

TERA Ohmmeter



TOM 584 TF

The **TERA** Ohmmeter TOM 584 TF works with the Voltage-Current-Measurement.

This is the inexpensive version of the TOM 374.

High resistances up to $2 \times 10^{12} \Omega$ (2 Teraohm) can be measured with a Measure voltage of 100 volts and a precision of $\pm 1 \times 10^x$

As peculiarity, the ambient temperature and the humidity will be measured and stored to every resistor measurement.

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More Instruments from „Kleinwächter GmbH“

TERA Ohmmeter TOM-374

The TERA Ohmmeter TOM-374 works with the voltage measuring process. An Electro Field Meter is integrated as input amplifier with its very high impedance. Through it, it is possible, to measure resistances directly against earth. High resistances up to 10^{14} Ohm (100Teraohm) can be measured with a Measure voltage of only 100 volts and an accuracy of 5%.

Through the built-in microprocessor, a very big service comfort is guaranteed.

Charge Plate Monitor CPM-374

The *CHARGE PLATE* Monitor 374 measures the voltage potential on its integrated Plate-Electrode according the Fieldmill-Influence-Principal and is suitable to determine the Static Decay Time from a selected higher voltage threshold to a lower voltage threshold level.

The unit meets the requirements of the European Norm EN 100015 and the American Standard EOS/ESD S.3.1.

On the upper side of the appliance, there is a plate condenser 150 x 150mm with a capacity of 20pF ± 2 pF in 150mm.

This plate will be charged by a internal High Voltage supply with $\geq \pm 1200$ V and then measured the discharge time in a ionization air. The start and stop voltage can be selected. The pos. and neg. Discharge time as well as the offset voltage will be shown in the display after the end of measurement. The kindliness of the area ionization can be decided from it.

Electro field meter

EFM 022 Small hand-held Electro - Fieldmeter with digital display designed to measure electrostatic voltage potentials (with pre-selected distance) according the fieldmill influence principal.

EFM 120 small very robust Electro - Field meter with big sensitivity to measure the Electro – DC – Field and electrostatic Charge. The display is an 21 point LED Bar graph with green Zero – LED in the middle.

EFM 2XX supersensitive Electro - Field meters for the laboratory use, to measure Electro charges up to < 1 V. Appliances in pistol casings with analog - or digital display.

All our Electro - Fieldmeters works with the „Feldmühlen-Influenz-Prinzip“. By the use of a microcomputer, it will increase the service comfort as well as the operational safety further.

No radioactive substances are used.

More informations !

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1. Description

The TERA Ohmmeter TOM 584-TF is suitable very well for the mobile use in industrial areas through its compact housing and through the battery power.

It can also be used stationary with a plug power supply.

The TOM 584-TF is menu-controlled, has only two keys and so it is very operator-friendly.

All parameters are shown in the LCD - Display.

The included PC-Software is for remote controlled using, and additionally measuring results can be administered and processed.

This TOM 584-TF works with the voltage – current principle.

Besides the electrode connection sockets, also an additional ground socket exists. The appliance should be grounded to eliminate parasitic effects (influence effect).

To the transactions of the measurements anuses of tied-up Norm DIN EN 61340 / EOS-ESD 4.1/6.1 can the measuring time be selected with the internal timer.

With Timer = ON the measurement values inclusive the air parameters can be stored in the internal EEPROM. They don't are deleted by switching off the unit. The values can be read out trough the PC-Interface at all times.

Since the resistance values depend very strongly on the Humidity and the air temperature, these influences are measured together with the resistance value.

So a reproducible measurement is given through it.

2. Operating Instruction

2.1. Start operation

The *TERA* Ohmmeter TOM 584-TF is delivered with a 9V NiMH – Battery, and is directly ready to start. Only the enclosed plug power supply should be used for charging the battery, and stationary work..

- The electrodes are connected to the corresponding sockets (s. legend) and place on the probe .
- The measuring instrument should be grounded.
- During the measurement of very high-ohm-resistors is to be kept that no influence effect is happen on the measure input.
- To Switch On the unit press key „B“.

After switching on, the software stand first is shown. Provided the timer is „ON“, in the display appear press start. You can start the measure by pressing key A

The current resistance value and the timer attitude are shown afterwards.

If the timer should be turned off, immediately appears in the display:

>2.0xE12Ω T=OFF

- To turning off the appliance press again key B .
- In the battery mode the unit turns off , if no button was pressed, automatically after approximately 8 minutes.

2.2 Charge the 9V Battery

This TOM 584-TF allowed to drive directly only with the enclosed power supply. Also only with this the installed NiMH – battery can be loaded. Connect the power supply to the integrated socket, and but the plug power supply to a power socket. The NiMH - battery is completely charged after maximum 14 hours loaded and holds approximately 2 hours in the continuous operation.

2.3. Measure range and measure voltage

The TOM 584-TF has an automatic ranging approve the hole resistor range. The appliance, accordingly the adjacent resistance, selects the Measure voltage automatically.

- Measure resistor smaller then 200 k Ω — Measure Voltage 10 VDC
- Measure resistor bigger then 200 k Ω — Measure Voltage 100 VDC

3. „set-up“ Function

Through simultaneous pressing the two keys A and B the „set-up" function is called.
In the display, it appears shortly:

SET TIMER !

After that it appears:

↓ON TIMER OFF↓

By pressing key „B“, the timer is switched off and the unit makes an reset.

By pressing key „A“, the timer is switched on and the measure time can be selected between 1 and 240 seconds .

In the display, it appears :

↓OK T=001s STEP↓

By pressing key „B“, it appears **T= 002s** and than in 1 second Steps up to 10 Second.

After that the timer starts with **T=010s** the changing steps are now 10 Seconds up to 60 Seconds, after this you get 60 second steps up to 240 seconds.

By pressing the „A“ key you choice the timer time and in the display appears:

↓AVERAGE LAPSE↓

By pressing key „A“ , the middle value over the measure time will be displayed (AVERAGE).

By pressing key „B“, the last value after the end of the measure time will be displayed (LAPSE).

Now, it is asked whether they should be deleted in the EEPROM stored data (file). In the display, it appears:

↓Y DEL FILES NO↓

By pressing key „B", no files will be deleted, and the next files are saved with File No x+1, than the unit makes an reset.

By pressing key „A“, all saved files will be deleted, and the next saved file in the EEPROM starts with File No. 001.

In the display appears for approximately 2 seconds:

WAIT . . .

After that appears

FILES DELETED !

Now the Unit makes an Reset and after that in the display appears :

↓ START T=xxxs

By pressing key „A“ “Start” the next measurement will be started.

The timer decrements in 1 second steps up to Zero, then the measure value will appears in the display as **Ravg** by AVERAGE - Mode and **Rlap** by Lapse – Mode

After 5 second it appears:

↓ FN:xxx T=xxxs

All 3 seconds appears for 2seconds.: **Air: xx°C xx%r.F**

By pressing key A „Start“ the measure value together with the air temperature and the Humidity will be saved in the EEPROM using the displayed File – No. These values then later can be read out over the PC - Interface.

3.1 LED Measurement o.k.

A green LED is in the middle under the display. It is only in function if the timer is switched on. After pressing key A „Start" this LED flashes with 1Hz, until the measurement is running. After end of the measurement, it shines, if the measurement is within the valid areas, permanent. Following conditions must be complied with on that occasion:

Resistor Value : 20k Ω 2T Ω (valid Measurement)

Temperature : 0°C....40°C

Humidity : 30%...60% rel. F.

After a new start it flashes again, and the same procedure begins.

3.2 Timer

If the timer was not activated, the TOM 584-TF directly switches on the resistance display in the on-line operation. In the display appears:

=5.5xE10 Ω T=OFF

By pressing key „A“ appears for 2 seconds :

Air: xx°C xx%r.F

4. Other Display Information's

If the maximum measurement is exceeded appears in the display:

>2.0xE12 (T=OFF)

If the minimal measurement becomes under-stride appears in the display:

<2.0xE04 Ω T=OFF

If the Battery Voltage is lower than 7,8 Volt, report the unit in the change with the current second line:

LOW BATTERY !

The accumulator must be charged again, however the current measurement can quietly be completed. If the Battery Voltage is lower as 7,1 volts, following display appear one after the other. Then the unit automatically switches off, to avoid a destroying of low Voltage of the battery.

LOW BATTERY

AUTO OFF

SWITCHING OFF

4.1 Display contrast

On the right side of height of the display there is a hole trough it you can screw a potentiometer for adjust Contrast of the LCD - Display.

5. PC - Operating

5.1 System requirement

- PC with 486er CPU or higher
- 3,5" Floppy disk 1,44MB
- free serial Interface COM1 or COM2
- Windows98, 2000, Xp with EXCEL

5.2 Installations

Put the disk with the TOM software into the floppy drive.
Go to „Start“ then Execute. Type A:Install and press <Enter>
The software is now installed.

5.3 Start the Software

Connect the *TERA* – Ohmmeter with the PC – Interface cable to a free serial PC Interface (COM 1 or COM 2) from your PC, and press key „A“ to switch on the TERA – Ohmmeter.
Start under Windows your EXCEL Program.
Open in Excel the file „UT584_tf.xls“ in the path c:\tom584tf

For more information about this program use the HELP bottom

6. Warranty

We provide 24 month warranty from date of receiving the unit, if the unit was handled properly. The damage of the NiMH-battery caused by improper handling as well as mechanical damage on the unit are excluded from warranty. Warranty is not provided, if the housing was opened.

7. Safety Advice

The measurement unit is not approved for the use in explosive areas!
The unit is not approved for the use in power utilities!
Only measurements can be executed at voltage-free objects.

8. Specifications

Housing:	: Plastic Housing 200 mm x 100 mm x 40 mm (L x B x H)
Weight	: ca. 350 g
Display	: alphanumeric Display, 1 Row with 16 Letters, Display field 60 mm x 15 mm
Measure Ranges	: Resistor 20 k Ω - 2.0 T Ω Tolerance \pm 1xEXX Ω Temperature 0°C....60°C Tolerance \pm 3°C Humidity 10%...90%r.F. Tolerance \pm 5%
PC-Interface	: serial Interface, 9-polige SUB-D - Connector
PC-Software	: Excel – Software for Data reading and remote control
Battery	: NiMH 9V / 160 mAh to IEC 6 F 22 Operating time of completely loaded battery: approximately 2 hours of continuous operation Charge time with enclosed power adapter: maximum 14 hours
Power Supply	: 9V-DC / 300 mA

9. Parts of Delivery

- Tera – Ohmmeter TOM 584 TF
- 9V NiMH - Battery
- Plug Power supply 9V-DC / 300mA
- 2 pce Teflon insulated measurement lead, 1m
- 1 grounding cable with alligator clip
- Serial PC - Cable 9 pol.
- 3,5" Disk with PC - Software
- Foam Packing
- Operating Instructions
- Certificate of factory calibration

10. Optional accessories

To the TOM 584-TF are offered optional different Measure Electrodes with the appropriate cables:



. Accessories set with:

ESD - suitcases with sufficiently place for the measuring instrument plus all accessories

**2,50 kg Electrode pair trough EOS/ESD S 4.1/S 7.1
DIN EN 61340 –5-1, -4-1, -2-3**

For Measuring Grounding Resistors and Point to Point Resistors, specially for installed ESD Table- or floor coverings

2 St. Teflon isolated Measure Cords 5m

- **Ring Electrode to EOS/ESD S 11.11 + DIN EN 61340 –5-1, -2-3**
comprising to the measurement of transit and surface resistances, 1 shielded and 1 no shielded Measure cord.
- **other electrodes are available on inquiry**

Info: Make sure, that there is no voltage on your measuring. External Voltage give you an wrong measure value and can destroy your instrument !

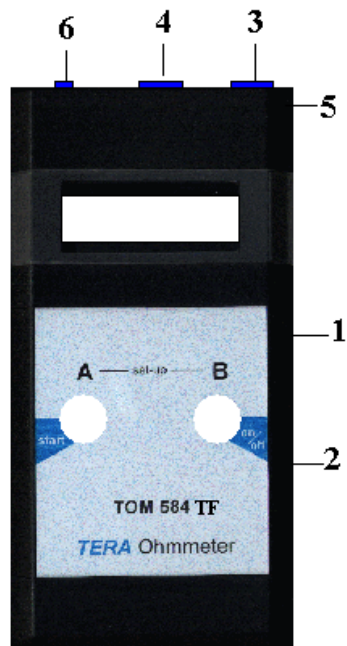
11. Maintenance / Calibration

The appliance is maintenance-free. If the appliance should get dirty , it can be cleaned with a lint-free cotton cloth with solvent-free detergent.

Don't open the appliance. If the appliance should not be used for a longer time, remove the 9V Battery from the appliance.

The interval for factory calibration is normally 1 year.

12. Legend



- 1 **Power Supply connector 9-12V DC**
- 2 **Serial PC – Interface**
- 3 **Measure Voltage Output**
- 4 **Measure Input**
- 5 **Contrast – Potentiometer for LCD Display**
- 6 **Grounding plug**

Konformitätserklärung



Die Firma

Kleinwächter GmbH
Krummattstr. 9

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erklärt in alleiniger Verantwortung, dass die Produkte

TERA Ohmmeter TOM 584 / TOM 584 TF

Messgeräte zur Messung hochohmiger Widerstände bis 2 Teraohm

auf die sich diese Erklärung bezieht, die Forderung

der EWG-Richtlinie über die elektromagnetische Verträglichkeit
Richtlinie des Rates vom 3.5.1989 (89/336) Stand: Juli 1993

erfüllt, insbesondere der Normen

EN 61010 „Safety“
EN 55011 Gruppe 1, Klasse B
EN 50082-2/92

für ISM-Geräte.

Die Firma Kleinwächter GmbH hält folgende technischen Dokumentationen zur Einsicht bereit :

- vorschriftsmässige Bedienungsanleitung
- Baupläne
- technische Dokumentationen

Hausen, den 09.01.2002

A handwritten signature in black ink, appearing to read 'J. Brunner', with a stylized flourish at the end.

Jürgen Brunner
Geschäftsführer