

# MI 2392 PowerQ *Plus*



Advanced, handheld, easy to use, 3-phase power quality analyser



**PowerQ *Plus*** is a genuine, portable 3-phase power quality analyser which favorably 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 assesment in heavy duty industrial environments.

Pre-set logging screens allow on-site evaluation of all major power quality parameters (U,I, P, PF,  $\cos \phi$ , THD, individual harmonic components, phase shift, etc.).

Windows compatible **PowerView** PC Software expands a versatility of the instrument.

## Target applications

- Power quality assessment and troubleshooting in low and middle voltage electrical systems
- Balancing phase loads in 3-phase systems
- Checking power correction equipment performance
- Harmonics spectrum analysis for selection of harmonic filters
- Capturing inrush currents e.g. motor s start up currents
- Voltage fluctuation recording
- Consumption recording

## Main features

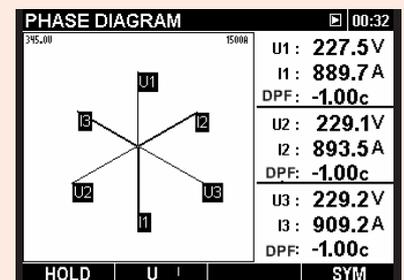
- Simultaneous measurement and recording of basic power quality parameters (U, I, P, Q, S, PF)
- Harmonics analysis up to 50<sup>th</sup> component
- Phase diagram
- Voltage unbalance calculation for 3-phase systems
- On-line scope function
- Windows compatible software package PowerView
- EN 50160 power quality assessment
- Recording of anomalies and inrush currents via adjustable triggers
- Lightweight design

## Standards:

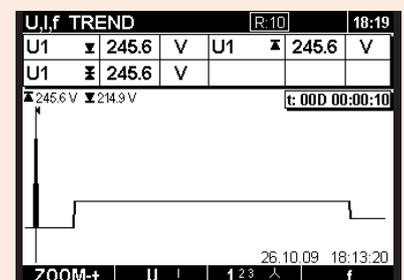
**Safety:** IEC/EN 61010-1

**EMC:** IEC/EN 61326-1

**Measurements:** EN 50160 and EN 61000-4-30, Class B



Phase diagram helps at connecting the instrument on the power network and is effectively used at individual phase conditions assesment.



**PowerQ *Plus*** enables on-screen evaluation of various pre-set loggers. This is an example of logger for U, I, f.

# Technical specification

## Function

### AC Voltage inputs

|                     |   |
|---------------------|---|
| Number of inputs    | 3   |
| Input voltage range | 3.0 ... 550.0 Vrms L - N (952.0 Vrms L - L) |
| Basic accuracy      | ± (1 % of reading + 0.5 V)                  |
| Resolution          | 0.1 V                                       |
| Sampling rate       | 1024 samples per 10 periods                 |

### AC Current inputs

|                         |   |
|-------------------------|---|
| Number of inputs        | 3   |
| Input voltage range     | 0.04 ... 1 Vrms   |
| Current measuring range | 4 ... 100 A and 40 ... 1000 A (with current clamp A 1033) |
| Resolution              | 0.1 A   |
| Basic accuracy          | ± (2 % of reading + 0.3 A)                                |
| Sampling rate           | 1024 samples per 10 periods                               |

| Function  | Measuring range                     | Resolution | Accuracy                         |
|---|-------------------------------------|------------|----------------------------------|
| Frequency   | 45.00 ... 66.00 Hz                  | 10 mHz     | ± (0.5 % of reading + 0.02 Hz)   |
|   | 0.000 ... 0.999 k                   | 1          |                                  |
|   | 0.00 ... 9.99 k                     | 10         |                                  |
|   | 0.0 ... 999.9 k                     | 100        |                                  |
|   | 0.000 ... 9.999 M                   | 1 k        |                                  |
| Power (W, VA, VAR)                                  | 0.00 ... 99.99 M                    | 10 k       | ± (3 % of reading + 3 digits)    |
|   | 0.0 ... 999.9 M                     | 100 k      |                                  |
|   | 0.000 ... 9.999 G                   | 1 M        |                                  |
|   | 0.00 ... 40.00 G                    | 10 M       |                                  |
|   |                                     |            |                                  |
| Power factor, cos φ                                 | 0.00 ... 0.39                       | 0.01       | ± 0.06                           |
|   | 0.40 ... 1.00                       | 0.01       | ± 0.03                           |
| Harmonics analysis up to 50 <sup>th</sup> component | $U_M > 3\% U_N$ ( $I_M > 3\% I_N$ ) | 0.1 %      | 5 % $U_M$ ( $I_M$ ) (3 % for DC) |
|   | $U_M < 3\% U_N$ ( $I_M < 3\% I_N$ ) | 0.1 %      | 0.15 % $U_N$ ( $I_N$ )           |

## Recording

|                           |   |
|---------------------------|---|
| Integration period (IP)   | 1 ... 3600 s  |
| Maximum number of signals | 500   |
| COM port                  | RS232 and USB   |
| Display                   | Graphic LCD with backlight, 320 x 200 dots                            |
| Memory module             | 8 MB Flash  |
| Voltage supply            | 230 V <sub>AC</sub> or 6 x 1.2 V NiMH rechargeable batteries, type AA |
| Overvoltage category      | CAT IV / 600 V  |
| Protection class          | Double insulation   |
| Dimensions                | 220 x 115 x 90 mm   |
| Weight                    | 0.65 kg   |

## Ordering information:

Standard set

Part No. MI 2392



- Instrument PowerQ<sup>Plus</sup>
- Current clamp 1000 A/1 V, 3 pcs
- Test tips, 3 pcs
- Alligator clips, 4 pcs
- Voltage measurement cables, 4 pcs
- PowerView PC SW package with RS232 and USB cable
- Power supply adapter
- Rechargeable batteries, 6 pcs
- Soft carrying bag
- User manual
- Handbook "Modern Power Quality Measurement Techniques" on CD
- Product verification data

Standard set

Part No. MI 2392F



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

## Option 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    | 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/RS232 converter with 1 m fixed cable      |
|       | A 1179    | 3-phase flexible current clamps 2000/200/20 A |
|       | A 1227    | 1-phase flexible current clamp 3000/300/30 A  |
|       | A 1257    | 3-phase flexible current clamps 3000/300/30 A |
|       | S 2014    | Safety fuse adapter                           |
|       | S 2015    | Safety flat clamps                            |



Measuring and Regulation Equipment Manufacturer

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