

# 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 waveforms 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,  $\cos \phi$ .

### 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 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		
<b>Voltage inputs</b>		
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 $\pm 10$ mHz	
	5 ... 110 Hz $\pm 10$ mHz (VFD)	
	335,0 ... 465,0 Hz $\pm 100$ mHz	
<b>Current inputs</b>		
Number of inputs	4	
Measuring range	3 ... 6000 Arms $\pm 1.5\%$ of m.v.	
(with A 1227 / A 1502 flex clamps)	50 m ... 1200 Arms $\pm 0.5\%$ of m.v.	
Measuring range (with A1281 iron clamps)		
<b>Functions</b>		
Power (P, Q, S, cos fi, 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	$\pm 0.5$ °C
Dips, Swell	10 ... 150% of nom. voltage	$\pm 0.2$ % of nominal voltage $\pm 1$ cycle
Interrupts	0 ... 10% of nom. voltage	$\pm 1$ cycle
<b>Recorders</b>		
Memory	8GB microSD, up to 32GB supported	
<b>General recorder</b>		
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)	
<b>Waveform recorder</b>		
Duration	Up to 20 seconds of voltage and current waveform	
Trigger	Manual, Voltage Events, Custom Alarms, voltage or current level (inrush)	
<b>Transient recorder</b>		
Sampling rate	> 50ksamples/sec	
Duration	Up to 50 cycles of voltage and current waveform	
Trigger	Manual, voltage envelope or level	
<b>General</b>		
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	

### METREL D.D.

Measuring and Regulation Equipment Manufacturer  
Ljubljanska 77, SI-1354 Horjul, Slovenia  
T +386 (0)1 75 58 200, F +386 (0)1 75 49 226  
metrel@metrel.si, www.metrel.si

## ORDERING INFORMATION



### MI 2892 Advanced set (AD)

- Instrument Power Master
- 1-phase flexible current clamps 3000 / 300 / 30 A (A 1502), 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 color coding
- Temperature probe
- microSD memory card 8.0GB
- microSD card reader
- PC SW PowerView3
- RS232, USB and Ethernet patch cable
- Power supply adapter
- 1.2 V NiMH rechargeable battery, 6 pcs
- Professional protective waterproof carrying case
- Instruction manual
- Calibration certificate

### MI 2892 Euro set (EU)

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

### MI 2892 Standard set (ST)

- Without flexible current clamps

## OPTIONAL ACCESSORIES

Photo	Order No.	Acc. description
	A 1033	Current clamp 1000 A / 1 V
	A 1037	Current transformer 5 A / 1 V
	A 1561	Connection cable for current clamp (A 1069)
	A 1069	Mini current clamp 100 A / 1 V
	A 1588	Current clamp 0.5/5/50 A
	A 1281	Current clamp 1000/100/5 A / 1 V
	A 1503	1-phase mini flexible current clamp 6000/600/60 A / 1 V
	A 1458	microSD card reader
	A 1355	GPS receiver
	S 2014	Safety fuse adapter, 3 pcs
	S 2015	Safety flat clamp, 4 pcs
	A 1391 PQA	AC/DC Current clamp 300/40 A / 1 V
	A 1622	WiFi / 3G modem
	S 2072	USB storage device (for backup of data)