

# Q4000 - Level Indicator for Water Tanks

## (Remote Sensing ~100 m)

Battery-powered level indicator for measuring the liquid level of water tanks such as rainwater, sewage chambers or slurry tanks from a distance of up to 100 m. After touching the button, indication occurs via 10 LEDs in steps of 10% each (indication 10 - 100%). The device is earmarked for wall assembly (131 x 78 x 36 mm) and requires two AA batteries.

Connection is made via terminals inside the device. A normal signal cable (telephone cable, control wire or the like) with at least 11 cores is necessary to connect your water tank with the level indicator (cable is not included). You may also employ cables with fewer cores, but then it will not be possible to use all indication steps (e.g. with 8 cores only 7 LED indication steps may be used, which is, however, often sufficient).

### ***Extension in case of bigger measurements:***

This module is normally to be used for measuring water levels in rain containers, water containers, etc. Our clients have asked us if the module can be used to measure bigger containers like for example a dwell, where the separation of the measurement electrodes is of about 5 meters. Due to the big separation between the higher and the lower electrode in this kind of measurements (about 40 m), the intensity of the measurement display (LED's) can become weak. In order to avoid this, we recommend installing the electrodes with a parallel long tube for all of the electrodes.

**Use as directed:** To check the water level in tanks and barrels.

***Assembly instructions:*** The device is to be opened with 4 screws and the 2 AA-batteries have to be inserted into the battery holder. Please use good batteries (e.g. alkaline cells). The device merely requires electric current when the push-button is pushed for reading and so the batteries may last up to 3 years. The device may be mounted at a wall by using the assembly angles at the case. The cable towards your water tank has to be connected to the strip terminal inside the device according to the drawing. The core with the 'earth connection' is the terminal with the earth symbol, which is below. The end of this core has to be fastened right at the bottom of the water tank (in the residual water). Then all other cores have to be arranged as per the drawing, i.e. in such a manner as you want to have the indication: The LED '10%' lights up if the end of the cable core '10%' comes into contact with the water. The LED '20%' lights up if the core at terminal '20%' comes into contact with water. The same happens with the other connecting terminals. You have to arrange the bare core ends in the water tank in that manner as you want to have the appropriate indication. When arranging the core '50%' in the centre of the tank height, the indication '50%' lights up if this core end in the tank is still in contact with water. So the appropriate LED always lights up if the bare end of the core touches water. Important: Strip bare the ends of the cables in the water tank about 1 - 3 cm. Tinned cable should be preferred as it does not oxidise that easily in the rainwater tank. The cable ends must not touch each other mechanically in the water tank or get into contact with each other via a sheet metal. The contact may only take place via the water. It also works if you want to measure the filling level of slurry tanks or clarification tanks. In this case, however, you have to use metals as probes in the tank, which will not be corroded by the liquid.

These may be e.g. electrodes of titanium or gold-plated electrodes. The electrodes don't have to be big (surface < 0.5 cm<sup>2</sup>). For this purpose, small screws of titanium or gold-plated iron screws are suitable for slurry tanks. However, please see to it that the electrical connection between the titanium or gold-plated screw is insulated 'acid proof' (varnish covering of the junction or the like), so that the acid won't corrode the copper line.

**Setting into operation:** Push the button 'level indication' of the device. The green LED and all other LEDs that are in contact with the water in the tank must light up now. The green LED indicates that the battery is still all right.

**Functional principle:** All LED inputs, which are connected with 'earth' (first terminal left) via the water, control through and make the appropriate LED light up.

**ATTENTION:** The device is not suitable for combustible liquids (oil, fuel, thinner, diesel fuel, etc.)!!!

### ***Technical data:***

- Operating voltage: 3 V (2 AA batteries, not attached)
- Display: Max. 10 LEDs and 1 LED for the battery control
- Measuring points in the water tank: 1 - 10, switchable
- Current consumption during measurement (button is pushed): Max. 120 mA if all LEDs light up
- Max. cable length between the level indicator and water tank: 100 m
- Required cable to the water tank: telephone cable or similar cable with at least 11 cores
- Measuring current at the water tank probe: Approx. 50 µA per channel
- Dimensions: Approx. 131 x 78 x 36 mm

**WARNING!** Some devices have next to the ground connection an additional earth connection. This is applied if you use the screened cable (for grounding the shielding). This is necessary if the measurement results are disturbed by strong electromagnetic disturbance.

**Disposal:** This device may not be disposed with the household waste. It has to be disposed at municipal collecting points for television sets, computers, etc.

