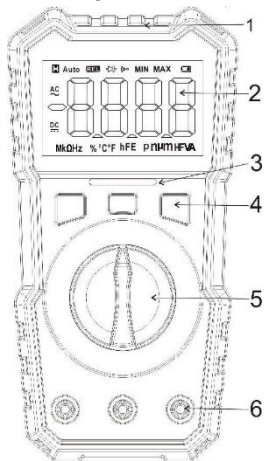


Thank you for purchasing our equipment. Please read this manual carefully and heed the safety warnings and instructions before installing, using or repairing the equipment. This will ensure not only the protection of persons, but also the long life of the equipment.

Home

This multimeter has been designed as a stable, reliable, comprehensive digital electronic measuring instrument with a compact size and features an LCD display with 31.5mm font height for clearer readings. And with an excellent precision A/D converter as the core for the extensive integrated circuit, which ensures that this model measures AC/DC voltage, AC/DC current, resistance, diode test, continuity, NCV, live wire and battery test. With built-in backlight and flashlight for taking readings in dark environments. To make full use of this meter, keep this instruction manual carefully.

Description of the device



1. Induction position NCV
2. LCD Display: Font height 31.5mm
3. NCV indicator
4. Three control buttons
 - SEL: function shift button
 - : luminaire
 - : Short press to permanently display the measured data. Long press to switch the display backlight on/off.
5. Rotary function switch
6. Input connectors

Safety notice

This device has been designed in accordance with IEC1010 standard for electronic measuring instruments with 600 V CAT III voltage and pollution level 2.


This symbol indicates that the operator must follow the explanation in the operating instructions to avoid injury or damage to the measuring instrument.

Grounding High Voltage Double Insulation

Notice

- Improper use of this meter may cause damage, electric shock, injury or death. Read and understand this manual before using the equipment.
- Always disconnect the cables before changing the battery or fuses.
- Before using the meter, check the condition of the cables and the meter itself for damage.
- Use extra caution when making measurements if the voltage is higher than 30 VAC RMS or 60 V DC, these voltages are considered an electrical shock hazard.
- Always discharge the capacitors and disconnect the device under test from the power supply before performing diode, resistance or continuity tests.
- To avoid damage to the measuring instrument, do not exceed the maximum input limits specified in the specification.
- If the device will not be used for a long period of time, remove the batteries to prevent them from running down.
- To prevent electric shock, disconnect the test leads from the voltage source before removing the back cover or battery cover or fuses.
- To prevent electric shock, do not use the meter until the battery and fuse covers are in place and securely fastened.
- To protect the circuit, replace the fuse, it must be in the same specification.
- Do not clean the housing of the device with a chemical solvent.

Technical parameters

Accuracy: ± (% of reading + digits)
Ambient temperature: 18 °C ~ 28 °C; humidity: ≤80%.
Maximum distance between input voltage and earth: CATIII 600V
Fuse: F200mA/250V, F10A/250V.
Battery: 1.5 V AAA x 2
Automatic switch-off: In about 15 minutes after switching on
Max display: 2000
Overload display: 'OL'
Polarity display: negative "-"
Operating temperature: 0 -40°C°C
Storage temperature: -10 °C°- 50 °C
Low battery indication: 
Dimensions: 150x75x47mm
Weight: approximately 300 g (including batteries)

DC & AC Voltage

Scope	Resolution	DCV accuracy	ACV accuracy
200mV	100uV	±0.5% 3±	±1.0%±10
2V	1mV	±0.5% 3±	±1.0%±10
20V	10mV	±0.8% 3±	±1.0%±10
200V	100mV	±0.8% 3±	±1.0%±10
600V	1V	±0.8% 5±	±1.0%±10

Input impedance: 10MΩ
Overload protection: range 200 mV at 250 V DC or 250 V AC RMS Other ranges at 600 V DC or 600 V AC RMS
Frequency range: 40Hz - 1000Hz, Display: TRUE RMS

DC & AC current

Scope	Resolution	DCV accuracy	DCA accuracy
2mA	1uA	±1.0%±5	±1.8%±5
20mA	10uA	±1.0%±5	±1.8%±5
200mA	100uA	±2.0%±5	±2.5%±5
10A	10mA	±3.0%±5	±3.0%±5
2mA	1uA	±1.0%±5	±1.8%±5

Overload protection: FF0.2A/250 fuse for mA range
FF10A/250 fuse for 10 A range
Frequency range: 40Hz - 1000Hz, Display: TRUE RMS

Resistance

Scope	Resolution	Accuracy
200Ω	0.1Ω	±1.0%±5
2KΩ	1Ω	±1.0%±5
20KΩ	10Ω	±1.0%±5
200KΩ	100Ω	±1.0%±5
2MΩ	1KΩ	±1.0%±5
200MΩ	100KΩ	±5.0%±10

Overload protection: 250 V DC or 250 V AC RMS

Diode test and circuit continuity

Scope	Description
Buzzer	Built-in buzzer sounds when resistance is less than 50Ω±30 Ω
Diode	Display of approximate forward diode voltage

Battery test

Scope	Value on display	Resolution
1.5V	1.5V	0.01V
3V	3V	0.01V
9V	9V	0.01V

Overload protection: 36 V DC or 36 V AC RMS

Transistor test (hFE)

Scope	Description	Test conditions
hFE	Measurement of NPN or PNP type transistor, display of approximate value of hFE 1 - 1000	Based on 10uA current Vce is approximately 2.8V

Non-contact detection


AC voltage range > 30V - 1000V (50Hz-60Hz)

Live conductor recognition

AC voltage range > 100V - 250V (50Hz-60Hz)

Equipment operation

Tips before operation:

- If the LCD display shows battery status , replace the batteries with new ones.
- To prevent damage to the meter, do not attempt to draw voltage or current that exceeds the rated values.
- Set the rotary switch to the desired range before measuring.

Voltage measurement

1. Insert the red measuring cable into the "VΩmA" connector and the black measuring cable into the "COM" connector.
2. Set the rotary switch to the voltage range, and press the "SEL" button to switch the DCV or ACV mode, touch the probe tips of the test leads of the circuit under test, the connection of the red test lead will be displayed.

Note:

- If the tested current range is not known, set the rotary switch to a higher range and then reduce until the best accuracy is achieved.
- To avoid electric shock and damage to the instrument, do not attempt to take voltage measurements that may exceed 600VRMS.
- It is OK that without the measurement cables connected, values appear on the display in the 200 mV to 2V range. This does not affect the measurement

Current measurement

1. Insert the black measuring cable into the COM connector and the red measuring cable into the "VΩmA" connector, for measuring current in the range of 200mA to 10A, insert the red measuring cable into the 10A connector.
2. Set the rotary switch to the current range, and press the SEL button to switch to DCA or ACA mode, touch the probe tips of the measuring leads of the circuit under test, the connection of the red measuring lead will be displayed.

Remark:

- Set the rotary switch to a higher range if the current range under test is not known, and then lower for better accuracy.
- If the display shows "1" or "OL", set the rotary switch to the higher range.
- To avoid damage to the meter, check the fuse of the meter before measuring the current.

Resistance measurement

1. Insert the black measuring cable into the "COM" connector and the red measuring cable into the "VΩmA" connector.
2. Set the rotary switch to the Ω range and touch the test lead to the resistance under test and read the value from the LCD display.

Remark:

If the measured resistance value exceeds the maximum value of the selected range, "OL" will be displayed on the meter display to exceed the range, then the rotary switch should be set to a higher value. When measuring high resistance above 1 MΩ, the meter may take several seconds for the values to stabilize.



- In open circuit, the meter will display **OL** to indicate over range.
- To avoid electric shock, disconnect the power supply of the instrument under test and discharge all capacitors before measuring the resistance.

Diode test

1. Insert the black test lead into the "COM" connector and the red test lead into the "VΩmA" connector, the polarity of the red test lead is "+".

Set the rotary switch to  and press the SEL button to go to . Place the red test lead on the anode of the diode and the black test lead on the cathode of the diode, the meter will show the approximate forward voltage of the diode.

Continuity check

1. Insert the black test lead into the "COM" connector and the red test lead into the "VΩmA" connector.
2. Set the rotary switch to range  and press SEL to advance the mode , touch the test leads of both points of the circuit, if the resistance between the two points is less than 50Ω±30Ω, the built-in buzzer will sound.

Transistor measurement (hFE)

1. Set the rotary function switch to the hFE range and insert the transistor test set correctly.
2. Make sure that the triode type is NPN or PNP, and then insert the E,B,C of the triode under test into the E.B.C holes in the triode mounting on the panel.

The meter displays the approximate hFE value and the test condition is as follows
at a base current of 10uA, Vce is approximately 2.8 V.

Battery test

1. Insert the black test lead into the "COM" connector and the red test lead into the "VΩmA" connector. The polarity of the red test lead is "+".
2. Set the rotary switch to the "BAT" range.
3. Place the tip of the red test lead on the positive pf of the battery and the tip of the black test lead on the negative pf of the battery.

Note:

To avoid damage to the measuring instrument, the maximum battery voltage is not to exceed 36 V.

Non-contact voltage detection (NCV)

1. Set the rotary switch to **NCV/Live** and press the **SEL** button to activate NCV mode, "NCV" will be displayed on the LCD.
2. Touch the upper part of the measuring instrument of the circuit under test, after the voltage output, an audible warning signal will sound.

Remark

- The detection result is reference, do not determine the voltage ONLY by NCV detection.
- Detection can be interfered with the socket design, insulation thickness and other variable conditions.
- External interference sources such as flashlight, motor, etc. may cause incorrect detection.


Live Wire Recognition(Live)

1. Set the rotary switch to the **NCV/Live** range and press the **SEL** button to activate the Live mode, "LIVE" will appear on the LCD display.
 2. Insert the red measuring cable into the VW connector and place the tip of the red measuring cable on.
- AC voltage contact. When the measuring instrument gives an audible signal and "- - -" is displayed on the LCD display, it means that the line under test is energized.

Remark

- If the circuit is in serious leakage, the red test lead even touches the grounded line, the meter buzzer will sound.
- Detection can be interfered with the socket design, insulation thickness and other variable conditions.
- External interference sources such as flashlight, motor, etc. may cause incorrect detection.

Replacing the battery and fuses

1. To prevent electric shock, disconnect the test leads from the voltage source before removing the back cover or battery covers or fuses.
2. To prevent electric shock, do not use the meter until the battery and fuse covers are in place and securely fastened.
3. When the battery indicator appears , open the battery cover and replace the battery of the same type in the battery holder, then put the battery cover back in place and secure it with the screws.
4. If you are replacing the fuse, carefully remove the old fuse and install the new fuse in the fuse holder, making sure the fuse specification is the same as the original fuse, then put on and secure the back cover.

The product has been issued with a CE declaration of conformity in accordance with the applicable regulations.

On request from the manufacturer: info@solight.cz, or downloadable from www.solight.cz/en.



Solight Holding, s.r.o., Na Brně 1972, Hradec Králové 500 06, Czech Republic.