

# KEWTECH

POWERED BY  
**KYORITSU**

## KT71 / Portable Appliance Tester



**Instruction Manual**

---

## CONTENTS

1. Safe testing .....	1
2. Procedure of removing cover .....	3
2.1 Method of removing the cover .....	3
2.2 Method of storing the cover .....	3
3. Product summary and explanation .....	4
3.1 Product summary .....	4
3.2 Test function .....	5
3.3 Features .....	6
3.4 Instrument layout .....	6
3.5 Explanation for indications .....	9
3.6 Applicable standards .....	10
4. Specification .....	11
4.1 General specification, measuring range and accuracy .....	11
4.2 Threshold and display .....	12
4.3 Reference test condition .....	12
5. Preparation before a measurement .....	13
5.1 Visual inspection .....	13
5.2 Connection to main power supply .....	13
5.2.1 Connection of mains cord .....	13
5.2.2 Check the warning display of mains power voltage .....	14
5.2.3 Null setting (Protective conductor resistance function) .....	14
5.2.4 Voltage setting for insulation resistance measurement .....	16
6. Measuring method .....	17
6.1 Class I Test (Common function for both IT200mA and 20A) .....	17
6.2 Class I Test (Select the leakage current test) .....	19
6.3 Class II Test .....	21
6.4 Class II Test (Select the leakage current test) .....	23
6.5 Extension Leads Test .....	25
6.6 Leakage Current Test .....	27
7. Fuse replacement .....	29
8. Case and strap assembly .....	30
9. Maintenance .....	30

Electricity is dangerous and can cause injury and death. Always treat it with the greatest of respect and care. If you are not quite sure how to proceed, then stop, take advice from a qualified person.


This instruction manual contains warning and safety rules which must be observed by the user to ensure safe operation of the instrument and retain it in safe condition. Therefore, read through these operating instructions before using the instrument.


**IMPORTANT:**


This instrument must only be used by a competent and trained person and operated in strict accordance with these instructions.


KEWTECH will not accept liability for any damage or injury caused by misuse or non-compliance with the instructions or with the safety procedures.


It is essential to read and to understand the safety rules contained in these instructions and with the safety procedures.

The symbol  indicated on the instrument means that the user must refer to the related sections in the manual for safe operation of the instrument.

Be sure to carefully read instructions following each symbol  in this manual.

 **DANGER** is reserved for conditions and actions that are likely to cause serious or fatal injury.

 **WARNING** is reserved for conditions and actions that can cause serious or fatal injury.

 **CAUTION** is reserved for conditions and actions that can cause minor injury or instrument damage.

 **DANGER**

- This instrument can be connected only to the commercial power of 230V+10%-10%, 50Hz.
- For safety reasons, only use the Test Leads designed to be used with this instrument and recommended by KEWTECH.
- Use only grounded mains outlets to supply the instrument.  
Do not touch the device under test whilst testing is in progress.

**⚠ DANGER**

- Since a high voltage of 500V is being output continuously, when measuring insulation resistance, the user may get an electrical shock. Any capacitors in the appliance under test may become charged during testing and may contain hazardous voltages do not touch them.
- When testing, always be sure to keep your fingers behind the safety barriers on the test leads.
- Disconnect the instrument from the power supply when measurement is finished.
- Do not leave the instrument with connected to the power supply.

**⚠ WARNING**

- Never open the instrument case – because dangerous voltages are present. Only fully trained and competent electrical engineers should open the case.
- If abnormal conditions of any sort are noted (such as a faulty display, unexpected readings, broken case, cracked test leads, etc) do not use the instrument and return it to your distributor for inspection and repair.
- Never attempt to use the instrument if the instrument or your hands are wet.

**⚠ CAUTION**

- When using Test Leads with the crocodile clip, be sure to check the crocodile clip is firmly connected to the metal part of the device under test. Otherwise, inaccurate measurements or arcing at the contacts may occur.
- The rated measuring voltage for the insulation test is 500V. DC. If this voltage seems too high for the appliance under test contact the appliance manufacturer for advice. The IEE Code of Practice allows for a touch current test where an insulation test cannot be carried out.
- When testing a faulty appliance, it may trip the circuit breaker of main power supply during test and may cause interruption of service. Be careful when the same main power supply is used for PCs.
- We are not liable for loss of data on PC during testing with this instrument. The appliance under test is powered on during most tests, but please turn it to the OFF position after testing.
- Use a very slightly damp cloth for cleaning the instrument. Do not use abrasives or solvents.

The KT71 has a dedicated cover to protect against an impact from the outside and to prevent the fascia, the LCD, and the connector socket from becoming dirty. The cover can be detached and put on the back side of the main body during measurement.

## 2 Procedure of removing cover

### 2.1 Method of removing the cover

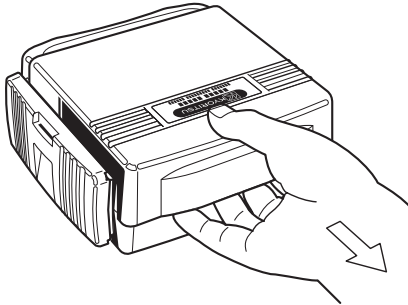


Fig.1

### 2.2 Method of storing the cover

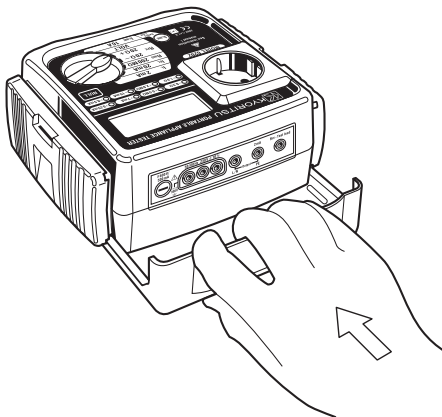


Fig.2

### **3 Product summary and explanation**

#### **3.1 Product summary**

The KT71 is a hand-held portable appliance tester, performing four functions to ensure the Safety of Class I and Class II appliances. Readings are displayed on a large liquid crystal display (LCD) below which are four bicolour LEDs, which unambiguously display a pass or fail indication for results dictated by the IEE Code of Practice.

This instrument is suitable for performing tests as required by the following standard.

The IEE Code of Practice for In-service Inspection and Testing of Electrical Equipment : 2003

This instrument is designed to check the electrical safety of appliances of Class I and Class II categories.

As a guide the IEC standard define these two categories as follows:

Class I: Appliances which have a functional insulation throughout and an earth connected case. These are often described as earthed appliances.

Class II: Appliances which have both functional and additional insulation where any metal parts cannot become “Live” under fault conditions.

### 3.2 Test Function

KT71 has the following features.

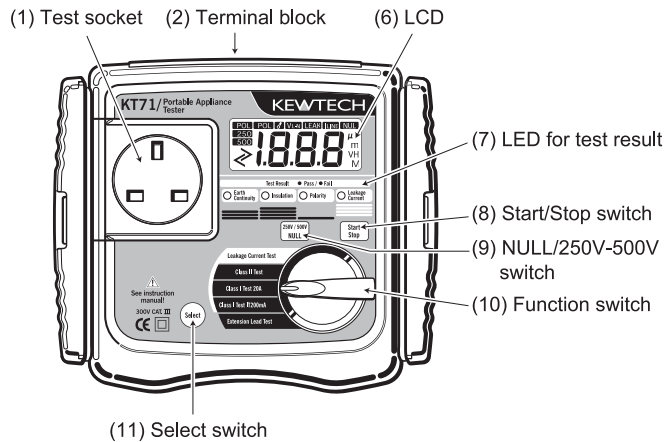
Function	Tests of contents
Extension Lead Test	<ul style="list-style-type: none"> <li>● Protective conductor resistance (Test current 20A AC nominal)</li> <li>● Insulation P/N-PE (Test voltage 250V DC or 500V DC)</li> <li>● Polarity (Test current 200mA DC nominal)</li> </ul>
Class I Test IT200mA	<ul style="list-style-type: none"> <li>● Protective conductor resistance (Test current 200mA DC nominal)</li> <li>● Insulation (Test voltage 250V DC or 500V DC)</li> </ul>
<input type="checkbox"/> Switch + Class I Test IT200mA	<ul style="list-style-type: none"> <li>● Protective conductor resistance (Test current 200mA DC nominal)</li> <li>● Load current and leakage current test</li> </ul>
Class I Test 20A	<ul style="list-style-type: none"> <li>● Protective conductor resistance (Test current 20A AC nominal)</li> <li>● Insulation (Test voltage 250V DC or 500V DC)</li> </ul>
<input type="checkbox"/> Switch + Class I Test 20A	<ul style="list-style-type: none"> <li>● Protective conductor resistance (Test current 20A AC nominal)</li> <li>● Load current and leakage current test</li> </ul>
Class II Test	<ul style="list-style-type: none"> <li>● Insulation (Test voltage 250V DC or 500V DC)</li> </ul>
<input type="checkbox"/> Switch + Class II Test	<ul style="list-style-type: none"> <li>● Load current and leakage current test</li> </ul>
Leakage Current Test	<ul style="list-style-type: none"> <li>● Load current measurement (Maximum appliance current 13A) and leakage current test</li> </ul>

**Product summary and explanation**

**3.3 Features**

- Check for whether the appliance is switched ON.
- Selection for 250V or 500V on the insulation resistance test.
- Null function for the earth bond test lead.
- Warning for the over range value by the LCD.
- Capable of judging pass/fail of tests by LEDs on the panel and by a buzzer.

**3.4 Instrument layout**



Terminal block

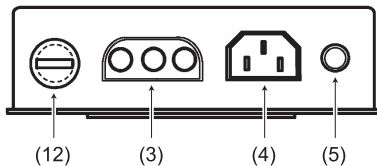


Fig.3

(1) Test socket

Insert the mains plug of the appliance to be tested to this socket for the protective conductor resistance, insulation resistance, leakage current test and extension lead test.

(2) Terminal block

Connect the supplied mains cord and Test Leads to this terminal block.

(3) Terminal for mains lead

This terminal is connected to a mains supply via M-7209.



- (4) Terminal for Extension lead adaptor  
For use with the KAMP S (UK) extension lead adaptor.
- (5) PE / Class II insulation probe  
Connect the Test Lead with crocodile clip (M-7208) (fig 5) to this terminal for the measurement of protective conductor resistance and Class II insulation, and clip the metal parts of the appliance under test with the crocodile clip.
- (6) LCD  
Measured value is displayed
- (7) LED for test result  
When the value of protective conductor resistance and insulation resistance exceeds the limit dictated by applicable standards, LED lights up in red. When it is within the limit, LED lights up in green.
- (8) Start/Stop switch  
A measurement starts by pressing this switch.  
Pressing the **Start/Stop** switch again during a Leakage Current Test stops the measurements.
- (9) NULL/250V-500V switch
- The rotary dial has to be set to a Class I test for this button to be used to zero out the test lead resistance.
  
  - The rotary dial has to be set to Class II for this button to be used to select either 250 V or 500V test voltage.
- (10) Function switch  
Select a function with this switch.
- (11) Select switch (Applicable for Class I and Class II function)  
When the function is set at the same time as the **Select** switch is being pressed, the leakage test will be conducted the insulation test.
- (12) Fuse  
Protected by a 600V/10A ceramic fuse (F type  $\Phi 6.3 \times 32 \text{mm}$ ).  
User can replace this fuse.

**Product  
summary and  
explanation**

(13) Mains cord (UK) M-7209

This mains cord can be connected to the mains supply so that the instrument can derive power from it. To measure contact current, the socket of the mains power supply has to have an earth terminal.



Fig.4

(14) Test Lead with safety crocodile clip(M-7208) and Probe with Blade type Prod(M-7163). The probe and crocodile clip are interchangeable.  
Please use it according to a measurement use.



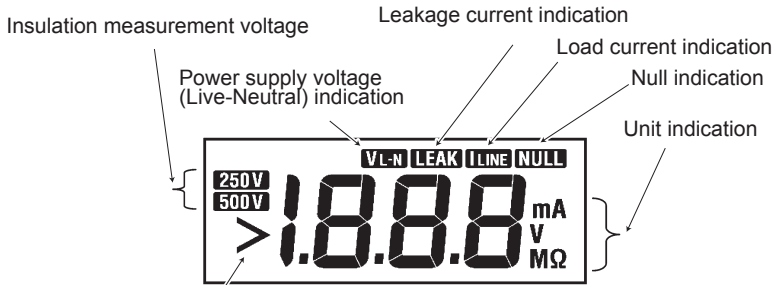
(15) Extension leads adaptor KAMP S (UK)

This is for connecting the instrument and an extension lead (cord reel).



### 3.5 Explanation for indications LCD Display

### Product summary and explanation

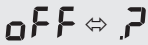



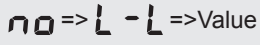



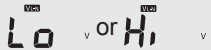


Over range display: ">" is displayed on the LCD.

Fig.7

**Product summary and explanation**

List of display message

	Displayed when appliance under test is switched off.
	Displayed when the protective conductor resistance exceeds the threshold value. (*1)
	Displayed when the insulation resistance between LN-E is less than the threshold value.
	Displayed when the leakage current exceeds the threshold value.
	Displayed when the resistance between L-L exceeds 10Ω at extension lead test.
	Displayed when the resistance between N-N exceeds 10Ω at extension lead test.
	Displayed when the appliance under test is undergoing the leakage current test.
	Displayed when emergency stop is operated at leakage current test.
	Displayed when the mains voltage exceeds the range of specifications (207V to 260V). Testing will be disabled.

(\*1) Please note that the IEE Code of Practice states that the maximum resistance should be no greater than 0.1 Ohms + the resistance of the mains cable

**3.6 Applicable standards**

**Instrument operation**

The IEE Code of Practice for In-service Inspection and Testing of Electrical Equipment : 2003

**Safety**

- IEC/EN61010-1 CAT.III 300V-instrument
- IEC/EN61010-031 CAT.III 300V(600V)-test lead

**EMC**

- EN61326 (EN55022/EN61000-3,4)

## 4.1 General specification, measuring range and accuracy

## Measurement of protective conductor resistance - RPE

Test function	IT 200mA continuity	20A continuity test
Measuring range	0 ~ 15.00Ω	
Resolution	10mΩ	
Open-circuit voltage	4 ~ 24V	
Measuring current	200mA DC (nominal)	20A AC (nominal)
Accuracy	± (3%rdg+5dgt)	

## Measurement of insulation resistance - RINS

Output voltage	250V	500V
Measuring range	0.1~19.99MΩ	
Resolution	10kΩ	
Open-circuit voltage	250V (+30%/-0%)	500V (+30%/-0%)
Nominal current	1mA DC min. @250kΩ	1mA DC min. @500kΩ
Short-circuit current	2.5mA DC or less	
Accuracy	± (2%rdg+3dgt)	

## Measurement of leakage current test (With load current test) –LEAK

Test function	Load current test	Leakage current test
Measuring range	AC0.1~ 13.00Arms	AC0.1~ 19.99mArms
Resolution	10mA	10 μ A
Accuracy	±(10%rdg ± 5dgt)	±(3%rdg ± 5dgt)
Examination time	Max 5 seconds	Max 10 seconds

Note: For MOV appliances use leakage current test.

## Specification

### 4.2 Threshold and display

Function	Protective conductor resistance	Insulation resistance	Leakage current	Polarity
Extension Lead	$RPE \leq 0.1 \Omega$	$RINS \geq 1M\Omega$	—	$Cont \leq 10 \Omega$
Class I IT200mA	$RPE \leq 0.1 \Omega$	$RINS \geq 1M\Omega$	$LEAK \leq 3.5mA$	—
Class I 20A	$RPE \leq 0.1 \Omega$	$RINS \geq 1M\Omega$	$LEAK \leq 3.5mA$	—
Class II	—	$RINS \geq 2M\Omega$	$LEAK \leq 0.25mA$	—
Leakage Current	—	—	$LEAK \leq 0.75mA$	—

### 4.3 Reference test condition

Unless otherwise specified, this specification is dependent on the following conditions.

- (1) Ambient temperature:  $23 \pm 5^\circ C$
- (2) Relative humidity: 45 ~ 75%
- (3) Attitude: Horizontal
- (4) AC power supply: 230V, 50Hz
- (5) Altitude up to 2000m, Indoor use

#### Operating temperature and humidity range

$0^\circ C \sim +40^\circ C$  Relative humidity: 85% or less (no condensation)

#### Storage temperature and humidity range

$-20^\circ C \sim +60^\circ C$  Relative humidity: 85% or less (no condensation)

#### Rate voltage and frequency

Rated voltage:  $230V \pm 10\%$

Rated frequency:  $50Hz \pm 1\%$

#### Maximum rated power

Load current at test socket: 3kVA(15sec.)

Other test function: Approx.9VA

#### Outer dimension and weight

Outer dimension: 185(L) × 167(W) × 89(D)mm

Weight: Approx. 1.3kg (Only the instrument body)

Symbols used on the instrument:

- ☐ Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION
- ⚠ Caution (Refer to the accompanying instruction manual)

### 5.1 Visual inspection

Before starting a measurement, the user should undertake visual checks on the mains cord, case and that the correct type and rated fuse is fitted to the appliance under test. There should also be no evidence of damage of a nature that may impair the electrical safety of the appliance.

### 5.2 Connection to main power supply

#### 5.2.1 Connection of mains cord

Connect the mains supply and the instrument with M-7209 mains cord.

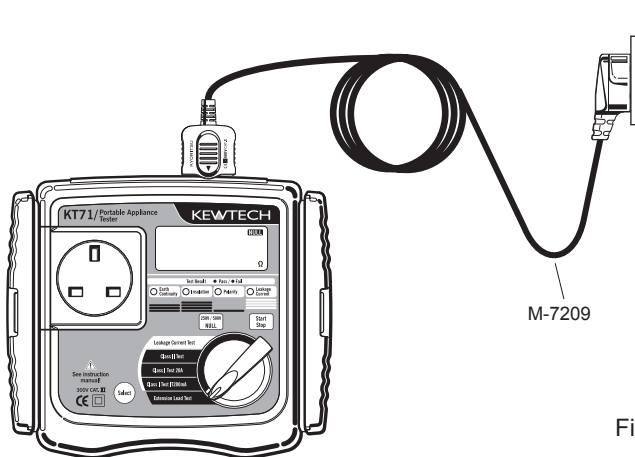


Fig.8

## Specification

### 5. Preparation before a measurement

#### ⚠ CAUTION

- Always be sure to check there are no abnormal conditions or damage to the instrument and leads.  
If any evidence of abnormality is found, measurement must be stopped immediately.
- The outlet of the mains power supply must have an earth terminal and be earthed.
- This instrument can be only connected to the commercial power of 230V+10%-10%, 50Hz.

### 5.2.2 Check the warning display of mains power voltage

The warning device can work in any position of the function switch of the instrument. When “Lo v” or “Hi v” is displayed on the LCD at the time of the instrument connected with the mains power source, it means the measurement can not proceed because the mains voltage value of the instrument is out of the specific range. Do not connect the instrument with the mains power until the cause is identified.

**⚠ WARNING**

- When the voltage of mains power supply is 260V or more, “Hi v” is displayed on the LCD.
- In that case, disconnect the mains cord of the instrument from main power supply.

### 5.2.3 Null setting

The IEE Code of Practice pass level for protective conductor resistance is  $0.1\Omega$ , which is a low value. So even the resistance of Test Leads will affect the measurement result.

The KT71 can cancel the resistance of test lead by pressing **NULL|250V/500V**. The procedure of Null setting is shown below.

The Null function is held in memory even when the instrument is turned off, so there's no need to Null the lead resistance every time.

However, when replacing fuses or test leads, it is recommended to do a Null setting again.

#### Procedure:

- (1) Set the function switch to Class I Test function. (Setting is possible at both IT200mA and 20A.)
- (2) Connect the mains supply and the instrument with the M-7209 mains cord.



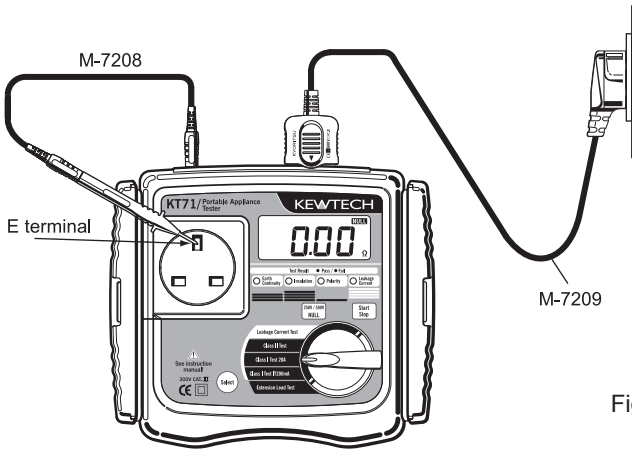


Fig.9

(3) Insert Test Lead with probe (M-7208) in to the E terminal of the instrument, and contact the tip of the Test Lead with the earth contacts of the socket on the instrument.

Press the **NULL** [250V/500V] switch whilst maintaining contact between the Test Lead and the earth contacts of the socket, the resistance of the Test Lead will be displayed on the LCD as shown in fig.10 for 2sec.

Then, the instrument cancels the resistance value of Test Lead and adjusts the displayed value to “0.00” as shown in fig.10.

The **NULL** icon is then displayed in the LCD.

Null setting cannot be done when the resistance is  $3\Omega$  or more.

A message “no” appears to indicate a resistance is exceeding the Null setting range.

Display at Null setting

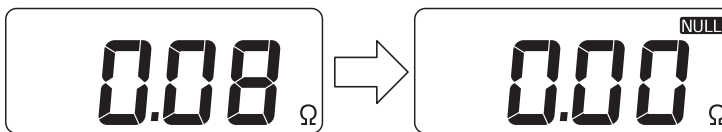


Fig.10

**Preparation  
before a  
measurement**

- (4) Null setting can be released by pressing **NULL|250V/500V** switch for 2sec. The **NULL** icon on the LCD will disappear when Null setting is released.

The Null setting and release can only be done in a Class I Test function.

**△ CAUTION**

- Null setting can be set only with either Class I Test IT200mA or Class I Test 20A selected.
- It is possible that there is a different setting value between Class I Test IT200mA and Class I Test 20A.

**5.2.4 Voltage setting for insulation resistance measurement  
(How to change between 250V and 500V)**

- (1) Set the function switch to Class II Test function, and press the **NULL|250V/500V** switch. The LCD display will change to indicate the voltage selected. By pressing the **NULL|250V/500V** switch, 250V and 500V can be changed over.

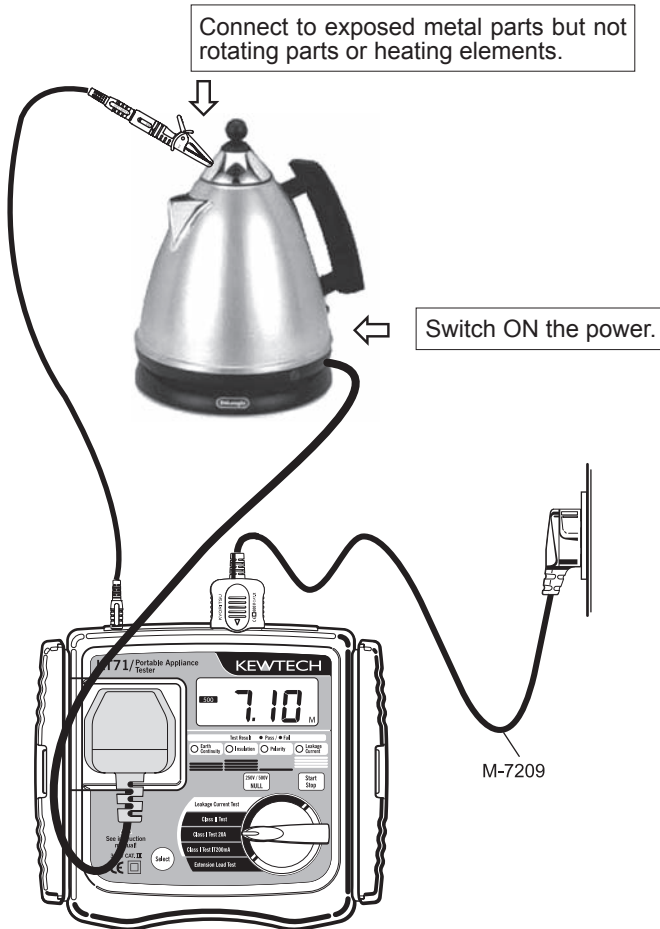


Fig.11

### 6.1 Class I Test (Common function for both IT200mA and 20A)

The purpose of the test carried out for Class I appliances is to check the resistance of earth continuity from exposed metal parts and the plug is below a certain level and the insulation resistance between live and neutral connected together and earth is below  $1M\Omega$ . To conduct protective conductor resistance and insulation resistance tests on an appliance, connect the mains plug of the appliance to the test socket (1) described in clause 3.4 Instrument layout and the PE probe to terminal (5).

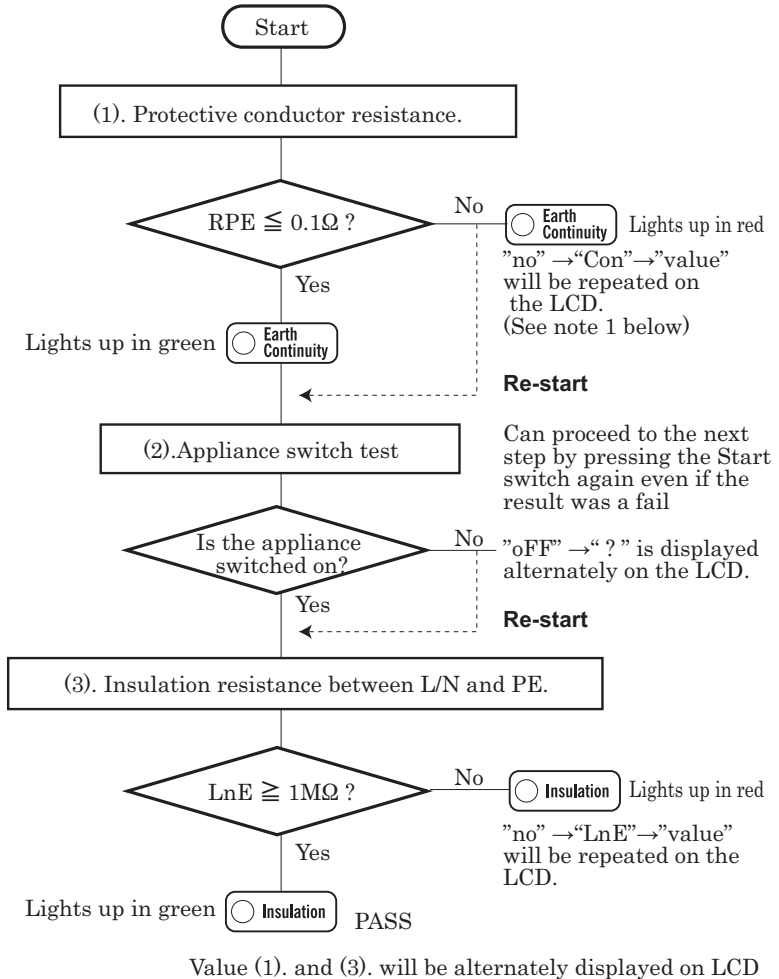
Use the following setups, depending upon the type of appliance.



### 6. Measuring method

Fig.12

Class I Test Flowchart



**Note 1:** The IEE Code of Practice states that the maximum resistance should be no greater than 0.1 Ohms + the resistance of the mains cable. Therefore if the appliance has a long mains lead then the allowable resistance can be higher than the pre-programmed 0.1Ω.

**⚠ CAUTION**

- If the Appliance switch test fails, displayed by “OFF” and “?” appearing alternately on the LCD, and the appliance is actually switched on there may be a direct short between L and N. Suspend testing immediately.
- Follow the procedure described in 5.2.3 and undertake the Null setting before a measurement.
- The crocodile clip must make good contact with the enclosure of the appliance.
- When the terminal is open or the resistance value exceeds measuring range, “>” mark (over range display) appears on the LCD.
- Do not touch the appliance under test whilst testing is in progress. Since a high voltage of 500V will be present and the user may get an electrical shock.

**6.2 Class I Test (Select the leakage current test) – common to both IT200mA and 20A function**

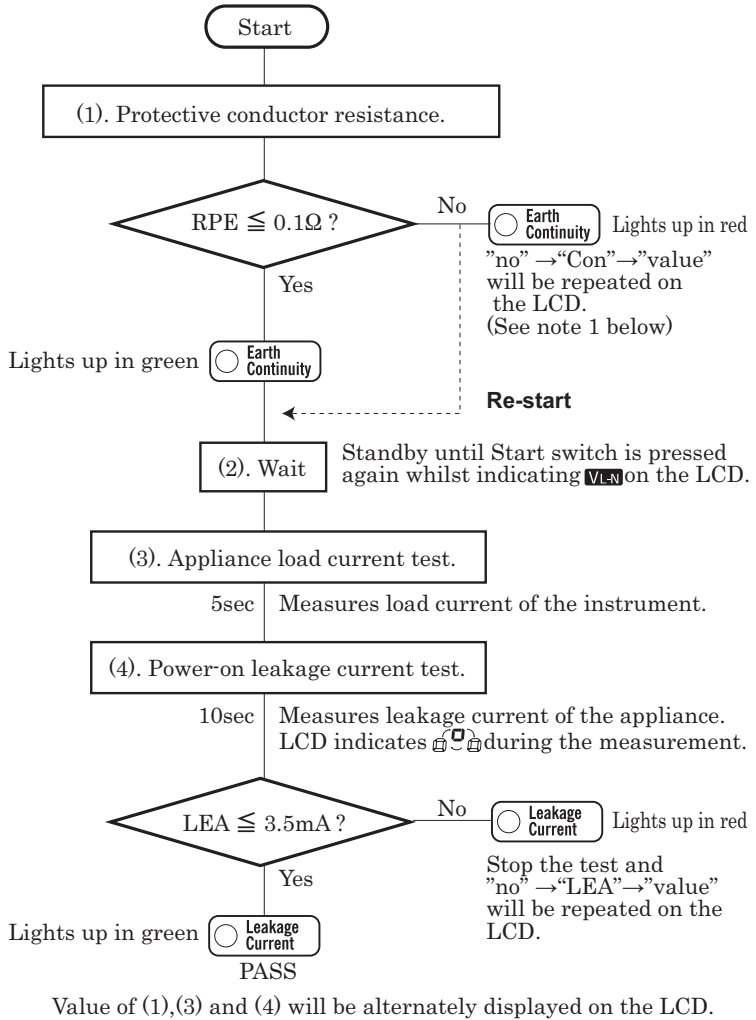
Turning the rotary dial to either “Class I Test” whilst the **Select** switch is being pressed down initiates a leakage current test instead of the Insulation resistance test.

When selecting the leakage current test, exposed metal parts other than the heating or movable parts must be clipped with Test Lead M-7208 since the appliance will switch on and activate. Pressing the **Start/Stop** switch during the leakage current test stops the test immediately. To restart the test, press the **Start/Stop** switch again 2 sec after the test has been stopped. Then (1) Protective conductor resistance will be restarted. Fig 12 indicates how to connect the devices.

 Refer to item 6.6 on details of Leakage Current Test

**Measuring method**

**Class I Test (Select the Leakage Current Test) Flowchart**



**Note 1:** The IEE Code of Practice states that the maximum resistance should be no greater than 0.1 Ohms + the resistance of the mains cable. Therefore if the appliance has a long mains lead then the allowable resistance can be higher than the pre-programmed 0.1Ω.


**⚠ CAUTION**

- When the terminal is open or the resistance value, load current and leakage current exceeds the measuring range, “ > ” (over range display) appears on the LCD.
- If the test is stopped, a message “StP” appears on the LCD and values of leakage current are not displayed.

**⚠ WARNING**

- When conducting a leakage test the appliance will automatically power on and will operate in its normal manner. It is imperative that the appliance is secured safely before the test is carried out. Extra care needs to be taken with appliances which have heating elements and rotating parts.
- Firmly insert the plug of the appliance to the socket of the KT71. Plugs may get hot if leakage current test is performed with improper connection.
- Do not connect/remove the plugs during leakage current test. It may cause a reading error. Do not use the instrument on the device which has a power consumption of 3kVA or more.

### 6.3 Class II Test

The Class II appliances have the indication of “DOUBLE INSULATION” or the  symbol. The Class II insulation test is to check the insulation resistance of the appliances is within the range defined in the standards.

**Measuring method**

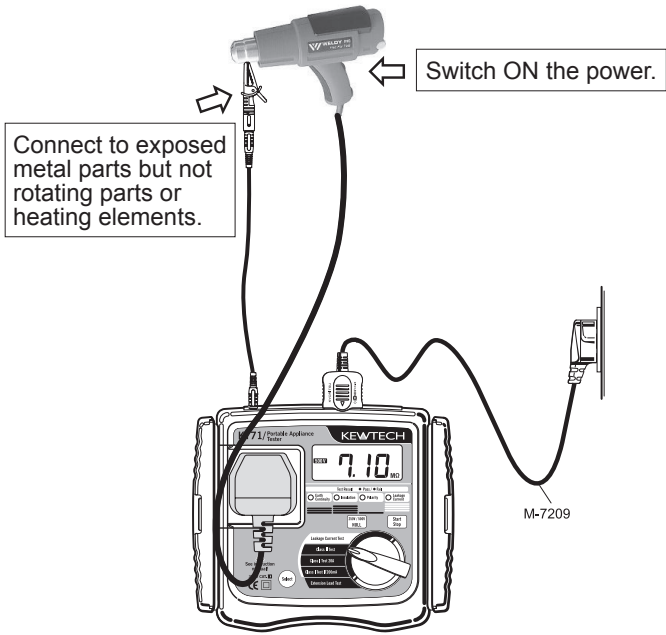
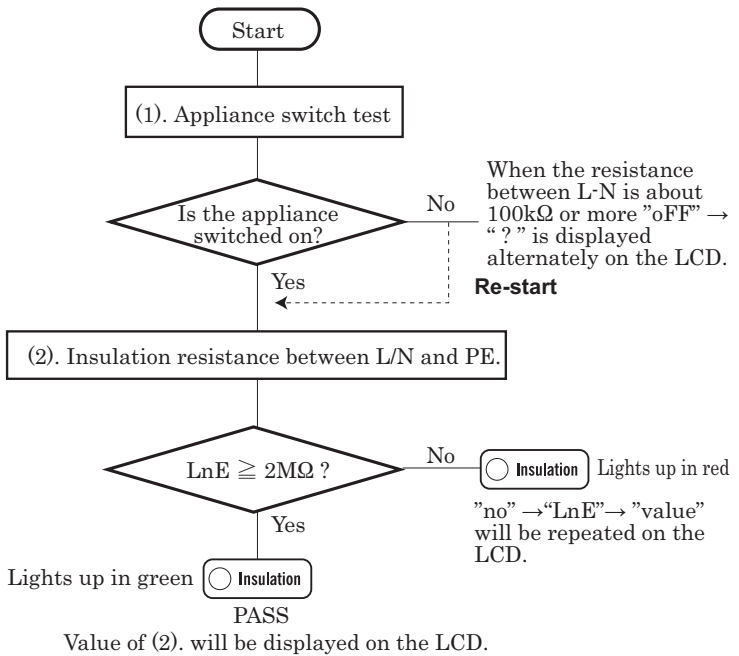


Fig.13

**Class II Test Flowchart**





**⚠ CAUTION**

- If the Appliance switch test fails, displayed by “OFF” and “?” appearing alternately on the LCD, and the appliance is actually switched on there may be a direct short between L and N. Suspend testing immediately.
- When the terminal is open or the resistance value exceeds the measuring range, “ > ” mark (over range display) appears on the LCD.
- Do not touch the appliance under test whilst testing is in progress. Since a high voltage of 500V will be present and the user may get an electrical shock.

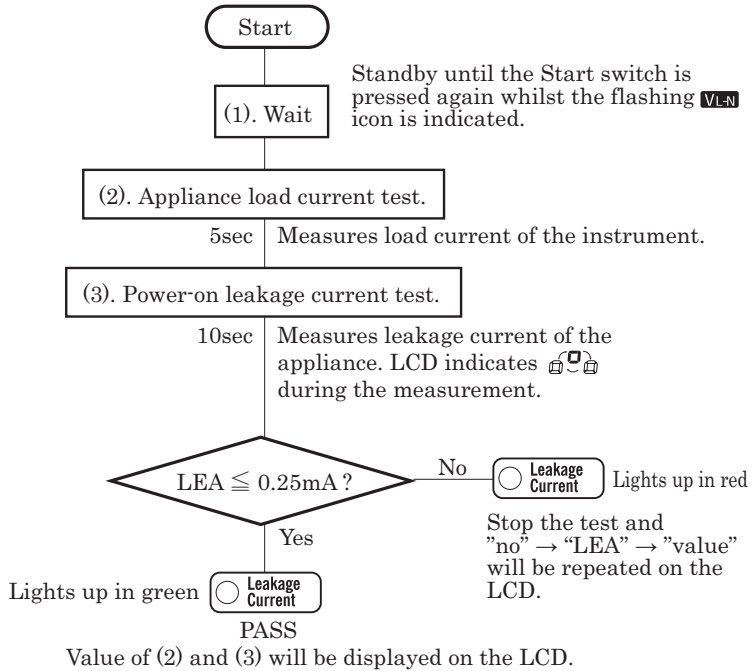
**6.4 Class II Test (Select the leakage current test)**

When turning the rotary dial to the Class II Test whilst pressing the Select switch, power-on leakage current test will be carried out instead of Insulation resistance test. When leakage current test is chosen, the appliance will switch on and operate in its normal manner. When connecting the test lead do not clip a metal a rotating part or heating element with the Test Lead M-7208.

 Refer to item 6.6 on details of Leakage Current Test

**Measuring method**

**Class II Test (Select the Leakage Current Test) Flowchart**



**⚠ CAUTION**

- When load current exceeds 15A or leakage current exceeds 20mA, “ > ” (over range display) appears on the LCD.
- If the test is stopped, a message “StP” appears on the LCD and values of leakage current are not displayed.

**⚠ WARNING**

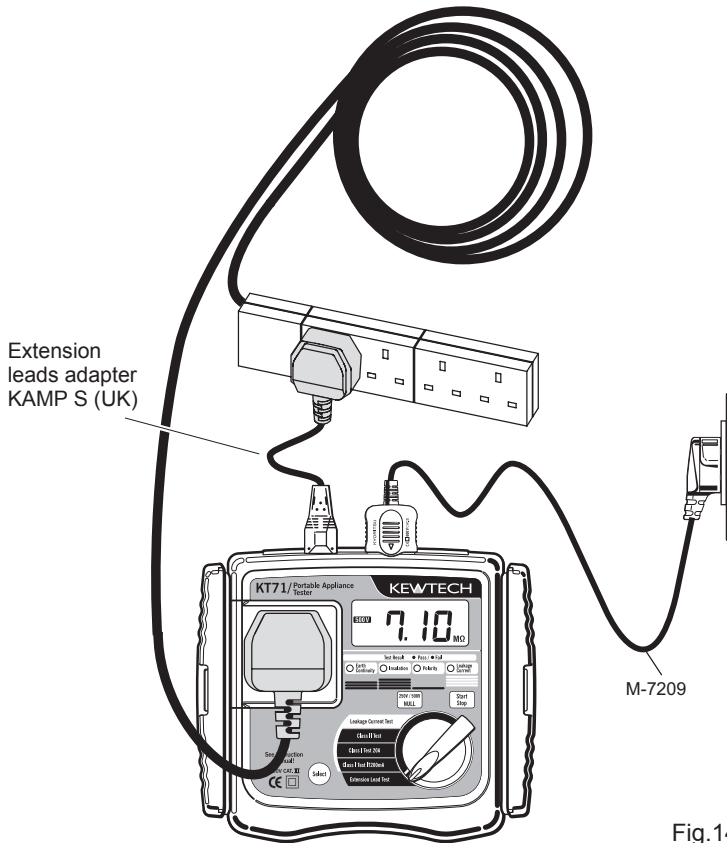
- When conducting a leakage test the appliance will automatically power on and will operate in its normal manner. It is imperative that the appliance is secured safely before the test is carried out. Extra care needs to be taken with appliances which have heating elements and rotating parts.
- Firmly insert the plug of the appliance to the socket of the KT71. Plugs may get hot if leakage current test is performed with improper connection.
- Do not connect/remove the plugs during leakage current test. It may cause a reading error. Do not use the instrument on the device which has a power consumption of 3kVA or more.

## 6.5 Extension Leads Test

This test is for extension leads, and checks for;

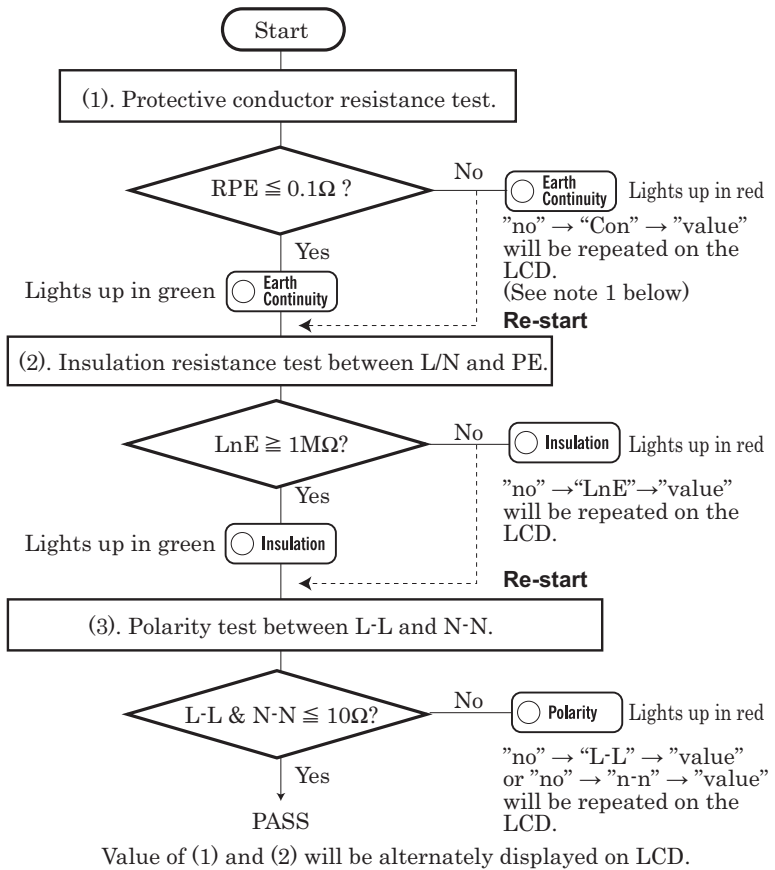
- Protective conductor resistance between accessible conductive parts and connection of protective earth.
- Insulation resistance between L/N and PE.
- Polarity check of the Live and Neutral terminal of plug and socket.

Test procedure and the connection are as follows.



Measuring method

Extension Leads Test Flowchart



**Note 1:** The IEE Code of Practice states that the maximum resistance should be no greater than 0.1 Ohms + the resistance of the mains cable. Therefore if the appliance has a long mains lead then the allowable resistance can be higher than the pre-programmed 0.1Ω.

**⚠ CAUTION**

- Follow the procedure described in 5.2.3 and do Null setting before a measurement, but use the short KAMP S lead instead of the M-7208 test lead, by plugging the KAMP S. Into the Extension Lead Adaptor terminal and the UK socket on the front of the unit.
- When the terminal is open or the resistance value exceeds the measuring range, “ > ” (over range display) appears on the LCD.
- Do not touch the device under test whilst testing is in progress. Since a high voltage of 500V will be present, the user may get an electrical shock.

### 6.6 Leakage Current Test

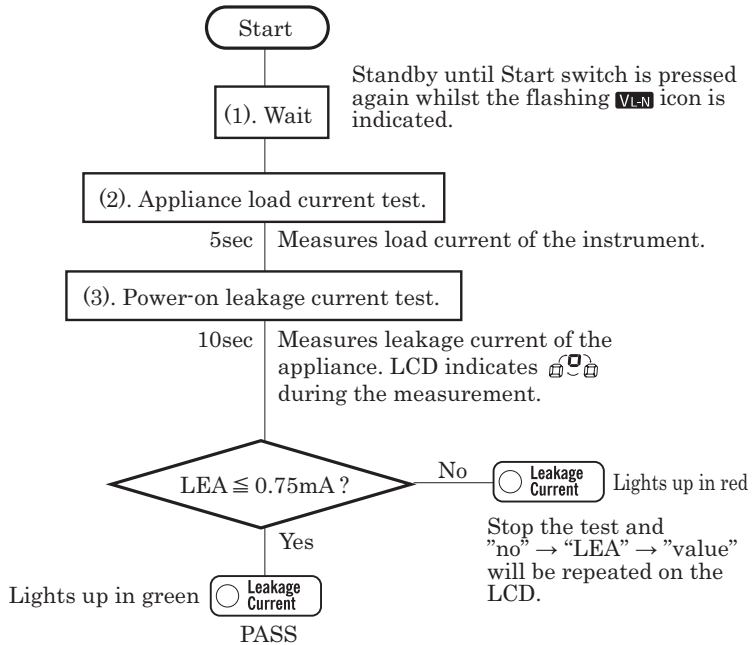
This function is to conduct the leakage current test separately at mains voltage, the appliance will be automatically switched on and power up in its normal manner.

The leakage current test, measures load current of the instrument for about 5 seconds, then measures leakage current for about 10 seconds and both measured results are displayed. The KT71 can measure up to 20mA although the threshold value is 0.75mA in this function.

- Set the function switch to Leakage Current Test position.
- Refer to the Fig12 or Fig13 for connection of an appliance.
- After set up is done, press the Start/Stop switch. (Indicated by the flashing **V<sub>L-N</sub>** icon on the LCD at standby mode.)
- Check the switch of the appliance is ON.
- Press Start/Stop switch again.
- The appliance will operate for 15 seconds and indicate the final values (value after 15 sec.) of load current and the maximum value of leakage current.

**Measuring method**

**Leakage Current Measurement Flowchart**



Value of (2) and (3) will be displayed on the LCD.

**— Remarks —**

**Stopping the Test**

1) Emergency stop and restart manually for power-on leakage current test:

In order to stop testing the leakage current whilst measuring, press **Start/Stop**. To start a test again, press **Start/Stop** again after about 2 seconds or more from when the test has been stopped. The test will restart.

2) Auto stop of power-on leakage current test:

The instrument stops measuring immediately when load current exceeds 15A or leakage current exceeds 20mA (but more than 3.5mA in Class I test function and more than 0.25mA in Class II test function).

**⚠ WARNING**

- When conducting a leakage test the appliance will automatically power on and will operate in its normal manner. It is imperative that the appliance is secured safely before the test is carried out. Extra care needs to be taken with appliances which have heating elements and rotating parts.
- Firmly insert the plug of the appliance to the socket of the KT71. Plugs may get hot if leakage current test is performed with improper connection.
- Do not connect/remove the plugs during leakage current test. It may cause a reading error. Do not use the instrument on the device which has a power consumption of 3kVA or more.

When the fuse blows during use, please replace with a new one according to below procedure.

**7. Fuse  
replacement**

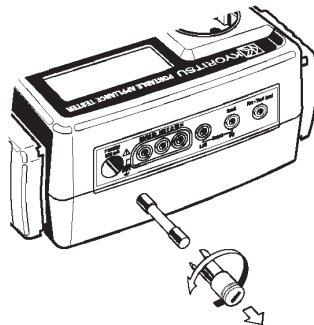


Fig.15

- (1) Use a flat head screwdriver and turn about 45° to the left and remove the fuse cap and fuse.
- (2) Remove the fuse from the fuse cap and replace it with new one.
- (3) Refitting is the reverse procedure.

## Fuse replacement

### ⚠ WARNING

- Remove mains cord from the instrument before replacing the fuse.
- This is the only user replaceable fuse. Never attempt to perform any other repairs.

### ⚠ CAUTION

- Please use the specified fuse (Fast acting type ceramic fuse: 600V/10A -  $\Phi$  6.3x32mm).

## 8. Case and strap assembly

The strap and test lead case can be attached to the instrument as below. Pass the strap belt down through the side panel of the main body from the top, and up through the slots of the test lead case from the bottom. (Fig. 16).

Pass the strap through the buckle, adjust the strap for length and secure.

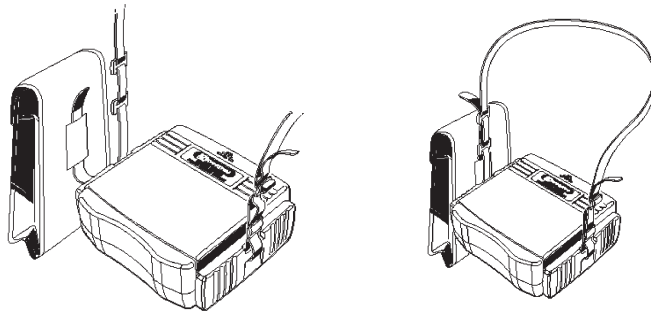


Fig.16

## 9. Maintenance

Use a very slightly damp cloth for cleaning the instrument. Do not use abrasives or solvents.



Kewtech Corporation Ltd.  
Midas House, Unit 2b  
Stones Courtyard  
High Street, Chesham  
Buckinghamshire HP5 IDE  
[www.kewtechcorp.com](http://www.kewtechcorp.com)

Kewtech Corporation Limited  
Tel:01494 792212

[www.kewtechcorp.com](http://www.kewtechcorp.com)

## KT71 PAT Tester with Auto Test Sequence

### PRODUCT DATA SHEET

#### KT71

#### PAT TESTER WITH AUTO TEST SEQUENCES

- Performs Earth bond at 200mA for IT appliances and high current 20A for all other appliances
- 250V / 500V insulation test voltages
- Run / leakage at 230V
- Single rotary dial position initiates test sequence
- Class I IT 200mA Earth Bond
- Class I 20A Earth Bond
- Class II
- Memory for test lead resistance compensation
- Extension lead test – including polarity
- LED indication of pass / fail as well as a result display
- Automatic check if appliance is switched on or not
- Test 110V appliances for earth bond and insulation (with appropriate test adaptor).
- Tests in accordance with the IEE Code of Practice

#### ACCESSORIES

- Mains Leads
- Earth lead
- Instruction Manual
- Certificate of Conformity

#### OPTIONAL

- Pass & Fail labels
- PATLOG1 PAT testing record log book
- Calibration Certificate



### SPECIFICATIONS

#### MEASUREMENT OF PROTECTIVE CONDUCTOR RESISTANCE - R<sub>PE</sub>

Test Function	IT 200mA continuity test	20A continuity test
Measuring range	0 ~ 15.00 Ω	
Resolution	10mΩ	
Open-circuit voltage	4 ~ 24V	
Measuring current	200mA DC (nominal)	20A AC (nominal)
Accuracy	± (3%rdg+5dgt)	

#### MEASUREMENT OF INSULATION RESISTANCE - R<sub>INS</sub>

Rating	250V / 20MΩ and 500V / 20MΩ	
Measuring range	0.1~19.99M Ω	
Resolution	10kΩ	
Rated voltage	250V/500V DC(-0%/+30%) @250k Ω/500kΩ	
Short-circuit current	2.5mA DC or less	
Accuracy	± (2%rdg+3dgt)	

#### LEAKAGE CURRENT TEST (WITH LOAD TEST) - LEAK

Test function	Load current test	Leakage current test
Measuring range	AC0.1~13.00Arms	AC0.1~ 19.99mArms
Resolution	0.01A	0.01mA
Accuracy	±(10%rdg ± 5dgt)	±(3%rdg ± 5dgt)
Examination time	Max 5 seconds	Max 10 seconds

#### THRESHOLD AND DISPLAY

Function	Protective conductor resistance	Insulation resistance	Leakage current	Polarity
Extension Lead	RPE < 0.1 Ω	RINS > 1M Ω		Cont < 10 Ω
Class I IT200mA	RPE < 0.1 Ω	RINS > 1M Ω	LEAK < 3.5mA	
Class I 20A	RPE < 0.1 Ω	RINS > 1M Ω	LEAK < 3.5mA	
Class II		RINS > 2M Ω	LEAK < 0.25mA	
Leakage Current			LEAK < 0.75mA	
Measurement Type	Averaging readings			