

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.

	Power -== 2006-03-16, 123 Ptot 33.43kW PFtot 0.957	
Ptot	*max 33.71kW *min 31.71kW	34

				kW 31
t vwax (0.958	+ min	0.908	1.0
				1.0
				0.7

÷Ľ	¹³ 11.34 _{tot} kWh	11.87 _{tet} kVAh	-3.635 _{te} kVARh
L1	3.867		-1.238
L2	4.361	4.567	-1.399
L3	3.108	3.254	-0.998



Assess voltage and current

harmonics up to the 50th.

Conduct load studies for up to 45 days and view saved

Quantify energy consump-

log to memory for extended

tion quickly on-screen or

data on-screen or on a

computer.

periods.





View waveforms onscreen to uncover waveform distortion and to verify correct voltage and current connections.

Capture voltage events using

user-defined thresholds.



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.

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View recorded data in simple graphs and tables.

Report Writer Assistan	A	X
Initial Date/Time:		Final Date/Time:
13/12/2005 151	12	12/01/2006 ¥ 15h ¥
Print Summary Page		
Pint Graphs for Group Interval IF RMS Votage IF Ammens IF Frequency IF Frequency IF Power IF Power IF THD IF Energy	1 Week	Force Exact Day/Hour Limit
Dips and Surges	Event Profiles	
O.K.		Cancel

Easily customize the report.



Create professional reports



Specifications

General

Display	¹ / ₄ VGA Graphic Color transmissive displays 320 x 240 Pixel with additional background lighting and adjustabl 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	ion 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 \pm 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 VO-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	\pm (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: \pm (0.5 % of m. v. + 10 digit)	
	Operating error: ± (1 % of m. v. + 10 digit)	
Ranges	15 A	
	Intrinsic error: \pm (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 deltaconnection 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	\pm (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	\pm 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 rangeUp to 50th harmonic (< 50 % of nom)</th>

Accuracy:

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