

# Hand Held Power Quality Analyser **ANALYST Q70**

- AC voltage and AC current measurement (via flexible CT up to 3000 A)
- Frequency (voltage and current)
- TRMS, Peak, Crest Factor, THD, DF and Frequency for current and voltage
- Harmonics to the 50th with magnitude and phase information
- W, VA, VAR, kWhr and Power Factor measurement, even for distorted waveforms
- Ahr and kWhr measurement
- Voltage Events Monitoring
- Inrush current measurement
- Record function for MIN, MAX and Average
- EN50160 reporting with customised parameters
- Three phase power for balanced loads
- Large backlit colour multi-mode display
- Simple 'one-step' download and analysis software

## General

### Measuring System

The unique combination of features offered by the **ANALYST Q70** make it the essential tool for power measurement and power quality surveys. The **ANALYST Q70** combines the functionality of an EN50160 compliant power quality meter, harmonic spectrum analyser, oscilloscope and data logger in a single hand held instrument that has been designed for safety and ease of use.

Specification			
	Ranges (auto-ranging)	Resolution	Accuracy
Amps	30 A 300 A 3000 A	0.01 A 0.1 A 1 A	±1.5 % rdg. ±5 dgts.
Volts	115/230/480 autoranging	0.1 V	±0.5 % rdg. ±5 dgts.
Watts	3.4 kW, 1,440 kW	1 W, 1 kW	±2.5 % rdg. ±5 dgts.
VA	3.4 kVA, 1440 kA	1 VA, 1 kVA	±2.5 % rdg. ±5 dgts.
VAR	3.4 kVAR, 1440 kAR	1 VAR, 1 kVAR	±2.5 % rdg. ±5 dgts.
PF	0.3 cap to 0.3ind	0.01	± 3 degrees
WHr	0 to 10 TWHr	0.1 WHr	± 3 % rdg. ±5 dgts.



## General technical data

### Environment conditions:

Operating Temperature: 0° C to 50° C (32° F to 122° F)  
 Temperature Coefficient: ± 0.1 % of reading per °C  
 (Current) ± 0.06 % of reading per °F  
 Storage Temperature: -20° to 60° (-4° F to 140° F)

### Safety:

All models comply with IEC1010-1, 600 V working,  
 Installation category III, Pollution degree 2.

**Weight:** 500 gm / 1.10 lbs

**Dimensions (HxWxD):** 225 x 72 x 105 mm  
 (8.8 x 2.8 x 4 inches)

**Display:** Colour transmissive LCD 320 x 240 pixels  
 (70mm diagonal) with adjustable  
 backlight and screen save mode.

### Power Supply

Battery Type: 6 x AA Alkaline MN1500, LR6  
 Battery Life: Typically 12hrs.  
 External power supply: 12 V, 200 mA

Optional external NiMH battery re-charger available (batteries must be charge externally to the instrument.)

### Maximum Safe Voltages

Current measurement: 600 V AC RMS or DC between  
 (bare conductors) uninsulated conductor & ground  
 Voltage measurement: 600 V AC RMS or DC between input  
 terminals or between live  
 terminal & local ground.



## Measuring Functions

### A-rms measurement

Supplied with 45 cm (18") long LEM~flex. Current probes with voltage output are supported. All current probes must correspond to 600 V / CAT III

LEM~flex  $I_{nom}$  ranges: 15 / 150 / 1500 A rms  
(maximum current measurement is 3000 A for sinusoidal signals)

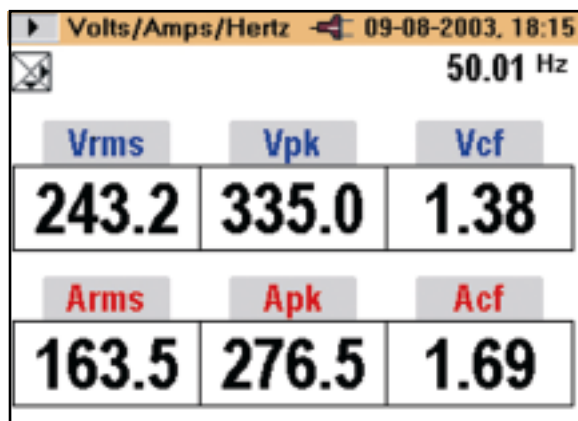
#### Notes:

1. All accuracies stated at  $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$  ( $73.4 \pm 1.8^{\circ}\text{F}$ )
2. True RMS measurements taken over 10 ms
3. Frequency response DC and 10 Hz to 5 kHz.

### Voltage, Current and Frequency Mode

A thorough evaluation of voltage and current parameters includes:

- RMS voltage (Vrms), Peak voltage (Vpk), Voltage Crest Factor (Vcf),
- Total Harmonic Distortion voltage (Vthd), Distortion Factor voltage (Vdf), RMS current (Arms),
- Peak current (Apk), Current Crest Factor (Acf), Total Harmonic Distortion current (Athd),

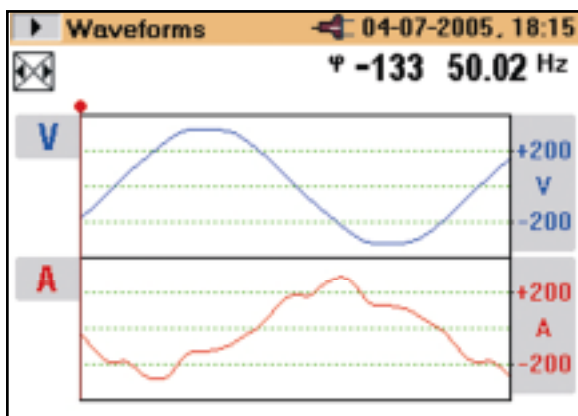


- Distortion Factor current (Adf), Transformer k-factor (Akf) and frequency (Hz)

### Voltage and Current Waveforms

The auto-ranging scope function has ranges from 1 A to 3000 A and 4 V to 1000 V for the display of current and voltage waveforms.

- The time-base is automatically selected
- Max sampling rate 10.24 kHz
- Measuring cursors



## Harmonics

The **ANALYST Q70** displays voltage, current and power harmonics up to the 50th harmonic, in spectrum format with magnitude and phase information, together with THD/DF. Harmonics may be recorded and stored in the instrument memory.

#### Measuring range:

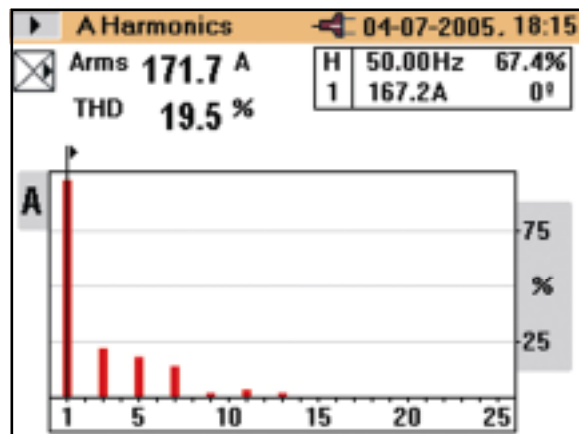
Volt and Amps: 1...50<sup>th</sup> harmonic (< 50 % of  $U_m$ )  
Power: 1...21<sup>st</sup> harmonic (using LEM~flex)  
1...15th harmonic (using probes)

#### Magnitude accuracy:

$U_m, I_m, THDU, THDI$ : according EN 61000-4-7:2002, Class II

$U_m \geq 3\% U_{nom}$   $\pm 5\% U_m$   
 $U_m < 3\% U_{nom}$   $\pm 0.15\% U_{nom}$

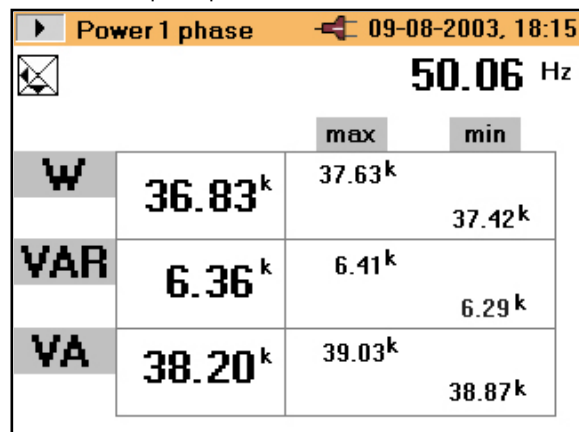
$I_m \geq 10\% I_{nom}$   $\pm 5\% I_m$   
 $I_m < 10\% I_{nom}$   $\pm 0.5\% I_{nom}$



## Power

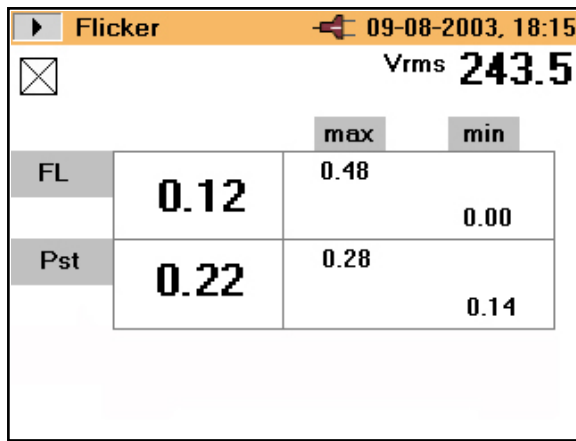
A wide variety of power parameters are measured and recorded including:

- Power (W), Apparent Power (VA), Reactive Power (VAR),
- Power Factor (PF), Power Factor in degrees ( $\cos \phi$ ), Displacement Power Factor (DPF), Displacement Power Factor in degrees ( $\cos \phi$ ),
- Energy (Whr), Apparent energy (VAHr), Reactive Energy (VARHr) and Ampere hours (Ahr).
- Balanced three phase power measurement



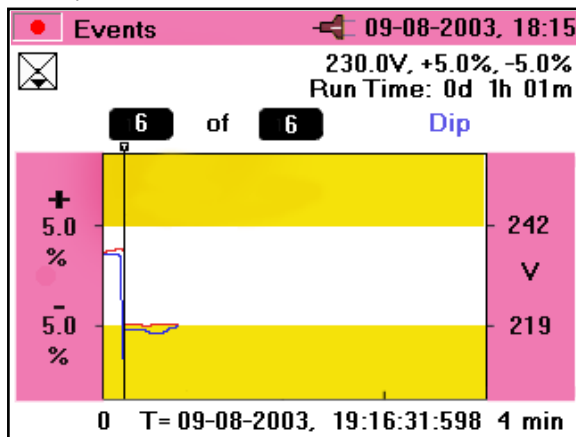
## Flicker

- Display of flicker level as a digital value or as trend recording.
- Flicker  $P_{ST}$  and  $P_{LT}$  as per IEC1000-4-15
- Display of nominal instantaneous flicker FL for quick problem diagnosis.

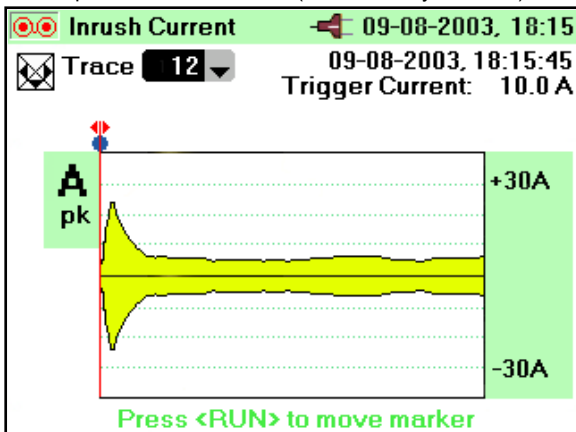


### Voltage Events and Inrush Current

- Percentage voltage trigger setting based on half cycle RMS values
- 1ms time stamp relative to initial event (1 second resolution for 1<sup>st</sup> event)
- Storage for up to 32,000 events
- Post capture evaluation screens

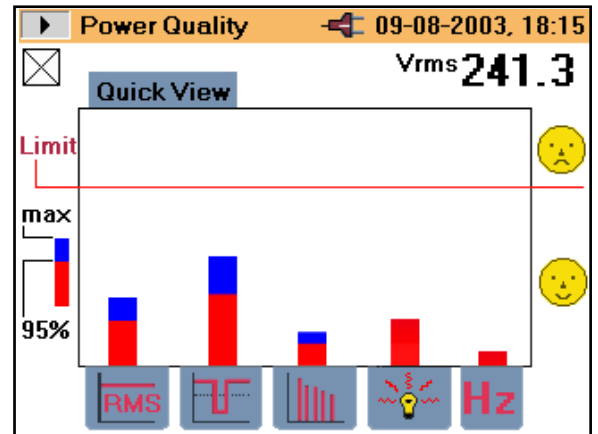


- Standard inrush current trigger levels of 0.5, 1, 3, 10, 0, 100, 300 and 1000 A
- Custom trigger level from 0 to 6000 A in 0.1 A steps
- Selectable recording times of 3, 10, 30, 100 and 300 seconds
- Post capture evaluation screens (over 1000 may be stored)



### Power Quality Overview

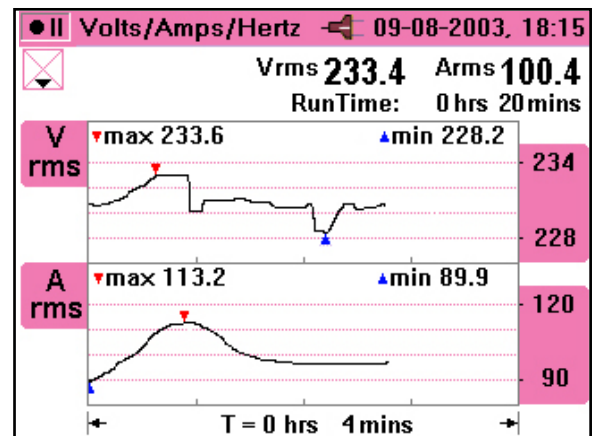
- Measures and monitors power quality according to the standard EN50160.
- EN50160 describes the requirements for public distribution system.
- Automatically compares the live measured values with the preset limits of the standard.
- Personalised custom limits may also be selected and set.



### Documenting

#### Data / Recordings

- Data can be stored as Saved Screens or logged values.
- All available parameters in the selected measuring mode are logged simultaneously.
- Up to 50 saved screens can be recalled and displayed on-screen in normal screen format.
- All saved data, including recordings can be downloaded to a PC including waveforms for harmonics analysis using the PQLogView software.



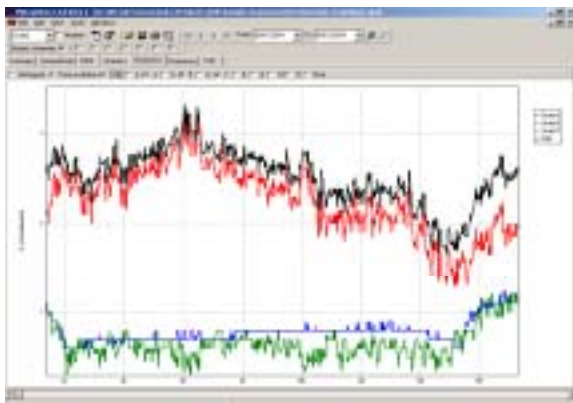
### Memory Size

Memory capacity totalling 3 MB, segmented in to three areas to store multiple recordings or one recording area if preferred (recording period is dependant up on the average time and measurement type chosen). Saving up to 50 screen shots, for event recording and data recording in flash memory.

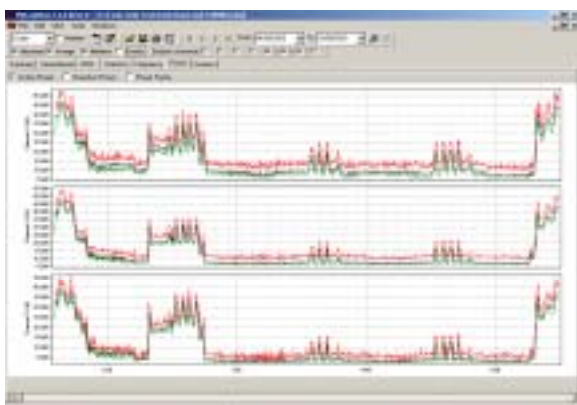
## PQLogView Software

- One click, download and display operation
- Spreadsheet format display and export functions
- Automatic report generator

Harmonic trending display



Power graphs



## Scope of Delivery and Accessories

### ANALYST Q70

Description	Order number
<b>ANALYST Q70 (UK/Euro) including:</b> 3000 A flexible current probe, PC connecting lead, PQLogView software CD, UK/Euro mains adapter (230 V, 50 Hz), operating manual and hard case.	SH9171A
<b>ANALYST Q70 (US) including:</b> 3000 A flexible current probe, PC connecting lead, PQLogView software CD, US mains adapter (110 V, 60 Hz), operating manual and hard case.	SH9171U

### Accessories

Clip-on current transformer 1 – 5 A/ 1 – 50 A With special Q70 plug	PR50ACV/SP2 60.95.25.021.0
Clip-on current transformer 0.1 – 1 A With special Q70 plug	PR01ACV/SP2 60.95.04.004.0
Clip-on current transformer 0.5 – 1000 A With special Q70 plug	PR1001ACV/SP2 60.95.60.055.0

Distributor:



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