# ETCR5000 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 φ 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, COSφ, TANφ), 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.

## Technology Specifications

| | | | |
|---|---|---|---|
| **Host Model** | ETCR5000 | | |
| **Power Supply** | Rechargeable lithium battery 9.6V, 4500mAH, external charger; working current about 490mA, battery can continuous | | |
| **Battery Level Indicator** | Battery symbol 5 grid Display power, when the battery level is low, automatically shut down after 1 minute | | |
| **Display Mode** | LCD color screen, 640dotsX480dots, 5.6 inches, display field 116mmX88mm | | |
| **Current Test** | Current Clamp: 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 | | |
| **Number of Channels** | 4 voltages, 4 currents | **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 1 seconds 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 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 | | |
| | In other test modes, there is no button operation within 15 minutes, prompting to automatically shut down after 1 | | |
| **Backlight Function** | Yes, suitable for dark places and nighttime use | | |
| **Meter Size** | 240mmX170mmX68 mm | | |
| **Weight** | Total weight: 9.18kg | | |
| **Input Resistance** | Test voltage input impedance: 1MΩ | | |
| **Suitable Safety Standard** | IEC 61010 1000V Cat III / 600V CAT IV, IEC61010-031, IEC61326, Pollution Degree 2 | | |
| **Accessories** | Host: 1PCS; Instrument Bag: 1pcs; Test Cable: 5PCS (yellow, green, red, blue, black); Alligator Clip: 5PCS; Charger 1PCS; Software CD: 1COPY; 2G Memory Card: 1PCS. Current Clamp: (optional); lithium battery: 1PCS | | |

## Current Sensor Characteristics (Optional)

| Current sensor model | Current Clamp | Current True RMS | Current True RMS Max Error | Phase Angle φ Max |
|---|---|---|---|---|
| **ETCR 008B** CT: Φ8**mm** |  | 10mA~99mA | ±(1 % rdg + 3dgt) | ±(1.5°), Arms≥20mA |
| | | 100mA~10.0A | ±(1 % rdg + 3dgt) | ±(1°) |
| **ETCR 040B** CT：Φ40**mm** |  | 0.10A~0.99A | ±(1 %rdg + 3dgt) | ±(1.5°) |
| | | 1.00A~100A | ±(1 % rdg + 3dgt) | ±(1°) |
| **ETCR 068B** CT：Φ68**mm** |  | 1.0A~9.9A | ±(2 % rdg + 3dgt) | ±(3°) |
| | | 10.0A~1000A | ±(2 % rdg + 3dgt) | ±(2°) |
| **ETCR 300F** CT：Φ300**mm** |  | 10A~99A | ±(1 % rdg + 3dgt) | ±(3°) |
| | | 100A~6000A | ±(1 % rdg + 3dgt) | ±(2°) |

## Instrument Accuracy

| Measurement specification | Range | Display resolution | Max Error |
|---|---|---|---|
| **Frequency** | 40Hz~70Hz | 0.01Hz | ±(0.03)Hz |
| **Phase Voltage True RMS** | 1.0V~1000V | Min resolution0.1V | ±(0.5%rdg+5dgt) |
| **Line Voltage True RMS** | 1.0V~2000V | Min resolution0.1V | ±(0.5%rdg+5dgt) |
| **DC Voltage** | 1.0V~1000V | Min resolution0.1V | ±(1.0%rdg+5dgt) |
| **Current True RMS** | 10mA~6000A | Min resolution0.1mA | ±(0.5%rdg+2dgt) |
| **Phase Voltage Peak** | 1.0V~1414V | Min resolution0.1V | ±(1.0%rdg+5dgt) |
| **Line Voltage Peak** | 1.0V~2828V | Min resolution0.1V | ±(1.0%rdg+5dgt) |
| **Current Peak** | 10mA~6000A | Min resolution1mA | ±(1.0%rdg+5dgt) |
| **Peak Factor** | 1.00~3.99 | 0.01 | ±(1%rdg+2dgt) |
| | 4.00~9.99 | 0.01 | ±(5%rdg+2dgt) |
| **Active Power** | 0.000W~9999.9kW | Min resolution 0.001W | ±(1%rdg+3dgt); Cosφ≥0.8 |
| | | | ±(1.5%rdg+10dgt); 0.2≤Cosφ<0.8 |

| | | | |
|---|---|---|---|
| **Reactive power Inductive& Capacitive** | 0.000VAR~9999.9kVAR | Min resolution 0.001VAR | ±(1%rdg+3dgt); Sinφ≥0.5 |
| | | | ±(1.5%rdg+10dgt); 0.2≤Sinφ<0.5 |
| **Apparent Power** | 0.000VA~9999.9kVA | Min resolution 0.001VA | ± (1%rdg+3dgt %) |
| **Power Factor** | -1.000~1.000 | 0.001 | ±(1.5%rdg+3dgt); Cosφ≥0.5 |
| | | | ±(1.5%rdg+10dgt); 0.2≤Cosφ<0.5 |
| **Active Energy** | 0.000Wh~9999.9MWh | Min resolution 0.001Wh | ±(1%rdg+3dgt); Cosφ≥0.8 |
| | | | ±(1.5%rdg+10dgt); 0.2≤Cosφ<0.8 |
| **Reactive Energy Inductive& Capacitive** | 0.000VARh~9999.9MVARh | Min resolution 0.001VARh | ±(1%rdg+3dgt); Sinφ≥0.5 |
| | | | ±(1.5%rdg+10dgt); 0.2≤Sinφ<0.5 |
| **Apparent Energy** | 0.000VAh~9999.9MVAh | Min resolution 0.001VAh | ±(1%rdg+3dgt) |
| **Phase Angle** | -179°~180° | 1° | ±(2°) |
| **Tanφ(VA≥50VA)** | -32.768~32.768 | Min resolution 0.001 | ±(1%rdg+5dgt) |
| **Displacement Power Factor** | -1.000~1.000 | 0.001 | ±(1%rdg+5dgt) |
| **Harmonic Ratio(Vrms>50V)** | 0.0 %~99.9 % | 0.1 % | ±(1%rdg+5dgt) |
| **Harmonic Angle (Vrms >50V)** | -179°~180° | 1° | ±(3°)harmonic1~25 |
| | | | ±(10°)harmonic26~50 |
| **Total Harmonic Rate** | 0.0 %~99.9 % | 0.1 % | ±(1%rdg+5dgt) |
| **Distortion Factor** | 0.0 %~99.9 % | 0.1 % | ±(1%rdg+10dgt) |
| **Transformer K Factor** | 1.00~99.99 | 0.01 | ±(5 %) |
| **Three-phase Unbalance** | 0.0%~100 % | 0.1 % | ±(1 %) |