Earth testers
MI 3290 Earth Analyser

NEW

High Voltage Insulation / Continuity / Earth

MI 3290 Earth Analyser is a portable, battery or mains powered test instrument with excellent IP protection (IP 54 open case), intended for measurement of earth resistance, specific earth resistance and earth potential of various energetic and non-energetic objects. The user can choose between different methods from classic 3 wire earth resistance measurement up to one or four clamp method for measurement of pylons. He has a choice of measurement methods with different frequency methods: single frequency or frequency sweep from 55 Hz to 15 kHz, HF method with 25 kHz and pulse method simulating the lightning strike. High electrical noise immunity makes this instrument best suited for industrial environment. Instrument is available in multiple sets which are a combination of different accessories and measurement functions.

MEASURING FUNCTIONS

- Earth Resistance 2,3,4 -pole;
- Selective Earth Resist (1 x clamp);
- Earth Resistance (2 x iron clamps);
- Specific Earth Resistance (Wenner and Schlumberger method);
- HF-Earth Resistance (25 kHz, acc. to IEEE_Std 81);
- Earth Resistance of mono pylons with 10 m flex clamp;
- Earth Resistance of multi–leg pylons with up to four flex clamps;
- Current measurement (Iron, flex clamps);
- Low Ohm measurement 7 mA and 200 mA;
- Earth Potential;
- Step and contact measurements;
- Impulse Earth measurement 10/350 µs.

KEY FEATURES

- Possibility of performing all types of earth measurements with a single instrument.
- Analysis of earth impedance as a function of the frequency due to a wide measurement frequency band (55 Hz ... 15 kHz).
- Earth measurements on pylons with protective earth cable connected.
- Measurement on mono towers and 4-leg tower.
- A wide variety of measuring clamps: from iron clamps to flex clamps with 10 m length.
- HF-Earth resistance measurement (acc. to IEEE_Std 81).
- Sweep mode Z(f) on screen.
- 4.3'' colour LCD display with touch screen.
- Floating Mains (universal 90 ... 260 V AC) or battery powered (built in fast charger).
- High degree of protection: IP 65 case closed, IP 54 case open.
- Checkbox - different self-check methods.
- DC resistance measurements.
- Impulse impendance measurement for simulating the lightning strike.
- Support for single or automated measurements.
- PC SW for measurement pre and post processing: preparation of the test structure, result download, tree-view, table view and graphical view, storing and printing.

APPLICATION

Measurement of protective earthing of:
- Mono and multi-leg pylons with protective earth cable connected
- MV to LV transformer stations;
- Ski lifts, radio towers;
- Solar Power plants, wind and water turbine;
- Industrial areas.

STANDARDS

Functionality
- EN 61557 - 5
- EN 50522:2010
- IEEE 80 – 2000
- IEEE 81 – 2012
- IEEE 142
- IEEE 367 – 2012

Electromagnetic compatibility
- EN 61326

Safety
- EN 61010 - 1
- EN 61010 - 2 - 030 c
- EN 61010 - 2 - 032
- EN 61010 - 031

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ORDERING INFORMATION

Standard set for all models of MI 3290

All model versions include following accessory:

- Instrument MI 3290
- Current earth spike 90 cm, 2 pcs
- Potential earth spike 42 cm, 2 pcs
- Connection lead black 2 m
- Test lead 5 m blue
- Test lead 5 m red
- Test lead 50 m black on cable reel
- Test lead 50 m green on cable reel
- Test lead 50 m blue on cable reel
- Shielded test lead 75 m on reel
- G clamp
- Set of test probes, crocodile clip and 2 m test lead, 4 pcs
- Bag for accessories
- USB cable
- Mains cable
- Calibration certificate
- Instruction manual
- PC SW Metrel ES Manager

SET SPECIFICATION

Licence key	GX	GL	GF	GP
Measurement methods				
Ground Z 2-pole	•	•	•	•
Ground Z 3-pole	•	•	•	•
Ground Z 4-pole	•	•	•	•
Single/multi/sweep frequency	•	•	•	•
Wenner 4-pole	•	•	•	•
Schlumberger 4-pole	•	•	•	•
Selective (iron clamp)	•	•		
Stakeless 2-clamps	•	•		
Transient Impulse Impedance	•	•		
HF 25 kHz Impedance	•	•		
Step / Touch	•		•	
Voltage potential	•		•	
Low Impedance 4-point	•		•	
Low Resistance 200 mA	•		•	
Tower Passive one rod / Flex clamps	•			•
Tower FOP / 1xFlex clamp	GX1			•
Tower FOP / 4xFlex clamp	GX4			Option
Mono Tower FOP / Flex clamp	•			•
Measurement accessory				
Current earth spike, 90 cm, 2 pcs Potential earth spike, 42 cm 2 pcs G clamp Shielded test lead on reel, 75 m Test lead on reel 50 m, 3 pcs (black, green, blue) Test lead, 5 m, 2 pcs (blue, red) Set of test probes, crocodile clip and 2 m test lead, 4 pcs	•	•	•	•
Flex clamp 5 m with 15 m shielded cable	4 pcs (GX4) 1 pce (GX1)			1 pce
Iron clamp, 2 pcs	•	•		
Kelvin clamp with 2,5 m cable, 2 pcs	•		•	
Step Contact Meter Measuring Set	•		•	

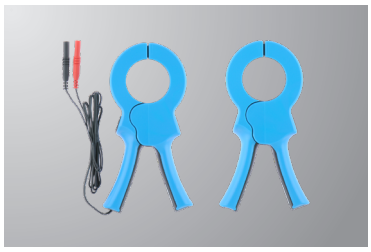
Additional accessorie of MI 3290 GX4
* Includes also: RS 232 and USB cable, soft carrying neck belt

MI 3290 GX1

- Licence GX
- Iron clamp A 1018 with 3,5 m test lead
- Iron clamp A 1019
- Flex clamp 5 m with 15 m shielded cable
- Continuity test lead, with crocodile clip, 2 x 2.5 m, 2 pcs
- Voltmeter MI 3295M with 2 wire test lead*
- Soft carrying bag
- Step voltage test plate, 2 pcs
- NiMH battery cells, type AA, 6 pcs
- Power supply adapter
- Bag for accessories

MI 3290 GX4

- MI 3290 GX1
- Flex clamp 5 m with 15 m shielded cable, 3 pcs
- Bag for accessories



Additional accessorie of MI 3290 GL

MI 3290 GL

- Licence GL
- Iron clamp A 1018 with 3,5 m test lead
- Iron clamp A 1019

Additional accessorie of MI 3290 GF
* Includes also: RS 232 and USB cable, soft carrying neck belt

MI 3290 GF

- Licence GF
- Continuity test lead, with crocodile clip, 2 x 2.5 m, 2 pcs
- Voltmeter MI 3295M with 2 wire test lead*
- Soft carrying bag
- Step voltage test plate, 2 pcs
- NiMH battery cells, type AA, 6 pcs
- Power supply adapter

Additional accessorie of MI 3290 GP

MI 3290 GP

- Licence GP
- Flex clamp 5 m with 15 m shielded cable
- Bag for accessories

OPTIONAL ACCESSORY

Photo	Order No.	Acc. decription	Decription
	A 1018 3M5	Current clamp (low range, leakage), 3.5 m length	High accuracy current clamp 1000 A / 1 A with jaw opening 52 mm and fixed 3.5 m cable for both load and low range / leakage current measurement and for earth resistance measurement as well.
	A 1019	Current clamp	Current clamp 1000 A / 1 A with jaw opening 52 mm for general current measurements and in combination with A 1018 for earth resistance measurement without breaking the loop.
	A 1487	Flex clamp 5 m with 15 m shielded cable	Flexible current clamp with circumference of 5 m and connection cable of 15m.
	A 1081	Bag for accessories	Bag for accessories, with Metrel logo.
	A 1509	Test lead 50 m black on cable reel	Test lead on a cable reel, black, 50 m, extendable.
	A 1510	Test lead 50 m green on cable reel	Test lead on a cable reel, green, 50 m, extendable.
	A 1525	Test lead 50 m blue on cable reel	Test lead on a cable reel, blue, 50 m, extendable.
	A 1526	Test lead 5 m blue	Test lead, blue, 5 m, banana plug on both sides.
	A 1527	Test lead 5 m red	Test lead, red, 5 m, banana plug on both sides.
	A 1528	Potential earth spike 42 cm	Professional earth spike, 42 cm, with banana socket.
	A 1529	Current earth spike 90 cm	Professional earth spike, 90 cm, with banana socket.
	A 1530	G clamp	Professional G clamp for perfect contacting, with banana socket.
	MI 3295M Set	Step Contact Meter Measuring Set	Additional MI 3295M Set for simultaneous measurements of step voltage and contact voltage on different test points. Set includes instrument MI 3295M, test lead, 2 x 3 m, soft carrying bag, soft carrying neck belt, NiMH battery, type AA, 6 pcs, Power supply adapter.
	P 1201	MI 3290 GL licence key	A licence key for Grounding and Lightning functionality of Earth Analyser.
	P 1202	MI 3290 GP licence key	A licence key for Grounding of Pylons functionality of Earth Analyser.
	P 1203	MI 3290 GF licence key	A licence key for Grounding and voltage Funnel functionality of Earth Analyser.
	P 1204	MI 3290 GX2 upgrade licence key	A licence key for upgrade from base functionality (GP/GL/GF) to full functionality (GX) of Earth Analyser MI 3290.
	S 1072	Continuity test lead, with crocodile clip, 2 x 2.5 m, 2 pcs	Kelvin test probes with crocodile clips and protection shield as lightweight alternative to clips within the standard set.
	S 2053	Step voltage plates	Light replacement for 25kg Step voltage probes A 1353.

TECHNICAL SPECIFICATION

Method	Additional info	Measurement range	Uncertainty
Earth resistance 2, 3, 4 -pole	Open-terminal test voltage 20 or 40 VAC Short-circuit test current > 220 mA Test frequency 55 Hz...329 Hz 659 Hz ... 2.63 kHz 3.29 kHz ... 15 kHz	 0.010 Ω ... 19.99 kΩ 0.00 Ω ... 1.999 kΩ 0.00 Ω ... 199.9 Ω	 ±(3 % of reading + 3 digits) ±(5 % of reading + 3 digits) ±(8 % of reading + 3 digits)
Selective earth resistance with iron clamp	Open-terminal test voltage 40 VAC Short-circuit test current > 220 mA Test frequency 55 Hz ... 329 Hz 659 Hz ... 1.50 kHz	 0.010 Ω ... 19.99 kΩ 0.00 Ω ... 1.999 kΩ	 ±(8 % of reading + 3 digits)
Selective earth resistance of pylons with flex clamp	Open-terminal test voltage 40 VAC Short-circuit test current > 220 mA Test frequency 55 Hz...329 Hz 659 Hz ... 1.50 kHz Passive mode	 0.010 Ω ... 19.99 kΩ 0.00 Ω ... 1.999 kΩ 0.00 Ω ... 19.99 kΩ	 ±(8 % of reading + 3 digits)
Earth resistance with two iron clamps	Test frequency 82 Hz ... 329 Hz	0.00 Ω ... 9.99 Ω 10.0 Ω ... 49.9 Ω 50.0 Ω ... 100 Ω	±(5% of reading + 2 digits) ±(10 % of reading + 2 digits) ±(20 % of reading)
Specific earth resistance ro Wenner and Schlumberger method	Open-terminal test voltage 20 or 40 V AC Short-circuit test current >220 mA Test frequency 164 Hz	0.00 Ωm ... 19.99 kΩm	calculated value (consider uncertainty of 4 – pole measurement)
Earth Potential	Open-terminal test voltage 40 V AC Short-circuit test current >220 mA Test frequency 55 ÷ 329 Hz	0.0 mV ... 49.99 V	calculated value (consider uncertainty of 3 – pole measurement)
HF-Earth Resistance 3 pole	Open-terminal test voltage 40 VAC Short-circuit test current >40 mA Test frequency 25.000 Hz	0.00 Ω ... 19.9 Ω 20.0 Ω ... 299 Ω	±(3 % of reading + 2 digits)
Impulse Earth Resistance	Open-terminal test voltage ~120 V peak Short-circuit test current ~6 A peak Impulse waveform 10 / 350 µs	0.0 Ω ... 199 Ω	±(8 % of reading + 8 digits)
DC Resistance RLOW	Test current 200 mA	0.00 Ω ... 1.99 kΩ	±(2 % of reading + 2 digits)
DC Resistance CONT	Test current 7 mA	0.00 Ω ... 19.9 kΩ	±(3 % of reading + 2 digits)
AC Impedance	Test frequency 55 Hz ... 15 kHz	0.00 Ω ... 19.99 kΩ	±(3 % of reading + 2 digits)
Current RMS (Iron Clamp)	Nominal frequency 45 Hz ...1.5 kHz	1.0 mA ...7.99 A	±(2 % of reading + 3 digits)
Current RMS (Flex Clamp)	Nominal frequency 45 Hz ...1.5 kHz	10 mA ... 49.9 A	±(8 % of reading + 3 digits)
Battery power supply	14.4 V DC (4.4 Ah Li-ion)		
Mains power supply	90-260 VAC, 45-65 Hz, 100 VA (300 V CAT II)		
Degree of protection	IP 65 (case closed)		
	IP 54 (case open)		
Dimensions (w x h x d)	36 x 16 x 33 cm		
Display	4.3" colour LCD display with backlight and touch screen		
Communication	USB, BT		
Memory	>1GB		

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Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery.
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