



## DESCRIPTION

- Standard sensor system for the level measuring of aqueous media
- Scope of delivery
  - o USB cable
  - o Sensor interface
  - o Sensor connecting cable
  - o KIT-LCP001 (1x LCPB025D\*, 1x LCPB096D\*)
  - o KIT-LCP002 (2x LCPB025D\*)
  - o KIT-LCP003 (2x LCPB096D\*)

\*) Sensors in KIT-LCP00x may not offer the output signal options described in datasheet but work exclusively with the sensor interface of the KIT.

## OPERATION

### PREPARATION

- Download of EBE sensor tool suite via EBE website
- <https://www.ebe.de/de/media-download-center.html>
- Software requirements: Win 7, Win 8, Win 10, Win 11

### BASIC TIPS ON ESD

- **Electrostatic Discharge (ESD)** can damage electronic components during the handling of circuit boards.
- The following tips help to reduce the probability of ESD events:
  - o Avoid charge separation
    - Do not wear (layers of) polyester clothes
    - Carpets – bad  $\leftrightarrow$  wood, tile or concrete flooring – good
  - o Support charge decay
    - Do not wear shoes with insulating (rubber) sole (e.g. Crocs)
    - Higher humidity dissipates static charge (dry heater air in winter  $\rightarrow$  bad)
  - o If possible: Before touching the PCB, users should “ground” themselves, e.g. by touching the protective conductor of a socket or a bare part of a radiator.



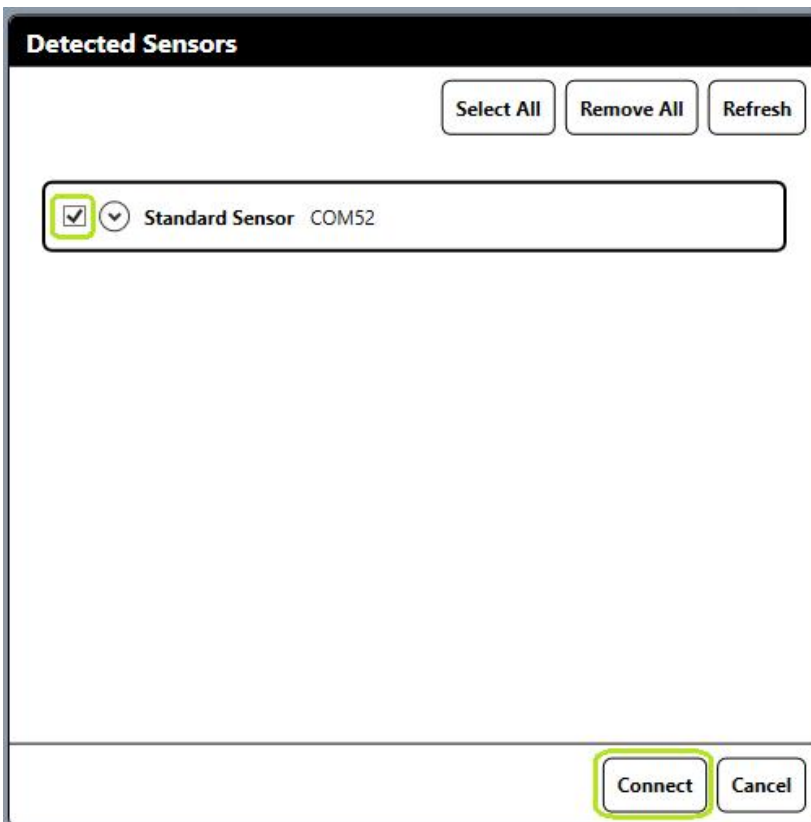
## EBE CAPACITIVE LEVEL MEASUREMENT

### Connecting the Sensor

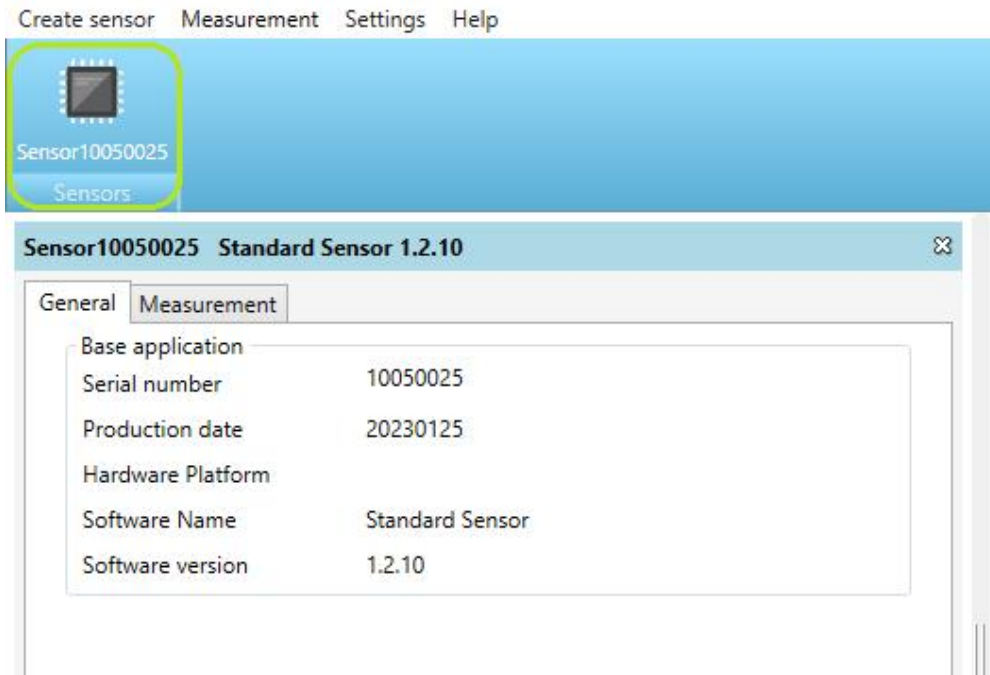
- Establish cable connections between PC, sensor interface and sensor
- Start software
- Create Sensor → AutoDetect



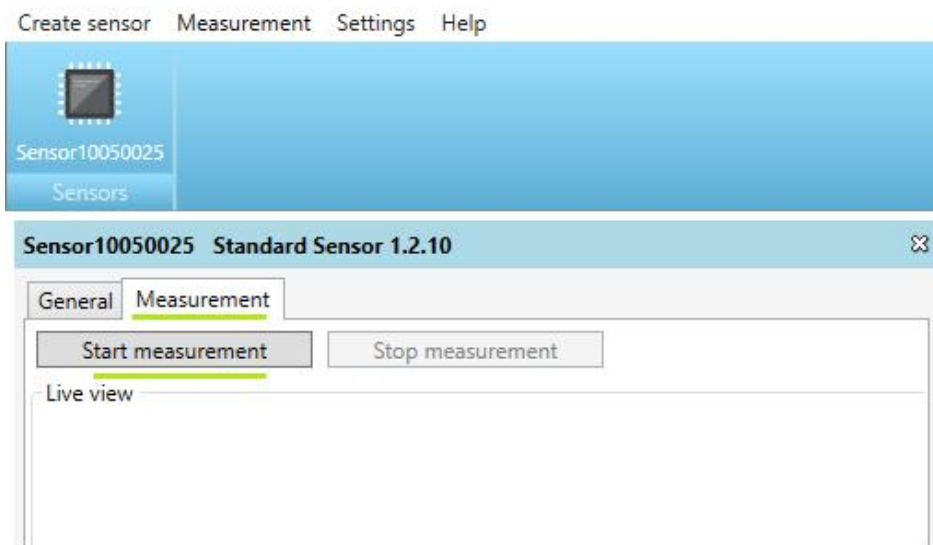
- Tick Sensor → Connect



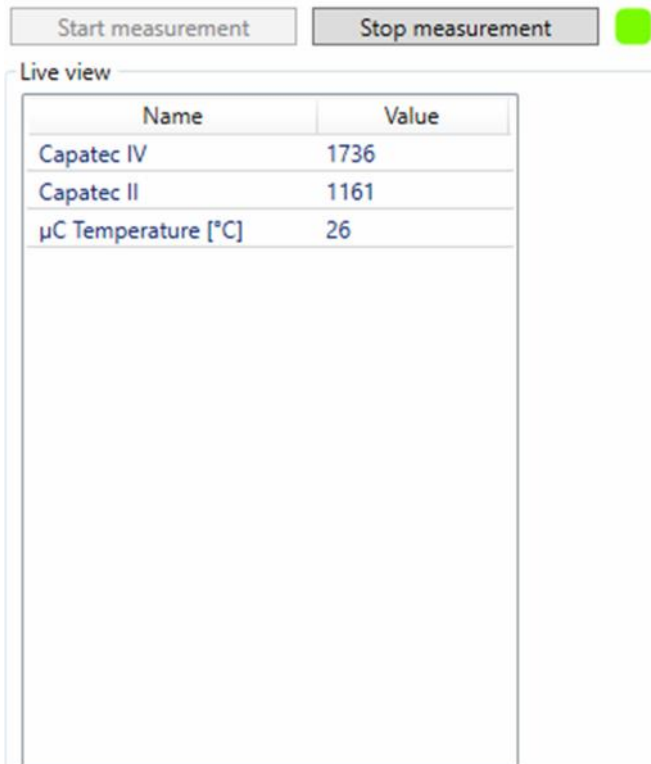
- Sensor appears in the top left corner - one left click → sensor context menu opens.



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- Select tab „measurement“ → start measurement



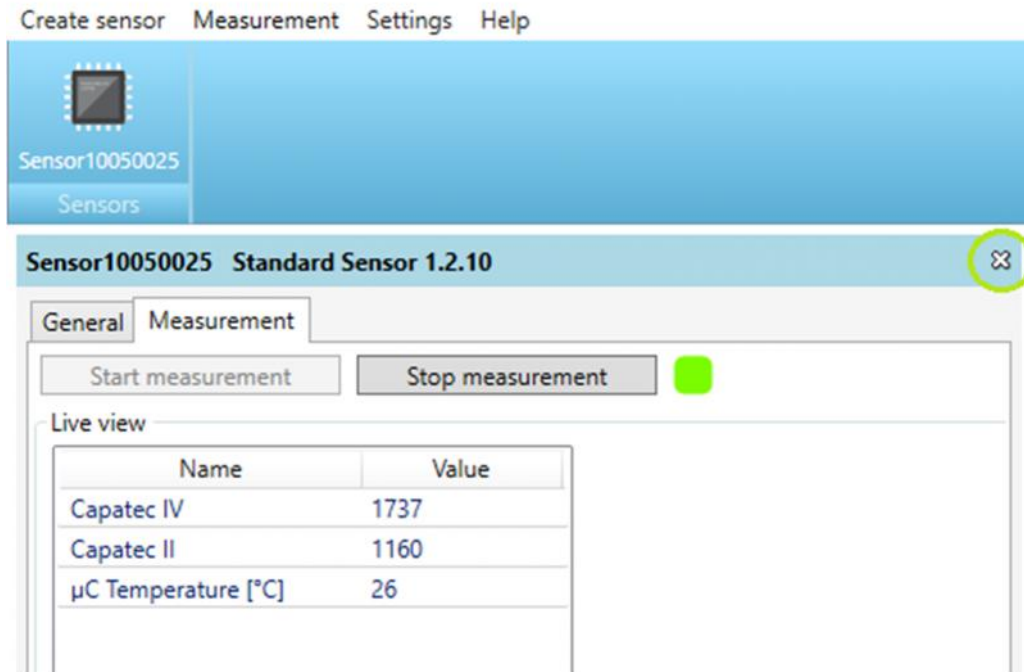
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- Level measurement with the EBE capaTEC ® technology
  - o The capaTEC measurement values are shown in „live view“. These values are indicated in „digits“ without units.
  - o NOTE: The output signal is inverted → filling level decreases → capaTEC value increases
  - o Two different measuring channels are used, capaTEC II and capaTEC IV.



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- The two channels use different measuring processes with their respective advantages and disadvantages.
- The technology capaTEC II is less complex in terms of circuitry. One unwanted effect with capaTEC II is that the sensor is sensitive to touching the tank from outside and to direct contact with water if the tank is full.
- The technology capaTEC IV is robust against touching the tank from outside and against direct contact with water. However, capaTEC IV cannot distinguish between a (water) film at the tank wall and water. In order to compensate this, the capaTEC II measurements are used.

## Separate / Change Sensor

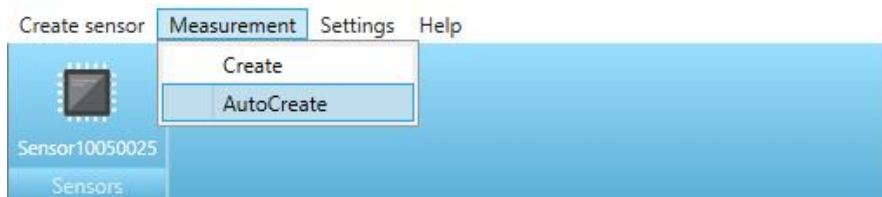
- The connection is closed by clicking on the X. Subsequently, the sensor cable can be separated from the sensor.



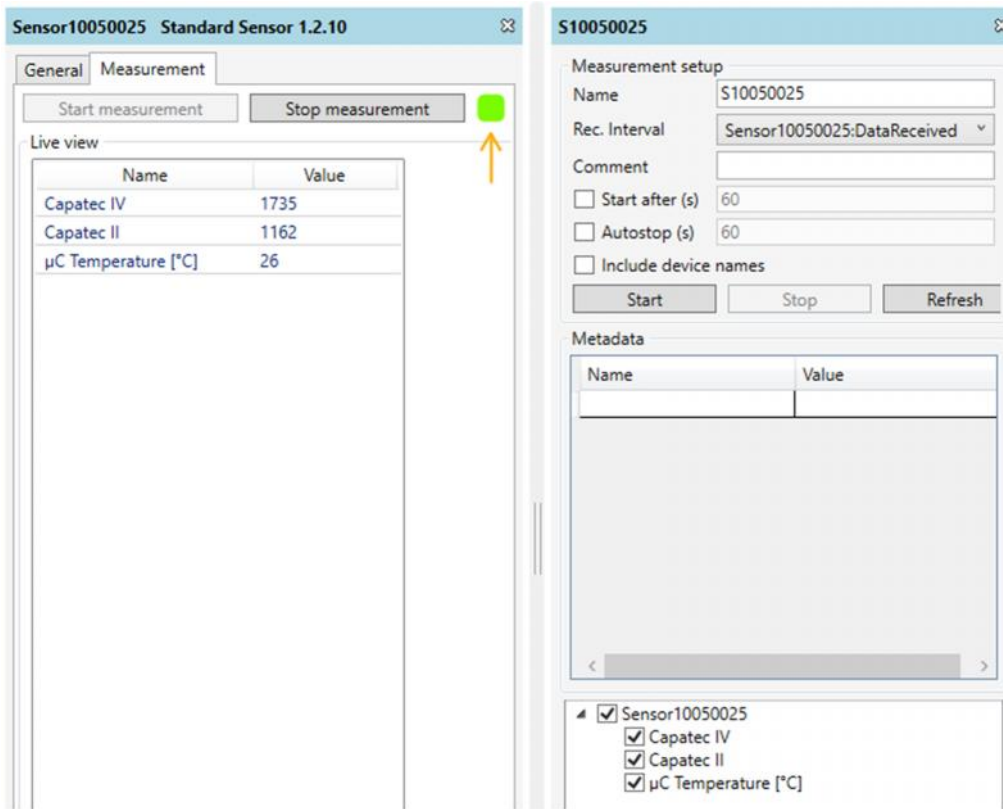
- NOTE: If the sensor is just pulled off and not properly disconnected as described above, the regular flow of communication is interrupted. This can result in a freezing or program closure of the sensor tool suite. In this case, the tool suite has to be restarted.

## RECORDING THE FILLING LEVEL PROGRESS

- Select tab measurement in tool suite → AutoCreate

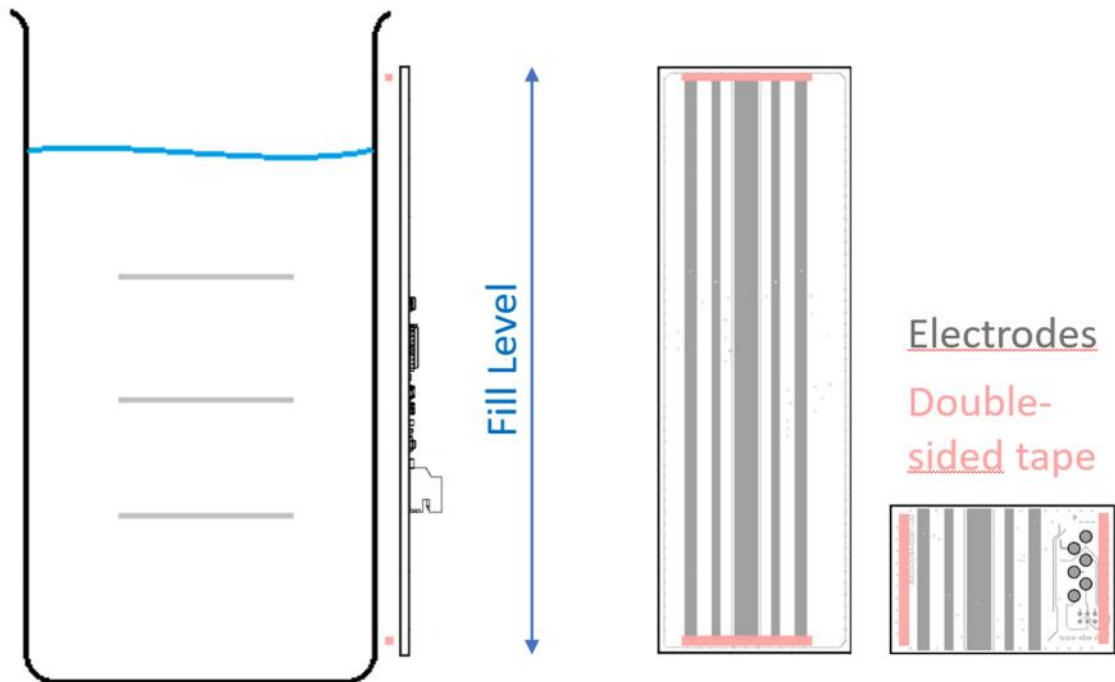


- Check that the sensor and its parameters are ticked. If not, click once on “refresh”.
- Start measurement recording with “start” and stop it with “stop”.
- NOTE: For the recording in a log file, the sensor has to be connected and the measurement needs to be active. An active measurement is symbolized by green blinking.
- Folder of log file: <C:\Tools\EBE Sensor Toolsuite\Logging>
- Text file can be further processed as desired (e.g. Excel)



## ATTACHMENT OF THE SENSORS

- The sensors measure the filling level in proportion to covering the sensor surface.
- On one side, the circuit board is equipped with discrete components. The sensor electrodes are located on the opposite side.
- The side with the electrodes needs to face the medium to be measured.
- The water level should be orthogonal to the sensor electrodes (see picture below).
- To attach, we recommend double-sided adhesive tape, e.g. Tesa 4965. The adhesive tape should preferably be attached at the periphery of the circuit board and not over the entire area of the electrodes.



## DISCLAIMER

The information contained in this document is for general guidance only. The user is responsible for determining the suitability of the technical information referred to herein for his application. On delivery of the component, EBE is only obliged to implement those properties set out and agreed upon in this technical data sheet. Preliminary marked datasheets or data and data marked with “about” or “typically/typ.” refers to non-binding estimates. Further properties are not included. No guarantee is given. The component has been designed for installation in our customer's products. Manufacturer of the resulting product and consequent liability according to the Product Liability Act lies with the customer. This datasheet may be subject to errors and to technical changes as part of product improvement.

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