

# 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

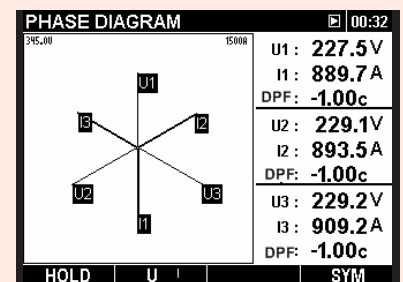
- Simultaneous measurement and recording of basic power quality parameters (U, I, P, Q, S, PF)
- Harmonics analysis up to 50<sup>th</sup> component
- Phase diagram
- Voltage unbalance calculation for 3-phase systems
- On-line scope function
- Windows compatible software package PowerView
- EN 50160 power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

## Standards:

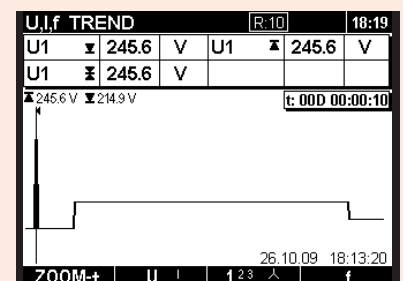
**Safety:** IEC/EN 61010-1

**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

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



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