

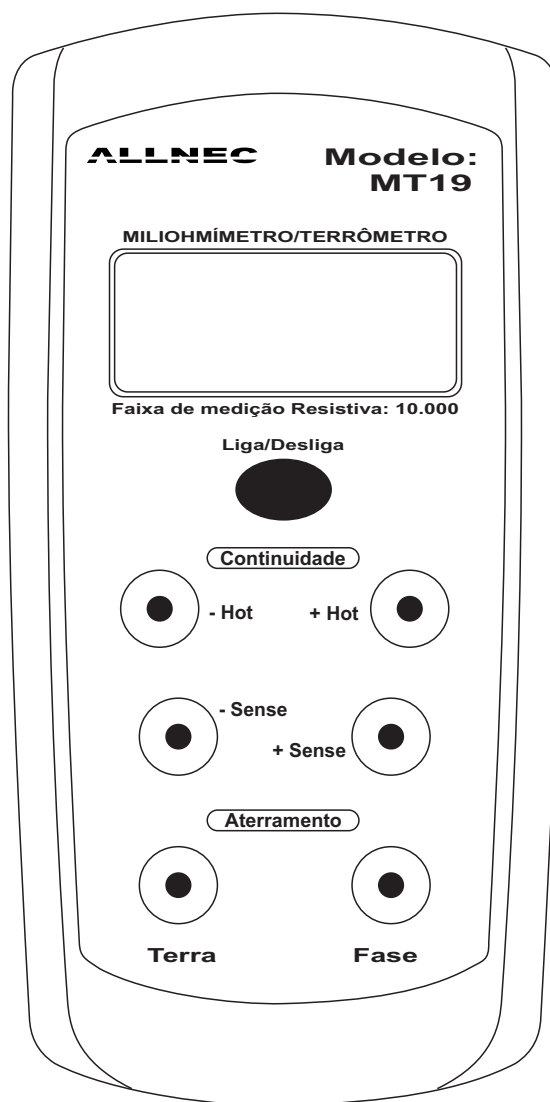


Allnec has brought innovative technology to simplify and usher in a new era in grounding measurements.

Instruction Manual

Mili-ohmmeter / Earth Ground Tester

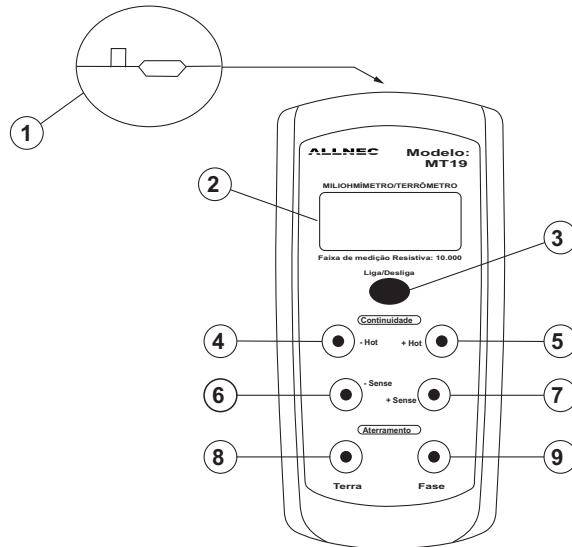
Model: MT19



Brazilian technology

INTRODUCTION

The MT29 incorporates two digital devices in 1: a milliohmmeter and a ground tester. It is a portable device, microprocessor-controlled, allowing for accurate measurement of the continuity and ohmic resistance of the grounding system. The milliohmmeter features 4 terminals in a Kelvin bridge format to prevent errors in continuity measurements.



Nº	Nome	Functions
1	Female Adapter	Micro USB for internal battery charging.
2	Display LCD	Display LCD 4 digits.
3	Power On/Off button	Push Button with Power On/Off Function.
4	Terminal - HOT	Current Generator.
5	Terminal+ HOT	Current Generator.
6	Terminal- Sense	Voltage measurement sensor under the terminals.
7	Terminal+ Sense	Voltage measurement sensor under the terminals.
8	Borne Terra	Medir aterramento. Conectar ponta de prova verde
9	Borne Fase	Medir aterramento. Conectar ponta de prova cinza

INTRODUCTION EARTH GROUND RESISTENCE METER

The unique technology used in this earth tester has made it possible to develop a product that is practical, versatile, precise, and, most importantly, eliminates the use of auxiliary stakes that can be cumbersome, allowing measurements to be taken in minutes. With the earth tester, it is possible to test RCDs and identify current leakage in the grounding system that has RCDs. The Allnec MT19 digital milliohmmeter is the only device that measures the resistance of an earthing by simply touching the test probe to any grounded object without the need for auxiliary stakes. It allows measurements in hospital, laboratory, commercial, and industrial equipment, SPDAs, exposed building structures, foundations, elevators, distribution boards, power outlets, etc. Just touch!

OPERATING MODE OF THE GROUND EARTH TESTER

Look for an energized Phase only from the Power Utility. Do not use Phases provided by Frequency Inverters, Generators, Uninterruptible Power Supplies, Isolation Transformers, etc.

- (2) If necessary, use an extension to reach the location where the measurements will be taken.
- (3) Next, connect the Gray Test Clamp to the Power Utility Phase, and with the Green Test Clamp, connect to the grounding point independent of the Power Utility Neutral.
- (4) Press the Power On/Off Button quickly. The numeral 8888 will appear on the Display for 6 seconds. After this time, the instrument will show the ohmic value of the grounding on the Display.
- (6) Press the Power On/Off Button again to turn off the instrument.

BRANCHES EQUIPPED WITH DR DEVICES

There is a possibility that the instrument will trip the DRs when connecting the probes to a Phase and the Earth terminal, as it will introduce an electric current. This will be interpreted by the DR as a leakage current to the ground, activating it. If this happens, invert the instrument's probes so that it does not trip. If it continues to trip even after inverting the probes, it indicates that there is a leakage current in the grounding system. To continue with the measurements, it will be necessary to use the Phase before the DR, as shown in the figure below. After 6 seconds, the measurement result will appear.

If the Electrical Branch has DR switches

Na grande maioria das instalações elétricas, as concessionárias exigem que o Neutro seja vinculado ao Aterramento Local. Para que seja possível efetuar a medição de forma correta, retire na BEP (Barra de Equipotencialização) o cabo de aterramento e efetue a medição ligando uma das garras numa das Fases e a outra no terminal de aterramento desvinculado da BEP.

WORKING PRINCIPLE OF THE EARTH GROUND RESISTENCE TESTER

The operating principle of this equipment is based on measuring with a current pulse of 2A that flows through one of the phases of the utility's electrical network and uses the transformer's neutral of this network as a reference (considered the "absolute zero" of the circuit in question).

When the equipment is energized, it uses the utility's voltage to create a current that flows through the circuit. If we consider the negative half-cycle of the network, starting from the earth tester, this current will pass through the conductors and winding of the phase to which the transformer's neutral is connected, passing through the ground and closing the circuit through the grounding mesh where the measurement is being performed by the equipment. The device reads the obtained current and compares the obtained voltage drop in the circuit with that of a known electrical resistance, defined by an internal precision resistor in the device when reading this voltage drop. The grounding resistance is calculated using Ohm's Law, which relates the voltage and current of an electrical circuit to obtain the value of a resistance. For this reason, the equipment does not require auxiliary voltage and current stakes, as through its operating principle and connection mode, it obtains the necessary parameters to determine the grounding resistance.

Because the equipment uses the conductors of the electrical network to measure the grounding resistance, it should be considered that when performing the measurement, the resistance of the used phase conductors will be added to the meter reading. However, since the value of the conductor's resistance is much lower than the typical value of grounding resistances, it represents a negligible error in the measurement process.

TECHNICAL FEATURES OF THE EARTH TESTER

Method of reading: By voltage drop.

Accuracy: From 0.0Ω to 100Ω (0.2Ω), 101Ω to 300Ω (0.5Ω), 301Ω to 2000Ω (50Ω).

Measurement Pulse: 2.5rms in 100ms, approximately 1Hz. Alternating current.

Frequency: 50/60Hz. According to the local network.

Waveform: Sinusoidal with square pulses (Burst).

Display: Liquid crystal display (LCD) with 4 digits with decimals.

Operating Range: 90Vac to 240Vac.

Consumption: 1 Watt

Scales: From 000.0Ω to 99.9Ω with decimals. Above this value, the decimal disappears.

Reading Time: 6 seconds

Operating Temperature: From -15°C to 45°C.

Operating Humidity: Up to 90% RH

Dimensions: 67 x 25 x 10mm (W x H x L)

Weight: 110 grams

Warranty: 5 years

Note: The device emits 4 sequential pulses, averaging the values for greater precision.

INTRODUCTION MILLIOHM METER

Esse aparelho milliohm meter Mt19, oferece uma faixa de medição de 0 miliohms a 10ohms direto , sem botões de escala.

Pulso de corrente, 2 amperes.

Conexões de clipe Kelvin de 4 fios, que garante uma precisão ideal nas medições.

Fácil manuseio e com muita precisão.

São utilizados 4 saídas , sendo borne HOT+ e HOT-, que geram correntes para as medições. Borne Sense+ e Sense -, que são os sensores para medir a tensão sob os terminais onde é aplicado a corrente.

MILLIOHM METER OPERATING MODE

a. Com as pontas de provas azuis, introduza os pinos banana nos bornes (-Hot) e (-Sense), com as garras jacarés, conecte ao aterramento principal.

b. Com as pontas de provas vermelhas, introduza nos bones (Hot+) e (Sense+). Com as garras jacarés, conecte numa extensão com com metragem suficiente para alcançar a extremidade do sistema de aterramento, conforme ilustra a figura 1 e 2.

c. Após tudo conectado, aperte o botão push botton por 3 segundos até que apareça no display os numeros (1111), solte o botão e aguarde 10 segundos para obter o resultado em millihms no display.

d. Com pulso de corrente emitida pelos terminais HO- e Hot+ de 2A, será percorridopela resistência (DUT), até os terminais Sense- e Sense+. Através da queda de tensãose obtem os resultados.

Resultados:

- 8888, significa que o sistema possui uma resistência acima da capacidade do aparelho.

- 0000, sistema sem continuidade. Rompido.

- 2222, bateria fraca.

Deve-se considerar a leitura em miliohms, exemplo de como aparecerá no display:

0100 (100miliohms)

10000 (1ohms)

Obs.: A medição a 4 fios é necessário para eliminar os erros causados pela resistência parasita.

Note: The extension must be connected to the red terminals, HOT+ and SENSE+, as shown in figure 1.

Figure 1

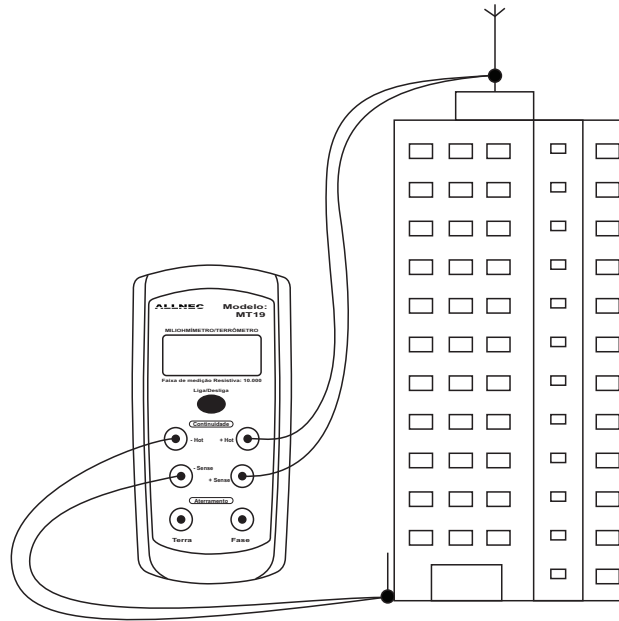
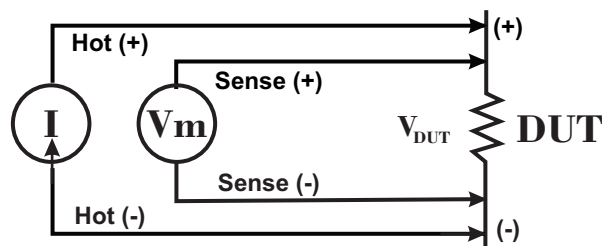


Figure 2



Technical Characteristics of the Milliohmmeter:

A circuitry: Microprocessor

Display: LCD 4 dígits.

Function: Measurement of resistance in milliohms

Scales: 0 a 9999 mO.

Resolution: 0.001mO

Current pulse: 2A.

Connection: 4-wire Kelvin clip bridge.

Power Supply: Rechargeable lithium battery, 4.2V - 9800mAh.

Battery indicator: Low battery warning will appear on the display as 2222.

Note: The extension must be connected to the red terminals, HOT+ and SENSE+, as shown in figure 1.

COMES WITH

Lithium Battery Charger 5V 1000mAh
Double Canvas Bag
2 Measurement Cables for Miliohmeter (Red)
2 Measurement Cables for Miliohmeter (Blue)
2 Measurement Cables for Earth Tester
Pair of Insulated GJ50 Alligator Clips
Manual

WHEN TO CALIBRATE

Due to its technology, the Allnec TPAs earth meters never lose their accuracy, unlike conventional ones on the market.

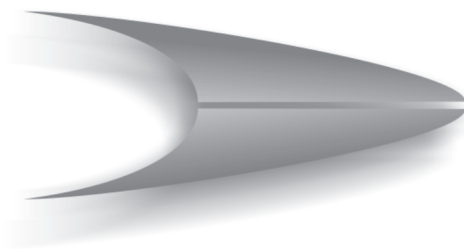
IMPORTANT OBSERVATIONS IN TN-C, TT, AND IT CONNECTIONS

Ensure, before starting the measurements, which grounding method was adopted in the installation. In the TN-C method (the most common in the market), the utility company's Neutral is linked to the Local Grounding in the BEP (Equipotential Bonding Bar). Measurements in this configuration will be measuring the value of the neutral and not the ground. If it is necessary to measure the ground, it will be necessary to uncouple the ground.

In TT and IT grounding methods, where the connections are independent, the readings will be accurate. Remember that this condition applies to any model of earth tester.

SAFETY RULES

- A. Do not touch the terminals of the device while measuring.
- B. Do not use the equipment barefoot. Risk of electric shock.
- C. Make sure the phase does not have a voltage above 220V.



Earth Ground Resistance Meter e Miliohm meter

"Came to simplify and mark a new era in grounding measurements."

"GET TO KNOW OUR PRODUCT LINE"

