Class A Power Quality Analyser
MI 2892 Power Master

Power Quality Analyser



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 drive, 5 Hz – 120 Hz), 400 Hz;
- Unbalance, flicker measurement;
- Harmonic and interharmonic analysis up to 50th harmonics, THD and TDD measurements;
- 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 fi and tg fi.

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 and Advanced 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 1459;
- IEEE 519

Electromagnetic compatibility (EMC):
- EN 61326

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TECHNICAL SPECIFICATION

FUNCTION		
Voltage inputs	**AC+DC**	
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, ±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 - 120 Hz) 12.2 kSamples per sec @ 400 Hz	
Mains frequency range	42,5 ... 69,0 Hz ±10 mHz 5 ... 120 Hz ± 10 mHz (VFD) 335,0 ... 465,0 Hz ± 100 mHz	
Current inputs	**AC+DC**	
Number of inputs	4	
Measuring range:		
Range 1:	10.0 mVRMS ... 300.0 mVRMS ±0.25 % URMS	
Range 2:	50.0 mVRMS ... 3.000 VRMS ±0.25 % URMS	
Current clamp accuracy:		
A 1588	50 mARMS ... 100 ARMS ±0.5 % of m.v.	
A 1281	50 mARMS ... 1200 ARMS ±0.5 % of m.v.	
A 1069	500 mARMS ... 200 ARMS ±1.0 % of m.v.	
A 1501 / A 1502 / A 1227 / A 1445	3 ARMS ... 6000 ARMS ±1.5 % of m.v.	
A 1503 / A 1446	6 ARMS ... 12000 ARMS ±1.5 % of m.v.	
Functions	**Measuring range**	**Accuracy**
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 Harmonics (DC ... 13th) @400 Hz Harmonics (DC ... 20th) @VFD (5 - 16 Hz) Harmonics (DC ... 13th) @VFD (16 - 33 Hz) Harmonics (DC ... 5th) @VFD (33 - 120 Hz)	0 ... 20% of nom. voltage	IEC 61000-4-7 Class 1
Interharmonics (1 ... 50th) @ 50/60 Hz Interharmonics (1 ... 20th) @VFD (5 - 16 Hz) Interharmonics (1 ... 13th) @VFD (16 - 33 Hz) Interharmonics (1 ... 5th) @VFD (33 - 120 Hz)	0 ... 20% of nom. voltage	IEC 61000-4-7 Class 1
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% Current: 0 ... 20%	
Temperature	-10 ... 85 °C	±0.5 °C
Dips, Swell	10 ... 150% of nom. voltage	±0.2 % of nominal voltage ±1 cycle
Interrupts	0 ... 10% of nom. voltage	±1 cycle
Recorders		
Memory	8GB microSD, up to 32GB supported	
General recorder		
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)	
Waveform recorder		
Duration	Up to 20 seconds of voltage and current waveform	
Trigger	Manual, Voltage Events, Custom Alarms, voltage or current level (inrush)	
Transient recorder		
Sampling rate	> 49ksamples/sec	
Duration	Up to 50 cycles of voltage and current waveform	
Trigger	Manual, voltage envelope or level	
General		
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	

OPTIONAL ACCESSORIES – AC FLEX CURRENT CLAMPS

Part No.	A 1501 / A 1502	A 1503	A 1227 / A 1445	A 1446
				
Nominal range	30/300/3000A	60/600/6000A	30/300/3000A	60/600/6000A
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 / 600V	CAT IV / 600V	CAT IV / 600V	CAT IV / 600V
IP	IP 64	IP 64	IP 64	IP 64

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	100/1000A	DC: 2000A AC: 1000A
Measurement range	2 ... 300 A	3 ... 1000 A	DC: 40 ... 2000 A AC: 20 ... 1000 A
Accuracy	±3%	±1%±1A	
Jaw opening	2.5 cm	5.1 cm	7.3 cm
Max. conductor	< 22 mm	< 52 mm	< 68 mm
Overvoltage category	CAT IV/600V	CAT III / 600V	CAT II / 600V
IP	IP 40	IP 40	IP 40

OPTIONAL ACCESSORIES – I/U TRANSDUCER

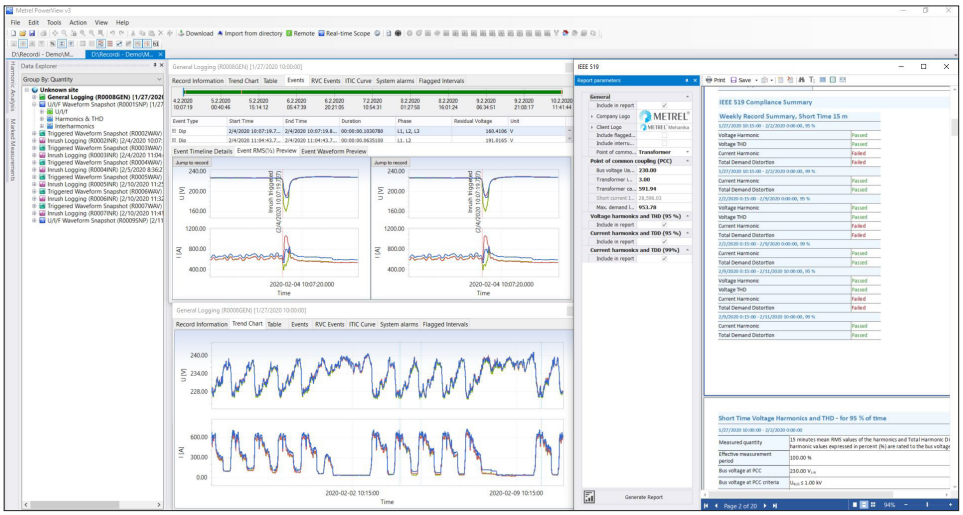
Part No.	A 1037
	
Nominal range	0.5/5 A
Measurement range	0.01 ... 10 A
Accuracy	±0.3%
Overvoltage category	CAT III/600V
IP	IP 40

OPTIONAL ACCESSORIES

Photo	Order No.	Description
	A 1479	Wide range power supply
	A 1355	GPS receiver
	A 1799	4G / Wi-Fi Router
	A 1631	EV monitoring cable
	A 1565	Waterproof case for outdoor application and recordings (pylons, switchyards)
	A 1577	Waterproof case with a telescopic handle and smooth-running wheels
	S 2015	Safety flat clamp, 4 pcs
	A 1778	Magnetic contact probe
	A 1354	Temperature probe
	A 1648	Current clamp A 1281 extension cable, 5 m
	A 1673	Micro SD card 32GB

PC SOFTWARE POWERVIEW 3

PC Software PowerView 3 software is a powerful platform for downloading, analysing recorded data and creation of power quality test reports. PC Software contains a package of functionalities needed for profound evaluation of power quality phenomena, data comparison and creation of complex test reports. It works in conjunction with Metrel new generation power quality analysers. For the instruments equipped with GPRS functionality PowerView3 enables remote control and data download.



KEY FEATURES

- User friendly interface: wide range of quick buttons, possibility to customize the environment by dragging, docking and resizing the window tabs.
- Structure: downloaded data is organized into Windows Explorer-like tree structure.
- "Drag and drop": downloaded data can be easily organized into multiple sites and sub-site locations.
- Data filtering: data in a structure can be grouped by quantity or by phase.
- Views: depending on selected record type, different views are available (Record Information view, Trend Chart view, Table view, Waveform Scope view, Voltage Quality view, etc.)
- EN 50160 analysis: automatic voltage quality analysis in compliance with custom or predefined EN 50160 Power Quality criteria and quick report printing.
- Chart zoom: chart can be zoomed depending on selected in a table value range.
- Remore control: via GPRS communication remote handling of the instrument and its data can be executed.
- GPS synchronization: simultaneous measurement on the different network points by using 2 or more synchronized instruments.
- On-line monitoring: real-time observing of signals and parameters is possible via PowerView3 while 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 according specific standards/national specification, like: IEEE 519, GOST 32144/33073, Energy report, Energy demand report Codigo de RED
- SW and FW update: PowerView3 checks for new versions of the application and downloads updates from the Internet if necessary.

ORDERING INFORMATION



MI 2892 Advanced set (AD)

- Instrument Power Master
- A 1502 1-phase flexible current clamps 3000 / 300 / 30 A, 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 colour coding
- Temperature probe
- microSD memory card 8.0GB
- microSD card reader
- PC SW PowerView3
- USB and Ethernet patch cable
- Power supply adapter
- 1.2 V NiMH rechargeable battery, 6 pcs
- Professional protective waterproof case (A 1685)
- Instruction manual
- Calibration certificate



MI 2892 Euro set (EU)

- A 1227 1-phase flexible current clamps 3000 / 300 / 30 A, 4pcs (instead of A 1502 flexible current clamps)



MI 2892 Standard set (ST)

- Without flexible current clamps

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