True RMS Full Auto

500V Anti Burn Protection

MEET Technology

Smart Digital Multi Meter

(Fully Automatic)

Model No.:

☐ **MS-SD1 (4000 Count)**

☐ **MS-SD2 (4000 Count) (with "NCV / SPT")**

Thank you for purchasing MEET Smart Digital Multi Meter

1. Contents

- Multi meter with test leads
- 2 pcs. AAA battery
- Operating manual

2. Technical Specifications

Model No.	MS-SD1	MS-SD2
Max. voltage between terminal and earth	CAT II , 500 V (AC / DC)	
Count	4000	4000
Digit	3-3/4	3-3/4
Sampling 3 times / second	*	*
Operating current: 30 mA (max.)	*	*
Standby current: <50 µA	*	*
AC / DC voltage measurement: from 1.5 ~ 500V	*	*
Resistor measurement: 0 to 18M Ω	*	*
Continuity check: <50 ohm Beeps	*	*
Auto Power Off (5 mins.)	*	*
Single button operation	*	*
Audible sound during continuity check	*	*
Freeze / Hold the display	*	*
Protective holster	*	*
'NCV' Non-Contact AC Voltage Detection (Audible and Visible)		*
'SPT' Single Probe Test AC Voltage (Audible and Visible)		*
Software calibrated	*	*
Anti Burn Protection (ABP) on full range and up to 500V (AC / DC)	*	*
Battery powered (included)	2 AAA (R03 / LR03)	
Dimensions (LxWxH) mm	152 x 81 x 41	
Weight (approx.) grams	215 (without battery)	

3. Measurement Accuracy

True RMS AC Voltage

Range	Resolution	Accuracy
4V	0.001V	±0.6% of rdg ±3 digits
40V	0.01V	±0.6% of rdg ±3 digits
400V	0.1V	±0.6% of rdg ±3 digits
500V	1V	±0.6% of rdg ±3 digits

DC Voltage

Range	Resolution	Accuracy
4V	0.001V	±0.6% of rdg ±2 digits
40V	0.01V	±0.6% of rdg ±2 digits
400V	0.1V	±0.6% of rdg ±2 digits
500V	1V	±0.6% of rdg ±2 digits

Resistance

Range	Resolution	Accuracy
3.999KΩ	0.001KΩ	±0.6% of rdg ±2 digits
39.99KΩ	0.01KΩ	±0.6% of rdg ±2 digits
399.9KΩ	0.1KΩ	±0.6% of rdg ±2 digits
3.999MΩ	0.001MΩ	±1.5% of rdg ±2 digits
18.00MΩ	0.01MΩ	±2.5% of rdg ±2 digits

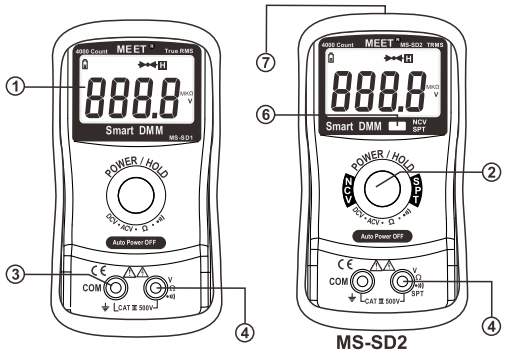
Non-Contact AC Voltage Detect (for MS-SD2 ony)

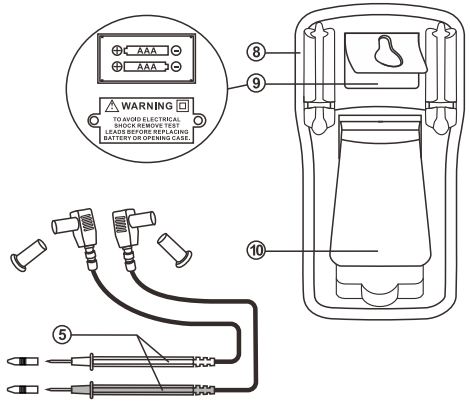
LC Display ' EF '	When > 100 V (ACV), (LED blinks and buzzer sounds)

Single Probe Test (SPT) (for MS-SD2 only)

LC Display ' EF '	Either red or black test lead is in contact with>50 V (ACV), (LED blinks faster and buzzer sounds)

4. Component Descriptions





① LC Display
② Power / Hold button.
a.) Press and hold 3 secs. to power 'ON' or 'OFF'
b.) Press once to Hold / Freeze reading (except ' NCV/SPT ' range)
c.) NCV / SPT LED indication (for MS-SD2 only)
③ COM(-) Terminal input from black test lead
④ V/ Ω /→•←/ SPT ('SPT' mode only for model MS-SD2)
(+) Terminal input from red test lead
⑤ Test leads
⑥ Press button for 'NCV'/ 'SPT' function
Press once to active, another press to release
⑦ NCV sensor
⑧ Holster
⑨ Battery compartment
⑩ Foldable stand

5. Explanations of symbols and units on the multi meter

~	Alternating voltage	CAT III	Overvoltage category 3
⎓	Direct voltage	⏚	Ground potential
V	Volt (unit of electric potential)	OL	Over range (= over flow)
⬬	Negative	→•←/•)))	Continuity check
H	Freeze / Hold reading	NCV / ~NCV	Non-Contact AC Voltage detect
KΩ	Kilo Ohm	EF / NCV	NCV / SPT function display active
MΩ	Mega Ohm	SPT	Single Probe Test (AC voltage)
AUTO	Auto range / Measurement	🔋	Low battery display

6. Intended use

Measuring and displaying electric voltage category III 500 V (against ground potential, pursuant to EN 61010-1) up to a maximum or lower than 500 V
- Measuring DC & AC voltage up to a maximum of 500V (AC / DC)
- Also designed to measure resistance values of up to 18 Mohm (approx.)
- Continuity check with buzzer sound < 50 Ω (approx.)
- Non-Contact AC voltage detection (NCV) > 100 V (MS-SD2 only)
- Single Probe Test for AC voltage (SPT) > 50 V (MS-SD2 only)

Operation is only permitted with the stated battery type.
The measuring instrument must not be operated when battery compartment is open. Measuring in damp rooms or under following un favorable ambient conditions is not advisable.
- Wetness or high humidity
- Dust and flammable gases, vapors or solvent
- Thunder storms or similar conditions such as strong electrostatic fields etc.

Any use other than the one described above will damage the product. Moreover, this involves dangers such as short circuit, fire, electric shock, etc. No part of the product must be modified or re built!

The multi meter indicates measured values on the digital display. The measuring value display of the multi meter comprises 4000 counts.

The safety instructions must be followed unconditionally!

7. Safety instructions

Please read the operating instructions carefully before using the product for the first time as they include important information necessary for correct measurement.

The guarantee becomes null and void when damage has incurred as a result of non-compliance with the operating instructions! We do not assume any liability for any damage arising as a consequence! We will also not assume any responsibility for damage to assets or for personal injury caused by improper handling or failure to observe the safety instructions.

This device left the manufacturer's factory in a safe and perfect condition.
We kindly request the user to observe the safety instructions and warnings contained in this operating manual for safe operation and also qualify for warranty claims.

Please note the following symbols:

A triangle containing an exclamation mark indicates important information in these operating instructions which is to be observed without fail.

A triangle containing a lightning symbol warns of danger of an electric shock or of the impairment of the electrical safety of the device.

The ' hand ' symbol indicates special information and advice on operation of the device.

This product has been CE-tested and meets the necessary European guidelines.

Class 2 insulation (double or reinforced insulation).

CAT III Excess voltage category III for measurements in building installation (e.g. outlets). This category also contains all lower categories.

Ground potential.

The unauthorized conversion and / or modification of the unit is inadmissible because of safety and approval reasons (CE).

Consult an expert when in doubt about the operation, the safety or the connection of the device.

Measuring instruments, accessories and packing materials must be kept away from the children's reach. They may become hazardous.

In commercial and industrial facilities the regulations for the prevention of accidents as laid down by the professional trade association for electrical equipment and devices need to be observed.

In schools, training centers, computer and self-help workshops, handling of measuring instruments must be supervised by trained personnel in a responsible manner.

The voltage between the measuring instrument and earth must never exceed CAT III, 500 V (AC / DC).

Take particular care when dealing with voltages exceeding 25 V AC or 35 V DC! Even at these voltages it is possible to get a fatal electric shock if you touch electric conductors.

Check the measuring device and its measuring lines for damage before each measurement. Never carry out any measurements if the protecting insulation is torn or ripped off etc.

To avoid electric shock, make sure not to touch the connections / measuring points either directly or indirectly during measurement. Also during measurements, do not hold test probes beyond the grip range markings.

Do not use the multi meter
- During, before or immediately after thunder and lightning (thunder strike / high-energy over voltages), please make sure that your hands, shoes, clothes, the floor, switches and switching components all are dry.
- Immediately after it has been taken from a cold to a warm environment, condensation water that forms might destroy your device. Switch Off the unit until it has reached room temperature.

Avoid operation near:
- strong magnetic or electromagnetic fields. This may falsify the measured values.

In case of the following situations safe operation of the unit is no longer possible. So disconnect the unit immediately and secure it against inadvertent operation.
- The unit does not operate any longer
- The unit was stored under unfavorable conditions for a long period of time or
- The unit has been subjected to considerable stress in transit.

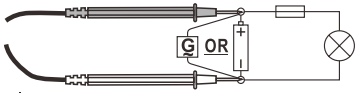
Again please read all the safety instructions in each chapter of these instructions.

8. Measurements

Do not exceed the maximum permitted input values. Do not contact circuits or parts of circuits if there could be voltages higher than 25 V ACrms or 35 V DC present within them. Mortal danger!

Before measuring, check the connected measuring cable for damage such as, for example, cuts, cracks or squeezing. Defective measuring cables must no longer be used. Mortal danger!

A) Voltage measuring ' V '
Proceed as follows to measure AC/ DC voltages:



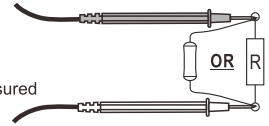
- Connect the two test probes to the object to be measured (battery, circuit etc.). The red measuring tip indicates the positive pole, the black measuring tip the negative pole.
- The polarity of the respective measuring value is indicated on together with the current measuring value.

As soon as a minus ' - ' appears for the direct voltage in front of the measuring value, the measured voltage is negative (or the measuring tips have been mixed up).

Internal connected and input impedance is >10M Ohm.

B) Resistance / Continuity measuring ' KΩ / MΩ '

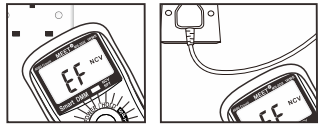
Make sure that all the circuit parts, switches and components and other objects of measurement are disconnected from the voltage at all times.



Proceed as follows to measure the resistance:
- Touch measuring probes of test leads with each other for continuity check. The reading on display must be approximately 0.000KΩ.
- Now connect the measuring probes to the object to be measured. As long as the object to be measured is not high-resistive or interrupted, the measured value will be indicated on the display. The display shows in **"KΩ" and buzzer sounds when the circuit is less than 0.050 KΩ approx.**
- As soon as ' OL ' Over range (= overflow) appears on the display, you have exceeded the measuring range or the measuring circuit has been interrupted.

C) Non-Contact AC Voltage Detection (NCV) (for MS-SD2 only)

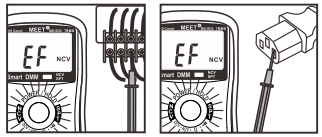
- Press and hold the Power button ② for 3 secs. to power ON the DMM, and then press the ' NCV / SPT ' ⑥ button, LC display ' EF '.
- Hold the DMM and move the NCV sensor ⑦ near to the Live / Hot wire or power source.
- LED lights up and buzzer sounds when AC Voltage presence.



NCV Detection

D) Single Probe AC Voltage Test (SPT) (for MS-SD2 only)

- Press and hold the Power button ② for 3 secs. to power ON the DMM, and then press the ' NCV / SPT ' button ⑥ , LC display ' EF '.
- Hold your DMM away from any AC voltage source specially near ' NCV ' sensor area ⑦
- Place only the red test probe in contact with the terminal or circuit.
- LED lights up and buzzer sounds when AC Voltage presence.

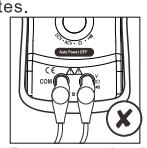


SPT test

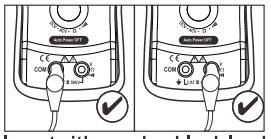
E) Switching Off Unit

Unit can be switched off in two ways Manual or Auto
-Manual switch Off--- Press and hold button ② for 3 secs., the unit will switch off.
-Auto switch off-------The unit will switch off automatically after 5 minutes.

NOTE: DO NOT USE BOTH TEST LEADS AT THE SAME TIME!



Do not use both test leads



Insert either red or black lead

9. Trouble Shooting

In purchasing the meter, you have acquired a product which has been designed to the state of the art and is operationally reliable. Nevertheless, problems or faults may occur. For this reason, the following is a description of how you can eliminate possible malfunctions yourself.

Always adhere to the safety instructions !

Error	Possible cause
The multimeter does not function.	Are the batteries dead ? Check the status.
No measuring value change.	Is the wrong measuring function active?

Repairs other than those described above should only be carried out by an authorised specialist.
Product specifications subject to change without notice

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