

# High Frequency Earth Tester

## TM25R



Remote control  
by App



Illustrative Image

### Features

- Intended for measurement of earth resistance of electricity pylons
- Minimizes the influence of adjacent pylons, connected by the guard cable
- Operation frequency: 25 kHz
- Resistance reading: up to 300  $\Omega$
- Automatic compensation of inductive component
- Automatic current injection
- USB interface
- Built-in memory and printer
- Rechargeable LFP battery

### LFP Rechargeable battery

#### Expected lifetime

2000 charge / discharge cycles (average).

#### Low self-discharge

When the equipment is not in use, battery charge decreases with time at a much lower rate than other battery technologies.

#### Safety

In contrast to other lithium battery technologies commonly used, LFP batteries are thermally and chemically stable, significantly improving battery safety.

### Description

Testing of the power transmission towers grounding (G) quality poses a serious problem as they are all electrically interconnected by means of Ground Wires which act as lightning rods, protecting the lines from atmospheric discharges. Due to the existence of this connection, any attempt to measure a tower grounding (G) resistance using a conventional earth meter leads to wrong results as what is really being measured is all the shunt towers grounding (G) resistance (or, more precisely, its impedance at low frequency).

To make this kind of test feasible, which is of vital importance to ensure the transmission of the electrical power without interruptions, **MEGABRAS TM25R** grounding resistance meter for high frequency has been developed. This is the appropriate tool for a fast, safe and reliable grounding resistance measurement in each tower of a working line transmission, without disconnecting the ground wire.

Its operation is based on the use of a high-frequency measurement current (25 kHz), for which ground wire inductive impedance - taking into account a typical length span - is reasonably high, making it possible to reduce the effect of the adjacent towers under measurement. The equipment only measures the ground resistance of the surveyed tower, including its base. The extensive G systems, such as meshes, buried wires, metal pipes, etc, are measured only considering the closest section to the connection point, so that the measured value represents the performance against a pulse signal similar to an atmospheric discharge. Thus, values that better represent the system capacity to ground lightning currents than the ones obtained with low frequency conventional equipments, even when disconnecting the ground wire, are obtained.

**TM25R** is a strong equipment, easy to carry, resistant to the hard weather and geographical features of the tropical and high-mountain regions, that is why it is described as an excellent product for field works under the most severe environmental conditions.

### Remote control by Android App



**Increased safety and comfort:** Set up, start and stop tests in an even safer and more comfortable way

**Automatic reports:** Generate test reports directly on the App

**Smartphone / tablet features:** Incorporate smartphone features into your reports (photo, GPS coordinates and test location map)

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# Technical specifications

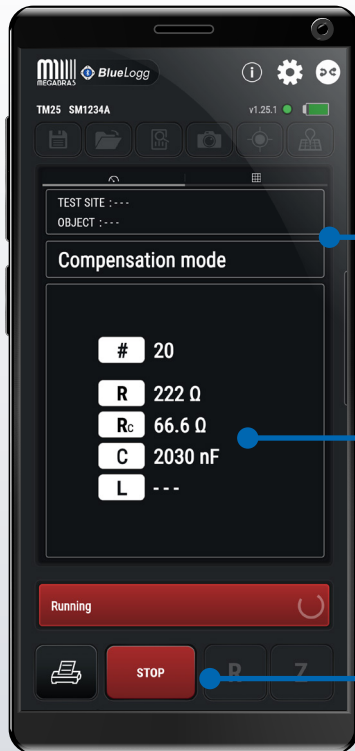
ELECTRICAL		TM25R
Measurement ranges		0 - 300 $\Omega$
Operation frequency		25,000 Hz
Test current		20 mA automatic
Inductive component compensation		<ul style="list-style-type: none"> <li>Through bank of capacitors integrated to the equipment</li> <li>Maximum capacity: 4.2 <math>\mu</math>F</li> <li>Resolution: 10 nF</li> </ul>
Measurement accuracy		$\pm 2.5\%$ of reading $\pm 1$ digit
Max. earth resistance of auxiliary rods		2,000 $\Omega$ (current rod) 2,000 $\Omega$ (voltage rod)
FEATURES		
Display		Alphanumeric LCD display, 4 lines / 20 characters (Big Number)
Printer		Built-in thermal printer
Built-in memory		It allows for the storage of 2,000 tests readings in its internal NVRAM memory
COMMUNICATION		
Protocol		Modbus
USB		For configuration, control and download the stored values
Bluetooth		For configuration, control and download the stored values
STANDARDS		
Overvoltage protection		CAT IV - 300 V
Safety		IEC 61010-1
SOFTWARE		
Desktop (PC/Notebook)		MegaLogg 3 software: for remote control, allowing to configure, run tests and generate reports
Android (Smartphone/ Tablet)		BlueLogg app: for remote control, allowing to configure, run tests and generate reports
ENVIRONMENTAL		
IP rating		IP65 (with closed lid)
Operating temperature		-5 °C to 50 °C
Storage temperature		-25 °C to 70 °C
Humidity		95 % RH (non condensing)

POWER SUPPLY	
Rechargeable battery	Internal rechargeable battery (LFP 12 V 6000 mA)
Battery charger	12 V - 2 A
MECHANICAL (OF THE INSTRUMENT)	
Weight	Approx. 4.9 kg
Dimensions	345 x 272 x 159 mm

## Included accessories

- 8x 50 cm long steel core rods with copper coating
- 6x 2 m cables for interconnection of extra auxiliary rods
- Rod extractor
- 70 m shielded cable
- 50 m shielded cable
- 30 m cable to current rod
- 70 m cable to auxiliary potential rod
- 50 m cable to auxiliary potential rod
- Cable adapter for current electrode
- AC Adapter
- Cable for connection to the unknown electrode (Tower)
- USB cable
- User guide
- MegaLogg 3 software (download)
- BlueLogg app (download)
- Case to carry accessories

# Smartphone App



## BlueLogg

### Remote control by App

MEGABRAS equipment that has Bluetooth® interface can be controlled remotely via an Android™ smartphone / tablet running the BlueLogg application. Set the parameters, start / stop a test, save the data and generate reports.



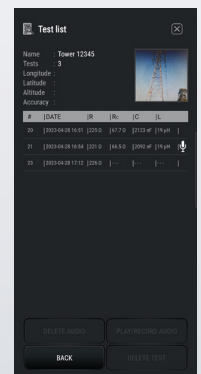
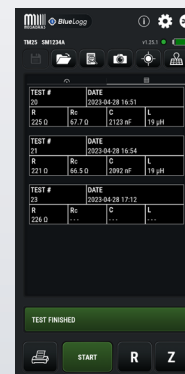
Test details



Real-time measurement



Test Start / Stop



## Increased safety

BlueLogg communicates with the equipment through a Bluetooth® connection, allowing remote control of the tests, further increasing user safety in tests with potential risks.



## Smartphone features and automatic reporting

Record voice annotation for each measurement, generate automatic test reports directly on the App. Incorporate smartphone / tablet features into the report (photo, GPS coordinates and test location map).



Voice annotation



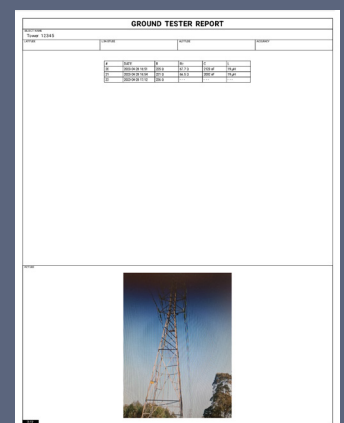
Pictures



GPS coordinates



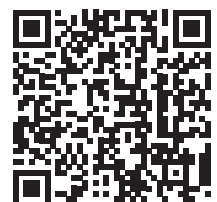
Map



Using the remote control does not require Internet connection (the Internet is only necessary if you want to see a map of the test site or send reports by email).



- Android, Google Play and the Google Play logo are trademarks of Google LLC
- Bluetooth is a registered trademark of the Bluetooth SIG, Inc. Worldwide

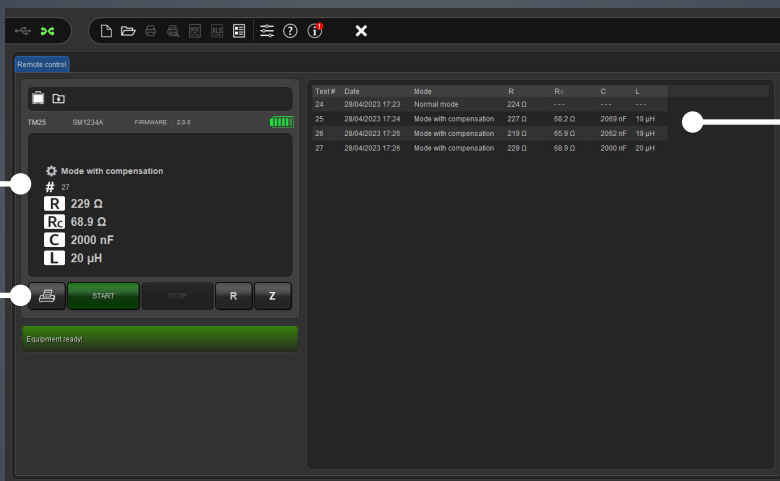


## Desktop software

# MegaLogg 3

## Software for remote control and reporting

MegaLogg 3 communicates with the equipment through a USB connection. Set the parameters, start / stop a test, save the data and generate reports.



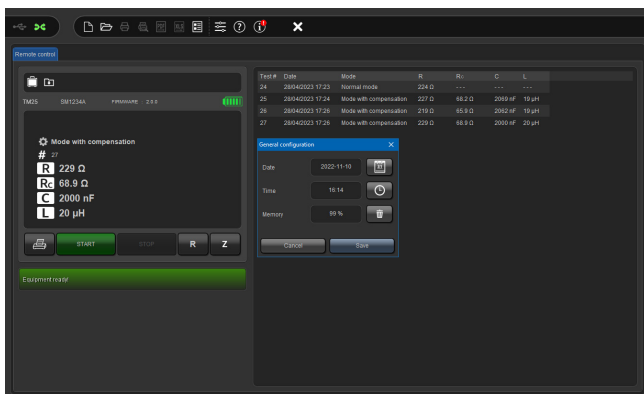
**Real-time measurement** (points to the measurement display area)

**Remote control** (points to the START/STOP buttons)

**Test results** (points to the test results table)

Test #	Date	Mode	R	R <sub>c</sub>	C	L
24	28/04/2023 17:23	Normal mode	224 Ω	---	---	---
25	28/04/2023 17:24	Mode with compensation	227 Ω	68.2 Ω	2069 nF	19 μH
26	28/04/2023 17:26	Mode with compensation	219 Ω	65.9 Ω	2062 nF	19 μH
27	28/04/2023 17:26	Mode with compensation	229 Ω	68.9 Ω	2000 nF	20 μH

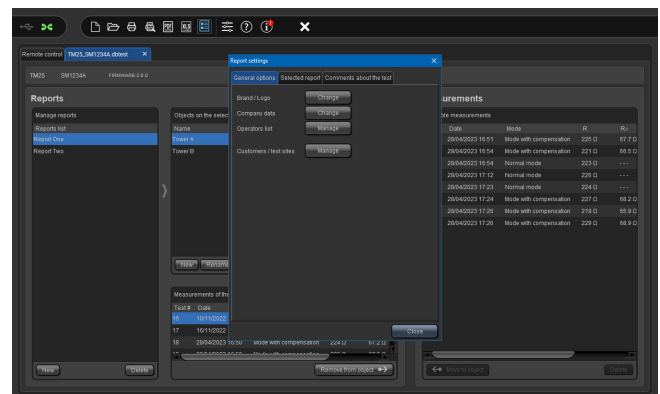
Available for download at: [www.megabras.com/megalogg](http://www.megabras.com/megalogg)



**Equipment settings**

General configuration window showing:

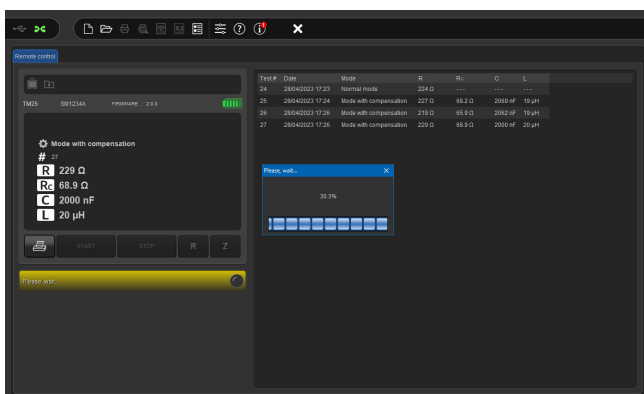
- Date: 2022-11-19
- Time: 16:14
- Memory: 99 %



**Report settings**

Report settings window showing:

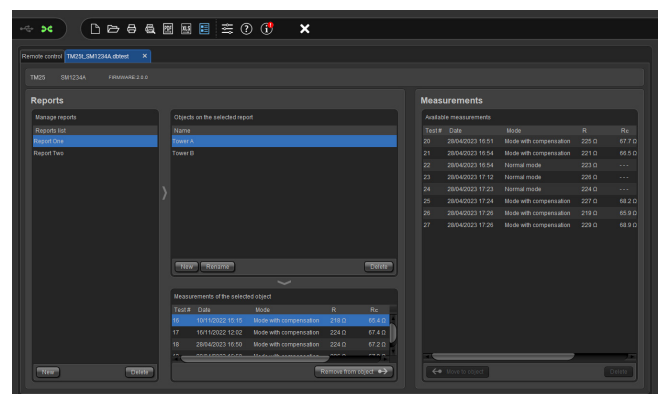
- General options: Selected report, Comments about the test
- Reports list: Tower A, Tower B
- Measurements of the selected object: Tower A, Tower B



**Memory download**

Memory download window showing:

- Progress bar: 30.3%



**Report generation**

Report generation window showing:

- Reports list: Tower A, Tower B
- Measurements of the selected object: Tower A, Tower B

## Global Presence

MEGABRAS equipment are used in more than 40 countries around the world



## Test & Measurement equipment

- Digital transformer ratiometer
- Earth ground testers
- Hipots
- Insulating glove tester
- Insulation testers
- Kilovoltmeters
- Micro-ohmmeters
- Power quality analyzers
- Vibration meter



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