

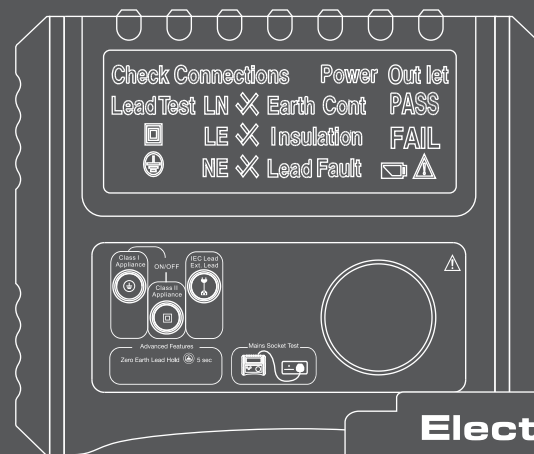


UNI-T®

UT527



Operating Manual



Electrical Testers

P/N:110401104471X

UT527 Operating Manual

Overview - UT527 Pat Tester

The UT527 is a handheld, battery powered PAT tester suitable for carrying out electrical safety checks on:

- Class I Appliances
- Class II Appliances
- Testing IEC and Extension Leads
- Checking of Mains sockets.
- 220V ($\pm 10\%$) Mains Outlet Wiring Test

Unpacking the Unit

Open the case and take out the PAT tester. Check the following items carefully to see if any parts are missing or damaged. If you find any missing or damaged parts please contact the supplier you bought the UT527 from.


| | |
|---------------------------------|-----|
| * UT527 Main Unit | 1 x |
| * Operating Manual | 1 x |
| * Earth Bond Lead | 1 x |
| * Alligator Earth Bond Clip | 1 x |
| * Earth Nulling Block | 1 x |
| * Neck strap | 1 x |
| * IEC Lead | 1 x |
| * Batteries C Type R14 1.5V UM2 | 6 x |

Safety Information



Warnings

Please be aware of the following warnings:

- Before using the unit and test leads inspect both items. Do not use the unit or test leads if either is damaged (including if the case is broken or damaged) as this could result in electrical shock.
- Replace the battery as soon as the battery indicator “” appears. A low

battery, in the meter may produce inaccurate readings.

- Do not use or store the unit in an environment of high temperature, humidity, flammable or an electromagnetic environment as damage and incorrect readings may result.
- Do not use rechargeable batteries in the unit.
- If the tester requires repair or replacement please contact your local service center.

Declaration of Conformity.

Uni-T manufacture this product and declare that this product conforms to the following standards:

BS EN 61326: 1998

Electrical equipment for measurement, control and laboratory use

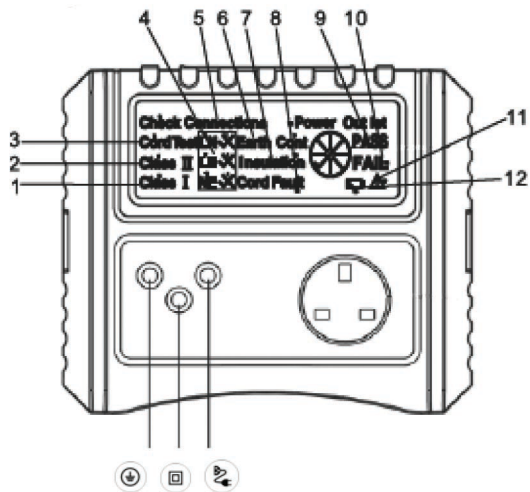
BS EN 61010-1:2001

Safety Requirements for electrical equipment for measurement, control, and laboratory use – Part 1

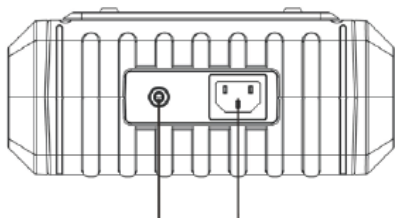
4mm banana test lead (CAT III 600V)
Alligator clip (CAT III 600V or CAT IV300V)

1. Product Layout – UT527

Diagram 1 and Diagram 2








1. Class 1 test selected
2. Class 2 test selected
3. Cord test / IEC / Extension lead test selected
4. Mains socket test Live Neutral and Earth indicators
5. Check the connection – Ensure that the appliance is switched on before test
6. Earth test Pass / Fail indication
7. Insulation test Pass / Fail indication
8. Polarity Test - Cord test / IEC / Extension lead pass / fail indication
9. Overall Test Result Pass indicator
10. Overall Test Result Fail indicator
11. Warning symbol
12. Low Battery warning
13. Earth Bond Test Lead socket
14. IEC test socket and Mains testing IEC socket




13 14

Front Panel Operation

- 1: Press  +  button, Power on / Power Off.
- 2: Press  button, when testing a CLASS I Appliance.
- 3: Press  button, when testing a CLASS II Appliance.
- 4: Press  button when testing Cord / Extension Lead Test.

VI. Before Testing - Zero the Earth Bond Test Lead

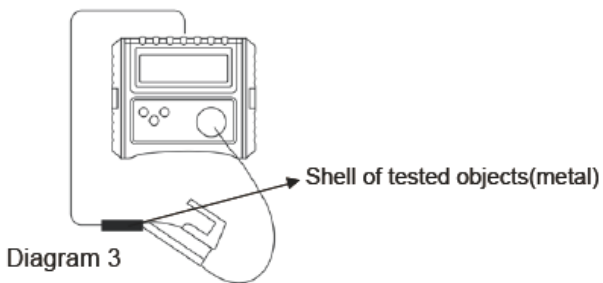
Press and hold the  button for 5 seconds to Zero the earth bond reading using the earth bond lead and the nulling adapter together in the front test socket.

This will Null the earth reading of the test lead and display a tick when complete. It is good practice to do this once prior to carrying out testing.

The unit will automatically switch off after approximately 2 minutes if no any buttons are pressed.

Testing a CLASS 1 Appliance


Plug the appliance into the UT527 panel main socket Plug the earth test lead into the socket (13) on the UT527 end panel. Connect the earth crocodile clip to an exposed metal part on the appliance as below.



1. Earth / Protective conductor test

Press the Class 1 test button  to start the test.

If the earth resistance measured is greater than 0.2Ω , the meter will display “x”

Earth Cont with  flashing which is a FAIL. If this occurs, re- check the connections between the pin of the plug to the bodywork of the appliance and that the crocodile clip is attached to clean earthed metalwork on the appliance; If all connections are ok the appliance earth connection maybe faulty.

The PASS mark for the earth bond test is 0.2Ω for a Class 1 appliance. If the reading is less than 0.2Ω , the meter will display “√” Earth Cont which is a PASS.


The unit will then automatically attempt to proceed to the Insulation test.


Press the button to proceed to the insulation test.

2. **Insulation Resistance Test**

Before the unit carries out the insulation test the unit will attempt to check to see if the appliance is in the on position.

If it detects that the appliance is in the on position it will automatically carry out the Insulation test.

If it appears to the unit that the appliance power switch is not in the on position the unit will display “Check Connections” and the “” will be flashing;

If this happens press the  key and the unit will continue to carry out the insulation test.

Please note. Most electronic appliances will have electronic 'on / off' switches and even though they are switched on the "Check Connections" message will still appear.

If the measured resistance is greater than $1\text{M}\Omega$, the meter will display " \checkmark " Insulation as a PASS

If the insulation of the appliance is less than $1\text{M}\Omega$, it will display " \times " Insulation as a FAIL

Final Result

4. After the above tests are completed, the meter will indicate whether the appliance has Passed or Failed the tests.



Notes: To interrupt a test press any other key whilst carrying out the tests.

Testing a CLASS 2 Appliance

Plug the appliance into the UT527 panel main socket. Plug the earth / insulation test lead into the socket on the UT527 end panel. Connect the earth test probe to

an exposed part on the appliance as in diagram 4.

To start a test on a Class 2 appliance press the  button.

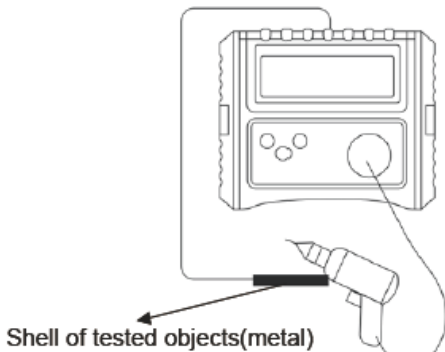



Diagram 4

Class 2 pre-check


If the unit detects that the appliance appears to be Class 1 as it detects an earth connection it will display Check Connection “Earth Cont” with a flashing  symbol and you will be prevented from carrying out the Class 2 test. Test the appliance instead using the Class 1 test.

Insulation Resistance Test – Class 2 Appliance

Before the unit carries out the insulation test the unit will attempt to check to see if the appliance is in the on position.

If it detects that the appliance is in the on position it will automatically carry out the Insulation test.

If it appears to the unit that the switch appliance power switch is not in the on position the unit will display “Check Connections”

If this happens press the  key and the unit will continue to carry out the insulation test.

Please note. Most electronic appliances will have electronic ‘on / off’ switches and even though they are switched on the “Check Connections” message will still appear.

If the measured resistance is greater than 2 MΩ, the meter will display “√” Insulation as a PASS

If the insulation of the appliance is less than 2 M Ω , it will display “x” Insulation as a FAIL

Final Result - Class 2

After the above tests are completed, the meter will indicate whether the appliance has Passed or Failed the Class 2 test.

Testing an IEC Lead / Extension Lead / Cord Test

Plug the mains lead under test into the socket and the front panel mains socket on the unit as Diagram 5

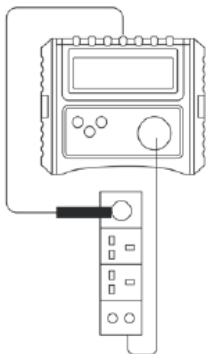


Diagram 5

To start the cord test press



1. Earth Bond Test

The unit will carry out an Earth Bond test in the same manner as a Class 1 appliance. The Pass mark for this test is 0.2Ω

2. Insulation Test

The unit will then carry out an insulation test as previously discussed in the manual. The PASS Mark for this test is $2 M\Omega$.

Please note: When testing Surge Protected Extension Leads this test may fail. This is normal and a result of circuitry within the surge protection device.

3. Polarity Test

The polarity test is the final test to be carried out and will check that the cord or extension is wired correctly. It will check for open circuit, short circuit or Line / Neutral reversal.

If the Polarity is correct then the meter will display “√ Polarity”

If the Polarity test detects a fault, the meter will display “× Polarity”

4. Overall Result

After the above measurements are completed, the meter will indicate whether the measured appliance is compliant with the requirements of Cord with “PASS” or “FAIL”

Checking a mains power supply

The unit comes complete with a built in socket tester which will check to ensure that the socket is wired correctly.

Connect an IEC lead to the mains socket and plug this into the back of the meter as in Diagram 6.

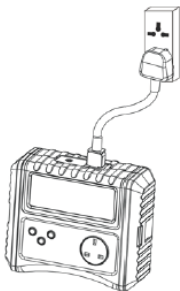


Diagram 6

- 1) If the Live and Neutral in the socket wiring is reversed or there is a fault with the protective earth connection this is indicated : “LN√, LE×, NE×”
- 2) If there is a fault with the Neutral connection this is indicated: “LN×, LE√, NE×”
- 3) If the mains socket wiring is correct the display will show “LN√, LE√, NE√”

Accuracy Specifications

Earth Continuity

| | |
|--------------|-----------------------------|
| Pass Limit | 0.2 ohms |
| Accuracy | ±0.03 ohms |
| Test Current | Resistance ≤2 ohms: ≥ 200mA |
| Test Voltage | 5V DC |

Insulation Resistance

| | |
|--------------|------------------|
| Pass Limit | CLASS 1: 1M ohms |
| | CLASS 2: 2M ohms |
| | CORD: 2M ohms |
| Accuracy | ±0.1M ohms |
| Test Voltage | 500V |
| Test Current | 500k: > 1mA |
| | 1K: < 2 mA |

Factory default Pass / Fail limits

| | Class 1 | Class 2 | Cord |
|-----------------------|----------|-----------|-----------|
| Earth Continuity | 0.2ohms | N/A | 0.2ohm |
| Insulation Resistance | 1.0Mohms | 2.0 Mohms | 2.0 Mohms |

| | Cord Size /Current Rating | | |
|---------------|---------------------------|--------------|-----------------|
| Length | 0.5 mm /(3A) | 1.0mm /(10A) | 1.25mm /(13A)5m |
| 5m | 0.02 | 0.10 | 0.10 |
| 10m | 0.40 | 0.20 | 0.20 |
| 25m | 1.00 | 0.50 | 0.40 |

Table 1

Table 1: Approximate resistance of protective earth conductors in cables

Maintenance

Battery Replacement

When the low battery symbol “” appears, replace the batteries as follows

- 1) Disconnect all test leads before battery replacement.
- 2) Power off the unit.

- 3) Unscrew the battery cover.
- 4) Use 6 C cell 1.5V R14 battery or UM2 battery.
- 5) Ensure the polarity of the batteries is correct.
- 6) Re-attach the battery cover.

Cleaning

Clean only with a dry cloth; do not use solvents.

Before use, ensure unit is clean and dry; visually inspect all leads, connectors, and case. Any damage or wear must be rectified to preserve user safety.

Service

This unit should be calibrated and repaired by an authorised service centre.

To ensure the accuracy of the device it should be must calibrated annually.

There are no user serviceable parts.

Environmental rating

Operating temperature range 0 Deg C to 40 Deg C, Do not expose to moisture or condensation as incorrect readings may result.

Storage temperature range -25 Deg C to 65 Deg C.

Batteries should be removed prior to storage.

Manufactured by Uni-T an ISO9001 company.

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