



EK-F500 Power Quality Analyzer



Product features

1. Comprehensive analysis and diagnosis all the voltage, current, power, electrical energy, harmonic, phase and other electric parameters.
2. Many kinds of current sensors provide a choice to cope with variety of measurement site.
3. 4 channel current and 4 channel voltage measurement, simultaneously capturing and recording electric parameters and waveform, to provide with all the power quality information for working.

Product Function

1. **Test Function:** real-time waveform display (4 channels voltage / 4 channels current); voltage and current true RMS; voltage DC component; current and voltage peak; current and voltage maximum/minimum value within a certain time; phasor diagram display; The measurement of each phase harmonics reaches 50 times; the histogram shows the harmonic ratio of each phase current and voltage; the calculation of total harmonic distortion (THD); Active/reactive/apparent power value and total value of each phase; Each phase active/reactive/apparent electrical energy value and total value of each phase; transformer K factor calculation; calculation of $\cos \phi$ displacement and power factor (PF); flicker calculation; three-phase unbalance calculation (Voltage and current).
2. **Capture and Monitoring Functions:** Capture detection the instantaneous change of electric network voltage and current parameters, including voltage and current fluctuations, voltage and current swell, sag, short-time interruptions, transient over voltage, impulse current, and current and voltage instantaneous distortion. The instrument can store up to 150 groups of transient waveforms simultaneously.
3. **Start-up Current Monitoring:** It can monitor the inrush current of the circuit and the starting current of the electrical equipment, helpful for the correct design of installed capacity. It can display the rise/fall curve of the effective value in start process, the envelope curve of the start current, 4-channel current and 4-channel voltage waveform. After triggering, can be recorded about 100s, and store all current and voltage instantaneous values and waveform curves in each cycle within 100s.
4. **Record and Storage Function:** All test parameters of basic test functions (Urms, Uthd, Ucf, Uunb, Hz, Vrms, Vthd, Vcf, Vunb, PST, Arms, Athd, Acf, Aunb, KF, W, VAR, VA, PF, $\cos \phi$, $\tan \phi$), voltage 50 times harmonic, current 50 times harmonic, total of 123 parameters for recording, and generate the trend diagram, record data for a long time as required. (Simultaneously select 20 parameters to record once every 5 seconds, can be recorded about 300 days).
5. **Alarm Function:** The limit value of the selected parameters can set according to the require to monitoring whether the parameters exceed the limit, when exceed the limit setting will generate the alarm log , such as voltage overvoltage, current overcurrent, unbalance degree over-limit, certain harmonic ratio over-limit, frequency over-limit, active power over-limit, total harmonic distortion over-limit, etc. At most to set 40 groups of alarm monitoring parameters, each groups can set different monitoring parameters (including 50 times harmonics with 123 different parameters) and the limit value, and set the minimum time of over-limit. Stored Max 12800 groups alarm log.
6. **Screen capture function:** Screen capture can be taken in any test page to store the present screen image, and record time and test mode automatically, Such as saving current voltage waves, harmonic histograms, phasor diagrams, etc. Save up to 60 screenshots simultaneously.
7. **Communication Function:** Through USB communication with the computer, the monitoring software can display the waveform of power quality analysis and test in real time, and can read the detected and captured transient waveform, trend chart record, alarm list, test screenshot, etc.
8. **Setting Function:** The user can set the time and date, the display contrast and brightness, and the corresponding color of each phase line in the instrument; the connection mode and power network type of the instrument can be set; can select different current clamp and different voltage test transformation ratio; Chinese menu or English menu can be selected.
9. **Chinese/English Help Menu:** At each stage of operation, press "help" key at any time to obtain relevant help information.





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Technical Specification

Host Model	EK-F500 Power Quality Analyzer		
Power Supply	Rechargeable lithium battery 9.6V,4500mAH, external charger; working current about 490mA, battery can continuous working 8 hours		
Display Screen	LCD colorful screen, 640dotsX480dots, 5.6 inches, display area:116mmX88mm		
Battery Level Indicator	Battery symbol 5 grid  Display power, when the battery level is low, automatically shut down after 1 minute indication		
Current Test	Clamp current sensor: 008B; 040B; 068B; 300F (optional)		
Voltage Test	Line voltage: 1.0V~2000V; Phase voltage: 1.0V~1000V		
Electricity Energy Parameter	W, VA, var, PF, DPF, cosφ, tanφ, Wh, Varh, Vah		
Channel	4 channels voltage, 4 channels current	Three-Phase Unbalance	Yes
Frequency	40Hz~70Hz	Start Current Mode	Yes, 100 seconds
Harmonic Wave	Yes, 0~50 times	Peak Value	Yes
Total Harmonic Distortion	Yes, 0~50 times, each phase	Phasor Diagram Display	automatic
Expert Mode	Yes	Screenshot Capacity	60PCS
Transient Record Groups	150groups	Menu Language	Chinese, English
Voltage Flicker	Yes	Communication Interface	USB
Record	300 days (record 20 parameters simultaneously, every second record 1 point)		
Min/Max Recorded Value	Yes, the max min value can be measured for a certain time		
Alarm	40 different types of parameter to selection, 12800 group alarm logs		
Automatic Shut Down	In the alarm/ trend graph recording/ transient capture mode (waiting or in progress), the instrument does not automatically shut down		
	In other test modes, Automatic shutdown after starting up 15 minutes without any operation, automatically shutdown after 1 minute prompting		
Backlight Function	Yes, suitable for dark places and nighttime use		
Input Impedance	Test voltage input impedance: 1MΩ		
Meter Dimensions	240mmX170mmX68 mm		
Meter Weight	Total weight: about 9.2kg (include all accessories)		
Suitable Safety Standard	IEC-61010 CAT III 1000V / CAT IV 600V, IEC-61010-031, IEC-61326, Pollution Degree 2		
Accessories	Host: 1PCS; Instrument bag: 1pcs; Pen probe test lines: 5PCS (each 1PCS of yellow, green, red, blue, black); Alligator clip: 5PCS; Charger 1PCS; 2G Memory card: 1PCS. Clamp current sensor: (optional)(300F Current clamp with battery)		

Current Sensor Characteristics(Optional)

Current sensor model	Current Clamp	Current True RMS	Current True RMS Max Error	Phase Angle φ Max Error
EK 008B CT Size: Φ8mm		10mA~99mA	±(1% rdg+ 3dgt)	±(1.5°), Arms≥20mA
		100mA~10.0A	±(1%rdg + 3dgt)	±(1°)
EK 040B CT Size: Φ40mm		0.10A~0.99A	±(1%rdg + 3dgt)	±(1.5°)
		1.00A~100A	±(1% rdg+ 3dgt)	±(1°)
EK 068B CT Size: Φ68mm		1.0A~9.9A	±(2 % rdg+ 3dgt)	±(3°)
		10.0A~1000A	±(2 %rdg + 3dgt)	±(2°)
EK 300F CT: Φ300mm		10A~99A	±(1 %rdg + 3dgt)	±(3°)
		100A~6000A	±(1 %rdg + 3dgt)	±(2°)





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Instrument Accuracy

Measurement specification	Range	Display resolution	Max Error
Frequency	40Hz~70Hz	0.01Hz	$\pm(0.03)\text{Hz}$
Phase Voltage True RMS	1.0V~1000V	Min resolution 0.1V	$\pm(0.5\%\text{rdg}+5\text{dgt})$
Line Voltage True RMS	1.0V~2000V	Min resolution 0.1V	$\pm(0.5\%\text{rdg}+5\text{dgt})$
DC Voltage	1.0V~1000V	Min resolution 0.1V	$\pm(1.0\%\text{rdg}+5\text{dgt})$
Current True RMS	10mA~6000A	Min resolution 0.1mA	$\pm(0.5\%\text{rdg}+2\text{dgt})$
Phase Voltage Peak	1.0V~1414V	Min resolution 0.1V	$\pm(1.0\%\text{rdg}+5\text{dgt})$
Line Voltage Peak	1.0V~2828V	Min resolution 0.1V	$\pm(1.0\%\text{rdg}+5\text{dgt})$
Current Peak	10mA~6000A	Min resolution 0.1mA	$\pm(1.0\%\text{rdg}+5\text{dgt})$
Peak Factor	1.00~3.99	0.01	$\pm(1\%\text{rdg}+2\text{dgt})$
	4.00~9.99	0.01	$\pm(5\%\text{rdg}+2\text{dgt})$
Active Power	0.000W~9999.9kW	Min resolution 0.001W	$\pm(1\%\text{rdg}+3\text{dgt}); \text{Cos}\varphi \geq 0.8$
			$\pm(1.5\%\text{rdg}+10\text{dgt}); 0.2 \leq \text{Cos}\varphi < 0.8$
Reactive power Inductive & Capacitive	0.000VAR~9999.9kVAR	Min resolution 0.001VAR	$\pm(1\%\text{rdg}+3\text{dgt}); \text{Sin}\varphi \geq 0.5$
			$\pm(1.5\%\text{rdg}+10\text{dgt}); 0.2 \leq \text{Sin}\varphi < 0.5$
Apparent Power	0.000VA~9999.9kVA	Min resolution 0.001VA	$\pm(1\%\text{rdg}+3\text{dgt})$
Power Factor	-1.000~1.000	0.001	$\pm(1.5\%\text{rdg}+3\text{dgt}); \text{Cos}\varphi \geq 0.5$
			$\pm(1.5\%\text{rdg}+10\text{dgt}); 0.2 \leq \text{Cos}\varphi < 0.5$
Active Energy	0.000Wh~9999.9MWh	Min resolution 0.001Wh	$\pm(1\%\text{rdg}+3\text{dgt}); \text{Cos}\varphi \geq 0.8$
			$\pm(1.5\%\text{rdg}+10\text{dgt}); 0.2 \leq \text{Cos}\varphi < 0.8$
Reactive Energy Inductive & Capacitive	0.000VARh~9999.9MVARh	Min resolution 0.001VARh	$\pm(1\%\text{rdg}+3\text{dgt}); \text{Sin}\varphi \geq 0.5$
			$\pm(1.5\%\text{rdg}+10\text{dgt}); 0.2 \leq \text{Sin}\varphi < 0.5$
Apparent Energy	0.000VAh~9999.9MVAh	Min resolution 0.001VAh	$\pm(1\%\text{rdg}+3\text{dgt})$
Phase Angle	-179°~180°	1°	$\pm(2^\circ)$
Tan φ (VA $\geq$ 50VA)	-32.768~32.768	Min resolution 0.001	$\pm(1\%\text{rdg}+5\text{dgt})$
Displacement Power Factor (DPF)	-1.000~1.000	0.001	$\pm(1\%\text{rdg}+5\text{dgt})$
Harmonic Ratio(Vrms>50V)	0.0 %~99.9 %	0.1 %	$\pm(1\%\text{rdg}+5\text{dgt})$
Harmonic Angle (Vrms >50V)	-179°~180°	1°	$\pm(3^\circ)\text{harmonic } 1\sim 25$
			$\pm(10^\circ)\text{harmonic } 26\sim 50$
Total Harmonic Rate	0.0 %~99.9 %	0.1 %	$\pm(1\%\text{rdg}+5\text{dgt})$
Distortion Factor	0.0 %~99.9 %	0.1 %	$\pm(1\%\text{rdg}+10\text{dgt})$
Transformer K Factor	1.00~99.99	0.01	$\pm(5 \%)$
Three-phase Unbalance	0.0%~100 %	0.1 %	$\pm(1 \%)$

