

# Other instruments / adapters / accessories

## MI 3144 EURO Z 800 V



The MI 3144 Euro Z 800 V is a multifunctional, portable battery (Li-ion) or mains powered test instrument with excellent IP protection: IP65 (case closed), IP54 (case opened). It can be controlled via an Android app aMESM, MI 3152, MI 3152H, MI 3155 or MI 3325. The MI 3144 Euro Z 800 V is intended for measuring the effectiveness of automatic trip out protection in case of faults in transformers and other HV equipment. With its high precision line and loop impedance measurements on AC and DC circuits, high current dR 300A loop and line measurements for testing of partial currents and partial voltage drops, it is ideal for testing in industrial settings. It also supports contact voltage measurements, ELR electrical leakage relay testing with fault current injection, trip-out time measurement and DC source, line, battery and accumulator measurements.

### KEY FEATURES

- **High precision 4-wire 300 A Z Line and Z Loop Impedance Tester;**
- **High range impedance measurements in 800 V / 16 ... 420 Hz AC networks;**
- **DC source & line resistance measurements in 3 ... 260 V DC networks;**
- High current dR 300 A 4-wire **Partial Voltage drops** and **Current's Path Resistances;**
- **Earth Leakage Relay (ELR) trip-out testing time and current;**
- ELR supported types AC, A, B;
- **Ground fault analysis** with Contact, Touch and Step voltage;
- Floating voltmeter for partial contact results;
- **One-clamp high current grounding method** with clamps (flex & iron);
- **Selectable test load** (16.6 % to 100 %);
- Improved thermal performance;
- Portable battery (Li-ion) or mains powered test instrument;
- IP protection: IP65 (case closed), IP54 (case opened);
- **CAT IV 600 V (3000 m) safety category;**
- Bluetooth communication;
- **Black box design** (remote-controlled via an Android device).

### APPLICATION

- Live Power Transformer Hi Precision 4-wire 300 A Z Line / Loop Impedance testing;
- Partial Voltage Drops and Partial Clamp Current's Path resistance measurements;
- Airports High Frequency Band 16 ... 420 Hz Installation Impedances testing;
- DC Networks' and Power Sources' Line and Loop Resistances;
- Flex & iron one-clamp high current dR 300 A Grounding method for Lightning systems;
- High Current dR 300 A Integrity of Grounding; system with Flex and Iron One-Clamp method
- ELR (MRCD) trip-out Current and trip-out time testing;
- Earth Potentials by method of measuring Step, Touch and Transfer voltages;
- Automatic trip-out protection evaluation in case of faults in transformers, generators, turbines, contactors, distribution boards and switchyards whenever energetic loads and sources of protection exceed 200 A;
- Power transformer and motor winding measurement;
- High accuracy battery resistance testing;
- Ground grid integrity testing by measuring the resistance between two risers;
- Contact voltage measurement;

- High current injection ground fault simulation;
- One clamp earth resistance testing.

### STANDARDS

#### Electromagnetic compatibility:

- EN 61326

#### Safety:

- EN 61010-1; EN 61010-2-030; EN 61010-031; EN 61010-2-032

#### Functionality:

- EN 61557; IEEE 81-2012; EN 60909-0; EN 60947-2 Annex M

#### Li-ion battery pack:

- EN 62133-2

### SUPPORTED INSTRUMENTS

- MI 3152 EurotestXC (Bluetooth, RS-232)
- MI 3152H EurotestXC 2.5kV (Bluetooth, RS-232)
- MI 3155 EurotestXD (Bluetooth, RS-232)
- MI 3325 MultiServiserXD (Bluetooth only)
- A 1522 aMESM as a console for performing tests

## TECHNICAL SPECIFICATION

FUNCTION	Measuring range	Resolution	Accuracy
Impedance [Z]	0.1 mΩ ... 199.9 mΩ	0.1 mΩ	±(5 % of reading + 3 mΩ)
Z line mΩ	200 mΩ ... 1999 mΩ	1 mΩ	
Z loop mΩ	2.00 Ω ... 19.99 Ω	10 mΩ	±(5 % of reading + 3 digits)
Impedance [Z]	0.1 mΩ ... 199.9 mΩ	0.1 mΩ	±(5 % of reading + 3 mΩ)
High current ΔR	200 mΩ ... 1999 mΩ	1 mΩ	
	2.00 Ω ... 19.99 Ω	10 mΩ	±(5 % of reading + 3 digits)
Impedance [Z]	0.1 mΩ ... 199.9 mΩ	0.1 mΩ	±(8 % of reading + 3 mΩ)
High current Rsel	200 mΩ ... 1999 mΩ	1 mΩ	
	2.00 Ω ... 19.99 Ω	10 mΩ	±(8 % of reading + 3 digits)
DC resistance [R]	0 mΩ ... 1999 mΩ	1 mΩ	±(5 % of reading + 3 digits)
R line mΩ	2.00 Ω ... 19.99 Ω	10 mΩ	
Earth potential [U]	0.0 V ... 199.9 V	0.1 V	Calculated value
Utouch	200 V ... 999 V	1 V	
Earth potential [U]	1 mV ... 1999 mV	1 mV	±(2 % of reading + 2 digits)
Um	2.00 V ... 19.99 V	10 mV	
	20.0 V ... 199.9 V	0.1 V	
ELR test [I and t]	0.1 mA ... 199.9 mA	0.1 mA	±(5 % of reading + 3 digits)
ELR I	200 mA ... 1999 mA	1 mA	
	2.00 A ... 19.99 A	10 mA	
ELR test [I and t]	0.1 ms ... 199.9 ms	0.1 ms	±(2 % of reading + 3 digits)
ELR t	200 ms ... 1999 ms	1 ms	
	2.00 s ... 20.00 s	10 ms	

FUNCTION	Type	Range	Measuring range	Display range	Resolution	Uncertainty
Current [I]	A 1281	0.5 A	10 mA ... 749 mA	0 ... 749 mA	1 mA	±(2.5 % of reading + 3 digits)
		5 A	0.10 A ... 749 A	0.00 ... 749 A	0.01 A	
		100 A	2 A ... 149 A	0.0 ... 99.9 A	0.1 A	
			100 ... 149 A	1 A		
		1000 A	20 A ... 999 A	0 ... 999 A	1 A	
Current [I]	A 1227 A 1609	30 A	0.6 A ... 59.9 A	0.0 ... 59.9 A	0.1 A	±(3.5 % of reading + 3 digits)
		300 A	6 A ... 599 A	0 ... 599 A	1 A	
		3000 A	0.06 kA ... 5.99 kA	0.00 ... 5.99 kA	0.01 kA	

## OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	A 1620	Test lead 5 m, black
	A 1621	Test lead 20 m, black
	A 1527	Test lead 5 m, red, 1.5 mm <sup>2</sup>
	A 1640	Test lead 20 m, red, 1.5 mm <sup>2</sup>
	A 1608	Test lead 20 m, green
	A 1654	Test lead on a cable reel, 50 m, red, 1.5 mm <sup>2</sup> , extendable
	A 1509	Test lead on a cable reel, 50 m, black, extendable
	A 1510	Test lead on a cable reel, 50 m, green, extendable
	A 1619	Test lead, 2-wire
	A 1660	Extension test leads on reel, 75 m, red, green, 2.5 mm <sup>2</sup>
	A 1661	Jumbo case mount for A 1660
	A 1593	Large Kelvin test clip
	A 1595	Large test crocodile, black
	A 1596	Large test crocodile, red
	A 1013	Crocodile clip, blacks
	A 1064	Crocodile clip, red

Photo	Order No.	Acc. description
	A 1014	Test probe, black
	A 1016	Test probe, red
	A 1530	G clamp
	A 1597	Human body resistance probe
	A 1022	Test rod
	A 1528	Professional current earth spike, 50 cm
	S 2053	Step voltage plates
	A 1609	1-phase flexible current clamp
	A 1227	1-phase flexible current clamp 3000/300/30 A / 1 V
	A 1281	Current clamp 0,5/5/100/1000 A / 1 V
	A 1648	Current clamp A 1281 extension cable, 5 m
	A 1658	Jumbo case for MI 3144
	P 1101	BASIC to PRO license key upgrade for Metrel ES Manager

## GENERAL DATA

Battery power supply: 7.2 V DC (4.4 Ah Li-ion)  
 Battery charging time: typical 3.0 h (deep discharge)  
 Mains power supply: 90 ... 260 V AC, 45 ... 65 Hz, 80 VA  
 Over-voltage category: 300 V CAT II  
 Protection classification: reinforced insulation  
 Measuring category: 600 V CAT IV  
 Pollution degree: 2  
 Degree of protection: IP 65 (case closed), IP 54 (case open)  
 Dimensions (w x h x d): 36 cm x 16 cm x 33 cm  
 Weight: 6.5 kg (without accessories)

## ORDERING INFORMATION



Picture of MI 3144 EU set

### Standard set (MI 3144)

- Instrument MI 3144 Euro Z 800 V
- Mains cable
- RS232-PS/2 cable
- Test lead 5 m, black, 2 pcs
- Test lead 5 m, red, 1.5 mm<sup>2</sup>, 2 pcs
- Test lead 50 m, red, 1.5 mm<sup>2</sup>\*
- Test lead 20 m, black
- Test lead 50 m, green\*
- Large Kelvin test clip, 2 pcs
- Crocodile clip, black, 2 pcs
- Crocodile clip, red, 2 pcs
- Crocodile clip, green
- Test probe, black, 2 pcs
- Test probe, red, 2 pcs
- G clamp
- Human body resistance probe
- Test rod, 2 pcs
- Step voltage plates, 2 pcs
- Metrel aMESM Android PRO P 1102-AND license key integrated in instrument
- Short instruction manual
- Calibration certificate
- Protective bag for accessories
- Soft carrying bag\*

\* Replaced by test leads on a cable reel in MI 3144 EU set.

### Euro set MI 3144 (EU)

- MI 3144 5T
- Test lead 5 m, green
- Test lead on a cable reel, 75 m, red, 2.5 mm<sup>2</sup>
- Test lead on a cable reel, 75 m, green
- Professional current earth spike, 42 cm
- 1-phase flexible current clamp
- Jumbo case
- Extension cable reel
- Jumbo case mount

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