(GB) Photometer Ammonia

● Operation

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

A1 — The display shows the following:

Mode — Select analysis using the MODE key:
A1 → A2 → A1 → ..... (Scroll)

METHOD — The display shows the following:

Fill a clean vial with the water sample up to the 10 ml mark, replace the cap tightly and place the vial in the sample chamber with the ∇ vial marking aligned with the Δ housing marking.

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 symbols 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 = 660 nm
Battery:	9 V block battery (life = approx. 600 tests)
Auto-OFF:	auto unit switch-off approx. 15 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

● Ammonia A1 (0,02-1,0 mg/l N)

0.0.0 — Perform zero calibration (see “Operation”).
Add one AMMONIA No. 1 tablet straight from the foil to the 10 ml water sample, and crush using a clean stirring rod. Add one AMMONIA No. 2 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 ∇ and Δ aligned.

Wait for a colour reaction time of 10 minutes! [3)]

Zero/Test — Press the ZERO/TEST key.

A1 — The method symbol flashes for approx. 3 seconds.

RESULT — The result is shown in the display in mg/l N (ammonium nitrogen).

Measuring tolerance: ± 0,05 mg/l N

● Ammonia A2 (0,2-10,0 mg/l N)

A2 — The display shows the following:

Pour 1 ml of the water sample into a clean vial and fill to the 10 ml mark with deionised water. Replace the cap tightly and place the vial in the sample chamber with ∇ and Δ aligned.

Zero/Test — Press the ZERO/TEST key.

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

0.0.0 — The display shows the following:

Add one AMMONIA No. 1 tablet straight from the foil to the prepared vial, and crush using a clean stirring rod. Add one AMMONIA No. 2 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 ∇ and Δ aligned.

Wait for a colour reaction time of 10 minutes! [3)]

Zero/Test — Press the ZERO/TEST key.

A2 — The method symbol flashes for approx. 3 seconds.

RESULT — The result is shown in the display in mg/l N (ammonium nitrogen).

Measuring tolerance: ± 0,5 mg/l N

● Conversions

The displayed result (in the form of N) can be converted as follows:

NH_3 = N x 1,22

NH_4 = N x 1,29

● Notes

1. Always adhere to the sequence of tablet addition.
2. The AMMONIA No. 1 tablet does not fully dissolve until the AMMONIA No. 2 tablet has been added.
3. The temperature of the sample is important for coloration. At temperatures below 20°C, the **colour reaction time is 15 minutes!**

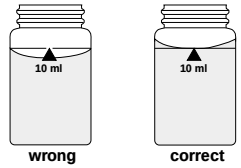
● Method notes

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.

If necessary, request safety data sheets.

Ensure proper disposal of reagent solutions.

● Correct filling of the vial



● Calibration mode

Mode — Press MODE key and **keep it depressed**.

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

CAL
A1 — The display shows the following in alternating mode:

Zero/Test — Perform zero calibration (see "Operation").
Press the ZERO/TEST key.

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

0.0.0
CAL — The display shows the following in alternating mode:

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

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

RESULT
CAL — The result is shown in the display, alternating with CAL.

If the result displayed corresponds with the value of the calibration standard (within the tolerance quoted), exit calibration mode by pressing the ON/OFF key.

Mode — Otherwise, pressing the MODE key once increases the displayed value by 1 digit.
Zero/Test — Pressing the ZERO/TEST key once decreases the displayed value by 1 digit.

CAL
RESULT ÷ x — Pressing the relevant key until the displayed value equals the value of the calibration standard.

On/Off — By pressing the ON/OFF key, the new correction factor is calculated and stored in the user calibration software.

: : — Confirmation of calibration (3 seconds).

● Note

It is not necessary to make a calibration of the A2-range as the software refer to the calibration of the A1-range.

CAL — Factory calibration active.

cAL — Calibration has been set by the user.

● Recommended calibration values

Ammonia A1: between 0,3 and 0,5 mg/l N

● 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 messages

E 10	Calibration factor “out of range”
E 70	Factory calibration not OK / deleted
E 71	User calibration not OK / deleted

● Troubleshooting: Guidelines for photometric measurements

1. Thoroughly clean vials, lid 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. Ensure that the outer walls of the vials are dry and clean before performing the analysis. Fingerprints or water droplets on the light entry surfaces of the vials lead to incorrect measurements.
3. “Zero calibration” and “Test” must be performed using the same vial, as different vials can possess slightly different tolerances.
4. For “Zero calibration” and “Test”, ensure that the vial is always positioned in the sample chamber in such a way that the graduation with the white triangle points toward the marking on the housing.
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.

Technical changes without notice
Printed in Germany 01/99