



# **EARTH RESISTANCE TESTER**

## **T-3V**

(Code M80410)

# **INSTRUCTION MANUAL**

( M98111001-03-04A )

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**SAFETY ADVICE**

Before handling the equipment read the instruction manual and in particular the SAFETY ADVICE section.

The symbol  on the equipment means "PLEASE CHECK THE INSTRUCTION MANUAL". It may also appear as a warning or caution symbol in this manual.

WARNING and CAUTION boxes may appear throughout this manual to avoid risk of accidents to persons or damage to the equipment or other property.

## **1.-GENERAL REMARKS**

**NOTE:** This tester has been designed and checked in accordance with IEC Publication 348, safety requirements for electronic measuring equipment, IEC 61268-1010 (EN61010) and other safety standards. Please follow all advice to ensure safe operation.

### **1.1.- Description**

Some of the most important features of the the T-3V are:

- Ability to measure earth voltage.
- The 2 mA measurement current allows floor resistivity to be tested without tripping the earth circuit breakers in the circuit to be checked.
- Battery operation.
- Self-disconnecting. The timer automatically operates after 3~6 minutes without operating any check. When the operating button and the timer activator are pressed at the same time, the measurer is kept operating.
- Memory reading function.
- Open circuit indicator. The OFF LED indicates when the connection for the test points is correct.
- Compact and light.
- Designed to meet safety standard IEC-1010 (EN61010).

## 1.2.- Specifications

<b>Measuring system</b>	Ground earth resistance using constant current inverter. 800 Hz, 2 mA approx.
<b>Earth voltage</b>	0-200 V AC., 40 – 500 Hz.
<b>Floor resistivity</b>	Range and resolution: 0 ~ 20 Ω (0.01 Ω) 0 ~ 200 Ω (0.1 Ω) 0 ~ 2000 Ω (1 Ω)
<b>Earth voltage accuracy</b>	± (1% read. + 2 dig.)
<b>Floor resistivity accuracy</b>	± 0.1 Ω or (if higher); ± (2% read. + 2 dig.)
<b>Safety standards</b>	IEC – 1010 (EN61010).
<b>Battery low indicator</b>	The symbol “B” appears on the display.
<b>Reading memory indicator</b>	The symbol “DH” appears on the display.
<b>Over-range indicator</b>	“1” in the most significant digit (MSD).
<b>Open circuit indicator</b>	The operating indicator (2) remains off.
<b>Timer (self-disconnection)</b>	After about 3 ~ 6 minutes without operating any check.
<b>Indicator</b>	3 ½ digit LCD (2000 accounts)
<b>Power supply</b>	6 x 1.5 V batteries (R6C).
<b>Sizes</b>	A. 163 x Al. 100 x Pr. 50 mm
<b>Weight:</b>	Approx. 800 g (including batteries)
<b>Accessories</b>	Test Pins (red – 15 m, yellow – 10 m, green – 5 m) auxiliary earth rods, carrying case, instruction manual.

## 2.-SAFETY ADVICE

Carefully read the following safety information before using the tester.

Only use the tester as specified in this manual; otherwise the protection offered by the tester may be decreased.

Environmental operating conditions:

- 1.- INDOOR USE
- 2.- Category III Installation
- 3.- Degree of Pollution 2
- 4.- Altitude up to 2,000 m.
- 5.- Max. relative humidity. 80%
- 6.- Ambient temperature 0 – 40 °C

***WARNING: Handle the rods without connecting them to the equipment.***

Observe the following international electrical symbols shown below:



The tester is protected by double isolation or reinforced isolation.



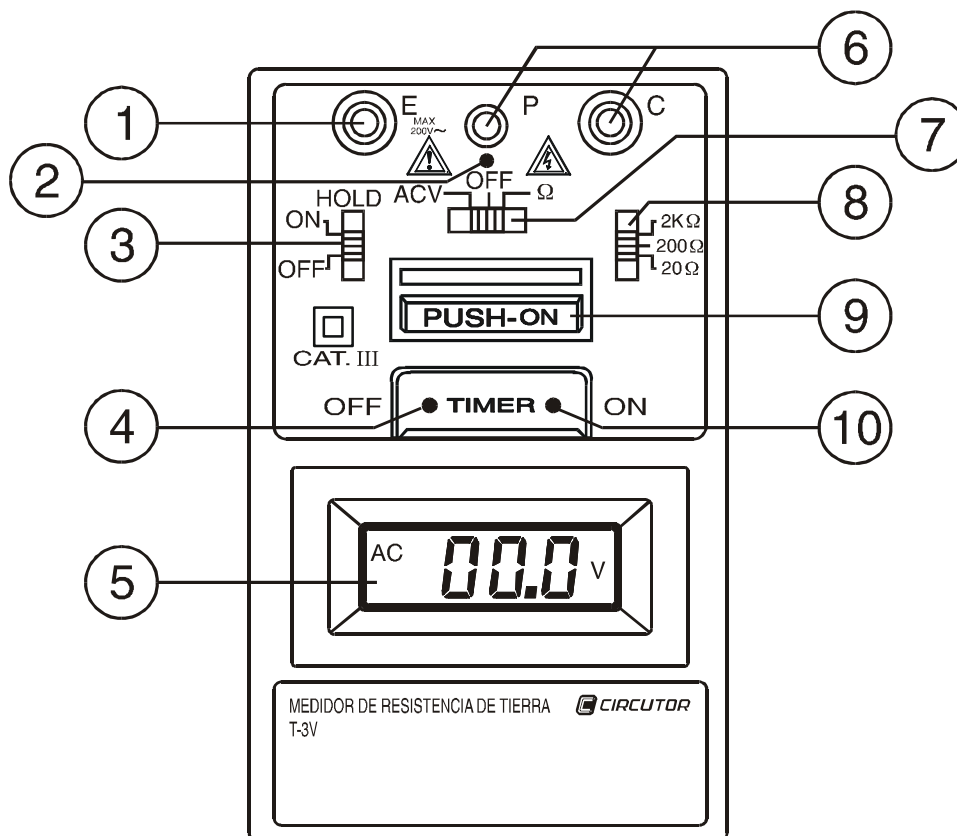
Warning! Risk of electrical discharge.



Warning! See this manual before using the tester.

### 3.-INSTRUCTIONS FOR USE

#### 3.1.- Description of the controls and the parts



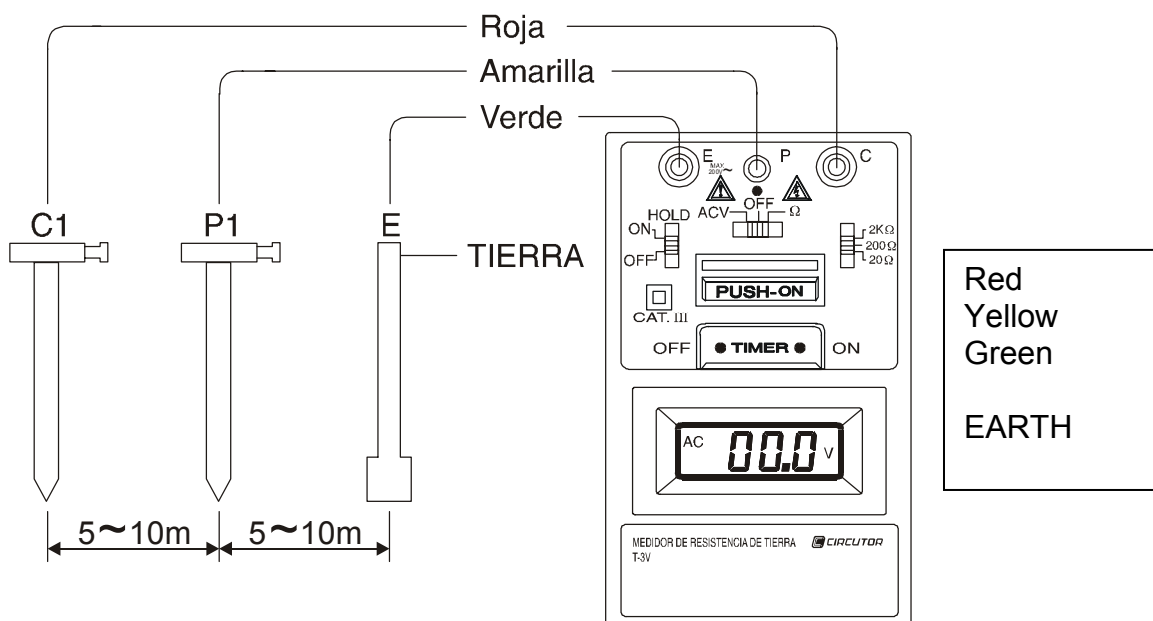
- [1] Female connector for earth connection
- [2] Operating open circuit indicator
- [3] Reading memory switch
- [4] Timer deactivation button
- [5] LCD Display
- [6] Female connectors for "line" conductor
- [7] Function switch
- [8] Ohm range switch
- [9] Operating button
- [10] Timer activation key

### 3.2.- Use

Before starting measurements, carefully read the Safety Advice section.

- Connecting the test pins:  
Connect the green, yellow and red test pins to the terminals E, P and C with the earth rods P1, C1 placed in the ground "in a straight line" (see figure).
- Place the function switch [7] onto the ACV position and ensure that the voltage reading is less than 10 V AC. If not the accuracy of the earth resistance measurement cannot be guaranteed.

If the PUSH-ON [9] button is pressed and the operating indicator [2] does not come on, this means that there is an open circuit between the test pins.



- Place the range switch [8] on the appropriate scale and the function switch [7] on position "Ω". Then press PUSH-ON [9] and TIMER ON [10] at the same time and read the value on the indicator.

**NOTE:** When none of the E, P and C terminals is connected to the test pins, a reading between 300 and 600 is normal (in function Ω, range 2 kΩ).


## **4.-MAINTENANCE**

### **4.1.- Replacing the batteries**

The batteries must be replaced when the symbol “B” appears in the lower left hand corner of the LCD indicator:

1. Disconnect the test pins from the instrument and switch it off.
2. Use a screwdriver to loosen the screw on the rear cover. Slide off the cover, remove the batteries and replace with new ones of the same type.
3. Replace the rear cover and tighten the screw.

### **4.2.- Cleaning and storage**

**Warning!**  : Avoid water getting into the case to prevent electrical discharge or damage to the tester.

Periodically clean the case with a soft cloth dampened with water and detergent. Do not use abrasives or solvents.

If the instrument is not going to be used for more than 60 days, remove the batteries and store them separately.

### **4.3.- 5 TECHNICAL SERVICE**

In the event of any equipment failure or any operational queries please contact the technical service of CIRCUTOR S.A.

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