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Fluke 1735
Three-Phase Power Logger

Technical Data



Electrical load studies, energy consumption testing, and general power quality logging

The Fluke 1735 Three-Phase Power Logger is the ideal electrician or technician's tool for conducting energy studies and basic power quality logging. Set up the 1735 in seconds, with the included flexible current probes and color display. The 1735 logs most electrical power parameters, harmonics and captures voltage events.

- Record power and associated parameters for up to 45 days
- Monitor maximum power demand over user-defined averaging periods
- Prove the benefit of efficiency improvements with energy consumption tests
- Measure harmonic distortion caused by electronic loads
- Improve reliability by capturing voltage dips and swells from load switching
- Easily confirm instrument setup with color display of waveforms and trends
- Measure all three phases and neutral with included 4 flexible current probes
- View graphs and generate reports with included Power Log software
- Compact, rugged design with IP65 case, 600 V CAT III and two-year warranty

Applications

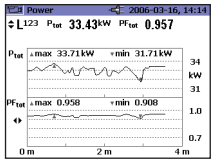
Load studies – verify electrical system capacity before adding loads
Energy assessments – quantify energy consumption before, and after improvements, to justify energy saving devices
Harmonics measurements – uncover harmonic issues that can damage or disrupt critical equipment
Voltage event capture – monitor for dips and swells that cause spurious resets or nuisance circuit breaker tripping

Log the most common parameters

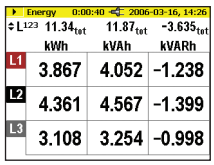
Designed to measure the most critical three-phase power parameters, the 1735 can log rms voltage, rms current, phase angle, voltage events, voltage and current THD, voltage and current harmonics up to the 50th, active power, reactive power, power factor, active energy, reactive energy, and more. With memory for up to 45 days of data, the 1735 can uncover intermittent or hard-to-find issues.

Easy to use

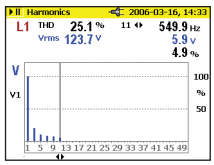
The four current probes are connected with one plug, the instrument automatically detects, scales and powers the probes. These variable range current probes are easily set to 15 A, 150 A, or 3000 A for high accuracy in nearly any application. The voltage connections are single leads, enabling easy and quick setups. The color screen provides instant confirmation that connections are correct, and then logging begins when you press the RECORD button.



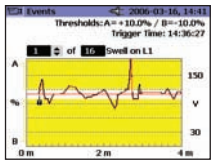
Conduct load studies for up to 45 days and view saved data on-screen or on a computer.



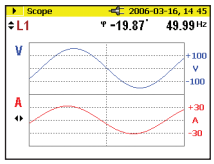
Quantify energy consumption quickly on-screen or log to memory for extended periods.



Assess voltage and current harmonics up to the 50th.



Capture voltage events using user-defined thresholds.

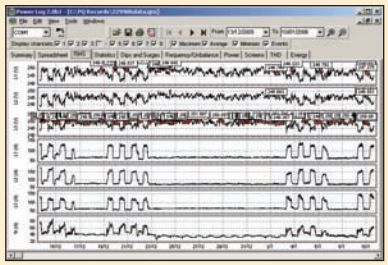


View waveforms on-screen to uncover waveform distortion and to verify correct voltage and current connections.

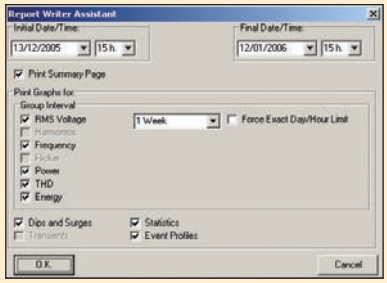


Generate reports and view graphs with Fluke Power Log Software

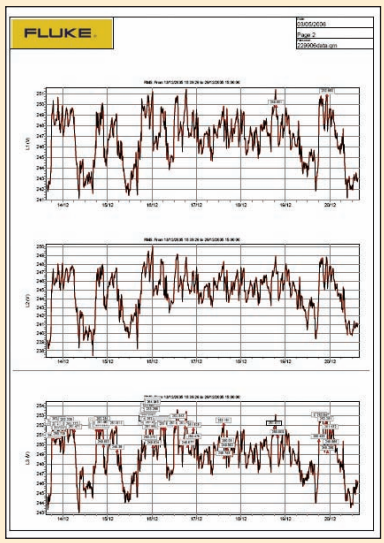
Designed to quickly view recorded data, the included Power Log software displays all recorded parameters on interactive trends. Generate a professional report with the 'Report Writer' function, or copy and paste images into report document manually.



View recorded data in simple graphs and tables.



Easily customize the report.



Create professional reports.

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Specifications

General

Display	¼ VGA Graphic Color transmissive displays 320 x 240 Pixel with additional background lighting and adjustable contrast, text and graphics in color
Quality	Developed, designed and manufactured according to DIN ISO 9001
Memory	4 MB Flash memory, 3.5 MB for logging data
Interface	RS-232 SUB-D socket; 115.2 k Baud, 8 data bits, no parity, 1 stop bit, firmware updates are possible with the RS-232 interface (9-pole extension cable)
Sample rate	10.24 kHz
Line frequency	50 Hz or 60 Hz, user-selectable, with automatic synchronization
Power supply	NiMH battery-pack, with ac adapter (15 V to 20 V/0.8 A)
Operation time with battery	Typical > 12 hours with backlight low and > 6 hours with backlight high
Dimensions	240 mm x 180 mm x 110 mm (6.1 in x 4.6 in x 2.8 in)
Weight	1.7 kg (3.75 lb), including battery

Ambient conditions

Working temperature range	-10 °C to +50 °C (+14 °F to +122 °F)
Storage temperature range	-20 °C to +60 °C (+32 °F to +140 °F)
Operating temperature range	0 °C to +40 °C (+32 °F to +104 °F)
Reference temperature range	23 °C ± 2 °C

Note: The above terms are defined in European Standards. To calculate the specification at any point in the working temperature range, use the temperature coefficient below.

Temperature coefficient	± 0.1 % of the measured value per °C from the reference
Intrinsic error	Refers to reference temperature, max. deviation is guaranteed for two years.
Operating error	Refers to operating temperature range, max. deviation is guaranteed for two years
Climatic class	C1 (IEC 654-1) -5 °C to +45 °C (+41 °F to +113 °F), 5 % to 95 % RH, no dew
Housing	Cycoloy shock and scratch proof thermoplast V0-type (non-flammable) with rubber protection holster

EMC

Emission	IEC/EN 61326-1:1997 class B
Immunity	IEC/EN 61326-1:1997

Safety

Safety	IEC 61010-1 600 V CAT III, double or reinforced insulation, pollution degree 2
Protection	IP65; EN60529 (refers only to the main housing without the battery compartment)

RMS values are measured with a 20 ms resolution.

V-rms wye measurement

Measuring range	57 V/66 V/110 V/120 V/127 V/220 V/ 230 V/240 V/260 V/277 V/347 V/ 380 V/400 V/417 V/480 V ac
Intrinsic error	± (0.2 % of measured value. + 5 digits)
Operating error	± (0.5 % of m. v. + 10 digit)
Resolution	0.1 V

V-rms delta measurement

Measuring range	100 V/115 V/190 V/208 V/220 V/380 V/ 400 V/415 V/450 V/480 V/600 V/ 660 V/690 V/720 V/830 V ac
Intrinsic error	± (0.2 % of m. v. + 5 digit)
Operating error	± (0.5 % of m. v. + 10 digit)
Resolution	0.1 V

A-rms measurement

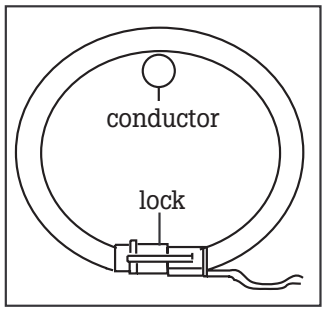
Flexi set I ranges	15 A/150 A/3000 A rms (at sine)
Current clamp ranges	1 A/10 A
Resolution	0.01 A
Ranges	150 A/3000 A and 1 A/10 A
	Intrinsic error: ± (0.5 % of m. v. + 10 digit)
	Operating error: ± (1 % of m. v. + 10 digit)
Ranges	15 A
	Intrinsic error: ± (0.5 % of m. v. + 20 digit)
	Operating error: ± (1 % of m. v. + 20 digit)

The errors of the current probes are not considered.

By using Flexi-Set:

Flexi Set measuring error	± (2 % of m.v. + 10 digit)
Position influence	± (3 % of m.v. + 10 digit)
CF (typical)	2.83

Note: When using Flexi Set please make sure to position the conductor opposite to the Flexi Set-lock (refer following figure).



Flexi Set-Lock

Power measurement (P – Active, S – Apparent, Q – Reactive, D – Distorting)

- Measuring range: see V rms and A rms measurement
- Power errors are calculated by adding the errors of voltage and current
- Additional error due to power factor PF
- Specified error x(1-|PF|)
- Maximum range with voltage range 830 V delta-connection and 3000 A current range is 2.490 MW, higher displayed values possible when using PTs and CTs with ratio feature

Intrinsic error	± (0.7 % of m.v. + 15 digit)
Resolution	1 kW
Operating error	± (1.5 % of m.v. + 20 digit)

- Typical range with voltage range 230 V wye connection and 150 A current range is 34.50 KW.

Intrinsic error	± (0.7 % of m.v. + 15 digit)
Resolution	1 W to 10 W
Operating error	± (1.5 % of m.v. + 20 digit)

The errors of the current sensors themselves have not been considered.

Energy measurement (kWh, kVAh, kVARh)

Intrinsic error	± (0.7 % of m.v.+ F variation error* + 15 digit)
Resolution	1 W to 10 W
Operating error	± (1.5 % of m.v. + F variation error* + 20 digit)

*Frequency variation error

PF (Power factor)

Range	0.000 to 1.000
Resolution	0.001
Accuracy	± 1 % of full scale

Frequency measurement

Measuring range	46 Hz to 54 Hz and 56 Hz to 64 Hz
Intrinsic error	± (0.2 % of m.v. + 5 digit)
Operating error	± (0.5 % of m.v.+ 10 digit)
Resolution	0.01 Hz

Harmonics

Measuring range	Up to 50th harmonic (< 50 % of nom)

Accuracy:

Vm, Im, THDV, THDI	IEC 61000-4-7:2002 Class II
Vm ≥ 3 % Vnom	± 5 % Vm
Vm < 3 % Vnom	± 0.15 % Vnom
Im ≥ 10 % Inom	± 5 % Im
Im < 10 % Inom	± 0 5 % Inom
THDV	for THD < 3 % ± 0.15 % at Vnom
	for THD ≥ 3 % ± 5 % at Vnom
THDI	for THD < 10 % ± 0.5 % at Inom
	for THD ≥ 10 % ± 5 % at Inom

Vnom: Nominal voltage range.
Inom: Nominal current range.
Vm and Im are measured values of harmonic m.

Events

Detection of voltage dips, voltage swells and voltage interruptions with a 10 ms resolution and measuring error of the half period sine wave of rms.

Intrinsic error	± (1 % of m.v. + 10 digit)
Operating error	± (2 % of m.v. + 10 digit)
Resolution	0.1 V

Ordering information

Fluke-1735 Power Logger

Includes:

- Soft carrying case
- 4 flexible current probes (15 A/150 A/3000 A)
- Power Log software
- Voltage leads and clips
- Color localization set
- PC interface cable
- International ac adapter (115/230 V, 50/60 Hz)
- Printed English manual
- Multi-language manual CD

Optional accessories

- MBX Clamp 1 A/10 A – 3 precision dual range current clamps (1 A/10 A) for secondary CT applications
- MBX Clamp 5 A/50 A +N - 4 precision dual range current clamps (5 A/50 A) for general applications
- C435 – Water-tight hard case with rollers



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