

## MI 2592 PowerQ4

**NEW**



**Powerfull, high-end  
4-channel power  
quality analyser with  
extraordinary  
price-performance  
ratio**

The MI 2592 PowerQ4 is a handheld, simple to use, portable power quality analyser with four current and four voltage measuring channels. Integrated in rugged housing and packed with powerful functions it can be effectively used for monitoring, troubleshooting and analysing of power quality conditions in power distribution networks either in industry or utilities.

The PowerQ4 is the first handheld power quality analyser which is compliant with power quality standard IEC 61000-4-30 Class S and standard IEC 61557-12.

Powerful PC Software package PowerView comes delivered as part of a standard set and enables downloading, analysing of recorded data and printing of professional test reports. Through a simple but powerful interface PowerView helps to find recorded data quickly and allows to make complex analysis and data comparison.

### FEATURES:

- 4 voltage channels with wide measurement range: 0 ... 1000 Vrms (CAT III / 1000 V).
- 4 current channels with support for automatic clamp recognition.
- Simultaneous measurement and recording of basic power quality parameters. (U, I, P, Q, S, PF, cos  $\phi$ , THD).
- Power quality analysis according to EN 50160 including flicker measurement and standardized report printout in graphic and table form.
- 4-quadrant measurements (generator and load with capacitive or inductive character).
- 509 parameters can be monitored or recorded simultaneously.
- 8 MB of internal memory space allows recording over 4 weeks.
- PowerQ4 is compliant with power quality standard IEC 61000-4-30 Class S.
- Power measurements comply with IEC 61557-12 and IEEE 1448.
- Large LCD display, 320x200 dots, with backlight.
- On-line Scope, Trend and Metering modes.
- Flexible clamps (without additional supply) are included in the standard set.
- Simultaneous 8 channels - 16 bit AD conversion for accurate power measurements (minimal phase shift error).
- 15 hours of autonomous (battery) supply.
- Powerful PC SW PowerView enables downloading, view, analysis of recorded data and professional report creation.

### APPLICATION:

- Power quality assessment and troubleshooting in low and middle voltage electrical systems.
- Checking power correction equipment performance.
- Harmonics spectrum analysis for selection of harmonic filters.
- UPS, voltage generators and regulators checking and troubleshooting.
- Voltage, current, power monitoring and recording.
- Consumption profile recording.

### MEASURING FUNCTIONS:

- Voltage: TRMS, peak, crest factor (4-channel)
- Current: TRMS peak, crest factor (4-channel)
- Power (active, reactive, apparent)
- Power factor, cos  $\phi$
- Unbalance, flicker measurement
- Harmonic analysis up to 50<sup>th</sup> harmonics, THD measurement
- Energy (active, reactive, generated, consumed)
- Power quality analysis according to EN 50160
- Capturing and recording of power supply events (shut-down's, interruptions, swells, dips)
- Inrush currents monitoring and recording
- Recording up to 10 adjustable alarms
- Waveform displaying and snapshot

### STANDARDS:

Instrument is developed and manufactured in accordance with following standards:

**Safety:** EN 61010-1

**EMC:** EN 61326

### Measurements:

IEC/EN 61000-4-30 Class S;

IEC/EN 61557-12;

IEC/EN 61000-4-7 Class II;

IEC/EN 61000-4-15;

IEEE 1448;

IEC/EN 61000-4-15;

IEC/EN 61000-4-30 Class A or Class S\*;

EN 50160

# Technical specification

## Function

### AC Voltage inputs

|                     |  |
|---------------------|--|
| Number of inputs    | 4  |
| Input voltage range | 5 ... 1500 Vrms L - N (20 ... 2600 Vrms L - L) |
| Basic accuracy      | 0.2% of reading                                |
| Resolution          | 10 mV, 100 mV                                  |
| Sampling rate       | 1024 samples per 10 periods                    |
| Frequency range     | 10 ... 70 Hz                                   |

### AC Current inputs

|                         |   |
|-------------------------|---|
| Number of inputs        | 4                                       |
| Input voltage range     | 20.0 mVrms ... 2 Vrms                   |
| Current measuring range | 3 ... 6000 A (for current clamp A 1227) |
| Resolution              | 0.1 mV (0.1 A for current clamp A 1227) |
| Basic accuracy          | 0.25% of reading                        |
| Sampling rate           | 1024 samples per 10 periods             |

| Function  | Measuring range                       | Resolution | Accuracy          |
|---|---------------------------------------|------------|-------------------|
| Frequency   | 10.00 ... 70.00 Hz                    | 2 mHz      | ±10 mHz           |
| Power (W, VA, VAR)                                  | 0.000 k ... 9.999 M                   | 4 digits   | ±0.5 % of reading |
| Power factor  | -1.00 ... 1.00                        | 0.01       | ±0.02             |
| cos φ   | 0.00 ... 1.00                         | 0.01       | ±0.02             |
| Harmonics analysis<br>up 50 <sup>th</sup> component | $U_{hN} < 3\% U_{nom}$                | 10 mV      | 0.15 % $U_{nom}$  |
|   | $3\% U_{nom} < U_{hN} < 20\% U_{nom}$ | 10 mV      | 5 % $U_{hN}$      |
|   | $I_{hN} < 10\% I_N$                   | 10 mV      | 0.15 % $I_N$      |
|   | $10\% I_N < I_{hN} < 100\% I_N$       | 10 mV      | 5 % $I_{hN}$      |
|   | $0\% U_{nom} < THDU < 20\% U_{nom}$   | 0.1%       | ±0.3              |
| THD   | $0\% I_N < THDI < 100\% I_N$          | 0.1%       | ±0.6              |
|   | $100\% I_N < THDI < 200\% I_N$        | 0.1%       | ±1.5              |

### Voltage dips and swells evaluation

|           |                  |               |                 |
|-----------|------------------|---------------|-----------------|
| Magnitude | 20 ... 1500 V    | 10 mV, 100 mV | 0.5% of reading |
| Duration  | 30 ms ... 7 days | 1 ms          | ±20 ms          |

### Recording

|                           |   |
|---------------------------|---|
| Integration period (IP)   | 1 ... 3600 s  |
| Maximum number of signals | 509   |
| Communication ports       | RS 232, USB   |
| Display                   | Graphic LCD with backlight, 320 x 200 dots                |
| Memory module             | 8 MB Flash  |
| Voltage supply            | 230 VAC or 6 x 1.2 V NiMH rechargeable batteries, size AA |
| Over voltage category     | 1000 V / CAT III; 600 V / CAT IV                          |
| Protection class          | double insulation   |
| Dimensions                | 220 x 115 x 90 mm   |
| Weight                    | 0.65 kg   |

## Ordering information:

Standard set

Part No. MI 2592



- Instrument PowerQ4
- 1-phase flexible current clamps 3000 / 300 / 30 A (A 1227), 4 pcs
- Test probe, red, 3 pcs
- Test probe, black, 1 pcs
- Crocodile clip, black, 3 pcs
- Crocodile clip, red, 3 pcs
- Voltage measurement lead, red, 3 pcs
- Voltage measurement lead, black, 1 pcs
- Voltage measurement lead, green, 1 pcs
- PC SW PowerView
- RS232 and USB cables
- Power supply adapter
- 1.2 V NiMH rechargeable battery, 6 pcs
- Soft carrying bag
- Instruction manual
- Calibration certificate

## Optional accessories:

| Photo | Order No. | Acc. description                                   |
|-------|-----------|--|
|       | A 1020    | Small soft carrying bag                            |
|       | A 1033    | Current clamp 1000 A / 1 V                         |
|       | A 1037    | Current transformer 5 A / 1 V                      |
|       | A 1039    | Connection cable for current clamp                 |
|       | A 1069    | Mini current clamp 100 A / 1 V                     |
|       | A 1122    | Mini current clamp 5 A / 1 V                       |
|       | A 1179    | 3-phase flexible current clamp 2000/200/20 A / 1 V |
|       | A 1257    | 3-phase flexible current clamp 3000/300/30 A / 1 V |
|       | S 2014    | Safety fuse adapter, 3 pcs                         |
|       | S 2015    | Safety flat clamp, 4 pcs                           |



Measuring and Regulation Equipment Manufacturer

METREL d.d.  
Ljubljanska 77  
SI-1354 Horjul  
Tel: + 386 (0)1 75 58 200  
Fax: + 386 (0)1 75 49 226  
E-mail: metrel@metrel.si  
http://www.metrel.si

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