

# MPQ1000

## Handheld Power Quality Analyzer



- **Automatic CT recognition**
- **Automatic connection verification**
- **On-board data analysis**
- **SD card and USB stick support**
- **1000 V ac and 1000 V dc range**
- **Scope and DMM modes**
- **CATIV @ 600 V**
- **IEC61000-4-30 Class A compliant**

### DESCRIPTION

The Megger MPQ1000 Power Quality Analyzer is an advanced handheld 3-phase analyzer. It is a highly intuitive analyzer that delivers unmatched capability in a smart ergonomic platform. View RMS data, waveforms, demand data, phase angles, harmonics, unbalance, flicker and more in real time with the MPQ1000 scope mode and DVM mode. When data needs to be recorded the MPQ1000 record verification will automatically identify the current clamps, recognize their range and verify the unit is connected properly. Simply connect it and push the record button. The MPQ1000 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 MPQ1000 color VGA display or 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.

### 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 sag/dips and swells                | ■ Mains signaling                      |
| ■ Phase angles                               | ■ Harmonic direction                   |
| ■ Current sags/dips and swells               | ■ IEC flicker                          |
| ■ Transient down to 1 $\mu$ sec              | ■ Rapid voltage change                 |
| ■ IEC unbalance                              | ■ Phase angle deviation                |
| ■ Frequency                                  | ■ ANSI unbalance                       |
| ■ Event waveform capture                     | ■ Timed waveform capture               |

### FEATURES AND BENEFITS

- Automatic CT recognition means never having the unit programmed for an incorrect range.
- CTs are powered by the unit so there is no need for additional connections.
- Connection verification ensures the unit is configured correctly and you get the data you need — no wasted recordings.
- On-board data analysis saves time by allowing an immediate examination of data before leaving the site.
- Multiple communication methods (USB, Ethernet, USB stick or SD card) allow for flexible and convenient operation.
- Removable SD card allows for large recording capabilities and simple memory expansion.
- The expanded 1000 V ac range allows for more application; no need for a second unit.
- 1000 V dc measurement allows testing and analysis of renewable applications dismissing the need for additional equipment.
- CATIV @ 600 V assures a safe unit for all applications.
- Full-featured Class A compliant (all parameters) ensures the recording of correct values.
- Smart configuration in the Megger PQ software for quick and easy setup.
- Phase angle stability measurement lets you easily find tricky phasing problems caused by multiple erratic sources.
- Timed waveform capture allows for the taking of PQ events and periodic waveforms at the same time.
- Easy intuitive menus allow for simple navigation and operation.
- Free software included means no license or dongle required.

## 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
- Solar (PV) analysis

## SPECIFICATIONS

### Input Power

120/240 V, 50/60 Hz

### Battery

NiMH battery pack  
Discharge time – up to 8 hours  
Recharge time – 2 hours

### Data storage

External SD card (32GB max)

### 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

IP54 enclosure

### Display

Backlit 11.5 cm x 8.5 cm color VGA

### Power Factor

Accuracy:  $\pm 0.02$  + CT error

## Compliance

Safety/EMC/Vibration	IEC61000-4-30
IEC61000-4-15	IEC61000-4-27
IEC61010-1	IEC61326
IEC60529	MIL-STD-810-G
IEEE1453	CAN/CSA-C22.2 No. 1010.1-92
RoHS2 Directive 2011/65/EU	

## Dimensions

175 mm x 250 mm x 60 mm (6.89 in. x 9.85 in. x 2.36 in.)

## Weight

Standard unit: 1.82 kg (4 lbs)

## Voltage Channels

4 voltage channels  
Voltage range: 0 to 1000 V AC / 0 – 1000 V DC  
Voltage accuracy: 0.1% of reading  
Resolution: 16 bit  
Crest factor: 1.5

## Current Channels

4 current channels  
Current range: 0 to 6000 A (CT dependent)  
Current accuracy: 0.1% of reading + CT  
Resolution: 16 bit  
Crest factor: 4.0

## Sampling Rate

256 samples per cycle RMS. 1 MHz transient sampling rate.

## Real Time Clock

Accuracy  $\pm 20$  ppm

## Measurement Parameters

RMS voltage  
RMS current  
Sags / dips / swells  
Transients (1  $\mu$ sec) ( $\pm 2697$  V)  
Sub-cycle events 64  $\mu$ sec (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 (Win 7, Win 8 and Win 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-5CD-ID	5 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 MPQ1000 Analyzer.

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

### MPQ1000 Voltage Lead Set

Standard set of voltage leads included with MPQ1000.

Includes: 5 voltage leads and 1 ground lead.

Range = 0 to 1000 V ac/dc

Multiple color straps. Configure your voltage leads for the required color code.

CAT IV @ 600 V

### MPQ0004 Optional Fuse Adapter Kit

This adapter connects to the MPQ1000 standard fuse lead.

Includes 4 adapters with multiple color straps.

### Split Core Current Clamp 1000 A

(CP-1000WCE)



### Split Core Current Clamp

Available options:

100 A (CP-100CE-ID)

20 A (CP-20CE-ID)

5 A (CP-5CE-ID)



### Hall Effect Current Clamp 600 A dc and 400 A ac

(CP-600DC-ID)



### MCCV Rain Tight Flexible Current Clamps

Available diameters:

18 cm (MCCV6000-18)

27 cm (MCCV6000-27)

### MPQ1000 Voltage Lead Set

(2007-259)



### Optional Fuse Adapter Kit

(MPQ0004)





## MPQ1000 Silver and Gold Kits

**Silver** (MPQ1000-S-KIT) - Includes: PQ analyzer, voltage leads, SD Card, USB cable, Ethernet cable, universal power adaptor and soft sided carry bag plus voltage lead plunger clips, hanging strap and 3 MCCV6000-18 (four range flex 18 cm inner diameter (ID) CTs).

**Gold** (MPQ1000-G-KIT) - Includes: PQ analyzer, voltage leads, SD Card, USB cable, Ethernet cable, universal power adaptor and soft sided carry bag plus voltage lead plunger clips, hanging strap and 3 MCCV6000-27 (Wide Diameter 27cm - four range flex CTs).



## MPQ1000 Bronze Kit

(MPQ1000-B-KIT)  
Includes: PQ analyzer, voltage leads, SD card, USB cable, Ethernet cable, universal power adaptor and soft sided carry bag plus voltage lead plunger clips, hanging strap and 3 CP-100CP-ID 100A split core CTs.

## ORDERING INFORMATION

Item (Qty)	Cat. No.	Item (Qty)	Cat. No.
MPQ1000 8 channel 3-phase power quality analyzer	MPQ1000	<b>Optional Accessories</b>	
<b>Included Accessories</b>		Fused adapter kit (3 adapters and fuses)	1008-645
Unfused voltage lead kit	2007-259	Kit of 4 plunger clips	1008-759
32 GB SD card	90023-619	Carrying strap	2009-205
USB memory stick: contains MPQ user guide, Megger PQ PC software and Megger PQ PC software user guide	1009-697	<b>Current Clamps</b>	
USB communications cable	CA-USB	Four range 6000 A AC rain tight, self-identifying, flexible rope current clamps (18 cm ID)	MCCV6000-18
Ethernet communications cable	36798	Four range 6000 A AC rain tight, self-identifying, flexible rope current clamps (27 cm ID)	MCCV6000-27
Soft sided case	2007-626-1	1000 A AC split core current, self-identifying current clamps (50 mm ID)	CP-1000WCE-ID
Universal 24 Vdc power adapter	90011-992	100 A AC split core current, self-identifying current clamps (20 mm ID)	CP-100CE-ID
Battery pack	2008-369	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
		MPQ1000 Bronze Kit (See above for contents)	MPQ1000-B-KIT
		MPQ1000 Silver Kit (See above for contents)	MPQ1000-S-KIT
		MPQ1000 Gold Kit (See above for contents)	MPQ1000-G-KIT