

GEOHM[®] 33D

Earth testers

Digital LC display

The measured value is digitally shown on a 3½ digit LCD. Bar segments in the last place of the measured value display signal that the permissible limits are exceeded, see limit monitoring.

Limit monitoring

Interference voltages and the auxiliary earth electrode resistance are constantly monitored. Exceeding of the permissible limits is automatically signalled.

An excessive electrode resistance can be determined and displayed by pressing the pushbutton marked TEST R_S.

Easy to operate

The unit works according to the voltmeter-ammeter method, calibration is thus not required. The measured result is directly shown.

Hand-cranked generator

An internal hand-cranked generator generates the required voltage. The speed of the hand-cranked generator is constantly monitored; an arrow appearing on the digital display reports too low a cranking speed.

Rugged instrument design

The instrument is designed for rough duty and easy to handle because of its small dimensions.

Applications

The GEOGM 33D is a compact unit designed to measure the earth resistance in electrical installations according to

DIN VDE 0100	Erection of power installations with nominal voltages up to 1000 V
DIN VDE 0141	Earthing installations for rated voltages above 1 kV AC
DIN VDE 0800	Telecommunications, erection and operation of facilities including information technology equipment

and lightning protection systems according to DIN VDE 0185.

The tester is also suited to determine the soil resistivity which is important for the dimensioning of earthing systems.

Thus, it is possible to use the tester for simple geological soil investigations and when planing earthing systems.

In addition thereto, it is possible to measure the ohmic resistance of solid and liquid conductors or the internal resistances of galvanic cells provided they are non-capacitive and non-inductive.

Training

We offer interesting seminars with practical training on the topic "Measurements for testing the protecting devices in power installations and equipment". These seminars also provide detailed information on earth measurements.



Applied rules and standards

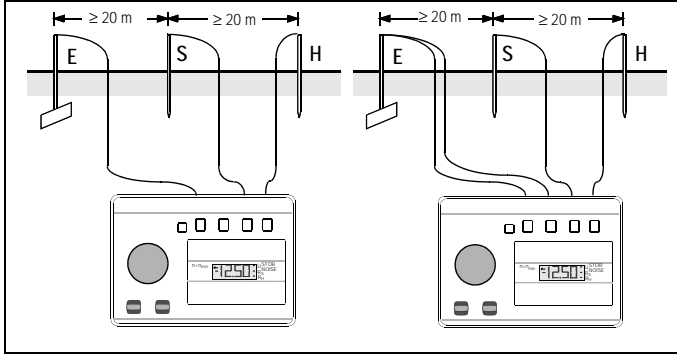
DIN VDE 0413 part 7	Voltmeter-ammeter method
DIN VDE 0100	Specifications for the erection of power installations with nominal voltages up to 1000 V
DIN VDE 0141	Earthing installations for rated voltages above 1 kV AC
DIN VDE 0800	Telecommunications, erection and operation of facilities including information technology equipment
DIN VDE 0185	Lightning protection systems – General specifications with regards to installation
DIN EN 61010 part 1	Safety requirements for electrical equipment for measurement, control and laboratory use
DIN 43 751	Digital measuring instruments
DIN EN 50081 part 1	Generic emission standard; residential, commercial and light industry
DIN EN 50082 part 1	Generic immunity standard; residential, commercial and light industry
VDI/VDE 3540	Reliability of measuring and control equipment
DIN VDE 0470 part 1	Test equipment and test procedures – Degrees of protection provided by enclosures (IP Code)

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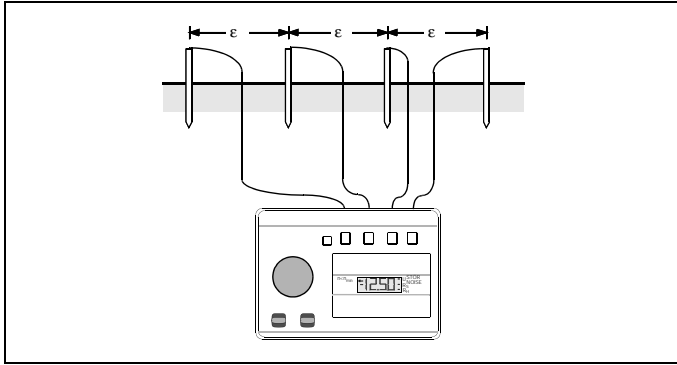
Earth testers

Measuring principle

Voltmeter-ammeter method according to DIN VDE 0413, part 7



Measuring the earth resistance according to the three-wire or four-wire method



Measuring the soil resistivity

Measuring ranges and accuracy

Measuring range	Resolution	Test current I_{rms} = short circuit curr. = constant	Intrinsic error \pm (... % of rdg. + ... digits)
0.01 Ω ... 19.99 Ω	0.01 Ω	10 mA	2 + 3
0.1 Ω ... 199.9 Ω	0.1 Ω	1 mA	
0.001 k Ω ... 1.999 k Ω	1 Ω	100 μ A	
0.01 k Ω ... 19.99 k Ω	10 Ω	100 μ A	
Output voltage	≤ 50 V		
Service error	\pm (5 % of rdg. + 3 digits) under nominal conditions of use		

Frequency of the measuring voltage 128 Hz \pm 0.5 Hz

Reference conditions

Ambient temperature	+ 23 °C \pm 2 K
Position	Any
Interference voltage	0 V
Aux. earth electrode resistance	0 Ω
Search electrode resistance	0 Ω
Speed of hand-cranked generator	≥ 120 RPM

Nominal ranges of use

Temperature	- 15 °C ... + 55 °C
Relative humidity	≤ 93 % at + 40 °C
Position of use	Any

Upper range limit	Interference voltage	Aux. earth electrode resistance	Search electrode resistance
20 Ω	—	≤ 4.5 k Ω	≤ 11 k Ω
200 Ω	—	≤ 28 k Ω	≤ 28 k Ω
≤ 2 k Ω	≤ 20 V ± 1 V _{pp} , 50 Hz, sinusoidal	—	—
2 k Ω	—	≤ 55 k Ω	≤ 110 k Ω
20 k Ω	≤ 16 V ± 1 V _{pp} , 50 Hz, sinusoidal	≤ 55 k Ω	≤ 110 k Ω

Speed of hand-cranked generator ≥ 120 RPM
128 Hz \pm 0.5 Hz

Display

Type of display	Liquid crystal display
Display range	0 ... 1999 digits
Number of counts	3 1/2
Height of numerals	10 mm
Overrange	Signalled by left digit "1" and range decimal point

Environmental conditions

Temperature range	Operation: 0 ... + 55 °C Storage: - 40 °C ... + 70 °C
Humidity	Operation: max. 93 % RH at +40 °C Storage: max. 93 % RH at +55 °C

Electrical safety

Test voltage	3 kV~
Protection class	II
Nominal insulation voltage	250 V

Power supply

Hand-cranked generator	Internal, manually operated
Minimum speed	120 RPM
Speed check	Autom. display at a speed of < 120 RPM
Fuse link	F 100/250 according to IEC 127, 1.5 \varnothing x 20 mm (for protection of the measuring circuit E – H)

Mechanical configuration

Protection type	IP 50
Dimensions	210 mm x 128 mm x 125 mm
Weight	1.4 kg

Scope of delivery

- 1 earth tester GEOHM 33D
- 4 adapters for connection to cable lugs, wire ends or banana plugs
- 1 copy of operating instructions

Accessories

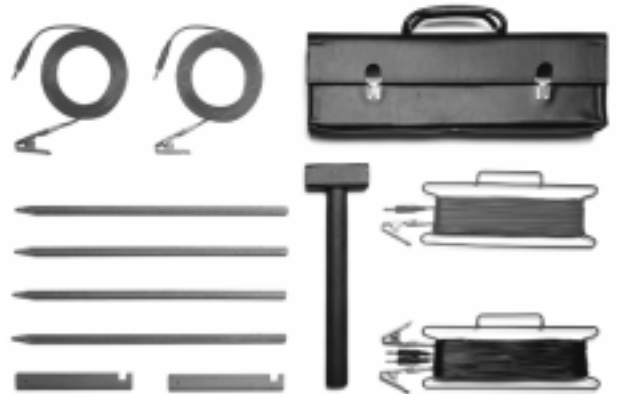
Earth testing kit E-Set 2



Sturdy case of artificial leather containing:

- 1 reel with 25 m of test lead with fixed 4 mm banana plug and socket in the reel
 - 2 reels with each 50 m of test lead, same as above
 - 1 test clip
 - 4 earth drills, each 350 mm long
 - 4 test leads, each 3 m long
 - 1 duster
 - 2 writing-pads with earth measuring forms
- Space for another reel of 50 m of test lead is available

Earth testing kit E-Set 3



Bag of artificial leather containing:

- 2 cable-winders
- 2 test leads, each 25 m long
- 1 test lead, 40 m long
- 2 test leads, each 3 m long
- 4 earth spikes (galvanized)
- 2 spike extractors
- 1 hammer

Carrying bag F833



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Order code

Designation	Type	Ident Number
Digital earth tester with hand-cranked generator	GEOHM 33D	GTM 5033 000 R0001
Earth testing kit: Case of artificial leather with 3 reels of 2 x 25 m and 1 x 40 m, 2 leads of 3 m each, 4 earth drills and small parts	E-Set 2	GTZ 3301 004 R0001
Earth testing kit: Bag of artificial leather containing 4 earth spikes, 1 hammer, 2 spike extractors, 2 cable-winders with leads of each 2 x 25 m and 1 x 40 m, 2 leads of 3 m each	E-Set 3	GTZ 3301 005 R0001
Drum with 50 m of wire	TR50	GTY 1040 014 E34
Drum with 25 m of wire	TR25	GTZ 3303 000 R0001
Earth drill, 35 cm long	SP350	GTZ 3304 000 R0001
Carrying bag	F833	GTZ 3301 001 R0001

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