



Groundwater level measurement
OTT KL 010 – Portable contact gauges
for measuring depth, temperature, and
conductivity

OTT KL 010

Contact gauges for measuring
groundwater level

The OTT KL 010 series contact gauges are designed to perform both manual data acquisition (target date measurements) and calibration and control measurements at groundwater level stations using dataloggers. These units have been tried and tested for years and are primarily used for measuring depths. Additionally, the KL 010 TM and KL 010 TCM model versions can be used for measuring the water temperature or electrical conductivity, respectively.

All models feature a both appropriate and rugged design. The smoothly running measuring tape drum is held by a sturdy frame and can be easily transported. For measuring, the probe at the heavy-duty measuring tape is lowered down to groundwater level – and even lower for profile measurements – and can easily be retracted using the hand crank. According to their intended use, the individual probes are not only precise, but also durable and robust.

The different model variants are available with different measuring tape lengths.

Quantitative
Hydrology

Portable, simple, and handy – Use OTT contact gauges to measure groundwater levels

OTT KL 010

The KL 010 contact gauge is particularly designed to be used for depth measurements. Its operating principle is as simple as ingenious: Using the hand crank, the measuring probe at the end of the heavy-duty measuring tape is lowered into an observation well or into a well-head shaft. As soon as the probe tip touches the water level, the probe detects a change in conductivity: A signal will sound and the signal lamp at the side of the unit will illuminate. The distance between reference level and water surface can now be read at the measuring tape.

Features and benefits

- Precisely operating probe made of high-quality material
- Slim design – fits into observation wells from 1" on
- Optional: Ground contact for measuring the depth of observation wells or bore holes
- Heavy-duty measuring tape with easy to read cm, dm, and m scale
- Smoothly running, lockable measuring tape and drum in sturdy frame
- Convenient handle for easy transport

Applications

- Depth measurements in observation wells, wellhead shafts, or tanks
- Control measurements in pumping tests
- Optional: Depth measurements in wellhead shafts, observation wells or bore holes using a ground contact
- For depths from 15 m down to 750 m



OTT KL 010

OTT KL 010 TM

Thanks to a built-in temperature sensor, the KL 010 TM contact gauge can also be used for measuring the water temperature. As soon as the measuring probe dips into the water, a signal will sound and the temperature measured will be clearly shown on the display located at the side of the unit. Further lowering the probe will allow temperature profiles to be created.

Features and benefits

- Signal LED and large, easy to read display
- Battery charge check button
- No recalibration required

Applications

- Depth and temperature measurements
- Create temperature profiles, also in surface waters
- Verification of local flows in groundwater
- Checking the impact on the groundwater temperature caused by human activities
- For depths from 25 m down to 500 m



OTT KL 010 TM
(design 1)



Precision for field use in rough environments

OTT KL 010 TCM

In addition to depth and temperature, the KL 010 TCM unit measures the electrical conductivity that is correlated to the ion concentration of the water. From conductivity, the built-in controller calculates the total dissolved solids content (TDS).

Temperature, conductivity, and TDS values are continuously shown on the backlit display. When required, the TDS value can be hidden.

Features and benefits

- Precision instrument for field use in rough environments
- High-intensity display including backlight
- Battery charge state shown on display after unit power-on
- Adjustable water level sensor sensibility, depending on the ion content of the water
- Automatic or individually adjustable temperature compensation allows the measurements to be compared
- Depending on the particular station, the factor used for TDS calculation can be set with regard to the medium affecting the measurement, e.g. seawater

Applications


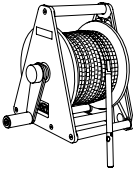
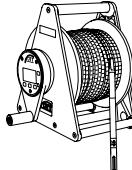
- Depth, temperature, and conductivity measurements
- Create temperature and conductivity profiles, also in surface waters
- Check for salt water intrusion in regions that are located closely to the shoreline
- Indicative measurements to check for pollutant immision
- Instantaneous measurements for suspected pollution, also in smaller waters
- For depths from 25 m down to 500 m



OTT KL 010 TCM
(design 1)

Various designs

OTT contact gauges are available in different designs. Depending on the type and on the measuring tape length required, the drum is located in an open, steel back reinforced aluminium casting rack or in a sturdy supporting frame made of high-strength special plastic. Electronics and display are incorporated in the drum (design no. 1) or hand crank (design no. 2). The crank can be moved freely and is absolutely not interfered by cables or other disturbing elements. Both designs are extremely robust, durable and easy to transport.

	Design 1 incl. display (KL 010 TM)	Design 2 w/o Display	Design 2 incl. Display (KL 010 TCM)
			
KL 010 measuring tape lengths	—	15/25/30/50/80/100 150/200/250/300/500/750	—
KL 010 TM measuring tape lengths	25/50/100	—	150/200/250/300/500
KL 010 TCM measuring tape lengths	30/50/100	—	150/200/250/500

A must for each observation well: the top cap

To safely plug observation wells, OTT top caps are available in different diameters. The rugged plastic coated cast aluminium caps resist any weather condition and can be opened without problems even in frost conditions. For easily suspending instruments, they have a cutout and a suspension bracket inside.



Features and benefits

- Special cast aluminium alloy – particularly rugged and solid
- Smooth surface coating – no freezing, even at low temperatures
- Available for 2" ... 6"
- Can be safely locked using the OTT pentagonal key
- Optional: Padlock device

Technical Data

Measuring tape

- White polyethylen tape (two wires)
- Conductor in high strength, rust and acid resistant stainless steel wires
- Meter graduation in red, centimetre marks and decimetre graduation in black on white tape

Measuring accuracy

0,1 % of measured value

Tape drum

- Special plastic, high strength, resistant to low temperatures
- Protection Class IP64

Frame design 1

Cast aluminium, steel

Frame design 2

Special plastic, high strength, resistant to low temperatures

Power supply

6 V DC; 4 x 1.5 V C-type cells (alkaline);
Operating life ≥ 12 months (KL 010/-TM),
approx. 180 hours (KL 010 TCM)

Operating temperature range

-30 °C ... +75 °C

Storage temperature, recommended

+5 °C ... +30 °C (best for the batteries)

Special lengths

On request

KL 010

Measuring tape lengths

15, 25, 30, 50, 80, 100, 150, 200,
250, 300, 500 and 750 m

Signalling

- Optical signal generator (signal lamp;
LED optionally)
- Accoustic signal generator

Probe body

- Stainless steel/nickel-plated brass
- 15 mm Ø, 190 mm long

Weight

± 3.8 kg (15 m) ... ± 18.5 kg (750 m)

KL 010 TM

Measuring tape lengths

25, 50, 100, 150, 200, 250, 300 and 500 m

Signalling/Indication

- Display (LCD), 3 ½ digits,
resolution 0.1 °C
- Button to display battery capacity in %
- Optical signal generator (LED)
- Accoustic signal generator

Temperature sensor

- Measuring range: -5 °C ... +60 °C
- Accuracy: ± 0.1 °C

Probe body

- Stainless steel/nickel-plated brass
- Ø 15 mm, 183 mm long

Weight

± 3.6 kg (25 m) ... ± 14.3 kg (500 m)

KL 010 TCM

Measuring tape lengths

30, 50, 100, 150, 200, 250 und 500 m

Signalling/Indication

- Display (LCD), 3 digits
+ bar graph display for battery state
- Optical signal generator (LED)
- Accoustic signal generator

Temperature sensor

- Measuring range: -1 °C ... +70 °C
- Accuracy: ± 0.1 °C

Conductivity measuring cell

- Measuring range: 0 ... 200 mS/cm
- Accuracy: $\leq \pm 0.5\%$ of measured value,
min. $\pm 2\mu\text{S/cm}$

Probe body

- Stainless steel
- Ø 20 mm, 238 mm long

Weight

± 3.7 kg (30 m) ... ± 14.5 kg (500 m)

Operating temperature range

-20 °C ... +75 °C