

# Unisense Microsensor Multimeter Version 2.01



## In this box

Unisense Microsensor Multimeter, Serial #: \_\_\_\_\_

Hardware version: \_\_\_\_\_

Firmware version: \_\_\_\_\_

Software SensorTrace Logger

Power cables

USB cable

Grounding cable

Getting started guide

Date: \_\_\_\_\_

For Unisense A/S: \_\_\_\_\_

# CONGRATULATIONS WITH YOUR NEW MICROSENSOR MULTIMETER!

The Microsensor Multimeter is a powerful and versatile four-channel microsensor amplifier which can be used with all Unisense sensors and electrodes.

## OVERVIEW

The Microsensor Multimeter is a digital microsensor amplifier with automatic sensor detection, making the connection of the sensors 'plug-and-play'. The user interface consists of a keypad and a graphical OLED display, allowing the user to view signals, adjust signal gain and offset, etc. directly on the instrument. The Microsensor Multimeter can be used as a stand-alone instrument or signals can be transferred directly to a PC using a Unisense SensorTrace PC program.

## SUPPORT, ORDERING, AND CONTACT INFORMATION

If you wish to order additional products or if you encounter any problems and need scientific/technical assistance, please do not hesitate to contact our sales and support team. We will respond to your inquiry within one working day.

E-mail: [sales@unisense.com](mailto:sales@unisense.com)

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Tueager 1  
DK-8200 Aarhus N, Denmark  
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Fax: +45 8944 9549

Further documentation and support is available at [www.unisense.com](http://www.unisense.com)

## INSTALLATION AND SETUP

### OPERATING AND SETUP CONDITIONS

The Microsensor Multimeter is a laboratory instrument.

Temperature	0°C to 50°C
Calibration	The Microsensor Multimeter is offset calibrated on the four channels as well as the two analog channels
Power	Batteries, 8 x 1.5 V (AA) batteries External voltage 9V (5-28V) Mains supply 50/60Hz, 230/110V One battery package at a time can be exchanged while operating the Microsensor Multimeter. If mains supply is disconnected battery supply will continue operation.
Note:	Ensure mains supply is grounded.

Hardware version, firmware version, and serial number are available from the About Tab in the Microsensor Multimeter interface.

Select your preferred power supply, e.g. AC, by inserting the power cable into the mains supply and making sure that the cable is plugged into the AC socket of the Microsensor Multimeter.

## INSTALLING THE MICROSENSOR MULTIMETER

1. Install the relevant software, SensorTrace Logger, SensorTrace Profiling, or SensorTrace Rate (latest version can be downloaded via [www.unisense.com](http://www.unisense.com)) on your computer.  
NOTE. Windows XP users must make sure they are running .NET framework version 4.0 or higher. If this is not the case an upgrade must be made - please contact Unisense.
2. Connect the Microsensor Multimeter to the computer. The Microsensor Multimeter is recognized and you are asked for the driver files. These are located on the enclosed CD.

## GETTING STARTED

OLED display



Sensor LEMO connection

Key pad with Select and arrows for operating the Multimeter

1. Connect the sensor to the Microsensor Monometer. Some sensors are automatically recognized (please see list under "compatibility") and should appear in the display next to the channel number to which it is connected, properly polarized. If you are using a sensor which is not automatically recognized OR any sensor with a BNC connection via a BNC-LEMO adapter, the sensor is recognized as "sensor for manual settings" and you are required to adjust the polarization on the channel manually (please consult the relevant sensor manual for the right polarization value).
2. Optional use of grounding cable - with amperometric microsensor only. Use of grounding cable may in certain environments improve signal-to-noise ratio and overall data quality.

Connect grounding cable on the back side of the Microsensor Multimeter  
**Important:** If mV sensors (redox or pH on Ch 3) or  $\text{NO}_2^-$  or  $\text{NO}_3^-$  sensors are in use grounding cable **must** be omitted.

3. Calibrate the sensor. Please consult the relevant sensor and software manual for details.
4. Start the measurements.

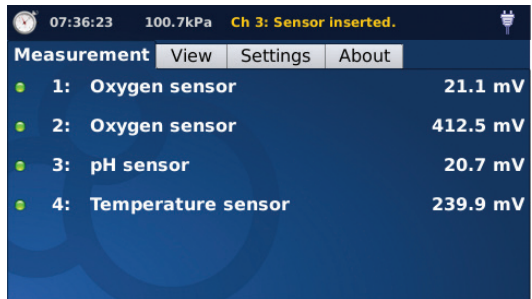
Note: do not unplug the USB connection during operation. In case of lost connectivity restart the application.

Note: keep the default display power settings to protect the OLED screen.

## OPERATING THE MICROSENSOR MULTIMETER

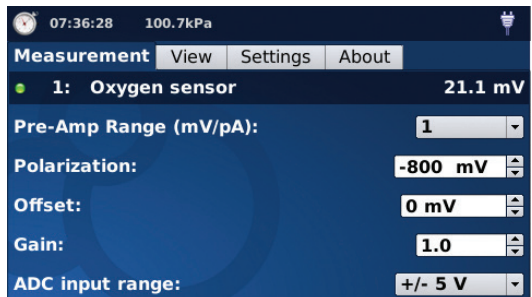
All movement between tabs and menu options is performed by pressing the select and arrow keys next to the display.

- To select a tab or menu point, press Select.
- To adjust a menu point, press the up and down arrow keys.
- To exit a menu point and go back to the menu, press the left arrow key.



## ADJUSTING THE PRE-AMPLIFICATION

You may need to adjust the pre-amplification range of the sensor. This is done in the Measurement tab on the Microsensor Multimeter by selecting the relevant sensor. The appropriate range is the lowest range that can accommodate the highest signal to be measured. The range 1 mV/pA is selected per default. If the expected maximum signal in this range exceeds 4500 mV, the range should be changed to 0.1 mV/pA. If the expected maximum signal is less than 500 mV in the 1 mV/pA range, then the 10 mV/pA range should be selected.



## COMPATIBILITY

### SENSORS

The Microsensor Multimeter can be used only with sensors with LEMO connections. Adaptors are available for sensors with BNC connections.

In the standard configuration, the Microsensor Multimeter has amperometric channels on channel 1 and 2, a potentiometric channel on channel 3, and a temperature channel on channel 4. For custom configured instruments, please refer to your order confirmation for channel setup.

Amperometric sensors: O<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>S, N<sub>2</sub>O, NO, NO<sub>2</sub>, NO<sub>3</sub>; Flow, Diffusivity, APOX, TPOX, STOX,

Potentiometric sensors: pH, Redox

Temperature

Sensors that are automatically recognized and polarized: O<sub>2</sub>, H<sub>2</sub>S, pH, Redox, Temp.

All other sensors AND all BNC sensors connected via an adapter are recognized as "Sensor for manual setting" and polarization is set manually. Please refer to the relevant sensor manual for polarization values.

## SOFTWARE

The Microsensor Multimeter can be used with SensorTrace Logger, SensorTrace Profiling and SensorTrace Rate software. Unisense SensorTrace Suite software is compatible with Windows XP, Vista, Windows 7 32/64 bit and Windows 8/8.1.

NOTE: Windows XP users must make sure they are running .NET framework version 4.0 or higher. If this is not the case an upgrade must be made - please contact Unisense.

## AUXILIARY EQUIPMENT

Unisense can provide you with solutions for a range of experimental setups, including bulk measurements, microprofiling and micro-respiration. Depending on your measuring requirements, you may need additional equipment for positioning, calibration, sample fixation, etc.

Please visit our website for inspiration and contact Unisense for any questions you may have.

## WARRANTY AND LIABILITY

The Microsensor Multimeter is covered by a one year warranty.

The warranty does not include repair or replacement necessitated by accident, neglect, misuse, unauthorized repair, or modification of the product.

In no event will Unisense be liable for any direct, indirect, consequential or incidental damages, including lost profits, or for any claim by any third party, arising out of the use, the results of use, or the inability to use this product.

## REPAIR OR ADJUSTMENT

Equipment that is not covered by the warranty will, if possible, be repaired by Unisense with appropriate charges paid by the customer. In case of return of equipment please contact us for return authorization.

For further information please see the documents Conditions for Sale and Delivery for Unisense and Warranty and Shipping Information as well as the manuals for the respective products.

## TROUBLESHOOTING

**Problem:** SensorTrace Logger or SensorTrace Profiling is returning the error: "External exception C0FB007E" when trying to start the program.

**Solution:** Please upgrade to SensorTrace Suite via [www.unisense.com](http://www.unisense.com) or contact Unisense.







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