

Class A Power Quality Analyser

MI 2892 Power Master



The MI 2892 Power Master is a hand-held three phase power quality analyser with a large easy-to-read graphical colour display enabling the user to detect harmonics, phasors and waveform anomalies in the installation simply by connecting the device. The instrument is designed for a long term recording as well as for troubleshooting power quality problems in three-phase and single-phase power distribution systems. The handy Quick Set buttons makes the instrument more user friendly and are allowing faster data overview for troubleshooting. Advanced PC SW package PowerView3 enables detailed analysis of recorded data, direct reading from the microSD memory card, analysis of long term records and automatic creation of professional test report.

MEASURING FUNCTIONS

- Voltage: TRMS, peak, crest factor (4-channels);
- Current: TRMS, peak, crest factor (4-channels);
- Power (active, reactive, apparent);
- Power measurements fully compliant with IEEE 1459 (active, non active, fundamental, harmonic, load unbalance) and classic (vector or arithmetic) method;
- VFD (variable frequency drives);
- Unbalance, flicker measurement;
- Harmonic and interharmonic analysis up to 50th harmonics, THD measurement;
- Energy (active, reactive, generated, consumed);
- Capturing and recording of power supply events (shutdowns, interruptions, swells, dips);
- Inrush currents monitoring and recording;
- Waveform/inrush displaying, snapshot and recording;
- Transients recording;
- Power quality analysis according to EN 50160, IEEE 519;
- Recording up to 7 adjustable alarms;
- Temperature measurement;
- Power factor, tg ϕ .

KEY FEATURES

- 4-voltage channels with wide measurement range: 0 ... 1000 Vrms (CAT III / 1000 V);
- 4-current channels with support for automatic clamp recognition and "on instrument" range selection;
- Automatic Smart Clamp detection and Smart Clamp range selection;
- Sampling frequency on transients recording 49 kSamples/sec;
- Compliance with power quality standard IEC 61000-4-30 Class A;
- Complete power quality analysis according to EN 50160 including signalling and interharmonics;
- Support for microSD memory card (8-GB supplied with the instrument) up to 32GB;
- Color-coded input terminals and terminal labels to suit your application region;
- Intuitive main menu and large icons that makes the equipment very easy to navigate and configure;
- Current clamp auto range selection;
- Powerful PC SW PowerView3 enables downloading, view, analysis of recorded data and professional report creation;
- Flexible clamps (without additional power supply) are included in the Euro and Advanced set;
- Remote communication via Ethernet (GPS clock synchronization - optional).

APPLICATION

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

STANDARDS

Safety:

- EN 61010-1

Measurements:

- IEC/EN 61000-4-30, Class A;
- IEC/EN 61557-12;
- IEC/EN 61000-4-7, Class I;
- IEC/EN 61000-4-15;
- EN 50160;
- IEEE 1448;
- IEEE 1459;
- IEEE 519

Electromagnetic compatibility (EMC):


- EN 61326

TECHNICAL SPECIFICATION


FUNCTION

| | | |
|---|--|--|
| Voltage inputs | AC+DC | |
| Number of inputs | 5 | |
| Nominal voltage range (L – N) | Phase (L-N): 50 ... 1000 Vrms / Line (L-L): 50 ... 1730 Vrms | |
| Measuring range | 10% ... 150% of nominal voltage | |
| Accuracy | IEC 61000-4-30 Class A, $\pm 0.1\%$ of nominal voltage, | |
| Sampling rate | 7 kSamples per sec @ 50/60 Hz, sync with mains freq. 1.7 kSamples per sec @ VFD (5 Hz - 110 Hz) 12.2 kSamples per sec @ 400 Hz | |
| Mains frequency range | 42,5 ... 69,0 Hz ± 10 mHz 5 ... 110 Hz ± 10 mHz (VFD) 335,0 ... 465,0 Hz ± 100 mHz | |
| Current inputs | AC+DC | |
| Number of inputs | 4 | |
| Measuring range: | | |
| Range 1: | 10.0 mVRMS ... 300.0 mVRMS $\pm 0.25\%$ URMS | |
| Range 2: | 50.0 mVRMS ... 3.000 VRMS $\pm 0.25\%$ URMS | |
| Current clamp accuracy: | | |
| A 1588 | 50 mARMS ... 100 ARMS $\pm 0.5\%$ of m.v. | |
| A 1281 | 50 mARMS ... 1200 ARMS $\pm 0.5\%$ of m.v. | |
| A 1069 | 500 mARMS ... 200 ARMS $\pm 1.0\%$ of m.v. | |
| A 1501 / A 1502 / A 1227 / A 1445 | 3 ARMS ... 6000 ARMS $\pm 1.5\%$ of m.v. | |
| A 1503 / A 1446 | 6 ARMS ... 12000 ARMS $\pm 1.5\%$ of m.v. | |
| Functions | Measuring range | Accuracy |
| Power (P, Q, S, cos ϕ , PF...) | Depends on voltage and selected clamps | IEC 61557-12 Class 1 |
| Energy | Depends on voltage and selected clamps | Active: IEC 62053-21 Class 1 Reactive: IEC 62053-23 Class 2 |
| Harmonics (DC ... 50th) @50/60 Hz | 0 ... 20% of nom. voltage | IEC 61000-4-7 Class 1 |
| Harmonics (DC ... 13th) @400 Hz | | |
| Harmonics (DC ... 20th) @VFD (5 - 16 Hz) | | |
| Harmonics (DC ... 13th) @VFD (16 - 33 Hz) | | |
| Harmonics (DC ... 5th) @VFD (33 - 110 Hz) | | |
| Interharmonics (1 ... 50th) @ 50/60 Hz | 0 ... 20% of nom. voltage | IEC 61000-4-7 Class 1 |
| Interharmonics (1 ... 20th) @VFD (5 - 16 Hz) | | |
| Interharmonics (1 ... 13th) @VFD (16 - 33 Hz) | | |
| Interharmonics (1 ... 5th) @VFD (33 - 110 Hz) | | |
| Flicker | 0.2 ... 10 | IEC 61000-4-15 Class F3 |
| Mains signalling | 0 ... 15% of nom. voltage | IEC 61000-4-30 Class A |
| Unbalance | Voltage: 0 ... 5% Current: 0 ... 20% | |
| Temperature | -10 ... 85 °C | ± 0.5 °C |
| Dips, Swell | 10 ... 150% of nom. voltage | $\pm 0.2\%$ of nominal voltage ± 1 cycle |
| Interrupts | 0 ... 10% of nom. voltage | ± 1 cycle |
| Recorders | | |
| Memory | 8GB microSD, up to 32GB supported | |
| General recorder | | |
| Integration period | 1s ... 2h | |
| Recorded signals | > 1000 (voltages, currents, harmonics, power...) Minimal, maximal and average value per interval - Voltage events - Custom alarms | |
| Duration | > 1 year (depends on size of SD card) | |
| Waveform recorder | | |
| Duration | Up to 20 seconds of voltage and current waveform | |
| Trigger | Manual, Voltage Events, Custom Alarms, voltage or current level (inrush) | |
| Transient recorder | | |
| Sampling rate | > 49ksamples/sec | |
| Duration | Up to 50 cycles of voltage and current waveform | |
| Trigger | Manual, voltage envelope or level | |
| General | | |
| Display | 4.3 inch colour TFT (480 x 272) | |
| Communication | USB, Ethernet, RS-232 | |
| Time synchronisation | GPS receiver (A 1355) | |
| Power supply | 110 ... 240 Vac or 6 x NiMH rechargeable batteries, size AA | |
| Overvoltage category | CAT IV / 600 V or CAT III / 1000 V | |
| Weight | 0,96 kg | |
| Dimensions | 230 x 140 x 80 mm | |


OPTIONAL ACCESSORIES – AC FLEX CURRENT CLAMPS

| Part No. | A 1501 / A 1502 | A 1503 | A 1227 / A 1445 | A 1446 |
|--|-----------------|---------------|-----------------|---------------|
|  | | | | |
| Nominal range | 30/300/3000A | 60/600/6000A | 30/300/3000A | 60/600/6000A |
| Measurement range | 3 ... 6000 A | 6 ... 12000 A | 3 ... 6000 A | 6 ... 12000 A |
| Accuracy | ±1% | ±1% | ±1% | ±1% |
| ∅ | 7/14 cm | 27 cm | 14/19 cm | 27 cm |
| Sensor length | 25/48 cm | 90 cm | 48/68 cm | 90 cm |
| Overvoltage category | CAT IV / 600V | CAT IV / 600V | CAT IV / 600V | CAT IV / 600V |
| IP | IP 64 | IP 64 | IP 64 | IP 64 |


OPTIONAL ACCESSORIES – AC IRON CURRENT CLAMPS

| Part No. | A 1588 | A 1069 | A 1281 | A 1033 |
|---|----------------|----------------|-----------------|--------------|
|  | | | | |
| Nominal range | 0.5/5/50A | 10/100A | 0.5/5/100/1000A | 100/1000A |
| Measurement range | 0.05 ... 100 A | 0.5 ... 200 A | 0.05 ... 1200 A | 5 ... 1200 A |
| Accuracy | ±0.5% | ±1% | ±0.5% | ±2% |
| Jaw opening | 4 cm | 1.3 cm | 5.2 cm | 5.2 cm |
| Max. conductor | < 50 mm | < 50 mm | < 50 mm | < 15 mm |
| Overvoltage category | CAT II / 600V | CAT III / 600V | CAT III / 600V | CAT III/600V |
| IP | IP 40 | IP 20 | IP 20 | IP 20 |

OPTIONAL ACCESSORIES – AC/DC CURRENT CLAMPS

| Part No. | A 1391 PQA | A 1717 | A 1636 |
|---|-------------|----------------|--|
|  | | | |
| Nominal range | 40/300 A | 100/1000A | DC: 2000A AC: 1000A |
| Measurement range | 2 ... 300 A | 3 ... 1000 A | DC: 40 ... 2000 A AC: 20 ... 1000 A |
| Accuracy | ±3% | ±1%±1A | |
| Jaw opening | 2.5 cm | 5.1 cm | 7.3 cm |
| Max. conductor | < 22 mm | < 52 mm | < 68 mm |
| Overvoltage category | CAT IV/600V | CAT III / 600V | CAT II / 600V |
| IP | IP 40 | IP 40 | IP 40 |

OPTIONAL ACCESSORIES – I/U TRANSDUCER

| Part No. | A 1037 |
|---|---------------|
|  | |
| Nominal range | 0.5/5 A |
| Measurement range | 0.01 ... 10 A |
| Accuracy | ±0.3% |
| Overvoltage category | CAT III/600V |
| IP | IP 40 |

OPTIONAL ACCESSORIES

| Photo | Order No. | Description |
|---|-----------|--|
|  | A 1479 | Wide range power supply |
|  | A 1355 | GPS receiver |
|  | A 1622 | 3G / Wi-Fi Router |
|  | A 1631 | EV monitoring cable |
|  | A 1565 | Waterproof case for outdoor application and recordings (pylons, switchyards) |
|  | A 1577 | Waterproof case with a telescopic handle and smooth-running wheels |
|  | S 2014 | Safety fuse adapter, 3 pcs |
|  | S 2015 | Safety flat clamp, 4 pcs |
|  | A 1198 | Magnetic contact probe |
|  | A 1354 | Temperature probe |
|  | A 1648 | Current clamp A 1281 extension cable, 5 m |
|  | A 1673 | Micro SD card 32GB |
|  | A 1458 | SanDisk microSD card reader |

PC SOFTWARE POWERVIEW 3

PC Software PowerView 3 software is a powerful platform for downloading, analysing recorded data and creation of power quality test reports. PC Software contains a package of functionalities needed for profound evaluation of power quality phenomena, data comparison and creation of complex test reports. It works in conjunction with Metrel new generation power quality analysers. For the instruments equipped with GPRS functionality PowerView3 enables remote control and data download.



KEY FEATURES

- User friendly interface: wide range of quick buttons, possibility to customize the environment by dragging, docking and resizing the window tabs.
- Structure: downloaded data is organized into Windows Explorer-like tree structure.
- "Drag and drop": downloaded data can be easily organized into multiple sites and sub-site locations.
- Data filtering: data in a structure can be grouped by quantity or by phase.
- Views: depending on selected record type, different views are available (Record Information view, Trend Chart view, Table view, Waveform Scope view, Voltage Quality view, etc.)
- EN 50160 analysis: automatic voltage quality analysis in compliance with custom or predefined EN 50160 Power Quality criteria and quick report printing.
- Chart zoom: chart can be zoomed depending on selected in a table value range.
- Remote control: via GPRS communication remote handling of the instrument and its data can be executed.
- GPS synchronization: simultaneous measurement on the different network points by using 2 or more synchronized instruments.
- On-line monitoring: real-time observing of signals and parameters is possible via PowerView3 while instrument is measuring / recording in the background.
- Export of test results: test results can be filtered and exported to other programs (MS Excel, MS Word, CSV, TXT).
- Reports: automatic generation of test reports from the selected views and data with attached graphs according specific standards/national specification, like: IEEE 519, GOST 32144/33073, Energy report, Energy demand report Codigo de RED
- SW and FW update: PowerView3 checks for new versions of the application and downloads updates from the Internet if necessary.

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

ORDERING INFORMATION



MI 2892 Advanced set (AD)

- Instrument Power Master
- A 1502 1-phase flexible current clamps 3000 / 300 / 30 A, 4 pcs
- Test probe, (brown, black, grey, green, blue), 5 pcs
- Crocodile clip, (brown, black, grey, green, blue), 5 pcs
- Voltage measurement lead, (brown, black, grey, green, blue), 5 pcs
- Labels for colour coding
- Temperature probe
- microSD memory card 8.0GB
- microSD card reader
- PC SW PowerView3
- USB and Ethernet patch cable
- Power supply adapter
- 1.2 V NiMH rechargeable battery, 6 pcs
- Professional protective waterproof case (A 1685)
- Instruction manual
- Calibration certificate



MI 2892 Euro set (EU)

- A 1227 1-phase flexible current clamps 3000 / 300 / 30 A, 4pcs (instead of A 1502 flexible current clamps)



MI 2892 Standard set (ST)

- Without flexible current clamps

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EURO-INDEX verleent service op alle meetinstrumenten uit haar leveringspakket en biedt de faciliteiten, kennis en hoog gekwalificeerd personeel voor (preventief) onderhoud, reparatie en kalibratie van uw meetinstrumenten.

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- Instrumenten worden geleverd met accessoirepakket en herleidbaar kalibratiecertificaat

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Servicebalie



Kalibratie rookgasanalyse



Seminars en workshops



Kalibratie thermografie

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