

A1600 Power and Harmonics Analyser

High speed compliance quality measurements

- *Measures peak & rms voltage & current, power, power factor, phase angle etc.*
- *Tabular/histogram display of harmonics*
- *Voltage/current waveforms with masks*
- *Continuous analysis with real-time update of all parameters including harmonics*
- *High resolution graphical display*
- *Wide range of power connectors available including most european national types*
- *Parallel printer and RS232 interfaces included as standard, GPIB optional*
- *Optional PC software available for automated measurements and documentation*

Overview

The PA1600 is a fast, easy to use mains and harmonics analyser with full graphical display. It is capable of continuous real-time analysis of both voltage and current.

As a general purpose mains analyser it can measure Watts, VA Vrms, Vpk, Arms, Apk, Crest factors, THD, Power factor, Frequency and Inrush current.

As a harmonics analyser it is a quick and convenient instrument for pre-compliance measurements using normal mains supply and is capable of full compliance measurements to EN61000-3-2 in conjunction with a suitable power source.

Capabilities include real-time Class D evaluation and visual display, continuous automatic calculation of harmonic limits to EN61000-3-2, inrush current analysis, and timed test sequences with analysis of fluctuating harmonics.

As an option, the PA1600 can be operated as a conformance quality flicker meter in conformance with EN60868 and EN61000-3-3.

A printer interface is included for record keeping and archiving, along with an RS-232 interface and an optional IEEE-488 interface for use with PC based software or as part of a GPIB system.

Harmonics analysis to EN61000-3-2

Flicker measurement to EN61000-3-3

High performance power analyser

The PA1600 is a high speed, high accuracy ac power analyser for single phase supplies of up to 16 amps RMS.

The supply to be measured is connected via a dedicated input cable independently of the supply to the instrument. The output to the load is via a front panel mounted 'standard' mains connector. A wide range of power connectors is available including most european national types.

The PA1600 can measure Watts, VA, Volts rms, Volts peak, Amps rms, Amps peak, Crest factors, THD, Power factor, Frequency and Inrush current.

The large display can show multiple parameters simultaneously along with graphical representations of voltage and current waveforms.

Compliance-quality harmonics analyser

From 1st January 2001 all electrical equipment sold within the EEC will have to comply with legislation relating to the harmonics content of the current waveform.

The PA1600 has been designed to make these measurements both quick and simple. It measures harmonics from the 1st to the 40th and updates the display in real time.

It is suitable for pre-compliance measurements using a normal mains supply and is capable of full compliance measurements to EN61000-3-2 in conjunction with a suitable power source (such as the AC1000 from Powertek).

Capabilities include real-time Class D evaluation and visual display, continuous automatic calculation of harmonic limits to EN61000-3-2, inrush current analysis, and timed test sequences with analysis of fluctuating harmonics.

Compliance-quality flicker meter

The PA1600 has the optional capability to operate as a compliance quality flicker meter in conformance with EN60868 and EN61000-3-3.

A current measurement method can be used rather than voltage measurement thus eliminating the need for a reference impedance.

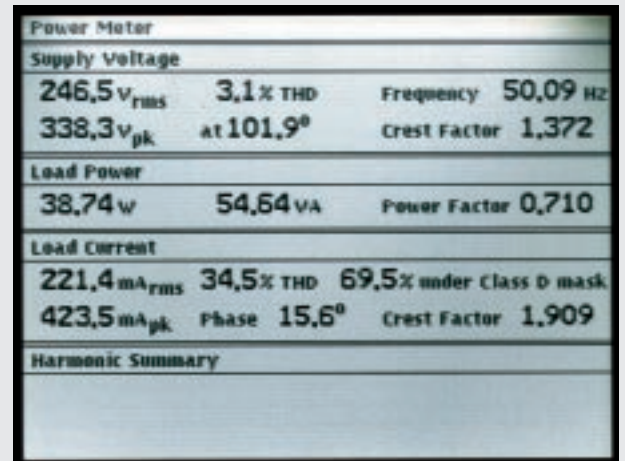
Flicker severity can be measured in terms of Pst and Plt with analysis periods variable between 5 minutes and 2 hours.

The graphical display can show Cumulative Probability, Voltage Deviation Failure as well as Pst values.

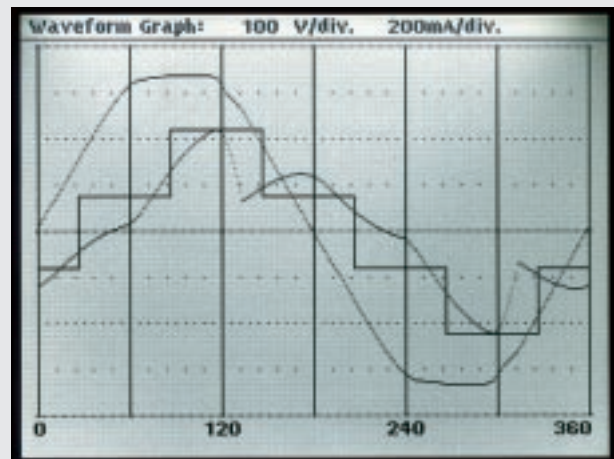
A full range of interfaces

A printer interface is included for record keeping and archiving, along with RS-232 (standard) and IEEE-488 (optional) interfaces for use with PC based software or as part of a GPIB system.

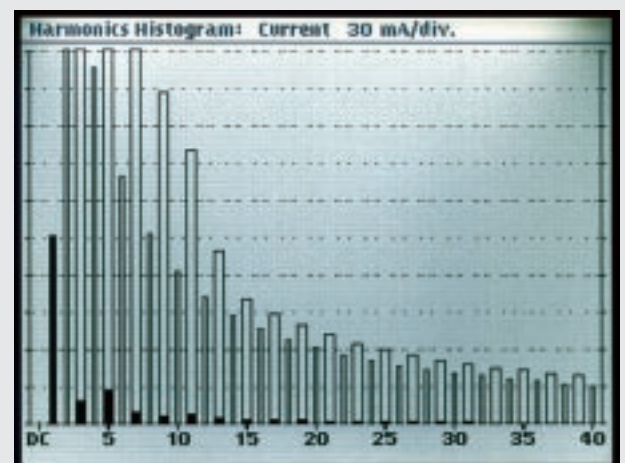
Software is also available that enables results to be displayed, recorded and documented using a PC.



Basic Power Meter readout display.



Voltage and current waveform displays. A Class D mask is also shown enabling the current waveform to be compared with the mask in real time.



Harmonics can be displayed as a numerical list or as a histogram. The limit value is depicted by the column height while the measured value is depicted by the filled section.

Technical Specifications

MAINS ANALYSER

Measurement Circuit: Single Phase with standard mains connector.
Current Rating: 16A rms continuous, or national connector rating if lower.
Voltage Ranges: 115V ($\pm 200V$ pk) 230V ($\pm 400V$ pk).
Current Ranges: $\pm 24mA$ pk to $\pm 400A$ pk in fifteen 2:1 ranges.
Frequency Range: 45 - 66 Hz.
Shunt Resistance: $3m\Omega$.
Sampling Rate: 300 points per cycle.
Basic Accuracy: $<0.2\%$.
Measured Parameters: Vrms, Vpk, Arms, Apk, Crest factors, THD, W, VA, Power factor, Frequency, Inrush current.
Monitor Outputs: Re-constructed Voltage and Current Signals.

HARMONICS ANALYSER

Measurements: 1st harmonic to 40th harmonic.
Current Rating: 16A rms continuous, or national connector rating if lower.
Voltage Ranges: 115V ($\pm 200V$ pk) 230V ($\pm 400V$ pk).
Current Ranges: $\pm 24mA$ pk to $\pm 400A$ pk in fifteen 2:1 ranges.
Frequency Range: 45 - 66 Hz.
Shunt Resistance: $3m\Omega$.
Sampling Rate: 300 points per cycle.
Basic Accuracy: Better than 5% of limit or 0.2% of selected range whichever is the greater.
Display Modes: Numeric readout of parameters. Graphical Waveform Display with accumulate and max. hold facilities and Class D mask.
Tabular and Histogram harmonics analysis with comparison to limits in the standards.

FLICKER METER (OPTION)

Measurement: Pst and Plt to EN60686 and EN61000-3-3.
Current Rating: 16A rms continuous, or national connector rating if lower.
Voltage Ranges: 115V ($\pm 200V$ pk) 230V ($\pm 400V$ pk).
Current Ranges: $\pm 24mA$ pk to $\pm 400A$ pk in fifteen 2:1 ranges.
Frequency Range: 45 - 66 Hz.
Shunt Resistance: $3m\Omega$.
Sampling Rate: 300 points per cycle.

GENERAL

Display: 320 x 240 pixel backlit LCD.
Interfaces: Parallel Printer, RS-232, Optional IEEE-488 (GPIB).
Instrument Supply: 230V or 115V $\pm 14\%$, 48 to 65Hz.
Operating Range: $+5^{\circ}C$ to $40^{\circ}C$, 20-80% RH.
Storage Range: $-10^{\circ}C$ to $+60^{\circ}C$.
Dimensions: 305 x 148 x 220mm (WxHxD)
Weight: 4.2kg
Safety: Complies with EN61010-1
EMC Compliance: Complies with EN61326-1

Powertek UK operates a policy of continuous development and reserves the right to alter specifications without prior notice.

For UK & European sales, support, service and deliveries:
Powertek UK 19 Cornwallis Road, Bilton, Rugby CV22 7HL UK
New Tel: 01788 519911 Fax: 0870 0940135
Int'l Tel: +44 1788 519911 Int'l Fax: +44 870 0940135
Email: info@powertekuk.com www.powertekuk.com

For USA sales, support, service and deliveries:
Powertek US Inc. 7 Third Street, Holbrook, NY 11741 USA
Tel: +1 631 615 6279 Fax: +1 973 273 5893
Email: info@powertekus.com www.powertekus.com