

# Fluke 1750

## Three-Phase Power Recorder

### Technical Data

**Never miss capturing a disturbance—with the exclusive threshold-free measurement system, it's automatic.**

Capture every measurement, every event, on every cycle, all the time with the Fluke 1750 Power Recorder. Outstanding accuracy and resolution provide complete visibility into your installation or distribution system.



- **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:** PDA wireless "front panel interface" provides the ability to verify setup without a laptop along with a window into what the instrument is recording, even in awkward test locations.
- **Threshold-free setup:** Apply thresholds after data is collected with Fluke Power Analyze Software so there is no need to worry about missed information due to incorrect set-up.
- **Captures everything:** Cross-channel and current triggering capture every measurement, on every channel, every time.

- **Intuitive PC software:** Easily analyze data and generate reports. Automated EN50160 reporting and compliance.
- **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 100BaseT high-speed Ethernet connection.



## 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

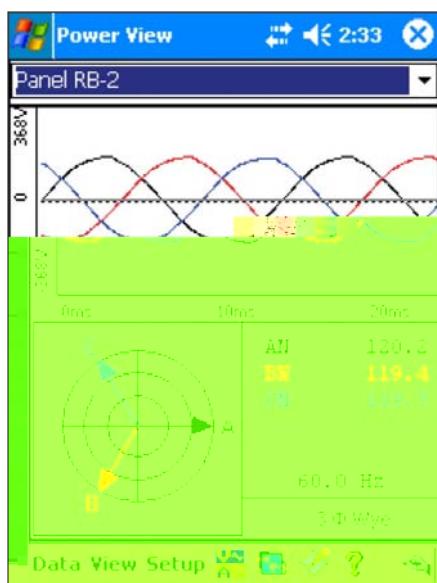
**Quality of service compliance:** Validate incoming power quality at the service entrance

**Equipment Installation/Commissioning:** Benchmark power system prior to install to insure quality of service

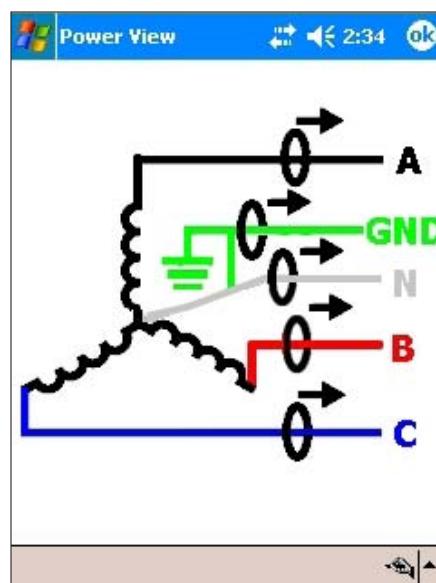
## Easy to use

The recorder automatically detects, scales, and powers current probes without needing batteries. Requiring only single-lead voltage connections enables safe and quick setups. Once power is applied the instrument automatically begins recording and LEDs give you assurance that the recorder is powered up and signals are within range – no more uncertainty that data is being recorded. The Fluke 1750 has an exclusive capture algorithm which makes certain all events are captured without the tedious setups and blind spots associated with threshold driven equipment.

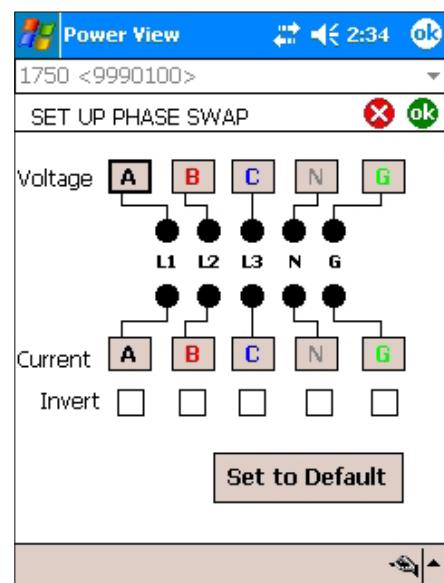
The PDA wirelessly interfaces with the recorder, allowing quick setup and verification with waveform displays, meter screens, and phasor diagrams. The built-in wireless technology allows you to control multiple instruments from a distance easily, without the need for a laptop computer (laptops can also be used when desired).



View measurements real-time with wireless PDA interface.



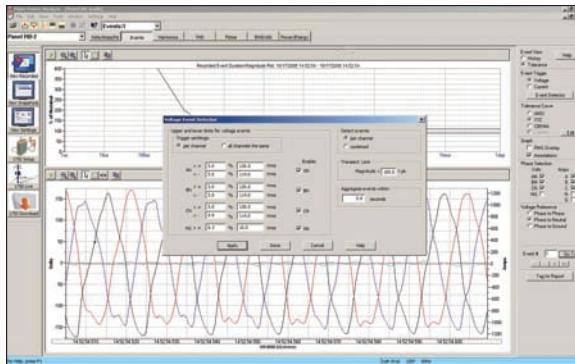
Configurations are simple with wiring diagrams to guide you.



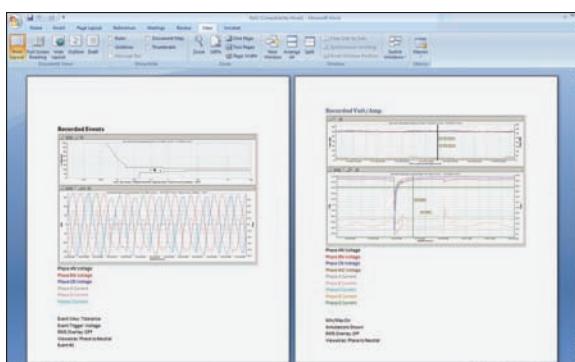
No need to reconnect wires—swap channels internally using the PDA interface.



## View data the way you want



Apply thresholds to data after collection using a variety of standard or customized templates.



Simplified report writer feature included in Fluke Power Analyze.

## All the latest power quality standards are built-in

IEC 61000-4-30 compliant measurement systems provide the confidence that all parameters are measured and calculated consistently with international standards. Automated EN50160 compliance reporting for rapid Pass/Fail testing.

## 600 V CAT IV and 1000 V CAT III safety rating

Designed to help protect you and your equipment, the Fluke 1750 Three-Phase Power Recorder and accessories are all certified to meet the stringent safety standards for use in 600 V CAT IV and 1000 V CAT III environments. They are the first tools of their kind to carry the CAT IV rating and, therefore, can be used for most power connections and for all outlets in a low-voltage power distribution system.

The new Fluke Power Analyze software revolutionizes your ability to analyze data. No need to worry about thresholds—with Fluke Power Analyze, thresholds can be modified after the data is recorded! And the easy-to-use user interface will display voltage as a phase-to-phase or phase-to-neutral reading.





**Transient voltage (impulse)**

<b>Measurement type</b>	Waveshape sampling
<b>Full scale</b>	8000 V pk
<b>Sample resolution</b>	200 nS
<b>Measurement uncertainty</b>	± 5 % reading ± 20 V (test parameters: 1000 V dc, 1000 V rms, 100 kHz)

**Dip (Sag) and Swell Measurements**

<b>Voltage swell (rms swell)</b>	
<b>Measurement type</b>	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)
<b>Displayed data</b>	Amplitude and duration of swell
<b>Measurement uncertainty</b>	Same as rms voltage
<b>Voltage dip (rms sag)</b>	
<b>Measurement type</b>	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)
<b>Displayed data</b>	Amplitude and duration of dip or interruption
<b>Measurement uncertainty</b>	Same as rms voltage
<b>Voltage dropout (interruption)</b>	
<b>Measurement type</b>	Same as voltage dip

**Power Measurements**

<b>Calculated per IEEE1459 for best performance when distortion is present</b>	
<b>Measurement type</b>	True rms calculated continuously: every cycle, and every 10 or 12 cycles at 50 or 60 Hz respectively, as required by standards
<b>Measurement accuracy</b>	+/- (voltage uncertainty + current uncertainty + current probe uncertainty)
<b>Frequency</b>	
<b>Measurement range</b>	42.5 to 69 Hz
<b>Measurement source</b>	Same as PLL synchronization source
<b>Measurement accuracy</b>	± 10 mHz (10 to 110 % of range, with sine wave)
<b>Power factor</b>	
<b>Measurement range</b>	0.000 to 1.000
<b>Measurement accuracy</b>	± 1 digit from the calculation of each measured value (±3 digits for total)
<b>Displacement power factor</b>	
<b>Measurement method</b>	Calculated from the phase difference between voltage fundamental and current fundamental
<b>Measurement range</b>	- 1.000 (leading) to + 1.000 (lagging)
<b>Measurement accuracy</b>	± 0.5 % reading ± 2 % full scale ± 1 digit
<b>Voltage unbalance and phase sequence</b>	
<b>Measurement method</b>	Positive sequence voltage divided by negative sequence voltage, per IEC 61000-4-30
<b>Harmonic voltage and current</b>	
<b>Analysis window</b>	rectangular
<b>Analysis order</b>	1st to 50th order
<b>Measurement accuracy</b>	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)
<b>Measurement method</b>	IEC 61000-4-7
<b>Inter-harmonic voltage and current (intermediate harmonics)</b>	
<b>Analysis window</b>	rectangular
<b>Analysis orders</b>	1.5 to 49.5th order
<b>Measurement method</b>	IEC 61000-4-7
<b>Voltage flicker</b>	
<b>Measurement method</b>	as per EN 61000-4-15:2003: 10 min (Pst), 2 h (Plt)

## External Interface Specifications

<b>LAN interface</b>	
Connector	RJ-45
Speed and type	10/100 Base-T, auto MDIX
Communications protocol	TCP/IP over Ethernet
<b>Wireless controller interface</b>	
Connection	wireless (2.4 GHz radio)
Speed	up to 700 kbit/second
Communications protocol	Bluetooth SPP

## Environmental and safety specifications

<b>Operating environment</b>	Indoors or in covered area outdoors, up to 2000 m altitude (for compliance to IEC61010 standard)
<b>Storage temperature and humidity</b>	-20 °C to 50 °C, 80 % RH max, non-condensing
<b>Operating temperature and humidity</b>	0 °C to 40 °C, 80 % RH max, non-condensing
<b>Maximum rated working voltage</b>	
Voltage terminals	