GB Photometer Copper LR / pH

● Operation

ON/OFF — Switch the unit on using the ON/OFF switch

Cu — The display shows the following:

Mode — Select the test required using the MODE key:
Cu → pH → Cu → ..... (Scroll)

METHOD — The display shows the following:

Fill a clean vial with 10 ml of deionized water, replace the cap tightly and place the vial in the sample chamber making sure that the Δ-mark on the vial aligned with the ∇–mark on the instrument.

Zero/Test — Press the ZERO/TEST key.

METHOD — The method symbol flashes for approx. 3 seconds.

0.0.0 — The display shows the following:

After zero calibration is completed, remove the vial from the sample chamber.
The characteristic coloration starts to appear after the addition of the reagent tablet(s).
Replace the cap tightly and place the vial in the sample chamber with the ∇ and Δ marks aligned.

Zero/Test — Press the ZERO/TEST key.

METHOD — The method symbol flashes for approx. 3 seconds.

RESULT — The result appears in the display.

Repeating the analysis:
press the ZERO/TEST key once again.
New zero calibration:
press the MODE key until the desired method symbol appears in the display again.

● User messages

EOI	Light absorption too great. Reason - e.g. soiled lens.
÷Err	Measuring range exceeded or excessive turbidity.
-Err	Result outside bottom measuring range limit.
LO BAT	Replace 9 V battery immediately; no further analysis possible.

● Technical data

Optics:	LED: λ_1 = 580 nm ; λ_2 = 528 nm (filter)
Battery:	9 V block battery (life = approx. 600 tests)
Auto-OFF:	auto unit switch-off approx. 12 minutes after a key was last pressed
Ambient conditions:	5-40°C 30-90% rel. humidity (non-condensing)
CE:	DIN EN 55 022, 61 000-4-2, 61 000-4-8, 50 082-2, 50 081-1, DIN V ENV 50 140, 50 204

● Copper LR 0.02 - 1 mg/l

0.0.0 — Perform zero calibration (see “Operation”).
Add one COPPER / ZINC LR-tablet straight from the foil to the 10 ml water sample, and crush using a clean stirring rod. Add one EDTA-tablet straight from the foil to the same sample and crush using a clean stirring rod. Allow to dissolve completely, replace the cap tightly and place the vial in the sample chamber with the Δ and ∇ marks aligned.

Wait for a colour reaction time of 5 minutes!

Zero/Test — Press the ZERO/TEST key.

Cu — The method symbol flashes for approx. 3 seconds.

RESULT — The result is shown in the display in mg/l Cu.

Measuring tolerance: ± 0,05 mg/l Cu

● pH-value 6.5-8.4

0.0.0 — Perform zero calibration (see "Operation").
Remove the vial from the sample chamber. Add a PHENOLRED/PHOTOMETER tablet straight from the foil and crush using a clean stirring rod. Allow to dissolve completely, replace the cap tightly and place the vial in the sample chamber with the Δ and ∇ marks aligned.

Zero/Test — Press the ZERO/TEST key.

pH — The method symbol flashes for approx. 3 seconds.

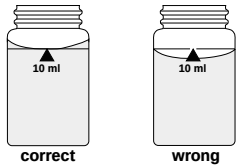
RESULT — The pH value is shown in the display.

Tolerance: ± 0.1 pH

● Notes

The tablets must be added in the correct sequence.

● Correct filling of the vial



● Chemical method notes

● pH

For photometric determination of pH values, only use PHENOLRED-tablets in black printed foil pack and marked PHOTOMETER.
pH values below 6.5 and above 8.4 can produce results inside the measuring range. A plausibility test (pH meter) is recommended. Water samples with low values of Total Alkalinity-m may give wrong pH readings.

● Method notes

Observe application options, analysis regulations and matrix effects of methods. Reagent tablets are designed for use in chemical analysis only and should be kept well out of the reach of children.

Material Safety Data Sheets: www.tintometer.de

Ensure proper disposal of reagent solutions.

● Troubleshooting: Guidelines for photometric measurements

1. Thoroughly clean vials, caps and stirring rod **after each analysis** in order to prevent carry-over errors. Even minute reagent residues lead to incorrect measurements. Use the supplied brush for cleaning.
2. The outside of the vial must be clean and dry before starting the analysis. Clean the outside of the vials with a towel. Fingerprints or other marks will be removed.
3. “Zero calibration” and “Test” must be performed using the same vial, as different vials can possess slightly different tolerances.
4. The vials must be positioned in the sample chamber for zero calibration and test with the Δ-mark on the vial aligned with the ∇–mark on the instrument.
5. Always perform “Zero calibration” and “Test” with closed vial lid.
6. Bubbles on the inside walls of the vial lead to incorrect measurements.

   To prevent this, close the vial using the vial lid and remove the bubbles by swirling the vial before performing the test.
7. You must prevent water from penetrating into the sample chamber. The entry of water into the housing of the photometer can destroy electronic components and lead to corrosion damage.
8. Soiling of the lens (LED and photosensor) in the sample chamber leads to incorrect measurements.

   Check - and if necessary clean - the light entry surfaces of the sample chamber at regular intervals. Clean using a moist cloth and cotton buds.
9. Always add the reagent tablets to the water sample straight from the foil without touching them with your fingers.
10. Major temperature differentials between the photometer and the environment can lead to incorrect measurements - e.g. due to the formation of condensation water in the area of the lens or on the vial.
11. To avoid errors caused by stray-light do not use the instrument in bright sunlight.

● Calibration mode

Mode — Press MODE key and **hold depressed**.

On / Off — Switch unit on using ON/OFF key.
Release MODE key after approx. 1 second.

CAL / Cu — Select the test required using the MODE key:
CAL Cu → CAL pH → CAL Cu → ..... (Scroll)

Zero / Test — Perform zero calibration as described.
Press the ZERO/TEST key.

METHOD — The method symbol flashes for approx. 3 seconds.

0.0.0 / CAL — The following messages appear in the display in alternating mode:

Zero / Test — Place the standard to be used in the sample chamber with ∇ and Δ alignment.Press the ZERO/TEST key.

METHOD — The method symbol flashes for approx. 3 seconds.

RESULT / CAL — The result is shown in alternating mode with CAL.

If the result corresponds to the value of the standard used (within the allowed tolerance), exit calibration mode by pressing the ON/OFF key.

Mode — Pressing the MODE key once increases the displayed result by 1 digit.

Zero / Test — Pressing the ZERO/TEST key once decreases the displayed result by 1 digit.

CAL / RESULT + x — Continue pressing the keys until the displayed result corresponds to the value of the standard used.

On / Off — If you press the ON/OFF key, the new correction factor is calculated and stored on the user calibration level.

: : — Confirmation of calibration (3 seconds).

● Note

CAL — Factory calibration active.

cAL — Calibration has been effected by the user.

● Recommended calibration values

Copper: between 0.2 and 0.4 mg/l Cu
pH: between 7.6 and 8.0*

* or rather values mentioned in the reference standard kits

● User calibration : cAL
Factory calibration : CAL

The unit can be reset to delivery condition (factory calibration) as follows:

Mode + Zero / Test — Press MODE and ZERO/TEST together and **hold depressed**.

On / Off — Switch the unit on using the ON/OFF key. Release MODE and ZERO/TEST keys after approx. 1 second.

The following messages appear in the display in alternating mode:

SEL / CAL — The unit is in delivery condition.
(SEL stands for Select)

or:

SEL / cAL — The unit operates with a calibration performed by the user. (If the user calibration is to be retained, switch the unit off using the ON/OFF key.)

Mode — Factory calibration is activated by pressing the MODE key. The following messages appear in alternating mode in the display:

SEL / CAL

On / Off — Switch the unit off using the ON/OFF key.

● User notes

E 10	Calibration factor "out of range"
E 70	Cu: Manufacturing calibration incorrect / erase
E 74	pH: Manufacturing calibration incorrect / erase
E 71	Cu: User calibration incorrect / erase
E 75	pH: User calibration incorrect / erase

Technical changes without notice.
Printed in Germany 03/01