Time Electronics 5068 Insulation Tester Calibrator User Manual

Contents

Time Electronics
Calibration, Test and Measurement

Time Electronics 5068 Insulation Tester Calibrator

Product Information

- **Product Name:** 5068 InsCal Insulation Tester Calibrator
- **Manufacturer:** Time Electronics Ltd
- **Version:** 2.5 11-22
- **Address:** Unit 5, TON Business Park, 2-8 Morley Road, Tonbridge, Kent, TN9 1RA, United Kingdom
- **Contact:** T: +44 (0) 1732 355993 | F: +44 (0) 1732 350198
- **Email:** mail@timeelectronics.co.uk
- **Website:** www.timeelectronics.com

General Description

The Time Electronics 5068 InsCal Insulation Tester Calibrator is designed for testing and calibrating insulation test sets and megohm meters. It is constructed using high insulation materials and is fully isolated from external circuits and mains supply. The insulation test section of the instrument, including the provided leads, has been tested for safety up to 2.5 kilovolts.

Supplied Items

No information is provided in the user manual extract.

Specifications

Technical Specification

No information is provided in the user manual extract.

General Specification

No information is provided in the user manual extract.

Ordering Information

No information is provided in the user manual extract.

Controls
No information is provided in the user manual extract.

Operation

Operational Guidelines
No information is provided in the user manual extract.

Typical Operation Procedure
No information is provided in the user manual extract.

Warranty and Servicing
No information is provided in the user manual extract.

This manual provides operating and safety instructions for the Time Electronics product. To ensure correct operation and safety, please follow the instructions in this manual. Time Electronics reserves the right to change the contents, specifications and other information contained in this manual without notice.

General Description

This 5068 provides all the equipment necessary to test and calibrate insulation test sets and megohm meters. It consists of:

- 9 high precision selectable spot insulation resistances.
- 4 low resistance spot values.
- A continuity test function.
- A dual range voltmeter.
- A dual range milliamp meter.

It is constructed from very high insulation materials, including its case and is fully isolated from any external circuits including the mains supply. The switch in the insulation resistance selection circuit is constructed from special high voltage low leakage wafers and are self-cleaning, so should require no maintenance. The insulation test section of the instrument, including the leads provided have been tested for safety up to 2.5 kilovolts. The maximum safe voltage is limited by any probes or connectors the end user may fit. The insulation sections of the instrument may be used separately but the user must be aware that they have a common earth which will prohibit two of the sections being used in the same circuit. The low resistance section is independent.

Supplied Items

5068 InsCal Insulation Tester Calibration System

Accessories supplied

Test Lead Wallet

Low resistance test leads

2.5 kV test leads

Battery charger

Specifications

Technical Specification

Insulation Resistance

Spot Value Ω	100 kΩ	500 kΩ	1 MΩ	10 MΩ	200 MΩ	250 MΩ	400 MΩ	1 GΩ	10 GΩ
Accuracy	± 1 %	± 1 %	± 1 %	± 1 %	± 1 %	± 1 %	± 1 %	± 1 %	± 5 %
Max Voltage	500 V	500 V	1 kV	1 kV	1 kV	1 kV	1 kV	1 kV	2.5 kV
Temp. Coefficient	250 ppm								

Switches are a purpose-built design, with break-before-make, silver plated, self-cleaning contacts.

Low Resistance

- 4 spot values …… 1 Ω, 10 Ω, 100 Ω and 1 kΩ, 1 %, 0.5 W, TC 50 ppm.

Volt-Meter

- Low Range …….. 0 to 1.999 kV, resolution 1 V; 1 % of full-scale reading.
- High Range …….. 0 to 2.5 kV, resolution 10 V; 1 % of full-scale reading.
- At 2.5 kV the humidity limit should be below 50%.
- Terminal impedance … 1 GΩ.

Milli-Amp Meter

- Low Range …….. 0 to 2 mA; 1 % of full-scale reading.
- High Range …….. 0 to 20 mA; 1 % of full-scale reading.
- Terminal impedance … 447 Ω (this includes the discharge resistor for short circuit test).

General Specification

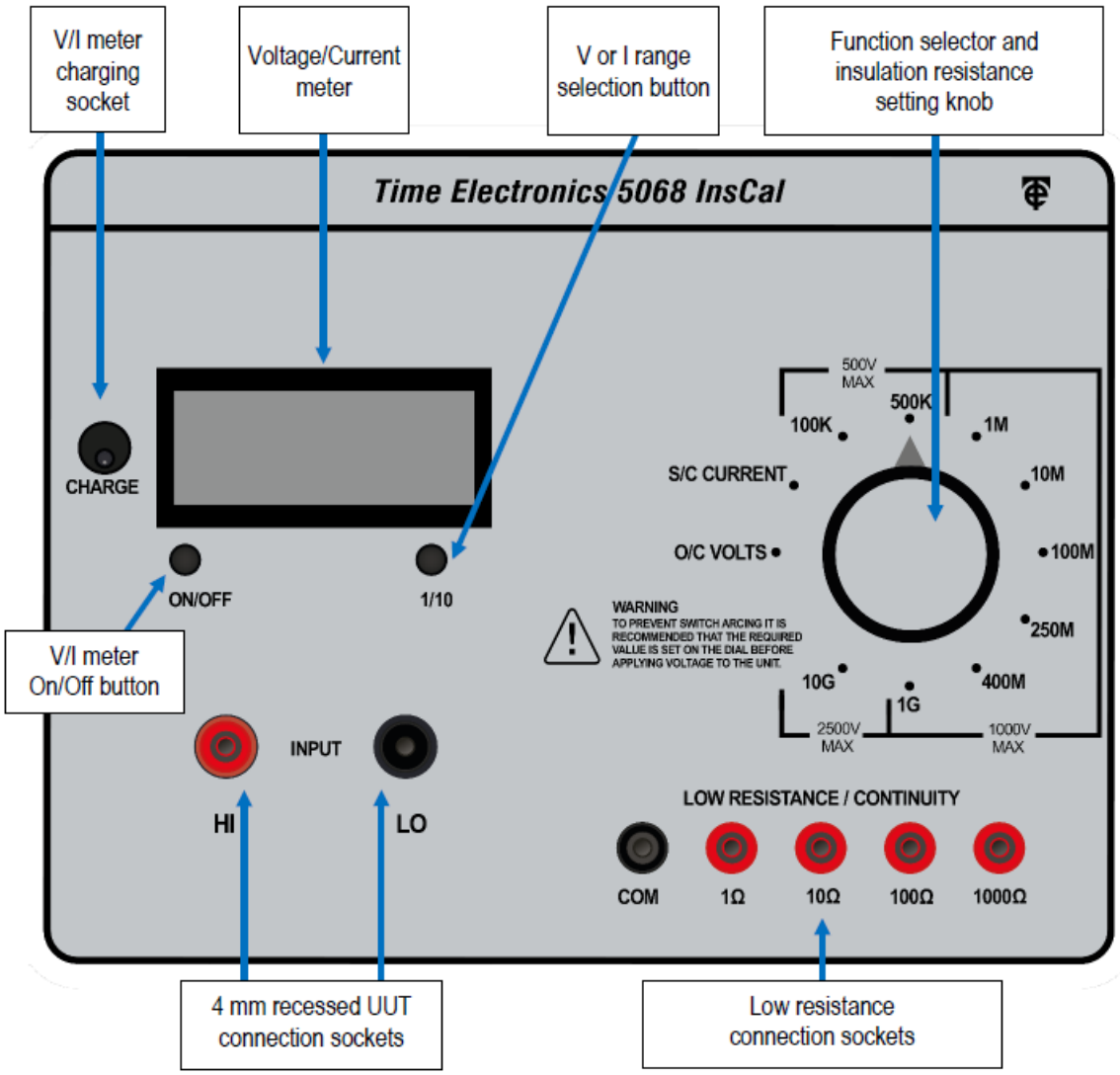
- Power …….. Internal battery, 6 V re-chargeable NiMH, >150hrs between charges.

- Dimensions/Weight ….. W 270 x H 175 x D 246 mm / 2.1 kg.
- Supplied with ……
    - High voltage safety connection leads (2.5 kV). Low resistance leads.
    - Mains battery re-charger (230 V 50 Hz).

Ordering Information

- 5068 …….. Insulation Tester Calibrator (InsCal)
- C189 …….. Traceable calibration certificate (Factory)
- C112 …….. Accredited calibration certificate (ISO 17025)

Controls



Descriptions of Controls

- On/Off Button: To power the voltage/current meter on or off.
- Charging socket. A socket to recharge the 5068 voltage/current meter.
- Voltage/Current meter: Displays the O/C voltage or S/C current when used.
- V or I range Selection button: Select the range to use for the V or I measure function.
- Function selector and insulation resistance setting knob: Use to select the required function or the insulation

resistance spot values from 100 kΩ to 10 GΩ.
- Low resistance connection sockets: Spot values used individually: 1Ω, 10Ω, 100Ω, 1 kΩ.
- 4 mm Recessed Sockets: Used to connect the 5068 to the insulation tester (UUT).

Operation

Operational Guidelines

Notes:

1. UUT: stands for Unit Under Test (i.e. the insulation tester or the megohm meter).
2. Wherever possible use the manufacturer of the UUT's supplied test leads.

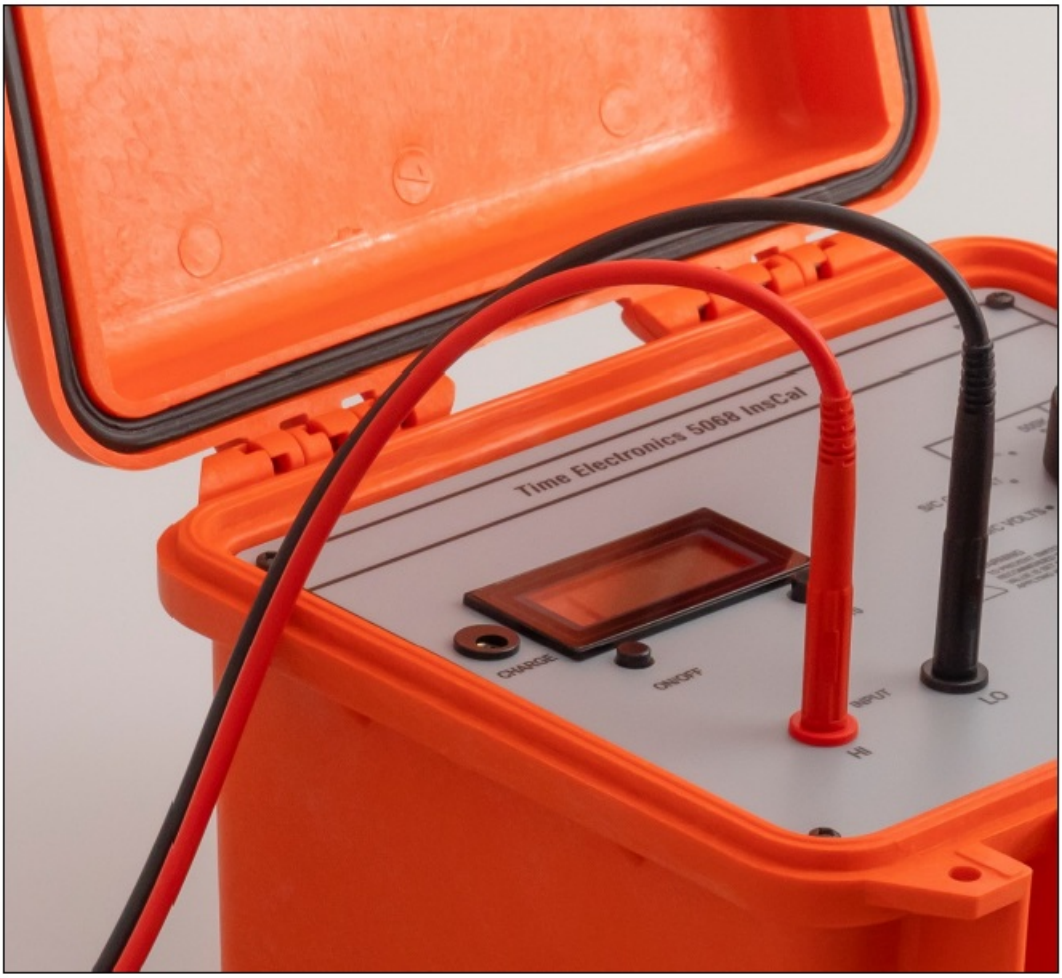
- The 5068 can measure test voltages generated by a UUT up to 2.5 kV.
- Be aware that the test voltage for high resistance measurements is dangerous and can cause electric shock!
- Always remove the battery charger leads from both the 5068 and the UUT before starting the calibration setup.
- Use only the measuring leads supplied with the UUT or those supplied with the 5068. When checking high resistance values the leads may pick up electrical interference, which can cause a disturbance to the readings obtained. Some manufacturers fit a guard connection for use with dedicated leads, this will stabilize the readings.
- It is not recommended to operate the resistance dial switch while a test is made. This will not automatically do any damage but may cause arcing and create transients which could give false readings on the UUT display due to the fact that the switch is break-before-make between each resistor. This will ensure that the contact arc is suppressed with high relative humidity.
- Avoid opening the 5068 case lid in the rain or in steamy conditions for the moisture will impair the readings.
- Observe safety at all times and if possible, carry out the tests in a low-humidity environment.

Note:
Insulation testers will vary, and the controls may be different than those referenced in this manual. However, the testing principles should still apply.

Typical Operation Procedure

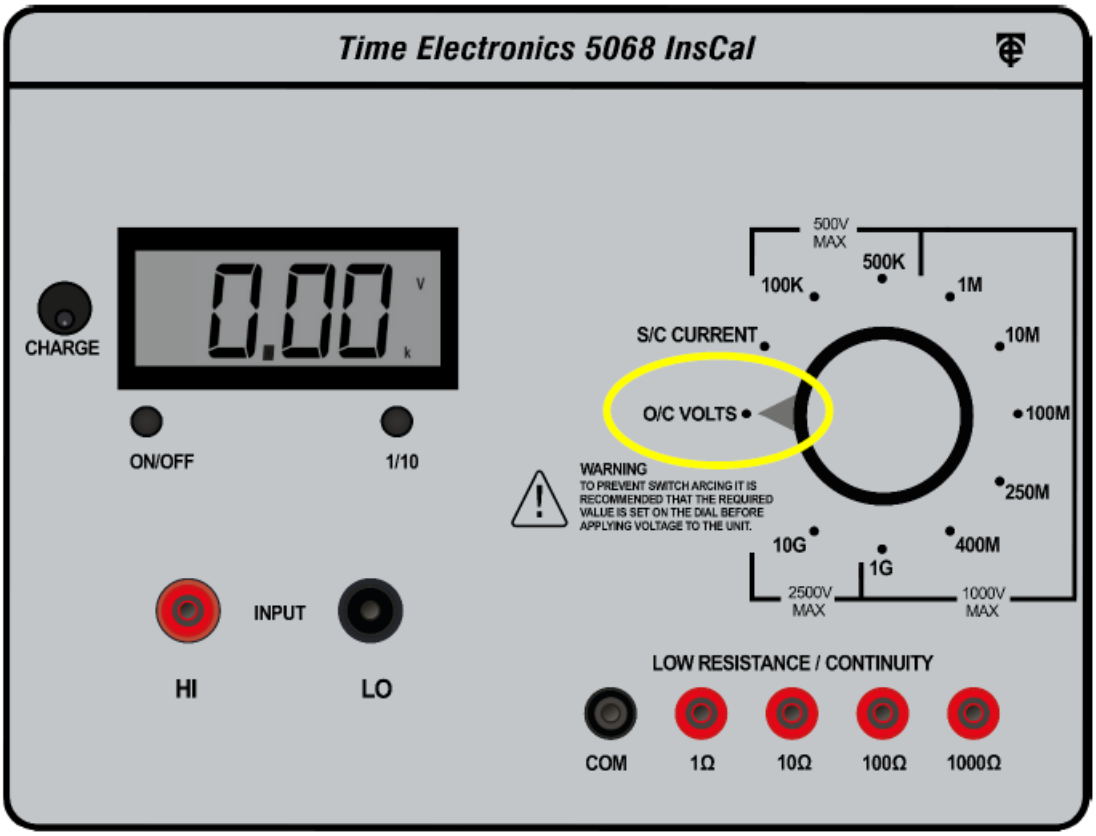
Initial Setup

1. Check the battery on both 5068 V/I Meter and Insulation Tester. Make sure their batteries are fully charged.
2. Complete the setup procedure for the insulation tester (UUT).
3. Connect the selected test leads to the 4 mm recessed sockets of the 5068.
   NOTE: If the UUT's own test leads are available, use them as first choice.

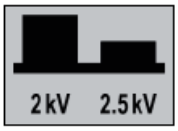


Voltage Measurement
The 5068 voltmeter will display the voltage output from the insulation tester. Perform the following procedure to measure the voltage.

1. Adjust the pointer at zero on the UUT (Analogue meter display, if required).
2. On the 5068, select the O/C VOLTS function using the rotator knob.



3. Using range selection button under the display, choose the required voltage range of 1.999 kV or 2.50 kV.

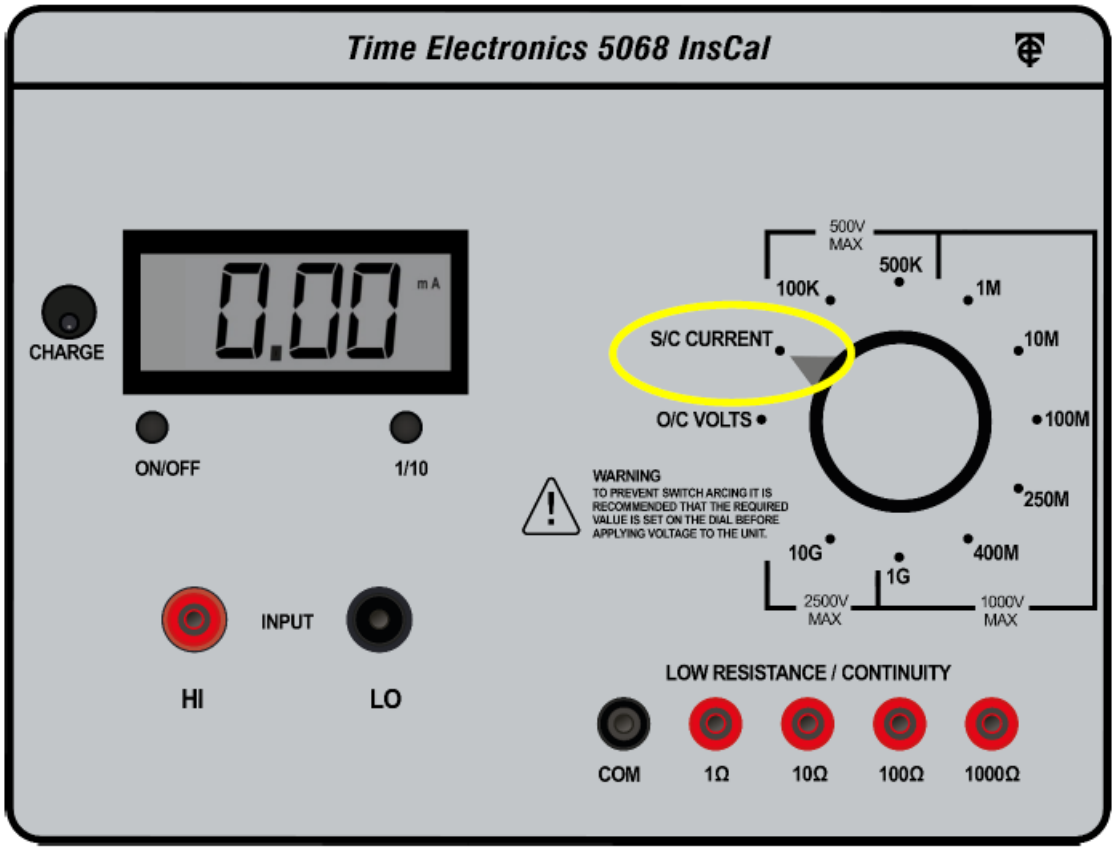


4. Using the selected high voltage test leads, connect the 5068 to the UUT, observing their polarities.
5. Select voltage range on UUT, and press the test button.
6. When the reading has stabilised, record the O/C voltage reading on the 5068 voltmeter.

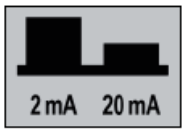
Current Measurement

The 5068 current meter will display the equivalent current output of the Insulation tester. Perform the following procedure to measure the current.

1. On the 5068, select the S/C CURRENT function using the rotator knob.



2. Using range selection button under the display, choose the required current range: 2 mA or 20 mA.

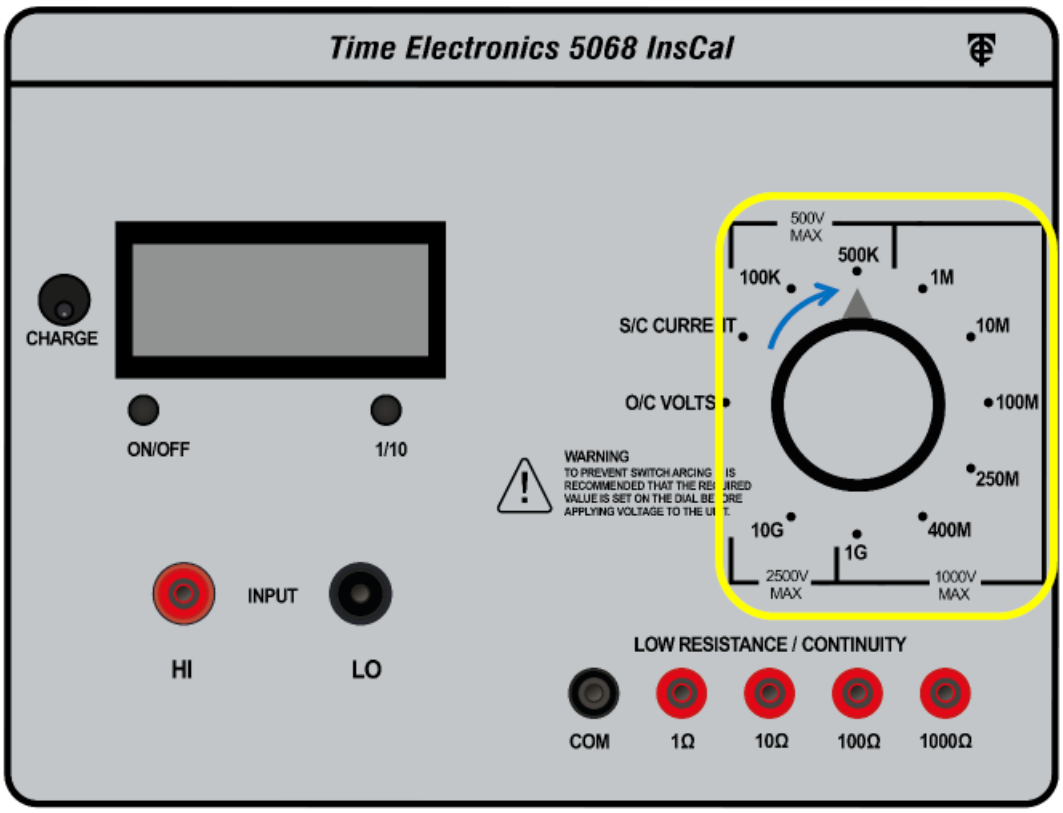


3. Press the test button on the UUT, and record the current reading on the 5069 display. Ensure the output of the UUT is turned off after test.
4. Return the 5068 setting to O/C Voltage, and repeat the Voltage Measurement procedure above (5.2.2). This is to check the voltage has recovered. Switch off the output from the UUT.

Insulation Resistance Verification

Note:
The O/C V and S/C I display can be turned off when using the resistance function to conserve the meter battery life.

1. Using the rotator knob of 5068, select the required Resistance Spot value.
2. Note the allowed voltage of the spot value resistances shown on the 5068 panel.



Ensure that the voltage set on the UUT does not exceed this voltage rating.

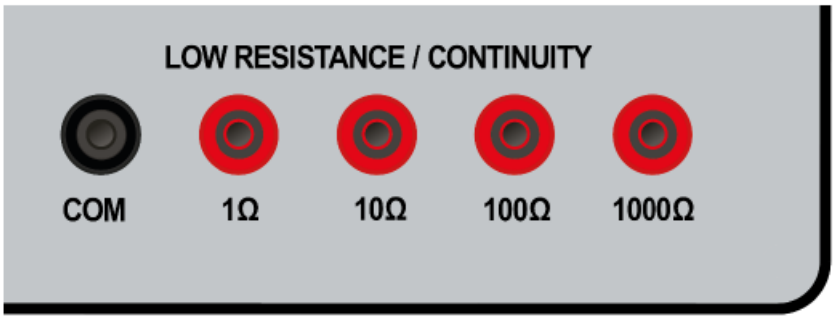
Important Note:
Wherever possible use the test leads supplied with the UUT.

1. Press the test button on the UUT. Please note on the higher resistance ranges, due to the very low currents present, the display on the UUT may fluctuate and take time to settle, please follow any precautions given by the tester manufacturer.
2. Proceed and record all test results, noting the allowed errors of the 5068 and also for that of the UUT.

Example Connection

Low Resistance Verification
Using the Low Resistance section of the 5068 in conjunction with the supplied low voltage test lead set, the continuity feature of the UUT can be tested and verified. The low resistance accuracy of the UUT can also be verified.

Connect the UUT to the low resistance terminals to test set point values at 1, 10, 100, 1 kΩ



Please note that the power dissipation of these resistors is limited to 0.5 W.

Warranty and Servicing

Warranty
The Time Electronics products carry a one-year manufacturer's warranty as standard.

Time Electronics products are designed and manufactured to the highest standards and specifications to assure the quality and performance required by all sectors of industry. Time Electronics products are fully guaranteed against faulty materials and workmanship. Should this product be found to be defective, please contact us using the below details. Inform us of the product type, serial number, and details of any fault and/or the service required. Please retain the supplier invoice as proof of purchase.

This warranty does not apply to defects resulting from action of the user such as misuse, operation outside of specification, improper maintenance or repair, or unauthorized modification. Time Electronics' total liability is

limited to repair or replacement of the product. Note that if Time Electronics determine that the fault on a returned product has been caused by the user, we will contact the customer before proceeding with any repair.

Calibration and Repair Services
Time Electronics offers repair and calibration services for all the products we make and sell. Routine maintenance by the manufacturer ensures optimal performance and condition of the product. Periodic traceable or accredited calibration is available.

Contacting Time Electronics

Online:
Please visit **www.timeelectronics.com** and select Support Request from the Contact links. From this page you will be able to send information to the Time Electronics service team who will help and support you.

By phone:
+44 (0) 1732 355993

By email:
mail@timeelectronics.co.uk.

Returning Instruments
Prior to returning your product please contact Time Electronics. We will issue a return merchandise authorization (RMA) number that is to accompany the goods returning. Further instructions will also be issued prior to shipment. When returning instruments, please ensure that they have been adequately packed, preferably in the original packing supplied. Time Electronics Ltd will not accept responsibility for units returned damaged. Please ensure that all units have details of the service required and all relevant paperwork.

Send the instrument, shipping charges paid to:

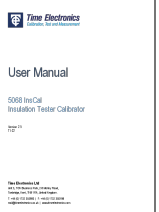
Time Electronics Ltd
Unit 5, TON Business Park, 2-8 Morley Road, Tonbridge, Kent, TN9 1RA. United Kingdom.

- **Tel:** +44(0)1732 355993
- **Fax:** +44(0)1732 350198
- **Email:** **mail@timeelectronics.co.uk**.
- **Web Site:** **www.timeelectronics.com**.

Disposal of your old equipment

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about the disposal of your old appliance, please contact your city office, waste disposal service or return to Time Electronics.

Documents / Resources

	**Time Electronics 5068 Insulation Tester Calibrator** [pdf] User Manual 5068 Insulation Tester Calibrator, 5068, Insulation Tester Calibrator, Tester Calibrator, Calibrator

References

- **Time Electronics – Precision Test Instruments, Calibration Benches**