MEASURING INSTRUMENTS AND TESTERS

ELECTRICAL INSTALLATIONS SAFETY

POWER QUALITY ANALYSIS

HV INSULATION DIAGNOSTICS

APPLIANCES / MACHINES / SWITCHBOARD SAFETY

LAN CABLING CERTIFICATION

INDOOR ENVIRONMENT QUALITY

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Catalog 2009

METREL®

EXCELLENCE IN MEASUREMENT

• **Electrical Installations Safety**   • **Power Quality Analysis**   • **HV Insulation Diagnostics**
• **Appliances/Machines/Switchboard Safety**   • **LAN Cabling Certification**   • **Environmental Measurement Instruments**

METREL is one of the world leading manufacturers and suppliers of high quality electrical measurement and test instruments. Wealth and quality of living in all respects require constant care, understanding and innovative solutions for the following areas:

• electrical installations, machines and appliances safety control,
• electrical power quality,
• diagnostics of IT and telecommunication networks and
• measurement of indoor ennvironment quality.

METREL is in this segment on the very top of technological development, investing over 10% of total income in research and development projects annually.

At METREL we convey a broad spectrum of our knowledge and expertise to an open market and to the end users of our instruments who benefit from:

• application consulting for various technical and measurement projects,
• technical support for use of METREL instruments,
• calibration and repair of instruments and
• education and training in METREL Training Center.

METREL test and measuring instruments are developed and manufactured in accordance with well known Low Voltage and EMC Directives. Applied standards are IEC/EN 61010-1 for safety and EC/EN 61326 for EMC. CE mark on METREL products certifies that this equipment meets the requirements of both directives.

Compliance with RoHS and WEEE

Regarding the EU Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances (RoHS) Directives, effective after 1st July, 2006, METREL is engaged in a comprehensive, company-wide effort to make available products that meet the RoHS limits on the presence of the substances banned or restricted by RoHS.

Warranty and Repair Service

• Warranty period is 24 months.
• Economical repair service out of warranty.

Calibration

• **Standard calibration:** The instrument is calibrated to manufacturer's specifications using test equipment traceable international standards.
• **Accredited calibration:** This calibration is done under the guidelines of a national accrediting organization (Slovenian Accreditation) to the ISO/IEC 17025 standard and will be delivered with documentation according to the accrediting body.

Quality and traceability

• Supported through certification in accordance with standard ISO 9001:2000; ISO/IEC 17025.
Slovenian Accreditation (SA) is a signatory of the Multilateral Agreements (MLA) of the European Cooperation for Accreditation (EA) and International Laboratory Accreditation Cooperatiron (ILAC) for calibration and testing.
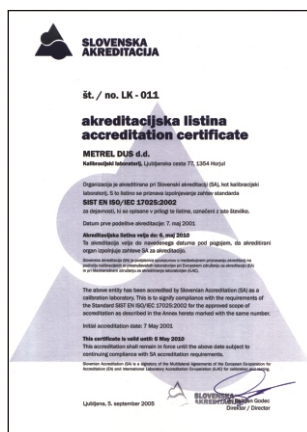
Metrel training center

• Cost-free, quick trainings for customers who purchase new Metrel instruments.
• Trainings and seminars on the following segments:
  - technical standards,
  - measuring and test methods,
  - use and application of Metrel instruments.

Technical support

• Hints and tips on using Metrel instruments in various applications and conditions.

METREL on all continents with over 150 distributors!

METREL®

The fifth generation of Metrel multifunction electrical installation testers brings know-how gained from the testing procedures into reality. This group of instruments is on the top of the range of installation safety testers with automated testing - *AUTO SEQUENCE* ® /patent pending/.

Metrel installation safety testers have been considered for a long time as a benchmark on the market and we are proud to continue with the development and supply of technically advanced and highly reliable instruments.

The range of Metrel electrical installation safety testers covers the needs of any installer, constructor or inspector. Each instrument represents a strong tool for troubleshooting, testing and diagnostic of safety on different types of installations in buildings. Instruments are designed for testing of all main parameters of safety on electrical installations.

Instruments are designed in accordance with international norms like IEC/EN 61557, IEC 60364, VDE 0100, BS 7671, 16th Edition, HD 384, CEI 64.8.

With their quality features, ease of use on one side and competitive prices on the other, Metrel installation testers are known as best buy on the market.

In addition to highly successful Eurotest 61557 and Instaltest 61557 range, a new line of multi-functional testers has recently been launched.
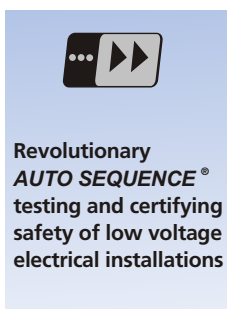
EurotestXA, EurotestAT, EurotestXE and EurotestEASI are members of the new generation of digital testers designed for the installer/contractor market.

Attractive and lightweight design accompanied with advanced technical performance will set a new standard on the installation testers market.

EurotestXA

Part No. **MI 3105**

Revolutionary *AUTO SEQUENCE* ® testing and certifying safety of low voltage electrical installations

6 Strong reasons to ACT now!

- **Save time and speed-up operator's work**
- **Make test operation simple and comprehensible**
- **Increase reliability**
- **Immediate certification**
- **Take the troubles out of report creation**
- **Safe usage**

The top of the range installation safety tester with automated testing based on patent pending *AUTO SEQUENCE* ®.

Because of the need to be efficient, fast and competitive but still reliable and concentrated on safety, all the technical content and innovations under *AUTO SEQUENCE* ®, focus on taking care of the testing procedure itself. If you are after a high speed, safe, and reliable least-fuss testing instrument, look no further.

Measuring functions: DC insulation resistance test, PE conductor continuity test, Line and Loop resistance test with built-in Fuse evaluation table, RCD test with Trip lock function, phase sequence in 3-phase systems, on-line voltage monitor, 2-wire and 3-wire Earth resistance test with built-in battery operated generator, Earth resistance test with Two-clamp method, Leakage Current test and test of Luminance with optional LUX meter probe.

Special feature: *AUTO SEQUENCE* ®
Enhanced patent pending test performance - one programmable procedure with several Single Tests in a sequence.

Additional features:
- Clearly visible information on big 320 x 240 dots matrix display with back light.
- Locator function enables tracing fuses, lines and faults. Precise inductive mode.

- Date and time, related to each saved result.
- Testing of permanently mounted Insulation Monitoring Devices on IT systems. With the ISFL (First Fault Leakage Current) check.
- On-line voltage monitor shows voltage levels for L-L, L-N and L-PE during the measurement.
- Fast, reliable and accurate Loop L-PE resistance measurement without RCD tripping.
- Built-in Fuse characteristics database for quick evaluation of measuring results at LINE/LOOP impedance testing.
- Field-proven Earth resistance measuring method which eliminates stray earth currents during the measurement.
- TN/TT/IT Earthing System support.
- Multi-functional schuko Plug commander for faster execution of a measuring sequence.
- Built-in QUERTY keypad for creating names in installation structure.
- Built-in memory based on professionally organized structure with up to 2000 locations.
- PC SW EuroLink PRO is a strong tool for visual inspection and test result reporting.
- PC SW EuroLink PRO Plus enables professional creation of report.
- Rechargeable battery pack with a charger included in a standard set.
- Dimensions (w x h x l): 230 x 103 x 115 mm.
- Mass (without batteries): 1.3 kg.

Standard Set	Part No. **MI 3105 ST**

- Instrument EurotestXA
- Soft carrying bag
- Soft carrying neck belt
- Test probes, 3 pcs (blue, black, green)
- Crocodile clips, 3 pcs (blue, black, green)
- Plug commander 1.5 m
- Test lead 3 x 1.5 m
- Power supply adapter + 6 NiMH AA batteries
- RS232/PS cable
- USB cable
- Instruction manual on CD
- Instruction manual short
- Calibration certificate
- Handbook "Measurements on electric installations in theory and practice" on CD
- PC SW EuroLink PRO

Euro Set	Part No. **MI 3105 EU**

- Standard Set
- Current clamp (A 1018, low range, leakage)
- PC SW EuroLink PRO Plus

METREL ®

EurotestAT

Revolutionary **AUTO SEQUENCE ®** testing and certifying safety of low voltage electrical

6 Strong reasons to ACT now!

• Save time and speed-up operator's work
• Make test operation simple and comprehensible
• Increase reliability
• Immediate certification
• Take the troubles out of report creation
• Safe usage

The first installation safety tester with automated testing based on patent pending AUTO SEQUENCE ®.

EurotestAT is an automated robust and lightweight electrical installation tester. Experts from the field, maintenance people, inspectors and specialists help us ascend and descend the slopes with design and efficiency. The designing concepts of practicality and easiness of use reflect in the new feature named AUTO SEQUENCE ®, which the EurotestAT is based on.

Measuring functions: DC insulation resistance, PE conductor continuity test, Line and Loop resistances with built-in Fuse evaluation table, RCD test with Trip lock function, phase sequence in 3-phase systems, on-line voltage monitor, 2-wire and 3-wire Earth resistance test with built-in battery operated generator.

Special feature: AUTO SEQUENCE ®
Enhanced patent pending test performance - one programmable procedure with several Single Tests in sequence.

Additional features:
• Clearly visible information on big 320 x 240 dots matrix display with backlight.
• Locator function enables tracing fuses, lines and faults. Precise inductive mode.

• Date and time, related to each saved result.
• Testing of permanently mounted Insulation Monitoring Devices on IT systems . With the ISFL (First Fault Leakage Current) check.
• On-line voltage monitor shows voltage levels for L-L, L-N and L-PE during the measurement.
• Fast, reliable and accurate Loop L-PE resistance measurement without RCD tripping.
• Built-in Fuse characteristics database for quick evaluation of measuring results at LINE/LOOP impedance testing.
• Field-proven Earth resistance measuring method which eliminates stray earth currents during the measurement.
• TN/TT/IT Earthing System support.
• Multi-functional schuko Plug commander for faster execution of a measuring sequence.
• Built-in memory based on professionally organized structure with up to 2000 locations.
• Built-in QUERTY keypad for creating names in installation structure.
• PC SW EuroLink PRO is a strong tool for visual inspection and test result reporting.
• PC SW EuroLink PRO Plus enables professional creation of report (optional).
• Rechargeable battery pack with a charger included in a standard set.
• Dimensions (w x h x l): 230 x 103 x 115 mm.
• Mass (without accessories): 1.3 kg.

Standard Set:
- Instrument EurotestAT
- Test probes, 3 pcs (blue, black, green)
- Crocodile clips, 3 pcs (blue, black, green)
- Plug commander 1.5 m
- Test lead 3 x 1.5 m
- Power supply adapter + 6 NiMH AA batteries
- PC SW EuroLink PRO
- RS232/PS cable
- USB cable
- Soft carrying bag
- Soft carrying neck belt
- Handbook "Measurements on electric installations in theory and practice" on CD
- Instruction manual on CD
- Instruction manual short
- Calibration certificate

EurotestXE

EurotestXE is a typical representative of a new line of Metrel installation safety testers. Key advantages like a lightweight design and small dimensions are completed with extensive measurement features. This combination makes EurotestXE a real working horse suitable for situations where performance and reliability are of major importance.

• **Measuring functions:** DC insulation resistance, PE conductor continuity test, Line and Loop resistances with built-in Fuse evaluation table, RCD test with Trip lock function, phase sequence in 3-phase systems, on-line voltage monitor, 3-wire Earth resistance

test with built-in battery operated generator, Leakage Current test and test of Luminance with optional LUX meter probe.

Additional features:
• Built-in memory for storing up to 500 measurements.
• PC SW EuroLink PRO is a strong tool for visual inspection and test result reporting.
• PC SW EuroLink PRO Plus enables professional creation of report (optional).
• Field proven Earth resistance measuring method which eliminates stray earth currents during the measurement.
• Fast and reliable Loop resistance measurement without RCD tripping.
• Built-in Fuse characteristics database for quick evaluation of measuring results at Z_{LINE} measurement.
• On-line voltage monitor shows voltage levels for L-L, L-N and L-PE during the measurement
• TN/TT/IT Multi System support.
• Multi-functional tip commander for faster execution of a measuring sequence.
• Rechargeable battery pack with a charger included in a standard set.
• Dimensions (w x h x l): 230 x 103 x 115 mm.
• Mass (without accessories): 1.3 kg.

Standard Set:
- Instrument EurotestXE
- Tip commander with two function key
- Schuko-plug test cable
- Test lead 3 x 1.5 m
- Earth test set (test lead 4 m + 2 x 20 m, 2 x test rods)
- Power supply adapter + 6 NiMH AA batteries
- PC SW EuroLink PRO
- Handbook "Measurements on electric installations in theory and practice"on CD
- Test probes, 3 pcs (blue, black, green)
- Crocodile clip, 3 pcs
- Soft carrying neck belt
- Soft carrying bag
- RS232 / PS cable and USB cable
- Instruction manual - short
- Instruction manual on CD
- Calibration certificate

METREL ®

EurotestEASI

Part No. **MI 3100**

• Measuring functions: DC insulation resistance, PE conductor continuity test, Line and Loop resistances with Fuse characteristics inside the instrument, RCD test with Trip lock function, phase sequence in 3-phase systems, on-line voltage monitor.

Additional features:
- Fast and reliable Loop resistance measurement without RCD tripping.
- Built-in Fuse characteristics database for quick evaluation of measuring results at Z_{LINE} measurement.
- On-line voltage monitor shows voltage levels for L-L, L-N and L-PE during the measurement.
- TN/TT/IT Multi System support
- Multi-functional tip commander for faster execution of a measuring sequence.

- Rechargeable battery pack with a charger is included in a standard set.
- Dimensions (w x h x l): 230 x 103 x 115 mm.
- Mass (without accessories): 1.3 kg.

Standard Set:
- Instrument EurotestEASI
- Tip commander with two function key
- Schuko-plug test lead
- Test lead 3 x 1.5 m
- Power supply adapter + 6 NiMH AA batteries
- Handbook "Measurements on electric installations in theory and practice" on CD
- Test probes, 3 pcs
- Crocodile clips, 3 pcs
- Soft carrying neck belt
- Soft carrying bag
- Instruction manual - short
- Instruction manual on CD
- Calibration certificate

EurotestEASI is the first member of a new line of Metrel installation safety testers. Lightweight design and small dimensions make it ideal for prolonged use over a working day.

Comparison table		EurotestXA	EurotestAT	EurotestXE	EurotestEASI
SINGLE FUNCTION TESTS	Part No.:	MI 3105	MI 3101	MI 3102	MI 3100
Voltage Monitor/ TRMS		✔/✔	✔/✔	✔ / –	✔ / –
PHASE SEQUENCE EN 61557-7		✔	✔	✔	✔
CONTINUITY EN 61557-4	Automatic polarity exchange, 200 mA	✔	✔	✔	✔
	Low current continuous 7 mA DC	✔	✔	✔	✔
	Resistance Test N-PE through shuko	✔	✔		
INSULATION - IEC/ EN 61557-2	50 / 100 / 250 / 500 / 1000 V	50 ... 1000 V	50 ... 1000 V	100 ... 1000 V	100 ... 1000 V
	Automatic test between L-N-PE pairs	✔	✔		
	Adjusting test time to object Capacitance	✔	✔		
	Medical sites - IT RMD test, ISFL	✔		✔	
LINE/LOOP EN 61557-3	Ipsc, U L-N-PE, freq	✔	✔	✔	✔
	Impedance L-N and L-PE	✔	✔	✔	✔
	Impedance L-L	✔	✔	✔	✔
	R and Xl calculations	✔	✔		
	High accuracy RCD TRIP LOCK Loop	✔	✔	✔	✔
	IT system line loop	✔	✔	✔	✔
	IT system first fault loop test	✔	✔		
	Built-in Fuse base characteristics	✔	✔	✔	✔
	PASS/FAIL evaluation of result	✔	✔	✔	✔
RCD EN 61557-6	RCD type	A, AC, B	A, AC	A, AC	A, AC
	RCD AUTOMATIC TEST	✔	✔	✔	✔
	Trip-out time t, Uc(IΔN)	✔	✔	✔	✔
	Trip-out current IΔ	✔	✔	✔	✔
EARTH EN 61557-5	Two wire earth resistance	✔	✔	✔	
	Three wire earth resistance	✔	✔	✔	
	High noise immunity	✔	✔	✔	
	Two clamps earth/loop resistance	✔			
	One clamp earth/loop resistance	✔			
CURRENT CLAMP TRMS	Clamp Leakage Current	✔		✔	
AUTO SEQUENCE®	Automatic test of insulation ALL L-N-PE	✔	✔		
	Automatic test of RCD	✔	✔	✔	✔
	AUTO SEQUENCE® on SwitchBoard	✔	✔		
	AUTO SEQUENCE® on Circuit	✔	✔		
	Automatic evaluation of complete safety	✔	✔		
	Preparing results for Automatic report	✔	✔		
	Smart commands, comments, icons, instructions, etc	✔	✔		
SENSOR	Lux	Optionally		Optionally	
OTHER	Line Tracer	Optionally	Optionally		
	Touch electrode	✔	✔	✔	✔
	Evaluation PASS/FAIL results	✔	✔	✔	✔
	Frequency span	15 - 500 Hz	15 - 500 Hz	45 - 65 Hz	45 - 65 Hz
	Voltage systems support	440 / 230 / 110 V	440 / 230 / 110 V	440 / 230 / 110 V	440 / 230 / 110 V
	Reduced low voltage system support	55 / 65 V	55 / 65 V	55 / 65 V	55 / 65 V
	Earthing system support	TN / TT / IT	TN / TT / IT	TN / TT / IT	TN / TT / IT
ON LINE WARNINGS	HELP menu	✔	✔	✔	✔
COMMUNICATION PORTS	RS232	✔	✔	✔	
	USB	✔	✔	✔	
ACCESSORIES	Plug commander	✔	✔		
	Tip commander 2 wire	Optionally	Optionally	✔	✔
	Tip commander 3 wire	Optionally	Optionally	Optionally	Optionally
	PC Software EuroLink PRO Plus	✔	Optionally	Optionally	Optionally
	PC Software EuroLink PRO	✔	✔	✔	
	Query keypad on screen	✔	✔		

METREL®

Eurotest 61557

Part No. **MI 2086 ST, MI 2086 EU**

Advanced, multi-functional digital measuring instrument for low voltage electrical installation safety testing in accordance with IEC / EN 61557.

- **Measuring functions:** DC insulation resistance with test voltages up to 1000 V, PE conductor continuity test, Loop and Line impedance also without RCD triggering, RCD test, varistor test, illumination, phase sequence in 3-phase systems, measurements on earthing and lightning systems with included 2-clamp method (without junctions disassembling).
- **Other features:** electrical power and consumption measurement, current and voltage harmonics measurement, phase angle, frequency, contact voltage measurements, LUX measurement, underwall installation tracing, fuses locating, clamp current measurement up to 200 A, leakage current measurement from 0,2 mA trms onwards, low resistance continuous measurements.
- Eurolink Software package compatible with MS Windows operation systems is a field proven tool for evaluation of test results on a personal computer.
- The EuroLink PRO Version enables fast and efficient creation of a complete test protocol including visual inspection report.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2,1 kg.
- Optional: 110 V version for reduced low voltage supply system.

Standard Set:
- Instrument Eurotest 61557
- Plug commander 1.5 m
- Test lead 3 x 1.5 m
- Measurement clamp - (A1018 low current, leakage - only for MI 2086 EU)
- Probe test lead 4 m (only for MI 2086 EU)
- Crocodile clip
- Test probe, 2 pcs (blue and black)
- RS232 cable
- PC EuroLink PRO (only for MI 2086 Euro Set)
- PC EuroLink LITE (only for MI 2086 Standard Set)
- Set of carrying belts
- Soft carrying bag
- Instruction manual
- Handbook "Measurements on electric installations in theory and practice"
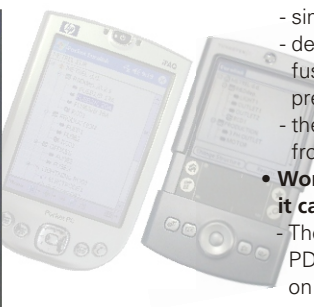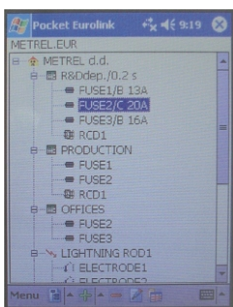- Calibration certificate

MI 2086 ST   **MI 2086 EU**

PALM Eurolink

Part No. **A 1141**

Pocket PC Eurolink

Part No. **A 1155**

- **New approach to better organization and faster field operation** - facilitate data transfer and simple entry of circuit names with stylus on a display.
- **All the work is to be carried out on the object where measurements take place.**
  - simple creation of report structure as well as entry of electrical installation scheme on-site.
  - defined structure with the electric installation scheme allows the entry of types and values of fuses and FI circuit breakers. Data on different installation elements and their characteristics are presented in tables on the PDA's display.
  - the PDA's programme automatically checks all the transferred results from instrument and assesses their values with regard to the limits.
- **Work becomes better organized and, what is most important, it can be entirely completed on site.**
  - The final step comprises transmitting the data structure from the PDA to PC, pressing the »Create Report« button and its printing on a printer.

Instaltest 61557

Part No. **MI 2087 ST**

Multifunction, digital measuring instrument for low voltage installation safety testing suitable for periodic inspections.

- Complete range of test functions in accordance with IEC / EN 61557:

DC insulation resistance measurement, PE conductor continuity, Loop and Line resistance, RCD test and phase sequence in 3-phase systems.
- **Additional features:** illumination measurement, varistor test, frequency, contact voltage, underwall installation tracing, fuse locating.
- Internal memory with a capability to store up to 1000 test results that can later be transferred to a personal computer.
- Software package InstalLink compatible with MS Windows operation systems allows download of test results from the instrument to a personal computer. Handy tool for creating test reports.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 1.8 kg.

Standard Set:
- Instrument Instaltest 61557
- Plug commander 1.5 m
- Universal test cable 3 x 1.5 m
- Crocodile clip
- Test probes, 3 pcs (blue and black)
- Handbook "Measurements on electric installations in theory and practice"
- RS232 cable
- PC SW InstalLink
- Set of carrying belts
- Soft carrying bag
- Instruction manual
- Calibration certificate

METREL®

Earth Insulation Tester

Part No. **MI 2088, MI 2088-20, MI 2088-50**

Multifunction, digital measuring instrument for testing of earthing and lightning protection systems, PE conductor continuity testing and DC insulation resistance measurement on low voltage electrical installations in accordance with IEC/EN 61557.

- Measurements on earthing and lightning protection systems include: standard 4-wire method, standard 4-wire method with current clamps and 2-clamp method without junctions disassembling.
- DC insulation resistance measurement with test voltages from 50 V up to 1000 V in 10 V steps. Measuring range up to 30 GΩ.

- Specific earth resistance (soil resistance).
- Other features: mains voltage and frequency measurement, clamp current measurement, varistor testing.
- Internal memory with a capability to store up to 1000 test results that can later be transferred to a personal computer.
- Software package EarthLink compatible with MS Windows operation systems allows download of test results from the instrument to a personal computer.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 1.7 kg.

Standard Set:
- Instrument Earth - Insulation Tester
- Test lead, 2 x 1.5 m
- Earth test Set - 20 m (MI 2088-20)
- Earth test Set - 50 m (MI 2088-50)
- Alligator clip
- Test probe, 2 pcs (red, black)
- RS232 cable
- PC SW EarthLink (for Windows 95/98)
- Soft carrying bag
- Instruction manual
- Handbook "Measurements on electric installations in theory and practice"
- Calibration certificate

Insulation Set	**MI 2088**	Earth test Set - 20 m	**MI 2088-20**	Earth test Set - 50 m	**MI 2088-50**

Installcheck

Part No. **MI 2150**

**Circuit Autotest
Patent pending!** Patent No. 200000308

Installcheck excels in simplicity of use which enables extraordinary time savings in a low voltage socket wiring test.
- All necessary measurements for electrical installation safety are included: DC insulation resistance, Continuity test, Line and Loop resistance, RCD test, wiring check and phase sequence.
- Pass/Fail visual and audio presentation of results.
- With only one touch on a TEST button a complete socket wiring test is performed in 5 seconds only.
- Dimensions (w x h x l): 100 x 50 x 200 mm.
- Mass (without accessories): 0.6 kg.

The basic installation checker for every electrician!

Standard Set:
- Instrument Installcheck
- Carrying belt
- Test lead, 1 m
- Safety test leads with fixed test probes, 1.5 m, 2 pcs
- Instruction Manual
- Quick Application Guide
- Calibration certificate

Eurocheck

Part No. **CS 2099**

Eurocheck enables simple field calibration of most frequently used functions when testing installations.

- Professional, multi-functional field calibrator intended for use with installation test instruments.
- Functioning and accuracy of all Metrel and most other manufacturer's installation test instruments can be verified with Eurocheck.

Features
- Insulation calibration with U_i up to 1000 V.
- Low Ω and continuity function calibration.
- Fault loop and trip-lock impedance calibration.
- Calibration of RCD trip-out time measurement.
- Line impedance calibration.
- Voltage and frequency calibration.
- Measurement leads verification.
- PE test terminal functional verification.
- Automatic mains polarity verification.

- Dimensions (w x h x l): 100 x 50 x 200 mm.
- Mass (without accessories): 0.6 kg.

Standard Set:
- Instrument Eurocheck
- Soft carrying bag
- Instruction manual

METREL®

Euro-Z 290 A adapter
Part No. **A 1143**

Standard Set:
- Euro-Z 290 A adapter
- Test cable 2-wire (2 m, 1.5 mm², 2 pcs)
- Test lead (black, 2 m, 1.5 mm², 1 pcs)
- Crocodile clips (black, 3 pcs)
- Crocodile clips (red, 2 pcs)
- Test probes (red, 2 pcs)
- RS232 cable
- CD-ROM
- Instruction manual
- Calibration certificate

High resolution and accuracy impedance measurement.
Test current up to 294 A, for testing impedance from 1 mΩ and Isc up to 400 kA. Euro-Z 290 A adapter is a professional portable test adapter. In combination with one of the instruments EurotestAT, EurotestXA or Eurotest 61557 it performs high precision line and high precision fault loop impedance measurements.

ρ adapter
Part No. **A 1199**

Standard Set:
- ρ adapter
- Carrying bag
- 2 earth spikes
- Extension cable red 15 m
- Cable for connection to Eurotest
- Cable for connection to current spikes
- Instruction manual
- Calibration certificate

Optional adapter intended to perform soil resistivity measurement with EurotestAT or EurotestXA instruments.
ρ adapter standard set is designed to be used together with instruments EurotestAT MI 3101 or EurotestXA MI 3105 and the set of extension leads from 3-wire Earth set. The fourth wire is added to ρ adapter standard set.

Comparison table		Eurotest	Instaltest	Earth-Insulation Tester	Installcheck
	Part No.:	MI 2086 EU MI 2086 ST	MI 2087	MI 2088 MI 2088-20 MI 2088-50	MI 2150
INSULATION	Insulation Resistance Test voltage 50 V/100 V/250 V/1000 V DC	✔	✔	✔	✔ 500 V
CONTINUITY	Continuity of PE Conductors Automatic polarity exchange, Test current >200 mA	✔	✔	✔	
	Low Resistance Continuous measurement No polarity exchange, Low test current	✔	✔	✔	✔
LINE, LOOP	Line Impedance Z_{LINE} / I_{PCS}; L-L, L-N	✔			
	Loop Impedance Z_{LOOP} / I_{PCS}; L-PE	✔			
	Contact voltage at I_{PCS}; **Auxililary test rod method**	✔			
	Line Resistance R_{LINE} / I_{PCS}; L-N		✔		✔
	Loop Resistance R_{LOOP} / I_{PCS}; L-PE		✔		✔
	Loop Resistance L-PE; Without tripping RCD, Test current 15 mA				
RCD (FI)	Contact voltage; (Without tripping the RCD)	✔	✔		
	Earth-Loop resistance; (Without tripping the RCD)	✔	✔		✔
	Earth Resistance Test current $I_{\Delta N}$/2 (Without tripping the RCD), **Auxililary test rod method**	✔			
	RCD Trip Out Time; Test current $0.5I_{\Delta N}$, $I_{\Delta N}$, $5I_{\Delta N}$	✔	✔		✔ $I_{\Delta N}$
	RCD Trip Out Current (Ramp test)	✔	✔		
	RCD Automatic Test	✔	✔		
EARTH	Total Earth Resistance; Test method with four /three / two test rods	✔/✔/✔		✔/✔/✔	
	Particular Earth Resistance; Test method with two test rods and one clamp	✔		✔	
	Earth Resistance; Test method with two clamps	✔		✔	
	Specific Earth resistance; Test method with four test leads / four test rods	✔		✔	
POWER, HARMONICS	Voltage and Current Harmonics	✔			
	Power (W, VA, Var, cos φ)	✔			
	Energy (Wh)	✔			
SENSOR	Illumination	✔	✔		
OTHER	Varistor Breakdown Voltage Ramp test voltage 50 up to 1000 V DC; 500 V/s Threshold current 1mA	✔	✔	✔	
	Mains Voltage	✔	✔	✔	
	Voltage Logging		✔		
	Current 0,2 mA up to 200 A; Clamp measurement - True RMS	✔		✔	
	Frequency	✔	✔		
	PE Terminal Test (presence of phase voltage)	✔			✔
	Analysis of mains Outlet (Wiring)				✔
	Phase Rotation	✔	✔		✔
	Installation Tracing (Faults, Fuses, Wires)	✔	✔		
ACCESSORIES	Plug Commander (Start, Stop, Store)	✔	✔		
	Tip Commander (Start, Stop, Store)	✔	✔		
	PC Software	PRO	LITE	LITE	
STANDARD	IEC / EN 61557	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 6, 7	1, 2, 4, 5	7

METREL®

SMARTEC® Family

Single- function and multi-function measuring instruments

Singlefunction measuring instruments suitable for verification, maintenance and periodic testing of electrical installations (insulation, continuity, fuse size, RCD) and for testing earthing resistance and soil resistivity.
- Instruments for low voltage installation testing in accordance with IEC / EN 61557.
- Simplicity of use, low weight and robust design are key attributes of these instruments.
- Internal memory for saving of measuring results with a downloading option.
- Optional PC Software package EuroLink PRO Plus/EuroLink PRO for measuring results evaluation and report creation.
- Simultaneous use of several different Smartec instruments on one location can essentially reduce needed time for execution of all necessary measurements.

SMARTEC Insulation / Continuity

Part No. **MI 3121**

For verification, maintenance and periodic testing of electrical installations; PE conductors, main and supplementary PE connections, troubleshooting, insulation resistance, etc.
- Large LCD display with bargraph and backlight.
- High measuring range of up to 30 GΩ with test voltage from 50 V to 1000 V.
- Fast and reliable continuity tests with automatic polarity reversal.
- Voltage and frequency measurements.
- Preprogrammed limitsPASS/FAIL evaluation of result.
- Bright GREEN/RED indicators provides visual evaluation of results.
- Suited for testing on CAT IV installations.
- Magnetic holder allowes hands-free operation.
- PC SW package (optional).
- USB and RS232 ports.

Standard Set:
- Instrument SMARTEC Insulation / Continuity
- Soft hand strap
- Test lead 3 x 1.5 m
- Test probes, 2 pcs (black, red)
- Crocodile clips, 2 pcs (black, red)
- Power supply adapter + 6 NiMH AA rechargeable batteries
- Instruction manual on CD
- Short instruction manual
- Calibration certificate
- Handbook "Guide for testing and verification of low voltage installations" on CD

SMARTEC Z Line-Loop / RCD

Part No. **MI 3122**

For protective measures in LV-installations, troubleshooting on live installations. Suitable for testing on CAT IV installations.
- Supports all live tests on LV electrical circuits.
- Built-in fuse characteristics for quick. evaluation of measuring results.
- RCD tests (trip out time, contact voltage, ramp test, Autotest).
- Testing on 1- and 3-phase systems.
- Phase sequence test.
- Metal test button for touch voltage detection.
- High accuracy non tripping loop test for RCD protected circuits.
- PASS/FAIL evaluation of result.
- Bright GREEN/RED indicators provides visual evaluation of results.
- PC SW package (optional).
- Magnetic holder allowes hands-free operation.

Standard Set:
- Instrument SMARTEC Z Line-Loop / RCD
- Soft hand strap
- Schuko test cable
- Test lead 3 x 1.5 m Test probes, 3 pcs
- Crocodile clips, 3 pcs (blue, black, green)
- Power supply adapter + 6 NiMH AA rechargeable batteries
- Instruction manual on CD
- Short instruction manual
- Calibration certificate
- Handbook "Guide for testing and verification of low voltage installations" on CD

SMARTEC Earth / Clamp

Part No. **MI 3123**

For testing earthing resistance, main earthing of objects, resistance of individual earthing rods in large systems, lightning systems, determination of soil resistivity, designing of earthing systems.
- Supports all types of earthing resistance measurements.
- Leakage current tests with current clamps.
- Load current tests with current clamps.
- High accuracy, very high immunity against external noise.
- Preprogrammed limitsPASS/FAIL evaluation of result Bright GREEN/RED indicators provides visual evaluation of results.
- Suited for testing on CAT IV installations.
- Magnetic holder enables hands-free operation.
- PC SW package (optional).
- USB and RS232 ports.

Standard Set:
- Instrument SMARTEC Earth / Clamp
- Soft hand strap
- Power supply adapter + 6 NiMH rechargeable AA batteries
- Earth test lead 4.5 m (blue)
- Earth test lead 4.5 m (red)
- Earth test lead 20 m (green)
- Earth test lead 20 m (black)
- Earth test rod, 4 pcs
- Instruction manual on CD
- Short instruction manual
- Calibration certificate
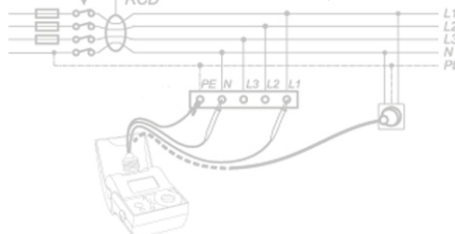- Handbook "Guide for testing and verification of low voltage installations" on CD

METREL®

SMARTEC RCD/Loop/Line

Digital measuring instrument for RCD testing with Loop and Line resistance measurement also without tripping the RCD.

- Automatic prospective short circuit current calculation (Ipsc).
- Dimensions (w x h x l): 156 x 100 x 190 mm.
- Mass (without accessories): 1 kg.

Standard Set:
- Instrument SMARTEC RCD/Loop/Line
- Mains measuring cable, 1.5 m
- Universal test cable, 3 x 1.5 m
- Crocodile clip (black), 2 pcs
- Test probe (black)
- Test probe (blue)
- Instruction manual
- Calibration certificate

SMARTEC Insulation/Continuity

Digital measuring instrument for DC insulation resistance measurements and PE conductor continuity testing.

- Test voltages for DC insulation measurements from 50 V to 1000 V. Measuring range up to 20 GΩ.
- Automatic test leads compensation up to 5 Ω.
- Automatic discharge of the equipment under test after completion of the test.
- Dimensions (w x h x l): 156 x 100 x 190 mm.
- Mass (without accessories): 1kg.

Standard Set:
- Instrument SMARTEC Insulation/Continuity
- Test lead 2 x 1.5 m
- Test probe, 2 pcs (black)
- Crocodile clip (black)
- Instruction manual
- Calibration certificate

SMARTEC Earth/Clamp

Digital measuring instrument for measurement on earthing and lightning protection systems.

- Measurements on earthing and lightning protection systems include: standard 4-wire method, standard 4-wire method with current clamps and 2-clamp method without junctions disassembling.
- Specific earth resistance (soil resistance) measurement with 4-wire method up to 30 m deep.
- True RMS current measurement.
- Dimensions (w x h x l): 156 x 100 x 190 mm.
- Mass (without accessories): 1 kg.

Standard Set:
- Instrument SMARTEC Earth/Clamp
- Test lead 4.5 m, (black)
- Test lead 4.5 m, (green)
- Test lead 15 m, (red)
- Test lead 20 m, (blue)
- Earth test rod, 4 pcs
- Instruction manual
- Calibration certificate

Earth 2/3

Earth Resistance Tester

Earth resistance measurement
- 2-pole and 3-pole measurements.
- Reliable measurement results also in presence of stray currents.
- Outstanding repeatability of measurement results also in case of high test probe resistance at various earthing structures (e.g. asphalt, sand, stone).
- Warnings for out of limits results and incorrect test conditions.
- Auto power-off.
- Dimensions (w x h x d): 280 x 70 x 80 mm.
- Mass: 410 g.

Standard Set:
- Instrument Earth 2/3
- Carrying strap
- Test lead 4.5 m, (black)
- Test lead 15 m, (red)
- Test lead 20 m, (blue)
- Earth test rod, 2 pcs
- Instruction manual
- Calibration certificate

METREL®

GigaOhm 1kV

Insulation/Continuity Tester

Part No. **MI 3103**

- Extremely wide range of measured insulation resistance (up to 2 GΩ) enables periodic analysis of changes in insulation material.
- Automatic discharge of the equipment under test after completion of the test.

Continuity
- 200 mA measurement with automatic polarity change.
- Automatic compensation of test leads (up to 5 Ω) eliminates lead resistance.
- Continuous low current resistance measurement for testing of electrical motors, inductive windings, transformers, etc.

RMS Voltage and Frequency
- Warnings are given if hazardous voltages are detected.
- Auto power-off.

- Dimensions (w x h x d): 280 x 70 x 80 mm.
- Mass: 410 g.

Standard set:
- Instrument GigaOhm 1kV
- Test lead, 1.5 m black
- Test lead, 1.5 m red
- Crocodile cilip, black
- Test probes, black, red
- Carrying strap
- Instruction manual
- Calibration certificate

Insulation Resistance
- Three different test voltages (250, 500 and 1000 V) provide the tests required for all installations encountered.

Comparison table		Insulation / Continuity	Z Line–Loop / RCD	Earth / Clamp	RCD Loop/Line	Insulation/ Continuity	Earth/ Clamp	GigaOhm	Earth 2/3
	Part No.:	**MI 3121**	**MI 3122**	**MI 3123**	**MI 2120**	**MI 2123**	**MI 2124**	**MI 3103**	**MI 2126**
INSULATION	**Insulation Resistance** Test voltage 50 V, 100 V / 250 V, 500 V, 1000 V DC	✔ / ✔				✔ / ✔		– / ✔	
CONTINUITY	**Continuity of PE Conductors** Automatic polarity exchange, Test current >200 mA	✔				✔		✔	
	Low Resistance Continuous measurement No polarity exchange, Low test current	✔				✔		✔	
LINE, LOOP	**Line Impedance** Z_{LINE} / I_{PCS}; L-L, L-N		✔						
	Loop Impedance Z_{LOOP} / I_{PCS}; L-PE		✔						
	Line Resistance R_{LINE} / I_{PSC}; L-N		✔		✔				
	Loop Resistance R_{LOOP} / I_{PSC}; L-PE		✔		✔				
	Loop Resistance L-PE; Without tripping RCD		✔						
	Built in FUSE base charactaristics		✔						
RCD (FI)	**Contact voltage**; (Without tripping the RCD)		✔		✔				
	Earth-Loop resistance; (Without tripping the RCD)		✔		✔				
	RCD Trip Out Time; Test current 0.5IΔN, IΔN, 5IΔN		✔		✔				
	RCD Trip Out Current (Ramp test)		✔		✔				
EARTH	**Earth Resistance**; 2 / 3 / 4 pole connection			✔/✔/✔			✔/✔/✔		✔/✔/–
	Particular Earth Resistance; two test rods and one clamp			✔			✔		
	Earth Resistance; Test method with two clamps			✔			✔		
	Specific Earth resistance; four test leads / four test rods			✔			✔		
OTHER	**Mains Voltage**	✔	✔		✔	✔		✔	
	PE Terminal Test		✔						
	Phase Rotation		✔						
	Evaluation PASS/FAIL	✔	✔	✔					
	Bright GREEN /RED led	✔	✔	✔					
	Magnetic holder	✔	✔	✔					
	Frequency measurement		✔						
	Analysis of mains Outlet (Wiring)		✔						
ACCESSORIES	**Tip Commander** (Start, Stop, Store)	Optional	Optional						
	PC Software EuroLink PRO Plus	Optional	Optional	Optional					
	PC Software EuroLink PRO	Optional	Optional	Optional					
	PC Software SmartLink				✔	✔	✔		
STANDARD	**IEC / EN 61557** - part:	1, 2, 4	1, 3, 6	1, 5	1, 3, 6	1, 2, 4	1, 5	1, 2, 4	1, 5

METREL®

Line Tracer

Field proven instrument for under-wall low voltage installation tracing, fuse finding, short-circuit spot determination and metal installation tracing.

- Can be used on energized or voltage-free systems.
- Tips and detailed descriptions of connection schemes for various combinations from everyday practice.
- Dimensions (w x h x l):
  - transmitter:100 x 50 x 200 mm,
  - receiver: 45 x 45 x 210 mm.
- Mass: - transmitter: 0.3 kg,
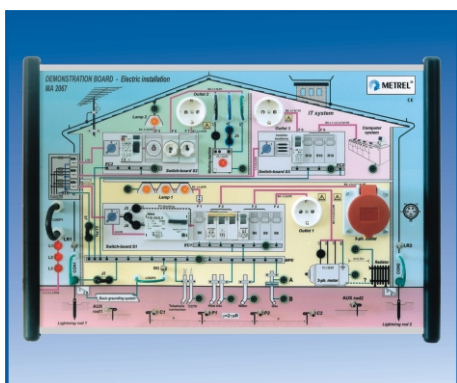 - receiver: 0.15 kg.

Accurate fuse locating

Standard Set:
- Transmitter T10K
- Receiver R10K
- Test lead, 1.5 m for T10K, with built-in resistor
- Special selective probe
- Test lead, 1.5 m for T10K, 2 pcs
- Test probes, 2 pcs (black)
- Crocodile clips, 2 pcs
- Small soft carrying bag
- Instruction manual

Demonstration Board

Excellent tool for training and education centers, schools and laboratories.

Complete representation of a real low voltage installation in industrial and residential areas. The board includes all typical elements found in real systems: sockets, electrical loads, lightning and earthing systems for TT, TN and IT types of installations.

- 65 different measurements according to IEC/EN61557 are supported.
- Fault situation simulation switches can generate 19 errors or combination of these.

- Detailed instruction manual with profound explanation of all typical measurements.
- Dimensions (w x h x l):
  - board: 680 x 175 x 450 mm,
  - board support: 700 x 400 x 320 mm.
- Mass: - board: 12.5 kg.

Standard Set:
- Demonstration Board MA 2067
- Jumper, 4 pcs
- Demonstration board support (for vertical use)
- Single phase interface cable (code no. 20 691 648)
- Instruction manual

Demonstration Board

The TN-C(S) or TT type of earthing system on electrical installation with or without RCD can be simulated where the loads can be switched on or off. This board is to be used for presentation of complete initial and periodic testing of safety on any electrical installation. The difference between the existing way of testing and testing according new patent pending revolutionized *AUTO SEQUENCE* ® solution can be expressed.

- **This board is to be used preferably by sales personnel when demonstrating operation of electrical installation test equipment.**
- Various *AUTO SEQUENCE* ® test procedures supported for demonstration of testing safety on Switchboard and on one phase / three
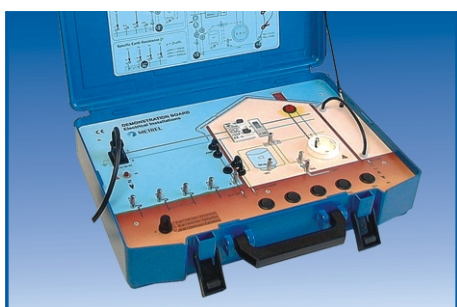
phase Outlets by new EurotestXA and EurotestAT.
- Different test instruments can be presented, using all standardized methods.
- Possibility of connection to real three phase or only to single phase system.
- Electronically protected against dangerous contact voltage.
- Dimensions (w x h x l): 490 x 140 x 460 mm.
- Mass: 5 kg.

Standard Set:
- Demonstration Board
- Jumper
- Special probes, 3 pcs
- Mains cable
- Three phase to One phase adapter
- Instruction manual

Demonstration board MI 3099 represents detailed installation structure with important elements on Switchboard and on Circuit side, supporting one and three phase system.

Demonstration Board

Simulation of common electrical installation usually met in an individual house or apartment. This board is to be used preferably by sales personnel when demonstrating operation of electrical installation test equipment.

- Various test methods supported by different test instruments can be presented.
- Acceptable or faulty parameters can be preset by five »fault« switches.
- Some real elements of electrical installation are placed on the front panel like RCD

protection device, ON/OFF switch with lamp, mains test outlet and connection terminals.
- Dimensions (w x h x l): 450 x 110 x 330 mm.
- Mass: 3.45 kg.

Standard Set:
- Demonstration board
- Jumper, 2 pcs
- Mains cable
- Instruction manual

METREL ®

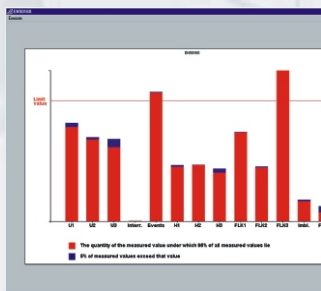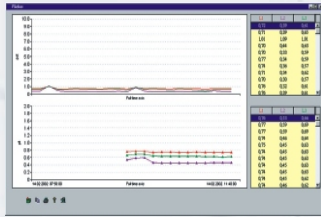## Complete range of digital power quality measuring instruments for 1- and 3-phase electric supply systems.

- Metrel power quality analysers are proven tools for expert designers of filtering systems, power correction equipment, over voltage protection and UPS systems.
- Metrel power quality analyzers support capturing of different states and events in electric networks like voltage sags and swells, in-rush currents, symmetry, transients, flickers, etc.
- Automatic EN 50160 evaluation test report, including flickers.
- Measurements and recording of current, voltage, power, energy, power factor, power character, anomalies, THD, harmonic spectrum analysis with harmonics direction.
- Scope function.
- Modem communication support for remote control of the instrument.
- Windows compatible PowerLink PC Software for profound analysis of recorded data, management of results and report generation. Export to MS Word and Excel is supported.
- Wide selection of standard sets and optional accessories.

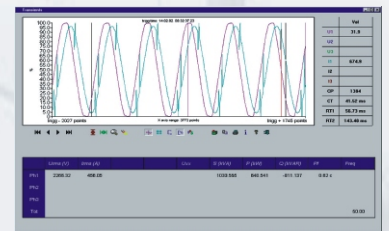**Optimize electricity consumption with Metrel power quality analyzers**

Typical applications of individual instruments

FLICKER DIAGRAMS

STATISTICS REPORTS

Power quality assessment according to EN 50160 and flicker measurement performed with **MI 2292 Power Quality Analyser Plus.**

Different pre-set loggers within **MI 2392 PowerQ** *Plus* allows quick, on-site power quality assessment without the need to download recorded data on a PC. Examples show phase diagram which helps when connecting the instrument on power supply network and U, I, f logger which is a useful feature for phase conditions evaluation.

Transients capturing with **MI 2292 Power Quality Analyzer** . Transients can appear due to atmosphere discharges, switching maneuvers or capacitor banks switching. Records can be effectively used for over voltage protection selection.
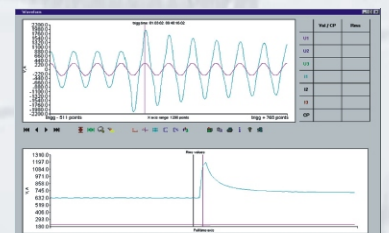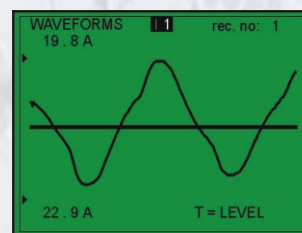
Waveform analysis performed with **MI 2292 Power Quality Analyzer Plus**. Useful feature for determining harmonics direction, UPS performance evaluation or motor start-ups analysis.

Periodic measurement of basic power quality parameters (U, I, P, Q, S, PF, etc.) with harmonics analysis performed with **MI 2092 Power Harmonics Analyser**.

METREL®

Power Quality Analyser Plus

Part No. **MI 2292, MI 2292F**

Metrel´s top of the range three phase, multi-function power quality analyser with a complete selection of test functions and diagnostic tools for wide range of applications.
- Automatic EN 50160 power quality assessment test.
- Flicker measurement in accordance with EN 50160.
- Modem communication support for remote control of the instrument.

- Measurements according to IEC / EN 61000-4-30.
- Capturing of short-lasting events like transients, in-rush currents, sags and swells interruptions and flickers.
- Harmonics direction determination.
- Optional: 110 V version.
- Optional: remote instrument access.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2 kg.

Standard Set:	MI 2292
- Instrument Power Quality Analyser Plus	
- Current clamp 1000 A/1 V, 3 pcs	
- Test probes, 3 pcs	
- Crocodile clips, 4 pcs	
- Voltage measurement cables, 4 pcs	
- Mains cable	
- PowerLink PC SW package with RS232 cable	
- Power supply adapter	
- Rechargeable batteries, 4 pcs	
- Soft carrying bag	
- Small soft carrying bag for current clamps	

- User manual
- Handbook "Modern Power Quality Measurement Techniques" on CD
- Calibration certificate

Standard Set:	MI 2292F
- Similar content as MI 2292: Current clamp 1000 A/1 V, 3 pcs replaced by flexible current clamps 3000/300/30 A/1 V, 3 pcs	

Power Harmonics Analyser

Part No. **MI 2092, MI 2092F**

Three phase, multifunction power quality analyser suitable for performing all the most frequent measurements and diagnostics in different electrical systems.
- Optional remote modem communication support.
- Optional: 110 V version.

- Long-term recording of current, voltage, harmonics up to 63rd component with THD up to 3 weeks.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2 kg.

Standard Set:	MI 2092
- Instrument Power Harmonics Analyser	
- Current clamp 1000 A/1 V, 3 pcs	
- Test probes, 3 pcs	
- Crocodile clips, 4 pcs	
- Voltage measurement cables, 4 pcs	
- Mains cable	
- PowerLink PC SW package with RS232 cable	
- Rechargeable batteries, 4 pcs	
- Soft carrying bag	
- Small soft carrying bag for current clamps	
- User manual	
- Handbook "Modern Power Quality Measurement Techniques" on CD	
- Calibration certificate	

Standard Set:	MI 2092F
- Similar content as MI 2092: Current clamp 1000 A/1 V, 3 pcs replaced by flexible current clamps 3000/300/30 A/1 V, 3 pcs	

Power Simulator Set

Part No. **MI 2191**

One phase, multi-purpose power simulator for simulating typical situations in low voltage power supply systems.
- Excellent tool for training and demonstration purposes.

- Simulation of transients, inrush currents, flickers, harmonics, power supply outages, etc.
- Load character adjustment, adjustable current and voltage level with a simulation of 22 different faulty conditions.
- Optional: 110 V version.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2.4 kg.

Standard Set:	
- Instrument Power Simulator	
- Short form quick guide plastic cards	
- Mains cable	
- Current measuring cable	
- Instruction manual	

- "Modern Power Quality measurement techniques" on CD
- Calibration certificate

METREL®

PowerQ^{Plus}, PowerQ

PowerQ^{Plus} is a genuine, portable 3-phase power quality analyser which favourably competes with higher priced instruments and can be easily implemented in a variety of different situations.

- PowerQ^{Plus} is due to its small dimensions and ease of use ideally suited for routine or complex power quality assessment in heavy duty industrial environments.
- Phase diagram, inrush currents, voltage events.
- Automatic EN 50160 power quality assessment.

- Pre-set logging screens allow on-site evaluation of all major power quality parameters (U, I, P, PF, cos φ, THD, individual harmonic components, phase shift, etc.
- Harmonics analysis up to 50th component.
- Voltage unbalance calculation for 3-phase systems.
- Windows compatible PowerQ Link software package expands the versatility of PowerQ^{Plus} and allows transfer of stored data to a computer.
- Dimensions (w x h x l): 220 x 115 x 90 mm.
- Mass (without accessories): 0.65 kg.

PowerQ

- Simplified version of PowerQ^{Plus} with all basic functions and without EN 50160 assessment.
- Compatible user interface, manipulation and software with PowerQ^{Plus}.

Standard Set:	MI 2392F, MI 2492F
- Similar content as MI 2392, MI 2492: Current clamp 1000 A/1 V, 3 pcs replaced by flexible current clamps 3000/300/30 A/1 V, 3 pcs	

Standard Set:	MI 2392, MI 2492
- Instrument PowerQ^{Plus} or PowerQ	
- Current clamp 1000 A/ 1 V, 3pcs	
- Test probes, 3 pcs	
- Crocodile clips, 4 pcs	
- Voltage measurement cables, 4 pcs	
- PC SW Package PowerQ Link on CD with RS232 cable	
- Power supply adapter	
- Rechargeable batteries, 6 pcs	
- Soft carrying bag	
- Instruction manual	
- Calibration certificate	

VoltScanner

High performance, digital, one phase voltage recorder.

- Pre-set voltage limits for power quality assessment in accordance with EN 50160.
- Recording of power supply outages and transient overvoltages.
- Quick voltage quality assessment for unskilled users.
- Windows compatible evaluation software package ScanLink.
- Optional: 110 V version.
- Dimensions (w x h x l): 100 x 50 x 200 mm.
- Mass (without accessories): 0.6 kg.

Standard Set:
- Instrument VoltScanner
- Mains measuring cable, 1.5 m
- Battery-rechargeable NiMH 1.2 V, 4 pcs
- Windows Software "ScanLink"
- RS232 cable
- Instruction manual
- Calibration certificate

Power Monitor

Power Meter is a built-in panel meter for one or three phase power measurements.

- TRMS measurement of current and voltage.
- Harmonics up to 31st component.
- Power and crest factor measurement.

- Power and energy measurement in all four quadrants (load, generator, with either inductive or capacitive character).
- Active and reactive power.
- Internal memory module.
- RS-485 and MODBUS communication ports.
- Applied standards: EN 61010-1, EN 61326.

Target applications:
- General power quality monitoring.
- Electric consumption supervision for cost saving purposes.
- Power peak control.
- Industrial processes' energy efficiency control.

Standard Set:
- Instrument Power Monitor
- Instruction manual
- Calibration certificate

METREL®

Comparison table	Power Quality Analyser Plus	Power Harmonics Analyser	PowerQ Plus	PowerQ	VoltScanner	Power Monitor
Part No.:	MI 2292	MI 2092	MI 2392	MI 2492	MI 2130	MI 4100
Power Quality Testing						
RMS Voltages, Currents (average, min., max.)	✔	✔	✔	✔	✔ (voltage only)	✔ (min, max only)
Harmonics Analysis THD	✔	✔	✔	Optional		✔
Power Active, Reactive, Apparent Cos φ Character, sign	✔	✔	✔	✔		✔
Voltage Events (dips, sags, interruptions)	✔	✔	✔		✔	
Logger (U, I, P, Q, S)	✔	✔	✔	Optional	✔	✔ (P, Q, S, only)
Periodic Analysis	✔	✔			✔	
Statistical Analysis	✔	✔	✔		✔	
Anomalies (Events) Analysis	✔	✔	✔		✔	
Neutral current (calculated)	✔	✔		✔		
On line monitoring						
Meter mode - tabelaric results	✔	✔	✔	✔		
Scope mode - oscilloscope	✔	✔	✔	✔		
Spectrum Analysis mode	✔	✔		Optional		✔ (Via modbus only)
EN 50160 compliant testing						
Fast Set Up - Auto mode	✔		✔		✔	
Voltage	✔	✔	✔		✔	
THD & Harmonics	✔	✔	✔			
Dips, Sags, Interruptions	✔	✔	✔		✔	
Flicker	✔					
Frequency	✔	✔	✔		✔	
Interharmonics / Signaling	✔					
Unbalance	✔		✔			
EN 50160 Test Report	✔		✔			
Special tools						
Fast logging mode	✔ (166 minutes)					
Waveform mode	✔ (7812 periods)					
Transient mode	✔ (1000 periods)				✔	
Energy						
Total & Subtotal counters	✔	✔		✔		✔
Other						
PC Software	✔	✔	✔	Optional		
Modem entrance key	✔	Optional				

METREL®

HV insulation testing with advanced, field proven instruments.
- Latest advancements in development of high voltage insulation materials lead to use of modern testing principles.
- Technical demands require high performance measuring instruments capable of measuring polarization index (PI), dielectric absorption ratio (DAR), dielectric discharge (DD), time programmable step voltage test, insulation system capacitance, etc.
- Traditional, analogue measuring instruments still have their place for less demanding applications.
- Ease of use, low EMI susceptibility, automatic discharge of a load after completed measurement are just some of many outstanding features that distinguish Metrel HV testers from other similar products on the market.

TeraOhm 10 kV

Part No.: **MI 3200**

measurements of rotating machines, transformers, cables, generators, surge arrestors and measuring transducers.
- Insulation resistance measuring range up to 10TΩ.
- Diagnostics tools PI, DAR and DD for profound insulation quality assessment.
- Step voltage insulation test provides automated insulation resistance measurement at five equally spaced test voltages.
- Test voltage up 10 kV is adjustable in 25 V steps.
- Maximum charging current is limited to 5 mA.
- Automatic discharge of capacitive loads after completed measurement.
- Digital and bar graph results with date and time stamp.
- Optional MS Windows compatible TeraLink PC Software.
- RS232 and USB communication ports.
- High quality accessories with shielded test leads.
- CAT IV/600 V over-voltage category.
- Mains and rechargeable battery power supply.

TeraOhm 10kV is a professional high voltage insulation tester with added diagnostics tools. It is typically used for insulation

- Dimensions: 340 x 260 x 160 mm.
- Mass (without accessories): 5.5 kg.

Standard Set:
- Instrument TeraOhm 10 kV
- 10 kV shielded test lead with tip, 2 m
- 10 kV shielded test lead red, black, 2 m
- 10 kV crocodile red, black
- Test lead (green, with crocodile clip), 2 m
- 6 X 1.2 NiHM batteries
- Instruction manual on CD
- Handbook "Modern insulation testing" on CD
- Mains cable
- Instruction manual
- Calibration certificate

TeraOhm 5 kV Plus

Part No.: **MI 3201**

combined with a possibility to perform a step voltage test which makes the instrument suitable for the most demanding customers and applications.
- Diagnostic tools PI, DAR and DD for detailed insulation system diagnostics.
- Step voltage test executes insulation measurement at five equally spaced test voltages.
- R(t) graph graphically presents a response of the insulation material on the applied test voltage.
- High charging capacity. With a maximum test current of 5 mA test loads up to 50 µF can be quickly charged.
- High EM immunity. With built-in noise filters tester can be used in environments with high level of EM interferences like open HV switchyards.
- Optional MS Windows compatible TeraLink PC Software.
- RS232 and USB communication ports.
- CAT IV/600 V for industrial applications.

The new TeraOhm 5 kV Plus supports automated calculation of PI, DD and DAR,

- Dimensions: 310 x 130 x 250 mm.
- Mass (without accessories): 3.0 kg.

Standard Set:
- Instrument TeraOhm 5 kV Plus
- Mains cable
- 10 kV shielded test lead set, 2 m (black, red)
- 10 kV crocodile set (black, red)
- Test lead with crocodile clip, 2 m (green)
- 6 x 1.2 V NiMH batteries, C type
- Handbook "Guide to modern insulation testing" on CD
- Instruction manual
- Calibration certificate

GigaOhm 5 kV

Part No.: **MI 3202**

GigaOhm 5 kV is a high quality insulation and voltage tester with excellent price-performance ratio. Five test voltages up to 5 kV and 1 TΩ resistance measuring range cover most of the industrial and power distribution applications.
- Quick adjustment with five pre-set test voltages (250 V, 500 V, 1000 V, 2500 V and 5000 V).
- Fast charging – 5 mA current source for quick charging of capacitive loads.
- CAT IV/600 V for industrial applications.
- Shieleded test leads included in a standard set for accurate measurements.
- Large LCD with backlit.
- Dimensions: 310 x 130 x 250 mm.
- Mass (without accessories): 3.0 kg.

Standard Set:
- Instrument GigaOhm 5 kV
- Mains cable
- 10 kV shielded test lead set, 2 m (black, red)
- 10 kV crocodile set (black, red)
- Test lead with crocodile clip, 2 m (green)
- 6 x 1.2 V NiMH batteries, C type
- Handbook "Guide to modern insulation testing" on CD
- Instruction manual
- Calibration certificate

METREL®

TeraOhm 5 kV

Part No.: **MI 2077**

Advanced, digital HV measuring instrument with maximum test voltage up to 5000V DC and resistance measuring range up to 5 TΩ.
- Automatic PI, DAR and DD index calculation and capacitance measurement up to 50 µF.

- Adjustable test voltage from 250 V to 5000 V in 50 V steps.
- Resistance measuring range 5 TΩ.
- Adjustable measuring time from 1 second to 30 minutes.
- Automatic load discharge after completed measurement.
- Guard terminal for elimination of insulation surface currents.
- AC and DC voltage measurement up to 600 V.
- Internal memory module stores up to 1000 measuring results.
- Optional software package TeraLink simplifies evaluation of results.
- Optional: 110 V version.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2.3 kg.

Standard Set:
- Instrument TeraOhm 5 kV
- Test lead, black, red, 2 m
- Test lead (green, with crocodile clip), 2 m
- Test probe, 2 pcs (black, red)
- Crocodile clips black, 2 pcs
- Mains cable
- Soft carrying bag
- Instruction manual
- Calibration certificate

ISO test

Part No.: **MA 2060**

Precise, analogue high voltage insulation resistance tester with test voltages up to 5000 V DC.
- Highly reliable, robust tester for insulation testing. User's favorite for testing motors, high voltage cables, HV appliances, transformers, railway electrical systems, electrical generators, etc.
- DC test voltages: 500 V, 1 kV, 2,5 kV and 5 kV.
- Resistance measuring range up to 500 GΩ.
- Guard terminal for elimination of insulation surface currents.
- AC and DC voltage measurement up to 600 V.
- Dimensions (w x h x l): 345 x 130 x 250 mm.
- Mass (without accessories): 4.5 kg.

Standard Set:
- Instrument ISOtest
- Measuring lead, safety banana/safety banana, black, 2 m
- Measuring lead, safety banana/safety banana, red, 2 m
- Measuring lead, banana/crocodile, black, 2 m
- Safety crocodile, 2 pcs
- Instruction manual
- Calibration certificate

Comparison table	TeraOhm 10 kV	TeraOhm 5 kV Plus	GigaOhm 5 kV	TeraOhm 5 kV	ISOTest
Part No.:	MI 3200	MI 3201	MI 3202	MI 2077	MI 2060
Test voltage range	500 V ÷ 10 kV	250 V ÷ 5 kV	250 V ÷ 5 kV	250 V ÷ 5 kV	250 V ÷ 5 kV
Step 25 V / Step 50 V / Preset	✔ / ✔ / ✔	✔ / ✔ / ✔	- / - / ✔	- / ✔ / ✔	- / - / ✔
Insulation resistance range	10 TΩ	10 TΩ	1 TΩ	5 TΩ	500 GΩ
Graph insulation resistance R(t)		✔			
Voltage range	✔	✔	✔	✔	✔
Timer	✔	✔		✔	
Capacitance measurement	✔	✔		✔	
Diagnostics tests (PI, DAR, DD)	✔	✔		✔	
Step voltage	✔	✔		✔	
DC withstanding test	✔	✔		✔	

METREL®

Electrical safety verification of machines, portable electrical appliances and switchgear with advanced digital measuring instruments.

- Complete selection of test instruments for different applications and environments. Designed to be used in laboratories, workshops, automated production lines and building sites.
- Advanced, processor backed-up design enables time-efficient and simple measurements.
- Test functions are selected in accordance with the latest IEC/EN or VDE standards requirements.
- Professional PC SW PAT Link PRO enables downloading, viewing and storing of measurement results. Printing and exporting to spreadsheet applications is enabled as well. Advanced analysis of measurement results including comparison (trend functionality), data upload to some instruments and professional report creating is enabled with password protected PAT Link PRO Plus version.

Do you develop, manufacture or service machines, electrical appliances or switchgear? Assure electrical safety of your product!

CE Multitester

Part No. **MI 2094**

High performance, digital measuring instrument for electrical safety testing of machines, portable appliances, switchgear or other electrical devices.

- Selected test functions, mechanical construction and accompanying Software package make CE Multitester perfect for electrical safety testing in most demanding environments like laboratories, automated production lines or specialized workshops.
- Test functions comprise high-voltage AC dielectric test with test voltage up to 5000 V, DC insulation resistance measurement, PE continuity test,10 A earth bond test, discharge time measurement, leakage current measurement and functional test.
- Automatic load discharge after completed measurement.
- Windows compatible CE Link software package supports test sequence programming and measuring results evaluation on your PC.
- Optional bar-code scanner and remote control of the instrument.
- Dimensions (w x h x l): 410 x 175 x 370 mm.
- Mass (without accessories): 14 kg.

Standard Set:
- Instrument CE Multitester
- HV test pistol - 2 m, 2 pcs
- CONTINUITY test lead - 2.5 m, 2 pcs
- INSULATION test lead - 2.5 m, red
- INSULATION test lead - 2.5 m, black
- Crocodile clip - black, 3 pcs
- Crocodile clip - red, 2 pcs
- DISCHARGE TIME cable
- Mains cable
- Accessory bag
- Instruction manual
- Calibration certificate

MultiServicer

Part No. **MI 2170**

Digital measuring instrument for complete electrical safety testing of machines, portable appliances, switchgear and other electric devices.

- Robust, low weight design and ease of use characterize MultiServicer as an ideal solution for testing of electrical safety in different industrial environments, workshops or R&D laboratories.
- Test functions comprise: high-voltage AC dielectric test with test voltages 2500 V and 1000 V with selectable current trip out level, DC insulation resistance measurement, PE continuity test, 10 A earth bond test, discharge time measurement, leakage current measurement and functional test.
- MultiServicer supports measurements of fixed electrical loads or one-phase, smaller loads that use schuko plug connection.
- Intently designed for machine testing.
- PC SW PAT Link PRO for downloading of test results.
- PC SW PAT Link PRO Plus (optional) enables creation of professional reports and comparison of test results (trend functionality).
- Dimensions (w x h x l): 335 x 160 x 335 mm.
- Mass (without accessories): 9.5 kg.

Standard Set:
- Instrument MultiServicer MI 2170
- HV test lead
- Test lead - black, 2 m
- Test lead - red, 2m
- Test tip, black
- Test tip, red
- Crocodile clip, black
- Crocodile clip, red
- PC SW PAT Link PRO
- Protective bag for accessories
- Instruction manual
- Calibration certificate

METREL®

OmegaGT Plus, BetaGT Plus

The prime goal of a PAT testing engineer is to perform a job as quickly and efficiently as possible while ensuring that every appliance has been tested correctly. The innovative MI 3304 and MI 3305 PAT testers are built with this in mind. These portable, self-contained and durable units can be moved between sites with minimum time and effort. The large,

bright LCD screen enables the unit to work in almost all lighting conditions while new features including portable RCD testing, project uploading, appliance recall and retest functions, fixed appliance test ports, optional PASS/FAIL label printing and on-site test result comparison make these instruments perfect for PAT testing in almost any situation.

- RCD testing - test trip times of Portable RCDs in accordance with the code of practice.
- Project uploading - Upload previous test data for fast retesting of locations (requires PAT Link PRO Plus software).
- Downloading - large memory storage and PAT Link PRO software included as standard.
- PC SW PAT Link PRO Plus (optional) enables creation of professional reports and comparison of test results (trend functionality).
- Fixed appliances - socket available for testing insulation, substitute leakage and full leakage (via optional current clamp) of fixed appliances
- Intelligent - Automatically detects the power supply and powers either the 110 V or 230 V socket accordingly.
- Scan and test - Optional barcoding system and

PASS/FAIL barcode label printing make retesting quick and simple.
- Flash Test - Dielectic strength test after repair safety testing (MI 3305 only)
- Dimensions (w x h x l): 335 x 160 x 335 mm.
- Mass (without accessories): 9 kg.

Standard Set:
- Instrument OmegaGT Plus MI 3305 or BetaGT Plus MI 3304
- Earth Bond Clip
- Flash Test Probe (only for MI 3305)
- PC SW PAT Link PRO
- Instruction manual
- Calibration certificate

AlphaPAT

High performance measuring instrument for electrical safety testing of portable appliances, IT equipment and IEC cords in accordance with corresponding IEC/EN and VDE standards.

- Complete selection of test functions and lightweight design make AlphaPAT an excellent tool for periodic testing of portable appliances either as field tester or as a bench instrument.

- Test functions comprise DC insulation resistance measurement, PE voltage drop / earth bond continuity test, leakage current measurement, current measurement with current clamps and functional test.
- 120 pre-programmed Autotest sequences that give information on allowed standard-set limits for all test parameters can essentially improve working efficiency.
- Possibility to create and store Custom Autotests sequences.
- Alphanumeric keyboard for specific data entries (appliance description, location, etc.)
- Appliance identification and access to the test sequence via Bar-code scanner or RFID tags.
- PC SW PAT Link PRO for downloading of test results.
- PC SW PAT Link PRO Plus (optional) enables creation of professional reports and comparison of test results (trend functionality).

- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 3.5 kg.

Standard Set:
- Instrument AlphaPAT
- Earth Bond/Touch Leakage clip
- Mains cable
- Carrying bag
- Instruction manual
- Calibration certificate

SwiftPAT

SwiftPAT is a perfect tool for quick, routine safety testing of portable appliances, IT equipment and IEC cords.

- Pre-adjusted Autotest measuring sequences with PASS/FAIL test result verification enable a complete safety procedure to be finished in several seconds.
- Autotest sequences support safety testing of portable appliances Class I and II, IT equipment Class I and II and IEC cords.
- Simplicity of use and lightweight design make SwiftPAT a good choice for field or workshop testing.
- Test functions: DC insulation resistance measurement, PE voltage drop / earth bond continuity test, substitute leakage current measurement and IEC cords polarity check.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2.8 kg.

Standard Set:
- Instrument SwiftPAT
- Earth Bond/Touch Leakage clip
- 110 V Adapter
- Mains cable
- Carrying bag
- Instruction manual
- Calibration certificate

METREL®

METREL instruments for electrical appliances, machines and switchboard safety testing

The Metrel family of instruments for electrical appliances, machines and switchgear includes the following models:

CE MultiTester

High performance, digital measuring instrument for electrical safety testing of machines, portable appliances, switchgear or other electrical devices.

MultiServicer

Digital measuring instrument for complete electrical safety testing of machines, portable appliances, switchgear and other electric devices.

OmegaGT Plus

Top of the range measuring instrument for testing of electrical safety of portable appliances, IT equipment and IEC cords in accordance with corresponding IEC/EN and VDE standards.

BetaGT Plus

Top of the range measuring instrument for testing of electrical safety of portable appliances, IT equipment and IEC cords in accordance with corresponding IEC/EN and VDE standards.

AlphaPAT

High performance measuring instrument for electrical safety testing of portable appliances, IT equipment and IEC cords in accordance with corresponding IEC/EN and VDE standards.

SwiftPAT

AutoPAT is a perfect tool for quick, routine safety testing of portable appliances, IT equipment and IEC cords.

Comparison table		CE Multitester	Multiservicer	OmegaGT Plus, BetaGT Plus	AlphaPAT	SwiftPAT
Part No.:		**MI 2094**	**MI 2170**	**MI 3304, MI 3305**	**MI 2142**	**MI 3302**
WITHSTANDING	**Withstanding Voltage Test, P_{LOAD} = 500 VA** Programmable Voltage ramp up to 5000 V AC	✔				
	Withstanding Voltage Test, P_{LOAD} = 500 VA HV test up to 5000 V AC pre-set	✔				
	Withstanding Voltage Test, P_{LOAD} = 250/500 VA HV test 2500 V / 1000 V AC	✔ / ✔	✔ / ✔			
	Burn-out Test 500 VA, up to 5000 V	✔				
	Flash Test up to 2,5 mA, test voltage 1500 / 3000 V AC	✔ / ✔		✔ / ✔ (only MI 3305)		
INSULATION	**Insulation Resistance Test,** test voltage: 250 V / 500 V / 1000 V DC	✔ / ✔ / ✔	- / - / ✔	✔ / ✔ / -	✔ / ✔ / -	
	Insulation Resistance Test on shuko plug, test voltage 250 V / 500 V		✔	✔	✔	✔
CONTINUITY	**Continuity Test with test voltage < 12 V AC,** test current 25 A / 10 A / 200 mA / 100 mA	✔ / ✔ / ✔ / ✔	- / ✔ / ✔ / -			
	Voltage Drop Test with test voltage < 12 V AC test current >10 A AC calculated at 10 A	✔	✔			
	Automatic Start of Test starts at connecting test leads	✔	✔			
	Earth Bond Test < 12V Ac on shuko plug test current 25 A / 10 A / 4 A / 200 mA / 100 mA	✔ / ✔ / - / ✔ / ✔	- / ✔ / - / ✔ /-	✔ / ✔ / ✔ / ✔ / -	✔ / ✔ / ✔ / ✔ / ✔	✔ / - / - / - / ✔
DISCHARGING TIME	**Discharge Time Test** - internal, external to 60 V max	✔	✔			
	Discharge Time Test - internal, external to 120 V max	✔	✔			
LEAKAGE CURRRENT	**Differential Leakage Current Test**	✔	✔	✔	✔	
	Substitute Leakage Current Test		✔	✔	✔	✔
	Touch Leakage Current Test		✔	✔	✔	
FUNCTIONAL TEST	**Voltage**	✔				
	Frequency	✔				
	Current on shuko / with clamp - True RMS	✔ / -	✔ / -	✔ / -	✔ / -	
	Power VA	✔		✔ / -	✔ / -	
	Power W Var, cos φ	✔				
	Polarity & Fault Test			✔	✔	✔
OTHER FUNCTIONS AND OPTIONAL ACCESSORIES	**Clamp current**				✔	
	PC Software PAT Link PRO Plus		Optional	Optional	Optional	
	PC Software PAT Link PRO		✔	✔	✔	
	PC Software CE Link	✔				
	Direct printing on RS232 printer			✔	✔	
	Label printing (test & tag)			✔		
	Bar code scanner	✔		✔	✔	
	RFID appliance identification			✔	✔	
	Input / Output ports for Remote control, Warning lamps, EXT/DOOR	✔				

METREL®

Structured cabling network testing in accordance with EN50173, ISO/IEC 11801 and other similar standards.

- Rapid growth of structured cabling IT networks governs that LAN systems are built and tested in accordance with standards like EN50173, ISO/IEC11801 or similar.
- Metrel offers a complete selection of high quality LAN testers for verification of copper cabling networks up to CAT 6 (Class E).
- Metrel OptoLAN power meter supports power loss measurements on multi-mode and single-mode fiber optics. Different wavelengths are supported with SC and ST connectors for both, 50 µm and 62,5 µm diameters.
- Innovative solutions, high quality, user friendly design at affordable price are trade marks of Metrel LAN testers.
- Complete selection of optional accessories helps to improve working efficiency.

Top of range CAT6 LAN tester - incredible package for incredible price!

Multi LAN 350

Part No. **MI 2016 ST, MI 2016 PS**

Standard Set: — MI 2016 ST
- Multi LAN 350 - Instrument
- Multi LAN 350 - Remote unit
- Permanent Link Adapter, 2 pcs
- Chanel Link Adapter, 2 pcs
- Carrying bag, 2 pcs
- LAN Link PC Software
- RS232 cable
- USB cable
- Locators (#1 - #4), 4 pcs
- Attenuation Calibration module
- Power supply/adapter, 2 pcs
- Headphones set, 2 pcs
- NiMH battery pack, 12 pcs
- Instruction manual
- Calibration certificate

Profi Set: — MI 2016 PS
- Multi LAN 350 - Instrument, 2 pcs
- Permanent Link Adapter, 2 pcs
- Chanel Link Adapter, 2 pcs
- Carrying bag, 2 pcs
- LAN Link PC Software
- RS232 cable
- USB cable
- Locators (#1 - #4), 4 pcs
- Attenuation Calibration module
- Power supply/adapter, 2 pcs
- Headphones set, 2 pcs
- NiMH battery pack, 12 pcs
- Instruction manual
- Calibration certificate

High performance, multifunction instrument for LAN cabling verification.

- Extensive database of Autotest incorporated into the instrument's memory allows quick LAN cabling verification up to CAT6 (Class E) in accordance with international standards EN50173, TIA/EIA 658B, ISO/IEC 11801, etc.
- Complete selection of test functions combined with easy to understand user interface makes MultiLAN 350 a good choice for LAN cabling companies and subcontractors as well as for IT administrators for troubleshooting purposes.
- Apart from inbuilt Autotest there is a possibility to perform Single tests. Professional TDR with integrated TDR NEXT function enables pinpoint distance to the fault determination.
- Connectivity with UTP, STP, ScTP, FTP and coax cables is further enhanced with a complete selection of adapters for Channel Link and Permanent Link measurements.
- Tabelaric or graphic presentation of test results.
- Windows compatible LAN Link software package enables downloading of test results and creation of a test report.
- Set MI 2016PS consists of two main units that allow bi-directional cable testing without swapping the testers and double the memory.
- Dimensions (w x h x l): 265 x 110 x 185 mm.
- Mass (without accessories): 2.1 kg.

- **IR Fiber adapter FOA-1**

  Enables transferring the test results from the memory of Optical Power Meter PM 420 to the instrument Multi LAN 350 MI 2016. The Multi LAN tester automatically recognizes the adapter and the screen of the instrument turns into saving mode.

METREL®

Opto LAN

PM 420, LS 420

Part No. **MI 5100 ST, MI 5100 PS**

OptoLAN is an optical power meter to measure signal loss along the tested optical fibre cable. Six wavelengths (850 nm, 1300 nm, 1310 nm, 1490 nm, 1550 nm, 1625 nm, 1650 nm) are supported to allow measurements on multimode and single mode fibre optics.

• Automatic wavelength selection. No adjustment needed.
• OptoLAN MI 5100PS works together with MultiLAN 350, MI 2016PS, Cat. 6 cooper tester to certify both, cooper and fiber LAN cables.
• Tester is small, lightweight and intuitive to use.
• It has a built-in battery charger.
• Internal memory module allows storing of 512 test results.

• USB communication port and MultiLAN PC Software are provided with MI 5100PS set to transfer the stored data to your PC and generation of test reports.
• Dimensions (w x h x l): 24 x 79 x 125 mm.
• Mass: 124 g.

Standard set   Part No. **Opto LAN MI 5100 ST**
Same content as MI 5100 PS without:
- MultiLAN 350 IR fiber adapter FOA-1 (A 1186)
- LAN Link PC Software

Pro Set: Part No. **Opto LAN MI 5100 PS**
- Optical Power Meter PM 420 LAN
- Optical Light Source LS 420
- Carrying bag
- Visible pen VSP-01
- Patch cord FC - ST 50 µm
- Patch cord FC - SC 50 µm
- Patch cord ST - SC 50 µm
- Patch cord FC - ST 62.5 µm
- Patch cord FC - SC 62.5 µm
- Patch cord ST - SC 62.5 µm
- SC adapter
- ST adapter
- Multi LAN 350 IR fiber adapter FOA-1 (A 1186)
- USB cable

- Battery charger, 2 pcs
- Instruction manual
- LANLink PC Software
- Calibration Certificate from Accredited Calibration Laboratory
- Calibration certificate

Cable Scanner

Part No. **MI 2014**

Cable Scanner is a simple but effective device for testing copper terminations on shielded and unshielded LAN and coax cables.

• TDR facility with adjustable NVP allows determination of distance to the fault or cable length

measurement. Acoustic generator combined with a receiver enables pair determination in multi-pair cables.
• Quick and easy determination of various wiring failures: crossed pairs, crosstalk, short-circuit, mismatched pairs, bad contacts, no shield, etc.
• Standard set includes locators for fast and simple numeration of LAN sockets.
• Optional remote unit S 2004 for communication over the tested cable and shorter test time.
• Connectivity supports UTP, STP, ScTP, FTP and coax cables.
• Dimensions (w x h x l): 156 x 100 x 190 mm.
• Mass (without accessories): 1 kg.

Standard Set:
- Instrument Cable Scanner
- Cat 5 Patch Cable-Metrel, 2 pcs
- Standard Remote #1
- Locators (#1 - #4), 4 pcs
- Instruction manual
- Calibration certificate

Comparison table	Multi LAN 350	Cable Scanner
Part No.:	MI 2016	MI 2014
Frequency range	0 ÷ 350 MHz	
CAT 6	✓	
CAT 5 / 5e	✓ / ✓	
CAT 3	✓	
Coax		✓
Internal memory	✓	
PC Software	✓	
Cable tracer option	✓	✓
RS 232 port and cable	✓	
USB port and cable	✓	
Talk over copper (Talk set)	✓	✓
Cable identifiers	✓	✓
RJ 45 output support	✓	✓
BNC output support		✓
Opto LAN fibretest support	✓	
Test functions		
Wiremap	✓	✓
NEXT, RemoteNEXT	✓	
PSNEXT, Remote PSNEXT	✓	
ELFEXT, PSELFEXT	✓	
Return Loss, Remote Return Loss	✓	
ACR, Remote ACR	✓	
PSACR, Remote PSACR	✓	
Length	✓	✓
Propagation delay	✓	
Delay skew	✓	
Impedance	✓	
DC resistance	✓	
TDR	✓	✓
TDR with TD next	✓	✓

METREL ®

Product family INDOORLAB

Metrel indoor environmental measuring instruments integrate a number of innovative solutions for indoor ambient conditions monitoring. Multifunction instruments provide the users from industry, HVAC and indoor air quality inspection with user-friendly design, simultaneous measurement of several parameters, logging facility, professionally designed PC Software for data management and of course, with high accuracy and craftsmanship that lasts.

- Measurement of following non-electrical parameters are supported: air velocity, air temperature, contact temperature, black globe temperature measurement, relative humidity with, illuminance, luminance and sound analysis in either Class 1 or 2.
- A number of auxiliary parameters will be automatically calculated. Dew point, air volume, PMV (predicted mean vote), WBGT (wet bulb globe temperature), real-time octave and 1/3 octave sound analysis will complement intrinsic measurements for better global assessment of ambient conditions.
- Additional probes, extension cables, tripod, advanced PC Software are all available as optional accessories
- Internal memory model stores over 4000 measuring results
- Serial and USB communication ports for downloading stored data onto your computer
- Sound analysis in Class 1 and Class 2 accuracy
- Considered construction and application standards: EN ISO 7726, ISO 7730, ISO 7243 for IAQ, DIN 5032 (Parts 1 and 7) for luminance and illuminance, EN 12599 for HVAC, IEC 61672 and IEC 61260 Class 1/Class 2 for sound measurements.

Complete system of ISO calibration certification guarantees an overall quality and accuracy especially since the probes and the instrument are calibrated together as an integral device.

Multinorm

Combined Indoor Air Quality and sound analyser

Part No. **MI 6201**

- Two MS Windows compatible PC Software packages SensorLinkPRO for management of environmental parameters and SoundLink LITE for profound sound analysis are delivered in a standard set.
- PC Software supports downloading of stored data and their evaluation in either table or chart form.
- Export to other MS programmes is possible.
- Dimensions (w x h x l): 220 x 115 x 90 mm.
- Mass (without accessories): 0.70 kg.

Standard Set   Part No. **MI 6201ST**
- Instrument Multinorm
- Probe adapter
- Universal micro climatic probe
- Illumination probe type B
- Class 2 sound probe
- Plastic shield
- Windscreen
- Carrying case
- SensorLink PRO and SoundLink LITE
  PC software with RS232/USB cable
- Power supply adapter/charger with 6 NiMH batteries
- Tripod adapter
- Instruction manual
- Calibration certificate

Multinorm is a multifunction instrument for complete ambient air assessment including Class 1 and Class 2 sound analysis.

- **Measuring functions:** air temperature, contact temperature, black globe temperature, air velocity, relative humidity, luminance, illuminance and sound measurements.
- **Calculated parameters:** Dew point, air volume, PMV (predicted mean vote), WBGT (wet bulb globe temperature)
- Sound level meter features two independent measuring channels compliant with IEC 61672.
- Sound analysis can be performed either in Class 1 or Class 2 accuracy with real octave and 1/3 octave analysis compliant with IEC 61260 standard.
- Two modes i.e. on-line measurement and logging facility are possible and can operate simultaneously.

Euro Set   Part No. **MI 6201EU**
- Standard Set
- ISO calibration certificate for complete system

Pro Set   Part No. **MI 6201PR**
- Euro Set with Class 1 sound probe instead of Class 2 sound probe

METREL®

FonS

Sound Analyser

Part No. **MI 6301**

- **Completely digitalized Class 1 (Pro Set) or Class 2 (Euro Set) sound level meter with two independent measuring channels compliant with IEC 61672 standard. Each channel can be set to a different time and frequency weighting. FonS is also a real-time octave and 1/3 octave frequency analyser compliant with IEC 61260 standard.**
- Operates in two modes: an on-line reading mode which displays current measurements and logger mode, which automatically stores all measurement values per logging interval.

- The measurement functions (where letter X stands for A, C or Z frequency weighting, Y for fast, slow or impulse time weighting applicable to both first and second measuring channels):
  - LXY, a time weighted sound level;
  - LXeq, a time average sound level, or equivalent continuous sound level;
  - LXYmax, a maximum time weighted sound level;
  - LXYmin, a minimum time weighted sound level;
  - LXpeak, a peak sound level;
  - LXE, a sound exposure level;
  - L%, a percentile sound pressure level.
- A windscreen and sound shield facilitate the outdoor measurements by reducing the wind noise and/or give protection against the dust or other small particles often found in the air of harsh industrial environments.
- SoundLink LITE PC software is used to download, review and export saved and logged data to other spreadsheet software applications. Optional frequency analysis PC Software SoundLink PRO is used for data analysis, charting and reporting.
- Dimensions (w x h x l): 220 x 115 x 90 mm.
- Mass (without accessories): 0.70 kg.

Euro Set   Part No. **MI 6301EU**
- Instrument FonS
- Class 2 sound probe
- Windscreen
- Plastic shield
- Windscreen
- Carrying case
- SoundLink LITE PC Software with RS232/USB cable
- Power supply adapter/changer with 6 NiMH batteries
- Tripod adapter
- Instruction manual
- Calibration certificate
- ISO calibration certificate for complete system

Pro Set   Part No. **MI 6301PR**
- Euro Set with Class 1 sound probe instead of Class 2 sound probe

Poly

Indoor Air Quality measuring instrument

Part No. **MI 6401**

Poly is a multipurpose environmental measuring instrument for use in industry, HVAC applications and indoor air quality measurements.

- **Standard measurement functions:** air temperature, air velocity/multipoint/mass flow calculations, relative humidity/dew point and illuminance.
- **Measuring functions:** air temperature, contact temperature, black globe temperature, air velocity, relative humidity, luminance and illuminance.
- **Calculated parameters:** Dew point, air volume, PMV (predicted mean vote), WBGT (wet bulb globe temperature)
- USB and serial communication ports for connecting the instrument with PC
- MS compatible SensorLink PRO PC Software with RS232/USB is included in a standard set
- Dimensions (w x h x l): 220 x 115 x 90 mm.
- Mass (without accessories): 0.70 kg.

Standard Set   Part No. **MI 6401ST**
- Instrument Poly
- Probe adapter
- Universal micro climatic probe
- Illumination probe type B
- Carrying case
- SensorLink PC Software with RS232/USB cable
- Power supply adapter/charger with 6 NiMH batteries
- Tripod adapter
- Instruction manual
- Calibration certificate

Euro Set   Part No. **MI 6401EU**
- Standard Set
- ISO calibration certificate for complete system

Quick reference table

	Pro Set	Euro Set	Standard Set
Multinorm MI 6201	Air temperature Air velocity Relative humidity Illuminance Sound **Class 1** **ISO calibration certificate for complete system**	Air temperature Air velocity Relative humidity Illuminance Sound **Class 2** **ISO calibration certificate for complete system**	Air temperature Air velocity Relative humidity Illuminance Sound **Class 2** Product verification data
FonS MI 6301	Sound **Class 1** **ISO calibration certificate for complete system**	Sound **Class 2** **ISO calibration certificate for complete system**	
Poly MI 6401		Air temperature Air velocity Relative humidity Illuminance **ISO calibration certificate for complete system**	Air temperature Air velocity Relative humidity Illuminance Product verification data

Metrel Certificate of Calibration Practices

CERTIFICATE OF CALIBRATION

METREL®

EurotestXA MI 3105

A 1191 A 1172 A 1173
A 1197
A 1012 A 1192 A 1100 A 1111
S 2027
A 1169 A 1160 A 1198 S 2025
S 2026
A 1074 A 1018 A 1019
A 1202
A 1143 A 1199 A 1201
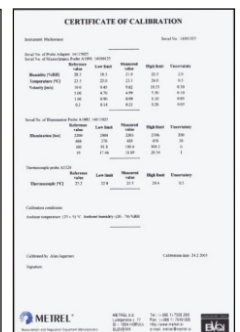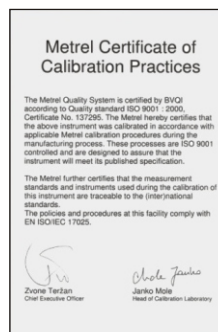
Part No.

A 1012	- Probe lead 4 m	
A 1018	- Current clamp (low range, leakage)	
A 1019	- Current clamp	
A 1074	- Mini current clamp	
A 1110	- Three phase cable	
A 1111	- Three phase adapter	
A 1143	- Euro-Z 290 A impedance adapter	
A 1160	- Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries	
A 1067	- Test lead, 1.5 m for R10K with built-in resistor	
A 1169	- Fast 12 cells C, AA Charger	
A 1172	- Lux meter probe, type B, PS2	
A 1173	- Lux meter probe, type C, PS2	
A 1191	- Receiver R10K	
A 1192	- Special selective probe	
A 1197	- Tip Commander 1.5 m, 3 W	
A 1198	- Magnetic contact probe	
A 1199	- ρ adapter for 4 W soil resistivity	
A 1201	- Insulated sticks for testing on LV at a distance	
A 1202	- Additional extension part for A 1201	
S 2026	- Earth 20 m set 3 wire	
S 2027	- Earth 50 m set 3 wire	
CS 2099	- Eurocheck (see page 5)	

EurotestAT MI 3101

A 1012 A 1192 A 1191
A 1197
A 1198 S 1201 A 1100 A 1111
S 2027
A 1160
A 1169 A 1196
S 2026
A 1199
A 1143 A 1201 A 1202

Part No.

A 1012	- Probe lead 4 m
A 1110	- Three phase cable

A 1111	- Three phase adapter
A 1143	- Euro-Z 290 A impedance adapter
A 1160	- Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1067	- Test lead, 1.5 m for R10K with built-in resistor
A 1169	- Fast 12 cells C, AA Charger
A 1191	- Receiver R10K
A 1192	- Special selective probe
A 1196	- PC SW EuroLink PRO Plus
A 1197	- Tip Commander 1.5 m, 3 W
A 1198	- Magnetic contact probe
A 1199	- ρ adapter for 4 W soil resistivity
A 1201	- Insulated sticks for testing on LV at a distance
A 1202	- Additional extension part for A 1201
S 2026	- Earth 20 m set 3 wire
S 2027	- Earth 50 m set 3 wire
CS 2099	- Eurocheck (see page 5)

EurotestXE MI 3102

A 1170 A 1172 A 1173 A 1110 A 1111
A 1169 A 1160 S 2025 A 1018
A 1196 A 1074
A 1201 A 1202

Part No.

A 1018	- Current clamp (low range, leakage
A 1074	- Mini current clamp
A 1110	- Three phase cable
A 1111	- Three phase adapter
A 1160	- Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1164	- Test lead, black 50
A 1169	- Fast 12 cells C, AA Charger
A 1196	- PC SW EuroLink PRO Plus
A 1170	- Plug commander
A 1171	- USB/RS232 converter with 1m fixed cable
A 1172	- Lux meter probe, type B, PS2
A 1173	- Lux meter probe, type C, PS2
A 1201	- Insulated sticks for testing on LV at a distance
A 1202	- Additional extension part for A 1201
S 2025	- Connection leads for mini clamp
CS 2099	- Eurocheck (see page 5)

EurotestEASI MI 3100

A 1201
A 1168 A 1110 A 1111 A 1202
A 1154 A 1153 A 1160 A 1169

Part No.

A 1110	- Three phase cable
A 1111	- Three phase adapter
A 1153	- Test lead black 4 m
A 1154	- Test lead black 20 m
A 1160	- Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1168	- Plug commander
A 1169	- Fast 12 cells C, AA Charger
A 1201	- Insulated sticks for testing on LV at a distance
A 1202	- Additional extension part for A 1201
CS 2099	- Eurocheck (see page 5)

Eurotest 61557 MI 2086

A 1005 A 1102 A 1119 A 1021
A 1002
A 1052
A 1012 S 2025
A 1201 A 1202
A 1143 A 1110 A 1111 A 1074 A 1018 A 1019
S 2001 S 2002

Part No.

A 1002	- Tip commander 1,5 m
A 1005	- Cable locator
A 1012	- Probe test lead 4 m
A 1018	- Current clamp (low range, leakage)
A 1019	- Current clamp
A 1021	- General cable 4 x 1m
A 1052	- PC SW EuroLink PRO
A 1102	- Lux meter probe type B
A 1110	- Three phase cable
A 1111	- Three phase adapter
A 1119	- Lux meter probe type C
A 1141	- PALM EuroLink (see page 4)
A 1155	- Pocket PC Eurolink (see page 4)
A 1171	- USB/RS232 converter with 1m fixed cable
A 1143	- Euro-Z 290 A impendance adapter
A 1171	- USB/RS232 converter with 1m fixed cable
A 1201	- Insulated sticks for testing on LV at a distance
A 1202	- Additional extension part for A 1201
S 2001	- Earth test set - 20 m
S 2002	- Earth test set - 50 m
CS 2099	- Eurocheck (see page 5)

Instaltest 61557 MI 2087

A 1005 A 1102 A 1119 A 1021
A 1002
A 1143 A 1201 A 1202
A 1171 A 1012 S 2025 A 1110 A 1111

Part No.

A 1002	- Tip commander 1,5 m
A 1005	- Cable locator
A 1012	- Probe test lead 4 m
A 1021	- General cable 4 x 1m
A 1052	- PC SW EuroLink PRO
A 1102	- Lux meter probe type B
A 1110	- Three phase cable
A 1111	- Three phase adapter
A 1119	- Lux meter probe type C
A 1143	- Euro-Z 290 A impendance adapter
A 1171	- USB/RS 232 converter with 1m fixed cable
A 1201	- Insulated sticks for testing on LV at a distance
A 1202	- Additional extension part for A 1201
CS 2099	- Eurocheck (see page 5)

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Earth Insulation Tester MI 2088

A 1002
A 1171   A 1018   A 1019
S 2001
S 2002

Part No.

A 1002 - Tip commander 1,5 m
A 1018 - Current clamp (low range, leakage)
A 1019 - Current clamp
A 1171 - USB/RS 232 converter with 1m fixed cable
S 2001 - Earth test set - 20 m
S 2002 - Earth test set - 50 m

Line Tracer MI 2093

A 1019   A 1068   A 1074

Part No.

A 1019 - Current clamp
A 1068 - Connection cable for clamp 1.5 m
A 1074 - Mini current clamp

Installcheck MI 2150

A 1111   S 1112   A 1020
A 1114   A 1115

Part No.

A 1020 - Small soft carrying bag
A 1111 - Three phase adapter
A 1114 - Crocodile clip, insulated
A 1115 - Protection case
S 1112 - Universal Test Cable 1.5 m with 3 safety test tips

SMARTEC RCD/Loop/Line MI 2121

A 1020   A 1045   A 1050
A 1171   A 1007

Part No.

A 1007 - Carrying strap
A 1011 - Universal test cable, 3 x 1.5 m
A 1013 - Aligator cip, black
A 1014 - Test tip, black
A 1016 - Test tip, blue
A 1020 - Soft carrying bag
A 1026 - Test lead 20 m, red
A 1045 - Battery charger +4 or 6 pcs NiMH bateries
A 1050 - PC SW SmartLink with interface cable
A 1171 - USB/RS 232 converter with 1m fixed cable

SMARTEC Insulation/Continuity MI 2123

A 1020   A 1007   A 1045   A 1050
A 1171   A 1026   A 1055   A 1642   A 1016

Part No.

A 1007 - Carrying strap
A 1016 - Test probe, red
A 1020 - Soft carrying bag
A 1026 - Test lead 20 m, red
A 1045 - Battery charger +4 or 6 pcs NiMH batteries
A 1050 - PC SW SmartLink with interface cable
A 1055 - Universal test cable, 2 x 1.5 m
A 1064 - Crocodile clip, red
A 1171 - USB/RS 232 converter with 1m fixed cable

SMARTEC Earth/Clamp MI 2124

A 1006   A 1020
A 1171   A 1050   A 1007
A 1018   A 1019   S 2009   S 2007

Part No.

A 1006 - Soft carrying bag
A 1007 - Carrying strap
A 1018 - Current clamp (low range, leakage)
A 1019 - Current clamp
A 1020 - Small soft carrying bag
A 1045 - Battery charger +4 pcs NiMH batteries
A 1050 - PC SW SmartLink with interface cable
A 1171 - USB/RS 232 converter with 1m fixed cable
S 2007 - Earth test set - 50 m
S 2009 - Test lead set (blue, red, green, black) 2 m

SMARTEC Insulation / Continuity MI 3121

A 1189   A 1271
A 1244   A 1270   A 1154   A 1153
A 1160   A 1198   A 1290   A 1291

Part No.

A 1153 - Test lead - black, 20 m
A 1154 - Test lead - black, 4 m
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1271 - Small soft carrying bag
A 1289 - Soft carrying bag
A 1290 - PC SW EuroLink PRO Plus with USB and RS 232/PS2 cable
A 1291 - PC SW EuroLink PRO with USB and RS 232/PS2 cable
A 1198 - Magnetic contact probe

A 1244 - Tip commander 1.5 m (straight cable)
A 1270 - Tip commander 1.5 m (spiral cable)

SMARTEC Z Line-Loop / RCD MI 3122

A 1289   A 1271   A 1160
A 1244   A 1270   A 1272   A 1256
A 1111   A 1110   A 1198   A 1290
A 1291

Part No.

A 1110 - Three phase cable
A 1111 - Three phase adapter
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1271 - Small soft carrying bag
A 1289 - Soft carrying bag
A 1290 - PC SW EuroLink PRO Plus with USB and RS 232/PS2 cable
A 1291 - PC SW EuroLink PRO with USB and RS 232/PS2 cable
A 1198 - Magnetic contact probe
A 1244 - Tip commander 1.5 m (straight cable)
A 1256 - Plug commander 1.5 m (straight cable)
A 1270 - Tip commander 1.5 m (spiral cable)
A 1272 - Plug commander 1.5 m (spiral cable)

SMARTEC Earth / Clamp MI 3123

A 1271   A 1289
A 1006   A 1290
A 1291
A 1018   A 1019   S 2009   S 2007

Part No.

A 1018 - Current clamp (low range, leakage)
A 1019 - Current clamp
A 1020 - Small soft carrying bag
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1271 - Small soft carrying bag
A 1289 - Soft carrying bag
A 1290 - PC SW EuroLink PRO Plus with USB and RS 232/PS2 cable
A 1291 - PC SW EuroLink PRO with USB and RS 232/PS2 cable
S 2007 - Earth test set - 50 m
S 2009 - Test lead set (blue, red, green, black) 2 m

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Power Quality Analyser Plus MI 2292
Power Harmonics Analyser MI 2092

A 1037   S 2015   A 1171

S 2014   A 1100   A 1101

A 1179   A 1257   A 1287

A 1033   A 1069   A 1122   A 1039

Part No.

A 1033 - Current clamp 1000 A/1V
A 1037 - Current transformer 5 A/1 V
A 1039 - A 1039 Clamp adapter
           (for A 1069 and A 1122)
A 1069 - Mini clamp 100 A/1 V to be used with
           A 1039
A 1100 - Modem ST
A 1101 - Modem GSM
A 1122 - Mini clamp 5 A/1 V to be used with
           A 1039
A 1124 - Modem Entrance Key
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1179 - 3-phase flexible current clamps
           2000/200/20 A/1 V
A 1257 - 3-phase flexible current clamps
           3000/300/30 A/1 V
A 1287 - 1-phase flexible current clamps
           3000/300/30 A/1 V
S 2014 - Safety fuse adapters
S 2015 - Safety flat clamps

PowerQ Plus MI 2392
PowerQ MI 2492

A 1020   A 1037   A 1039

S 2014   S 2015   A 1171

A 1179   A 1257   A 1227

A 1033   A 1069   A 1122

Part No.

A 1033 - Current clamp 1000 A/1V
A 1037 - Current transformer 5 A/1 V
A 1039 - A 1039 Clamp adapter
           (for A 1069 and A 1122)
A 1069 - Mini clamp 100 A/1 V to be used with A 1039
A 1122 - Mini clamp 5 A/1 V to be used with A 1039
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1179 - 3-phase flexible current clamps
   2000/200/20 A/1 V

A 1227 - 1-phase flexible current clamps
           3000/300/30 A/1 V
A 1287 - 1-phase flexible current clamps
           3000/300/30 A/1 V
S 2014 - Safety fuse adapters
**S 2015** - Safety flat clamps

VoltScanner MI 2130

A 1020   S 1112   S 2010   A 1171

Part No.

A 1020 - Small soft carrying bag
A 1171 - USB/RS 232 converter with 1m fixed cable
S 2010 - Set of crocodile clips(black), 3 pcs
**S 1112** - Universal test cable 3 x1.5 m with 3 safety test tips

TeraOhm 10 kV MI 3200

S 2029   S 2030

S 2036   A 1046   A 1230
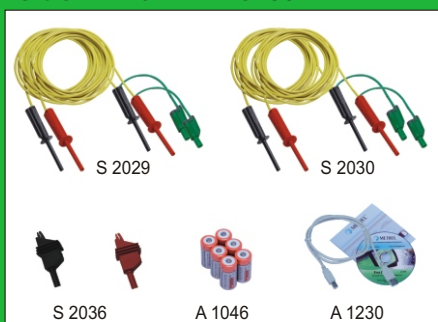
Part No.

A 1046 - 6 x 1.2 V NiMH batteries
A 1230 - PC SW TeraLink with USB and RS232 cable
S 2029 - 10 kV shielded test leads, 8 m, 2 pcs
S 2030 - 10 kV shielded test leads, 15 m, 2 pcs
S 2036 - 10 kV crocodile set, 2 pcs

TeraOhm 5 kV Plus MI 3201
GigaOhm 5 kV MI 3202

S 2029   S 2030

S 2036   A 1046   A 1275
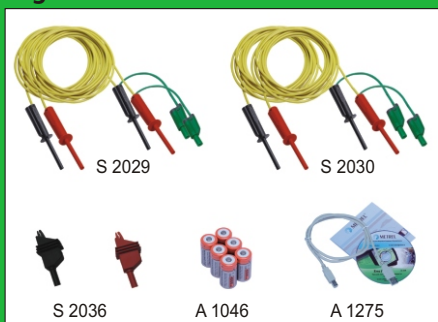
Part No.

A 1046 - 6 x 1.2 V NiMH batteries
A 1275 - PC SW TeraLink PRO with RS232
           and USB cable (only for MI 3201)
S 2029 - 10 kV shielded test leads, 8 m, 2 pcs
S 2030 - 10 kV shielded test leads, 15 m, 2 pcs
S 2036 - 10 kV alligator set, 2 pcs

TeraOhm 5 kV MI 2077
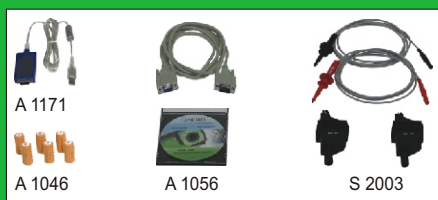
A 1171

A 1046   A 1056   S 2003

Part No.

A 1046 - 6 x 1.2 V NiMH batteries
A 1056 - PC SW TeraLink with RS232 cable
A 1171 - USB/RS232 converter with 1m fixed cable
S 2003 - High Voltage Cable Set
S 2039 - 10 kV shielded test leads, 15 m, 2 pcs
           (for MI 2077 only)
S 2042 - 10 kV shielded test leads, 8 m, 2 pcs
           (for MI 2077 only)

CE MultiTester MI 2094

A 0941   A 0942   A 1059   A 1171   A 1061
A 1060   A 1073

S 1057   S 1058   S 1072   A 1017

Part No.

A 0941 - Remote control pedal
A 0942 - Warning lamp
A 1014 - Test tip, black
A 1016 - Test tip, red
A 1017 - RS 232 communication cable
A 1059 - ISO + CONTINUITY adapter
A 1060 - Two way mains adapter
A 1061 - Bar Code scanner
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1073 - PC SW CE Link with A 1017 cable
S 1057 - HV test cable with plug - 6 m, set of 2 pcs
S 1058 - CONTINUITY test lead - 10 m, set of 2pcs
S 1072 - CONTINUITY test lead special, 2.5 m, set of 2 pcs

MultiServicer MI 2170

A 1095   A 1096   S 2012   A 1171

Part No.

A 1095 - INS/SUB adapter
A 1096 - Adapter for hard connection
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1203 - PC SW PAT Link PRO Plus
S 2012 - Continuity extension,10 m, set of 2 pcs

OmegaGT Plus MI 3305
BetaGT Plus MI 3304

A 1103   A 1276   A 1226   A 1107

A 1106   A 1203   A 1108   A 1283   A 1105

Part No.

A 1103 - Printer
A 1226 - Cable for printer
A 1105 - Bar code scanner
A 1106 - Bar code labels
A 1107 - RFID reader/writer
A 1108 - RFID tags, 50 pcs
A 1203 - PC SW PAT Link PRO Plus
A 1276 - Label printer with power and data cable
A 1277 - Spare label roll, size 50 x 30 mm
A 1283 - Current clamp (low range, leakage)

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AlphaPAT MI 2142

A 1103 A 1226 A 1106 A 1136 A 1105

A 1108 A 1203 A 1171 A 1107 A 1018

Part No.

A 1018 - Current clamp (low range, leakage)
A 1103 - Printer
A 1226 - Cable for printer
A 1105 - Bar code scanner
A 1106 - Bar code labels
A 1107 - RFID reader / writer
A 1108 - RFID tags, 50 pcs
A 1203 - PC SW PAT Link PRO Plus
A 1136 - 110 V Adapter
A 1171 - USB/RS232 converter with 1m fixed cable

Multi LAN 350 MI 2016

A 1043 A 1044 A 1046

#5 - #16 #17 - #28

Part No.

A 1043 - Locator set II (#5 to #16)
A 1044 - Locator set III (#17 to #28)
A 1046 - NiMH battery pack

Opto LAN MI 5100

A 1185

A 1184 A 1187

Part No.

A 1185 - Optical Light Source LS420 SM with Patch cord (3 pcs) for SM - single mode
A 1184 - Illuminated microscope
A 1187 - Multimode Fiber mandrels (2 pcs)
A 1189 - Dry cleaning set
A 1188 - Wet cleaning tools with carrying bag

Cable Scanner MI 2014

A 1006 A 1007 A 1082 S 2004

#2 - #6 #7 - #15 #5 - #16 #17 - #28
S 2005 S 2006 A 1043 A 1044

Part No.

A 1006 - Soft carrying bag
A 1007 - Carrying strap
A 1043 - Locator set II (# 5 - #16)
A 1044 - Locator set III (# 17 - #28)

A 1082 - Tracer
A 1083 - Battery charger with a set of 6 pcs NiMH batteries
S 2004 - Talk Remote Unit with headphones set
S 2005 - Standard remote set (# 2 - # 6), 5 pcs
S 2006 - Standard remote set (# 7 - # 15), 9 pcs

Multinorm MI 6201
FonS MI 6301
Poly MI 6401

A 1160 A 1159 A 1131 A 1161 A 1132

A 1180 A 1181 A 1152

A 1165 A 1162

A 1127 A 1130 A 1171 A 1128 A 1145

Part No.

Multinorm MI 6201

A 1127 - Humidity & air temperature probe
A 1128 - Thermocouple probe type K wire
A 1130 - Telescopic rod with 2.5 m cable
A 1131 - Black globe thermometer
A 1132 - Luminance probe
A 1145 - Extension cable (only for luminance and illuminance probe)
A 1152 - Sound calibrator Class 1
A 1159 - Tripod
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1161 - Tripod holder for instrument and black globe
A 1162 - PC SW SoundLink PRO
A 1165 - Sound calibrator Class 2
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1180 - CO_2 probe
A 1181 - CO probe

FonS MI 6301

A 1152 - Sound calibrator Class 1
A 1159 - Tripod
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1162 - PC SW SoundLink PRO
A 1165 - Sound calibrator Class 2
A 1171 - USB/RS 232 converter with 1m fixed cable

Poly MI 6401

A 1127 - Humidity & air temperature probe
A 1128 - Thermocouple probe type K wire
A 1130 - Telescopic rod with 2.5 m cable
A 1131 - Black globe thermometer
A 1132 - Luminance probe
A 1145 - Extension Cable (only for luminance and illuminance probe)
A 1159 - Tripod
A 1160 - Fast 6 cells AA Charger with a set of 6 pcs NiMH batteries
A 1161 - Tripod holder for instrument and black globe
A 1171 - USB/RS 232 converter with 1m fixed cable
A 1180 - CO_2 probe
A 1181 - CO probe

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

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