

STANDARD SETS

MI 3252 MicroOhm 100A



- Instrument MicroOhm 100A
- Current test lead with crocodile clip, 5 m, 25 mm², 2 pcs
- Potential test lead, 5 m, 2 pcs (red, black)
- Test probe, 2 pcs (red, black)
- Crocodile clip, 2 pcs (red, black)
- Crocodile clip, 2 pcs (red, black)
- Mains cable
- RS232 cable
- USB cable
- Bag for accessories
- PC SW HVLink PRO
- Instruction manual
- Calibration certificate

A 1143 Euro Z 290 A



- Instrument Euro Z 290 A
- Test lead, 2-wire, 2 pcs
- Test lead, black, 2 m
- Test probe, red, 2 pcs
- Crocodile clip, black, 3 pcs
- Crocodile clip, red, 2 pcs
- RS232 cable
- RS232-PS/2 cable
- Instruction manual
- Calibration certificate

MI 2892 Power Master



- Instrument Power Master
- 1-phase flexible current clamps 3000 / 300 / 30 A (A 1227), 4 pcs
- Test probe, red, 2 pcs
- Test probe (CAT II), red, 3 pcs
- Test probe (CAT II), black
- Crocodile clip, black
- Crocodile clip, green
- Crocodile clip, red, 3 pcs
- Voltage measurement lead, red, 3 pcs
- Voltage measurement lead, black
- Voltage measurement lead, green
- Temperature probe
- PC SW PowerView3
- RS232 and USB cables
- Power supply adapter
- 1.2 V NiMH rechargeable battery, 6 pcs
- Soft carrying bag
- Instruction manual
- Calibration certificate

MI 3295 Step Contact Voltage



- Instrument MI 3295M & MI 3295S
- Mains cable
- Step voltage probe (25 kg), 2 pcs
- Current earth spike
- Potential earth spike
- Current test lead, 50 m, black, 10 mm², with crocodile clip, on wheel
- Current test lead, 10 m, black, 10 mm², with crocodile clip
- Test lead, black, 2 x 3 m
- Test lead, green, 10 m
- Test lead, black, 1.5 m
- Test lead, red, 50 m
- Connection lead with crocodile clip, red, 1 m
- Crocodile clip, 4 pcs
- RS232 cable
- USB cable
- Soft carrying bag, 2 pcs
- Soft carrying neck belt
- NiMH battery cells, type AA, 6 pcs
- Power supply adapter
- CD with instruction manual and PC SW HVLink PRO
- Instruction manual
- Calibration certificate

MI 3321 MultiServicerXA



- Instrument MultiServicerXA
- HV test lead
- Plug test cable
- 3-wire test lead
- Test lead, black, 1.5 m
- Test lead, red, 1.5 m
- Test lead, red, 4 m
- Test lead, green, 1.5 m
- Test probe, 4 pcs (black, red, green, blue)
- Crocodile clip, black, 3 pcs
- Protective bag for accessories
- PC SW PATLink PRO with RS232 and USB cable
- Instruction manual
- Calibration certificate

MI 3210 TeraOhmXA 10 kV



- Instrument TeraOhm 10 kV
- Mains cable
- 10 kV shielded test lead with tip, 2 m
- 10 kV shielded test lead black, 2 m
- 10 kV shielded test lead red, 2 m
- 10 kV crocodile clip, 2 pcs (black, red)
- Guard lead, green, 2 m
- Crocodile clip, green
- Li-Ion rechargeable batterie pack
- Instruction manual
- Handbook on CD
- Calibration certificate

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APPLICATIONS AND SOLUTIONS FOR TESTING AND ANALYSIS OF:

- Equipotential bonding and Connectivity
- Step and Contact Voltages
- Earth Resistance and Earthing Systems
- Impedances and Fault Currents
- Conditions for Automatic Disconnection
- Switchboards, Machines and Appliances
- Power Quality
- HV Insulation



SAFETY ON BOARD

Power Generators, Power Systems, HV Towers, Substations, Earth Systems, Earth Systems, Transport Systems, Industrial Power Systems, Antenna Towers, Photovoltaics Systems, Construction Building Sites

Note! Photographs in this catalogue may slightly differ from the instruments at the time of delivery. Subject to technical change without notice.

SOLUTIONS FOR TESTING _October_2013_Ang

EQUIPOTENTIAL BONDING AND CONNECTIVITY TESTING

MI 3252 MicroOhm 100A

The equipotential bonding and connectivity of bigger cross section conductors, parallel connected bars and metal stripes is hard to prove without a powerful, accurate and precise measuring system. The MI 3252 MicroOhm 100A is just what is needed to show reliable and stable results in fine resolution of 1 nanoOhm. Alternative offer within MI 3250 MicroOhm 10A is designed for accurate measuring resistances in $\mu\Omega$ range on industrial applications where filters for motor or transformer coils are at great help.

The MI 3252 MicroOhm 100A and MI 3250 MicroOhm 10A are portable low resistance ohmmeters used to measure low contact resistance of circuit breakers, switches and busbar joints using test current from 100 mA up to 100 A. A 4-lead Kelvin test method is utilized to eliminate test lead resistance and provide extremely accurate readings (0.25%).

The instrument can be powered from mains supply or internal battery. PC SW HVLINK PRO supplied as a standard accessory enables downloading, analysis and export of test results and printing of test reports.

MEASURING FUNCTIONS:

- Resistance measurement with adjustable test current (100 mA ... 100 A);
- Voltage drop measurement.

APPLICATIONS:

- Resistance measurement of:**
- High, middle and low voltage circuit breakers;
 - High, middle and low voltage disconnecting switches;
 - High current busbar joints;
 - Cable splices;
 - Welding joints.

ALTERNATIVE:

- MI 3250 MicroOhm 10A
- MI 3242 MicroOhm 2A

TESTING OF LARGE EARTHING SYSTEMS

MI 3295 Step Contact Voltage Measuring System

The measurement of earth resistance, soil resistivity and the analysis of voltage drop around objects such as earthing systems, antenna towers, HV towers, industrial platforms, transformers, generators, PV systems etc. is necessary to ensure the safety in the surrounding area should the object become dangerous in the event of a earthing fault or lightning strike.

The MI 3295 Step/Contact Voltage Measuring System is one of the smallest all in one solutions, with a powerful generator (up to 55 A) and special technology to eliminate the earth noise current (even in low power operating mode (in the range of mA)). The MI 3295 Step Contact Voltage Measuring System is extremely safe and utilizes a SELV voltage of only 55 V to perform its tests, reducing the risk of injury to people or livestock when performing tests in public or in areas containing livestock. All test results can be interpreted and recalculated online at the test site to simulate a live to earth fault or lightning strike.



MEASURING FUNCTIONS:

- Step voltage;
- Contact voltage;
- Earth resistance.

APPLICATIONS:

Measurement of protective earthing of:

- Power stations;
- Substations;
- Distribution towers;
- Other power systems.

LIVE IMPEDANCE AND FAULT CURRENT TESTING, EVALUATION OF CONDITIONS FOR AUTOMATIC DISCONNECTION

A 1143 Euro Z 290 A

The safe and efficient running of an electrical system relies on good connectivity between conductors, joints, busbars, switches and components on the way from the power source to the load. Loop impedance testing is one of the best options for finding the cause of losses, high voltage drops, faults on live circuits and bad contacts.



The A 1143 Euro Z 290 A is a professional portable high current impedance tester. It performs high precision line and fault loop impedance measurements in environments up to CAT IV / 300 V. It is used to test power transformers and motor windings. The main users are maintenance engineers in power utilities. The instrument is designed to work independently or in conjunction with the MI 2086 Eurotest 61557, MI 3101 EurotestAT, MI 3105 EurotestXA and MI 3321 MultiServicerXA.

MEASURING FUNCTIONS:

- High precision line impedance;
- High precision fault loop impedance;
- Contact voltage.

APPLICATIONS:

- High accuracy loop and line measurements;
- Power transformer and motor winding measurement.

TESTING THE SAFETY OF SWITCHBOARDS, MACHINES AND PORTABLE APPLIANCES

MI 3321 MultiServicerXA with support of A 1322 Active 3-Phase Apapter

The term "safety management" summarizes all necessary steps that must be taken to assure the safety of electrical equipment through its complete lifetime. The primary goal is to ensure that the equipment is safe to use and to avoid hazardous situations that can cause electric shock, fire and explosion.

Many different loads, switchgear, control gear, machines, motors, extension leads, tools or appliances could be connected to the power system. The MI 3321 MultiServicerXA tester is an all in one testing solution with built in fast autotest solution to ensure the safety of all the parts that require safety testing, now also with complete solution for 3-Phase systems with A 1322 Active 3-Phase Adapter.

The MI 3321 MultiServicerXA multifunctional portable test instrument is intended to perform all necessary measurements for testing the electrical safety of portable electrical equipment, machines and switchgears. It is the first machine tester covering all necessary tests according to new IEC/EN 60204 ed.5 including Loop impedance, RCD and HV tests.



MultiServicerXA enables measurement of discharge time, power and current consumption and resistance to excessive voltages which are the main parameters in the safety testing of hard wired appliances and large machinery. With a simple user interface, large graphic LCD, QWERTY keyboard, help menus with connection diagrams and extra ports for testing fixed installations the MI 3321 is the best solution for safety testing.

MEASURING FUNCTIONS:

- Continuity tests (200 mA, 10 A);
- Insulation resistance;
- Substitute leakage;
- Differential leakage current;
- Touch leakage current;
- IEC cord polarity test (active polarity);
- Leakage and TRMS load currents with current clamp;
- Portable RCD test (type AC, A, B, S, K);
- RCD test (type AC, A, B);
- Functional test.

APPLICATIONS:

- Factory machinery safety testing;
- Industrial safety testing;
- Portable appliances safety testing;
- Switchgear safety testing.

POWER QUALITY ANALYSING, RECORDING AND TROUBLESHOOTING

MI 2892 Power Master

Regardless of the definition used, power quality is a major strategic issue in the open electricity market economy. There are several reasons to encourage a systematic and constant approach to the monitoring of the power quality parameters, these include:

- Easy identification and elimination of problems on the utilities or customer's installation.
- Preventative maintenance by the early location of potential sources of disturbances or failures.
- Optimization of the power network based on Power Quality parameters.

The NEW MI 2892 Power Master is a hand-held three phase power quality analyser with a large easy-to-read graphical colour display enabling the user to detect harmonics, phasors and waveforms anomalies in the installation simply by connecting the device. The instrument is designed for a long term recording as well as for troubleshooting power quality problems in three-phase and single-phase power distribution systems. The handy Quick Set buttons makes the instrument more user



friendly and are allowing faster data overview for troubleshooting. Advanced PC SW package PowerView3 enables detailed analysis of recorded data, direct reading from the microSD memory card, analysis of long term records and automatic creation of professional test report.

MEASURING FUNCTIONS:

- Voltage/Current: TRMS, peak, crest factor (4/4-channel);
- Power (active, reactive, apparent) fully compliant with IEC 1459 (active, nonactive, fundamental, harmonic, load unbalance);
- Unbalance, flicker measurement;
- Harmonic and interharmonic analysis up to 50th harmonics,
- Energy (active, reactive, generated, consumed);
- Capturing and recording of power supply events (interruptions, swells, dips);
- Inrush currents monitoring and recording;
- Waveform/inrush displaying, snapshot and recording;
- Transients recording;
- Power quality analysis according to EN 50160;
- Recording up to 10 adjustable alarms;
- Temperature measurement.

APPLICATIONS:

- Power quality assessment and troubleshooting in low and middle voltage electrical systems;
- Checking power correction equipment performance;
- Long-term analysis;
- Predictive maintenance;
- Verification of electrical system capacity before adding loads.

ALTERNATIVE:

- MI 2792A PowerQ4 Plus
- MI 2592 PowerQ4
- MI 2392 PowerQ Plus

HV INSULATION ANALYSIS

MI 3210 TeraOhmXA 10 kV

Characteristics of insulation tend to change through the time, normally getting worse through ageing. Various physical phenomena (like temperature, dirt, humidity, mechanical and electrical stresses, high-energy radiation, etc) have a big influence on insulation characteristics.

Safety, operability, and reliability are the most important parameters of an electrical device or system containing insulation and this is the reason why insulation must be measured. Insulation is measured in the production phase of electrical device and also later, during maintenance works or repair.

The new insulation tester MI 3210 TeraOhm 10 kV and MI 3201 TeraOhm 5 kV Plus are a portable instrument intended to measure insulation resistance by using high DC test voltages up to 10 kV. The TeraOhm 10 kV enables insulation resistance measurements up to 20 T Ω , step voltage test, withstanding voltage test, PI, DD and DAR calculation and capacitance measurement.



The large LCD screen enables real-time graph R(t) to be displayed. Results can be stored and downloaded to a computer via USB or RS232 connection with the help of the optional HVLINK PRO software. The high quality instrument, shielded test leads and quality accessories included in the standard set enable insulation testing to be performed quickly and effectively.

MEASURING FUNCTIONS:

- Insulation resistance measurement up to 20 T Ω ;
- Robust AC current rejection up to 4 mA;
- Step voltage insulation resistance testing;
- Withstanding voltage testing;
- Diagnostic test (PI, DD, DAR);
- R(t) graph plotting;
- Capacitance measurement;
- Voltage measurement;
- Frequency measurement;
- Noise immunity filter.

APPLICATIONS:

- Testing insulation resistance of rotating machinery, cables, transformers, HV generators, surge arresters;
- Production line periodic testing and maintenance;

ALTERNATIVE:

- MI 3200 TeraOhm 10 kV Plus
- MI 3201 TeraOhm 5 kV Plus