

Warnings



The "MEphisto Scope" has a **maximum input voltage of ± 10 VDC**. Measuring higher voltages than this directly may damage the instrument and invalidate the warranty.

The "MEphisto Scope" is not electrically isolated, i. e. in „online“ operation the ground of the device connects directly to the ground of the PC via the USB cable. If you are using a standard desktop PC the ground of the device connects to earth by the power cable (with protective earth conductor). However, this reference to earth potential is missing in case of connection with a laptop or in offline operation. **Therefore a good earthing via the earth connection at the rear of the housing and special caution are strictly necessary for your own safety!**



Earth connection



Measuring voltages greater than 42V, especially mains voltage may only be done by qualified specialists. Use a high voltage differential probe for this. Note, that there is an electrical connection between the shield of the BNC connectors and the housing. In „online“ operation it is routed along via the USB cable to the PC chassis. That is by an accidentally connection e.g. of the live contact of a schuko socket with ground of your probe, then mains voltage (110V/230V) is attached to the housing of the MEphisto Scope. **This means danger of life!** Please follow the appropriate standards, installation instructions and national safety standards. Meilhaus Electronic GmbH assumes no responsibility for damage in case of faulty installation, operation or handling.

What's in the Box?

Please make sure, that your "MEphisto Scope" box includes the following items:

- 1 x USB scope "MEphisto Scope" (UM202, UM203) hardware.
- SD memory card (UM203 only).
- ME-Power-DVD with driver and DAQ software "MEphistoLab²".
- USB cable (type A - type B)
- This Getting Started Guide.

Accessories (optional)

"ME-Probe LF Pair"

2 passive modular probes (1:1/1:10 selectable) with accessories. Bandwidth: 15/150 MHz, 47/15.5 pF, 1/10 M Ω , 600 Vp CAT I.



"ME-UB" series

Connect up to 3 "ME-UB" boxes to the 26pin D-sub with a triple break-out cable "ME AK-DUB/UM202".

Available models: terminal block, opto-isolated inputs, opto-isolated outputs, relays



Support

Should you experience problems with the device or software, please send an **E-Mail** to support@meilhaus.com.

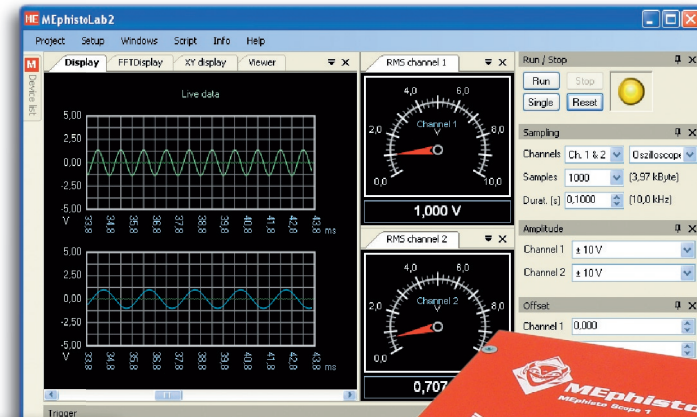
Newest infos and software updates on our web site: www.meilhaus.com/download.

2 Channel USB Scope

„MEphisto Scope“ (UM202, UM203)

with MEphistoLab² Software

Quick Start Guide



Note also the „Quick Start Video“ and the help file, installed with the MEphistoLab² software.

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MEphisto Scope and MEphistoLab² – Short Description

“MEphisto Scope” is a mobile multi-functional device in a compact metal box. The module is powered from the PC via the USB interface; no external power supply is necessary. Both analog inputs have BNC connectors for standard oscilloscope probes. Each channel has its individual 16 bit A/D converter which gives you simultaneous sampling rates of 1 MS/s on both channels. The input voltage range is ± 10 V. Depending on the operation mode multiple trigger modes are available.

The **2nd generation of the MEphistoLab software** was developed completely new and provides a virtual instrument panel, which gives you easy and quick access to all functions of the device. The following operation modes are provided (if you don't have a MEphisto Scope available you can choose the option „Simulation“ via the menu „Setup – Options – Driver“):

- „**Oscilloscope**“ 2 channels, 1 MS/s max. per channel, voltage range ± 10 V
- „**Logic Analyser**“ 16 channels (DO...15), 100 kS/s max. per channel, 5 V CMOS level
- „**Analog Data Logger**“ 2 analog channels, 100 kS/s max., voltage range ± 10 V
- „**Digital Data Logger**“ 16 channels (DO...15), 100 kS/s max., 5 V CMOS level
- „**Analog Meter**“ 2 channels (AC_{RMS}/AC/DC) with up to 6 virtual analog meters
- „**Digital I/O**“ 24 digital I/Os, each bit configured individually, 5 V CMOS level
- „**Data Viewer**“ for analysing data already stored
- „**Offline Mode**“ the model UM203 can store data on a SD card without a PC
- „**Script Editor**“ Write your own code in C#, e. g. for automatic measurements

On demand you can change the program language (English/German) in the menu „Setup – Options – Language“ (program restart required). You find a detailed description of the MEphistoLab² software in the help file.

Hardware Specifications (UM202, UM203)

Analog Inputs

Number; resolution	2 x 16 bit
Total sampling rate	2 MS/s (2 channels)
Simultaneous channels	2
Input voltage range	± 100 mV ... ± 10 V
Analog bandwidth (-3 dB)	500 kHz
Sample memory	256 kS
Trigger types	Level, window, edge, slope (dU/dt), external, manual

Digital Inputs/Outputs

Number	24 I/Os
Configuration	each bit programmable as input or output (outputs can be read back)
Output current (25 °C)	sink: 10 mA, source: 5 mA
Signal level	+5 V (CMOS)

General Data

PC interface	USB 2.0 full-speed (USB 1.1 compatible)
Power supply	+5 V/0.85 W via USB interface
Reference ground	PC ground (PC_GND)
Connectors	Analog channels: 2 x BNC connectors (front panel) Digital channels: 26-pin D-sub female (rear panel), USB connector: Type B (rear panel)
Size (W x H x D)	110 mm x 35 mm x 136 mm (incl. connectors)
Operating temperature	0...70 °C

Stand-alone Data-logger (UM203):

„Online“ operation: via USB cable like UM202

„Offline“ or „Stand-alone“ operation: without connection to the PC. Logging will be started by insertion of the SD card into the slot (SD card comes with the device). For reading the data on the SD card a standard SD card reader is required.

Installation

System requirements for MEphistoLab²: Windows 7, Vista, XP (SP2), 2000 (SP4); Microsoft® .NET Framework version 2.0 or higher, USB driver (32/64bit)

1. Connect the “MEphisto Scope” to a USB port of your PC using the USB cable included with the device. \Rightarrow The hardware wizard will automatically detect the new USB device and will display the message “New hardware found”. The following description is to be orientated towards Windows XP but applies analogously to other Windows versions. However the dialogs may differ depending on your Windows version.
2. Insert the CD/DVD included with the package into the drive of your PC or make the USB driver available by download (www.meilhaus.com/download).
3. In the hardware wizard select the option “Search for a suitable driver for my device (recommended)” and click “Next”. If Windows displays a message, telling you the driver is not Microsoft certified, just skip this window.
 \Rightarrow The system driver will be installed and the entry “MEphisto Scope” will be added in the device manager under the device class “Meilhaus DAQ Boards”.
4. End the installation of the system driver by „Finish“ and continue with the installation of the “MEphistoLab” software as follows:
5. Navigate to the setup program of the MEphistoLab² software on CD/DVD or to the directory you unpacked the driver to after download. The default path on ME-Power-DVD is [Drive]:\Software\MEphisto-Scope\MEphistoLab2. Start the installation by double-clicking the file “MEphistoLab2.msi”.
 \Rightarrow After the installation has finished you will find the MEphistoLab² as well as the help file, further documentation and a „Quick Start Video“ in your Windows “Start” menu under “Programs - Meilhaus Electronic - MEphistoLab2”.

The 26-pin D-sub female connector:

„Digital I/O“:

DO...23 can be configured as input or output individually.

„Logic Analyser“ & „Data Logger Digital“:

DO...15 are used to be input channels in that operation mode. On demand a „Pattern“ (rising/falling edge, high/low level) can be defined as the trigger event.

