



**INSULATION TESTER  
MEGOHMMETER - 5 kV**

**ISOL - 5000**

**(Code 7 70 117 )**

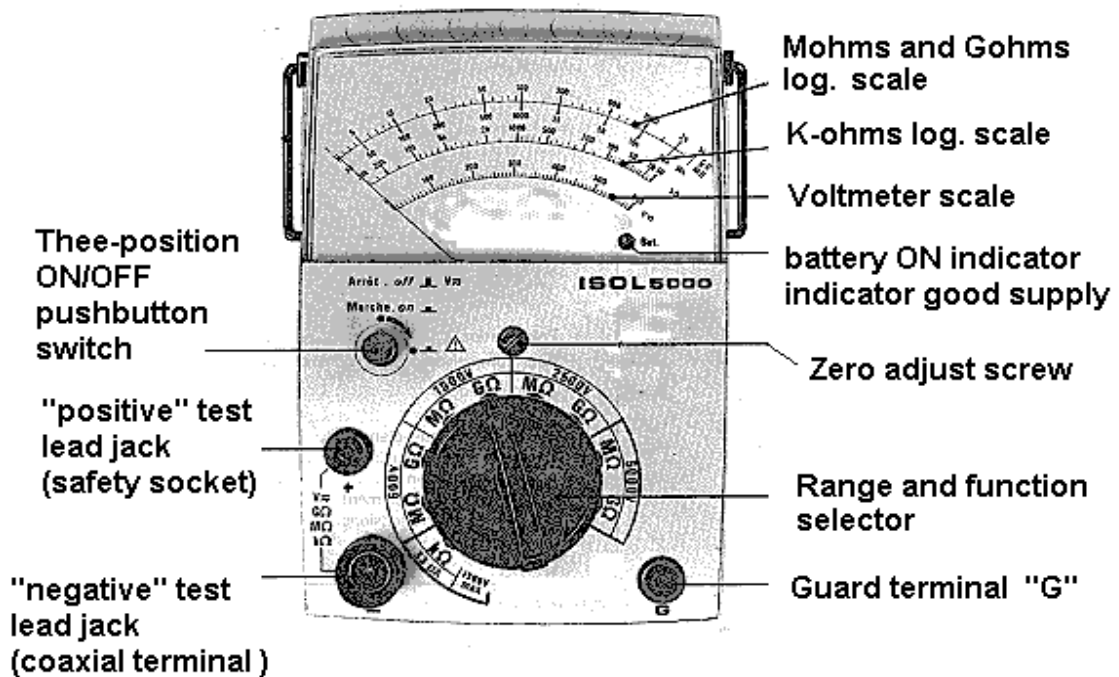
**INSTRUCTION MANUAL**

**( M 981 183 / 00 A )**

**(c) CIRCUTOR S.A.**

# ISOL 5000

## 1.- DESCRIPTION



This portable instrument has been specially designed for the measurement of the insulating resistance up to 3000 GΩ.

The equipment supply is with 8 alkaline batteries of 1.5 V, LR6 type, which provide an autonomy of 1500 measurements of 15 seconds.

It also has a safety terminal whose use allows avoiding any measuring error to be provoked by leakage resistances and has an automatic discharging system of the tested circuit after each measurement.

- Measurement of insulating resistance up to 3000 G-Ω
- The testing voltage is selectable up to 5 kV.
- Voltage scale for direct or alternate voltage measurements up to 600 V.
- Measurements according standards NFC 15-100 and VDE 413.

## 2.- CHARACTERISTICS

### 2.1.- INSULATION RESISTANCE TEST

<i>RANGE</i> (On long scale )	<i>Test Voltages</i> DC	<i>TEST</i> <i>current</i>	<i>Accuracy</i> ( % of Rdg )
3 to 3000 G-Ω	500 V- 1000 V 2500 V -5000 V	< 3 mA	5 % of Rdg ( max 10 % )
30 to 30.000 M-Ω			
10 k-Ω to 30 M-Ω	≤ 1300 V	33 μA	5 % of Rdg (max 10 % or 5 k-Ω)

### 2.2.- DC or AC voltage measurements

- Range : 0 to 600 V ( c.c. or c.a.)
- Accuracy : ± 3 % of full scale

### 2.3.- Power supply

- Obtained from eight LR6 1.5V alkaline batteries
- Battery life : > 1500 measurements lasting 15 sec. each.
- Green indicator light indicates good supply condition .
- Effect of supply voltage : ≤ 0.5 times rated accuracy for a voltage varying from 13 V (max. supply voltage) to 9 V (min supply voltage).

### 2.4.- Temperature

- Reference temperature : 21° C ± 3° C
- Operating temperature range : - 5 ° C to ± 50 °C
- temperature effect : < 1 times rated accuracy per 10° C temperature change
- Humidity effect : negligible to 40 ° C and 70 %RH.

## 2.5.- MAIN FEATURES

- Guard terminal prevents measurements errors due to leakage resistance.
- Automatic discharging of tested circuit after each measurement.
  
- Protection, by oversized design of components, against accidental overloads up to 600 V rms across "+" and "-" , as well as "+" and "G" terminals.
  
- 0,31 A fuse protection against overloads up to 600 V rms across "-" and "G" terminals.
  
- Lockable ON switch for long duration measurements.
  
- Audible POWER ON indicator ( approx. 10 beeps per minute).
  
- Dielectric test potential : 4000 V rms /50 Hz- 1 min across the terminals connected together and any accessible external metallic conductor.
  
- Dimensions : 196 x 132 x 95 mm
  
- Weight : 950 g (including batteries ).

## 3.- UTILISATION

### 3.1.- SAFETY PRECAUTIONS



- Check that the POWER ON push-button is set to OFF (fully raised) before beginning any measurement : this configures the meter for voltmeter operation to check that no voltage is present in the circuit to be tested and to quickly discharge and check discharging of any capacitive system being tested.
  
- Use the appropriate connecting leads, supplied with the ISOL-5000
  
- The pointer, when at rest, should indicate the zero on the voltmeter scale; otherwise, adjust the pointer with the black centre screw.
  
- When using the mains adaptor (with accessory ) , make sure the power supply voltage as selected on the ISOL-5000 matches that of the mains being used (refer to "Power Supply" section) .

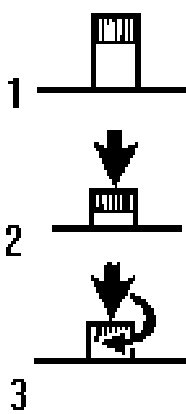
- To check meter operation :

do not connect any leads

· For  $G\Omega$  and  $M\Omega$  ranges, press the ON/OFF button ( "Marche/arret" & marcha/paro) and check that the pointer deflects fully to the right and that the green "Bat" indicator light comes on.

· For the  $k\Omega$  range, press the ON/OFF button ( "Marche/arret" & marcha/paro) and check that the pointer deflects fully to the left and that the green "Bat" indicator light comes on.

### 3.2.- Operation of the power ON / OFF switch (see figures ).



- 1) OUT (raised) : power OFF enabling AC and DC voltage measurements
- 2) IN, Momentary : enables insulation measurements.
- 3) IN, LOCKED : Extended insulation measurements. Locking is obtained by pressing the button and rotating it one-quarter turn clockwise .

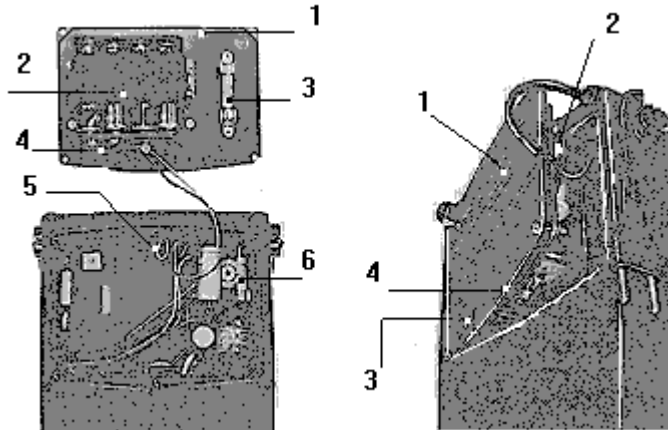
**NOTE :** When this button is pushed in, a beep will sound approximately every six seconds (10 beeps per minute )

#### 4.- POWER SUPPLY

The eight 1.5 V batteries and a spare fuse are located in a compartment at the back of the meter (see figure 1.) . To replace the batteries, remove the cover, which is secured with four captive screws, taking care not to damage the Snap-On connector lead connecting the battery pack to the PC board. Insert the new batteries taking care to observe the prescribed polarity.

1.- Battery supply

2.- Mains supply



<p>1.- Battery pack                  2.- 1,5 V battery x 8                  3.- Spare 0,31 A fuse                  4.- Polarized snap-on connector                  5.- Beeper lead (cut to eliminate audible signal).                  6.- 0,31 A quick-break fuse protecting ohm range</p>	<p>1.- Mains power supply adaptor                  2.- Snap-on connector for mains adaptor                  3.- 110 V / 220 V changeover switch                  4.- 0,1 A slow fuse.</p>
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#### 4.2.- Mains connection (MEDIANTE ACCESORIO 1017-27) (see figure 2)

To connect the meter to the mains supply (con ACCESORIO):

- Remove the battery pack and disconnect it from the PC board.
- Connect the snap-on connector to the main adaptor.
- Insert the mains adapter in the compartment at the back of the meter and secure the compartment cover with its four captive screws

A 110 V / 220 V 50/60 Hz switch accessible from the outside adapts the power supply to the available mains voltage.

**NOTE :** the mains power supply is protected by a 0.1 A slow fuse.

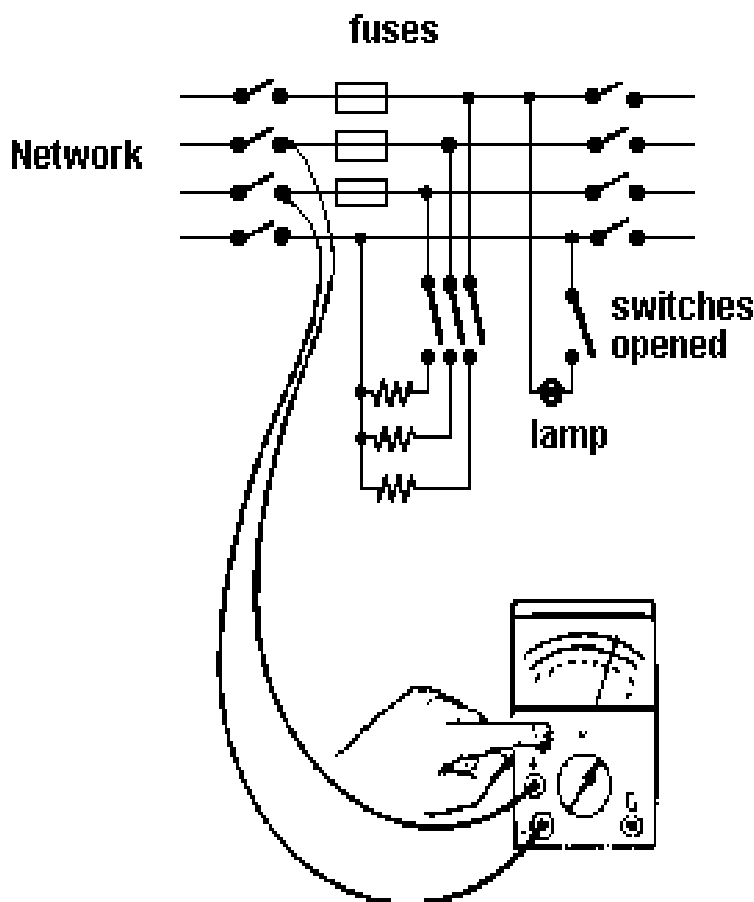
## 5.- MEASURING INSULATION RESISTANCE

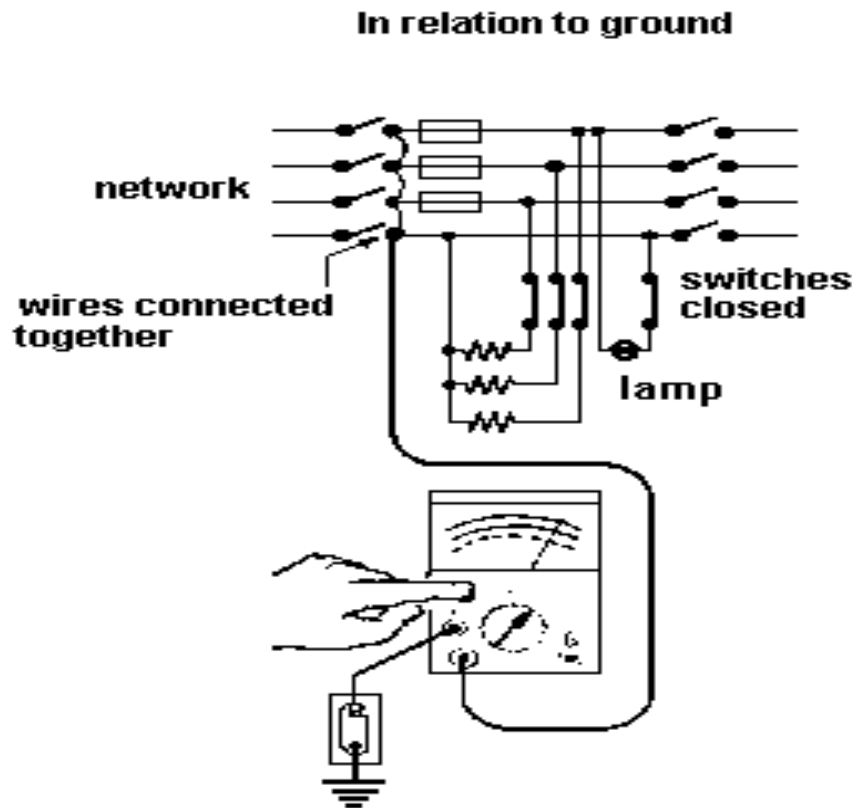
- Set the selector switch to the desired test voltage and range.
- Connect the resistance to be measured across the “+” (ground or negative ) and “-” inputs. The pointer should not deflect.
- Press the ON/OFF ("marche/arrêt") switch : the “Bat” light should come on, indicating the presence of the test voltage.
- Read the measured insulation resistance directly on the scale corresponding to the selected range.

**NOTE :** For long duration measurements, lock the ON/OFF pusbutton in the ON position and use the mains power supply if possible.

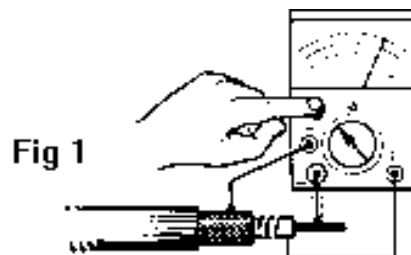
### EXAMPLES OF INSULATION MEASUREMENT

Between conductors





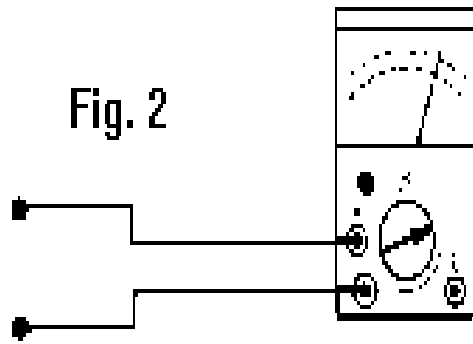
**6.- USING THE GUARD TERMINAL ( Fig. 1 )**



To prevent surface leakage from disturbing an insulation measurement, a guard-electrode circuit can be set-up and connected to the “G” terminal (see wiring schema in fig.1 ).

**7.- MEASURING DC OR AC POTENTIALS (Fig. 2)**

- Check that the ON/OFF pusbutton is OUT.
- Connect the ISOL 5000 as shown at fig. 2.
- Make a direct reading from the voltmeter scale (V ~ ) .



**Unknown voltage**