



PS5000 Power Quality Analyzer - Specifications



General Specs

Category	Notes
Size	3.89" (9.86 cm) W x 7.72" (19.61 cm) L x 1.58" (4.01 cm) Deep at bottom end; 2.14" (5.44 cm) Deep at top end
Weight	1.2 lbs (0.56 kg)
Operating Range	32 - 122 degrees F (0 - 50 degrees C) Relative humidity to 70% (non-condensing)
Power Requirement alternatives	12V DC @ 500 mA with charger (included)
	Universal wall charger option
	Power PS5000 from monitored voltage (100 - 480 Vrms via LDCm accessory)
	Power PS5000 from monitored voltage (100 - 600 Vrms via LDC4 accessory)
	Can connect directly to external 12VDC battery
Battery Life	8-10 hours after 4 hour charge
Battery Type	Li-ion
Display	Color graphic display, 3.5" diagonal, 320 x 240 pixel resolution
Keyboard	25 conductive rubber keys, including 5 soft keys
Sampling Rate	8 microseconds for Voltage and Current
Safety	1000V CAT III, 600V CAT IV
SD Card Slot	Accepts SD Cards to 32GB (essentially limitless)
Voltage Inputs	4 (Vn, V1, V2, V3)
Current Inputs	4 (I1, I2, I3, In)
Measurement Refresh	Every second
Logging Period (User adjustable)	From 1 second - 99 minutes
Logging Duration (Length of monitoring session)	Up to 2 years according to memory allocation
Communications	Bluetooth wireless & USB, Wi-Fi optional
Data Compatibility	Files exportable to tab-delimited text & Excel for analysis by other analysis systems
Data Integration	Automatic reporting mode provides core measurements each second for integration into data gathering systems
Error Detection	SureStart™ patented expert system analyzes inputs & settings to advise of possible errors in connections and settings



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Redundancy & Safety in Storage	All data stored redundantly in PS5000 and in SD card. If PS5000 memory fills, oldest data is replaced by newest data. When SD card file reaches 65535 records, the file is automatically sealed & data continues to be written to a new file for safety and "unlimited" recording
Redundancy in Communications	Bluetooth & USB are standard. Data can transfer both directions via SD card
Configurable Operation	Data setup via keyboard, serial communications, SD card
Voltage Leads	6 foot safety leads with removable crocodile clamps (4 included)
Current Probes	Sold separately, wide range of alternatives
Carrying Case	Sold separately, wide range of alternatives
Longevity	Firmware upgrades via SD card & web site, renewable and reinstatable warranties covering yearly calibration, updates, & maintenance

Supported Power Systems

Category	Notes
Single Phase	Yes (non-invasive with 120ADP accessory)
Split Phase	Yes
3-Phase Wye	Yes
3-Phase Delta	Yes
4-Wire Delta	Yes
Open Delta	Yes
Grounded Delta	Yes
2 Current - 3 phase	Yes
DC	Yes
Generators, VFDs	Yes
Low Voltage (1-1000V)	Yes
Medium Voltage 500-15000V)	Yes, with 5KVP and 15KVP accessories & input ratios
High Voltage (>15KV)	Yes, via external PTs & input ratios

Measurement Types

Category	Notes
Voltage (Vpn)	Average, Max, Min of 3 phases (9)
Voltage (Vpp)	Average, Max, Min of 3 phases (9)
Current (A)	Average, Max, Min of 3 phase + neutral (12)



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Net True Power (W)	Average, Max, Min of 3 phases + Total (12)
Positive True Power (Wpos)	Average, Max, Min of 3 phases + Total (12) *For logging consumption separately from generation
Negative True Power (Wneg)	Average, Max, Min of 3 phases + Total (12) *For logging generation separately from consumption
Apparent Power (VA)	Average, Max, Min of 3 phases + Total (12)
Net Reactive Power (VAR)	Average, Max, Min of 3 phases + Total (12)
KWH	Average of 3 phases + total (4)
KVA-Hr	Average of 3 phases + total (4)
KVAR-Hr	Average of 3 phases + total (4)
Cost	Elapsed (1)
True Power Factor (TPF)	Average, Max, Min of 3 phases + Total (12)
Displacement Power Factor (DPF)	Average, Max, Min of 3 phases (9)
THD voltages	Average, Max, Min of 3 phases (9)
THD currents	Average, Max, Min of 3 phases + neutral (12)
Unbalance, Vpn	Average, Max, Min (3)
Unbalance, Vpp	Average, Max, Min (3)
Unbalance, current	Average, Max, Min (3)
Individual Harmonics of Voltage	63 Harmonics X 3 voltage inputs = 189
Individual Harmonics of Current	64 Harmonics X 4 voltage inputs = 256
Frequency	Average, Max, Min of best input (3)
Power-Line Noise	Spectrum analysis 3K - 100 KHz (with FAO option)
Peak Demand Period	Timestamp, peak average W (for each log)
Peak KVA Period	Timestamp, peak average KVA (for each log)
Peak Current Period	Timestamp, peak average of each current (for each log)
KWH	Cumulative, est. KWH/mo, est KWH/yr (for each log)
Cost	Cumulative, est. cost/mo, est cost/yr (for each log)
RMS Swells (Inrush), Sags (Dips)	Triggered capture for all inputs
Transients, Absolute and Relative	Triggered capture for all inputs
RMS event profiles	RMS of each 1/2 cycle starting 4 half-cycles before trigger and ending after the event ends (up to 10 seconds in length)



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Voltage Measurement

Category	Notes
Range	1-1000 V, AC/DC (direct input)
	500-5000 Vrms (direct connection via 5KVP probe)
	600-15000 Vrms (direct connection via 15KVP probe)
Display Range	1-6000 kV (using input ratios)
Accuracy	± 0.1 % of reading ± 0.3 Vrms
	with 5KVP probe, ± 1 % of reading via direct connection
	with 15KVP probe, ± 1 % of reading via direct connection
Provision for Input Ratios (for PTs)	Yes

Current Measurement

Category	Notes
Range	AC: 5ma - 6000A, depending on current probe
	DC: 5A - 2000A, depending on current probe
Display Range	1 mA - 6 Megamps (using input ratios)
Accuracy	± 0.1 % of reading plus accuracy of current probe
Provision for Input Ratios (for CTs, parallel conductors, coil boost)	Yes
Automatic current probe identification and scaling	Yes
Probes powered by the PS5000 (i.e. no batteries)	Yes

Power Measurement

Category	Notes
Accuracy (for Displacement $< 75^\circ$)	$\pm 0.25\%$ of reading plus accuracy of current probe

Frequency Measurement (fundamental frequency)

Category	Notes
Range	Measurement modes: DC, 22 - 200 Hz, 360 - 440 Hz
Accuracy	$\pm 0.25\%$



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Harmonics Measurement

Category	Notes
THD Harmonic Inclusion	22 - 3000 Hz (50th Harmonic of 50/60Hz, per IEC)
	360 - 7600 Hz (38th Harmonic of 400Hz)
THD Display Range	0 - 999%
THD Accuracy	±0.25%
Individual Harmonics	Can log 1 - 63rd of voltages and currents
Indiv. Harm. Accuracy	±0.5%

Triggering

Category	Notes
Swell (Inrush) / Sag (Dip)	Triggered on 1/2 Cycle RMS, all inputs
Transient Detection	Resolution 8 microseconds, instantaneous
Swell/Sag Waveform Capture	Yes (50msec prior to trigger + 150msec after)
Transient Waveform Capture	Yes (25msec prior to trigger + 25msec after)
Event Scatterplot Capture	Yes (timestamp, magnitude, duration)
Event Scatterplot Capacity	Set by user, can be thousands
Event Waveform Capacity	Set by user, can be hundreds
Manual Capture of Waveforms	Set by user, typically less than 20

Graphic Display Screens

Category	Notes
Waveforms, Graph	View present voltages and currents
Harmonics, Graph	View harmonic bar chart for first 50 harmonics of all inputs
Phasors, Graph	View phasor vectors of present voltages and currents
Data Log, Graph	View all measurements of the most recent log
Trend Log, Graph	Separate from log, record & display core measurements during a limited time
Waveforms, Table	All summary measurements related to waveforms



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Harmonics, Table	All summary measurements related to harmonics
Phasors, Table	All summary measurements related to phasors
SureStart™ Diagnostics	Display power system type & likely errors

Control & Analysis Software

Category	Notes
PSM-A	PowerSight Manager (PSM-A) Windows software for complete control & data analysis for PS5000 (included)
ReportWriter	Automated report writer with tables & graphs for professional summary or comparison reports
Data Setup Wizard	Data setup via measurement scenario, can be overridden for full configurability
Data Analysis	Extensive analysis tools including text & graph views, configurable scales, multiple scales, fine zooming, superimposed interval measurements, on-screen labeling, screen summary & cursor values, etc
Scope Mode	Single capture or repeating capture of waveforms
Remote Control	Virtual display & keyboard to interact with, updated each second
Remote Data	Streaming core measurements or virtual analog & digital meters to see present, maximum, & minimum measurements

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