Multimeter Escola 2 1006811

Instruction sheet

01/13 ALF

1 Meter display with mirror scale
2 Slotted screw for zero calibration
3 Adjustment knob for zero calibration
4 Measurement range dial
5 Operating mode switch
6 Safety measurement socket
7 Safety ground socket

⚠ 1. Safety instructions

The Escola 2 multimeter conforms to the safety requirements for electrical equipment for measurement, control and laboratory use in DIN EN 61010 part 1. Safe operation of the apparatus is guaranteed with correct handling. However, safety is not guaranteed if the apparatus is handled improperly or carelessly.

- Read this manual carefully before using the multimeter and follow the instructions!
- Before using the meter, check the case and test leads for any damage. In the event of any malfunction/operational defect or visible damage, do not use the meter. Pay particular attention to the insulation surrounding the measurement sockets.
- The limit of the measurement range must not be exceeded. If the values of the measurand are unknown, always switch from a higher measurement range to a lower one.
- Do not conduct measurements in a humid environment. Work area, hands, shoes and floor must be dry.
- When measuring current, turn off circuit power before connecting the meter in the circuit.
- Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
- Before the case is opened, the meter has to be switched off and the leads must be disconnected from the meter.
- When disposing empty batteries follow the local regulations. Never dispose of them in the regular household garbage.

2. Symbol legend

	Read instruction sheet
V	Voltage
A	Current
	Moving coil galvanometer
	Apparatus with electronic amplifier
	DC quantities accuracy class 2
	AC quantities accuracy class 3
	Use in horizontal position
	Test voltage
	Use in vertical position
	DC quantities
	AC quantities
	Needle position zero centre
	"OFF" position

3. Description

The Escola 2 is a meter for use by students to measure to measure voltages and currents (both DC and AC quantities) in low voltage ranges.

All measurement ranges are selected by means of a rotary dial. Two linearised mirror scales, graded in a 1:3 ratio, guarantee easy readability of the measured values.

The trimmer for setting the zero point in the centre allows the zero point to be set precisely when it drifts electrically.

AC quantities are calibrated for a sinusoidal waveform. Conversion and linearisation of the measurement is achieved by half-wave rectification (positive half-wave) using an op-amp.

The use of a robust moving coil galvanometer and a mechanically resilient chassis also allows for rough operating conditions.

The overcurrent protection of the Escola 2 automatically limits the power when overloaded. After a brief cooling phase, the apparatus automatically switches on again.

4. Technical data

Voltage ranges:	0.3; 1; 3; 10; 30 V AC/DC
Source impedance:	10 kOhm/V
Current ranges:	1; 10; 100; 1000; 3000 mA AC/DC
Voltage drop for current measurements:	100 mV AC/DC approx.
Accuracy:	DC class 2 AC class 3
Electrical zerocalibration:	For all DC ranges
Accuracy for zero centre:	Class 5
Scale length:	80 mm
Power supply:	1x 1.5 V, IEC R6 with test function
Overload protection:	Up to ± 50 V AC/DC peak
Frequency range:	20 Hz…50Hz…20 kHz
Dimensions:	98x148x49 mm^3 approx.
Weight:	300 g approx.

5. Operation

- Switch the device on by select the desired operating mode, ~ or  .
- To turn off the multimeter, set the mode switch to the off position  .
- To test the battery, set the measurement range dial to the position ~.

5.1 Current and voltage measurements

- Conduct all normal current and voltage measurements with the operating mode switch in the position ~. This way, setting the measurement range with the measurement range dial automatically takes care of AC/DC switchovers.
- Connect the lower measurement potential to the left-hand socket. For DC quantities, the positive polarity should always be connected to the right-hand socket.

5.2 Measurements with the zero position of the needle centred

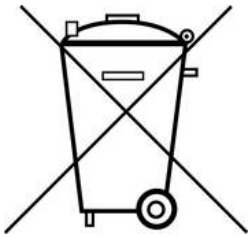
This mode of measurement only works for the DC current and DC voltage ranges.

- For measurements requiring the zero position of the needle position to be centred, set the operating mode switch to the position  .
- Before connecting the external quantity to be measured, use the adjustment knob to accurately centre the zero position on the scale.

5.3 Changing the battery

5.3.1 General information

- From time to time, check the state of the battery.
- ⚠ Remove discharged or corroded batteries from the apparatus.
- ⚠ During prolonged periods of disuse, also remove the battery from the apparatus.
- Do not dispose of the battery in the regular household garbage. Follow the local regulations (In Germany: BattG; EU: 2006/66/EG).



5.3.2 Changing the battery

- Unscrew the back of the chassis.
- Place the negative pole of the battery on the spring.

The polarity is also marked on the board with plus and minus symbols. Additionally, a mechanical clip on the positive side prevents battery contact when polarity is reversed.

- Close chassis again.

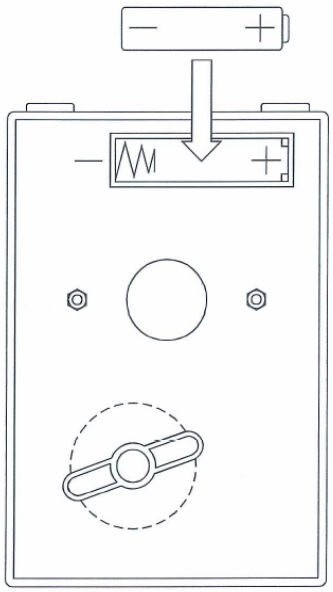


Fig. 1 Changing the battery

6. Maintenance

- This apparatus does not require special maintenance.
- For cleaning, use a soft cloth, slightly moistened with alcohol, or a brush.
- In order to remove a potential electrostatic charge from the meter display window, which can easily influence measurements, follow the instructions above.

Dirt or moisture in the measurement sockets can affect readings.

- Shake out any dirt that may be in the measurement sockets.
- Soak a new swab with isopropyl alcohol and work around the inside of each measurement socket.