

KIT SETS

Kit set IM/PAT PRO

Best combination in Kit set to cover all Safety demands for Installations, Portable and Permanent connected Appliances. With Leakage and Power Clamps for Troubleshooting! All in high IP protected carrying case.



- MI 3110 EurotestIM
- A 1314 Plug Commander
- MI 3309 DeltaGT
- MD 9270 Leakage CLAMP with POWER
- IP67 Portable Case

STANDARD SET

MI 3110 EurotestIM

Safety of Mobile Units and Permanent mounted Integrated IT Earthing System with Low Voltage Power Generator or Transformer.



- Instrument MI 3110 EurotestMI
- Soft carrying bag
- Mains cable
- Test lead, 1.5 m
- Crocodile clip, black, green, brown
- Test probe, black, green, brown
- NiMH rechargeable batteries, type AA, 6 pcs
- PC software EuroLink PRO
- USB and RS232 cable
- Instruction manual
- Calibration certificate

KIT SETS

Kit set IM/2A EU

Kit set cover Safety demands for Installations with MicroOhm tester for precise evaluation of Earth Bond protection. All in high IP protected carrying case.



- MI 3110 EurotestIM
- A 1314 Plug Commander
- MI 3242 MicroOhm 2A
- IP67 Portable Case
- **Alternative IM/10A PRO:**
- MI 3250 MicroOhm 10A

STANDARD SET

MI 3309 DeltaGT

Safety of Portable Appliances, Equipment, Extension Leads and Cables.



- Instrument MI 3309 DeltaGT
- Soft carrying bag
- IEC cable, 2m, 2 pcs
- Test lead, black, green, brown, 1.5 m
- Crocodile clip, black, green, brown
- Test probe, black, green, brown
- NiMH rechargeable batteries, type AA, 6 pcs
- PC software PATLink PRO
- USB and RS232 cable
- Instruction manual
- Calibration certificate

RECOMMENDED

TESTING INSTRUMENTS

Photo	Order No.	Acc. description
	MI 2142 Alpha PAT	Safety of Portable Appliances, Equipment, Extension Leads and Cables with 25 A Earth Bond testing.
	MI 3250 Micro-Ohm 10A	Precise MicroOhm 2A / 10 A resistance testing for protection bonding, bus bars, relays, joints, windings, etc in Medical and Industrial environment.
	MI 3242 Micro-Ohm 2A	
	MI 3121H Smartec 2.5 kV Insulation / Continuity	Continuity and Insulation Analysing with PI and DAR factor calculation and with up to 2500 V test for overvoltage protection and varistors.
	MI 3125B Eurotest Combo	Safety of Electrical Installations in Buildings with Low Voltage Power Generator or Transformer.
	MD 9270 Leakage Current Clamps	Troubleshooting tool for tracing faults on Leakage and Insulation by direct or differential method.

TROUBLESHOOTING

MD 9270 Leakage Clamp TRMS

Installed IMDs and ELMs detect excessive currents but cannot localize the problem.



A simple method for localizing excessive leakage currents causing problems is the selective differential or direct Leakage / Fault Current measurement with current clamps.

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APPLICATIONS AND SOLUTIONS FOR AUTOSEQUENCE TESTING OF SAFETY:

Electrical Installation Safety

- IT Earthing System Voltage Range
- Fuse Trip-Out Ability and Line Impedance Z / I sc
- ISFL Single Fault Leakage Current
- IMD Insulation / ELM Earth Leakage / RCM Residual Current
- Monitor Devices Control
- Alarm Trigger or Trip-Out Check and Adjust

Machines Appliances Switchboards Safety

- Portable Appliance Testing
- Extension leads and Cables Polarity
- Earth Bonding and Continuity of Connections
- RCD / PRCD protection
- Tracing Leakage and Insulation Faults



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

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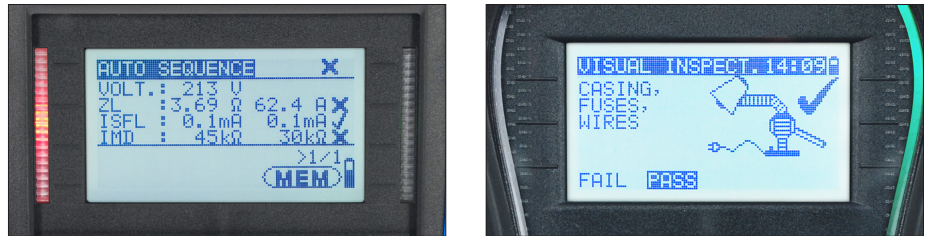
SAFETY ON BOARD

Medical Sites and Medical Units, Surgery Rooms, Emergency Services Vehicles and Emergency Cars,
Emergency Helicopters, Emergency Boats, Mobile Units with Integrated IT Generators / Transformers / LV Electrical Installations

APPLICATIONS AND SOLUTIONS FOR AUTOSEQUENCE TESTING OF SAFETY

“Functional Safety of Electrical/Electronic/ Programmable Electronic Safety related Systems” EN 61508 defining the human error as “human action or inaction that can produce an unintended result”.

AUTO SEQUENCE® Safety evaluation with human error minimized!



Due to unique single and clear **AUTO SEQUENCE**® procedure the Human Error Factor in Functional Safety IEC / EN 61508 is minimized. Regardless of Operator competence level.

AUTO SEQUENCE® enables all testing to be carried out with a single button press. All tests are Pre-programmed with PASS levels saved against the relevant test result.

PC SW EuroLink and PATLink are designed for Creating of Reports based Saved results connected to Memory Structure. PASS or FAIL evaluation on Results, Parameters, Dates and Time of testing are all connected to Memory Structure, prepared for printing Reports to prove Safety and Operational Quality of tested.



Verification after assembly (initial verification)

The purpose of initial verification is to prove that the assembly of the installation was made properly and according to the project documentation. A verification report should be provided.

Maintenance (after modifications, additions, alterations, service) testing

The purpose of the verification after maintenance is to verify the performed works and to check that installation's performance remains within specified limits. A verification report should be provided.

Periodic (recurrent) testing

Periodic tests are to be carried out to determine whether the installation is in satisfactory condition after a certain period and should consist of inspection and testing as far as reasonably practicable.

Applied standards:

- Safety
- IEC/EN 61010 -1
- EMC IEC/EN 61326

Measurements

- IEC/EN 61557
- Parts 1 to 7 and 10: Equipment for testing, measuring and monitoring of protective measures.
- Part 8: Insulation monitoring devices for IT systems
- Part 9: Equipment for insulation fault location for IT systems

Functionality

- IEC/EN 60364 - 4 - 41/42/43, Protection for safety
- IEC/EN 60364-6, Verification, testing and reporting
- IEC/EN 60364-7, Requirements for special installations or locations
- IEC 60364-7-710, Medical locations and associated areas
- IEC / EN 60364-7-717, Mobile and transportable units
- IEC 61892-6, Mobile and fixed offshore units - Electrical installations, Installation

Appliances for medical use

- EN 60601 Medical electrical equipment Basic safety and essential performance
- EN 62353 Medical electrical equipment Recurrent test and test after repair of medical electrical equipment
- EN 60335 Safety of household and similar electrical appliances
- EN 60598 Safety of luminaries
- DIN VDE 0701- 0702
- NEN 3140
- BS 89

Dangers

Electrical installation and Equipment is a source of many dangers. Two most often dangers are:

- Overheating through excessive thermal dissipation or insulation fault on installation components and electrical equipment.
- Excessive touch voltage on accessible conductive parts and consequentially dangerous current through human body.



Both problems can have fatal consequences!
Accidents happen daily!

APPLICATIONS AND SOLUTIONS FOR AUTOSEQUENCE TESTING OF SAFETY

MI 3110 EurotestIM

The MI 3110 EurotestIM is a perfect tool for testing permanent Integrated or mobile IT Earthing Systems with Low Voltage Electrical Installation's Power Supply from Generator or Transformer.



APPLICATIONS AND SOLUTIONS:

IT System recognizing, Voltage Range



Voltage out of range can cause malfunction, operation fail, damages or burning out connected electronic devices.

The EurotestIM makes automatic warning and stop testing in case of voltage is out of specified limits.

Voltage Balance, ISFL Single Fault Leakage current



Unbalanced system means presence of First Fault in Insulation and Single Fault Leakage Current.

The purpose of this test is to check if contact voltages stay inside the safety limits during single fault condition.

The EurotestIM measure voltages of balanced system and makes warning when recognize Single Fault situation.

Fuse Trip-out ability Evaluation, Line Impedance and Ipsc Prospective Short Circuit Current,

The line impedance should be low enough that installed Fuse will disconnect. Limit barriers are built-in the EurotestIM and the instrument generate warnings in case of improper protective devices are installed, bad connections, bad assembling, lengths and cross section of wiring in installation and in case windings of generator / transformer are already damaged.



The MI 3110 EurotestIM is the first and unique automatic tester for measuring in single **AUTO SEQUENCE**®.

KEY FEATURES:

- IT System recognizing, Voltage Range and Voltage Balance,
- ISFL Single Fault Leakage current from Phase 1 and Phase 2 to PE,
- Fuse Trip-out Ability Evaluation, Line Impedance and Ipsc Prospective Short Circuit Current,
- IMD Insulation / ELM Earth Leakage / RCM Residual Current Monitor Devices Control,
- Alarm Trigger or Trip-Out Check and Adjust.

Designed for testing Safety of Integrated IT Earthing System with LV Power Generator or Transformer!
One single AUTO SEQUENCE® with programmable limits and sub-tests ensuring Safety on all PASS barrier parameters.

IMD Insulation / ELM Earth Leakage / RCM Residual Current Monitor Devices Control, Alarm Trigger or Trip-Out Check and Adjust



Insulation problem can be predicted in most cases before troubles arise when IMD monitors proper mounted and whether still operating. The EurotestIM makes it double checked by applying an adjustable fault and when currents exceeds the expected level it cause alarm indication of Insulation Monitoring Devices.

APPLICATIONS AND SOLUTIONS FOR AUTOSEQUENCE TESTING OF SAFETY

MI 3309 DeltaGT, MI 2142 AlphaPAT 25A, MI 3250 MicroOhm 10A or MI 3242 MicroOhm 2A



Designed for testing Safety of Portable Appliances, Equipment, Extension Leads and Cables with AUTO SEQUENCE® evaluating Safety on all PASS barrier parameters!

The MI 3309 DeltaGT/PAT or MI 3311 GammaGT/PAT testers are measuring in single **AUTO SEQUENCE**®.

KEY FEATURES:

- Portable Appliance Testing
- Earth Bonding and Continuity of Connections
- Extension leads, Cables and Cords testing
- RCD / PRCD protection
- Tracing Leakage and Insulation Faults

APPLICATIONS AND SOLUTIONS:

Earth Bonding and Continuity of Connections



With the earth bond test the contacts between accessible metal parts and PE conductor are firm. On the vehicles there is no path to the earth for fault currents. In case of error on PE bonding, insulation or phase on enclosure the Leakage would flow through the body instead through PE conductor to earth if enclosure would be touched.

Portable Appliance Testing



Insulation resistance between live conductors and all accessible metal parts (earthed and isolated) is checked. This test discloses faults caused by pollution, moisture, deterioration of insulation material etc.

Dangerous contact voltage on accessible isolated metal part is a potential risk of electrical shock if this part would be touched. In this test the sum of leakage currents caused by appliance insulation is checked. The differential leakage current, the PE conductor (direct) leakage current and the touch leakage current are measured. Even leakage currents in range of mA are dangerous.

The danger increases if the installation is not properly earthed. The MI 3309 DeltaGTPAT or MI 3311 GammaGT / PAT testers are measuring all necessary parameters in single AUTOSEQUENCE

and makes evaluation of Safety on Appliances.

RCD / PRCD protection for single or three phase systems



The purpose of this test is to ensure the proper operation of residual current devices (RCD) built into appliances / installations / extension leads and portable residual current devices (PRCD). Trip-out time measurement verifies the sensitivity of a (P)RCD at selected residual currents.