

# GB Photometer Suspended Solids

## ● Operation



Switch the unit on using the ON/OFF switch.

**SuS**

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  $\Delta$ -mark on the vial aligned with the  $\nabla$ -mark on the instrument.



Press the ZERO/TEST key.



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. Empty the vial. Fill the clean vial with 10 ml of the water sample. Replace the cap tightly and place the vial in the sample chamber with the  $\Delta$  and  $\nabla$  marks aligned.



Press the ZERO/TEST key.



The method symbol flashes for approx. 3 seconds.

**RESULT**

The result appears in the display.

### Repeating the analysis:

Press the ZERO/TEST key 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. Reasons: zero calibration not carried out or, possibly, dirty optics.

**+Err**

Measuring range exceeded or excessive turbidity.

**- Err**

Result below the lowest limit of the measuring range.

**LO BAT**

Replace 9 V battery, no further analysis possible.

## ● Technical data

Light source:

LED:  $\lambda = 605 \text{ nm}$

Battery:

9 V-block battery (Life 600 tests).

Auto-OFF:

Automatic switch off 5 minutes after last keypress

Ambient conditions:

5-40°C

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

## ● Suspended Solids 5 - 750 mg/l Suspended Solids

**0.0.0**

Perform zero calibration (see "Operation").

Empty the vial.

For best results: Blend approx. 500 ml of the sample in a blender at high speed for 2 min.

Rinse the vial with the sample.

Fill the clean vial with 10 ml of the water sample. Replace the cap tightly and place the vial in the sample chamber with the  $\Delta$  and  $\nabla$  marks aligned.



Press the ZERO/TEST key immediately after sample preparation.



The method symbol flashes for approx. 3 seconds.

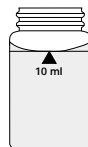
**RESULT**

The result is shown in the display in mg/l Suspended Solids.

**Tolerance:**  $\pm 10 \%$  Full Scale

When higher accuracy is required, run parallel gravimetric and photometric determination with portions of the same sample and use the result for a new calibration (calibration mode).

## ● Correct filling of the vial



correct



wrong

## ● Method notes

Suspended Solids is a gravimetric method. In a lab this is usually done by evaporate sample in an oven at 103 °C - 105 °C, and than weighting the dish.

## ● Troubleshooting: Guidelines for photometric measurements

1. Vials, caps and stirring rods should be cleaned thoroughly **after each analysis** to prevent errors being carried over. Use the brush provided 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 carried out with the same vial as there may be slight differences in optical performance between vials.
4. The vials must be positioned in the sample chamber for zero calibration and test with the  $\Delta$ -mark on the vial aligned with the  $\nabla$ -mark on the instrument.
5. Bubbles on the inside of the vial may also lead to errors. In this case, fit the vial with a clean stopper and remove bubbles by swirling the contents before starting test.
6. Avoid spillage of water in the sample chamber. If water should leak into the photometer housing, it can damage electronic components and cause corrosion.
7. Contamination of the windows over the light source and photo sensor in the sample chamber can result in errors. If this is suspected check the condition of the windows.
8. Large temperature differentials between the photometer and the operating environment can lead to incorrect measurement due to, for example, the formation of condensate in the area of the lens or on the vial.
9. To avoid errors caused by stray-light do not use the instrument in bright sunlight.

## ● Calibration Mode



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



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

**CAL**

The following messages appear in the display in alternating mode:

**SuS**



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



The method symbol flashes for approx. 3 seconds.

**0.0.0**

The display shows the following in alternating mode:

**CAL**



Place the calibration standard to be used in the sample chamber with the  $\Delta$  and  $\nabla$  marks aligned.  
Press the ZERO/TEST key.



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.



Otherwise, pressing the MODE key once increases the displayed value by 1 digit.



Pressing the ZERO/TEST key once decreases the displayed value by 1 digit.

**CAL**

Pressing the relevant key until the displayed value equals the value of the calibration standard.

**RESULT + x**



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

**CAL**

Factory calibration active.

**cAL**

Calibration has been set by the user.

## ● Recommended calibration value

Suspended Solids: according to the gravimetric determination

## ● User calibration : cAL

Manufacturing calibration : CAL

To reset the calibration to the factory setting:



Press both the MODE and ZERO/TEST and **keep them depressed**.



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

The following messages will appear in turn on the display:

**SEL**

The calibration is reset to the factory setting.

**CAL**

(SEL stands for Select)

**or:**

**SEL**

Calibration has been set by the user. (If the user calibration is to be retained, switch the unit off using the ON/OFF key.)

**cAL**



Calibration is reset to the factory setting by pressing the MODE key. The following messages will appear in turn on the display:

**SEL**

**CAL**



Switch the unit off using the ON/OFF key.

## ● User notes

**E 10**

Calibration factor "out of range"

**E 70**

SuS: Manufacturing calibration incorrect / erase

**E 71**

SuS: User calibration incorrect / erase