

VOTRONIC

Installation and Operating Manual

Tank Electrode 20 K-WC Tank Height 12 - 24 cm, 12 V and 24 V Order-No. 5555

The tank transmitter had been designed for precise level measuring of the feces tank cassette in campers, caravans and boats, thus allowing foresight planning of the disposal.

Measurement of the level is effected fully-automatically without mechanically moving parts according to the capacitive method of measurement, and it is transferred to the display unit via a three-core cable with plug-type connector.

The electronic system is completely sealed and water-tight (IP67), and it is suitable for heavy-duty operation of flushing the toilet cassette.

Tank measuring sensor, suitable and required for VOTRONIC tank displays, 1 piece per tank:

Tank Display Units:

• Sewage Water Tank Display S	Order No. 12 V	Order No. 24 V
• Feces Tank Display S	5313	5313
• Info Panel Pro	5315	5315
• VOTRONIC VBS 2 BUS System	5330	6330
• VOTRONIC VPC System	All Types	All Types
• Previous VOTRONIC Tank Displays since 1987	All Types	All Types



For remote level measurement the **Tank Electrode K-WC** is installed directly at the cassette. It is suitable for:

- Fresh water (if applicable, please observe the Guidelines for Drinking-Water Quality DIN 2001-2)
- Sewage water, grey water
- Feces-Sewage Water
- Plastic tanks, any material
- Metal tanks (aluminium, steel, stainless steel, etc.)
- Adjustable to tank heights from 12 cm to 24 cm.

Functioning:

The level in the tank is measured capacitively. The insulated stick (probe) and the surrounding water form a kind of "capacitor", the value of which is growing with the level, and which is measured by the electronic system. The contact to the water as "antipole" is effected by a stainless steel stick.

Brief Instruction:

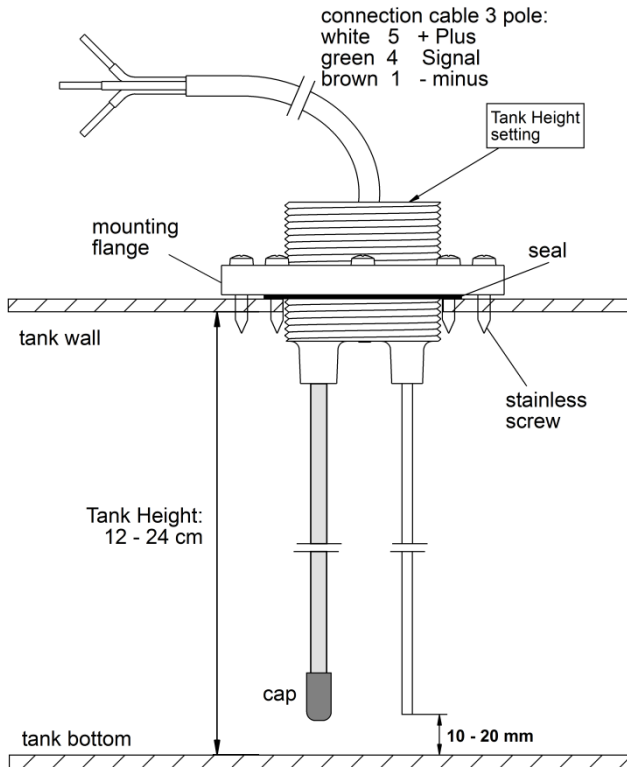
1. Produce a mounting hole at the tank with \varnothing 38 mm (hole saw) and burr the hole.
2. Measure the clear tank height inside and set it at the scale.
3. Cut both measuring sticks to the measured length observing a clearance of 10 - 20 mm to tank bottom).
4. Reinsert the insulating cap on the insulated stick (burr it and observe the tightness).
5. Insert the delivered sealing, insert the tank transmitter from above into the mounting hole, insert the mounting ring and fasten it using the enclosed 8 stainless steel screws.
6. Connect the delivered 3-pole tip jack to the display unit and install it at an easily accessible location in the vehicle's mounting slot.
7. Insert the delivered, self-adhesive holding clip for the connector at a suitable location on the cassette (transport).
8. Ready for start-up.

Preliminary Installation:

The tank electrode K-WC is designed for vertical installation at the tank top.

The installation place with inserted cassette should be chosen at the topmost location, mounting hole \varnothing 38 mm.

Mounting Plan



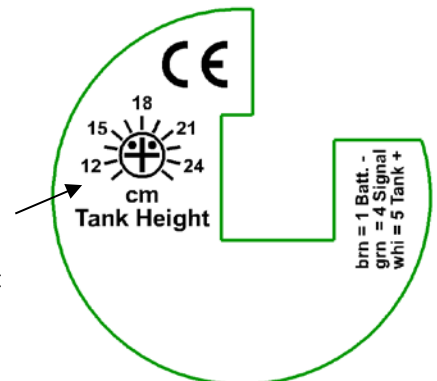
Now measure the tank height through the mounting hole (folding rule or similar) and shorten both stick probes to identical height (metal saw, strong side cutter, bolt cutter).

It is important, that a **clearance** of at least **10-20 mm** is left between tank bottom and probe ends, which is required because of the up-and-down **movements** of the tank bottom and of the tank top during driving or formation of sludge etc. Burr the sticks, and reinsert the insulating cap on the stick probe being insulated by the plastic pipe.

A thorough sealing between the insulating cap and the plastic pipe is decisive for proper operation of the tank electrode K-WC!

How to set the adjuster tank height to "FULL" 100 %:

Example: The scale indicates the value 18 cm tank height



Configuration of Connections:

Colour	Connection Display	Function	Connection Plug/Jack
White	5 = Tank + (Plus)	+ Operating Voltage, from Display	3
Green	4 = Tank Signal	Measuring Signal to Display Unit, 0...2.2 V	2
Brown	1 = Battery -	- Operating Voltage (Minus) or Body Ground	1

Recommended cable cross-section for all cables: **0.5-1 mm²**

The tank electrode K-WC is protected against any kind of reverse battery. It is recommendable to use connection cables of different colours to avoid malfunctions due to mixed up connections.

Install the delivered 3-pole tip jack with inserted cassette at an easily accessible location in the vehicle's mounting slot and establish the connections (screwable) to the display units.

As soon as the display unit has been installed according to the operating manual, the battery can be connected.

Start-up and Adjustment:

Set the measured tank height at the adjuster "Tank Height" on the display for 100 % "FULL".

The functions of the display can now be tested with several water levels in the cassette or in a bucket being filled with water by withdrawing the tank electrode.

Fine adjustment of the set water depth can be corrected or changed at any time with full tank.

Final Installation:

Insert the delivered packing ring into the mounting hole and insert the tank transmitter from above into the mounting hole, so that the packing ring is placed between the cassette and the casing flange of the transmitter. Now insert the mounting ring and screw it down to the cassette using the 8 delivered stainless steel screws.

While handling the cassette, the connector plug is held and thus protected by the delivered clip. Place the self-adhesive holding clip at a suitable location on the cassette.

In case of underfloor installation of the tank below the vehicle, the adjuster must be protected with a permanently elastic sealant against aggressive environmental influences (de-icing salt etc.).

Tips and Tricks:

No reaction of display:

a. Wire 4 = Tank Signal Withdraw by way of trial and direct it to connection "5": (Plus):

The display should increase to 100%! **Otherwise:**

- b. Battery connection or fuse defective → check!
- c. Wire 5 = Tank Plus interrupted → check!
- d. Wire 4 = Tank Signal: Short-circuit to Minus / Ground → check!

Constant display of 100 % on the display unit:

- a. Wire 4 = Tank Signal Withdraw it and direct it to ground: Display must be empty!
- b. Wire 1 = Battery Minus / Ground is interrupted or does not have any contact due to paint residues at the body → check!
- c. The insulated stick probe is contacting water: The silicone cap is leaky or dropped off, the insulation of the cable probe is damaged → check!

Indication Errors:

- a. Furring of the insulated stick probe by stuck solids in the feces tanks and sewage water tanks → rinse tank!



Declaration of Conformity:

In accordance with the provisions of the statutory requirements and the relevant directives, Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 this product complies with the following standards or normative documents:

BS EN55014-1; BS EN61000-6-1; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-4; BS EN62368-1; BS EN50498, BS EN IEC 63000.



Recycling:

At the end of its useful life, you can send us this device for professional disposal:

You can find more information about this on our website at www.votronic.de/recycling



Safety Regulations and Appropriate Application:

The tank measuring sensor has been designed according to the valid safety regulations.

Application is only allowed, if the unit is in technically faultless condition, with protected board battery voltage of the indicated value and only for measurement of water or hydrous media.

- **Never use the unit in locations where the risk of gas or dust explosion exists!**
- The unit is to be disconnected from any connection prior to execution of electrically welding or work on the electric system.
- Cables are always to be laid in such a way that damage is excluded. Observe to fasten them tightly.
- Never lay 12 V (24 V) cables and 230 V mains supply cables into the same cable conduit (empty conduit).
- Check live cables or leads periodically for insulation faults, points of break or loosened connections. Occurring defects must be remedied immediately.
- If the user is not able to draw from the manual, which characteristic values are valid for a unit or which regulations are to be observed, a specialist is to be consulted.
- The user/buyer is obliged to observe any construction and safety regulations.
- The unit is not equipped with parts, which can be replaced by the user.
- The manufacturer's warranty is 60 months from delivery.
- Improper use, operation outside the technical specifications, improper operation or third-party intervention will void the warranty or manufacturer's guarantee. No liability is accepted for any resulting damage. The exclusion of liability also extends to any services provided by third parties that were not commissioned by us in writing. Services exclusively provided by VOTRONIC Elektronik-Systeme GmbH, Lauterbach.



Declaration of Conformity:

In accordance with the provisions of Directives 2014/35/EU, 2014/30/EU, 2009/19/EC, this product complies with the following standards or normative documents: EN55014-1; EN61000-6-1; EN61000-4-2; EN61000-4-3; EN61000-4-4; EN62368-1; EN50498.



The product must not be disposed of in the household waste.



The product is RoHS compliant. It complies with the directive 2015/863/EU for Reduction of Hazardous Substances in electrical and electronic equipment.



Technical Data:

Operating Voltage:	12 V/24 V-DC Battery voltage (of the display)
Operating Voltage Range:	7...32 V
Current Consumption:	4...7 mA
Signal Output 0...100 %	0...2.2 V,
Measuring Method:	capacitive, suitable for short-time and continuous operation
Tank Height, adjustable:	12...24 cm
Mounting Hole:	38 mm
Flange Diameter:	46.5 mm
Length Connection Cable:	approx. 75 cm

Delivery Scope:

1 Tank Electrode 20 K-WC	1 3-Pole Tip Jack with Locking Device
1 Packing Washer	1 Self-adhesive Holding Clip for Connector
1 Mounting Ring	1 Installing and Operating Manual
8 Stainless Steel Screws 2.9 x 13 mm	

Subject to misprints, errors and technical modification without notice.

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