the climatic conditions that are specified in TECHNICAL DATA. If the device is transported from a cold to a warm environment, condensation may cause the device to malfunction or may even destroy the device. Because of this, you must ensure that the device has acclimatised to the ambient temperature before using it.

⚠CAUTION If you have any doubts that the device can be operated safely, do not operate it. Your safety may be adversely affected by the device, if for example:

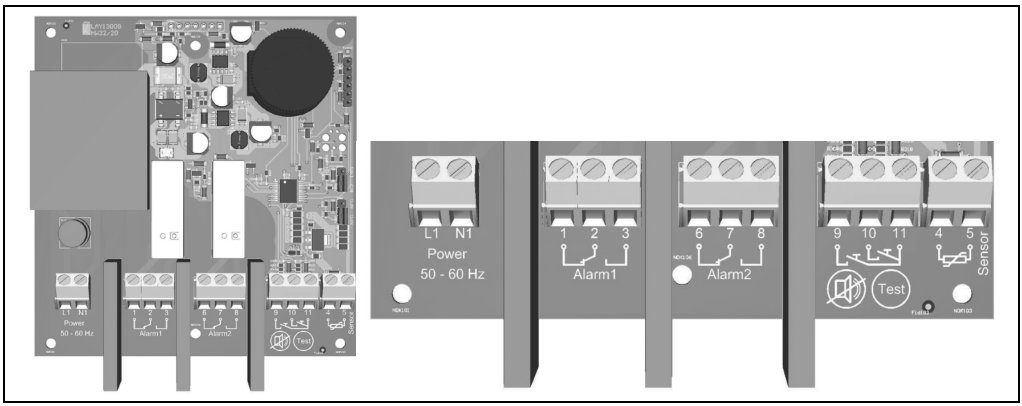
- it is obviously damaged
- it no longer works as specified
- it has been stored in unsuitable conditions for some time,

✓ if in doubt, send the device to the manufacturer for repair or maintenance

Observe the safety precautions and the assembly and operating instructions of connected devices.

External lines (network current, feelers (probes), etc.) are connected via spring-loaded terminal blocks (permissible transverse section of the connection cables up to 2.5 mm²).

Indicator Type BC-2 – sectional view



ELECTRICAL INSTALLATION

⚠DANGER Danger to life due to electric shock!

Electric shock from touching live parts.

✓ Disconnect the power.

✓ Only touch the probe when the display unit is not supplied with power.

✓ Only place under tension after ending all work.

Connection Lines between the Indicator and the sensor

Line cross-section	2 x 1mm² (Cu)	2 x 1.5mm² (Cu)
maximum length	100m	100m
Version	e.g. H05VV-F ; NYM or similar	Extension via special accessories for cable connection fitting
Port	Probe	Terminals 4 and 5 - sensor
Supply voltage		
Supply voltage	230VAC 50Hz e.g.: NYM	Connection to terminals L1 and N1 Line cross-section 1.5 – 2.5 mm²

Connection of the Outputs – 2 Potential-Free Relay Contacts on the Indicator

The indicator has 2 potential-free relay contacts.
The outputs **Alarm 1** and **Alarm 2** are intended for the actuation of external alarm units (for the connection of the signalling or control devices of the overfill sensor). The outputs **Alarm 1** and **Alarm 2** are not monitored, i.e. a line disconnection or a short circuit to the connected signalling or control devices is not recognised and indicated by the indicator.
Therefore, either the signalling and control devices must be switched in such a way that a line disconnection is signalled (static current principle). If this is not possible, a notice must be placed in the close distance of the indicator that a FUNCTIONAL CHECK of the overfill sensor (including the connected signalling and control devices with actuator) must be carried out before each filling. This FUNCTIONAL CHECK can be done by pushing the **Test** button on the display unit – this leads to an alarm signal, and possibly connected signalling and control devices are switched. After release of the **Test** button (approx. 10 seconds after pushing), the alarm signal goes out.

The indicated test does not replace the required annual test (see paragraph MAINTENANCE).

NOTICE No other appliances – particularly no safety-relevant appliances – may be connected to the same overcurrent protective equipment as the appliance.
Do not exceed the maximum input current of 1A for equipment connected to the potential-free relay contacts. The permitted Line cross-section is 1.5 – 2.5mm².

Option 1: Connection of **Alarm1** and **Alarm2** outputs to the **supply voltage**

Alarm1 + Alarm2	maximum switching voltage	230V ~ 50 Hz
	Type of current	AC
	maximum switching current	1.0A
	maximum switching power	230VA

Option 2: Connection of **Alarm1** and **Alarm2** outputs to the **extra-low voltage**

Alarm1 + Alarm2	maximum switching voltage	24V ~	60V =
	Type of current	SELV/ PELV; AC	SELV/ PELV; DC
	maximum switching current	4.0A	0.6A
	maximum switching power	96VA	36W

Output	Contact closed at alarm	Contact open at alarm
Alarm 1	Terminals 1 + 2	Terminals 2 + 3
Alarm 2	Terminals 7 + 8	Terminals 6 + 7

Option 3: Option 1 + Option 2

Connection of External Buttons for Alarm Deactivation

No extraneous voltage may be applied to terminal 9 + 11 or to terminal 10 + 11!

The indicator has an input for an external acknowledgement button (Terminal 9). The function corresponds with the **Reset Alarm Sound** button integrated into the indicator which can reset (deactivate) the acoustic alarm as well as the output
Alarm 2 in case of an alarm.

The indicator has an input for an external test key (Terminal 10). The function corresponds to the **Test** button in the indicator which controls the alarm function in the monitoring mode: Display red LED **Alarm** and buzzer tone.

The supply voltage for the external acknowledgement button (terminal 9) or for the external test button (terminal 10) is applied to terminal 11..

NOTICE The housing of the display unit is suitable for wall mounting and is connected to the main supply. The display unit must be operated with the housing cover closed.

- After the connection of the terminals, screw on the front panel again!

Notice for Switzerland

For shut-off devices and booster pumps in Switzerland, the following must be observed:

These devices are, depending on the plant, very different and may not be specified universally. In particular, the plant owner must install a suitable shut-off device which is automatically controlled by the special filling protector (e.g. solenoid valve). This happens within the scope of the proper approval procedure and with the approval of the responsible cantonal authority.

In case of storage plants with several containers and with a common filler line, a single automatically controlled shut-off device may be sufficient if each tank has at least one manual slide and the filling levels of all containers are the same.

In case of plants with their own stationary booster pumps, the special filling protection must shut off the booster pumps when reaching the maximum permissible filling level which is determined by the effective volume according to section 20 VWF – when operating the sensor at the latest and prior to closing the automatic shut-off device.

START-UP

NOTICE The display unit must be connected to an overcurrent protective equipment (OCP) which is easy to reach.

⚠ The display unit may only be operated with a closed housing cover.

Settings on the indicator are not required.

The start-up of the BC-2 overfill sensor is carried out after assembly is completed by applying the supply voltage.

A start-up alarm is emitted first. It is indicated via the red LED **Alarm** optically and via a buzzer acoustically; in this case, the **Alarm 1** and **Alarm 2** relay outputs together with possibly connected external signalling or control devices (e.g. solenoid valve, signal horn or lamp) are switched.

After about 20s, this alarm message disappears and only the green LED **Operation** lights up – the operation relay output is switched on, so that a possibly connected external signal light goes on as well.

The **Alarm 1** and **Alarm 2** relay outputs are deactivated.

After that, a FUNCTIONAL CHECK with all components of the overfill sensor (including any connected signalling and control devices) should be performed.

The operating manuals of the connected appliances must be respected.

Pressing the Test button on the indicator triggers an alarm. In the process, an alarm indication as described above must be emitted.

NOTICE The probe must not be immersed in the operating medium during this test.

- Remove probe.

⚠DANGER Danger to life due to electric shock!

Electric shock from touching live parts.

✓ Disconnect the power.

✓ Only touch the probe when the display unit is not supplied with power.

✓ Only place under tension after ending all work.

OPERATION

The indicator must indicate the monitoring mode constantly via the green LED **Operation]**
During a filling of the tank, an alarm is indicated via the red LED **Alarm**, the integrated buzzer, and any connected external alarm units when the response level is reached (according to the adjusting dimension X of the probe) so that the filling procedure can be ended on time.
An alarm is also indicated in case of a possible line disconnection or short circuit in the probe circuit.
In the case of tanks that are filled with an automatically closing nozzle, filling must be ended when the BC-2 gives a visual and acoustic alarm.
With the **Reset Alarm Sound** button, both the integrated acoustic alarm and the **Alarm 2** output can be reset (deactivated). The LED **Alarm**, however, remains in operation. After the liquid level in the tank sinks (the probe is no longer submerged in liquid, e.g. due to withdrawal), the indicator switches after approx. 10s to monitoring mode again.
Operation includes MAINTENANCE.
Before each filling process, a FUNCTION CHECK must be carried out by pressing the **Test** button (including any connected signalling or control devices with actuator).

Observe assembly instructions for adapter BC-1/BC-2 – AS (connection overfill prevention device type BC-2 to road tanker to deactivate the filling process).

TROUBLESHOOTING

Operation mode		Status of				
		Operation LED	**Alarm** LED	**Alarm** buzzer	Output **Alarm 1**	Output **Alarm 2**
Normal operation (Filling level below the probe response height)		ON	OFF	OFF	OK	OK
Alarm Filling level reaches probe response height when filling		ON	ON	ON	ALARM	ALARM
Alarm acknowledged (with button)		ON	ON	OFF	ALARM	OK
Failure of the auxiliary energy		OFF	OFF	OFF	ALARM	OK
Disruption	of the line between the indicator and the probe or of the PTC thermistor	ON	ON*1)	ON	ALARM	ALARM
Short circuit		ON	ON*2)	ON	ALARM	ALARM
supply voltage to low		ON	ON*3)	ON	ALARM	ALARM
The relay outputs **Alarm** 1 and **Alarm 2** are not monitored, i.e. a line disconnection or a short circuit to the connected signalling and control devices is not recognised and indicated by the indicator.						

*1) In case of **disruption**: flashes 2 times every 5 seconds.
After removal of the disruption, the unit returns to the operating state "normal operation" after a short time.

*2) In the event of a **short circuit**: flashes 4 times every 5 seconds.
After the short-circuit has been removed and acknowledged by pressing the **Test** button, the unit returns to the "normal operation" mode after a short time.

*3) In the event of **low supply voltage**: flashes 6 times every 5 seconds.
Once sufficient supply voltage has been restored, he unit returns to the "normal operation" mode after a short time.

FUNCTION CHECK

By pressing the **Test** button, the alarm function in monitoring mode may be checked: Display: red LED **Alarm** and buzzer tone. After the button is released (approx. 10 seconds after pressing), the alarm indication disappears.

NOTICE The probe must not be immersed in the operating medium during this test.

- Remove probe.

MAINTENANCE

⚠DANGER Danger to life due to electric shock!

Electric shock from touching live parts.

✓ Disconnect the power.
✓ Only touch the probe when the display unit is not supplied with power.
✓ Only place under tension after ending all work.

⚠WARNING

Escaping, liquid fuels such as fuel oil:

- are hazardous to the aquatic environment
- are inflammable category 3 liquids with a flash point > 55°C
- can ignite and cause burning
- can cause injury through people falling or slipping

✓ Capture fuels during maintenance work.

⚠CAUTION

Unplug the device if it is not in use and when it is being cleaned!

Can result in short circuit or electric shock.
Do not open the housing when the device is connected to the power supply!
Do not use cleaning agents to clean the device!
Use only a dry cloth to clean the device!

The overfill sensor is maintenance-free if properly ASSEMBLED and OPERATED.
Once a year, all components of the overfill sensor (including all connected signalling or control devices with actuator and signal amplifier) must be checked. It is the responsibility of the plant owner to select the type of test and the intervals for each calendar year.
The test has to be carried out to prove the perfect functioning of the overfill sensor acting in combination with all components. This is guaranteed when the response height is reached during a filling process.
Additionally, the probe must be checked for any dirt and, if necessary, must be cleaned.

⚠CAUTION

Malfunctions and contamination of the probe in the cover due to contaminated operating media!

Proper operation is no longer provided for.

✓ Remove the probe from the tank!*
✓ Perform a visual inspection ➜Sensor must be free!
✓ Carefully clean the inside of the cover with a brush and cleaning agent!
✓ Install the probe into the tank and repeat CONTROL!

*In the case of the probe with the G1 insert, the probe can be withdrawn from the tank and re-inserted easily by removing the locking screw ③ (see page 9).

RESTORATION

If the actions described in MAINTENANCE do not lead to a proper restart and if there is no dimensioning problem, the product must be sent to the manufacturer to be checked. Our warranty does not apply in cases of unauthorised interference.
In case of a constant alarm indication without the probe part coming into contact with liquid, check the connection lines and signal and probe part for disconnection or short circuit and re-assemble if necessary.

DISPOSAL

To protect the environment, our electrical and electronic appliances may not be disposed of along with household waste.
The commercial customer (owner) is obligated to properly dispose of the electronic devices of the “GOK” brand delivered to them at their own expense in accordance with the provisions in the Elektro- und Elektronikgerätegesetz (ElektroG) [Electrical and Electronic Equipment Act] after termination of the use thereof. In this way, GOK Regler- und Armaturen-Gesellschaft mbH & Co. KG is exempt from the obligations under Sec. 10 para. 2 ElektroG and third-party claims connected thereto.
If the commercial customer fails to contractually obligate third parties to whom they forward our electronic devices to assume the disposal obligation and to pass on obligations, this customer shall be obligated to take back the supplied electronic devices at their own expense and to properly dispose of them in accordance with the statutory provisions after termination of the use thereof.
Our registration number for the electrical old appliances register (EAR) is:
WEEE-Reg.-No. DE 78472800.

TECHNICAL DATA

Indicator	
Supply voltage	230V AC; 50-60Hz
Power consumption	4.5VA
Voltage tolerance	+10% / -10%
Protection type	IP54 acc. to EN 60529
Housing	Polycarbonate
Dimensions H x W x D	194 x 130 x 65mm
Sound level of alarm sound:	≥ 70dB(A)
Action	Typ 1.B (according to EN 60730-1)

Probe	
Materials	1.4301 ; 1.405 ; PA (depending on the version)
Installation position:	vertically upright
Voltage:	12V DC
Probe length	Z = 150 to 1000mm
Length of the probe tube diameter	10 mm
Diameter of sensor cover	18 mm
Temperature of the operating media	-25°C to +60°C
Ambient temperature	-20°C to +60°C

The BC-2 is a regulating and control system (RS) of over-voltage category III,
Rated impulse voltage 4000V, contamination degree 2 according to EN 60730-1.

⧈ Protection class type 2

WARRANTY

We guarantee that the product will function as intended and will not leak during the legally specified period. The scope of our warranty is based on Section 8 of our terms and conditions of delivery and payment.

TECHNICAL CHANGES

All the information contained in this assembly and operating manual is the result of product testing and corresponds to the level of knowledge at the time of testing and the relevant legislation and standards at the time of issue. We reserve the right to make technical changes without prior notice. Errors and omissions excepted. All figures are for illustration purposes only and may differ from actual designs.

DECLARATION OF CONFORMITY

You will find the manufacturer's **declaration of conformity** for this product on the website: **https://www.gok.de/konformitaetserklaerungen**

GENERAL BUILDING APPROVAL

You will find the **general building approval** for this product on the website: **www.gok.de/Allgemeine-bauaufsichtliche-Zulassungen.**

INSTALLATION CERTIFICATE FROM SPECIALISED COMPANY	
	• To be kept by system operator! • Important for any warranty claims!
I hereby confirm that the following safety equipment was installed correctly:	❑ **Overfill sensor type BC-2** ❑ **GOK device no.:**
in accordance with the applicable assembly and operating manual. After ASSEMBLY, the safety equipment underwent the start-up and a FUNCTION CHECK. Upon start-up, the safety equipment operated properly. The operator was informed about the operation, care and maintenance of the product in accordance with the assembly and operating manual.	
Specialised company is ►	❑ specialised company according to water law ❑ (electrical installation) company
Operating medium or stored material ►	❑ Waste oil ❑ Diesel fuel ❑ FAME ❑ Urea solution ❑ Fuel oil ❑ Industrial oil ❑ Vegetable oil ❑ Bio fuel oil ❑ Water or oil-water mixtures ❑ Liquid fertiliser (AHL, ASL, HAS) ❑ JGS (liquid manure, semi-liquid manure and silage effluent) ❑ other water-hazardous, non-flammable liquids 1) + 2)
[1)] More detailed description of the operating medium ►	
[2)] To: proof of function from the manufacturer's tests: Immerse the probe in the operating medium to be tested. Leave in a heating cabinet at + 60 °C for48 hours. Then carry out the specified FUNCTION TESTS at ambient temperature. A certificate of the test and the result must be issued.	
Manufacturer: ►	
Fabricate no. ►	
Approval / test mark: ►	
Tank acc. to construction standard ►	
Rated volume in litres: ►	
Maximum admissible level ►	**% (*V/V*)**
Adjusting dimension X = ►	**mm**
Batch number ►	

Installation certificate – page 2

Address of operator	Address of specialised company
Place, date, signature	Place, date, signature, stamp

Recurring FUNCTION CHECK

The safety equipment was subjected to a recurring FUNCTION CHECK and worked correctly at that time.

Place, date	Specialised company (stamp, signature)

For Switzerland, the following must be observed:

The name of the installation company with on-call service and telephone number must be attached to the indicator of the BC-2!

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