

# MPQ2000

## Portable Power Quality Analyzer



- **IEC61000-4-30 Class A compliance**
- **Powered off of phase A voltage ac/dc**
- **1000 Vac and 1000 Vdc range**
- **Real time scope and DVM**
- **Connection verification**
- **On-board data analysis**

### DESCRIPTION

The Megger MPQ2000 Power Quality Analyzer is a highly intuitive, advanced portable 3-phase analyzer, delivering unmatched capability, in a NEMA4 IP54 weatherproof enclosure. View RMS data, waveforms, demand data, phase angles, harmonics, unbalance, flicker and more in real time with the MPQ2000 scope mode and DVM mode. When data needs to be recorded, the MPQ2000 record verification automatically identifies the current clamps, recognizes their range and verifies the unit is connected properly. Simply connect it and push the record button.

The MPQ2000 can record for extended periods of time because of its massive memory. It utilizes an SD card which makes expanding the memory as easy as installing a new SD card. The recorded data can be viewed on the unit's color VGA display. The data can be transferred to the high-power Megger PQ Power Quality Analysis software via USB cable, USB stick, Ethernet, or directly from the SD card.

The free software, which requires no license, optimizes the MPQ2000 to locate the power quality phenomenon such as lighting issues, computer problems, tripping breakers, and much more. It offers advanced charting, advanced waveform and advanced harmonic analysis.

### MEASURED PARAMETERS

- |  |  |
|--|--|
| ■ RMS voltage / current                      | ■ Total harmonic distortion            |
| ■ DC voltage                                 | ■ Total demand distortion              |
| ■ DC current (requires DC CT)                | ■ Harmonics                            |
| ■ Phase-to-phase voltage                     | ■ Inter-harmonics                      |
| ■ Power parameters (KW, KVAR, KVA, DPF, TPF) | ■ Energy parameters (KWH, KVARH, KVAH) |
| ■ Voltage sags/dips and swells               | ■ Power harmonics                      |
| ■ Phase angles                               | ■ Harmonic direction                   |
| ■ Current sags/dips and swells               | ■ IEC flicker                          |
| ■ Transient down to 1 µsec                   | ■ Rapid voltage change                 |
| ■ IEC unbalance and ANSI unbalance           | ■ Phase angle deviation                |
| ■ Frequency                                  |  |

### FEATURES AND BENEFITS

- Powering off phase A makes the unit versatile, allowing its use in any location.
- IP54 NEMA4 weatherproof enclosure is designed for outdoor operation. The unit is robust enough to remain recording outdoors.
- Automated configuration in the Megger PQ software for quick and easy setup.
- Easy intuitive menus allow for simple navigation and operation.
- Record verification ensures the unit is configured correctly and you get the data you need — no wasted recordings.
- Automatic CT recognition means never having the unit programmed for a wrong range.
- CTs are powered by the unit so there's no need for additional connections.
- Full-featured Class A compliant (all parameters).
- On-board data analysis saves time by allowing an immediate examination of the data while still in the field.
- The expanded 1000 Vac range allows for more applications; no need for a second unit.
- 1000 DC measurement allows testing and analysis of renewable applications dismissing the need for additional equipment.
- Phase angle stability measurement lets you easily find tricky phasing problems caused by multiple erratic sources.
- CAT IV at 600 V ensures a safe unit for all applications.
- Multiple communication methods (USB, Ethernet, USB stick or SD card) allow flexible and convenient operation
- Removable SD card allows for large recording capabilities and simple memory expansion.
- Included PC software: data analysis, configuration wizard, analyze waveforms through 128th order.

## APPLICATIONS

Using experience gained from supplying a multitude of analyzers to a large number of utilities, industries and service providers, Megger has designed the most versatile unit available today. Some of the applications include the following:

- Compliance testing to any PQ standard
- Power factor studies
- Load studies and load balancing
- Billing verification
- Substation monitoring
- Capacitor bank sizing
- Transformer analysis and de-rating
- Motor troubleshooting and inrush testing
- Switchgear and component failure
- Tripping breakers
- Equipment tripping offline
- Dimming/surging lighting
- Lamp flicker analysis
- Neutral overheating

## SPECIFICATIONS

### Input Power

Phase A 90-600V 50Hz/60Hz or 105-600V DC  
 Aux Input Power - 120/240 V, 50/60 Hz

### Battery

NiMH battery pack  
 Discharge time – 6.5 hours  
 Recharge time – 3 hours

### Data storage

External SD card (up to 32 GB)

### Communication

USB communications  
 Ethernet communications  
 USB stick for data and configuration file transfer  
 SD card for direct data transfer

### Environmental

Operating: -20° C to 50° C (-4° F to 122° F)  
 Storage: -30° C to 60° C (-22° F to +140° F)  
 Relative humidity: 0-95% non-condensing

### Case

NEMA4 ruggedized enclosure IP54 when closed

### Display

Backlit 11.5 cm x 8.5cm color VGA

### Power Factor

Range: -1 to 0 to 1  
 Accuracy: ±0.02 + CT error

### Altitude

<2000 m  
 2000 m - 4000 m  
 4000 m - 5000 m

### Rating

1000 V CATIII / 600 V CATIV  
 600 V CAT III / 300 V CAT IV  
 300 V CAT III / 150 V CAT IV

## Compliance

Safety/EMC/Vibration	IEC61326
IEC61000-4-30	IEC60529
IEC61000-4-15	MIL-STD-810 G
IEC61000-4-27	IEEE 1453
IEC61010-1	IEEE 1459
	CAN/CSA-C22 No. 1010.1-92

## Dimensions

246 mm x 215 mm x 162 mm (9.68 in. x 8.46 in. x 6.38 in.)

## Weight

Standard unit: 2.27 kg (5 lbs)

## Voltage Channels

4 voltage channels  
 Voltage range: 0 to 1000 V AC / 0 – 1000 V DC  
 Voltage accuracy: ±0.1% per IEC61000-4-30  
 RMS Resolution: 16 bit  
 Crest factor: 1.5

## Current Channels

5 current channels  
 Current range: 0 to 6000 A (CT Dependent)  
 Current accuracy: ±1% per IEC61000-4-30  
 Resolution: 16 bit  
 Crest factor: 4.0

## Sampling Rate

256 samples per cycle RMS. 1 MHz transient sampling rate

## Real Time Clock

Accuracy: ±20 ppm

## Measurement Parameters

RMS voltage  
 RMS current  
 Sags / dips / swells  
 Transients (1 µsec) (±2697 V)  
 Sub-cycle events 64 µsec (notching, noise)  
 Rapid voltage change  
 Phase angle stability  
 IEC Unbalance  
 ANSI Unbalance  
 Power (KW, KVAR, KVA, DPF & TPF)  
 Energy (KWH, KVARH & KVAH)  
 Power Factor 1 to 0 to -1  
 Phase Angle  
 THD  
 TDD  
 Harmonics  
 Inter-Harmonics  
 Power Harmonics  
 Harmonic Direction  
 Flicker  
 Waveform Capture  
 Frequency

## Software

Windows compliant (XP, Win 7, 8, 10)

## ACCESSORIES

CP-1000WCE	1000 A split core CT
CP-100CE-ID	100 A split core CT
CP-20CE-ID	20 A split core CT
CP-5CE-ID5	A split core CT
CP-600DC-ID	600 A split core AC/DC current clamp

### MCCV Rain Tight Flexible Current Clamps

These flexible rain tight CTs have four current ranges that are all self-identifying.

The current clamps are powered from the MPQ2000 Analyzer and come in two different diameters (18 cm and 27 cm).

Ranges includes 60 A, 600 A, 3000 A and 6000 A.

### MPQ2000 Voltage Lead Set

Kit of 4 differential voltage leads.

Includes 4 voltage leads, 3 jumper leads and 1 ground lead.

Range = 0 to 1000 Vac / Vdc.

Voltage leads come with a kit of multi-color clip on bands. Configure the voltage leads to match the color code configuration.

CAT IV @ 600 V.

### MPQ2000 Voltage Lead Fuse Adapters

Optional fuse adapter kit. This adapter connects to the MPQ2000 standard fuse lead.

Includes 4 adapters with multiple color straps.

Fuses come with a kit of multi-color clip on bands. Configure the fuse adapters to match the color code of your voltage lead.



CP-5CE-ID, CP-20CE-ID, CP-100CE-ID



CP-1000WCE



MCCV6000-18  
MCCV6000-27



CP-600DC-ID

### ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
MPQ2000 9 channel 3-phase portable power quality analyzer	MPQ2000	<b>Optional Accessories</b>	
<b>Included Accessories</b>		Green ground lead and clip	2008-101
Unfused differential voltage lead kit	2007-216	White jumper lead	CA-PA9-JMP-KIT
32 GB SD card	90023-619	Fused adapter kit (3 adapters and 3 fuses)	1008-645
USB communications cable	CA-USB	Kit of 4 plunger clips	1008-756
USB memory stick contains user guide, Megger PQ PC software and Megger PQ PC software user guide	1006-532	US power and adapter plug	1007-980
Ethernet communications cable	36798	UK power and adapter plug	1007-981
Soft sided case	2007-626	EU power and adapter plug	1007-982
Power Cord	1005-778	<b>Current Clamps - NOT INCLUDED IN MPQ2000 KIT</b>	
Adapter - US	90012-013	Four range 6000 A AC rain tight, self-identifying, flexible rope current clamps (18 cm ID)	MCCV6000-18
Adapter - UK	90012-014	Four range 6000 A AC rain tight, self-identifying, flexible rope current clamps (27 cm ID)	MCCV6000-27
Adapter - EU	90012-015	1000 A AC split core current, self-identifying current clamps (50 mm ID)	CP-1000WCE-ID
Battery pack	2008-369	100 A AC split core current, self-identifying current clamps (20 mm ID)	CP-100CE-ID
		20 A AC split core current, self-identifying current clamps (20 mm ID)	CP-20CE-ID
		5 A AC split core current self-identifying current clamps (20 mm ID)	CP-5CE-ID
		AC/DC 600 A split core current self-identifying current clamps (50 mm ID)	CP-600DC-ID