

RK2675WM

Current Leakage Tester

Instruction Manual

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I. Introduction:

Current leakage tester (contact current tester) is used for testing the leakage current, not relating with work, which the working power source (or other power source) of electrical appliance occurs through insulated or distributed parameter impedance. Its input impedance simulates body's impedance and meets the requirements of GB4706.1-2002. RK series leakage tester is designed according to the following safety standards: IEC, ISO, BS, UL, JIS. This unit is not attached with separated power source, therefore, it is not limited by the power of the electrical appliance under test and has wide applicable scope. The voltage meter built in this unit can measure voltage 0-250V. This unit is suitable for testing various household electrical appliances, power sources, electrical motors, dish washing machine, washing machine, centrifugal spin-drier, microwave oven, induction cooker, electrical oven, electrical chafing dish, electric cooker, fanner, medical treatment, chemical, electronic apparatus, meters, whole machines, and current leakage of strong current system, and it is also necessary for testing current leakage for laboratory or technical supervision department.

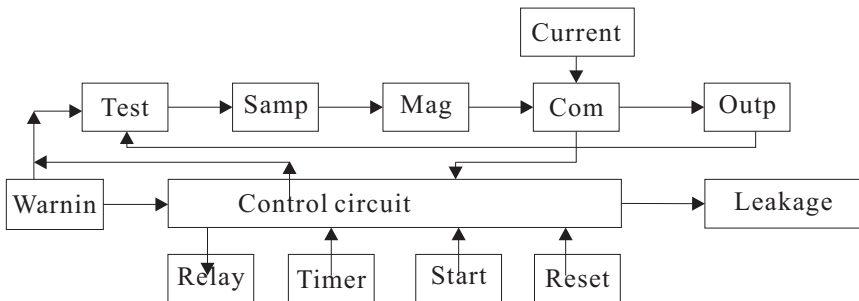
RK series leakage tester is improved on the basis of absorbing internationally advanced technology and in consideration of actual operation conditions of users in China. RK2675WM type leakage tester is a new product currently developed by our company, which can synchronously display voltage, leakage current and testing time (digital display). It can be set with leakage current warning value according to different safety standard and user's different demands. In time test, it reduces the error of past products and displays in countdown manner. Its time test accuracy is improved up to 1%, and the test scope can be improved to 99s (the company can change scope of test time upon user's demand and the maximum can reach 99 min). The new product has more functions. The improved leakage current tester uses linear rectification circuit for voltage sampling other than bridge type rectification method used in the past, so that the indication value of test voltage can more accurately reflect actual test voltage of the load under test. It has smaller error, better linearity and higher accuracy. The unit has automatic phase conversion function and switches phase once every 2s.

II. Technical specifications

1. Working voltage of leakage test: AC 50~250 (5%+1% full value)
2. Test scope of leakage current: AC 0~2 mA /2mA~20 mA, two scales (5%+1.5 % full value)
3. Leakage current warning value: AC 0.1 mA~2 mA/2 mA~20 mA (5%+1.5% full value)
4. Time range: 1-99s, continual setting and manual 1%
5. Working conditions: environmental temperature 0~40°C
6. Relative humidity: <75%
7. Atmospheric pressure: 101.25kpa
8. Volume: 390mm 190mm 280mm
9. Weight: 8kg
10. Power: 220V 10% 50Hz 2Hz
11. Accessories: one copy of test manual, a piece of warranty card, one piece of power cable

III. Principle of operation and block diagram:

Leakage current tester mainly includes resistance change, range change, AC/DC transformation, indicator and warning circuit for exceeding the limit. The part of resistance change mainly simulates the apperceiving characteristics of body to leakage current and fully simulates body's resistance; the part of range change can be convenient for users to select proper range according to load; the part of AC/DC transformation converts AC voltage and current signals into branch voltage and current signals; the indicator displays testing voltage, actual leakage current and test time; the warning circuit for exceeding the limit completes warning and indication to ineligible products and automatically cuts off high voltage.



Block diagram of principle of operation of RK2675WM leakage tester

IV. Instructions for operation and operating processes

Name of each part of RK2675WM type leakage tester and instructions for operation (see Fig. 1 and 2)

1. Power switch
2. START: if you press this key, the test lamp is on, “test power input” and “test power output” (leakage testing socket) are turned on.
3. RESET: if you press this key, the test lamp is off, “test power input” and “test power output” (leakage testing socket) are turned off.
4. Input connection for leakage current test:
5. Test power output (testing of leakage current testing socket) (less than 10A):
6. Leakage current excessive leakage indicator, if it is on, the leakage current has excessive leakage;
7. Test status indicator: this indicator is on, showing the tester in testing status;
8. Indication window of voltage display value;
9. Indication window of leakage current display value;
10. Indication window of test time display value;
11. Time presetting panel:
12. Timing switch:arbitrary setting in the range of 1s-99s if turned on(countdown), manual if turned off.
13. Polarity conversion switch:utilize polarity conversion switch to realize manual polarity conversion;
14. Automatic polarity conversion switch:enter into automatic polarity conversion mode if pressed, or otherwise, enter into manual polarity conversion mode;
15. Leakage current range conversion switch: range 0-2mA if pressed, range 0-20 mA if popped out;
16. Leakage current test and presetting conversion switch: can set and display leakage current warning value with leakage current presetting button if pressed, and can measure and display actual value of leakage current in normal status; leakage output interface; leakage current test inserter is inserted into this interface;

- 17. Leakage current presetting adjustment button: press leakage current presetting switch to set any warning value in the range 0.1-20mA;
- 18. Test power input pole (zero line);
- 19. Test power input pole (zero line);
- 20. Test power output pole (power line);
- 21. Test power output pole (power line);
- 22. Power socket.

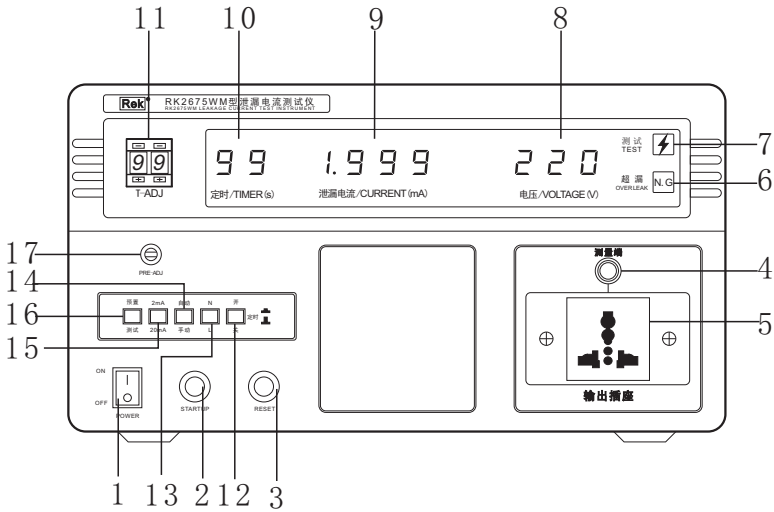


Fig. 1 Schematic chart of panel of RK2675WM leakage current tester

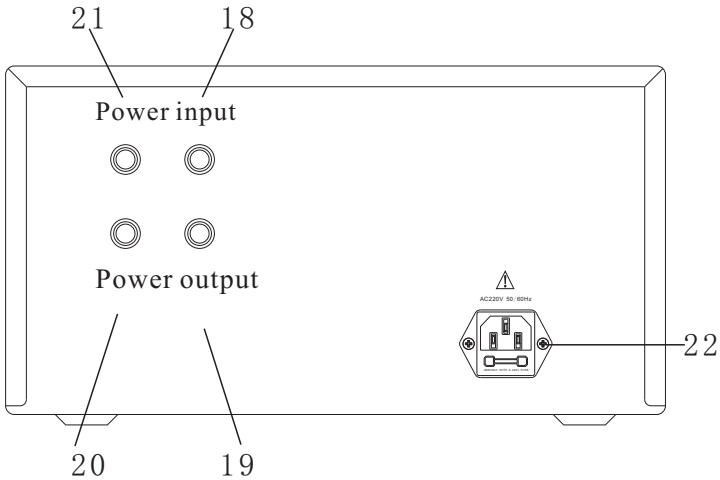


Fig. 2 Schematic chart of rear cover of RK2675WM leakage current tester

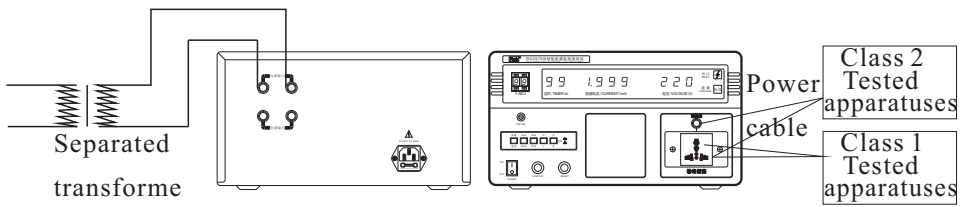


Fig. 3 Wiring method 1 (load <2KVA)

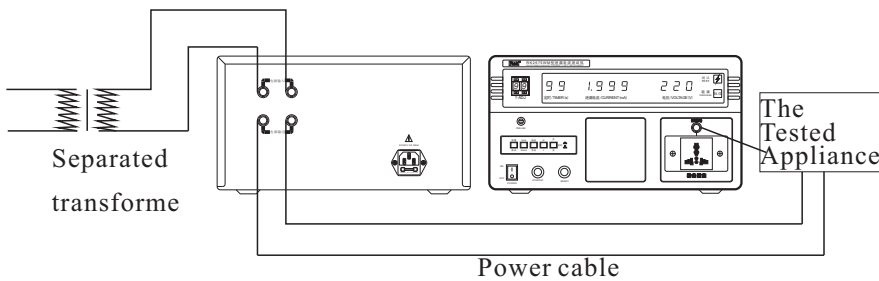


Fig. 4 Wiring method 2 (1KVA < load < 5KVA)

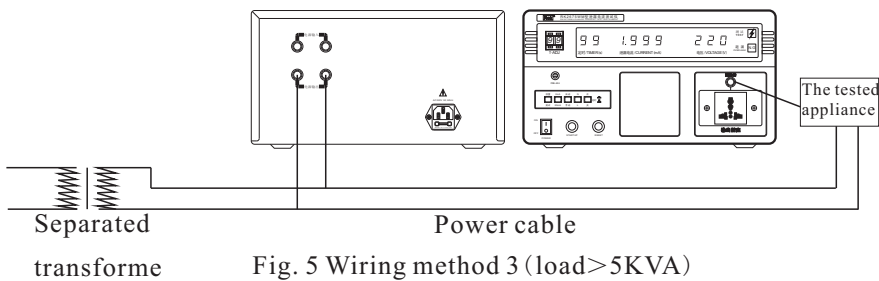


Fig. 5 Wiring method 3 (load > 5KVA)

Operation procedures:

1. Turn on the power switch and make the tester in ON status.
2. Select wiring method according to the power scope of tested appliance (see wiring method 1, 2, 3 in Fig. 3, 4, 5 respectively), connect the tested appliance according to the selected wiring method when the test indicator goes out. Note: when the tested appliance is connected according to the wiring method 3, the tested appliance is out of control of the tester, namely, its power on/off is not controlled by the key "START", "RESET".

3. Select leakage current testing range according to demand (2 or 20mA).

4. Set leakage current warning value.

(1) Press the presetting switch for leakage current;

(2) Adjust leakage current button to the desired value. The leakage current display window indicates the warning setting value at this time;

(3) After setting, press the presetting switch for leakage current once again to make it in test status.

5. Select working voltage for test, press “START”, adjust input voltage for test to make the working voltage for test indicated as 242V or the voltage value stated in the technical product standard;

6. Manual test

(1) Put the timing switch at OFF, press “START”, the test lamp is on, the tester enters into the status of leakage test. Switch the polarity switch, leakage current indicator displays the leakage current value between phase wire end and wire end of power source under test, and the shell respectively.

(2) After test, press “RESET”, the test lamp is off, and the tested object is eligible.

(3) If the tested object exceeds leakage current warning value, the tester will automatically cut off the working voltage for test, and the test lamp is off, the excessive leakage lamp is on, and the beeper gives out warning. The tested object is ineligible. Press “RESET” to clear off the warning.

(4) If the apparatus under test will be connected according to the connection style III, it is unnecessary to press “START” for test. If the tested object exceeds the warning value of leakage current, the excessive leakage lamp is on, the beeper gives out warning, the tested object is ineligible. Press “RESET” to clear off the warning.

7. Timing test:

(1) When the timing switch is on, set the desired test time with time presetting panel.

(2) Press “START”, the test lamp is on, the apparatus enters into leakage test status, and the timer starts countdown, when time display is zero, the test lamp goes out, the tested object is eligible; if leakage current exceeds the warning setting value, the tester will automatically cut off working voltage for test, and the test lamp is off, the excessive leakage lamp is on, the beeper gives out beep, the tested object

is ineligible. Press “RESET” to clear off the warning.

8. Automatic test:

- (1) Timing switch can be set as ON or OFF by the user. The polarity “AUTO/MANUAL” switch is preset as “AUTO”.
- (2) Press “START”, the test lamp is on, the tester enters into leakage current test status, and the polarity phase switching device inside the apparatus automatically makes polarity phase switching. If leakage current exceeds the warning setting value, the tester automatically cuts off the working voltage for test, and the test lamp is off, the excessive leakage lamp is on, the beeper gives out beep, the tested object is ineligible. Press “RESET” to clear off the warning.

Note: leakage current measurement is made on live line and the shell of the tested appliance is with charge, therefore measurement persons shall be careful and comply with corresponding safety operation regulations. Before power interruption, any person shall not touch the tested appliance or otherwise electrical shock may occur.

V. Attention for operation:

1. Operator shall wear latex gloves and stand on rubber mat to prevent electrical shock.
2. The tester shall be grounded reliably.
3. The tester shall be guaranteed at the status of “RESET” while connection of the tested appliance.
4. The externally connected and separated transformer is recommended for testing so that the tested appliance is separated with AC power (electric supply). If it truly has no condition to use externally connected and separated transformer, the tested appliance shall be insulated with the ground or otherwise short circuit between phase wire and ground wire may be caused and thus danger may be caused.
5. Test lamp and excessive leakage lamp, once damaged, shall be replaced immediately so as to prevent wrong judgment.
6. The tester shall avoid direct sunshine and shall not be used or stored in high

temperature, wet or dusty environment.

7. After one-year use, the tester shall be tested as eligible by a metering institution or the manufacturer according to the requirements of the national technical supervision department before continual use.

Warranty:

1. Warranty term: the warranty term is 12 months, which is calculated from delivery date of the company for a user buying tester from the company; from the delivery date of the marketing department for a user buying tester from the marketing department.
2. Warranty: the warranty card for the tester shall be produced for warranty. The company provides lifelong repair services for all testers delivered.
3. The user shall bear the repair expenses arising from damage of tester due to improper operation of the user in the warranty term.
4. A user shall open the package to check the above content after receiving tester, and contact the marketing department of the company immediately if finding any loss.