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# pH Troubleshooting

Some issues with a pH measurement are:

- long reaction times (more than a minute),
- the calibration cannot be done successfully,
- the pH is correctly when measuring buffers but not when measuring some other reference solutions,
- the measurements are not repeatable,
- ...

Check this list of possible reasons: [Guide to troubleshooting](#)

## Check electrode

Many measurement problems arise from the electrode or from a wrong use, rarely from the instrument itself. Therefore it is important to:

- Make sure there is no **air bubble trapped** in the pH sensitive bulb. If this should be the case, shake it like a clinical thermometer with the bulb downwards to remove it.
- Make sure the electrode is sufficiently **filled with the electrolyte** solution. The level of the electrolyte solution is preferably 2 centimeters above the level of the sample.
- Use the right electrode for your **application** (see [Selection Guide](#)).
- Always **clean** the electrode after use with an **appropriate method** (see [Cleaning Methods](#)).
- **Store the electrode properly** when not in use. Store it in the same solution as the electrolyte of the electrode (mostly 3M to saturated KCl). It is also good to add some pH 4 buffer to the storage solution. NEVER store it in distilled water.
- Be aware of **mechanical impacts**.
  - Avoid to drop the electrode, use an electrode holder where possible.
  - Do not put unnecessary stress on the **cable** or plug to avoid internal interruptions.
    - When having a separate cable, i.e. the electrode can be removed from it, it can be verified using an Ohmmeter. Without Ohmmeter, short-circuit the electrode connector when the cable is connected to the meter, see point 5 in the grey box.
    - When the electrode is fixed to the cable, it is difficult to test it. Look for very irregular behavior when moving the cable.
    - Check whether all contacts of the plugs are all bright and clean.

## Check instrument

- Keep your instrument clean, **avoid moisture** in any case, especially on the connectors.
- Do not store the meter in cold humid environments. If so, and a measurement problem arises, please store it free of connections and packaging in a warm dry environment for a few days and try it again.
- Follow the [Good Measurement Practices](#) to avoid measurement errors.

# Report a measurement problem

## Very important for all next steps!

- Only fresh calibration solutions should be used!
- All calibration solutions should be maintained at room temperature.
- Rinse the electrode twice between measurements: first thoroughly in distilled water and then with a small amount of the next solution to be measured.
- Always stir the solutions while measuring (use a magnetic stirrer!).
- Allow the electrodes sufficient time to stabilise while measuring (a stability indicator on most of our meters prompts the user when readings should be taken).
- Never calibrate during this test!

We need some information to be able to help. There are several manners to return the information that is requested in the grey box here below: you can print this page or export it as pdf and fill in the information at the desired location. It is also possible to: **Select and Copy the text in the grey box here below, paste it into a new email message and fill in the requested items before sending it to Consort support (click this to open your email editor).**

### Identify your application

- What is/are the main use(s) of the measurement system?
  - (e.g. laboratory, agriculture, waste control, food processing, ...)
  - .....
  - .....
- What is the frequency of use?
  - (e.g. online, daily, weekly, sporadically, ...)
  - .....
  - .....

### Identify your equipment

- Meter:
  - Model: .....
  - Serial Number: .....
- Electrode: (see codes on cable or electrode connector head)
  - Model (e.g. SP10B): .....
  - Date code (e.g. Oct14) : .....
- Buffer Solutions:
  - Value buffer 1: ..... pH, Batch nr / Production date: .....
  - Value buffer 2: ..... pH, Batch nr / Production date: .....

### Perform the following steps

1. Store the pH electrodes in a 3...4M KCl solution (e.g. B520) for 1 hour (OBLIGED!).
2. Prepare 2 fresh buffer solutions: Buffer 1 and Buffer 2 (see identification!)

3. Reset the meter (OBLIGED! switch on while holding MODE pressed).
4. Select the mV mode (OBLIGED!).
5. Short-circuit the pH/mV input (e.g. use a metal paper clip), read display: ..... mV
6. Connect pH electrode, rinse, dip in first buffer, read display: ..... mV
7. Rinse the pH electrode, dip in second buffer, read display: ..... mV
8. When available, connect new pH electrode, rinse, dip in first buffer, read display: ..... mV
9. Rinse the new pH electrode, dip in second buffer, read display: ..... mV
10. What is the temperature of the solutions? ..... °C
11. If any message occurs, what is EXACTLY shown on the display(s) ?
  - .....
  - .....
  - .....
  - .....
  - .....
  - .....

From:  
<http://www.consort.be/wiki/> - **Support website**

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