

Technical Data:

Display:	Double scale 0 ... 3 / 0 ... 10, linear, zero-point left, mirrored, scale arc length: approx. 86 mm Double scale -5 ... 0 ... +5 / -1,5 ... 0 ... +1,5, linear, zero-point middle, scale arc length: approx. 41 mm
Zero correction:	Adjusting screw for mechanical zero-point correction
Measuring device:	Moving-coil system
Accuracy:	$\pm 2\%$ (DC), $\pm 3\%$ (AC)
AC - Converter:	corrected absolute average
Use position:	horizontal or slightly inclined
Measuring ranges:	DC and AC: 100 mV, 300 mV, 1 V, 3 V, 10 V, 30 V
Max. input voltage:	$42V_{\text{rms}}$
Input resistor:	$100k\Omega / V$ (AC and DC)
Category:	CAT 0
Frequency range AC:	20Hz to 70kHz (-3dB)
Frequency response:	-1.5 db at 20 kHz
Power supply:	4 x AA 1,5-V mignon cells (alkaline recommended)
Case:	Plastic, ABS
Dimensions:	approx. 140 x 200 x 100 mm
Weight:	approx. 611 g

Make sure that the device does not fall. If this does happen, bring the device to a proper inspection or repair by authorized specialists.

If unexpected problems occur during installation or operation of the device, switch off the device and contact the specialist dealer.

Do not expose the device to dripping or splashing water.

This device may only be operated by qualified persons or by persons who have been instructed in its use.



This student meter is suitable for measuring DC and sinusoidal AC voltages in the range between about 10mV and 30V at frequencies between 20Hz and 70kHz.



- 1 Double scale 0 ... 3 / 0 ... 10, linear, to use for zero-point left measurements
- 2 Pointer
- 3 Arc scale "BAT" to control the battery capacity
- 4 Mirror scale for exact determination of measured values
- 5 Double scale -5 ... 0 ... +5 / -1,5 ... 0 ... +1,5, linear, to use for zero-point middle measurements (e.g. Induction)
- 6 Operating mode switch: OFF, DC, AC, Battery Check
- 7 4-mm-Safety socket "COM" (black) - Common zero point
- 8 4-mm-Safety socket "V/A" (red) for current measurements, Positive pole
- 9 Step switch for measuring range selection: 100 mV, 300 mV, 1 V, 3 V, 10 V, 30 V
- 10 Adjusting screw for mechanical zero point correction

The device is designed as a CAT 0 device for student experiments. Voltages above $30V_{rms}$ must not be connected under any circumstances! Pupils should not be allowed to connect to the mains voltage!

The device is permanently protected in all areas against input voltages smaller than $30V_{rms}$ geschützt. Applying higher voltages is not in accordance with the intended use and can damage the device.

If the rear panel of the instrument is opened for battery replacement, the test leads must be disconnected and the instrument switched off.

For connection, 4 mm laboratory cables with a fixed protective collar are recommended. This not only prevents body contact with electrical voltage, but also short-circuits the current to be measured.

If AC voltages with other waveforms are measured, the respective crest factors must be taken into consideration. Attention! The waveform of the output voltage of mains transformers is not sinusoidal! Especially with increased mains voltages as well as with combined DC - AC - power supplies there are clear deformations. Then the displays of True - RMS devices and those with corrected absolute average (like this one) do not agree any more. This is not an error! In case of doubt, check the waveform with an oscilloscope.

Experience shows that the battery life depends on the power-off discipline:

-> If the device is actually switched off, the battery life in normal school usage is almost equal to the storage life.

-> If the device is placed in storage in "DC" oder "AC" position, the battery life is approx. 1.5 years.

-> If the device is placed in storage in "BAT" oder "AC" position, the battery life is approx. 3 months.

Basically, new alkaline cells should be used.

For safety reasons, the batteries should be visually inspected every 6 months to detect leaks in good time. Due to the spatial distance of the batteries to the circuit board in this device, the risk of consequential damage due to leaking batteries is lower than usual.

The use of accumulators is not recommended. In principle, operation is possible, but accumulators have a significantly higher self-discharge and also a much higher price, which is not justified for sporadic use.

Electrostatic and cleaning

The measuring unit is antistatically coated. As is usual for instruments in plastic housings, cleaning must only be carried out with a damp cloth. Household glass cleaners are also permissible, but please do not spray them on the instrument, but on the cloth. Extreme soiling can be removed with isopropanol. Aggressive chemicals (e.g. acetone) as well as scouring agents can permanently damage the device and should therefore be kept away. The use of grease-dissolving substances such as benzene can detach the antistatic coating of the measuring mechanism. The device is then practically unusable.