

# Class A Power Quality Analyser

## MI 2992 Power Analyser



The MI 2992 Power Analyser is a handheld, three-phase power quality analyser featuring a large 10.1" TFT colour touchscreen display. Its intuitive step-by-step wizard allows users to quickly detect power quality parameters without complex setup. It is designed for both long-term recording and troubleshooting and supports various distribution system configurations. The new platform enables comprehensive data analysis directly on the device, including live measurements and historical data review. Users can access trends for all recorded parameters, as well as events, transients, RVCs, inrush currents, and more. For more advanced reporting and analysis, the MPVision PC software provides local or remote data transfer, automated post-processing, and report generation. Additionally, remote access via VNC Viewer allows full control of the instrument from any computer, regardless of location.

### MEASURING FUNCTIONS

- Voltage: TRMS, DC, fundamental, under, over, peak, crest factor (4-channel);
- Current: TRMS, DC, fundamental, peak, crest factor (4-channel);
- Support for different connections: 1W, 2W (split), 3W, open delta, 4W, INV-3W, INV-1W;
- Power measurements:
  - Combined;
  - Fundamental;
  - Nonfundamental;
  - Active;
  - Non-active;
  - Apparent;
  - Inductive;
  - Capacitive;
  - Load unbalance;
  - Consumed;
  - Generated.
- Unbalance measurements;
- Flicker measurement;
- Power harmonics measurement up to the 63rd;
- Harmonics pollution;
- Harmonic and inter-harmonic analysis (up to the 63rd harmonic), THD (voltage & current) and TDD measurements:
  - Absolute value;
  - % RMS;
  - % Fundamental.
- Supraharmonics measurements: 2.1 - 14.9 kHz with 200 Hz bins;
- Harmonics phase angle;
- Energy (active, reactive, generated, consumed);
- Inrush currents monitoring and recording;
- K-factor;
- Capturing different events during recording session:
  - Events (dips, swells, interruptions);
  - RVC;
  - Inrush;
  - Alarms;
  - Signalling;
  - Transients.
- Power quality analysis in accordance with to EN 50160, IEEE 519;
- Recording up to 10 adjustable alarms;
- Temperature measurement;
- Power factor, displacement power factor, cos  $\phi$  and tg  $\phi$ .

### KEY FEATURES

- Full compliance with power quality standard IEC 61000-4-30 Class A;
- High-speed measurement sampling frequency;
- Predefined tailored recorder profiles for specific customized reports (minimum recording interval 200 ms);
- User-defined recorder profiles;
- Build-in power supply; directly powered from

- voltage (P-N or P-P) terminals;
- Simultaneous capture of events, inrushes, user defined alarms, RVC's, transients, signalling;
- NTP time synchronisation;
- Automatic firmware download;
- Remote access via VNC Viewer;
- Online scope view for voltages and currents;
- Easy to identify potential power quality problems via live measurements screen;
- Measuring of harmonic components of up to the 63rd;
- Measuring supraharmonics (2.1-14.9 kHz);
- Power-harmonics measurements;
- Simple and powerful recorder with internal storage (eMMC card), external microSD memory card (up to 32 GB);
- Data download via USB cable, SD card, USB flash drive, Ethernet;
- Automatic report creation in accordance with standards like EN 50160, IEEE 519, Codigo de Red, Osinergimin and specific custom-tailored reports or export to .xls, .csv for use with third-party software;
- Recording intervals: 200 ms (with

- special profile), 1 s ... 2 h (user selectable or fixed defined inside profile);
- Two independent recording intervals (per energy/demand and other values) for a user-defined profile;
- Independent recording periods (unlimited) for predefined profiles;
- Averaging intervals: avg, min, max, avgon;
- Advanced data analysis with software MPVision;
- CAT IV 600 V / CAT III 1000 V overvoltage category;
- Built-in Li-Ion battery;
- Direct connection to 1500 DC system by using S 2149 attenuator;
- Waveform/inrush recorder, which can be triggered on event/alarms/level; transient recorder for phase lines (voltage or current) with level or envelope trigger selection running simultaneously with the general recorder;
- Support for DC, 50/60 Hz, 400 Hz system frequency and VFD mode;
- 4 voltage channels with wide measurement range: up to 1000 VRMS, CAT III / 1000 V,

- with support for medium-voltage and high-voltage systems;
- 4 current channels with support for automatic clamp recognition and range selection;
- Compliance with IEC 61557-12 and IEEE 1459 (combined, fundamental, nonfundamental power) and IEC 62053-21 (energy);
- With a built-in wide range power supply (85 – 500 Vac) and Li-ion battery;
- 10,1" TFT colour touchscreen;
- Advanced communication options include USB Type-C, 10/100/1000 Mbit/s Ethernet interface, certified Wi-Fi 802.11 ac/a/b/g/n, Bluetooth 4.2/BLE;
- PC software MPVision is an integral part of a measuring system which provides an easy way to download, view and analyse measured data or print reports.

## APPLICATION

- Power quality assessment and troubleshooting in low- and medium-voltage electrical systems;
- Energy consumption optimization;

- Checking power correction equipment performance;
- Long-term analysis;
- Predictive maintenance;
- Verification of electrical system capacity before adding loads;
- Transient capturing.

## 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 1459;
- IEEE 519.

### Electromagnetic compatibility (EMC)

- EN 61326



Side connector panel with an Ethernet port, 6-pin Mini-DIN port, microSD card slot, USB Type-C port, and a USB Type-A port.

## TECHNICAL SPECIFICATION

| FUNCTION                               |                                                                                                                             |                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------|
| <b>Voltage inputs</b>                  | <b>AC+DC</b>                                                                                                                |                           |
| Number of inputs                       | 5 (3 phase, 1 neutral, 1 Pe)                                                                                                |                           |
| <b>Nominal voltage range</b>           |                                                                                                                             |                           |
| Max. voltage input                     | 1000 Vrms / 1000 Vdc (1414 Vpk)                                                                                             |                           |
| Nominal voltage range                  | Wye and single-phase variable<br>Delta variable<br>IEC 61000-4-30 Class A compliance for nominal voltages (Udin) 50 – 690 V |                           |
| Input impedance                        | 20 MΩ between P-P, P-N, P-Pe and N-Pe                                                                                       |                           |
| <b>Measuring range</b>                 |                                                                                                                             |                           |
| Sampling frequency                     | 40 kSamples/sec                                                                                                             |                           |
| Resolution                             | 24-bit synchronous sampling on 9 channels                                                                                   |                           |
| Bandwidth                              | DC ... 20 kHz                                                                                                               |                           |
| Mains frequency range                  | 42,5 ... 69,0 Hz ±10 mHz<br>5 ... 130 Hz ± 10 mHz (VFD)<br>335,0 ... 465,0 Hz ± 100 mHz                                     |                           |
| <b>Current inputs</b>                  | <b>AC+DC</b>                                                                                                                |                           |
| Number of inputs                       | 4 (3 phase and 1 neutral)                                                                                                   |                           |
| Input voltage                          | 1 Vrms @ CF 3                                                                                                               |                           |
| Max. input voltage                     | 30 Vrms                                                                                                                     |                           |
| Input impedance                        | 101 kΩ                                                                                                                      |                           |
| FUNCTIONS                              | MEASURING RANGE                                                                                                             | ACCURACY                  |
| Power (P, Q, S)                        | Depends on voltage and selected clamps                                                                                      | IEC 61557-12 Class 1      |
| Power (PF)                             | Depends on voltage and selected clamps                                                                                      | IEC 61557-12 Class 0.5    |
| Energy (Ep)                            | Depends on voltage and selected clamps                                                                                      | IEC 62053-21 Class 1      |
| Energy (Eq)                            | Depends on voltage and selected clamps                                                                                      | IEC 62053-23 Class 2      |
| Harmonics (DC ... 63rd) @ 50/60 Hz     | 0 ... 20 % of nom. voltage                                                                                                  | IEC 61000-4-7 Class I     |
| Interharmonics (1 ... 63rd) @ 50/60 Hz | 0 ... 20 % of nom. voltage                                                                                                  | IEC 61000-4-7 Class I     |
| Flicker                                | 0.2 ... 10                                                                                                                  | IEC 61000-4-15 Class F1   |
| Mains signalling                       | 0 ... 15 % of nom. voltage                                                                                                  | IEC 61000-4-30 Class A    |
| Unbalance                              | Voltage: 0 ... 5 %<br>Current: 0 ... 20 %                                                                                   |                           |
| Temperature                            | -10 ... 85 °C                                                                                                               | ±0.5 °C                   |
| Dips, swell                            | 10 ... 150 % of nom. voltage                                                                                                | ±0.2 % of nominal voltage |
|                                        |                                                                                                                             | ±1 cycle                  |
| Interruptions                          | 0 ... 10 % of nom. voltage                                                                                                  | ±1 cycle                  |



Integrated folding stand for easy use.

## Recorders

|        |                                                               |
|--------|---------------------------------------------------------------|
| Memory | 6 GB internal eMMC, external microSD of up to 32 GB supported |
|--------|---------------------------------------------------------------|

## General recorder

|                    |                                                                                                                                                                                                                                                                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integration period | 200 ms, 1 s ... 2 h                                                                                                                                                                                                                                                                                                                       |
| Recorded signals   | Minimal, maximal, average and average ON value per interval, including <ul style="list-style-type: none"> <li>- Voltage events (dip, swell, interrupt)</li> <li>- Custom alarms (up to 10 programmable alarms)</li> <li>- Signalling (up to two selectable frequencies)</li> <li>- Transients</li> <li>- Inrush</li> <li>- RVC</li> </ul> |
| Duration           | > 1 year (depends on size of SD card at 10 min registration period)                                                                                                                                                                                                                                                                       |

## Waveform recorder

|          |                                                                                                          |
|----------|----------------------------------------------------------------------------------------------------------|
| Duration | Up to 10 seconds duration and 1 seconds pretrigger of voltage and current waveform of up to 1500 records |
| Trigger  | Voltage events, custom alarms,<br>Current level (inrush), time interval                                  |

## Transient recorder

|               |                                       |
|---------------|---------------------------------------|
| Sampling rate | 40 kSamples/sec                       |
| Duration      | 500 ms of voltage / current waveforms |
| Trigger       | Envelope or level trigger             |

## General

|                      |                                                              |
|----------------------|--------------------------------------------------------------|
| Display              | Colour 10.1" IPS (LCD) with backlight, 1280 x 800 dots       |
| Communication        | USB Type-A, USB Type-C, Ethernet, RS-232, Wi-Fi, Bluetooth   |
| Time synchronisation | GPS receiver (A 1355)                                        |
| Power supply         | 100 V ... 500 V $\pm 10\%$ (90 V ... 550 V), 45 Hz ... 65 Hz |
| Battery              | Li-ion, 14.8 V @ 5200 mAh                                    |
| Overvoltage category | CAT IV 600 V / CAT III 1000 V                                |
| Weight               | 2,5 kg                                                       |
| Dimensions           | 320 x 230 x 60 mm                                            |



Top connector panel with input terminals.

# DETECT HIDDEN ISSUES

RELIABLY,  
QUICKLY,  
EFFICIENTLY

**METREL MI 2992** Power Analyser  
Optimize energy – detect, analyze, act

## COMPREHENSIVE POWER QUALITY ANALYSIS

Captures events, transients, inrush currents, and deviations per IEC 61000-4-30 Class A

## ADVANCED STORAGE & CONNECTIVITY

Supports eMMC, microSD, and remote access via VNC Viewer

## USER-FRIENDLY INTERFACE & REPORTING

10.1" touchscreen, intuitive setup, and automatic report generation



Order No.: MI 2992 Power Analyser

## RELIABILITY YOU CAN TRUST

Contact us for more information

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## OPTIONAL ACCESSORIES – AC FLEX CURRENT CLAMPS

| Part No.                                                                           | A 1501 / A 1502 | A 1503         | A 1227 / A 1445 | A 1446         |
|------------------------------------------------------------------------------------|-----------------|----------------|-----------------|----------------|
|  |                 |                |                 |                |
| Nominal range                                                                      | 30/300/3000 A   | 60/600/6000 A  | 30/300/3000 A   | 60/600/6000 A  |
| Measurement range                                                                  | 3 ... 6000 A    | 6 ... 12000 A  | 3 ... 6000 A    | 6 ... 12000 A  |
| Accuracy                                                                           | ±1 %            | ±1 %           | ±1 %            | ±1 %           |
| Ø                                                                                  | 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 / 600 V  | CAT IV / 600 V | CAT IV / 600 V  | CAT IV / 600 V |
| IP                                                                                 | IP64            | IP64           | IP64            | IP64           |

## OPTIONAL ACCESSORIES – AC IRON CURRENT CLAMPS

| Part No.                                                                          | A 1281           | A 1783          | A 1398 PQA     |
|-----------------------------------------------------------------------------------|------------------|-----------------|----------------|
|  |                  |                 |                |
| Nominal range                                                                     | 0.5/5/100/1000 A | 20/200 A        | 10 A           |
| Measurement range                                                                 | 0.05 ... 1200 A  | 50 mA ... 200 A | 0.5 ... 20 A   |
| Accuracy                                                                          | ±0.5 %           | ±0.5 %          | ±0.5 %         |
| Jaw opening                                                                       | 5.2 cm           | 4 cm            | 1.3 cm         |
| Max. conductor                                                                    | < 50 mm          | < 24 mm         | < 13 mm        |
| Overvoltage category                                                              | CAT III / 600 V  | CAT III / 600 V | CAT II / 300 V |
| IP                                                                                | IP20             | IP40            | IP40           |

## OPTIONAL ACCESSORIES – AC/DC CURRENT CLAMPS

| Part No.                                                                            | A 1391 PQA                     | A 1717         | A 1636                                 |
|-------------------------------------------------------------------------------------|--------------------------------|----------------|----------------------------------------|
|  |                                |                |                                        |
| Nominal range                                                                       | 40/300 A                       | 100/1000 A     | DC: 2000 A<br>AC: 1000 A               |
| Measurement range                                                                   | 2 A ... 40 A<br>20 A ... 300 A | 3 ... 1000 A   | DC: 40 ... 2000 A<br>AC: 20 ... 1000 A |
| Accuracy                                                                            | ± 3 %                          | ±1 % ±1 A      | ±3 % FS                                |
| Jaw opening                                                                         | 2.5 cm                         | 5.1 cm         | 7.3 cm                                 |
| Max. conductor                                                                      | < 22 mm                        | < 52 mm        | < 68 mm                                |
| Overvoltage category                                                                | CAT III / 600 V                | CAT III / 600V | CAT II / 600V                          |
| IP                                                                                  | IP40                           | IP40           | IP40                                   |

## 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/600 V |
| IP                                                                                  | IP40          |

## OPTIONAL ACCESSORIES

| Photo                                                                                | Order No. | Description                |
|--------------------------------------------------------------------------------------|-----------|----------------------------|
|   | A 1355    | GPS receiver               |
|   | A 1799    | 4G modem RUT241            |
|   | A 1631    | Test cable, EVSE-Case      |
|   | S 2015    | Measurement clamp set, Red |
|   | A 1648    | Test lead, Black, 5m, 2mm2 |
|  | A 1673    | MicroSD card, 32 Gb        |

## PC SOFTWARE MPVISION

MPVision PC software is a versatile platform for downloading, analyzing recorded data, and generating detailed power quality test reports. It offers a full suite of functionalities for in-depth evaluation of power quality phenomena, data comparison, and creation of complex reports. Designed to work seamlessly with Metrel's new-generation power quality analyzers, it enables both local and remote data transfer, as well as remote instrument control for maximum flexibility and efficiency.



PC software MPVision interface.

## KEY FEATURES:

- User-friendly interface: wide range of quick buttons, ability to customize the environment by dragging, docking and resizing the window tabs.
- Structure: downloaded data is organized into a Windows Explorer-like tree structure.
- Views: depending on the selected record type, different views are available (Record Information view, Trend Chart view, Table view, Events view, Harmonics Heatmap view, Reports view etc.)
- EN 50160 analysis: automatic voltage quality analysis in compliance with custom or predefined EN 50160 Power Quality criteria, with quick report printing.
- Chart zoom: charts can be zoomed based on the value range selected in a table.
- Remote control: the instrument and its data can be managed remotely.
- GPS synchronization: simultaneous measurement at different network points by using two or more synchronized instruments.
- On-line monitoring: real-time observation of signals and parameters while the 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 in accordance with specific standards/national specifications, like: EN 50160, IEEE 519, Energy report, Energy demand report, Codigo de RED.

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## ORDERING INFORMATION



### MI 2992 Advanced set (AD)

- Instrument MI 2992 Power Analyser
- 4x A 1502 Mini current clamp-flexible 30/300/3000 A, Dia=140 mm
- 4x A 1778 Test probe, Black - Magnet tip
- A 1297 Crocodile clip, Brown
- A 1013 Crocodile clip, Black
- A 1547 Crocodile clip, Grey
- A 1309 Crocodile clip, Green
- A 1310 Crocodile clip, Blue
- A 1459 2M Test lead, BLK/BLU/GRN/BRN/GRY, 2m, 0.75mm<sup>2</sup>
- A 1354 Temperature probe
- 2x A 1811 Test lead, Red, 0.4m, 0.75mm<sup>2</sup> - CAT IV
- A 1851 Power cable, Type C/2x banana connector
- A 1812 USB cable type C/A
- A 1767 UTP CAT5 ethernet cable
- A 1776 Hard case, Size M for MI 2992
- PC SW MPVision
- Instruction manual
- Calibration certificate



### MI 2992 Euro set (EU)

- 4x A 1227 Current clamp-flexible 30/300/3000 A, Dia=140 mm (instead of A 1502 flexible current clamps)



### MI 2992 Standard set (ST)

- Without flexible current clamps