

sanwa

INSULATION RESISTANCE TESTER

DM-1006s

DM-506s

PDM-506s

INSTRUCTION MANUAL

READ FIRST: SAFETY INFORMATION

WARNING

To ensure that the meter is used safely, follow all safety and operating instructions.

1. Never use tester for high power or high voltage circuit.
2. Pay special attention when measuring the voltage of AC 30 Vrms (42.4V Peak) or DC 60V or more to avoid injury.
3. Disconnect power source of the measured circuit before measuring insulation resistance.
4. High voltage is generated while measuring insulation resistance. Be cautious of electric shock.
5. After measuring insulation to avoid electric shock. Be sure to discharge the high voltage charged.
6. Never apply an input signal exceeding the maximum rating input value.
7. Never use tester for measuring the line connected with equipment (i.e. motors) that generates induced or surge voltage since it may exceed the maximum allowable voltage.
8. Never use tester if the tester or test leads are damaged or broken.
9. Never use uncased tester.
10. Always keep your fingers behind the finger guards on the probe when making measurements.
11. Be sure to disconnect the test pin from the circuit when changing the function.
12. Never use tester with wet hands or in a damp environment.
13. Never use test leads other than the exclusive test leads.
14. Never open tester case except when replacing batteries.
Do not attempt any alterations of original specifications.
15. To ensure safety and maintain accuracy, calibrate and check the tester at least once a year.

BATTERY-DRIVEN INSULATION RESISTANCE TESTERS

Introduction

Thank you very much for purchasing a SANWA's insulation resistance tester. This is a small, easy-to-operate insulation resistance tester using a transistor-type, stable voltage type DC-DC converter. It enables the user to read promptly and directly the insulation resistance value of various electric equipment and lines.

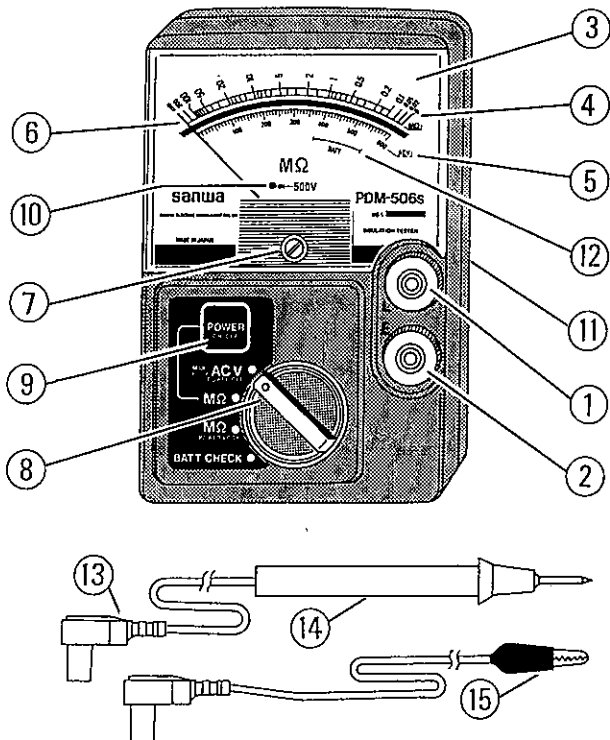
1. A small, light-weight and easy-to-operate product.
2. Used is a core-magnet type meter which is stable and little influenced by external magnetic field.
3. It is economical since only four SUM-3 or R6 batteries can drive the tester.
4. Incorporating the ACV range, it can measure the voltage of AC line.
5. The measuring switch can be locked, so it is very handy to make continuous measurements.
6. It incorporates an LED pilot lamp showing ON of high voltage power sources (500V • 1000V) and lighting intermittently, so the user can know precisely whether or not any voltage exists. It also helps the user avoid forgetting to turn off the switch when it is locked.

Specifications

Model No.	Rated V Rated R	Scale range	ACV	Usage
DM-1006s	1000V 2000M Ω	0-2-1000-2000M Ω	0-600V	General insulation tests. Tests for a high power equipment (e.g. high power apparatuses for cable and communications apparatuses)
DM-506s	500V 1000M Ω	0-1-500-1000M Ω	0-600V	Insulation tests for general equipment and electronic components)
PDM-506s	500V 100M Ω	0-0.1-50-100M Ω	0-600V	Insulation tests for general equipment, chiefly power equipment.

- Power source SUM-3 or R6 (1.5V) X 4
- Accuracy Within $\pm 5\%$ of the value indicated in the primary effective scale range.
Other - within $\pm 2\%$ of the scale length
- Terminal-to-terminal voltage $\pm 10\%$ of rated voltage ∞ scale
About 90% of rated voltage Center scale
- Others Subject to JIS C 1302
- ACV Within $\pm 5\%$ of max. scale value
- Size & Weight 150 X 100 X 45 mm, About 350 g
- Accessories Test lead with probe X 1 Test lead with clip X 1 Carrying case

Frontal View and the Name of Parts



- | | |
|---------------------------|-------------------------------------|
| ① L Terminal (LINE side) | ⑨ Insulation resistance push switch |
| ② E Terminal (EARTH side) | ⑩ Pilot lamp for high power source |
| ③ Indicator | ⑪ Rear case |
| ④ MΩ scale | ⑫ BATT check scale |
| ⑤ ACV scale | ⑬ Connection plug |
| ⑥ Pointer | ⑭ Test lead with probe |
| ⑦ ∞ position adjuster | ⑮ Test lead with clip |
| ⑧ Control switch | |

● How to Use DM-1006s, DM-506s and PDM-506s

1. Connection of Test Leads

Connect the test lead with probe to the L terminal and the test lead with clip to the E terminal as shown in Figure 1.

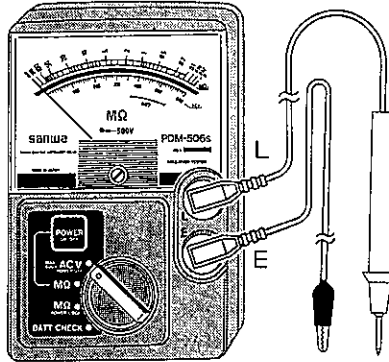


Fig. 1

2. Adjustment of Infinity (∞) Scale . . . Confirmation

Align the pointer to the infinity line, leftmost of the $M\Omega$ scale, by turning the ∞ position adjuster ⑦ in the center of the indicator, if it doesn't point to it correctly.

3. Measurement of Insulation Resistance

3-1 Connect the clip to one side of the measured object and the probe to the other side of the measured object.

3-2 Turn the control switch from POWER OFF position to $M\Omega$ position and push on PUSH switch ⑨, then the indicator shows the insulation resistance value.

3-3 If the pilot lamp ⑩ of either 500V ON or 1000V ON, below of the scale plate, lights intermittently, the tester works properly and the voltage is correctly impressed on the test point. It doesn't light, however, if the internal batteries have worn out or the battery contact is incomplete.

3-4 Set the control switch to $M\Omega$ POWER LOCK position for continuous measurements. POWER switch remains ON regardless of PUSH switch. (The pilot lamp lights intermittently.)

3-5 Return the control switch to POWER OFF position after measurement.

4. Check of Internal Batteries

Set the control switch to BATT CHECK position with the E and L terminals released.

If the pointer automatically swings to the BATT scale $\textcircled{12}$, both circuit and the internal batteries are normal.

If the pointer points to the left side of the BATT scale as shown in Fig. 2, the batteries have worn out.

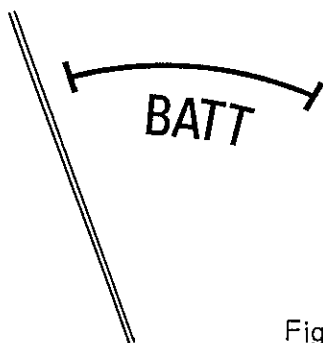


Fig. 2

Replace them with new batteries. For replacement of the batteries, refer to page 7.

5. ACV Measurement

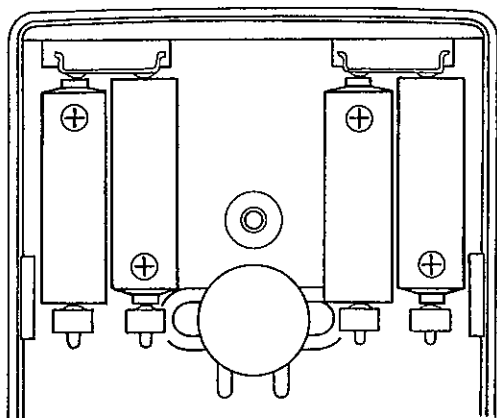
- 5-1 Connection of the test leads is same as in the foregoing paragraph.
- 5-2 Use the control switch in ACV (POWER OFF) position.
- 5-3 Connect the lead line tip to the measured point and read the voltage value in the red 0~600V scale ⑤.
- 5-4 This ACV range can be used not only for general ACV measurements but also for a preliminary check as to whether or not ACV is impressed on the measured object, prior to insulation resistance measurement.

Precaution

Be sure to return the control switch to POWER OFF position after use. With the control switch to this position, the current doesn't flow and the batteries are protected from being exhausted for nothing even if the measuring push switch is inadvertently pushed on.

● Replacement of Battery

When replacing battery, loosen the $4\phi \times 15$ screw on the rear case, remove the case, and insert the new batteries correctly with the right polarity as shown in Fig. 3.



Batteries 1.5V 4pcs.
(SUM-3 or R6)

Fig. 3

● Precaution for Use

1. E and L Terminals

When the minus side of the measured object is grounded, plug the test lead into the E terminal. Make measurement with the E terminal test lead connected to the ground side. By so doing it is common that the measured value is indicated at a smaller value. Safety in use is considered and promised. For general measurements, use either polarity of the terminals.

2. If the tester is not used for a long time, be sure to take out the internal batteries.
3. Don't store the tester in a high temperature and humidity.
4. Avoid giving any mechanical shock or vibration to the tester.
5. Don't rub strongly the surface of the indicator cover with a dry cloth. Should anti-static coating on the cover be removed, a cloth moistened with anti-static solvent should be used to clean the cover.



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