The Most Comprehensive Portable PQA on The Market

Catch Power Quality Problems on the Fly...

Monitor for:
✔ Inrush Current
✔ Voltage Swells
✔ Voltage Dips
✔ Transient Overvoltage
✔ Interruptions

Measure and Record:
✔ Power and Power Factor
✔ Active/Reactive Energy
✔ Demand
✔ Load Changes
  (with graph display!)
✔ Voltage and Current

...Before They Catch You!
Measure Power and Power Quality on Single to Three-Phase Circuits Quickly and Effortlessly

Feature 1: Vector Multimeter

Use the wiring map, vector map and data monitor to check for proper wiring before taking measurements—don't miss out on important power data just because of minor wiring mistakes!

A quick glance at the correct vector map will show you if your wiring is correct.

Feature 2: QuickSet

With QuickSet, all you have to do is just Set, Clamp and Measure!

Let QuickSet help you take care of all the time-consuming setup procedures. All you need to do is select your circuit, clamp sensor and range, and then let QuickSet do the rest of the work for you.

Testing Parameters Automatically Defined by QuickSet
Redefine Thresholds Easily with Intuitive Key Panel

Feature 3: Power & Power Quality

Measure all the necessary power parameters simultaneously

Check for sudden inrush during motor startup and diagnose breaker trips due to over current all on the same measurement interface. View RMS data for every half cycle over a 30 second period on a large graph display.

All items are recorded as events so that a quick understanding can be obtained just by viewing the waveform.

- Voltage
- Current
- Frequency
- Power and Power Factor
- Voltage Fluctuation (dips and swells)
- Demand
- Load Changes
- THD(voltage)
- Active/Reactive Energy
- Inrush Current
- Voltage Swells
- Voltage Dips
- Transient
- Overvoltage
- Intermittence

Line frequency: Auto
Measurement Interval: Auto
Nominal Voltage: Auto
Event thresholds:
- Swell: 110%
- Dip: 90%
- Interruption: 10%
- Transient: ON

Get a crystal clear picture of the voltage fluctuation on all channels.
Setting Up is as Easy as 1-2-3

1. Select your wiring
   - Use QuickSet to automatically set the default values for line frequency, nominal voltage, interval, and power quality thresholds for event detection.

2. Select your clamp sensor
   - Use the correct vector diagram to check that your wiring is right before measuring, particularly useful when measuring 3-Phase circuits.

3. QuickSet
   - Toggle between screens to customize your measurement settings
   - Make detailed settings on how and when to measure, and customize your level of event detection as desired.

Select from 5 Types of Color-coded Input Terminal Labels to Suit Your Application Region:

<table>
<thead>
<tr>
<th>Type</th>
<th>N</th>
<th>U1</th>
<th>U2</th>
<th>U3</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>Red</td>
<td>Yellow</td>
<td>Blue</td>
<td>Japan, U.K.</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Orange</td>
<td>Black</td>
<td>Gray</td>
<td>EU (new)</td>
</tr>
<tr>
<td>3</td>
<td>Black</td>
<td>Yellow</td>
<td>Green</td>
<td>Red</td>
<td>China</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>Black</td>
<td>Red</td>
<td>White</td>
<td>EU (former)</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
<td>Black</td>
<td>Red</td>
<td>Blue</td>
<td>N. America</td>
</tr>
</tbody>
</table>

Monitor Trends while Recording

- Pull Strap Through for Ultimate Portability
- AC Adapter for Quick Recharge or Long Recordings
- USB Port for PC Compatibility
- Power Switch

- Convenient Stand for Hands-free Viewing
- Rugged and Durable Casing to withstand even the toughest environments and uses

WAVEFORM
- Toggle between screens using VIEW key for instantaneous power data
- One-touch switching between graph and numerical data
- RMS, Phase Angle and Lead and Lag
- Full-color waveforms and RMS readings

VECtor
- Monitoring trends while recording
- Recorder for 3-Phase circuits
- Use QuickSet to automatically set default values for line frequency, nominal voltage, interval, and power quality thresholds for event detection
Energy Record and Inspect (even while measuring)

- **Auto-Data Compression** Lets You Record for up to 125 Days

**RMS**
- Find the max, min and average values for any point using the cursor function

**DIP/SWELL**
- Get a detailed picture during voltage anomalies - fluctuation range for all 3 channels are displayed

**ENERGY**
- Demand Graph and maximum and average values displayed in one window

**DEMAND**
- Display events AND their waveforms at the same time

**HARMONICS**
- Harmonic waveforms of voltage, current and active power to the 50th order

**DMM**
- Switch between voltage and current graphs, and zoom in on the time axis at the touch of a button

**INRUSH**
- Inrush current fluctuations are captured in RMS at a fast 10ms sampling rate and displayed across a 30-second window

**EVENT**
- Toggle between events for a complete picture of the power anomaly

**WAVEFORM**
- Toggle between voltage and current graphs, and zoom in on the time axis at the touch of a button

**GRAP/LIST**
- Harmonic waveforms of voltage, current and active power to the 50th order

**HARMONICS**
- Harmonic waveforms of voltage, current and active power to the 50th order

**INRUSH**
- Record up to 20 graphs in internal memory

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**INRUSH**
- Record up to 20 graphs in internal memory
**Feature 4:** Bundled PC Application Software

- **Two Integrated Programs for Data Download and Viewing:** Standard USB connection lets you download data at a snap, and immediately view your measurements with the DataViewer.

- Open downloaded recordings with DataViewer to manage and process your captured power data on your PC.

- Two USB connectors allow you to connect to multiple 3197 units simultaneously using a USB hub.

**Measurement Specifications (Guaranteed Accuracy Period: 1 Year)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS Voltage and Current</td>
<td>True RMS (200 ms calculation) ±0.3% rdg. ±0.2%f.s.</td>
</tr>
<tr>
<td>Voltage Accuracy</td>
<td>±0.3% rdg. ±0.2%f.s. + Clamp sensor accuracy</td>
</tr>
<tr>
<td>Current Accuracy</td>
<td>±0.3% rdg. ±0.2%f.s. + Clamp sensor accuracy</td>
</tr>
<tr>
<td>Voltage (1/2) RMS Measurement</td>
<td>True RMS (one cycle calculation refreshed every half cycle) ±0.3% rdg. ±0.2%f.s.</td>
</tr>
<tr>
<td>Measurement Accuracy</td>
<td>±0.3% rdg. ±0.2%f.s. + Clamp sensor accuracy</td>
</tr>
<tr>
<td>Current (1/2) RMS Measurement</td>
<td>True RMS (half-cycle calculation, half-cycle voltage synchronized) ±0.3% rdg. ±0.2%f.s. + Clamp sensor accuracy</td>
</tr>
<tr>
<td>Measurement Accuracy</td>
<td>±0.3% rdg. ±0.2%f.s. + Clamp sensor accuracy</td>
</tr>
<tr>
<td>Frequency</td>
<td>Effective Measurement range: 45.00 to 66.00 Hz ±0.01 Hz ±1 dgt. (when input is at least 10% of range)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.3% rdg. ±0.2%f.s.</td>
</tr>
<tr>
<td>Active Power Accuracy (for consumption and regeneration)</td>
<td>±0.3% rdg. ±0.2%f.s. + clamp-on sensor accuracy (P.F.=1)</td>
</tr>
<tr>
<td>Reactive Power Accuracy</td>
<td>±1 dgt. of calculation from each measurement value</td>
</tr>
<tr>
<td>Effect of Power Factor</td>
<td>±1.0% rdg. (50 /60Hz, P.F.=0.5)</td>
</tr>
<tr>
<td>Apparent Power Accuracy</td>
<td>±1 dgt. of calculation from each measurement value</td>
</tr>
<tr>
<td>Power Factor</td>
<td>±1 dgt. of calculation from each measurement value</td>
</tr>
<tr>
<td>Displacement Power Factor Accuracy (leading phase indicated)</td>
<td>±1 dgt. of calculation from each measurement value (DFP calculated from phase difference between fundamental voltage and current waveforms)</td>
</tr>
<tr>
<td>Active or Reactive Energy Consumption</td>
<td>Selectable between consumption, regeneration, lag and lead ±1 dgt. applied to active and reactive power measurement accuracy</td>
</tr>
<tr>
<td>Demand</td>
<td>Selectable between active or reactive power ±1 dgt. applied to active and reactive power measurement accuracy</td>
</tr>
<tr>
<td>Harmonic Analysis Orders</td>
<td>Up to 50th (2048 points/window, rectangular)</td>
</tr>
<tr>
<td>Harmonic Voltage, Current and Power Accuracy</td>
<td>Harmonic voltage, current, and power accuracy (accuracy is not defined for harmonic power)</td>
</tr>
<tr>
<td>Other Measurement Items</td>
<td>Peak Voltage and Current, K Factor, Voltage Unbalance Factor, Max/Min/Ave of Time Series</td>
</tr>
</tbody>
</table>

**Feature 5:** Compact Design Makes for Long Battery Life

- Use on a Single Rechargeable Battery Pack (Non-volatile Ni-MH rechargeable)
- Makes for Long Battery Life
- 6 Hours of Continuous Use on a Single Recharge
- 300.0kW/600.0kW/900.0kW
- 60.00kW/120.0kW/180.0kW
- 3.000MW/6.000MW/9.000MW

**Input Specifications**

- Voltage Swells (Rise), Voltage Dips (Drop), Interruptions: RMS value detected using voltage (1/2) measured every half cycle
- Inrush Current: RMS value detected using current (1/2) every half cycle
- Transient Overvoltage: Detection Range: 50 Vrms (±70.7 Vpeak equiv.) or more, 10 to 100 kHz
- Timer Detection: Detect events at preset intervals selectable from OFF, 1, 5, 15 or 30 minutes; 1, 2 or 12 hours; or 1 day
- Manual Detection: Detect events when keys are pressed
- Thresholds: Set to OFF or to specified value, except for detection of transient overvoltages. (Waveform recording not available for transients)
- Event Recording Lengths: Waveform: 20ms before detection + 200ms upon detection + 30ms after detection
  - Event voltage fluctuation graph: 0.5s before + 2.5s after detection
  - Inrush current graph: 0.5s before + 29.5s after detection
- Maximum Number of Recordable Events: 50 event waveforms, 20 event voltage fluctuation graphs, 1 inrush current graph, 1000 event counts
- Measurement Method: Simultaneous digital sampling of voltage and current (sampling frequency: 10.24 kHz per channel)
- Voltage Measurement Range: 600.0V (Crest factor 2 or less)
- Measurement Line frequency: Auto-select (50/60 Hz)
- Maximum Allowable Input Voltage: 780 V AC (1103 Vpeak)
- Voltage to Ground: CATIII 600 V AC, CATIV 300 V AC (50/60 Hz)
- Power Sensor: Single-phase 2-wire (1P2W), single-phase 3-wire (1P3W), three-phase 2-wire (3P2W2M and 3P3W3M), three-phase four-wire (3P4W and 3P4W2.5E)

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**### BASIC SPECIFICATIONS**

- **Display**: 4.7-inch color STN LCD
- **Display languages**: English, Japanese or Chinese (Simplified)
- **Display refresh rate**: Approx. once per second
- **Clock functions**: Auto calendar, auto leap year, 24-hour format
- **Real-Time Clock accuracy**: Within 13 seconds/month
- **Internal Memory Capacity**: 4MB
- **Maximum recording time**: 125 Days
- **Interval Settings**: AUTO, 1, 5, and 30 min., and 1 hour (AUTO sequentially selects 1, 10, 30, 60 seconds, 1, 5, 15, and 30 min. and 1 hour automatically)
- **Demand period**: 15 min., 30 min. and 1 hour
- **Recordable Items**: All parameters (incl. max/min/average values)

**### INTERFACE SPECIFICATIONS**

- **Interface**: USB 2.0 (Full Speed)
- **Display**: 4.7-inch color STN LCD
- **All parameters (incl. max/min/average values)**
- **Demand period**: 15 min., 30 min. and 1 hour automatically
- **Maximum recording time**: 125 Days
- **Internal Memory Capacity**: 4MB
- **Clock functions**: Auto calendar, auto leap year, 24-hour format
- **Display languages**: English, Japanese or Chinese (Simplified)

**### CLAMP ON SENSOR SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT III 300V</th>
<th>CAT III 600V</th>
<th>CAT III 1000V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary current rating AC 5A</td>
<td>AC 100A</td>
<td>AC 500A</td>
<td>AC 1000A</td>
</tr>
<tr>
<td>AC 500A/5000A</td>
<td>AC 5A</td>
<td>AC 100A</td>
<td>AC 1000A</td>
</tr>
<tr>
<td>Output voltage AC 10mA</td>
<td>AC 1mA</td>
<td>AC 5mA</td>
<td>AC 10mA</td>
</tr>
<tr>
<td>AC 50mA</td>
<td>AC 1mA</td>
<td>AC 5mA</td>
<td>AC 1mA</td>
</tr>
<tr>
<td>Amplitude Accuracy ±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.01%fs.</td>
<td>±0.1%rdg. ±0.01%fs.</td>
</tr>
<tr>
<td>±2°</td>
<td>±1°</td>
<td>±0.5°</td>
<td>±2°</td>
</tr>
<tr>
<td>Frequency characteristic within ±1.0% at 40Hz to 5kHz (9669: within ±2.0%)</td>
<td>±3dB at 10Hz to 20kHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.02%fs.</td>
</tr>
<tr>
<td>±0.3%rdg. ±0.02%fs.</td>
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<td>±0.3%rdg. ±0.02%fs.</td>
<td>±0.3%rdg. ±0.02%fs.</td>
</tr>
</tbody>
</table>

**### COMPLETE LIST OF OPTIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>CAT III 300V</th>
<th>CAT III 600V</th>
<th>CAT III 1000V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary current rating AC 10A</td>
<td>AC 10A</td>
<td>AC 10A</td>
<td>AC 10A</td>
</tr>
<tr>
<td>Output voltage AC 100mA</td>
<td>AC 100mA</td>
<td>AC 100mA</td>
<td>AC 100mA</td>
</tr>
<tr>
<td>Amplitude Accuracy ±1.0%rdg. ±0.05%fs.</td>
<td>±1.0%rdg. ±0.05%fs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.05%fs.</td>
<td>±0.3%rdg. ±0.05%fs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.05%fs.</td>
<td>±0.3%rdg. ±0.05%fs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.05%fs.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.05%fs.</td>
<td>±0.3%rdg. ±0.05%fs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>±0.3%rdg. ±0.05%fs.</td>
<td>±0.3%rdg. ±0.05%fs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**### 3197 STANDARD BUNDLE CONFIGURATION**

Includes all the equipment you need to measure voltage. For current or power measurements, please select from our wide assortment of clamp on sensors.

**### SUGGESTED OPTIONS FOR POWER MEASUREMENTS**

**3P4W Circuit testing of motors and breakers:** 3197 Standard Package + 9661 (500A Sensor)×3

**3P4W Circuit testing of external CTs:** 3197 Standard Package + 9660 (5A Sensor)×3

**3P Leakage testing:** 3197 Standard Package + 9676 (10A Sensor)×3