

Seven USB devices in one - 16 bit universal instrument

MEphisto Scope 1 (UM20x)



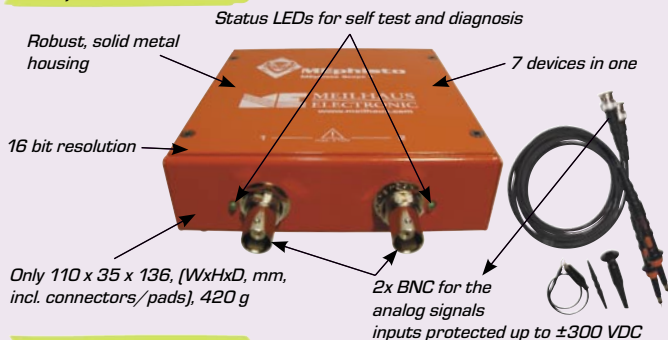
--- Software included on CD: ---

- **MEphistoLab software** for Windows: Scope, spectrum analyzer/FFT, volt meter, analog data logger, logic analyzer, digital I/O, digital data logger.
- **Detailed online help** and lots of DAQ know-how directly integrated into the software.
- Instructions for use in English and German for Acrobat Reader/PDF.

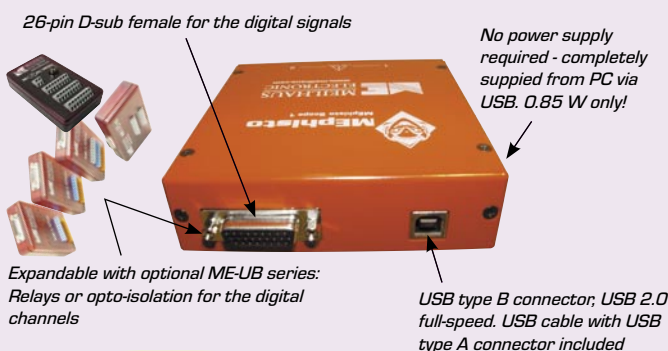
The MEphisto Scope is a 2-channel multifunctional instrument: It includes a 16 bit digital storage oscilloscope, a spectrum analyzer with FFT, a volt meter, a logic analyzer, a data logger and a digital switchbox with 24 I/O lines. The instrument has a very robust metal housing: It is a device you can rely on - even in rough, mobile applications as for example in maintenance, service and education. With its low power consumption, the MEphisto is the ideal solution for mobile applications with notebooks. Lots of DAQ know-how is integrate directly into the software's online help. The offline version adds a data logger functionality which can operate independently from your PC. Data is stored on a standard SD memory card.

- **Robust, compact** USB module with 7 instruments in one.
- Additional function of the UM203: Offline/stand-alone logging. **Data logging on SD memory card**, independent from PC (a 256 MB SD card is included).
- UM202 doesn't require an external power supply. It is powered from the PC via USB. It has a **very low power consumption** which makes it an ideal solution for battery powered notebooks: **Ultra low power 0.85 W**. UM203 is powered by a external power supply (included) in offline/stand-alone mode.
- **16 bit resolution. 1 MS/s sample rate**, up to 2x 1 MS/s simultaneous sampling. Analog bandwidth 1 MHz. Value memory 256 kS.
- Solide, reliable **metal housing**.
- **BNC connectors** for reliable connectivity of standard probes.
- **±300 VDC over voltage protection**.
- **Multiple trigger modes**: Threshold, windows, edge, dV/dt, external, manual.
- **USB 2.0 full-speed** (USB 1.1 compatible). USB cable incl.
- Easy-to-use Windows software with panels for all 7 devices. **Easy programming also with VEE Pro etc.**

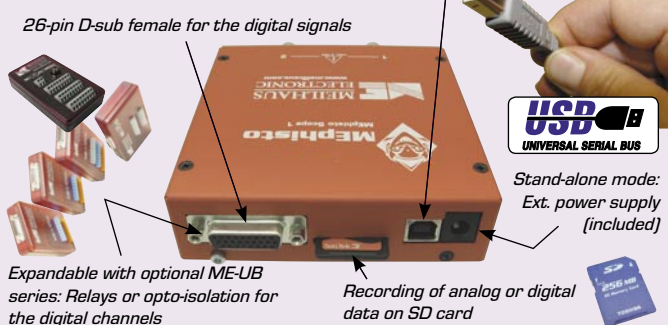
Front, both versions:



Backside, version UM202:



Backside, version UM203:



--- MEphisto Scope contains these instruments: ---

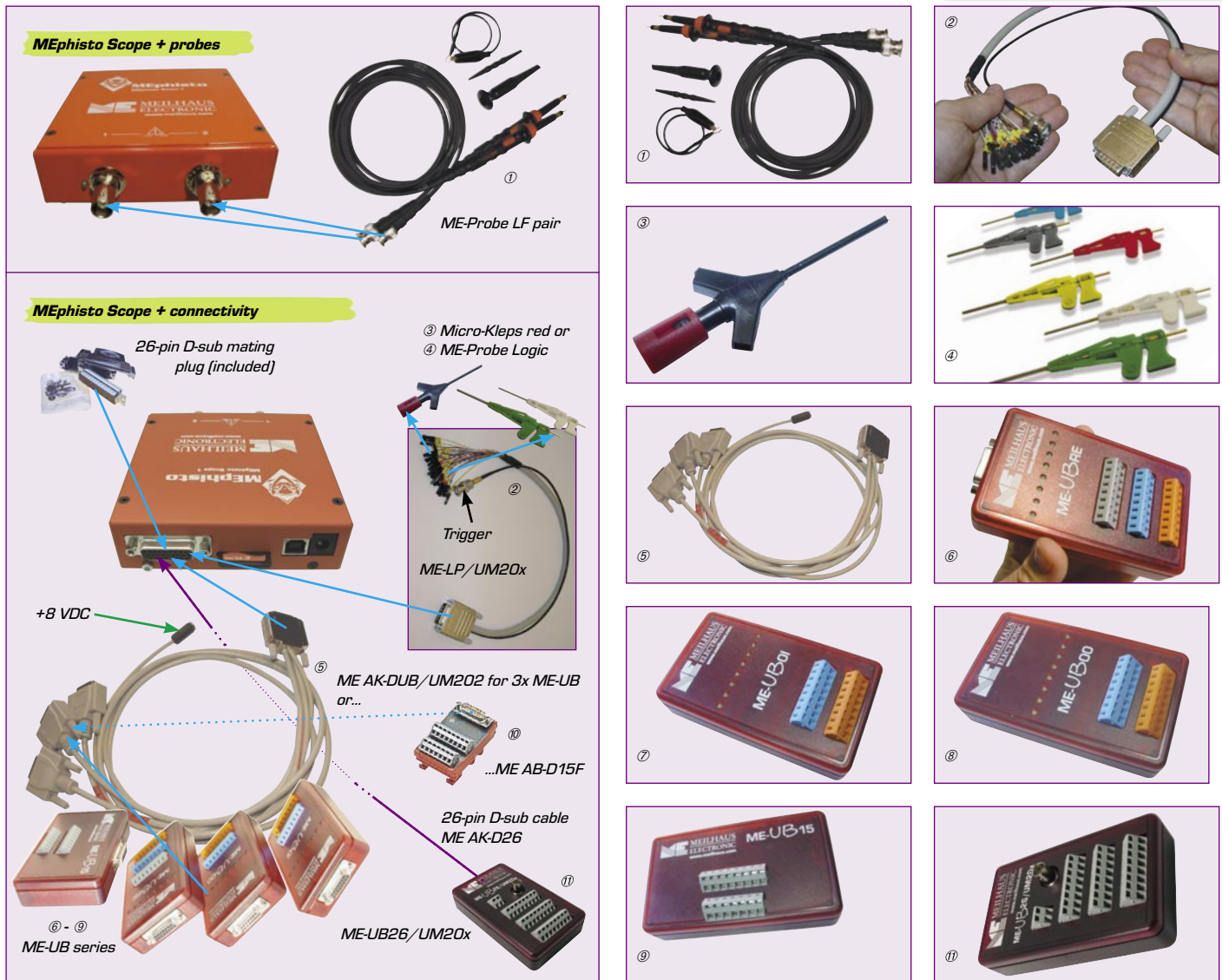
Instrument	Key specs
Oscilloscope, spectrum analyzer	2 channels, 1 MS/s per channel, 16 bit, up to 500 kHz, range 200 mV...20 V. Time, spectrum and XY display mode.
Volt meter	2 channels, input ranges ± 100 mV, ± 1 V, ± 10 V. 16 bit. Pointer display (software). DC, AC true RMS.
Data logger	Analog and digital up to 100 kHz.
Logic analyzer	16 channels, up to 100 kHz, CMOS level.
Digital I/O switchbox	24 TTL lines, each line programmable as input or output. Expandable with optional accessory ME-UB with relays or opto-isolation.
Model UM203 stand-alone data logger	Recording/logging of analog as well as digital data on SD card. 256 MB SD memory card included. Up to 100 kS/s (depending on card). After connecting the external power supply, the device will work with the latest user configuration/ setup via USB. Start measurement by inserting the SD card.

MEphisto Scope bag UM20x-T:



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--- Ordering codes and features

MEphisto Scope 1 (UM202 and UM203) ---

Model	Description
MEphisto Scope (UM202)	16 bit, 7-in-1 universal instrument for USB: 2-channel scope/spectrum analyzer, volt meter; analog/digital data logger, 16-channel logic analyzer; 24 discrete (each bit programmable) TTL digital inputs/outputs.
MEphisto Scope (UM203)	See UM202, but additional offline logger version with SD memory card.
Scope of delivery: MEphisto Scope in metal housing, CD with software, 26-pin D-sub mating plug, USB cable; additional for UM203: External power supply, 256 MB SD memory card.	
Bundles	Description
MEphisto Scope bag UM202-T	UM202 complete bundle with bag and accessory.
MEphisto Scope bag UM203-T	UM203 complete bundle with bag and accessory.
Scope of delivery: UM202 or 203, CD with software, 26-pin D-sub mating plug, USB cable, pair of probes (ME-Probe LF Pair), bag; additional for UM203: External power supply, 256 MB SD memory card, SD card reader for USB.	

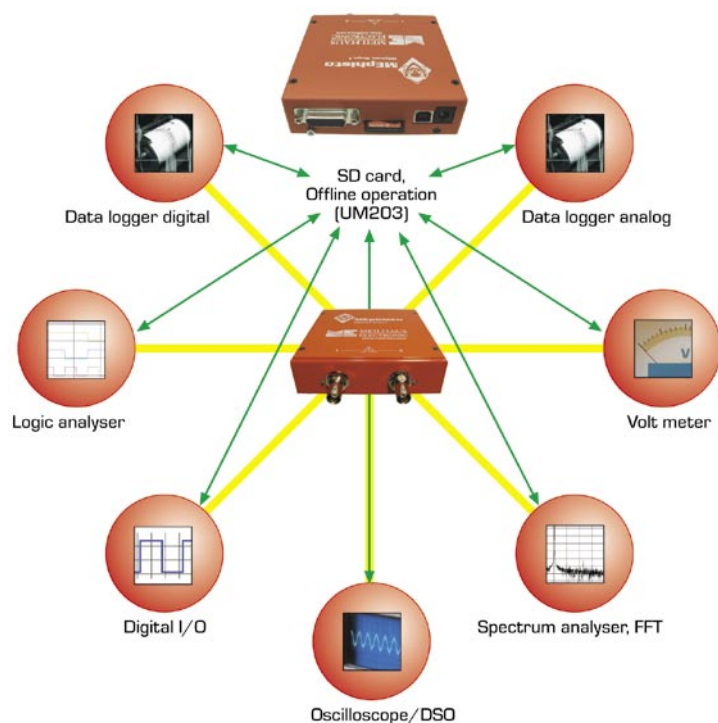


--- Accessory for MEphisto Scope 1 (UM20x)

Model	Description
① ME-Probe LF Pair	Pair of modular probes x1/x10, 15/150 MHz.
② ME-LP/UM20x	Cable for logic clips, 26-pin D-sub male to 1x BNC (trigger) and 25 labeled, color coded, 1-pin pinfield connectors for common logic probes/clips.
③ Micro-Kleps red	Versatile high-precision logic clip.
④ ME-Probe Logic Set 10	Set of 10 micro IC clips, assorted colors: 2x red, 2x yellow, 2x green, 2x blue, 1x white, 1x black.
ME-Probe Logic Set COLOR	Set of 10 micro IC clips; whole set in one color: Red, yellow, green, blue, white or black.
⑤ ME AK-DUB/UM202	Cable, connects 3 ME-UB boxes to a MEphisto Scope: 26-pin D-sub (HD) female to 3x 15-pin D-sub male + mini phone jack for external power supply of the ME-UB boxes.
⑥ ME-UBRE	8 relais type C (change-over, max. 5 A at 30 VDC/250 VAC). 3x 8 non-pluggable spring terminals.
⑦ ME-UBOI	8 opto inputs (2.5...60 V, 12 kHz, isolation up to 2500 VAC _{RMS}). 3x 8 non-pluggable spring terminals.
⑧ ME-UBOO	8 opto outputs (0.6...60 V, 5 kHz, 300 mA (continuous)/400 mA (peak), isolation up to 2500 VAC _{RMS}). 3x 8 non-pluggable spring terminals.
⑨ ME-UB15	15 non-pluggable spring terminals. An ME AB-D15F can also be used instead.
⑩ ME AB-D15F	Standard terminal block. 15-pin D-sub female to spring terminals. In a DIN rail mountable card carrier.
⑪ ME-UB26/UM20x	Terminal block for MEphisto Scope 26-pin D-sub. BNC for trigger. Pluggable resistor arrays
ME AK-D26	Standard cable. 26-pin D-sub male to female, 1:1 contacted. Connects ME-UB26/UM20x to MEphisto Scope
MW17-GS/6-ST	12 V/500 mA external power supply for ME-UBRE, ME-UBOO, ME-UBOI.

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MEphisto Scope 1 (UM20x)



The MEphisto Scope contains **7 instruments in one**. Still it is very compact and can easily be held in one hand. Try this with 7 classic benchtop devices!



--- Specifications ---

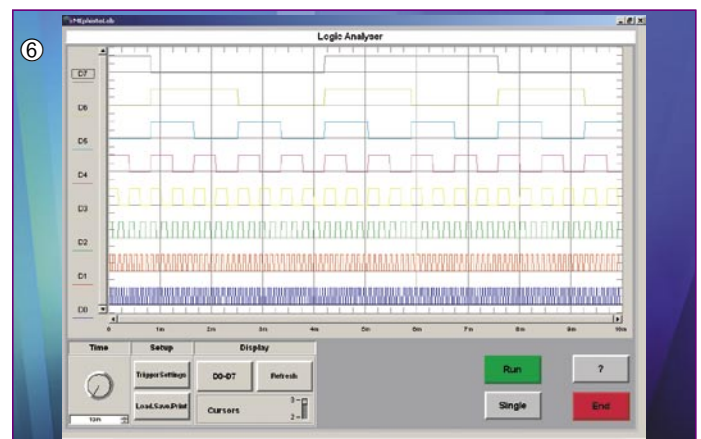
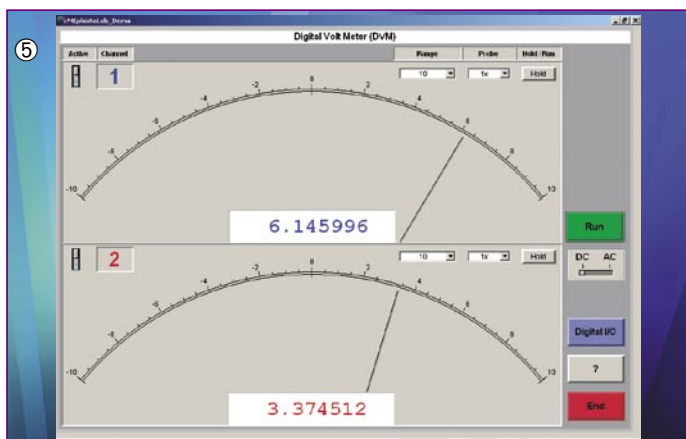
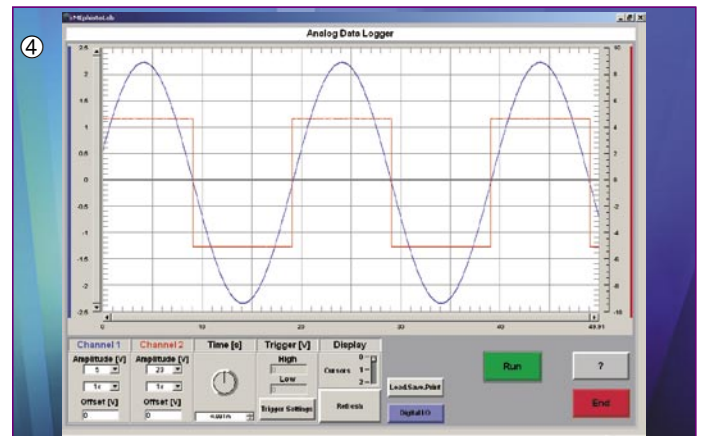
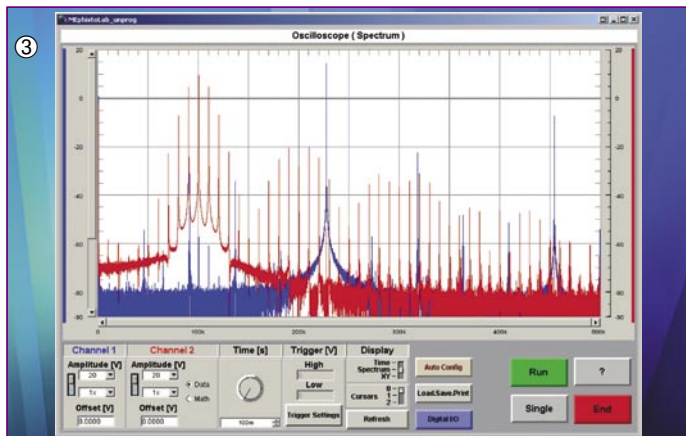
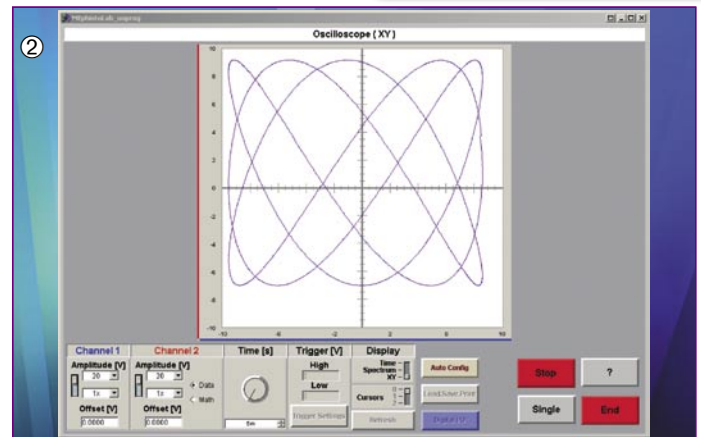
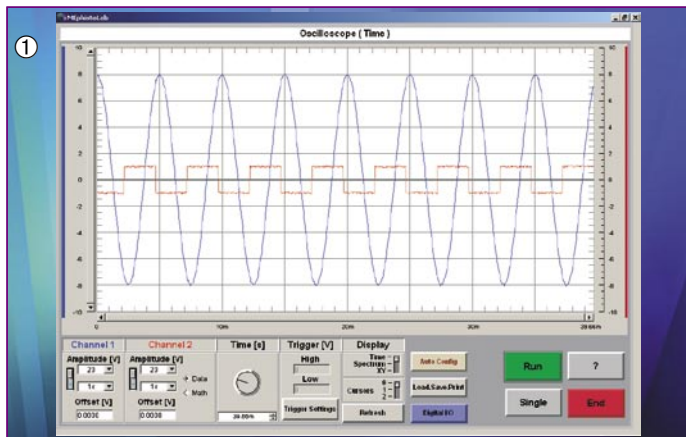
Analog inputs	Functions: Oscilloscope incl. spectrum analyzer/FFT, volt meter, analog data logger
Number, connectors	2 (simultaneous), BNC
A/D conversion	Resolution 16 bit/max. 500 kHz. Sample rate 1 MS/s (2 channels), 2x 1 MS/s (per 1 channel, simultaneous sampling)
Input range	± 100 mV... ± 10 V max. Overload protection ± 300 VDC. Input impedance 850 k Ω (input capacity 14 pF)
Accuracy (25°C)	Voltage: 0.1% or 1 mV. Time: 100 ppm
Value memory	256 kS
Used as oscilloscope/DSO and spectrum analyzer	
Operating modes	Time, XY, spectrum analyzer/FFT (Fast Fourier Transformation)
Analog bandwidth	(-3 dB) 1 MHz (no anti aliasing filter)
Time base	1 μ s...2.5 s
Trigger types	Threshold, window, edge, slope (dU/dt), external (on 26-pin D-sub female), manual, delay
Used as volt meter (pointer display in software)	
Analog bandwidth	(-3 dB) DC 40 kHz, true RMS 2.3 kHz
Used as analog data logger	
Analog bandwidth, trigger types, see oscilloscope	
Time base	10 μ s...2.5 s
Digital channels	Functions: Logic analyzer, digital input/output (GPIO), digital data logger
Number, connection	24, 26-pin D-sub female
Level	+5 V (CMOS). Output current (25°C) sink 10 mA/source 5 mA ¹⁾
Used as logic analyzer	
Channels	16: 8+8 simultaneous channels, 8 of them simultaneous trigger channels
Sample rate	100 kS/s
Overload protection	+5.5 VDC/-0.5 VDC
Time base	10 μ s...2.5 s
Trigger types	Pattern (low/high, rising/falling edge, ignore) in any combination simultaneous for 8 bit, manual, external, delay
Use as digital inputs/outputs	
Channels	24 discrete inputs/outputs. Each bit/line individually programmable as input or output. Outputs with read-back.
Expandability	Relays or opto-isolation with ME-UB series (see accessory)
Used as digital data logger	
See logic analyzer	
Offline/stand-alone data logger	
Storage media	SD card (slot on the device's backside) up to 2 GB. 256 MB SD card included. Data read out requires optional card reader (standard USB card reader, compatible with SD cards)
Start measurement	Configuration via USB. Uses the final settings from USB online operation after power supply is connected. Start measurement/logging by inserting the SD card
Rate	Up to 100 kS/s (depending on SD card model)
General	
PC interface	USB 2.0 full-speed (USB 1.1 compatible)
Power supply	UM202: +5 V/0.85 W from PC via USB interface ²⁾ . UM203: Via external power supply (included) in stand-alone/offline mode
Connectors	2x BNC female (front side), 26-pin D-sub female (back side), type B USB connector (back side). UM203: SD slot
Indicators	2 LEDs for status and self diagnosis
Size	110 x 35 x 136, (WxHxD, mm, with connectors/pads), 420 g
Temperature	0...70°C (operation), -20...85°C (storage)

1) Logic analyzer: 1.8 V/3.3V CMOS, 12 V/24 V with optional converter.

2) To guarantee reliable operation even with high loads on the digital port, the device signals the computer the max. power consumption of 2.5 W. This means that it is not possible to use the device with a passive/non-powered USB hub.

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Windows software MEphisto Lab instrument panels:

- ① Digital storage oscilloscope, "time" mode.
- ③ Spectrum analyzer.
- ⑤ Volt meter.
- ⑦ Digital switchbox.

- ② Digital storage oscilloscope, "XY" mode.
- ④ Data logger analog.
- ⑥ Logic analyzer.
- ⑧ Data logger digital.