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E6500 Power Quality Analyzer

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E6500 Power Quality Analyzer

E6500 power quality analyzer can record and analyze all power quality parameters such as harmonics, voltage, current, frequency, fluctuation, flicker, power and three-phase unbalance on site, as well as possess transient electrical energy monitoring, waveform recording analysis, energy-efficiency loss assessment, inverter measurement and other advanced measurement functions. The analysis software running on PC performs the secondary analysis of the measurement result, which provides accurate data basis for power quality management.



Supported standard
IEC61000-4-30 A







It has passed the strict tests specified in the international IEC61000-4-30 Class A standard.

Core technology specifications

- Flicker accuracy: $\pm 5\%$
- Voltage accuracy: 0.1%
- Frequency: 50Hz/60Hz
- Measurement cycle: 10/12 cycles
- Frequency bandwidth: 42.5-69Hz
- Voltage unbalance: $\pm 0.2\%$
- Current unbalance: $\pm 0.5\%$
- Maximum sampling frequency: 200kHz
- Current accuracy: 0.1% + CT accuracy
- Power factor accuracy: 0.5% + CT accuracy
- Voltage test range: 0-1000V, 6000V transient voltage
- Data storage: 8G
- Working hours: $\geq 5h$
- IP grade: IP53
- Supports manual/automatic waveform recording
- Waveform recording time: 10s-10min
- Waveform recording cycle: 10/12 cycles
- Minimum recording interval: 0.2s
- USB transmission speed: $\geq 17M/S$
- Harmonics measurement: 1-50th/50Hz-2500Hz
- Waveform recording sampling point: 128/256/512 points/cycle
- Security level: 600 V CAT IV/1000 V CAT III
- Interface language setting (Chinese and English)
- Supports multi-brand transformer
- Inverter measurement: single-phase/three-phase
- Energy loss analysis: monetary statistics
- Professional PC analysis freeware
- Transient monitoring: captures 50 μs shortest waveform pulse
- Complies with IEC61000-4-7 harmonics measurement standard
- Complies with IEEE 1459, DIN 40110 algorithm
- Complies with IEC61000-4-15 flicker measurement standard
- Interharmonics measurement: 50th/25Hz-2475Hz
- Higher frequency harmonics: 35th/2100Hz-8900Hz

Product Selection

Product Type		E6500	E6100	E6000	PQ3000
Appearance					
Measurement items	Waveform recording analysis	√	√	√	√
	Event record	√	√	√	√
	Harmonics analysis	√	√	√	√
	Transient monitoring	√	--	--	--
	Energy-efficiency loss	√	--	--	--
	Inverter measurement	√	--	--	--
	Flicker	√	√	√	√
	Power/Energy	√	√	√	√
	Voltage/Current	√	√	√	√
	Unbalance	√	√	√	√
Frequency	√	√	√	√	
Other functions	PC software analysis	√	√	√	√
	Instant printing	--	√	--	--
	Remote control	--	√	--	--
	Networking management	--	√	--	--
Channel	Voltage/Current	4/4	4/4	4/4	16/16
Measurement range	Voltage	1-1000V, 6000V transient voltage	1-1000V, 6000V transient voltage	1-1000V, 6000V transient voltage	1-1000V, 6000V transient voltage
	Current	DC, AC	AC	AC	AC
Frequency	Frequency/ Cycle	50Hz, 60Hz/10, 12 cycles	50Hz/10 cycles	50Hz/10 cycles	50Hz/10 cycles
Battery	Battery capacity/ Battery life	5000mAh/ ≥ 5h	4500mAh/ ≥ 4h	4500mAh/ ≥ 4h	90Wh/2h
Storage	Type/ Capacity	TF(built-in)/8G	SD (external) /8G	TF(built-in)/8G	Solid State Disk (SSD) /32G
Interface	Number/Type	One USB	One USB, One Ethernet interface, One serial port	One USB	Two USB
Screen	Size/Resolution	5.6 inch /640*480	8 inch/800*600	5.6 inch /640*480	9 inch/800*480
Machine	Dimension / Weight	263x168x65mm/ about 2kg	338x222x73mm/ about 2.5kg	263x168x65mm/ about 2kg	448x197x230mm/ about 6kg

Advanced Measurement Function

Waveform recording analysis

Supports 1-10min waveform recording function. Users can record the original waveforms with customized sampling points. The professional software running on PC performs the secondary waveform analysis so as to analyze the causes of power grid faults more effectively.



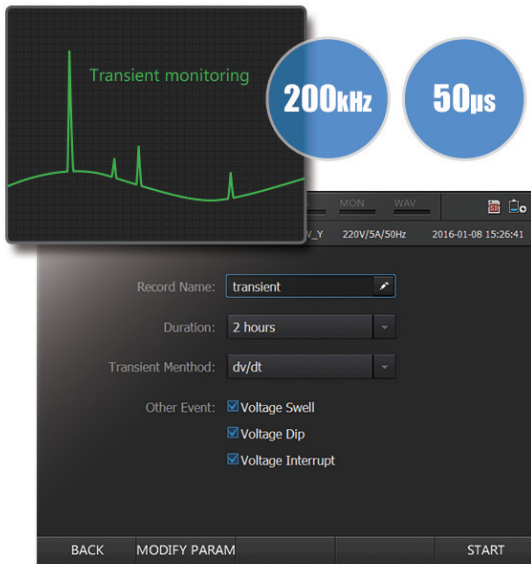
Parameter statistics

Records and analyzes power quality parameters comprehensively. The minimum recording interval is 0.2s. The analysis software running on PC performs the secondary analysis of the recorded data and generates customized or national standard report.



Transient monitoring

Captures instantaneous 50 μ s shortest waveform pulse at 200kHz high-speed fixed frequency sampling rate as well as fast-changing waveform data. Meanwhile, the original waveform recording function of transient event is supported.



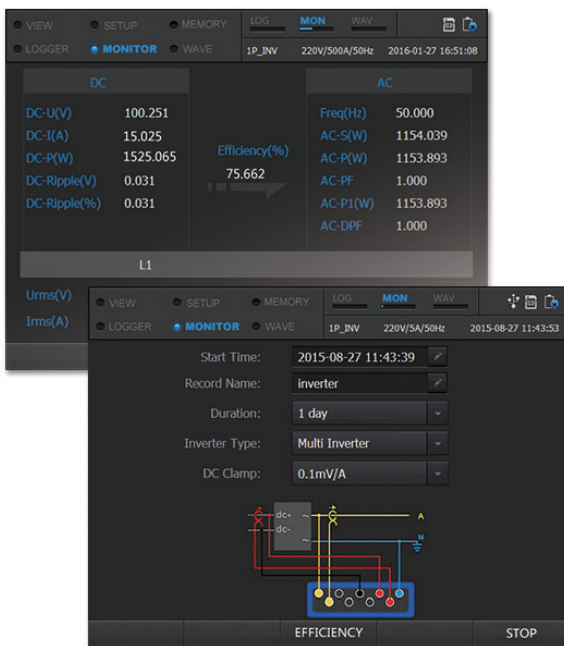
Energy-efficiency loss assessment

Supports power decomposition, detailed statistics of energy loss caused by various parameters, and pollution assessment, displaying the economic losses caused by energy loss in monetary terms visually.



Inverter measurement

Supports energy parameters analysis for single-phase/three-phase inverter, analyzes and records the parameters such as DC input, AC output and conversation efficiency of inverter.



Oscilloscope

Displays 4-channel voltage/current waveforms, supports horizontal/vertical zooming and displays waveform distortion visually to present how higher frequency harmonics affect signals.



Features

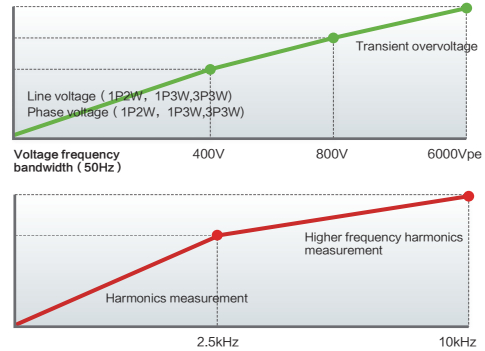
Multi-regional standard

E6500 supports a power frequency of 50Hz/60Hz and provides Chinese and English language setting. Users can set the colors of phase sequence for different countries and set the computation methods to satisfy different users' requirements.



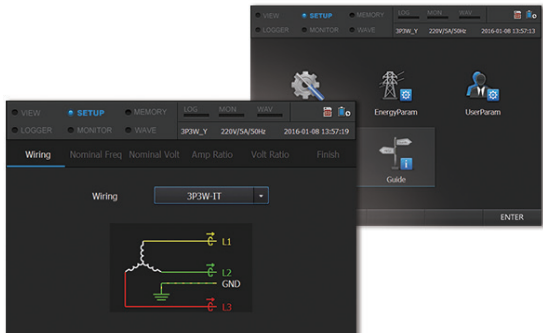
High accuracy, broad band, wide range

The measurement accuracy complies with the IEC 61000-4-30 Class A standard, IEC6100-4-7 harmonics measurement method and IEC61000-4-15 flicker measurement principle. The maximum measurable transient voltage is 6000V, and the maximum frequency of higher frequency harmonics can reach 9kHz.



Setup Wizard

It helps users set parameters to implement basic measurement settings, and solves the problems of setting parameters faced by new users with a simple and convenient visual guide.



Wiring verification

The innovative function of wiring verification helps users complete wiring connection correctly to prevent invalid record caused by wiring errors.



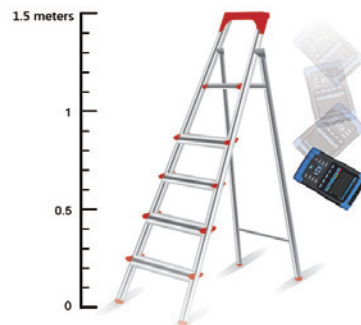
Compatibility design

It is compatible with multi-brand current transformer.



IP53 protection grade

It has 1.5m impact-proof protection capability, and the protection grade is IP53.

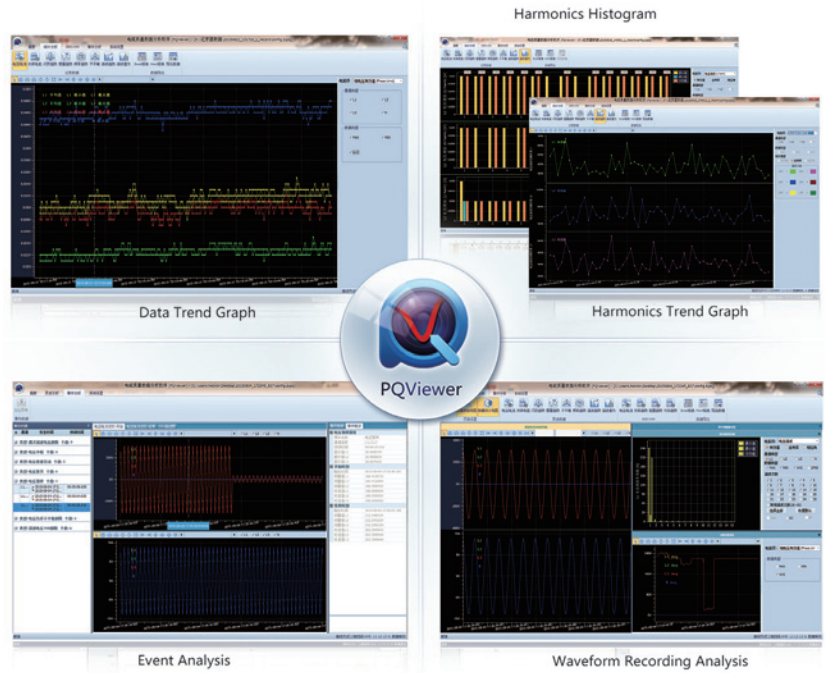


PQViewer – Power Quality Data Analysis Software

PQViewer is the data analysis software equipped with the power quality analyzer. It is able to read the power quality data files collected and recorded by analyzer, provide data statistics and analysis function, export measurement data as well as reports in accordance with international standards, and help users identify the power quality problems quickly and correctly.

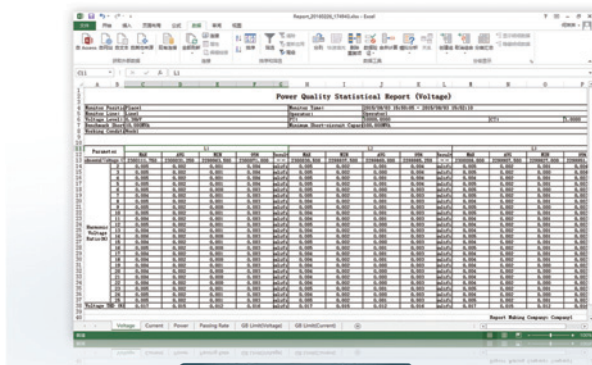
Data analysis function

- **Statistic data analysis.** The statistical results of voltage, current, power, frequency, harmonics and other data are displayed in the trend graph. The state variation of all energy data can be observed at a glance.
- **Harmonics analysis.** The statistical results of harmonic data are displayed in the histogram and trend graph. The information from detailed data to macroscopical results of harmonics can be understood.
- **Event data analysis (transient event and steady alarm event).** The time, type and details of events are reported, and the power quality state at the moment of event occurrence can be analyzed by single-channel analysis and multi-channel contrast.
- **The reports in accordance with international standards are generated through simple operations.**

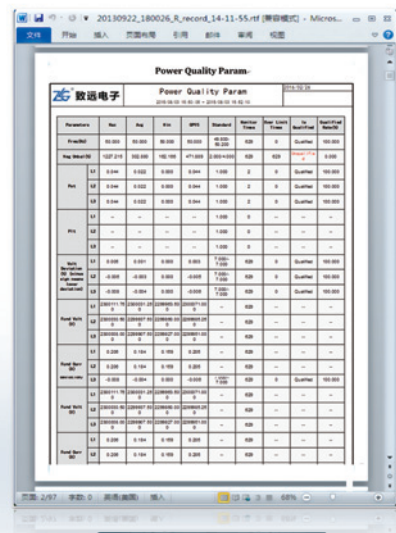


Data export and report

- **Exports the content of reports.** The Excel format reports, trends, harmonic frequency spectrum histograms and ITIC curves can be output quickly. They are widely used in the secondary analysis of measurement data for higher efficiency. In addition, the reports in Word format are provided to realize the viewing of tabular data and images simultaneously with rich content and less time.
- **Exports raw data.** The raw data of records are exported in the csv files to facilitate the secondary data analysis and obtain accurate results.
- **Simple operation.** The export is completed through two-step operation.



Report in Excel Format



Report in Word Format

Inspection Report

E6500 power quality analyzer developed by ZHIYUAN Electronics has passed the tests of national authority, won a number of authoritative certificates, including the Ketop type test certificate, the State Grid EPRI registration record certificate and the Guangdong EPRI test reports. The product has been recognized by many national standard institutions and market since its launch, which effectively promotes the technology development and marketing of our company.



Appearance Design Patent Certificate



State Grid EPRI Registration Record Certificate



IP Grade Test Report



State Grid EPRI EMC Inspection Report



State Grid EPRI Inspection Report

Accessories Information

	Name	Quantity	Picture
Standard Accessories	E6500 host machine	1 set	
	Power adapter	1 set	
	Voltage measuring line, alligator clip, voltage conversion terminal	5 sets	
	USB data cable	1 piece	
	Product user manual	1 set	
	Product handbag	1 piece	

	Product Type	ZY-CTS5	ZY-CTS200	ZY-CTS500	ZY-CTS3000F	ZY-CTS6000
Current Transformer (optional)	Appearance					
	Amplitude Accuracy (10~100%fs)	±0.3%rdg	±0.3% rdg	±0.3%rdg	±1%rdg	±1%rdg
	Nominal Input Current (AC)	5A	200A、20A	500A	3000A	6000A、600A、60A
	Output Voltage (AC)	10mV/A	10mV/A、1mV/A	1mV/A	85mV/kA	0.5mV/A、5mV/A、50mV/A

Product Specifications

General Parameters

Parameters	Parameter Type	Description	
Machine	Dimension (mm)	263×168×65	
	Weight	About 2kg	
Environmen	Working Environment	0°C ~ +45°C, less than 90rh% humidity	
	Storage Environment	-20°C ~ +50°C, less than 95rh% humidity (non-condensing)	
Storage	Type	TF card (built-in)	SD card (external)
	Capacity	8GB	8G (maximum 128G supported)
Power Supply	Adapter Input	110V-240V, 50Hz	
	Adapter Output	15V, 3A	
Battery	Type	Chargeable Li-Polymer battery, 5000mAh	
	Battery Working Hour	≥ 5h	
	Battery Charging Time	Minimum 5h (at 25°C ambient temperature)	
	Power Saving	Adjustable LCD backlight brightness and standby time	
Display	Dimension	112.8×84.6mm	
	Color	260k colors	
	Resolution	640×480	
	Brightness	Maximum 350 cd/m²(Typ.) brightness, adjustable brightness	
	Contrast	500:1 (Typ)	
	Viewing Angle	70/70/50/70(Typ.) (CR ≥ 10) (left/right/up/down)	
Safety	Compliant Standard	GB 4793.1-2007/IEC 61010-1: 2001, "Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use" - Part 1: General Requirements. Security Level: CAT III 1000V/ CAT IV 600V.	
	Banana Input Terminal	CATIII 1000V/CATIV 600V	
Interference	Between Voltage Input Terminals	-60dB at nominal frequency	
	Between Voltage and Current Input Terminals	-95dB at nominal frequency	
Common Mode Rejection	CMRR	>60dB	
Measurement Standard	Measurement Method	IEC 61000-4-30	
	Measurement Performance	IEC 61000-4-30 Class A	
	Flicker	IEC 61000-4-15	
	Harmonics	IEC 61000-4-7	
Environmental Reliability	Standard	GB/T 2423.1-2008: Cold	
		GB/T 2423.2-2008: Dry heat	
		GB/T 2423.4-2008: Damp heat, cyclic (12h+12h cycle)	
		GB/T 2423.5-1995: Shock	
		GB/T 2423.10-2008: Vibration	
EMC	Standard	Class 4: GB/T 17626.2-2006: Electrostatic discharge immunity test	

Parameters	Parameter Type	Description
EMC	Standard	Class 3: GB/T 17626.3-2006 Radiated Radio-Frequency Electromagnetic Field Immunity
		Class 3: GB/T 17626.4-2008 Electrical Fast Transient/Burst Immunity
		Class 3: GB/T 17626.5-2008 Surge(Impact) Immunity
		Class 3: GB/T 17626.8-2006 Nominal Frequency Magnetic Field Immunity
		Class 3: GB/T 17626.9-1998 Pulse Magnetic Field Immunity
		Class 3: GB/T 17626.12-1998 Oscillatory Waves Immunity

Measurement Parameters

Function	Parameter Type	Description
Logger	Oscilloscope	Real-time waveforms of A, B, C, N phase voltage and current
	Voltage, current, frequency	Frequency, voltage RMS, half-cycle voltage RMS, voltage positive peak value, voltage negative peak value, voltage form factor, current RMS, half-cycle current RMS, current positive peak value, current negative peak value, current form factor
	Power and energy	Active power, reactive power, apparent power, power factor, displacement power factor, active energy, reactive energy, apparent energy
	Voltage harmonics	THD, DC, 1-50th harmonics, 0-49th interharmonics, 1-35th higher frequency harmonics
	Current harmonics	THD, DC, KF, 1-50th harmonics, 0-49th interharmonics, 1-35th higher frequency harmonics
	Harmonic power	THD, DC, 1-50th harmonic power
	Flicker	PST (short term flicker), PLT(long term flicker)
	Unbalance	Positive-sequence voltage, positive-sequence current, negative-sequence voltage, negative-sequence current, zero-sequence voltage, zero-sequence current, unbalance
	Energy loss	Active, reactive and apparent power decomposition, line loss power, line loss cost, pollution evaluation
	Demand	Demand
Inverter	Event record	Voltage swell, voltage dip, voltage interruption, inrush current, PST limit, PLT limit, voltage upper deviation, voltage lower deviation, over frequency, under frequency, steady-state voltage fluctuation, voltage unbalance limit, voltage THD limit, 1~50th harmonic voltage limit, 2~50th harmonic current limit
	DC	DC voltage, DC current, DC power, ripple voltage, ripple voltage percent
	AC	Frequency, voltage RMS, current RMS, total apparent power, total active power, total power factor, fundamental power, fundamental power factor
Transient	Efficiency	Conversion efficiency
	Voltage	Voltage RMS, half-cycle voltage RMS, voltage positive peak value, voltage negative peak value
	Current	Current RMS, half-cycle current RMS, current positive peak value, current negative peak value
	Frequency	Frequency
Monitor	Event record	Voltage swell, voltage dip, voltage interruption
	Monitor	Voltage RMS, 1~50th harmonic voltage, PLT, voltage dip, voltage swell, voltage interruption, steady-state voltage fluctuation, voltage unbalance

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