

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

Application Areas

- Voltage and current logging
- General purpose oscilloscope
- Harmonic monitoring and surveys
- Single phase power demand profiling
- Event monitoring
- Recording of Flicker
- EN50160 compliance testing

General

Instrument Overview

The unique combination of features offered by the **ANALYST Q70** make it the essential tool for power measurement and power quality surveys. In the basic V/A mode voltage and current are displayed simultaneously with minimum and maximum values shown too.

The waveform display shows voltage and current and displays the phase shift between the two quantities. Harmonic spectrum is displayed graphically and individual harmonics may be selected for detailed information.

Power measurements include W, VA, VAR, Power Factor and WHr with minimum and maximum values.

In the events mode dips, surges and sags are captured graphically and stored for analysis after the event.

Flicker measurement includes instantaneous Flicker (FL), Short Term Flicker (Pst) averaged over 10 minute and Long Term Flicker (Plt) averaged over 2 hours.

The unique Power Quality overview summarises data according the EN 50160 standard in one screen.



Features

- AC voltage
- AC current measurement via flexible CT up to 3000A
- Frequency (voltage and current)
- W, VA, VAR, and Power Factor measurement, even for distorted waveforms
- TRMS, THD, and Frequency for current and voltage
- Harmonics magnitude to the 40th
- Measurement of transients - dips, sags and swells.
- Record function for MIN, MAX and Average
- Internal datalogging of screen display measurements and full power quality surveying
- Time and date stamped recordings.
- Short term and long term Flicker measurement
- Unique power quality overview for EN50160 reporting
- Large backlit colour display for oscilloscope mode, spectrum mode and multi parameter display
- IEC1010 Cat III for enhanced safety in hazardous voltage areas
- Optional low current measurement input via clip-on CTs for installed current transformers



General technical data

Environmental conditions:

Operating Temperature: 0 °C to 40 °C (32 °F to 104 °F)

Temperature Coefficient: ± 0.1 % of reading per °C

Storage Temperature: -20° to 60° (-4 °F to 140 °F)

Safety:

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

Weight:

0.62kg / 1.30 lbs

Dimensions (HxWxD):

225 x 105 x 72 mm (8.8 x 4.1 x 2.8 inches)

Display:

Colour transmissive LCD 320 x 240 pixels (70mm diagonal) with backlight.

Power Supply

Battery Type:

6xAA Alkaline MN1500, LR6

Battery Life:

Typically 12hrs.

External power supply

LEM type PA70 (12V, 200mA)

If batteries are installed they continue to operate the instrument in the event of the loss of AC power.

NOTE: This is the only power supply to be used with this instrument due to safety considerations.

Maximum Safe Voltages

Current measurement

600V AC RMS or DC between uninsulated conductor & ground

(bare conductors)

Voltage measurement

600V AC RMS or DC between input terminals or between live terminal & local ground.

Memory

Memory capacity totalling 2MB.

Saving up to 50 screen shots, event recording (999 events) and data recording in flash memory.

Storage period of more than 60 days depending on measurement function.

WinA3Q for Q70 is an easy to use PC software and interface package for data logging applications with the LEM Power Quality measurement instruments. The software can be used with the **Analyst Q70** and **Analyst 3Q**. This software enables the user to download screen shots and convert the data to **PQDIF** format.

TOP (The Output Processor) is used to analyse captured data. It loads the data in **PQDIF** format that is provided by **WinA3 for Q70**.

Notes:

- All accuracies stated at 23°C ± 1 °C (73.4 ± 1.8 °F)
- True RMS measurements taken over 10 ms

Specification			
	Ranges	Resolution	Accuracy ¹
AMPS	15A	0.01A	±0.5% rdg.
	150A	0.1A	±10 dgts.
	3000A	1A	
VOLTS	115/230/480	0.1V	±0.2% rdg. ±5 dgts.
WATTS	3.4kW, 1,440kW	1W, 1kW	±0.7% rdg. ± 15dgts.
VA	3.4kVA, 1440kA	1VA, 1kVA	±0.7% rdg. ± 15 dgts.
VAR	3.4kVAR, 1440kAR	1VAR, 1kVAR	±0.7% rdg. ± 15 dgts.
PF	0.000 to 1.000	0.001	± 1%FS
WHr	0 to 10TWHr	0.1WHr	± 0.8% rdg. ±15dgts.

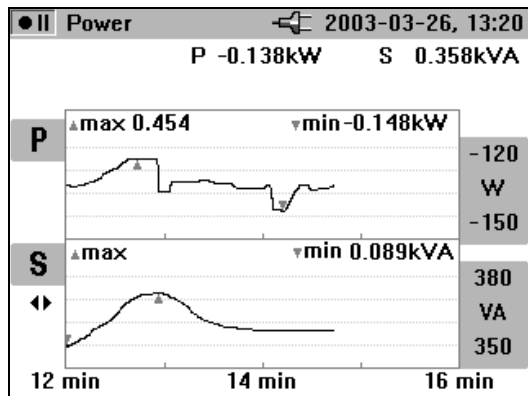
Online Measurements

The **Analyst Q70** can provide immediate evaluation with digital, waveform and spectrum displays for measured values.

Volts / Amps / Hertz				2003-03-24, 18:15	
			min	max	
U	230.4	V _{rms}	219.2	234.8	
I	178.9	A _{rms}	110.3	208.8	
F	49.77	Hz	49.66	50.81	

Saving and Logging

Data can be stored as Saved Screens or logged values. All parameters shown on the screen are logged simultaneously. Stored readings can be recalled and displayed on-screen in normal screen format or in the case of logged data as a chart.



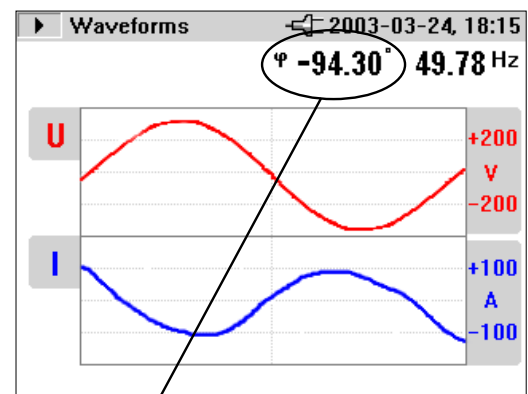
All saved data can be downloaded to a PC.

Waveforms

The auto-ranging scope function has ranges from 200mA to 3000A and 400mV to 1000V for the display of both current and voltage waveforms.

Refresh rate 0.25 seconds.

Max sampling rate 10.24 kHz

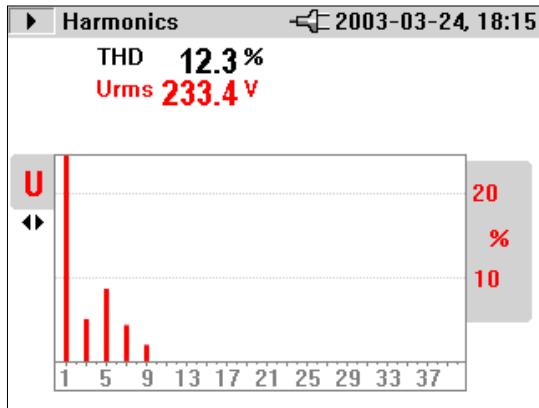


Phase angle between voltage and current is displayed in degrees. Screen may be held and saved into memory and downloaded later.

Harmonics

The **Analyst Q70** allows the harmonic content of current and voltage waveforms to be displayed up to the 40th harmonic, in spectrum format with magnitude and phase information, together with THD.

Fundamental frequency range F_0 - 45Hz to 65Hz

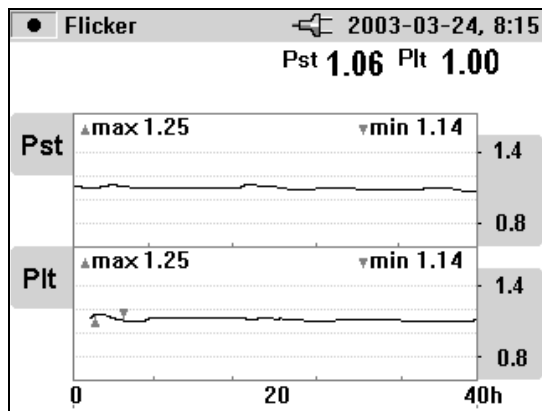
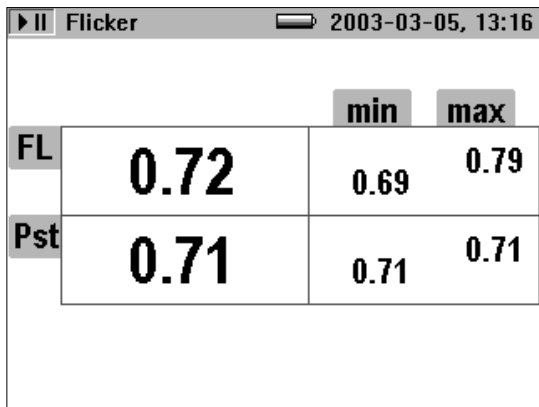


Flicker

Display of flicker level as a digital value or as a trend recording.

Flicker P_{ST} as per IEC1000-4-15.

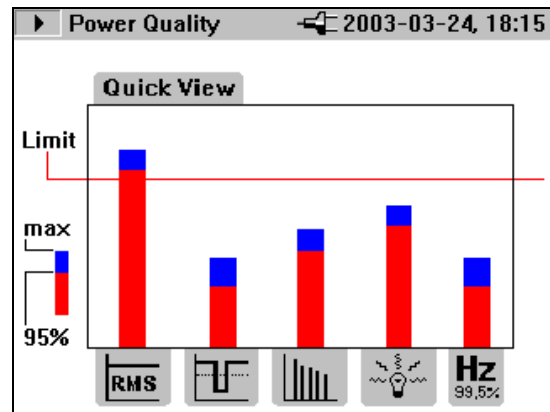
Display of instantaneous flicker for rapid diagnosis.



EN50160

Quick View presentation of data according to EN50160.

Graphical display of all relevant power quality parameters.



This quick view summarises measurements to give a pass / fail indication. The 95% value indicates measurements within 95% of the allowable limits

The limit values are set in accordance with the standard EN50160. Where the bar is above the limit line the allowable limit has been exceeded.

Scope of Delivery, Accessories

Hand Held Power Quality Analyser

ANALYST Q70	Analyst Q70 Power Quality Analyser, with 3000A LEM-flex measuring probe, 230V mains adapter (PA70), carrying strap, carrying case, RS232 interface, voltage test leads 2m with crocodile clips, WinA3Q70 PC-Software on CD-ROM and operating instructions (English, German and French)	SH9171A
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Accessories

1000A Clip-on current transformer with 2m lead	60.95.60.055.0
50A/5A Clip-on current transformer with 2m lead	60.95.25.021.0
1A Clip-on current transformer with 2m lead	60.95.04.004.0

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