

# MEDCAL S

## Single-Phase Advanced Power Quality Monitor



### Description

MEDCAL S is an advanced power quality monitor, specifically designed for Power Quality studies. It is extremely easy to configure and set-up, with no external switches or settings. Covering the requirements of EN50160, it is the first single-phase monitor able to fully implement the recommendations of EN61000-4-7 harmonics measurement standard. Unlike other analysers, in MEDCAL S every cycle is considered in the calculation of harmonic voltage amplitudes.

MEDCAL S also includes an advanced transient detection capability on the voltage channels. The voltage waveform will be recorded whenever there is a voltage distortion on the instantaneous voltage.

MEDCAL S can store, under normal conditions, more than three months of recordings without external intervention. The absence of any mechanical elements makes the instrument extremely robust and reliable.

The included USB interface and cable allows direct communication with a personal

computer. It is possible to connect a standard modem in order to operate a remote MEDCAL S.

With every MEDCAL S a copy of MEDCALScope PC software is included at no additional cost.

MEDCALScope allows a complete and exhaustive analysis of recorded data. It is possible to save the recorded data for later use, and export the data to other computer applications, as well as check compliance with power quality standards.

### Characteristics

#### 2 RMS voltage channels:

- The instrument will record both Line-Neutral RMS voltage and optionally Neutral-Ground voltage. Neutral is automatically detected upon connection

#### Recorded events:

- Voltage dips and voltage peaks. Parameters: Duration, maximum or minimum voltage reached and exact time of the event
- RMS profiles of Dips, Surges and Fast voltage variations
- Fast voltage variations
- Voltage Harmonics amplitudes up to 63<sup>th</sup> harmonic
- Voltage R.M.S. value. Maximum, minimum and average values. Programmable calculation period between 1 second and 60 minutes
- Voltage interruptions. Duration and time of event
- Voltage transient detection. Voltage waveform is recorded. Optionally, the waveform of the second voltage channel is also recorded
- Voltage Frequency measurement. Maximum, minimum and average frequency recording

for every calculation period

- Short (Pst) and long-term (Plt) flicker

#### Features of included software:

- Display registered values in spreadsheet format
- Show registered values in graphic format
- Produces automatic printed reports
- Perform statistical calculations on acquired data, in order to verify compliance with power quality standards
- Export data in ASCII format

### Technical Specifications

**RMS Voltage Resolution:** 0.125 Volts

**RMS Voltage Range:** 0 to 300 Volts

**RMS Voltage Precision:** 0.5% of end-of-scale

**Instantaneous voltage resolution for transient recording:** 12 bits

**Measuring method:** True RMS calculation

**Harmonic amplitude precision:** 0.1% relative to fundamental

**Maximum harmonics recording order:** up to 63<sup>th</sup> harmonic

**Frequency precision:** 0.02 Hz.

**Frequency measurement range:** 48.4 to 51.6 Hz

**Sampling frequency:** 32 kHz per channel (640 samples/cycle at 50 Hz)

**Internal Memory capacity:** More than 3 months under normal conditions

**Communication:** USB, 1.1 and 2.0 compatible

**Internal clock precision:** 1 second / month

**Power consumption:** 1 W

**Weight:** 200 g

**Dimensions:** 120 x 65 x 40 mm

**Operating temperature:** -10 °C to + 65 °C

**Relative humidity:** 0% to 90%

### Computer Requirements

PC compatible

Pentium processor or higher

256 MB RAM Memory

3 MB free space on the Hard Drive

One USB port

Operating system: Windows 2000™ or Windows XP™

### Regulatory Compliance

EN-55081 (part 1) Generic, Domestic and Light Industry emissions standard

EN-60555 Harmonics and fluctuation emissions standard

IEC-1000-4-1 Immunity against Voltage Dips and Interruptions

En-500082 (part 2) Generic, Commercial and Light Industrial immunity Standard

EN-61010 Measurement, Lab and Control Equipment. Low Voltage Directive. Safety requirements: Cat II 600V



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