

Operating Instructions

MUDLine TGS Sludge Level Measuring Instrument

Battery Operated



Safety Precautions

- Do not open the housing!
- The device may only be connected to the included battery charger, which is described in the operating instructions!
- Clean the cable drum with integrated electronics with a moist cloth only. Do not immerse in or spray with water!

Functions Description

The portable MUDLine® TGS is used for the measurement of sludge levels in settling and precipitation tanks, as well as in small effluent treatment plants.

It detects the transition zone between the clear phase and the precipitated sludge, after which the momentary immersion depth of the measuring probe can be read from the integrated digital display.

The instrument is equipped with an integrated **automatic measured value memory** for immersion depth.

The instrument can be set to the desired switching threshold with the help of the "sludge concentration" adjusting knob and the measuring range selector switch.

The instrument is functional to an immersion depth of up to 10 metres.

Technical Data

Setting range / switching threshold:

Measuring range 1: (standard measuring range)

Measuring range 2: (increased sensitivity)

Immersion depth measuring accuracy:

Approx. 1 cm

Ambient temperature:

0 to +50° C

Electronics housing and controls:

IP 44 (EN 60 529)

Indicators:

3-place LCD panel for immersion depth [cm]

and "LOW BATT" display

1 red LED: sludge level detected

1 horn: sludge level detected

Controls:

1 toggle switch, on-off/reset

1 measuring range selector switch

1 "sludge concentration" potentiometer

Supply power:

Battery operated

Number of measurements until recharging is required:

100 to 150 measurements, 7 minutes each

On-time:

The instrument is switched off automatically after 7 minutes measuring time.

Recharging time:

Max. 2½ hours

Measuring probe:

IP 68 (EN 60 529)

Measuring probe material:

PVC

Immersion depth:

Max. 10 metres

Turbidity sensor:

Infrared light

Cable:

Special TPE cable

Weight, entire device:

Approx. 3000 grams

Battery charger

(included):

For connection to 230 V AC mains outlet or

12 V automotive cigarette lighter

CE Mark

EMC directive (89/336/ECC), EN 50 081-1:1992,

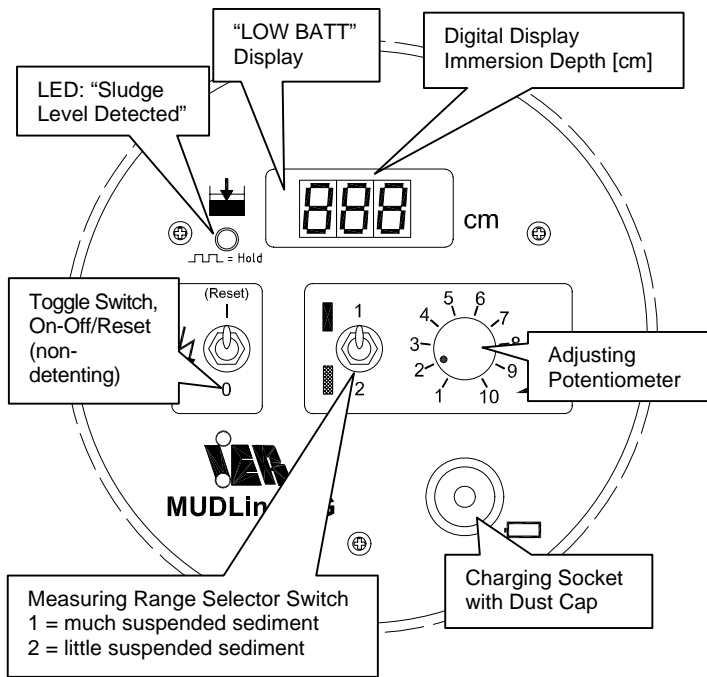
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Operating Instructions: **MudLine TGS** Sludge Level Measuring Instrument



Sludge Level Measuring Procedure:

- Switch the instrument on: "002 ... 005" is displayed (= offset).

Rapid Setup

- Set **range selector switch** to 1.
- Punch through and clear any floating sludge with a tool.
- Immerse the probe down to the cable gland (clear area).
- Set the potentiometer **just below the point** at which the LED lights up and the horn sounds (turn back and forth several times).

Measuring Procedure:

- Immerse the measuring probe deeper into the tank or shaft.
- The horn sounds and the LED lights up when the sludge phase is reached.
- The immersion depth of the measuring probe can now be read from the digital display.

Increased Sensitivity

For minimal turbidity difference, i.e. no clear-cut boundary between sludge and clear phase (e.g. churned up sludge).

The instrument is calibrated and the desired switching threshold is selected as follows:

- Remove a specimen with the desired concentration of sludge and pour it into a bucket.
- Set a bucket full of clear water next to the sludge bucket.
- Immerse the measuring probe into the sludge specimen to a depth of at least 10 cm.
- Adjust the potentiometer as described above. Repeat several times if necessary.

Greatly Increased Sensitivity

- In case of extremely minimal sludge concentration:
→ Select measuring range 2.
Minimal turbidity differences are then detected!
- Proceed as described above.

Attention!

- The instrument reacts very sensitively to differences between purified and turbid water in this operating mode, and detects even extremely small suspended particles!

Automatic Measured Value Memory for Immersion Depth

- Sludge level detected: horn sounds continuously and LED lights up
- Hold the measuring probe at this depth for approx. 5 seconds.
- Acoustic signal switches from continuous to intermittent.
- LED switches from continuous illumination to blinking mode.
- The probe may now be removed.
- The acoustic signal stops, but the LED continues to blink.
- Read the stored immersion depth value.
- Delete the stored immersion depth value with the on-off/reset button.
- The LED goes out and a value of between 000 and 005 appears at the digital display.
- The instrument is now ready for the next measurement.

Cleaning:

- Clean the drum with integrated electronics with a moist cloth only: Do not immerse in or spray with water!
- The measuring probe and the cable can be cleaned under running water with a soft brush:
Do not use high-pressure water blasters or steam cleaners!
→ The submersible pressure transducer will otherwise be damaged!
- Use mild household cleaners only: Do not use solvents or degreasing agents!

Maintenance

The device is maintenance-free if used for its intended purpose.

Battery Charger:

"LOW BATT" appears at the LCD panel when the battery is weak. The integrated, rechargeable NiMH battery can be quickly and reliably recharged with the included "ACS 410 mobile" battery charger.

Charging time for a fully depleted battery is about 2½ hours.

The charger can be connected either to a 230 V mains outlet, or to a 12 V automotive cigarette lighter with the help of the included DC connector cable.

Charging Procedure:

- Remove the dust cap from the charging socket at the MUDLine® TGS.
- Plug the connector cable into the charger and screw into place.
- Plug the charger into a 230 V mains outlet, or an automotive cigarette lighter via the DC connector cable.
- The red LED on the charger blinks for about 10 seconds: battery contact detection test.
- The LED then remains continuously lit: Battery is being charged.
- The green LED lights up and the red LED goes out: The battery is fully charged and the charger has switched to the trickle-charge mode.
- If the battery is defective, the red LED continues to blink after the test phase.
- The yellow knob can be used to fully deplete the batteries, but this is not necessary with the utilised NIMH batteries!

Attention! After charging, plug the dust cap back into the charging socket on the MUDLine® TGS!

Charger Functions:

- Charging is monitored by a micro-controller.
- Test executed before charging detects defective batteries.
- The charger is automatically switched to the trickle-charge operating mode as soon as the batteries are fully charged, i.e. the charger can be left connected to the MUDLine® TGS for long periods of time.