

# 3-Phase-Power Meter

## PCE-360

### 3-Phase Power & Energy Meter with Data Memory

- category CAT III / 1000 V; clamp: CAT III / 600V
- harmonic wave analysis up to the 31st wave (when used with PC software)
- real-time vmonitoring, recording and analysis of 1- and 3-phase systems
- data logging, memory capacity for 20,000 sets of data (504 KB) 12,000 sets of data per measurement
- voltage / current measurement (TRMS)
- measures power factor and phase angle
- measures active, apparent & reactive power
- with current clamp to measure neutral conductors



#### TECHNICAL SPECIFICATIONS

Voltage measurement		Phase angle	
Measurement range	50 ... 600.0 V TRMS	Measurement range	-90 ... +90°
Resolution	0.1 V	Accuracy / resolution	±3° / 0.1°
Accuracy	±1.5 % of reading +10 dgt	Frequency meas.	
Current measurement		Measurement range	40 ... 100 Hz / voltage U1
Measurement range	3 ... 999.9 A TRMS	Accuracy	±1 % of reading +2 dgt
Resolution	0.1 A	Data memory	max. 20,000 sets of data (504 KB)
Accuracy	±1.5 % of reading +15 dgt		12,000 sets of data per meas.
Active power P		Sampling rate	5 / 30 s / 1 / 2 min (adjustable)
Measurement range	150 W ... 999.9 kW	Interface	USB (optical insulation)
Resolution	0.1 kW	Display	multifunctional display
Accuracy	±1.5 % of reading +20 dgt	Power supply	8 x 1.5 V batteries or mains adaptor 12 V / 300 mA
Apparent power S		Dimensions / weight	235 x 117 x 54 mm / 730 g
Measurement range	150 VA ... 999.9 kVA / 0.1 KVA	<b>INCLUDES</b>	
Accuracy	±1.5 % of reading +20 dgt		3-phase power meter, current clamps, batteries, crocodile clips, safety test leads, bag, mains adaptor, USB cable, software (English), instruction manual
Reactive power meas. Q		<b>ITEM NO.</b>	<b>ITEM</b>
Measurement range	150 Var ... 999.9 kVar / 0.1 KVar	K-PCE-360	3 phase power meter
Accuracy	±1.5 % of reading +20 dgt	<b>OPTIONAL ACCESSORIES</b>	
Power (active, reactive & apparent)		K-CAL-PCE-360	ISO calibration certificate
Measurement range	0.0 ... 119.3 MWh / MVAh / Mvarh		
Accuracy	±1.5 % of reading +20 dgt		
Power factor PF			
Measurement range	0.000 ... +1.000		
Accuracy / resolution	±0.06 dgt / 0.001		



## PCE-PA 8000

### 3-Phase Power and Energy Analyser

- power analysis of 4-conductor-, 3 phase- / 3-conductor-, 1-phase- / 2-conductor-, 1-phase / 3-conductor networks
- true RMS measurement of current/ voltage; active, apparent & reactive power
- phase angle & power factor / measures active, apparent & reactive energy
- voltage measurement up to 600 V (AC) / current measurements up to 1,200 A (AC)
- measured values are recorded on the SD card / 1 s intervals / RS-232 interface; USB



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#### TECHNICAL SPECIFICATIONS

Variable	Measurement range	Resolution	Accuracy
AC voltage V	10 ... 600 V	0.1 V	± (0.5 % +0.5 V)
AC current A	20 A	0.001 A (<10 A) 0.01 A (≥10 A)	± (0.5 % +0.1 A)
	200 A	0.01 A (<100 A) 0.1 A (≥100 A)	± (0.5 % +0.5 A)
	1,200A	0.1 A (<1,000 A) 1 A (≥1,000 A)	± (0.5 A +5 A)
Active power	0 ... 9.999 kW 10 ... 99.99 kW 100 ... 999.9 kW 1 ... 9.999 MW	0.001 kW 0.01 kW 0.1 kW 0.001 MW	± (1 % +0.008 kW) ± (1 % +0.08 kW) ± (1 % +0.8 kW) ± (1 % +0.008 MW)
The apparent and reactive power data are analogous to the active power.			
Active energy	0 ... 9.999 kWh 10 ... 99.99 kWh 100 ... 999.9 kWh 1 ... 9.999 MWh	0.001 kWh 0.01 kWh 0.1 kWh 0.001 MWh	± (2 % + 0.008 kWh) ± (2 % + 0.08 kWh) ± (2 % + 0.8 kWh) ± (2 % + 0.008 MWh)
The apparent and reactive power data are analogous to the active energy.			
Power factor	0 ... 1	0.01	±0.04
Phase angle	-180° ... 180°	0.1°	±1°
Frequency	45 ... 65 Hz	0.1 Hz	±0.1 Hz
Voltage meas. range 10 ... 600 V AC; automatic range selection			
Current meas. range 0.2 ... 1,200AAC; automatic / manual			
Input resistance	10 MΩ		

Overload protection	720 V RMS 1,300 A with current clamp
Operating frequency	current clamps: 45 ... 65 Hz
Display	3.7" dot matrix LC display (320 x 240 pixels), with backlight
Memory / sampling r.	SD card / 2 ... 7,200 s
Interface	USB or RS-232, depending on connection cable
Power supply	8 x 1.5 AA batteries or 9 V mains adaptor
Oper. conditions	0 ... +50 °C / <80 % RH
Conductor Ø	max. 50 mm
Dimensions / weight	device: 225 x 125 x 64 mm / 948 g (incl. batteries) current clamp: 210 x 64 x 33 mm / 467 g (incl. cable) clamping jaw: 86 mm (external)

#### INCLUDES

Power analyser, current clamps, test leads, crocodile clips, 2 GB SD card, 9 V DC mains adaptor, batteries, bag, instruction manual

ITEM NO.	ITEM
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K-PCE-PA 8000	power meter
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#### Optional accessories

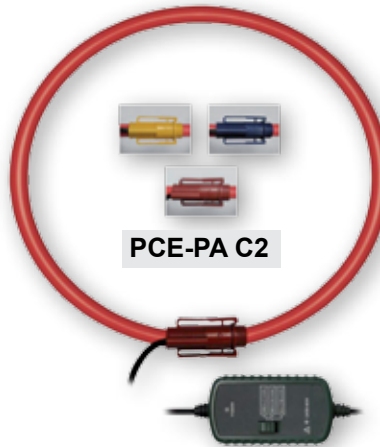
K-CAL-PCE-PA 8000	ISO calibration certificate
K-NET-LUT	9 V mains adaptor / 1 A
K-SOFT-LUT-USB	USB data cable SOFT-LUT-USB incl. software

# 3-Phase Power Meter

## PCE-PA 8300

### 3-Phase Power Analyser with Graphical Display & Harmonics Indication, with Clamps for Big Conductor Ø

- measures harmonics up to the 50th harmonic wave
- current clamps from numerous suppliers can be connected
- measures phase angle / frequency / power factor
- SD memory card with adjustable intervals



PCE-PA C1	
Dimensions	210 x 64 x 33 mm, 4 m cable
Weight	current clamp 490 g
PCE-PA C2	
Dimensions	flex. curr. clamp 600 x 14.5 mm contr. panel: 105 x 56.5 x 33 mm
Weight	467 g (including cable)



PCE-PA C1

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#### TECHNICAL SPECIFICATIONS

##### Voltage measurement (AC V)

Meas. range 10 V ... 600 V (phase to neutral),  
10 V ... 600 V (phase to phase)

Resolution 0.1 V  
Accuracy  $\pm 0.5\% + 0.5\text{ V}$

##### Current measurement (AC A) Set 1

Meas. range 20 A / 200 A / 1,200 A  
Resolution 0.001 A (<10 A), 0.01 A ( $\geq 10\text{ A}$ ) /  
0.01 A (<100 A), 0.1 A ( $\geq 100\text{ A}$ ) /  
0.1 A (<1,000 A), 1 A ( $\geq 1,000\text{ A}$ )

Accuracy  $\pm 0.5\% + 0.1\text{ A} / \pm 0.5\% + 0.5\text{ A} /$   
 $\pm 0.5\text{ A} + 5\text{ A}$

##### Current measurement (AC A) Set 2

Meas. range 30 A / 300 A / 3,000 A  
Resolution 0.001 A (<10 A), 0.01 A ( $\geq 10\text{ A}$ ) /  
0.01 A (<100 A), 0.1 A ( $\geq 100\text{ A}$ ) /  
0.1 A (<1,000 A), 1 A ( $\geq 1,000\text{ A}$ )

Accuracy  $\pm 0.5\% + 0.1\text{ A} / \pm 0.5\% + 0.5\text{ A} /$   
 $\pm 0.5\text{ A} + 5\text{ A}$

##### Active energy data are analogue to active power

Meas. range 0 ... 9.999 KW / 10 ... 99.99 KW /  
100 ... 999.9 KW / 1 ... 9.999 MW  
Resolution 0.001 KW / 0.01 KW / 0.1 KW /  
0.001 MW

Accuracy  $\pm 1\% + 0.008\text{ KW} / \pm 1\% + 0.008\text{ KW} /$   
 $\pm 1\% + 0.8\text{ KW} / \pm 1\% + 0.008\text{ MW}$   
Range / resolution / accuracy

Power factor 0 ... 1 / 0.01 /  $\pm 0.04$   
Phase angle  $-180\text{ ... }+180^\circ / 0.1^\circ / \pm 1^\circ$   
Frequency 45 ... 65 Hz / 0.1 Hz /  $\pm 0.1\text{ Hz}$

##### The harmonics of the alt. voltage are the same as the harmonics of the alt. current at 50 / 60 Hz

Meas. range 1st ... 20th / 21st ... 30th /  
31st ... 50th

Resolution 0.1 V; 0.1 %  
Accuracy  $\pm 2\% + 0.5\text{ V}, \pm 2\% + 10\text{ dgt} /$   
 $\pm 2\% + 0.5\text{ V}, \pm 2\% + 20\text{ dgt}$   
not specified

##### General

Resistance input: 10 MOhm (AC V)  
Operating freq. current clamps: 40 Hz ... 1 kHz  
(45 Hz ... 65 Hz tested)

Overload protec. AC V: 720 V RMS  
AC A: 1,300 A with clamp

Memory SD card  
Interval sampling: 1 s / memory: 2 ... 7,200 s  
Interface USB / RS-232  
Display LCD 3.7", with backlight

Power supply 8 x 1.5 AA batteries / 9 V mains adpt  
Oper. conditions 0 ...  $+50\text{ }^\circ\text{C}$  /  $<80\% \text{ RH}$   
Conductor Ø max. 50 mm  
Dimensions device: 225 x 125 x 64 mm  
Weight device: 948 g (incl. bat.)

#### INCLUDES

Power analyser, 3 x clamps (depending on set),  
crocodile clips, safety test lead, batteries, mains  
adaptor, bag, 2 GB SD card, instruction manual

#### ITEM NO. ITEM

K-PCE-PA 8300-1	power analyser set 1 current clamps up to 1,200 A
K-PCE-PA 8300-2	power analyser set 2 flex. clamps up to 3,000 A

#### OPTIONAL ACCESSORIES

K-CAL-PCE-PA 8000	ISO calibration certificate
K-PCE-PA C1	3 x current clamps
K-PCE-PA C2	3 x flex. current clamps