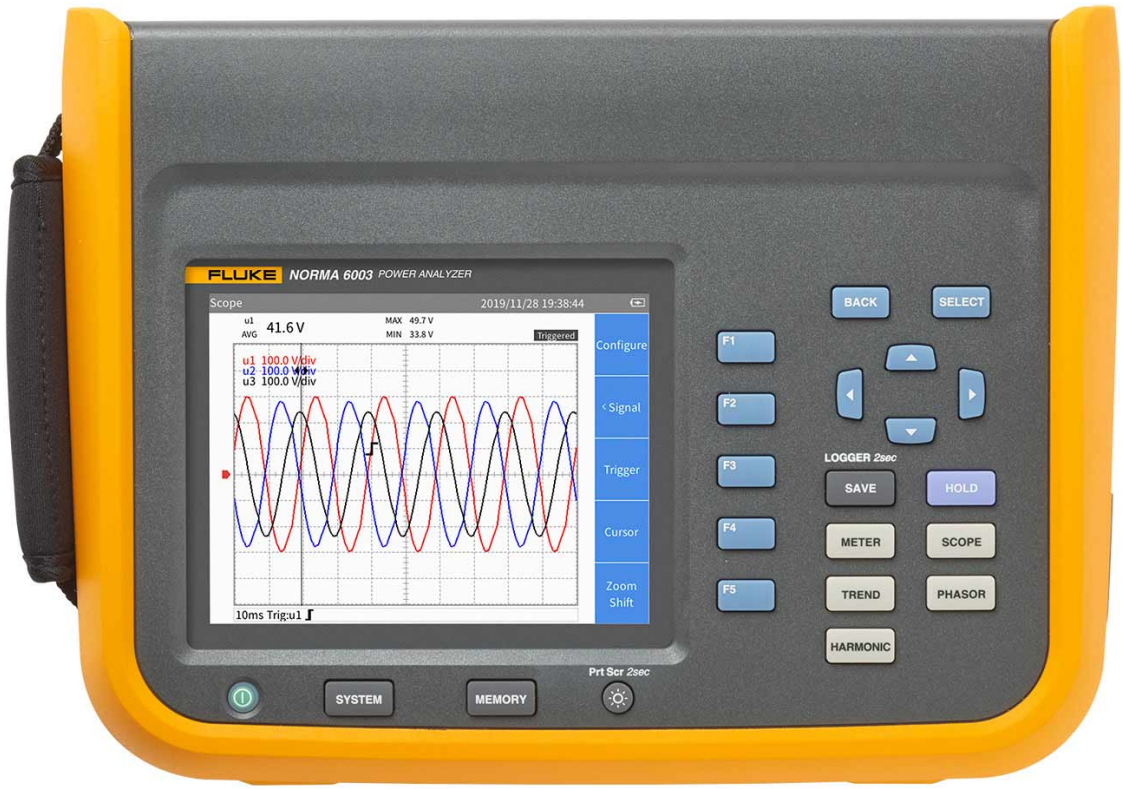
TECHNICAL DATA

Fluke Norma 6000 Series Portable Power Analyzers



Key features

- Measure voltage, current, active power, reactive power, apparent power, power factor and harmonics with associated values
- Get accurate, precise results with 0.1% measurement accuracy and a 500kHz bandwidth
- Take precision power measurements almost anywhere – highly portable, battery powered analyzer weighing only 3.5kg with up to 10 hours of battery life

Product overview: Fluke Norma 6000 Series Portable Power Analyzers

The Fluke Norma 6000 Series Portable Wideband Precision Power Analyzers give you more freedom than ever before to make high accuracy power measurements wherever you need to—whether in the lab, or in the field. Designed for portability the lightweight, battery powered Fluke 6000 Series eliminates the need to carry large, fragile, expensive analyzers into the field, allowing you to make measurements directly at the load in nearly any environment. By measuring directly at the load, you can discover how the equipment operates under real-world conditions, with real-world variables, not just at a test bench or in the lab.

Fluke 6003 Power Analyzer

The Fluke 6003 includes three measurement channels which each consist of a voltage and current input making it ideal for three-phase power measurements.

Fluke 6004 Power Analyzer

The Fluke 6004 includes four measurement channels giving it the capability to measure three-phase power and DC power simultaneously to enable real-time inverter efficiency measurements under real-world conditions.

Fluke 6003+ and Fluke 6004+ Power Analyzer

The Fluke 6003+ and 6004+ models both add the capability to measure mechanical parameters such as speed and torque (from separate transducers) to discover the electrical to mechanical efficiency of the load under a variety of typical operating modes.

With the addition of optional measurement accessories, you can even make measurements up to 1,500V DC and 2,000A AC+DC on conductors with a diameter of up to 52mm. The instrument's compact, battery-powered design combined with a wideband frequency response makes it easier than ever to make measurements on hard to access systems such as inverter drive systems, DC-AC and AC-DC power conversion systems and electric motors without removing them from service. Making these measurements in the field simplifies the troubleshooting and performance measurement processes without sacrificing uptime, giving you more accurate test results that will enable you to discover whether your loads are operating as effectively and efficiently as they should be.

- Highly portable and easily installed in tight spaces—only 9.6 cm thick.
- Operate continuously for up to 10 hours without an external power supply using the 5000mAh Li-ion Internal Battery.
- Measure safely—safety rated for CAT III 1000V, CAT IV 600V environments.
- Measure three phase power and DC output power at the same time with 3 or 4 channel models, with voltage and current inputs on each channel.
- Make mechanical torque and speed measurements using the included inputs and outputs of the Fluke 6003+ and 6004+.
- 0.1% accuracy, 500kHz bandwidth, 200ks/s sample rate so you can rely on the power conversion system measurements you take no matter what distortion may be present.
- USB and RS485 interface and open communication protocol for easy system integration and software platform flexibility.
- Combine two analyzers to enable simultaneous measurement of multiple circuits for even more troubleshooting capability—configurable to 6 or 8 channels using dual analyzer synchronization.
- View critical data in the field on the main display—Meter, Waveform, Harmonics up to the 100th, Vector and Trend.
- Ensure high common-mode rejection and allow flexible configurations according to measurement requirements using the electrically isolated channels.
- User adjustable measurement rate from 100ms to 1s with continuous logging via 32GB of onboard storage.
- Easy in-field set up using the integrated front panel or a remote PC connection (USB or RS485).
- Online measuring, data download and analysis with included PC software (Fluke Power Analyzer Software).
- Full remote control of the connected instrument using Fluke Power Analyzer Software and a local USB or long-distance RS485 connection.

Specifications: Fluke Norma 6000 Series Portable Power Analyzers

Inputs	Norma 6003	3 Voltage + 3 Current
	Norma 6003+	3 Voltage + 3 Current + 1 Motor
	Norma 6004	4 Voltage + 4 Current
	Norma 6004+	4 Voltage + 4 Current + 1 Motor
Sample rate	200ks/s	
Measurement update rate	100ms, 200ms, 500ms, 1s	
Dimensions (H * W * L)	298mm x 215m x 96mm	
Weight	3.5 kg (7.7 lbs)	
Display	5.7 inch, TFT LCD, 640x480	
Operating temperature	-10 °C to +50 °C	
Storage temperature	-30 °C to +60 °C	
Operating humidity	Non-condensing (< 10 °C) □ 90 % RH (at 10 °C to 30 °C) □ 75 % RH (at 30 °C to 40 °C) □ 45 % RH (at 40 °C to 50 °C)	
Operating altitude	2000m	
Storage altitude	12000m	
Ingress protection	IP 50 (Terminals mated) according to IEC 60529:	
Baery	BP 291, 10.8V/5000mAh, 54Wh IEC 62133, UN38.3 Operating time: 10 Hours (on baery)	
Safety	IEC 61010-1: Pollution Degree 2 IEC 61010-2-030: CAT IV 600V, CAT III 1000 V	
EMC	IEC 61326-1: Industrial IEC 61326-2-2	
Warranty	1 Year	
Communication Interface	USB/RS485	
Dual Analyzer Synchronization Mode	Able to extend to 6, 7 or 8 channels (using multiple instruments)	
PC Software	Fluke Power Analyzer software	
Storage Capacity	32GB	
Data trend storage rate	As per display rate	
Main Function	Meter, Scope, Harmonic, Phasor, Trend	

Measuring Parameters	RMS, DC Component, AC Component, Rectified Mean, Peak Value, Peak-Peak, Crest Factor, Form Factor, Fundamental Component, Fundamental Content, Harmonic Distortion, Harmonic Content, Harmonic Factor for voltages and currents, Active Power, Reactive Power, Apparent Power, Power Factor, Phase Shift, Efficiency, Impedance, Electric Energy, Charge/Discharge capacity (Ah), Frequency, Motor Speed, Torque, Mechanical Power, Mechanical Energy, Summation function

Electrical Specifications							
Voltage							
Range	10 V, 100 V, 1000 V						
Crest Factor	CF □ 2						
Maximum Voltage	10 % overload						
Input Impedance	2M Ω/10pF (Typical)						
Temperature Coefficient	0.05 * (Spec)/k						
Bandwidth	1000V range: 500kHz; 100V range: 200 kHz; 10V range:100 kHz						
CMRR	120 dB @ 50/60 Hz						
Accuracy (% reading + % range)							
Range	**1000 V**	**100 V**	**10 V**				
DC	0.1 + 0.1	0.1 + 0.1	0.1 + 0.2				
AC (10Hz to 1kHz)	0.1 + 0.1	0.1 + 0.1	0.1 + 0.2				
AC (10kHz)	5 + 0.5	5 + 0.5	5 + 0.5				
Current							
Crest Factor	CF □ 2						
Temperature Coefficient	0.05 x (Spec)/k						
Overload capacity	10 % overload						
CMRR	120 dB @ 50/60 Hz						
Shunt (current input)							
Measuring Range	0.1 A, 1 A, 10 A						
Input Impedance	0.025 Ω (Typical)						
Bandwidth	10 A range: 500 kHz; 1 A range: 200 kHz; 0.1 A range: 100 kHz						
BNC (voltage input)							
Range	0.1 V, 1 V, 10 V						
Input Impedance	100k Ω/100pF (Typical)						
Bandwidth	10 V range: 500 kHz; 1 V range: 200 kHz; 0.1 V range: 100 kHz						
Accuracy (% reading + % range)							
Range	**10 A**	**1 A**	**0.1 A**	**10 V**	**1 V**	**0.1 V**	
DC	0.1 + 0.2	0.1 + 0.5	0.1+2	0.1+0.1	0.1+0.2	0.1+1	
AC (10Hz to 1kHz)	0.1+0.1	0.1+0.2	0.1+1	0.1+0.1	0.1+0.1	0.1+0.5	

AC (10kHz)	5+1	5+1	5+1	5+1	5+1	5+1
Motor Module (Torque and Speed)						
Voltage Range			± 10 V dc, 10 % overload			
Voltage Channels			2			
Input Impedance			1.1M Ω (Typical)			
Accuracy at dc			0.1 % range + 0.1 % reading			
Pulse Channels			3			
Pulse Logic High Threshold			2 V (Typical)			
Pulse Logic Low Threshold			0.8 V (Typical)			
Maximum Pulse Frequency			100 kHz			
Motor Module (Torque and Speed)						
Frequency Accuracy			0.05 % range + 0.05 % reading			
Harmonics			100 (50Hz/60Hz)			
Calculation method			FFT/Interpolation			

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