TECHNICAL DATA

Fluke 1750/B Three-Phase Basic Power Quality Recorder

Key features

- **Power quality that meets the standard** All measurements comply with IEC61000-4-30 standards for correct evaluation of all measured values including voltage, current, power, harmonics, flicker etc.
- **Quick and reliable configuration** A tablet computer provides a window into what the instrument is recording, enabling quick and reliable configuration even in awkward test locations
- **Threshold-free set up** Apply thresholds after data is collected with Fluke Power Analyze Software – no need to worry about missed information due to incorrect setups
- **Captures everything** Cross-channel and current triggering capture every measurement, on every channel, every time
- **Intuitive PC software** Easily analyze data and generate reports with automated EN50160 reporting and compliance
- **Reporting has never been easier** Auto Report creates either standard reports or customized reports with the minimum effort or hassle. Export reports to almost any format including RTF (Rich Text Format) for editing in Microsoft Word.
- **Plug and play** Set up in minutes with self-identifying current probes and single-lead voltage connections
- **No need to reconnect wires** Swap channels internally with the wireless PDA or PC when connections are not correct
- **Measure every parameter** Voltage and current on three phases, neutral, and ground
- **5 MHz, 8000 Vpk waveform capture** Get a detailed picture of even the shortest events
- **Quickly retrieve data** With included SD memory card or via the 100 BaseT high-speed Ethernet connection. SD

card includes automatic download to SD when no other connection is made to the instrument

Product overview: Fluke 1750/B Three-Phase Basic Power Quality Recorder

Record every power quality parameter, every cycle, all the time

Setting up a power quality analyzer to capture detailed power quality data has never been easier that it is with the Fluke 1750. The only things you need to know are the system voltage, frequency and the power configuration (delta or wye). The analyzer then captures the most important data for up to 30 days without losing the most important details. These power meters automatically record every power quality parameter and event, on every cycle – all the time. Once the data is captured download via Ethernet or directly to 2GB SD card (without the need of any other device). The Fluke 1750 features a wireless front panel for viewing measurements, data and setting up, implemented via a tablet computer using Bluetooth communication.

Applications

- Long-term analysis: Uncover hard-to-find or intermittent issues; monitor critical equipment, capturing power quality events to correlate with equipment malfunction
- Power quality surveys: Quantify power quality throughout a facility, documenting results with professional reports
- Quality of service compliance: Validate incoming power quality at the service entrance
- Equipment Installation/Commissioning: Benchmark: power system prior to install to insure quality of service
  - **Long-Term Analysis** – Uncover hard-to-find or intermittent issues.
  - **Load Studies** – Verify the available electrical system capacity before adding loads.

Specifications: Fluke 1750/B Three-Phase Basic Power Quality Recorder

Technical Specifications

Power quality measurement standards	**Conformance**	IEC 61999-1-4 Class 1, IEC 61000-4-30 Class A or B depending on measurement function, IEEE519, IEEE1159, IEEE1459 and EN50160
	Clock/calendar	Leap years, 24-hour clock
	Real-time clock accuracy	Not more than ±1 s/day
	Inteal memory capacity for data	At least 2 GB
	Maximum recording period	At least 31 days
	Measurement time cool	Automatic
	Maximum number of events	Limited only by the size of the inteal memory
	Power requirements	100 to 240 Vrms ±10%, 47-63 Hz, 40 W
	Operating time during interruptions (inteal UPS operation)	5 minutes per interruption, 60 minutes total operating time without recharging
	Dimensions	215 x 310 x 35 mm (8.5 x 12.2 x 3.5 in)
	Mass (weight)	6.3 kg (14 lb)
Input	**Measurement types**	One Phase Plus Neutral, One Phase IT No Neutral, One Phase Split Phase, Three Phase Wye, Three Phase Delta, Three Phase IT, Three Phase High Leg, Three Phase Open Leg, 2 Element Delta, 21/2 Element Wye
	Input channels	Voltage: 4 channels, AC/DC
		Current: 5 channels
	Voltage channels	Input resistance: 2 MΩ
		Input capacitance: < 20 pF
	Current input characteristics	2 Vrms = full scale, 1 MΩ Input Impedance for ferro CTs, low impedance for Flexi-CTs
	Measuring method	Simultaneous digital sampling of voltage and current. Digital PLL synchronized sampling, inteal frequency reference used during voltage drops.
Synchronization and sampling	**PLL-synchronization source**	The PLL synchronizes to the A-N voltage for wye power types, and to the A-B voltage for delta power types. All listed power types can be characterized as either wye or delta.
	PLL lock range	42.5 to 69 Hz
	Sampling frequency	Voltage and current: 256 samples/cycle Inter-harmonics per IEC 61000-4-7: 2 560 points/10 cycles (50 Hz), 3072 points/12 cycles (60 Hz) Transient Voltage: 5 MHz
	A/D resolution	Voltage and current: 24 bits
		Transient voltage: 14 bits

Voltage and current measurements	**Voltage measurement range**	AC voltage: 1000 Vrms ±10% over range
		DC voltage: ±1000 V +10% over range
	Voltage crest factor	3 or less
	Current measurement range	Depends on current probe used
	Current crest factor	4 or less
RMS voltage	**Measurement type**	True RMS calculated continuously: every cycle, every 1/2 cycle, and every 10 or 12 cycles at 50 or 60 Hz respectively, as required by IEC 61000-4-30.
	Measurement uncertainty	AC: ±0.2% reading ±0.1% full scale, above 50 Vrms
		DC: ±0.5% reading ±0.2% full scale, above 50 VDC
RMS current	**Measurement type**	True RMS calculated continuously: every cycle, every 1/2 cycle, and every 10 or 12 cycles at 50 or 60 Hz respectively, as required by standards
Transient voltage (impulse)	**Measurement type**	Waveshape sampling
	Full scale	8000 V pk
	Sample resolution	200 nS
	Measurement uncertainty	±5% reading ±20 V (test parameters: 1000 VDC, 1000 Vrms, 100 kHz)
Voltage swell (rms swell)	**Measurement type**	True RMS (one cycle calculation by overlapping each half cycle - voltage between lines is measured for 3P3W lines and phase voltage is measured for 3P4W lines)
	Displayed data	Amplitude and duration of swell
	Measurement	Same as rms voltage
Voltage dip (rms sag)	**Measurement type**	True RMS (one cycle calculation by overlapping each half cycle - voltage between lines is measured for 3P3W lines and phase voltage is measured for 3P4W lines)
	Displayed data	Amplitude and duration of dip or interruption
	Measurement	Same as rms voltage
Voltage dropout (interruption)	**Measurement type**	Same as voltage dip
LAN interface	**Connector**	RJ-45
	Speed and type	10/100 Base-T, auto MDIX
	Communications protocol	TCP/IP over Etheet
Wireless cooller interface	**Connection**	wireless (2.4 GHz radio)
	Speed	up to 700 kbit/second
	Communications protocol	Bluetooth SPP
Power Measurements		

Power, baery life	**Measurement type**	True RMS calculated continuously: every cycle, and every 10 or 12 cycles at 50 or 60 Hz respectively, as required by standards
Frequency	**Measurement range**	42.5 to 69 Hz
	Measurement source	Same as PLL synchronization source
	Measurement accuracy	±10 mHz (10 to 110% of range, with sine wave)
Power factor	**Measurement range**	0.000 to 1.000
	Measurement accuracy	±1 digit from the calculation of each measured value (±3 digits for total)
Displacement power factor	**Measurement method**	Calculated from the phase difference between voltage fundamental and current fundamental
	Measurement range	- 1.000 (leading) to + 1.000 (lagging)
	Measurement accuracy	±0.5% reading ±2% full scale ±1 digit
Voltage unbalance and phase sequence	**Measurement method**	Positive sequence voltage divided by negative sequence voltage, per IEC 61000-4-30
Harmonic voltage and current	**Analysis window**	rectangular
	Analysis order	1st to 50th order
	Measurement accuracy	Voltage / Current: 1st to 20th orders: ±0.5% reading ±0.2% full scale, 21st to 50th orders: ±1% reading ±0.3% full scale (current sensor accuracy must be included for current and power)
	Measurement method	IEC 61000-4-7
Inter-harmonic voltage and current (intermediate harmonics)	**Analysis window**	rectangular
	Analysis orders	1.5 to 49.5th order
	Measurement method	IEC 61000-4-7
Flicker	**Measurement method**	IEC 61000-4-15
		Plt for 2 hours and PSt for 10 minutes
	Measuring range	0,1 to 5 (25) depending on voltage level, modulation and frequency
Environmental Specifications		
Environmental	**Operating environment**	Indoors or in covered area outdoors, up to 2 000 m altitude
	Storage temperature and humidity	-20°C to 50°C, 80% RH max, non-condensing
	Operating temperature and humidity	0°C to 40°C, 80% RH max, non-condensing

Maximum rated working voltage	**Voltage terminals**	1100 Vrms
	Voltage durability	5550 Vrms AC for 1 minute, between voltage input terminals, voltage input terminals and current probes, and voltage input terminals and case (50/60 Hz, 1 mA sense current)
	Enclosure protection	IP30 (per EN 60529)
Standards	**EMC**	EN 61326-1:1997+A1:1998 Class A
		EN 61000-3-2:1995+A1:1998+A2:1998
		EN 61000-3-3:1995
	Safety	EN 61010-1 2 nd Edition; 2 000
		Voltage input unit: Contamination Level 2 , Overvoltage Category 1000 V CAT III, 600 V CAT IV (anticipated overvoltage: 8000 V)

Ordering information

Fluke 1750/B

Fluke 1750/B Three-Phase Basic Power Quality Recorder

Includes:

- Three-Phase Power Recorder
- 1750 acquisition unit
- ARCHOS 43 Internet Tablet
- 5 Test leads and clips
- 2GB SD Memory card (larger cards not compatible)
- Fluke Power View and Fluke Power Analyze software
- Power cord with international plug set
- Ethernet cable
- Color localization set
- Printed Getting Started manual
- Product CD with software and user manual PDF
- CS 1750/1760 Rugged transit softcase

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