



memmert
Experts in Thermostatics

WBCalib

WATERBATH CALIBRATION TOOL
VERSION 1.0.1
OPERATING MANUAL



100% ATMOSAFE. MADE IN GERMANY.

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We reserve the right to make changes

1. Introduction

The Waterbath Calibration Tool allows to adjust resp. calibrate Memmert devices of type WNB / WNE / WPE.

2. Installation

You should have at least local administrator rights to run the setup program.

To setup the software, open the installation program and follow the instructions on the screens.



After a proper installation, a desktop icon called "WBCalib" appears.

To run WBCalib, double-click on the program icon on the Windows desktop or invoke WBCalib from the "Start" menu. Normally, you don't need to have administrator rights to run WBCalib, but computer policies might apply.

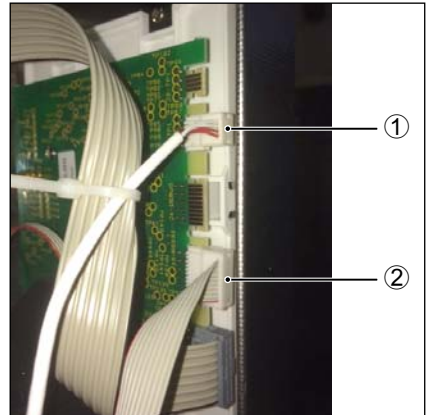
3. Preparation

Pull the power plug of waterbath. Open the side panel of the water bath to be able to connect the serial cable to the controller.

In order to run WBCalib successfully, you should have your device switched on with a serial cable (RS232) connected between the device and your PC. If your PC does not have a serial connector, you may use a USB to serial adapter.

After switching on the device, you should wait about 20 seconds before the device is ready for operation via the serial connection. It might take even longer if you use a USB to serial adapter, as the operating system has to do some device activation work.

If you have missed to switch on your device and connected it to the PC before starting WBCalib, the connection name will not show up. Simply restart WBCalib.



- 1 PT100-Sensor
- 2 RS-232 connector for calibration

4. Measurement of the reference temperature in the water bath

For an adjustment, a calibrated thermometer with a waterproof sensor is needed. The measuring equipment should at least be better than your own required accuracy. Recommended is a device that is 10 times better.

E.g. if you need $\pm 0,5$ K, the equipment should have an accuracy of $\pm 0,05$ K. So – in this example – a PT 100 1/10 DIN B Sensor is needed.

Place the sensor in the middle of the water bath and wait until the temperature has stabilized.



Set the set temperature to the desired calibration temperature, e.g. 50 °C.

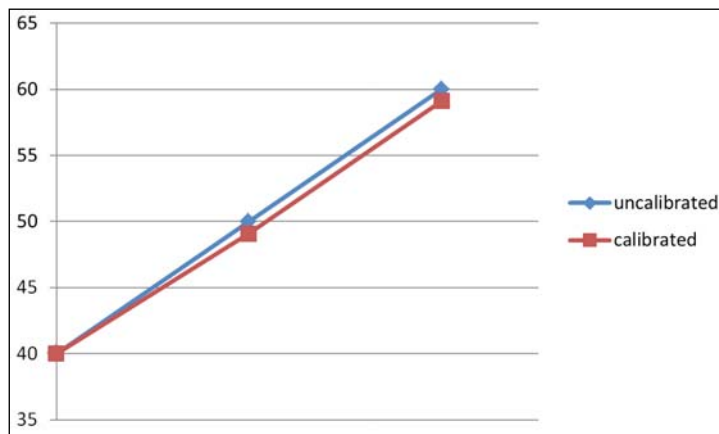


Read the actual temperature in the center of the water bath from the reference thermometer.



5. Calibration Effect

Without calibration, the temperatures measured by sensors are effectively the temperatures being displayed. By defining a calibration node, let's say at a temperature of 50° Celsius, and setting a difference value at that point, say -0.9 K, then the device display will show 50 °C at 49.1 °C.

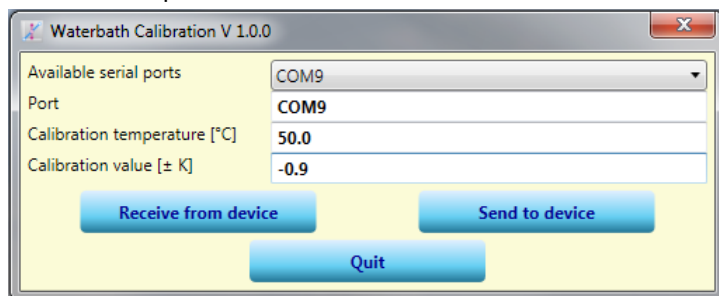


For lower temperatures, the temperatures will be interpolated between the first possible temperature and 50 °C. Temperatures higher than 50 °C will be constantly decreased by a displacement of 0.9 K.

The minimal possible difference is -9.9 K (Kelvin), the maximal is +9.9 K. See the picture as an example.

Operation

This is an example screen of WBCalib:



From combobox „Available serial ports“ select the port connected to your device. You may then push button „Receive from device“ to see the current settings.

You can now enter a calibration temperature in degree Celsius within the device temperature limits and your measured difference to the nominal value, named „Calibration value [± K]“. The difference must be between -9.9 K and +9.9 K. Values may be entered with 1 decimal. Unit K = degree Kelvin denotes differences of degree Celsius.

After entering your values, push button „Send to device“ to transmit the settings to the device. The device screen will flicker twice when the values are saved together with a backup. After adjustment, the displayed temperature on the controller and on the reference meter should be the same:



You may now quit the program or connect to another device.



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