

SmartBox 4 BASIC PRO

Electronic remote level gauge for up to four tanks



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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.

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!

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

GENERAL PRODUCT INFORMATION

The electronic tank management system **SmartBox 4 BASIC PRO** can be used for remote monitoring of the liquid operating medium contained for up to four unpressurised tanks. In addition to the registration of tank content and remote data transfer, other functions can be implemented by system enhancements, e. g. temperature measurement.

SmartBox 4 BASIC PRO allows the content of up to 4 tanks to be recorded and monitored remotely.

Because of its modular design, the system can be modified to suit many different applications. The indicated measurements are not calibrated for invoicing.

SmartBox 4 BASIC PRO has a 2-line LCD display, four measuring inputs to connect 4 probes according to the media used and the number of tanks to be monitored.

By default, the measuring probe can be installed with tank connecting threads G1, G1 1/2 or G2.

INTENDED USE

NOTICE Operating media with consideration of the otherwise suitable probe type and accessories, see:



Please comply with the “Level gauge type FSA-W 4-20 mA for SmartBox 1 – 4” assembly and operating manual!



Comply with the “Level probe” assembly and operating manual!



WARNING

Escaping, liquid operating media:

- are hazardous to the aquatic environment
- are inflammable category 1, 2 or 3 liquids
- can ignite and cause burning
- can cause injury through people falling or slipping
- ✓ Capture operating media during maintenance work.



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.



Installation location



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

NOTICE Malfunctions caused by flooding!

The product is not designed for installation in areas prone to flooding or risk areas.

- ✓ Following flooding, the product must be replaced!



INAPPROPRIATE USE

All uses exceeding the concept of intended use:

Display unit:

- changes to the product or parts of the product
- installation in a potentially explosive area

Probe:

- e.g. operation with different operating media
- operation with inflammable operating media of categories 1, 2 or 3 with a flash point $\leq 55^{\circ}\text{C}^{1)}$
- installation in pressurised tanks and containers

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

This product may be installed only by qualified experts. These are personnel who are familiar with setting up, installing, starting up, operating and maintaining this product. Equipment and systems requiring supervision may be operated only by persons aged at least 18, who are physically capable and who have the necessary specialist knowledge or who have been instructed by a competent person. Instruction at regular intervals, but at least once per year, is recommended.

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

ASSEMBLY

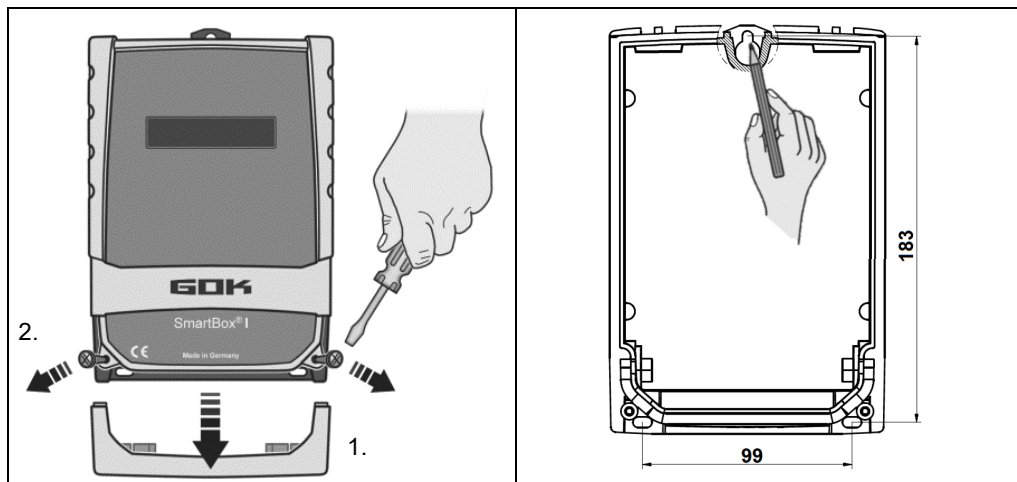
Before assembly, check that the product is complete and has not suffered any damage during transport.

ASSEMBLY must be carried out by a specialised company.



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.



Installation of the display unit: 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 connecting the terminals and setting the unit up, replace the covers.

NOTICE The housing of the display unit is suitable for wall mounting and is connected to the 230 V mains supply. Under normal circumstances, the display unit must be operated with the housing cover closed.

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

Installing the level probe

i See assembly and operating instruction "Level probe".



Installing the probe

i See assembly and operating instruction „FSA-W 4-20 mA level gauge for SmartBox 1 – 4“.



i ELECTRICAL INSTALLATION see corresponding instruction „FSA-W 4-20 mA level gauge for SmartBox 1 – 4“.



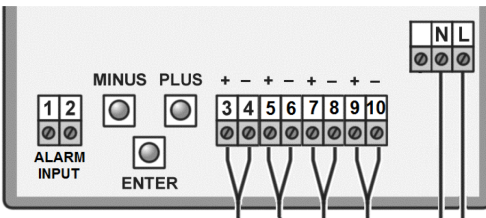
! DANGER May not be used in potentially explosive areas.

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.

Product name	Usage information	Order no.
Level probe 0 up to 250mbar Accuracy class 1%	for non-pressurized tanks with liquid operating medium	28 801 00
Level probe 0 up to 250mbar Accuracy class 0.5%	for non-pressurized storage tanks with liquid operating medium	28 891 10
Mechanical level gauge type FSA-W 4-20 mA Measuring accuracy: $\pm 3\%$	for non-pressurized tanks with liquid operating medium, measurement range: 0 to 2.40m tank height	28 903 00
Cable junction box IP66, with pressure equalization	To extend the probe cable - e. g. in the dome	28 857 00

ELECTRICAL INSTALLATION



Connection of supply voltage:

Voltage: 230V AC 50 Hz
Connection: Terminals **N + L** to the display unit (cable not included in the delivery)

Connection line between indicator and probe unit

Voltage	Probe supply 20V DC			
Connection	Probe connection cable to terminals	+	–	
SmartBox 4 BASIC PRO	Probe 1 - terminals	3	4	→ Tank 1
	Probe 2 - terminals	5	6	→ Tank 2
	Probe 3 - terminals	7	8	→ Tank 3
	Probe 4 - terminals	9	10	→ Tank 4

WARNING Excess voltage!

Damage to components and device defect.

- ✓ No 230 V AC connections may be made to terminals „ALARM INPUT 1 + 2 or probe input terminals 3 + 4, 5 + 6, 7 + 8 und 9 + 10!

WARNING Activating power supply:

Keep away from the area of the 230 V terminal!



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.



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

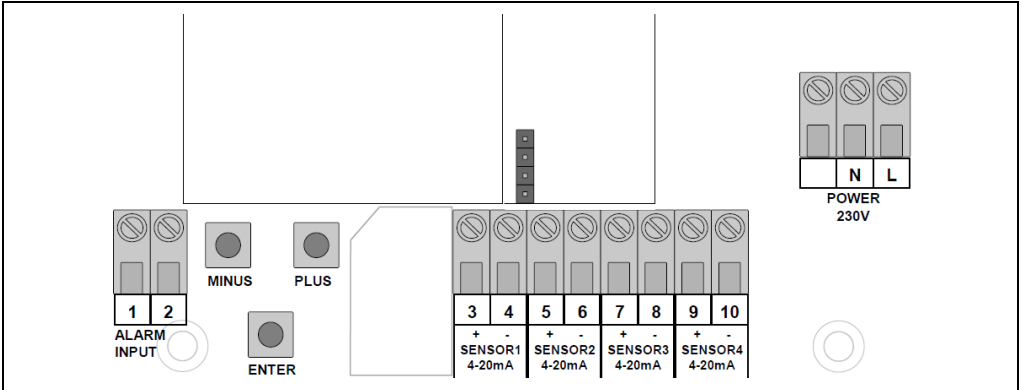
If you have any doubts that the device can be operated safely, do not operate it. Your safety may be adversely affected by the device, if for example:

- 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

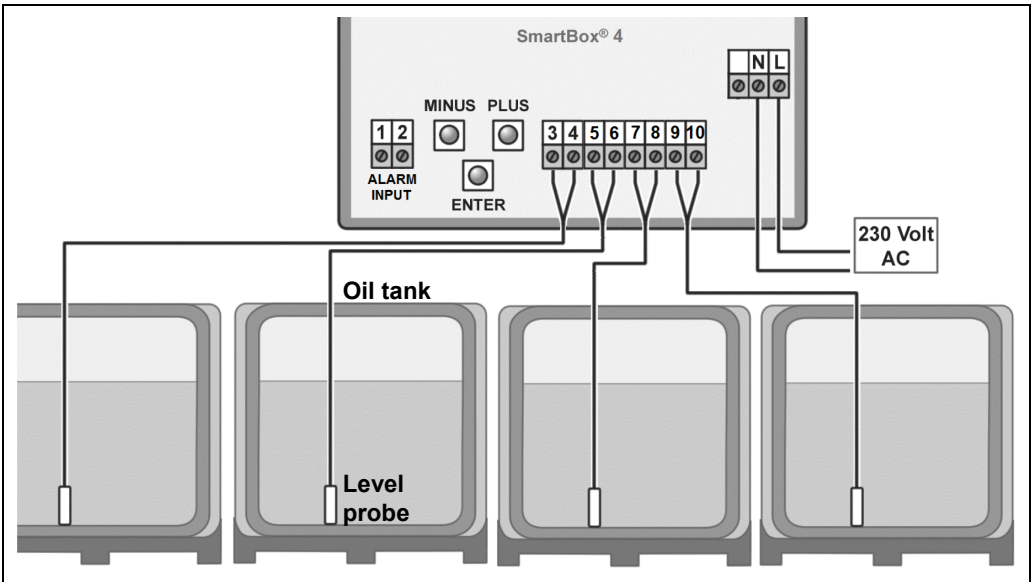


Observe the safety precautions and the assembly and operating instructions of connected devices.

SmartBox 4 BASIC PRO



Fuel oil tank - wiring example SmartBox 4 PRO



START-UP

Operation elements and display

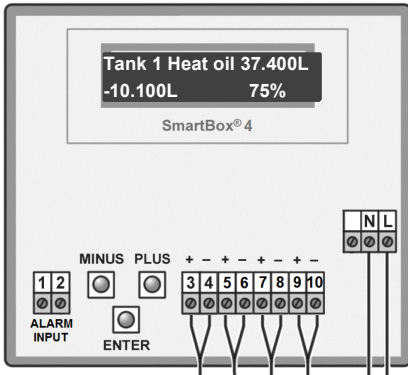
The device is adjusted once when it is put into operation.

After start-up the device operates in display mode with the top closed.

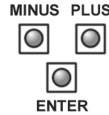
The display is a two-line LCD display with 2 x 16 characters.

The display has blue background lighting for best readability in all lighting conditions.

SmartBox 4 BASIC PRO has the following display:



The device is adjusted via the three small blue buttons:



These are located on the motherboard between the terminals.

Choosing the language (German, English, French or Spanish) in menu step "18.Language+Names".

PROGRAMMING



⚠ WARNING Overfilling of the tank due to incorrect entry values.

Operating media may leak. These:

- are hazardous to water,
 - are category 1,2 and 3 inflammable liquids,
 - can ignite and cause burning,
 - may cause falling injuries due to slipping.
- ✓ Enter these values with care!

Programming the level gauge

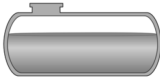
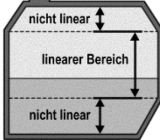
Before PROGRAMMING, you need to ascertain the tank data and enter the values into the right column (Input value) of the following table. Then, enter the values for the individual entry steps.

Setting a parameter:	Press [ENTER] to open setup mode. Select the desired setting parameter via [PLUS]. Press [ENTER] to call up the value selection for the parameter. Set the value with [MINUS]/[PLUS], press [ENTER] to save.
Quitting the setup mode:	You can quit the setup mode at any time. Select "Exit" and press [ENTER] → to go back to the standard display mode.



The entry values are also retained in the event of the failure of the supply voltage.

Menu	Input function			Input value
Tank: 1	Select the tank (tank: 1 to tank: 4) to enter the corresponding values. (This step is not displayed if only one probe is connected to SmartBox 4 BASIC PRO.)			Tank: _____ Tank: _____ Tank: _____ Tank: _____
0.Exit	Press [ENTER] to return to display mode			
1.Probe	Select probe measuring range see type label of the probe - default setting 250mbar			_____mbar
	Standard probe	max. tank height for		
		fuel oil	water	
	100mbar	1.20 m	1.00 m	
	150mbar	1.80 m	1.50 m	
	160mbar	1.90 m	1.60 m	
	200mbar	2.40 m	2.00 m	
	250mbar	2.90 m	2.50 m	
	400mbar	4.70 m	4.00 m	
	500mbar	6.00 m	5.00 m	
	1.000mbar	12.00 m	10.00 m	
	2.000mbar	24.00 m	20.00 m	
	3.000mbar	36.00 m	30.00 m	
	5.000mbar	60.00 m	50.00 m	
Set mbar				
2.Liquid	Select the medium			_____kg/m³
	Medium	Density value kg/m³ (15°C)		
	Fuel oil	845 kg/m³ - default setting		
	Water	999 kg/m³		
	Diesel	830 kg/m³		
	Biodiesel	880 kg/m³		
	RME, FAME	880 kg/m³		
	Rape oil	915 kg/m³		
	Palm oil	910 kg/m³		
	Motor oil	865 kg/m³		
	AdBlue	1090 kg/m³		
	Premium petrol	750 kg/m³		
	Premium E10	750 kg/m³		
	Density value	Enter a special density value with different measuring range		
If the density of the stored medium is unknown, the reference height can be entered in menu item “10.Trim height”				

Menu	Input function	Input value
3.Tank shape	Select Tank shape with [Enter]	
Linear	Default setting linear tank, rectangular tanks, vertical cylinders, basement-welded steel tanks.	
Cylinder horizontal	cylindrical tank with arched ends horizontal tanks, tubular tanks typical shape for steel outdoor or buried tanks.	
Ball-shaped	spherical tank; buried tanks with spherical basic shape; frequently plastic buried tank (GRP).	
Oval	oval basement tanks; typical shape of GRP tanks and single-walled sheet metal tanks.	
Convex	Plastic battery tanks, convex , slightly convex shape, alternative to linear.	
Concave	Plastic battery tanks, concave , slightly concave shape, alternative to linear.	
Holed plastic	Plastic tank with recess, plastic tank with a large recess (hollow) in the center (without tape bindings).	
Tube w. flat ends	Lying cylindrical tank with flat ends, tube segment with straight end plates. Typical tank shape for smaller diesel tanks.	
Metal oil tanks	Plate tank or plate tank battery linear side walls, with semicircular arc top and bottom.	
Bearing chart	Enter a special tank shape from existing bearing chart. For this purpose, up to 16 value pairs (height in cm + volume in L) can be entered. Before the value pairs are entered, the values for the tank volumes must be entered in in steps "4.Tank volume" and "5. Internal tank height".	
Index: 0 → 0 cm → 0 L → Specified value pair (do not have to be entered).		
Index: 1 → xxx.x cm → xxxx L first value pair entered		
Index: 2 → . cm → L		
Index: 3 → . cm → L		
max. → max. inside height of tank → the max. tank volume menu		
Index:16→ max. cm → max. L step "5.Internal tank height" is allocated automatically and does not have to be entered.		
Not all 15 intermediate value pairs (Index: 1 - 15) have to be entered. A linear interpolation is made between 2 interpolation values. For a linear range of the tank geometry it is sufficient to enter a lower and an upper value pair.		

Menu	Input function		Input value
4.Tank volume	Adjust the tank volume with [+] / [-] (100%). The default setting is 0L. The value must be set.  Please see a volume table for the highest value, if available. For a 100m³ cyl. buried tank, this may for example be the value 100600litres.		_____ L
5.Tank height	Enter inner tank height in millimetres: e. g.: 249cm (max. value = 999,9cm) (height without dome)  Please see a volume table for the highest value, if available. For a 100m³ cyl. buried tank, this may for example be the value 288cm.		_____ mm
5b.Filling limit	Set the filling limit of the tank with [+] / [-]: With fuel oil tanks, that is the shut-off point of the limit indicator. The default setting is 95%. e.g. 95%=237cm. For tanks which can be filled to the very top (e.g. water tanks), it is necessary to set the highest value of 99%.		_____ %
6.Show Tanks → SmartBox 4 Pro	Single/Detailed		The tanks are displayed cyclically one after the other, with L, % and, if applicable, temperature. With display change.
	Collective		The (eg. L) values of tanks 1 to 4 are displayed (depending on the number of connected probes) Without display change.
	Percent	Yes No	Select Yes → display change values (eg. in L) Tank 1 – 4 → total capacity display + percent values
7.+8.Exit	Press Enter to return to display mode		

After performing entry steps 1 - 7, the programming process is completed.

After confirmation of step "8.Exit", the device automatically returns to default display mode; the current tank content is shown in the display.

Special functions are available under entry steps 9 to 24 (see page 13).

After the end of setup, do not forget to replace the housing cover!

After completing the ASSEMBLY and PROGRAMMING, carrying out a function check is recommended (FUNCTION CHECK section).

EXAMPLE FOR PROGRAMMING

Example: 4 Basement tanks for 15.000 litres fuel oil, litre display, linear steel tank

Inner height 220cm, (fill level tank 1 = 125cm)

SmartBox 4 BASIC PRO with 4 standard probes 0 - 250mbar

Menü-Schritt	Eingaben / Auswahl
Tank number:	1 (2, 3, 4)
1.Measure probe	250mbar
2.Liquid	Heat.oil
3.Tank shape	Linear
4.Tank volume	15.000L (set with [+] / [-] keys)
5.Tank height	220.0cm (set with [+] / [-] keys)
5b.Filling limit	95%=209cm (set with [+] / [-] keys)
6.View tanks → Single/detailed	→ Collective → Percents: Yes (L → Σ → % are displayed alternately)
7.Exit → press [Enter] to see the indication	8.500L 8.520L → Σ 34.120  8.540L 8.560L 57% 57% 57% 57%
→ For Tank 2-4 repeat the entry with the correct value in the same way as with tank1	

Tanks with inner shell

For tanks with an inner shell (e.g. cylindrical horizontal or tanks welded together in the basement) the data in steps "4.Tank volume" and "5.Internal tank height" must be corrected.

Examples:

- Wall thickness of inner casing 0.5cm → reduce value for inner height by approx. 1cm, reduce volume for 10m³ by 1.3%, for 20m³ by 1%, for 50m³ by 0.8% and for 100m³ by 0.7%.
- Wall thickness of inner casing 2cm → reduce value for inner height by approx. 4cm, reduce volume for 10m³ by 5%, for 20m³ by 4%, for 50m³ by 3% and for 100m³ by 2.5%.

NOTES ON PROGRAMMING

Menu	Setting	Description
9.Offset probe	from:	• probe zero point, electric • position / Distance from base • unusable capacity that is not to be displayed
	ESC	Exit the menu
	Offset calibr.	New measurement of probe zero point (electric)  Lift <u>level probe</u> out of the liquid beforehand.
	Probe bottom gap	Distance: xcm; normal reference is x = 0cm, max = 99 cm
	Bottom deadstock	Suction position: ycm Normal reference is 0cm = complete capacity. y > 0cm means corresponding unusable capacity.
	Default values	Complete reset of all parameters of menu step 9 to the <u>original delivery status</u> .

Menu	Setting	Description
10.Trim height	xxx.x cm	Entry option for the reference height for the 2-point measurement, for other probe measurement range or for an unknown density. Subtract 1.0 cm from the actual measured level and enter this value.
	Calibrate:No Calibrate:Yes	If activated (Yes), the display in menu steps 1+2 is then "by comparison". NOTICE If this is entered with an almost empty tank, it is recommended that you make a correction the next time it is filled.
11.Exit		Press [Enter] to return to display mode
12.Unit	L default setting m ³ % m kg IG UG t mbar kPa	liter: cubic meters: percent: meter: kilogram: imperial Gallon: US liquid gallon: ton: millibar: kilopascals: 999900L 2.50m³ 99.50% 2.50m 999900kg 219750IG 263900UG 2.50t 500mbar 50kPa
13.Rounding	Automatically Without rounding 20L 50L,100L, 200L,500L,1.000L	Default settings minimal increments Rounding increments in relation to the set volume set with [+]/ [-] keys
14.Exit		Back to display mode
15.Exit		Back to display mode
16.Delete tank	ESC	Exit the menu
	Delete Tank n	Delete the registered Tank
17.Input/ Output	Alarm-In →	Sets the function of the alarm contact input
	Closing	Closer alarm. Input closed → Alarm
	Opening	Opener alarm. Input contact opens → Alarm
	Deactiv	 Sets the alarm input functionless
	Data-Out →	Defines the data output on the output adapter slot
	Tank: 1 1-4	For data output a selection can be made between • Output single tank 1, 2, 3 or 4 → for analogue adapter • Output "1-4" → all tanks are output sequentially → via digital slot-in adapter – e.g. H-Box
17b. H-Protocol	Data output: Deactiv Data: Liter Data: Level	Data output to H-Box (only with DTM-2): • Deaktiv • Output in liter • Output in level
17c. M-Bus	Adr. 99 (default setting)	Plug in M-Bus output adapter, then define M-Bus address of the device (device addresses must not collide)

Menu	Setting	Description
18.Language	Language:	German, English, French, Spain [+]/ [-]/ [Enter]
	Names:	ESC Name Tank 1: Suggested name → Letters can be changed with [+]/ [-]/ [Enter] Name Alarm → Letters can be changed with [+]/ [-]/ [Enter] [Enter] back to display mode
19.Exit		
20.LCD display	Contrast: 24	Set the contrast of the LCD display
21.Device info		Displays information about: Software-version: V8.00 (z. B.) Serial-number: Tank 1: SN=1234 (z. B.) Offset+Gain: X0=4.05mA B=1268 (for Tank 1)
22.Test current		Test function for the current mA value of the probe : ADC: 7400=11.40 mA If level probe is not submerged, the value should be close to 4 mA. Tolerance range is 3.8 - 4,2 mA.
23.Exit		Back to display mode
24.Reset	ESC	Reset the device software: Exit this function without executing it.
	Restart	Initialisation. The device software restarts and keeps all device settings.
	Factory settings	Complete reset of all parameters to the original delivery status.
26.Exit		Back to display mode

OPERATION

The product requires no operation while it is running.

FUNCTION CHECK / MAINTENANCE

We recommend that you check the displayed litre values once per year to make sure that they are correct.

For a simple check, pull the level probe up by its cable so that it hangs above the liquid.

In this status the display device should show 0 litres (+ tolerance).

The probe signal can be checked with menu step "22. Test Current"

At 0cm fill level → approx. 3.8 – 4.2mA.

At 1m water column → approx. 9 to 11mA (level probe standard measuring range 250mbar)

In the event of a considerable deviation, we recommend a replacement. → New probe.

New probe/ replacement of the operating medium

If the installation of a new probe is required and/or a change in the operating medium takes place, then firstly, all of the "standard values" under menu step "9th zero point probe" must be reset to the **factory setting!**

It is also necessary to check, and if required, correct all further set values.

TROUBLESHOOTING

Error code	Significance
Error E1	The set value is invalid
Error E2	Measured value too small ($I < 3.7\text{mA}$ → probe defective)
Error E3	Measured value too great for zero point calibration (probe must not be immersed)
Error E4	Measured value not plausible. Check menu item "9.Offset probe"
Error E5	Set height is more than the height of the tank. (incorrect entry menu step 10)
Error E6	The current measured value is too low as a reference point. The probe must be submerged. The set height (menu step 10) is too high (the measured value is too low) Check menu item "9. Offset probe". Otherwise, probe fault.
Error E7	The current measured value is too low in relation to the set tank height or to the tank volume. The probe must be submerged.
Error E8	Measured value (probe current) is too high - check electrical connection and measuring range of the probe, switch power supply off and on again. Check menu settings steps 1 to 5. If necessary, Check menu step "9.Offset probe". Otherwise, probe fault.
Error E9	Probe current = 0mA - no signal current. The probe cable is poled wrongly or interrupted; check cable extension, reconnect if necessary.
Error E10	Calibration error. Disconnect the display device from the power supply, wait 5s and then reconnect. Otherwise, probe fault.
Error E11	⚠ CAUTION The liquid level in the tank is actually too low for an exact measurement. You can still press [Enter] to confirm and continue.

RESTORATION

If the actions described in TROUBLESHOOTING 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 repeated errors or alarm messages (relay output) while the tank content does not reach / remains below the set fill level alarm threshold at the probe element, check the connection line of the signal and probe element for breakage or short-circuit, re-install if necessary.

DISPOSAL



To protect the environment, our electrical and electronic appliances may not be disposed of along with household waste.

At the end of its lifespan, each end user is obligated to pass old appliances to a district or area collection point, separate from household waste. This ensures that old appliances are disposed of properly and negative effects on the environment are avoided.

Our registration number for the electrical old appliances register (EAR) is: WEEE-Reg.-No. DE 78472800.

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.

CERTIFICATE

Our management system is certified according to ISO 9001 and ISO 14001 see:

www.gok.de/qualitaets-und-umweltmanagementsystem.



TECHNICAL DATA

Indicator	
Action	Typ 1.B (according to EN 60730-1)
contamination degree	2 (according to EN 60730-1)
Rated impulse voltage	4000V
Supply voltage	230V AC 50 Hz
Power input	max. 4VA
Measuring input	4 to 20 mA; $U_0 = 20V$
Switching voltage	max. 250V AC
Switching current	 max. 3,5A
Dimensions W/H/D in mm	194 x 130 x 65mm
Ambient temperature	-10°C to +50°C
Housing	Polycarbonat (PC)
Analog output	0 to 5V DC; 4 to 20mA
Resolution	12 Bit
Degree of protection	IP54 acc. to EN 60529
Level probe / Standard probe	
Operating voltage	20V DC
Material	V4A; POM; FPM; PUR
Accuracy	± 1%
Standard version	250mbar
Installation position	vertically suspended, or horizontally supine
Ambiente temperature operating media	-10°C to +50°C
connection cable	6m
Length of standard probe	without cable: 97mm; Diameter of probe: 22mm
Degree of protection	IP68 acc. to EN 60529