



Palm Size Digital Multimeter Detector (DMMD)

(2000 Count)

MS-2072 MS-2072T MS-2072P MS-2072PT

(4000 Count)

MS-2074 MS-2074T MS-2074P MS-2074PT

Thank you for purchasing MEET Palm Size Digital Multimeter Detector

1. Contents

- Multimeter detector
- Test leads
- 2 AAA (R03 / LR03)
- Operating manual



- 1 -

Model No.	MS-2072	MS-2072T	MS-2072P	MS-2072PT
	MS-2074	MS-2074T	MS-2074P	MS-2074PT
Auto Power Off (5 mins.) or always ON	*	*	*	*
Freeze / Hold Reading	*	*	*	*
Relative reading	*	*	*	*
Anti Burn Protection (ABP) on full range and up to 250V (AC / DC) (NOT AT CURRENT RANGE)	*	*	*	*
Input impedance 10MΩ	*	*	*	*
Software calibrated	*	*	*	*
'OL' over range display	*	*	*	*
Resettable fuse, 200mA	MS-2072	MS-2072T		
Resettable fuse, 400mA	MS-2074	MS-2074T		
Low battery indication (2.6V approx.)	*	*	*	*
Battery powered	2 AAA (R03 / LR03)			
Dimensions (LxWxD) mm	103 x 83 x 34			
Weight (approx.) grams (without battery)	130			

- 3 -

3. Measurement Accuracy

AC Non-Contact AC Detection (NCD)

Numerical display AC signal strength	When > 25 V (ACV)
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SPT Single Probe Test (SPT)

Numerical display AC signal strength	When > 25 V (ACV)
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Temperature measurement

(for MS-2072T / MS-2072PT / MS-2074T / MS-2074PT only)

Range	Resolution	Accuracy
-40°C to 1000°C	-40°C to 0°C 1°C to 250°C	1°C ±(3% +5°C)
-40°F to 1832°F	-40°F to 32°F 33.8°F to 482°F	1°F ±(3% +5°F)

NOTES:

- * "K" type thermocouple probe (Ni-Cr and Ni-Si provided) is only applicable for the measurement of temperature range -40°C (°F) to 250°C (482°F)
- Error does not include Type "K" thermocouple error

- 5 -

4. Descriptions

- LCD display
- 'Hold' button (press once)
 - Hold / Freeze the reading
 - Wake-up when at auto power off (APO) mode
- 'REL' (Relative reading) button (press once)
 - Adjust reading to zero
- 'Select' button (press once)
 - 'V' range : DCV / ACV
 - 'Ω' / 'H' / 'T' (for MS-2072T / MS-2072PT / MS-2074T / MS-2074PT only) range : Resistance / Diode / Continuity / Temperature (for MS-2072T / MS-2072PT / MS-2074T / MS-2074PT only)
 - 'μA' / 'mA' / '10A' range : DCA / ACA (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)
 - Wake-up when at auto power off (APO) mode
 - For always ON, press and hold then slide the switch to desired range and then release
- 'Range' button (press once)
 - Manual decimal point mode for voltage / current and resistance measuring

- Mode slide switch
 - OFF → V → Ω → H → T (for MS-2072T / MS-2072PT / MS-2074T / MS-2074PT only)
 - NCD / SPT
 - μA → mA → 10A (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)
- 'Test' electrode
 - For measuring at all range
 - Single probe test (SPT), must physical contact with the measuring object, use either probe to identify 'live' / 'hot' wire in AC voltage circuit (>25V AC, when at 'NCD/SPT' range)
 - Sensor, Non-contact detector (NCD)
- Protective cap for 'Test' electrode

- 7 -

2. Specifications

Model No.	MS-2072	MS-2072T	MS-2072P	MS-2072PT
	MS-2074	MS-2074T	MS-2074P	MS-2074PT
Max. voltage between terminal and earth	CAT II, 500V (AC / DC); CAT III, 300V (AC / DC)			
True RMS	*	*	*	*
Count / Digit (2000 / 3-1/2)	MS-2072	MS-2072T	MS-2072P	MS-2072PT
Count / Digit (4000 / 3-1/2)	MS-2074	MS-2074T	MS-2074P	MS-2074PT
Auto / Manual 'V' (AC / DC) 500V	*	*	*	*
μA / mA / 10A (AC / DC) current	*	*	*	*
Auto / Manual 'Ω' (20MΩ)	MS-2072	MS-2072T	MS-2072P	MS-2072PT
Auto / Manual 'Ω' (40MΩ)	MS-2074	MS-2074T	MS-2074P	MS-2074PT
Continuity '•••' <50Ω beep	*	*	*	*
Diode check '←•'	<2.0V	<2.0V	<2.0V	<2.0V
'NCD' Non-Contact AC Voltage Detector (Audible and numerical display) >25V (AC)	Numerical display AC signal strength			
'SPT' Single Probe Test AC Voltage (Audible and numerical display) >25V (AC)	Identify 'Live' / 'Hot' and 'Neutral' / Ghost wire / voltage difference / Ground / Earthing connection			
Measurable temperature from thermocouple -50°C ~ 1000°C (-58°F ~ 1832°F)	*	*	*	*
'K' type temperature Ni-Cr and Ni-Si sensor, temperature range measurable -40°C ~ 250°C (-40°F ~ 482°F) to be provided	*	*	*	*

- 2 -

3. Measurement Accuracy

AC Voltage (Manual-range)

Range	Resolution	Accuracy	
		2000 count	4000 count
2.000V	0.001V	±1.0% of rdg ±5 digits	±1.0% of rdg ±5 digits
20.00V	0.01V	±1.0% of rdg ±5 digits	±1.0% of rdg ±5 digits
200.0V	0.01V	±1.0% of rdg ±5 digits	±1.0% of rdg ±5 digits
500V	1V	±1.0% of rdg ±5 digits	±1.0% of rdg ±5 digits

AC / DC Current (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)

Range	Resolution	Accuracy	
		2000 count	4000 count
1.999A	0.001A	±0.5% of rdg ±5 digits	±0.5% of rdg ±5 digits
10.00A	0.01A	±1.5% of rdg ±5 digits	±1.5% of rdg ±5 digits

DC Voltage (Manual-range)

Range	Resolution	Accuracy	
		2000 count	4000 count
200.0mV	0.001mV	±1% of rdg ±5 digits	±1% of rdg ±5 digits
2.000V	0.001V	±1% of rdg ±5 digits	±1% of rdg ±5 digits
20.00V	0.01V	±1% of rdg ±5 digits	±1% of rdg ±5 digits
200.0V	0.01V	±1% of rdg ±5 digits	±1% of rdg ±5 digits
500V	1V	±1% of rdg ±5 digits	±1% of rdg ±5 digits

Resistance

Range	Resolution	Accuracy	
		2000 count	4000 count
200.0Ω	0.001Ω	±1% of rdg ±5 digits	±1% of rdg ±5 digits
2.000KΩ	0.001KΩ	±1% of rdg ±5 digits	±1% of rdg ±5 digits
20.00KΩ	0.01KΩ	±1% of rdg ±5 digits	±1% of rdg ±5 digits
200.0KΩ	0.01KΩ	±1% of rdg ±5 digits	±1% of rdg ±5 digits
2.000MΩ	0.001MΩ	±1.5% of rdg ±5 digits	±1.5% of rdg ±5 digits
20.00MΩ	0.01MΩ	±2.0% of rdg ±5 digits	±2.0% of rdg ±5 digits

AC / DC Current (μA, Manual-range) (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)

Range	Resolution	Accuracy	
		2000 count	4000 count
200.0μA	0.001μA	±2% of rdg ±5 digits	±2% of rdg ±5 digits
2000μA	1μA	±2% of rdg ±5 digits	±2% of rdg ±5 digits

Continuity

Range	Resolution	Accuracy	
		2000 count	4000 count
200.0Ω	0.001Ω	±1% of rdg ±5 digits	±1% of rdg ±5 digits

AC/DC Current (mA, Manual-range) (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)

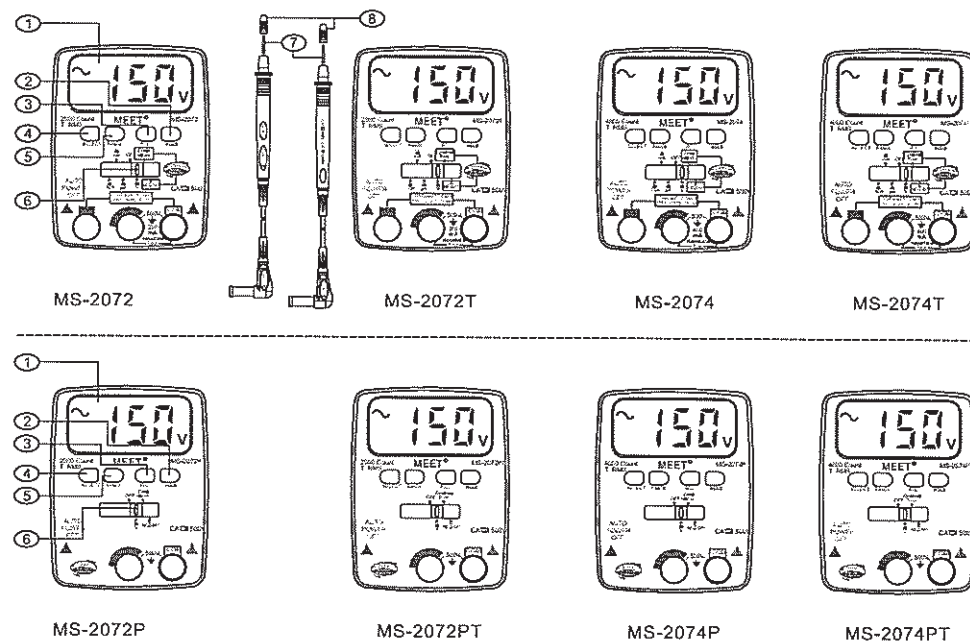
Range	Resolution	Accuracy	
		2000 count	4000 count
20.00mA	0.01mA	±0.5% of rdg ±5 digits	±0.5% of rdg ±5 digits
200.0mA	0.01mA	±0.5% of rdg ±5 digits	±0.5% of rdg ±5 digits

Diode

Range	Resolution	Accuracy	
		2000 count	4000 count
2.000V	0.001V	±10% of rdg ±5 digits	±10% of rdg ±5 digits

- 4 -

4. Descriptions



- 6 -

5. Explanations of symbols and units on the multimeter

- | | | | |
|--------|--------------------------------------------|-----------------------------------|------------------------------------|
| ~ | Alternating voltage | ⊥ | Ground potential |
| ≡ | Direct voltage | OL | Over range (= over flow) |
| mV | Milli volt (unit of electrical potential) | ••• | Continuity check |
| V | Volt (unit of electrical potential) | ←• | Diode |
| mA | Milliampere (unit of electrical potential) | NCD | Non-contact detection (AC voltage) |
| μA | Microampere | SPT | Single probe test (AC voltage) |
| - | Negative | NCD / SPT function display active | |
| H | Freeze / Hold reading | ⊥ | Low battery display |
| Ω | Ohm (unit of electric resistance) | APO | Auto Power OFF |
| KΩ | Kilo Ohm | °C/°F | Temperature unit, |
| MΩ | Mega Ohm | T | C=centigrade, F=fahrenheit |
| AUTO | Auto range / Measurement | | Temperature |
| CAT II | Overvoltage category 2 | | |

Safety instructions

Please read through the operating instructions completely before using the product for the first time; they include important information necessary for correct operation.

The guarantee is rendered invalid when damage is 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. The warranty is voided in these cases.

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 to preserve this condition and to ensure safe operation!

- 8 -

6. Intended use

- Measuring and displaying electric parameters in the range of excess voltage category II 500 V (against ground potential, pursuant to EN 61010-1) or lower
- Measuring direct and alternating voltage up to a maximum of 500 V (AC / DC)
 - Measuring direct and alternating current up to a maximum of 200 μ A / 200 mA / 10A (for MS-2072 / MS-2072T only) 400 μ A / 400 mA / 10A (for MS-2074 / MS-2074T only)
 - Also designed to measure resistance values of up to 20 M Ω (for MS-2072 series only) 40 M Ω (for MS-2074 series only)
 - Diode test
 - Continuity check with buzzer sound < 50 Ω (approx.)
 - Non-contact AC detection (NCD) > 25 V
 - Single probe test (AC voltage) (SPT) > 25 V
 - Measurable temperature from thermocouple -50°C ~ 1000 °C (-58°F ~ 1832°F) (for MS-2072T / MS-2072PT / MS-2074T / MS-2074PT only)

Operation is only permitted with the stated battery type 2 X 1.5V (R03 / LR03)
The measuring instrument must not be operated when it is open, i.e. with an open battery compartment. Measuring in damp rooms or under unfavourable ambient conditions is not admissible.

Unfavourable ambient conditions are:

- Wetness or high air humidity
- Dust and flammable gases, vapours or solvent
- Thunderstorms or similar conditions such as strong electrostatic fields etc.

Any use other than the one described above damages the product. Moreover, this involves dangers such as e.g. short circuit, fire, electric shock, etc. No part of the product must be modified or rebuilt!

The multimeter indicates measured values on the digital display. The measuring value display of the DMMD comprises 2000 / 4000 count (count = smallest display value).

The individual measuring ranges are selected via the slide switch ⑥.

The safety instructions must be followed unconditionally!

- 9 -

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

To avoid electric shock, make sure not to touch the connections / measuring points to be measured neither directly nor indirectly during measurement. When during measuring, do not grip beyond the grip range markings present on the test probes.

Do not use the multimeter immediately before, during or after thunder and lightning (thunderstrike / high-energy overvoltages!). Please make sure that your hands, your shoes, your clothing, the floor, switches and switching components are dry.

Avoid operation near:

- strong magnetic or electromagnetic fields. This may falsify the measuring value.

If you have reason to assume that safe operation is no longer possible, disconnect the device immediately and secure it against inadvertent operation. It can be assumed that safe operation is no longer possible if:

- the unit does not operate any longer and
- the unit was stored under unfavourable conditions for a long period of time or
- if it has been subjected to considerable stress in transit

Do not use the measuring instrument on immediately after it has been taken from a cold to a warm environment. Condensation water that forms might destroy your device. Leave the device switched off and wait until it has reached room temperature.

Do not leave the packaging material lying around carelessly since such materials can become dangerous toys in the hands of children.

You should also heed the safety instructions in each chapter of these instructions.

Delivery scope

- 1) Multimeter detector
- 2) Test leads
- 3) 2 X 1.5V (R03 / LR03)
- 4) Operating manual

Initial operation

The battery is already inserted in the DMMD upon delivery.

Slide switch ⑥

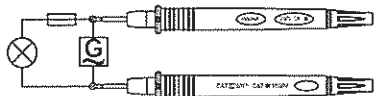
The individual measuring functions can be set via the slide switch ⑥. If the switch ⑥ is to 'OFF', the measuring device is switched off. Always slide the measuring device 'OFF' when it is not in use.

- Wake-up
Press once any button of DMMD when the switch ⑥ is at any operating position with auto power off mode.

- 11 -

ii) Proceed as follows to measure AC voltages: '~'

- Press 'select' switch to show '~' icon on LC display for AC Voltage measurement.
- Now connect the two measuring probes to the object to be measured (generator, switching etc.).
- The measuring value is indicated on the display.



- The voltage range 'V DC / AC' Internal connected an input resistance of >10M Ohm.

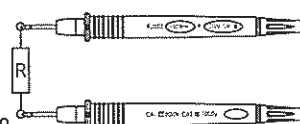
- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.

B) Resistance measuring 'Ω'

- 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:

- Slide the switch ⑥ to select the right measuring range for your 'Ω'.
- Check the measuring leads for continuity by connecting both measuring probes to one another. After that the resistance value must be approximately 0.000 Ω.
- 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.
- As soon as 'OL' Over range (= overflow) appears on the display, you have exceeded the measuring range or the measuring circuit has been interrupted.
- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.



- If you carry out a resistance measurement, make sure that the measuring points which you contact with the test probes are free from dirt, oil, solderable lacquer or the like. An incorrect measurement may result under such circumstances.

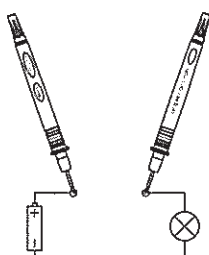
- 13 -

E) μ A / mA / 10A current measuring (AC / DC) $\frac{\mu A}{mA}$ or $\frac{mA}{10A}$ (for MS-2072 / MS-2072T / MS-2074 / MS-2074T only)

Current measuring is possible in three ranges μ A or mA or 10A.

Proceed as follows to measure AC / DC current:

- If you want to measure μ A, set the slide switch to the position $\frac{\mu A}{mA}$ or mA set the slide switch to the position '10A'.
- Press the button 'Select' for AC current measurement (toggle the switch for AC / DC)
- Now connect the two test probes to the object to be measured (battery, circuit etc.). The display indicates the polarity together with the currently measured value.



- Never measure current above 200 / 400 mA in the μ A / mA range and 10A in 10A range.

- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.

- 15 -

7. Please observe the following symbols and safe instructions

- A triangle containing an exclamation mark indicates important information in these operating instructions which is to be observed without fail.
- The 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.
- CE This product has been CE-tested and meets the necessary European guidelines.
- Class 2 insulation (double or reinforced insulation).
- CAT II Excess voltage category II for measuring in building installation (e.g. outlets). This category also contains all lower categories.
- Ground potential.

The unauthorised 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 and accessories are not toys and have not to place in the hands of children.

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

Before measuring voltages, always make sure that the measuring is not set to a measuring range for currents.

The voltage between the measuring instrument and earth must never exceed CAT II, 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.

- 10 -

8. Measuring

- 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'

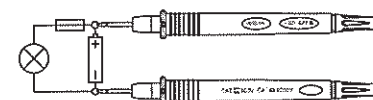
i) Proceed as follows to measure DC voltages: '-'

- Slide the switch ⑥ to select the right measuring range for your voltage '-'
- Now connect the two test probes to the object to be measured (battery, circuit etc.). The red measuring tip indicates the positive pole, and 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).

- Whenever at 'Auto power OFF', press any button to wake up the DMMD.

NO NEED TO SLIDE THE SLIDE SWITCH TO OFF!



- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.

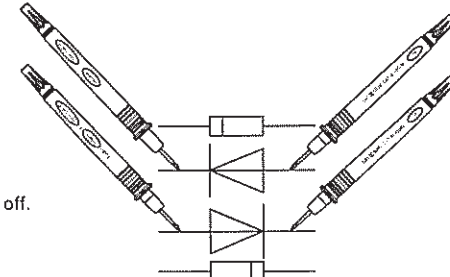
- 12 -

C) Diode test '+'

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

Select the measuring range to '+' and press 'Select' button.

- Now connect the two measuring probes with the object to be measured (diode).
- The display shows the forward voltage in Volt (V). Usual voltage values: silicon diode ca. about 0.990V; germanium diode ca. about 0.360V.
- If 'DL' is indicated, the diode is measured in reverse direction or the diode is faulty (interruption).
- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.

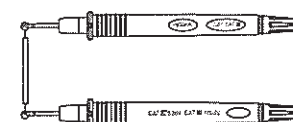


D) Continuity check '••• / Ω'

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

Select the measuring range to '••• / Ω' and press 'Select' button.

- Check the measuring leads for continuity by connecting both measuring probes to one another. After that the resistance value must be approx. < 2.0Ω (Press once the 'REL' button to 'zero' the reading).
- Now connect the two measuring probes with the object to be measured (circuit).
- The display shows in Ohm.
- After you finish testing, always switch the measuring device off. Slide the switch ⑥ to 'OFF'.



- If you carry out continuity measurement, make sure that the measuring points which you contact with the test probes are free from dirt, oil, solderable lacquer or the like. An incorrect measurement may result under such circumstances.

- 14 -

9. Typical examples of how to use Non-Contact Detector (NCD) and Single Probe Test (SPT) - TEST ON AC VOLTAGE ONLY

Before operating

Hold your detector with the attached test leads away from any AC voltage source then slide the switch to 'NCD / SPT' range. Highest sensitivity is obtained and calibrated, reading on LC display '0' (or '1')

Move the test probe close to the AC source, reading on LCD starts from '0' to higher reading

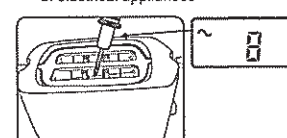
Note: 'High' or 'Low' reading select

'Higher' reading obtained when touching the 'test electrode'

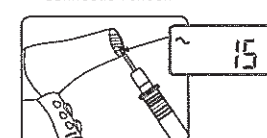
'Lower' reading obtained when without touching the 'test electrode'

Advance features of Non-Contact Detector (NCD):

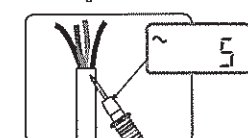
- Ground / Earthing check of electrical appliances
- Wrong wiring / connection check
- Instant find AC voltage through PVC conduit



Move the test probe proximately towards electrical appliance (with power off) such as electric kettle, toaster, heater, washing machine, dry machine, microwave oven etc.. Reading on DMMD increases when 'Ground / Earthing' is not connected to the appliance



Move the test probe close to a hair dryer with the POWER OFF. Reading on DMMD increases when the plug is inserted improperly, or 'Live / Hot' wire is connected 'WRONGLY' (reverse) to the socket



Move test probe close on PVC conduit. Increase reading on LCD indicates 'Live / Hot' wires presence

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- 16 -

(To be continued P.17-P.20)