

Whats included with each item Sets



MI 2094 CE MultiTester - Standard set

- Instrument CE MultiTester
- HV test pistol with 2 m cable, 2 pcs
- Continuity test lead, 2.5 m, 2 pcs
- Insulation test lead, red, 2.5 m
- Insulation test lead, black, 2.5 m
- Crocodile clip, black, 3 pcs
- Crocodile clip, red, 2 pcs
- Discharge time cable
- Mains cable
- Bag for accessories
- Instruction manual
- Calibration certificate



MI 3321 MultiServicerXA - Standard set

- 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
- 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 PAT Link PRO with RS232 and USB cable
- Instruction manual
- Calibration certificate



MI 3310A SigmaPAT - Standard set

- Instrument MI 3310A SigmaPAT (with bluetooth)
- Small soft carrying bag
- Test lead, brown, green, black, 1.5 m
- Crocodile clip, brown, green, black
- Test tip, brown, green, black
- PC software PATLink PRO
- RS232 cable
- USB cable
- Instruction manual
- Short instruction manual
- Calibration certificate



A 1422 Active 3-phase Adapter Plus - Standard set

- Instrument A 1422
- Bag for accessories
- Measuring / Connection cable between Adapter and Instrument
- 3-phase mains cable 16 A male / 32 A female, 5-pin, 2 m
- RS232 cable
- Instruction manual, short instruction manual
- Calibration certificate



A 1322 Active 3-phase Adapter - Standard set

- Instrument A 1322
- Bag for accessories
- Measuring / Connection cable between Adapter and Instrument
- 3-phase mains cable 16 A male / 32 A female, 5-pin, 2 m
- RS232 cable
- Instruction manual
- Short instruction manual
- Calibration certificate



A 1143 Euro Z 290A Adapter - Standard set

- 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

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APPLICATION AND TESTING SOLUTIONS FOR INDUSTRIAL ELECTRICAL SAFETY

- Three Phase Portable Appliances
- Single Phase Portable Appliances
- Hire Fleet
- Stationary appliances or Equipment
- Switch Gear Manufacture and Maintenance
- Product Conformance Testing



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

Application leaflet industrial electrical safety_October_2013_Ang_Ver_1.1

SAFETY FOR INDUSTRIAL APPLICATIONS
In Service Inspection, Preventative Maintenance, Full 3 Phase Testing, After repair testing, Commissioning, Pre and Post Hire Testing, Switchgear Maintenance.

Complete solutions to three Phase and Single Phase Machines, Appliances and Switchboards Testing

MI 3321 MultiServicerXA

Multifunctional portable test instrument MultiservicerXA is intended to perform all necessary measurements for testing the electrical safety of Portable Appliances, Electrical Equipment, Fixed appliances, Machines and Switchgears. Because of large set of functions this instrument is suitable also for safety testing (type testing, maintenance and routine testing) according to other product standards. Up to 18 different measurements can be performed either as single test or pre-programmed test sequences.

KEY FEATURES:

- Three in one:** instrument performs testing of portable appliances (VDE 0701 0702), machines (IEC/EN 60204 Ed.5) and switchgears (IEC/ EN 60439 and the new IEC 61439) including functional and leakage tests for *DUTs with nominal power up to 3.5 kW.
- Automated:** automatic testing and PASS / FAIL evaluation of test results according to appropriate standard.
- Scan and test:** optional barcoding system and PASS / FAIL barcode label printing make retesting quick and simple.
- RFID:** support for advanced RFID identification system.
- Withstanding voltage test:** instrument performs 2500 V AC, 1890 V AC and 1000 V AC withstanding voltage tests with settable current limit.
- Earth bonding:** Main Protection against electric shock with 10 A and 200 mA Continuity test.
- Insulation and Leakage measurements:** Estimation of insulation protection with DC Voltage up to 1000 V and Leakage current testing with Differential, Substitute or Touch method.
- RCD testing:** instrument enables testing of parameters of RCDs and portable RCDs.
- Clamp leakage current measurement:** quick measurement of leakage current with current clamps directly on power supply cable.
- Discharge time test:** testing of how long it takes for the machine discharge after power is removed.
- Trend functionality:** test results can be uploaded from PC to the instrument for comparison between old and new test results on site.
- Downloadable:** up to 6000 test re-sults with measuring parameters can be stored in two level memory and downloaded to the PC with the help of PC SW PAT Link.



MI 3310A SigmaPAT

The Sigma is a multifunctional portable test instrument intended to perform all measurements for complete testing of Portable Appliances and Electrical Equipment. All testing is fully compliant with IET COP version 4. Along with numerous features like dual power supply support, built-in battery charger, lightweight design, large bright LCD, Bluetooth data transfer, soft qwerty keypad, this instrument offers also testing of RCD-protected cords, and testing of fixed appliances.

KEY FEATURES:

- Autosequencing:** pre-programmable autosequences, up to 50 custom prepared autosequences.
- Active polarity:** innovative solution for testing of RCD protected cords while voltage is applied to the tested item.
- Dual powered:** it can be powered from both internal battery and mains supply.
- Fixed appliance testing:** additional inputs and optional accessories enable testing of fixed installed appliances.
- Scan and test:** optional barcoding system and PASS/FAIL barcode label printing make retesting quick and simple.
- RFID:** support for advanced RFID identification system.
- Bluetooth communication** with printer and barcode scanner.
- Project uploading:** previous test data can be uploaded for fast retesting of the object.
- Trend functionality:** test results can be uploaded from PC to the instrument for comparison between old and new test results on site.
- Earth bonding:** Main Protection against electric shock with 10 A and 200 mA Continuity test.
- Insulation and Leakage measurements:** Estimation of insulation protection with DC Voltage up to 1000 V and Leakage current testing with Differential, Substitute or Touch method.
- RCD testing:** instrument enables testing of parameters of RCDs and portable RCDs.
- Clamp leakage current measurement:** quick measurement of leakage current with current clamps directly on power supply cable.
- Memory:** up to 6000 test results with parameters can be stored into memory and downloaded to the PC with the help of PC SW PATLink PRO.
- PC SW PATLink PRO Plus** enables advanced analysis of test results, upload of structures and data upload to the instrument for on site comparison of old and new results, upload of pre-programmed custom autosequences and creation of professional test reports. Compatible with the Android APP for QR code production aiding in better asset tracking and management.



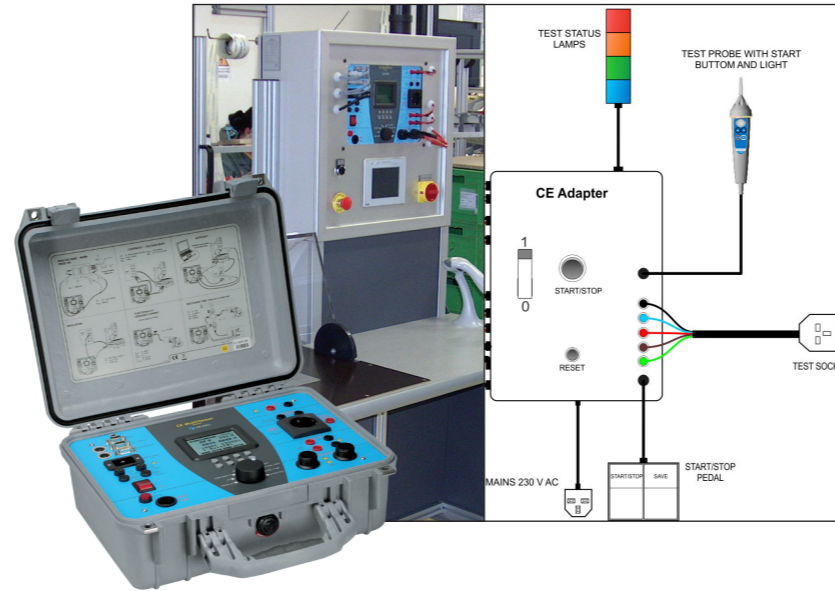
CE Marking, Laboratory Type Testing and on production lines Automated Routine Testing

MI 2094 CE Multitester

The CE MultiTester is intended for electrical safety testing and CE marking and certification of electrical appliances, machines and switchboards during the production. Due to selected test functions, durable construction and accompanying PC SW package CE MultiTester is the perfect instrument for electrical safety testing in the most demanding environments like laboratories, automated production lines or specialized workshops. It is suitable for testing the appliances after repairs and maintenance work as well. With the ability to test a multitude of different appliances the MI 2094 still remains portable, safe and easy to use. PC software CE Link enables the upload of automated test sequences, downloading of test results directly to the PC, automatic data storage into a file and printing of test reports.

KEY FEATURES:

- Auto testing:** up to 10 autosequences each composed of up to 50 steps, including pauses and comments, can be created via the optional CE Link software and saved in the memory of the instrument.
- All tests for CE marking:** 250 VA test capability for full conformance testing. Flash test voltage up to 5000 V AC with a test current of 500 mA. Earth bond testing with 25 A, insulation up to 1000 V DC, leakage current and discharge time features for complete support.
- Portable:** due to lightweight design and rugged carrying case with handle CE MultiTester can be moved between locations.
- Rack mount:** option for output box to aid a "plug in and Test" mentality. Due to the autotest facility and EXT / DOOR remote control of the instrument can be integrated into the automated production line for output check of manufactured products.
- Multi-system testing:** the instrument can be used on TT, TN, IT and 115 V supply systems.
- Downloadable:** the optional PC SW CE Link enables the upload of test sequences, downloading of test results directly to the PC, automatic data storage into a file and printing of test reports.



A 1422 Active 3-phase Adapter + /A 1322 Active 3-phase Adapter

The A 1422 Multifunctional test adapter has complete support for testing of Arc Welding Equipment in accordance to EN 60974-4 and VDE 0544-4 plus all features of A 1322 designed for troubleshooting, as well as for periodic testing on 3-phase appliances and machinery. Unique functions such as active polarity testing, differential leakage testing and testing of 3-phase RCD's make those Active 3-phase Adapters an ideal instrument for advanced applications. The Adapters are designed for use alongside the MI 3321 MultiservicerXA and the MI 3310/MI 3310A SigmaGT enabling functional tests to be carried out on machines up to 40 A. Several test socket outlets make this instrument an ideal tester for testing industrial extension leads that may also be RCD protected.

KEY FEATURES:

- Testing of Open-Circuit Voltage:** at ARC Welding Units in accordance to EN 60974-4 (1422 only).
- All tests on 3-phase electrical equipment:** can be carried out, including live leakage test, power, polarity, RCD and Active polarity.
- Simple connection** to the PAT/MACHINE tester with automatic detection.
- Simple test procedures,** identical to single phase equipment.
- Test sequence for 3-phase tests are automatically set, based on entered test codes and input voltages.
- Built-in** CEE 3-PH/32A 5 pin, CEE 3-PH/16A 5 pin and CEE 1-PH/16A 3 pin test sockets.
- Instrument comes complete** with all accessories necessary for comfortable measurements and kept in a robust waterproof case.



A 1143 Euro Z 290A Adapter

The A 1143 Euro Z 290 A is a professional portable high current 290A, 4-wire impedance tester. It performs high precision 1mOhm resolution Fault Loop and Line Loop impedance measurements in environments up to CAT IV / 310 V.

KEY FEATURES:

- Independence:** instrument is designed to work independently or in conjunction with: MI 2086 Eurotest 61557, MI 3101 EurotestAT, MI 3105 EurotestXA and MI 3321 MultiServicerXA
- Range widening:** adapts the instruments to read from 0.1 mΩ up to 19.99Ω.
- Multi-system testing:** works on both single phase and 3-phase systems (115 V to 440 V).
- IPSC and IPFC calculation:** IPSC and IPFC readings calculated up to 400 kA.
- 4-wire measurement** for elimination of voltage drop on measuring leads.
- Comfortable carrying:** all the accessories are put in the strong, rugged, durable case of the instrument.
- LCD:** Built-in LCD for standalone measurements.



Selection Guide

Part No.:	MI 2094 CE MultiTester	MI 3321 MultiServicerXA	MI 3310A SigmaGT	MI 3310
Features				
APPLICATIONS	CE marking TYPE TEST CE marking ROUTINE TEST MACHINE SAFETY SWITCHBOARD SAFETY PAT SAFETY	✓ ✓ ✓ ✓ ✓	– ✓ ✓ ✓ ✓	– – – – ✓
AUTOSEQUENCE	AUTOSEQUENCE Programmable Auto VDE Auto CUSTOM	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
WITHSTANDING	Ramp test 100 ... 5000 V AC (250 VA) Test voltage 1000 V AC / 1890 V AC / 2500 V AC (250 VA)	✓ / ✓ / ✓ ✓ / ✓ / ✓	✓ / ✓ / ✓ –	– –
CONTINUITY	Current 200 mA	✓ / ✓	–	–
EARTH BOND	Current 10 A / 25 A	✓ / ✓	✓ / –	– / –
INSULATION	250 V DC / 500 V DC / 1000 V DC	✓ / ✓ / ✓	✓ / ✓ / –	✓ / ✓ / –
LEAKAGE CURRENT	Differential leakage current Touch leakage current Substitute leakage current Leakage current measurement with optional clamp	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓
DISCHARGE TIME	60 V (1 ... 5 s) 120 V (1 ... 5 s)	✓ ✓	✓ –	– –
RCD	RCD t, Uc RCD I ramp, Uc Auto PRCD-S, PRCD-K	–	AC / A / B	AC / A / B AC / A / B
ZLINE	Zline, Ipsc / FUSE tables ΔU%	–	✓	– –
ZLOOP	Zloop, Ipf / FUSE tables Zs(rcd)	–	✓	– –
VOLTAGE	Voltage TRMS, Frequency Phase SEQUENCE L1-L2-L3	✓ –	✓ ✓	– –
POLARITY	IEC lead test Active polarity Functional test	– – ✓	✓ ✓ ✓	✓ ✓ ✓
OTHER	Power Barcode Printer	– Optional –	– Optional Optional	– Optional Optional
BLUETOOTH MODULE	Built in External (dongle)	– –	– –	– –
PC SW	PC SW PATLink PRO Plus (CE Link)	✓	✓	✓
COMMUNICATION PORTS	RS232 and USB Remote	✓ ✓	✓ –	✓ –
Euro Z Adapter A 1143	Zline, Zloop, Ipsc, Ipf, Ub Test current 290 A Hi resolution in mOhm	–	✓ ✓ ✓	– – –
Active 3-phase Adapter Plus A 1422	Three phase appliances 3-ph power / functional test 3-ph P/RCD test 3-ph polarity test / 3-ph active polarity test Welding machines leakage	–	✓ ✓ ✓ ✓ ✓	– – – – –
Active 3-phase Adapter A 1322	Three phase appliances 3-ph power / functional test 3-ph P/RCD test	–	✓ ✓ ✓	– – –
CE AUTOSEQUENCE BOX	Automated procedure Programmable switching matrix Universal test socket Remote control	✓ ✓ ✓ ✓	– – – –	– – – –

Measurements and Functionalities are divided into three subgroups in compliance with following main standards:

CE Marking Type Tests and Routine Tests for testing *DUTs according to:

- EN 60335-1** Household and similar electrical appliances
- EN 60598-1** Luminaries
- IEC 60745** Hand-held motor-operated tools
- IEC 60755** Residual current operated protect. devices
- EN 60950** Safety of information technology equipment
- EN 61010-1** Safety requirements for electrical equipment
- IEC 61029** Transportable motor-operated tools
- EN 61558-1** Transformers and power supply units
- EN 60065** Audio, video and similar electronic apparatus

PAT Safety Tests for testing portable *DUTs according to:

- VDE 0404-1** Testing and measuring equipment for checking the electric safety of electric devices - Part 1: General requirements
- VDE 0404-2** Testing and measuring equipment for checking the electric safety of electric devices - Part 2: Testing equipment for tests after repair, change or in the case of repeat tests
- VDE 0701-702** Inspection after repair, modification of electrical appliances – Periodic inspection on electrical appliances. General requirements for electrical safety
- IAS / NZS 3760** In-service safety inspection and testing of electrical equipment

Machine Safety Tests and Switchboard Safety for testing electrical safety according to:

- EN 60204-1 Ed.5** Safety of machinery - Electrical equipment of machines - Part 1: General requirements
- EN 60439** Low-voltage switchgear and controlgear assemblies
- IEC 61439-1** Low-voltage switchgear and controlgear assemblies - Part 1: General rules
- IEC 61008-1** Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules
- IEC 62423** Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses
- NEN 3140** Operation of electrical installations - Additional Netherlands requirements for low-voltage installations

*DUTs (abbreviation for Device Under Test)