Data Sheet
Power Analyser

PCE-830 series

3 phases, measures power and analyses harmonics, with memory, interface and sofware

The PCE-830 power and harmonics analyser is used for measuring one to three phases of electrical quantities for alternating current (AC). This power and harmonics analyser also measures such parameters as voltage, current, frequency, harmonics and power as well as indicting, according to standard EN50160, harmonic values, interharmonics and asymmetrics. Interferences, such as interruptions, leaks, overloads or transience (from 16µs), are detected with their corresponding values. The backlit LCD, with high resolution, can show up to 35 parameters simultaneously. It can have up to 3 clips attached at the same time. In the data logger mode, it can save up to 17,470 readings (3 phases / 4 conductors) and in a simpler set-up (1 fase / 2 conductores) it can save up to 52,400 readings, split into 85 groups. All this makes the PCE-830 power analyser the ideal instrument for taking measurements over long periods of time. Measurement values obtained can be sent to a computer and be processed with the analysis siftware which comes included. The device comes with everything needed to measure and analyse from the moment the device arrives.

- Analysis of a network of 3 phases/4 conductors, 3 phases/3 conductors, 1 phase/2 conductors, 1 phase/3 conductors
- Measures effective real value (V 123 and I 123)
- Measures active power (W, KW, MW, GW)
- Measures apparent and reactive power (KVA, KVAR)
- Power Factor (PF), phase angle (Φ)
- Measures energy and work (Wh, KWh, KVARh, PFh)
- Measures current from 0.1mA to 3000A, allowing for the reserve power of a factory to be determined
- Large LCD that shows up to 35 parameters simultaneously (3P4W [=3 phases/4 conductors])
- CT conditions (1 to 600) and PT (1 to 3000) are programmable
- Indicates current wave forms and voltage overlap
- 512KB of memory with programmable intervals to save data every 2 to 3000 seconds, 17,470 readings using the system of 3 phases / 4 conductors)
- Indicates wave forms, efficiency parameters and harmonic distortion
- Backlit LCD wth dot matrix
- Average power (AD in W, KW, MW)
- Maximum power (MD in W, KW, MW) with the programmable period
- Analysis of harmonic distortion up to a curvature of 99
- Indication of up to 50º form of harmonic wave
- Indication of the wave form with maximum value (1024 readings / period)
- Analysis of absolute distortion (%THD-F)
- Diagram of graphic equilibrium with parameters of a 3 phase system
- Detects up to 28 transistors (time and cycles) with a programmable threshold (%)
- Relation of 3 phases of voltage or asymmetrical current (VUR)
- Factor of 3 phases of voltage and asymmetrical current (d0%, d2%)
- USB port (optically insulated)
- Integrated timer and calendar to record data
- Maximum diameter of the electrical conductor for the amp clamp: the PCE-6801 ~30mm, PCE-6802 ~55mm, PCE-3007 ~170mm

Technical specifications

Measurement values	Measurement ranges / resolution / accuracy
PCE-830 + PCE-6801 **Watts AC** (50 or 60Hz, PF 0.5 up to 1)	5.0 to 999.9W / 0.1W / ±1% ±0.8W 1,000 to 9,999kW / 0.001kW / ±1% ±8W 10.00 to 99.99kW / 0.01kW / ±1% ±80W 100.0 to 999.9kW / 0.1kW / ±1% ±0.8kW 1,000 to 9,999kW / 1kW / ±1% ±8kW
PCE-830 + PCE-6802 Watts AC (50 or 60Hz, PF 0.5 up to 1)	5.0 to 999.9W / 0.1W / ±1% ±0.8W 1,000 to 9.999kW / 0.001kW / ±1% ±8W 10.00 to 99.99kW / 0.01kW / ±1% ±80W 100.0 to 999.9kW / 0.1kW / ±1% ±0.8kW 1,000 to 9,999kW / 1kW / ±1% ±8kW 0.000 to 9.999MW / 0.001MW / ±1% ±80kW
PCE-830 + PCE-3007 Watts AC (50 or 60Hz, PF 0.5 up to 1)	10.0 to 999.9W / 0.1W / ±1% of measurement range 1,000 to 9.999kW / 0.001kW / ±1% of measurement range 10.00 to 99.99kW / 0.01kW / ±1% of measurement range 100.0 to 999.9kW / 0.1kW / ±1% of measurement range 1,000 to 9,999kW / 1kW / ±1% of measurement range
PCE-830 + PCE-6801 **Current AC** (50 or 60Hz, auto range select, TRMS)	0.04A to 1A / 0.001A / ±0.5% ±0.05A 0.4A to 10.0A / 0.01A / ±0.5% ±0.05A 4A to 100.0A / 0.1A / ±1.0% ±0.5A
PCE-830 + PCE-6802 **Current AC** (50 or 60Hz, auto range select, TRMS)	10.00A / 0.01A / 4A to 100.0A / 0.01A / ±0.5% ±0.5A 40A to 1000.0A / 0.1A / ±0.5% ±5A
PCE-830 + PCE-3007 **Current AC** (50 or 60Hz, auto range select, TRMS)	0 to 300A / 0.1A / ±1.0% of measurement range 300.0 to 999.9A / 0.1A / ±1.0% of measurement range 1,000 to 3,000A / 1A / ±1.0% of measurement range
Voltage AC (50 or 60Hz, TRMS)	20.0 ... 500.0 V / 0,1 V / ±0,5 % ±5 digits (grounded) 20.0 ... 600.0 V / 0,1 V / ±0,5 % ±5 digits (phase to phase)
Harmonic distortion of AC voltage	1 to 20º / 0.1% / ±1.0% 21 to 49º / 0.1% / 4% of reading ±2.0% 50 to 99º / 0.1% / 6% of reading ±2.0%
PCE-830 + PCE-6801 **Harmonics** of AC current in %	1 to 20º / 0.1% / ±0.2% of reading ±1.0% 11 to 20º / 0.1% / ±2% of reading ±1.0% 21 to 50º (A)/ 0.1% / ±5% of reading ±1.0% 21 to 50º (mA)/ 0.1% / ±10% of reading ±1.0% 51 to 99º / 0.1% / ±35% of reading ±1.0%
PCE-830 + PCE-6802 **Harmonics** of AC current in %	1 to 10º / 0.1% / ±2% 21 to 49º / 0.1% / 4% of reading ±2.0% 50 to 99º / 0.1% / 6% of reading ±2.0%

PCE-830 + PCE-3007 **Harmonics** of AC current in %	1 to 10º / 0.1% / ±2% 21 to 49º / 0.1% / ±6% 50 to 99º / 0.1% / ±10%
PCE-830 + PCE6801 / PCE-830 + PCE-6802 **Power Factor** (PF)	0.00 to 1.00 / 0.01 / ±0.04
PCE-830 + PCE3007 **Power Factor** (PF)	0.000 to 1,000 / 0.001 / ±0.04
PCE-830 + PCE6801 / PCE-830 + PCE-6802 **Phase angle** (Phi)	-180° to 180° / 0.1° / ±1°
PCE-830 + PCE3007 **Phase angle** (Phi)	0° to 180° / 0.1° / ±2°
PCE-830 + PCE-6801 **Total harmonic distortion**	0.0 to 20.0% / 0.1% / ±1% 20.0 to 100% / 0.1% / ±3% of reading ±5% 100 to 999.9% / 0.1% / ±10% of reading ±10%
PCE-830 + PCE-6802 **Total harmonic distortion**	0.0 to 20.0% / 0.1% / ±2% 20.0 to 100% / 0.1% / ±6% of reading ±1% 100 to 999.9% / 0.1% / ±10% of reading ±1%
PCE-830 + PCE-3007 **Total harmonic distortion**	0.0 to 20.0% / 0.1% / ±2% 20.0 to 100% / 0.1% / ±6% of reading ±1% 100 to 999.9% / 0.1% / ±10% of reading ±1%
Maximum measurement of AC voltage and current	50Hz / 19µS / ±5% ±30 digits 60Hz / 16µS / ±5% ±30 digits
Peak value measurement of AC voltage and current	1.00 to 99.99 / 0.01 / ±5% ±30 digits
Frequency range in automatic mode	45 to 65Hz / 0.1Hz / 0.1Hz
Memory	512kB for a maximum 52,420 readings taken by 1 phase / 2 conductors
Port	USB
Software and cable	included, for Windows 2000, XP, ME
Display	backlit LCD with dot matrix
Power	8 AA batteries(Mignon)
Dimensions	257 x 155 x 57mm
Weight	1,160g
Operating conditions	max. 85% relative humidity / -10 to 50ºC
Type of protection / standards	IEC 61010, 600 V/CAT III

Set 1:
PCE-830 + PCE-6801 amp clamp (100A)

- Electrical conductor pick-up: 30mm diameter

- Range selection: manual (1A, 10A, 100A)

- Dimensions: 210 x 62 x 36mm

- Weight: 200g

Set 2:
PCE-830 + PCE-6802 amp clamp (1000A)

- Electrical conductor pick-up: 55mm diameter

- Range selection: manual (10A, 100A, 1,000A)

- Dimensions: 244 x 97 x 46mm

- Weight: 600g

Set 3:
PCE-830 + PCE-3007 flexible amp clamp (3000A)

- Electrical conductor pick-up: 170mm diameter

- Minimum radial curve : 35mm

- Length of electrical conductor: 610mm

- Diameter of electrical conductor: 14mm

- Dimensions (Box): 130 x 80 x 43mm

- Weight: 410g

Outline of the PCE-830

Connecting the amp clamps to the PCE-830:

1. Turn on the device.
2. Push the "1f3f" key until "3P3W" appears on
   the display for 3 phases / 3 conductors.
3. Connect the 3 test cables from the voltage
with
   L1, L2, L3 and the analyser. The amp clamps
   are connected, as seen in the image to the
   right, between the device and the circuit.
4. The results can then be seen on the display.
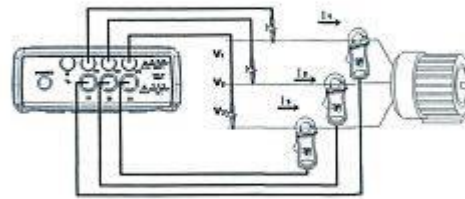
Examples of software and of the PCE-830 analyser
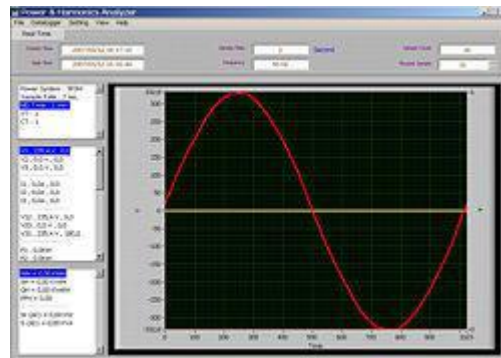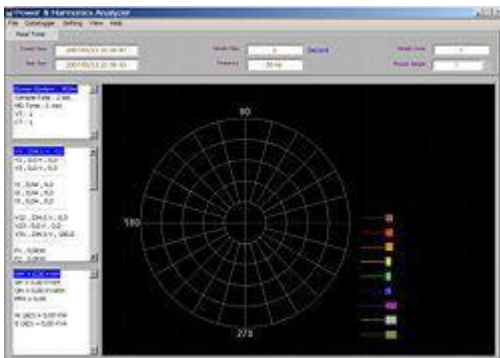
Contents

PCE-830 power analyser, 3 amp clamps - depending on the set ordered (PCE-6801, PCE-6802 or PCE-3007), 4 alligator clips, 4 safety test lines (3m long), 8 batteries, mains adaptor, carrying case, USB cablem software and user's manual