INSTRUCTION MANUAL

ANALOGUE INSULATION/CONTINUITY TESTER

MODEL K3131DL

ROBIN

Contents

Congratulations on purchasing this Robin model K3131DL Analogue Insulation/Continuity Tester. This unit has been designed to comply with the current IEE Regulations and International Regulations.

By using the latest technology this Tester will give accurate and reliable results when used in accordance with these operating instructions.

1. Safety Notice

Electricity can cause severe injuries even with low voltages or currents.
Therefore it is extremely important that you read the following infomation before using this Insulation Tester.

1.1 This instrument must only be used by a competent trained person and in strict accordance with the instructions. Robin Electronics will not accept liability for any damage or injury caused by misuse or non-compliance with instructions or safety procedures.

1.2 This instrument must not be used on live circuits. Ensure all circuits are de-energised before testing.

1.3 Never open the instrument case except for battery or fuse replacement.

1.4 Always inspect your Insulation Tester and test leads before use for any sign of abnormality or damage. If any abnormal conditions exist (broken test leads, cracked case, display faulty, inconsistent readings-etc) do not attempt to take any measurements. Return to Robin Electronics for rectification.

1.5 Never replace the protective fuse inside the instrument with any other than the spcified or approved equal (0.5A/250V) fast acting ceramic to IEC127.

1.6 This meter has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when a lack of caution or poor safety practice is used. Use caution in the presence of voltages above 50V as these pose a shock hazard.

1.7 Pay attention to cautions and warnings which will inform you of potentially dangerous procedures.

1.8 If at anytime during testing there is a momentary degradation of reading, this may be due to excessive transients or discharges on the system or local area. Should this be observed, the test should be repeated to obtain a correct reading. If in doubt always contact Robin Electronics.

1.9 Never assume an installation circuit is not live. Confirm it is deenergised before commencing testing.

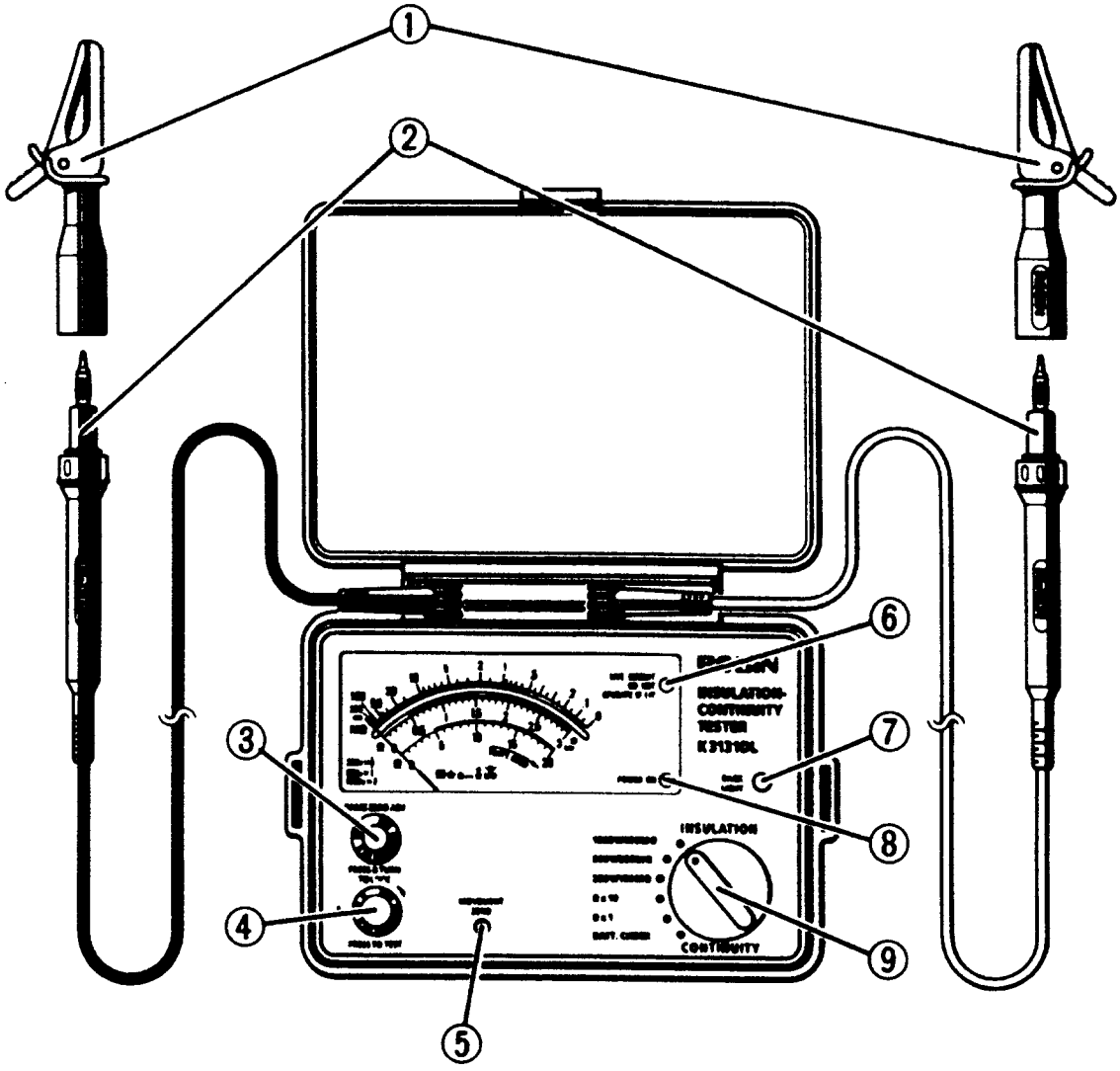
1.10 Replace worn and/or damaged leads with new ones approved by Robin Electronics immediately.

1.11 It is essential to understand and follow the safety rules contained in this manual. They must always be observed when using the instrument.

2. Features

- Robust new style dual purpose case housing and carrying case.
- Uses only 6 × 1.5V battery type R-6, AA or equivalent.
- Incorporates front panel Ohms zero adjust.
- Fuse protected (continuity ranges only).
- Taut band construction.
- Expanded insulation and continuity scales for ease of reading.
- Battery check facility.
- LIVE circuit audible and visual indication.
- 3 insulation test voltages, 2 continuity ranges.
- Back light function.
- 200mA test current on continuity ranges.
- 1mA nominal insulation current.

3. Layout Diagram



① Crocodile Clip ② Prod
③ Ohms Zero Adjust ④ Test Button
⑤ Meter Movement Zero Adjust
⑥ Live Circuit Warning Lamp
⑦ Light Switch ⑧ Power-on Indication Lamp
⑨ Range Switch

4. Specifications

Designed in generl to meet IEC 1010-1 installation category III.

Test Voltage	250V	500V	1000V
Measuring Ranges	0—100MΩ	0—200MΩ	0—400MΩ
Mid-Scale Value	1MΩ	2MΩ	4MΩ
Output Voltage on Open Circuit	250V DC ± 10% max.	500V DC ± 10% max.	1000V DC ± 10% max.
Output Voltage	250V DC min. at 0.25MΩ	500V DC min. at 0.5MΩ	1000V DC min. at 1MΩ
Output Short Circuit Current	1.3mA approx.		
Output Current	1mA DC min. at 0.25MΩ	1mA DC min. at 0.5MΩ	1mA DC min. at 1MΩ
Accuracy	±5% of indicated value at 0.05MΩ — 10MΩ	±5% of indicated value at 0.1MΩ — 20MΩ	±5% of indicated value at 0.2MΩ — 40MΩ
	±0.7% of scale length at ranges other than above ranges		

Continuity Test Ranges:

Measuring Ranges	0—2Ω	0—20Ω
Output Voltage on Open Circuit	4—9V	
Output Short Circuit Current	200mA min.	
Accuracy	±3% of scale length	

Power Supply Voltage: 6 × 1.5V battery type R-6, AA or equivalent

Typical Number of Tests:

250V Range	5,500 times
500V Range	3,500 times
1000V Range	1,400 times

Overload Protection:
Insulation Resistance Ranges
600V AC for 30 seconds
Continuity Ranges
500mA Fast Acting Ceramic Fuse
Live Circuit Warning Buzzer
600V AC for 30 seconds

Operating Temperature & Humidity: 0°C—+40°C at 85% max. relative humidity

Storage Temperature & Humidity: —20°C—+60°C at 85% max. relative humidity

Withstand Voltage: 5000V AC 50Hz or 60Hz for one minute across electrical circuit and housing case

Insulation Resistance: 50MΩ min. at 500V across electrical circuit and housing case

Accessories: 1 × pair of test leads, 1 × pair of crocodile clips, pouch for leads.

5. Testing — General

Preparation for measurements — Without pressing the test button, check that the pointer lines up with the ∞ mark on the red megaohm scale. If not, adjust it by rotating the movement zero adjust with a small screwdriver.

Initial Checks:
These must be conducted prior to any testing.

Important:

Before pressing the test button, if at any time the live circuit neon is lit or the warning buzzer sounds DO NOT PROCEED — the circuit is live and must be de-energised.

5-1 Battery Check

a) When the battery voltage falls below 6.5V the Tester will not give reliable results, the battery check function ensures that accurate results are maintained.

b) Before conducting the battery check, always ensure that the instrument is not connected to any circuit. Remove the instrument leads.

c) Switch the function selector switch to BATT check and press the test button. If the pointer does not move to BATT good, the battery needs to be replaced.

5-2 Test Leads Check

Connect the leads to the Tester, switch to the Ω × 1 function and press and turn the test button to lock it down. When the leads are connected together, the pointer should move from the ∞ position towards the 0 position on the green ohms scale. If not, the leads or fuse may be faulty (or you need to adjust the ohms zero knob to zero the pointer). Release test button after completion.

6. Insulation Tests

a) Select the desired insulation test voltage — 250V, 500V or 1000V.

b) Connect the test leads to the Tester and circuit under test.

c) If the live circuit neon is NOT LIT and the warning buzzer does not sound press the test button. Read the red megaohm scale directly for the 500V range, multiply by 0.5 for 250V and by 2 for 1000V.

Note: Never turn the test voltage range switch during insulation testing while the test button is depressed, this may damage the instrument. Never touch the circuit under test during an insulation test.

7. Continuity Testing (Resistance Tests)

a) Select the desired ohms range 2 Ω (Ω ×1) or 20 Ω (Ω ×10).

b) Short the test leads, press the test button and adjust the ohms zero adjust to zero the pointer on the green ohms scale.

c) Connect the test leads to the circuit under test. If the live circuit neon is NOT LIT and the buzzer does not sound, press the test button. Read the Ω ×1 range directly, multiply by 10 for Ω ×10.

d) Back light function is provided to facilitate work at night or dimly lit locations.

e) Hold down the light switch to obtain illumination.

General

Lock down feature — for hands free operation, press and turn the test button.

Warning: The circuit must not be live-conduct initial checks first before using this feature. Otherwise damage will result.

a) Using the Tester in this mode, may leave the circuits under test charged up when conducting insulation tests due to capacitance. To avoid this, always release the test button by rotating anti-clockwise while the leads are still connected to the circuit. This will ensure that any electrical charge is dumped through the Tester's internal resistor circuits.

b) If pressing the test button has no effect, check the fuse in the instrument. See fuse replacement.

c) Fuse and Battery replacement.

Fuse type — 0.5A/250V fast acting ceramic to IEC127 (only use the correct fuse for replacement).

Battery type — 6 × 1.5V battery type R-6, AA or equivalent.

To replace the batteries or fuse, first disconnect all test leads from the instrument. Open the back cover on the tester by unscrewing the metal captive screw to reveal the battery compartment.

The fuse lifts out of its recess. The six 1.5V R-6 type batteries are located in a separate detachable battery holder inside the compartment. Always replace all six batteries with new ones at the same time - Never mix old and new types.

Back Light Function

To facilitate working in dimly lit situations, a back light function is provided which illuminates the display.

To operate this function, the back light button must be depressed and released whilst pressing the test button.

When the test button is released the back light will switch off. If the test button is depressed again within a few seconds, the back light will automatically switch on without having to press the back light button.

It is advisable that the back light function is only used when absolutely necessary as constant use may degrade the battery life faster than normal.

8. Servicing & Calibration

If this tester should fail to operate correctly, return to Robin Electronics marked for the attention of the Service Department, stating exact nature of fault.

Make sure that:

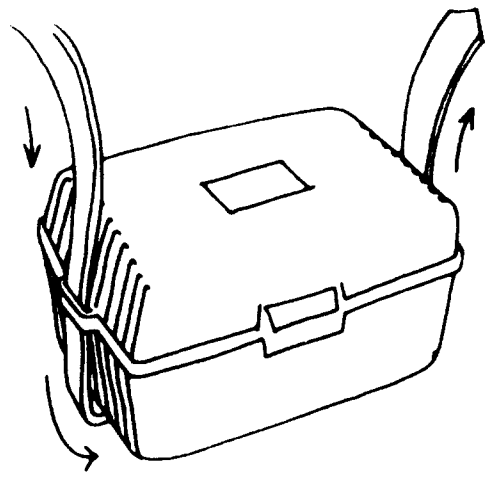
a) Operating instructions have been followed
b) Leads have been inspected
c) Fuse has been checked
d) Batteries have been checked
e) The unit is returned with all accessory leads

Regular re-calibration is recommended for this instrument. We recommend that with normal use this unit is calibrated at least once in every 12 month period. When the unit is due for re-calibration, return to Robin Electronics marked for the attention of the calibration department and be sure to include all accessory leads as they are part of the calibration procedure.

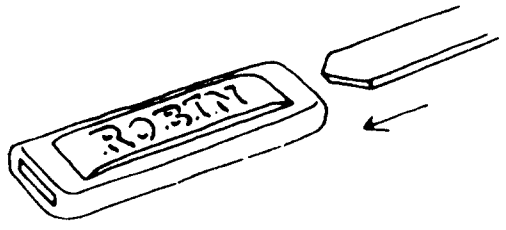
Robin reserve the right to improve specifications and designs without notice and without obligations.

CASE, STRAP, SHOULDER-PAD AND TEST-LEAD POUCH ASSEMBLY

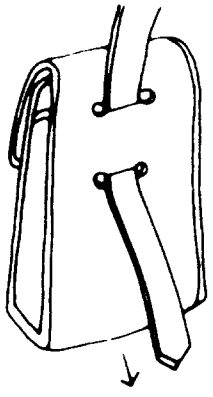
Assemble the shoulder strap through the case lugs and the test-lead pouch in the following sequence:



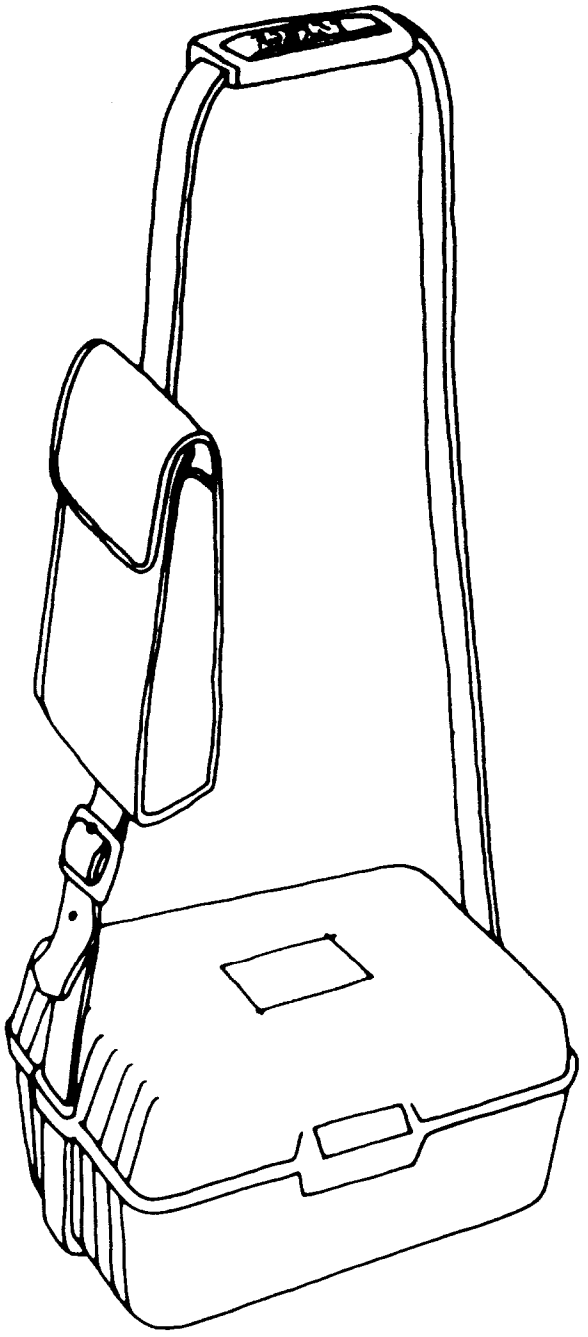
1 Pass the strap DOWN through the first case lug, under the case and UP through the other lug.



2 Slide the shoulder-pad onto the strap



3 Feed the strap DOWN through the slots in the back of the test-lead pouch.



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

Quality and reliability is our tradition

DISTRIBUTOR

92-1223A 95-11

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K 3131DL ERRATUM SLIP

Please note the following additions to this manual.

Section 8 - Servicing

If this product needs cleaning use a damp cloth to wipe its surfaces. Do not use strong cleaning agents as these may damage the plastic surfaces.

Section 1 - Safety

Warning

1.2 This product is an insulation/continuity tester and is designed for use on de-energised systems. It incorporates voltage warning circuits in case of accidental connection to an AC voltage. On no account should the product be used to measure voltages.

Voltages should be measured with a dedicated voltage measuring instrument and it is recommended that fused test leads are always used for personal safety when measuring such voltages especially on high energy circuits.

Note :-

This product is supplied with SL20 unfused leads. These can be converted to fully fused types by attaching the optional SL40 fused module.

Section 4 - Specification

The product is designed for indoor use and at a maximum altitude of 2000m

Installation category : III
Pollution Degree 2

Continued...

Section 1 - Safety

1.13 Users of this equipment and/or their employers are reminded that Health and Safety Legislation require them to carry out valid risk assessments of all electrical work so as to identify potential sources of electrical danger and risk of electrical injury such as from inadvertent short circuits. Where the assessments show that the risk is significant then the use of fused test leads constructed in accordance with the HSE guidance note GS38 Electrical Test Equipment for use by Electricians should be used.

Section 1 - Safety

1.10 Always keep your hands and fingers behind finger guards on test leads used with this instrument. For safety reasons always use the accessories approved by Robin. The use of other accessories is prohibited as they may not have the same safety features built in.

If at anytime during testing there is a momentary degradation of reading, this may be due to excessive transients or discharges on the system or local area.

Should this be observed, the test should be repeated to obtain a correct reading. If in doubt always contact Robin Electronics.