3196 POWER QUALITY ANALYZER
Power Measuring Instruments

Solve All Your Power Quality Problems
Identify power anomalies simply and surely!

Problems in power quality that can occur near you!

Have you ever experienced these?

Troubles like these are often caused by degraded electric power quality.
- Flickering lights
- Light bulbs burn out too quickly
- OA equipment is not working correctly
- Machines sometimes operate abnormally
- Capacitor with condenser equipment overheat
- 3E (overload, reversed phase, missing phase) relays are sometimes tripped

Finding the cause is difficult!

The quick way to handle troubles is to have a clear understanding of the cause and to determine from where problems are generated. However, it is not always possible to accurately grasp all of the phenomenon of problems error of which there can be many in the power line, even if you use recording devices or harmonic analyzing devices in your investigation of the phenomenon. You need a dedicated measuring instrument to accurately grasp these kinds of phenomenon.

Fully identify the many phenomenon hiding in your power lines!

There are cases in which overlooking even the smallest power trouble can lead to enormous financial loss. Checking the quality of your electric power is the best way to prevent trouble before it occurs.

- **Flicker**
  - Phenomenon: Caused by blast furnaces, arc welding or control loads for thyristors. Regular voltage impulses occur in 1 cycle or over several cycles.
  - Damage: Phenomenon occur repeatedly over cycles so lights flicker or modulations occur in equipment.

- **Unbalance**
  - Phenomenon: Voltage and current waveform distortion, voltage decreases or reverse phase voltages occur with the increased load only on specific phases caused by devices and loads connected to each phase such as dynamic lines or the operation of unbalanced equipment.
  - Damage: Devices such as uneven motor revolutions, tripping of 3E breakers, overheating of transformers caused by overloads due to unbalanced voltages, reversed phase voltages and the generation of harmonic distortion.

- **Voltage swell (surge)**
  - Phenomenon: Caused by lightning strikes or when opening or closing a heavily loaded power line causing sudden increases in voltages.
  - Damage: Increases in power voltage can damage device power supplies and cause resets to occur.

- **Voltage dip (sag)**
  - Phenomenon: Voltage decrease over a short period of time caused by sudden large currents to the load when starting up a motor, etc.
  - Damage: Device operation stops or a reset is caused by the drop in power voltage.

- **Harmonic**
  - Phenomenon: Often occurs when semiconductor control devices are used in the power supplies of various equipment. Harmonics occur by the distortion of voltage or current waveforms.
  - Damage: As harmonic distortion increases, motors and transformers can become abnormally hot or major accidents such as the damage to reactors connected to leading phase factor condensers.

- **Interruption**
  - Phenomenon: Mainly power company accidents (power supply stops due to lightning) or the instantaneous or short/long term stopping of electric power such as in the tripping of circuit breakers caused by short circuits.
  - Damage: Recently, steps have been taken for computers, etc., with the implementation of UPS but there are still the possibilities of devices stopping or being reset due to instantaneous power outages.

- **Transient over voltage (impulse)**
  - Phenomenon: Occurs by lightning, contact point damage or closure of the circuit breaker or relays. Often appears as sudden voltage changes and high peak voltages.
  - Damage: Electric power devices are damaged, particularly by high voltages or can cause reset operations in the vicinity of the origin of the cause.

The 3196 can simultaneously measure, record AND analyze every type of phenomenon.
The 3196 measures, records and analyzes power line quality

Features

- Supports 2- and 3-line single-phase, and 3- and 4-line three-phase circuits, with an extra input channel providing enhanced analysis capabilities
  - An isolated CH4 terminal is provided for AC and DC measurements.
  - For neutral line measurements to verify grounding integrity
  - For DC power analysis of equipment such as communications devices
  - For simultaneous analysis of two isolated circuits, such as single- and three-phase

- ∆-Y and Y-∆ Conversion
  - Supports ∆-Y voltage conversion of 3P3W lines, and Y-∆ conversion of 3P4W lines. Selects and displays line-to-line voltage or phase-to-neutral voltage.

- Selectable Clamp-On Current Sensors and Enhanced Sensors

- Optional 3-Phase Wiring Adapter
  - Wiring adapters simplify voltage input connection procedures.
  - Model 9264-01 for 3P3W
  - Model 9264-02 for 3P4W

- 6.4-Inch Color LCD
  - The built-in screen is a high-contrast, wide-viewing-angle color TFT liquid crystal display, easy to view both indoors and out.

- Six-Language Display
  - The display language is selectable from Japanese, English, German, French, Spanish and Italian, and can be easily switched.

- Selectable Clamp-On Current Sensors and Enhanced Sensors

- External Event Input/Output Terminals
  - Event Output: Outputs a signal for alarm or device control when an event occurs.
  - Event Input: Accepts a trigger signal to initiate measurement.

- Six-Language Display
  - The display language is selectable from Japanese, English, German, French, Spanish and Italian, and can be easily switched.

- PC Card Support
  - For more detailed data collection, flash ATA cards up to 528 MB are supported. Compact Flash cards can also be used with an adapter.

- Optional Printer for Easy Hard Copy Output
  - Connect the optional Model 9670 PRINTER to the RS-232C terminal to provide hard copies of the screen.

- Small and Compact
  - Just 8 × 11.5 inches (A4-size), and 2.25 kg (79.4 oz).

- Continuous Records for up to One Month
  - The instrument's internal memory supports up to one month of continuous recording.
  - The maximum length of continuous measurement time is indicated when setting the measurement interval.

- LAN and RS-232C Support
  - The provided HTTP server function supports easy configuration and data acquisition through a web browser.

- Choice of Carrying Cases
  - Both soft and hard cases are available, and measurements can be taken with the 3196 in the case. The hard case is water-resistant.

- Interval Max/Min/Avg Pattern A Pattern B

<table>
<thead>
<tr>
<th>Interval</th>
<th>Max/Min/Avg</th>
<th>Pattern A</th>
<th>Pattern B</th>
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<tbody>
<tr>
<td>1 s</td>
<td>Max/Min</td>
<td>2 h, 1 m</td>
<td>8 h</td>
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<tr>
<td></td>
<td>Avg</td>
<td>3 h, 32 m</td>
<td>25 m</td>
</tr>
<tr>
<td>10 m</td>
<td>Max/Min</td>
<td>31 days</td>
<td>11 days, 12 h</td>
</tr>
<tr>
<td></td>
<td>Avg</td>
<td>31 days</td>
<td>10 days, 13 h</td>
</tr>
<tr>
<td>1 h</td>
<td>Max/Min</td>
<td>31 days</td>
<td>21 days, 5 h</td>
</tr>
<tr>
<td></td>
<td>Avg</td>
<td>31 days</td>
<td>31 days</td>
</tr>
</tbody>
</table>

- The 3196 is stored on the top
- Accessories are stored on the bottom

The 3196 measures, records and analyzes power line quality.
Capture all power anomalies using time series measurement to monitor and record trends on power lines. Measure and record power abnormalities simultaneously on all lines.

### Real-Time Display
The 3196 allows on-site confirmation of voltage, current, harmonics, flicker and unbalance ratio. In addition to the DMM display, waveform, harmonics and flicker line conditions can be monitored in real-time.

### RMS Time Series Monitoring
All measured data is recorded in a time series to expose fluctuations over the recording period. Maximum, minimum and average values are recorded for each recording interval (from 1 second).

### Simultaneous Display of Multiple Parameters
1. **Waveform Display**
   - Measured data and captured anomaly display

2. **DMM Display**
   - Numerical display
   - Instantaneous values displayed on one screen
   - Voltage and current unbalance ratio is displayed for convenient control of power lines

3. **Vector Display**
   - Voltage, current and voltage fluctuation conditions are displayed
   - Various functions including maximum, minimum, average voltage, cursor values, screen scroll and event search are included.

4. **Harmonic Display**
   - Bar graph and list display
   - Displays subtle fluctuations by "half-cycle shift and single-cycle calculation" of voltage waveforms

### Provides Data Analysis of Time Series Fluctuations
- **TIME PLOT Screen Display**
  1. RMS fluctuation display
  2. Voltage fluctuation display
  3. Harmonic fluctuation display
  4. \( \Delta V \) Display (support to be added soon)
  5. Pst/Plt Display (support to be added soon)

- **1. RMS fluctuation display**
  - Voltage, current and voltage fluctuation conditions are displayed

- **2. Voltage fluctuation display**
  - Extreme voltage fluctuations are correctly displayed
  - Displays subtle fluctuations by "half-cycle shift and single-cycle calculation" of voltage waveforms

- **3. Harmonic fluctuation display**
  - The time system display is ideal for controlling harmonics
  - Time-specific fluctuations that are important for harmonic control are displayed in a time series.
series and event measurement

Use event settings to capture and analyze power anomalies instantaneously

Using the event setting function, a variety of power anomalies can be captured. Captured data can be retrieved simply by referring to the event list, and details (waveforms, levels, time, etc.) of the phenomena that caused the anomaly are displayed to help investigate the cause.

Waveform + Time Series Monitoring Using Event Settings

Independent event thresholds can be set in the 3196 for any anomaly. Captured phenomena are then stored in the event list. Detailed data such as waveforms, RMS and harmonic values related to the phenomena can then be selected from the list for display.

Simple Threshold Settings for Event Triggers

1. Set while monitoring the input conditions
2. Set the range of the input waveform
3. Set on the harmonic graph

After Measuring, Begin Analysis!

Details of up to 100 captured events are saved automatically. The time and other information about captured events are displayed in order of occurrence.

View the Fault Waveform in Detail!

Details about the selected event are displayed immediately, so analytic operations can be performed efficiently.

Convenient in these situations:
• Pre-checking for occurrence of events before starting measurement
• Determining threshold settings for an event
### Ideally Suited for the Network Measurement Age

#### Real-Time Measurement over the Web

**LAN Measurement Support**
The internal HTTP server function supports remote monitoring and control from common web browsers such as Internet Explorer, without requiring any special application software.

#### Ensuring Correct Wiring for Measurement Safety

1. **Displaying connection methods and input conditions**
   - View the wiring diagram while connecting to the lines. Voltage, current, and power values can be confirmed immediately while making connections, ensuring safety.

2. **Use the vector display to ensure proper connections**
   - The direction of the clamp-on current sensor, which can be easily mistaken, becomes obvious.
   - Connections to the PT/CT terminal are affirmed.

#### Specifications

**1. Measurement and Recording Items**

<table>
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<tr>
<th>Recording Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Recording Item</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<tr>
<td>Transient Overvoltage</td>
<td></td>
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<td></td>
<td>Voltage Unbalance Ratio</td>
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<tr>
<td>Voltage Swell</td>
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<td></td>
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<td>Current Unbalance Ratio</td>
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<tr>
<td>Voltage Dip</td>
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<td></td>
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<td>Harmonic Voltage</td>
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<tr>
<td>Voltage Dropout</td>
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<td></td>
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<td>Harmonic Current</td>
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<tr>
<td>Frequency</td>
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<td></td>
<td>Harmonic Power</td>
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<tr>
<td>RMS Voltage</td>
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<td>Harmonic Voltage-Current Non-Distortion</td>
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<tr>
<td>RMS Current</td>
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<td></td>
<td>Inter-Harmonic Voltage</td>
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<tr>
<td>Peak Voltage</td>
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<td>Inter-Harmonic Current</td>
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<tr>
<td>Peak Current</td>
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<td>Real Harmonic Voltage-Distortion</td>
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<tr>
<td>Real Power</td>
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<td>Apparent Harmonic Current</td>
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<td>Apparent Power</td>
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<td>Apparent Harmonic Voltage-Current Non-Distortion</td>
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<td>Reactive Power</td>
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<td></td>
<td>Apparent Harmonic Current-Current Distortion</td>
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<tr>
<td>Percent/Regressive Power Factor</td>
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<td>K Factor</td>
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<tr>
<td>Flicker (µV/µPa, Pf)</td>
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</tbody>
</table>

**2. Basic Specifications**

- **Power quality measurement standards conformance:** IEEE1159
- **Clock function:** Auto-calendar/auto leap years, 24-hour clock
- **Real-time clock accuracy:** Not more than ±0.3s/day
- **Internal memory capacity for data:** 13 MB
- **Maximum recording period:** 1 month
- **Measurement time control:** Manual/Specified Time
- **Time system data setting**
  - Recording item setting patterns: A/B/C
  - Max./min./avg. values: (max., min. and avg. values)
- **Maximum number of recording events:** 100 (Simultaneous events count as 1 event)
- **Interval selections:** 1, 3, 15 or 30 seconds, 1, 5, 10 or 30 minutes, 1 or 2 hours
- **Printer interval selections:** OFF or 1, 5, 10 or 30 minutes, 1 or 2 hours
- **Power supply:** 12 VDC from Model 9458 AC ADAPTER or 9459 BATTERY PACK
- **Maximum power consumption:** 40 VA
- **Continuous operating time with battery:** Approximately 90 minutes (9459 BATTERY PACK)
- **External dimensions [WHD mm [in.]]:** 298 (11.73") × 215 (8.46") × 67 (2.64") not including projections
- **Weight:** 2.25 kg (79.4 oz)
Specifications

3. Input Specifications

**Measuring lines:** Single-phase two-wire, Single-phase three-wire, Three-phase three-wire (3P/3W), Three-phase four-wire, plus one extra input channel

**Input channels:** Voltage: 4 channels (U1 to U4), U4: AC/DC 4 channels (H1 to H4)

**Input connection method:** Voltage between U1, U2 and U3 without isolation between channels. Voltage between U1-U3 and U4 with isolation between channels. Current by clamp sensor

**Input resistance:** Voltage: 4 MΩ ±10% (differential input) Current: 200 mA ±10%

**Measuring method:** Stimulate digital sampling of voltage and current

PLL synchronization channel source: Voltage at any of U1, U2 or U3

PLL synchronization frequency range: 42.5 to 69 Hz

**Sampling frequency:** For harmonic and inter-harmonic analysis: 256 points/cycle

For arithmetic operations (Including DC measurements): 2 kHz

**A/D converter resolution:** For arithmetic operations: 16 bits For transient overvoltage (impulse): 12 bits

**Voltage measurement ranges:**

<table>
<thead>
<tr>
<th>Channels</th>
<th>Measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 3</td>
<td>±60,000,000,000 Vrms</td>
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<tr>
<td></td>
<td>60.000, 150.000, 300.000, 600.000 Vrms</td>
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<tr>
<td></td>
<td>±60,000,000 Vpk (DC measurement)</td>
</tr>
</tbody>
</table>

**Voltage crest factor:**

<table>
<thead>
<tr>
<th>Channels</th>
<th>Current measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 or less</td>
</tr>
</tbody>
</table>

**Measurement range:**

0.1 mV/A (500mA, 5A)

**Calculation range:**

100 mV/A (500mA, 5A)

**Input connection method:**

Voltage between lines is measured for 3P3W lines, and half cycle

Voltage between lines is measured for 3P3W3M and 3-phase, 4-wire lines

**Period:** period exceeding threshold (4 ms max.)

**Phase voltage is measured for 3P4W lines)**

**Phase voltage is measured for 3P3W lines, and half cycle**

**Display items:**

- Sum of all or multiple channels
- Difference between voltage and current
- Measurement method:
  - Fundamentals
  - Harmonics
  - Inter-Harmonics

**Measurement accuracy:**

- ±0.2% rdg. ±0.2% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±1.0% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.5% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.2% rdg. ±0.2% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.2% rdg. ±0.2% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.2% rdg. ±0.2% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.5% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.5% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)
- ±0.5% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**Power Factor**

**Measurement range:**

- ±0.5% f.s. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**Measurement accuracy:**

- ±2% rdg.
- ±4% rdg. or less of the limit value

**Voltage Unbalance Ratio**

**Measurement method:** Calculated from the fundamental waveform voltage of 3-phase, 3-wire (3P3W3M) and 3-phase, 4-wire lines

**Display items:**

- ±0.5% rdg. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**[Current Unbalance Ratio]**

**Measurement method:** Calculated from the fundamental waveform current of 3-phase, 3-wire (3P3W3M) and 3-phase, 4-wire lines

**Display items:**

- ±0.5% rdg. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**[UIE Flicker (Short Period Flicker Pst, Long Period Flicker Pst)]**

**Support to be added soon**

**Measurement method:**

- Per IEC61000-4-15
- Pst is measured for 10 min., and Pst for 2 hours
- Measurement accuracy:
  - ±5% rdg. or less of the limit value

**[Harmonic Voltage, Current and Power (Including Fundamental Waveform Components)]**

**Analysis window:** Rectangular

**Analysis orders:**

- 1st to 50th orders
- Measurement accuracy:
  - Voltage / Current: 1st to 20th orders: ±0.5% rdg. ±0.2% f.s.
  - 21st to 50th orders: ±0.5% rdg. ±0.3% f.s.
  - Power: 1st to 20th orders: ±0.5% rdg. ±0.2% f.s.
  - 21st to 50th orders: ±0.5% rdg. ±0.3% f.s.

**Display items:**

- ±2% rdg.
- ±60.000, 600.00 Vpk (DC measurement)

**[Reactive Power]**

**Measurement accuracy:**

- ±1 dgt. from the calculation of each measured value (± 3 dgt. for the sum)

**[Power Factor]**

**Measurement range:**

- ±1.000 (advanced) to 0.000 to +1.000 (lagging)

**Measurement accuracy:**

- ±1 dgt. from the calculation of each measured value (± 3 dgt. for the sum)

**[Voltage Dropout (Interruption)]**

**Measurement range:** Same as for Voltage Dip

**Measurement accuracy:**

- ±0.5% rdg. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**[Voltage Unbalance Ratio]**

**Measurement method:**

- ±0.5% rdg. ±0.3% f.s. ±1 dgt. (±3 dgt. for the sum)

**[Voltage Swell (RMS Swell)]**

**Measurement range:**

- ±60.000, 600.00 Vpk (DC measurement)

**Measurement accuracy:**

- ±0.5% rdg. ±0.2% f.s. ±2% rdg.

**[Voltage Drop (RMS Sag)]**

**Measurement range:**

- ±0.5% rdg. ±0.2% f.s. ±2% rdg.

**Measurement accuracy:**

- ±0.5% rdg. ±0.2% f.s. ±2% rdg.
**5. Display Specifications**

- **Display device:** 6.4" TFT color LCD (640 × 480 dots)
- **Display characters:** Japanese, English, German, French, Italian and Spanish

**6. External Interface Specifications**

(1) **PC Card Interface**

- **Slot:** Conforms to PCMCIA/JEIDA PC Card Standard.
- **Compatible cards:** Flash ATA cards up to 256 MB.

(2) **RS-232 Interface**

- **Standard:** RS-232C
- **Connector:** One 9-pin D-sub connector
- **Destination device:** Printer, PC or modem

(3) **LAN interface**

- **Connector:** One 10Base-T RJ-45 connector
- **Communications protocol:** TCP/IP over Ethernet

**7. Environmental and Safety Specifications**

- **Operating environment:** Indoors, up to 2000m altitude
- **Storage temperature & humidity:** -20˚C to 50˚C, Max. 80% rh (non-condensating)
- **Operating temperature & humidity:** 0˚C to 40˚C, Max. 80% rh (non-condensating)
- **Maximum rated working voltage:**
  - **Voltage terminals:** 780Vrms AC, 1103V peak
  - **Current terminals:** 1.7Vrms AC, 2.4V peak
- **Maximum common mode voltage:** 600Vrms AC (50/60 Hz, at voltage input terminals)
- **Voltage durability:** 5.55kVrms AC for 1 minute (50/60 Hz, 1 mA sensing current)
  - Between voltage and clamp input terminals, voltage input terminals and case,
  - and between voltage input terminal U4 to U1 - U3
- **Enclosure protection:** IP30 (per EN60529)
- **Standards conformance:**
  - **Safety:** EN61010-1:1993+A2:1995
  - **Voltage input unit:** Contamination Level 2
  - **Overvoltage Category III (Anticipated overvoltage: 6000V)**

**Option Specifications**

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<th>CLAMP-ON SENSORS</th>
<th>9660</th>
<th>9661</th>
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<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated Input Current</strong></td>
<td>100A</td>
<td>500A</td>
</tr>
<tr>
<td><strong>Rated Output Current</strong></td>
<td>0.1V AC</td>
<td>0.5V AC</td>
</tr>
</tbody>
</table>
| **Amplitude Accuracy**  
  (45 to 66 Hz) | ±0.3% rdg. ±0.03% f.s. | ±0.3% rdg. ±0.03% f.s. |
| **Phase Accuracy**  
  (45 to 66 Hz) | ±1˚ or less (up to 900A), ±3˚ or less (900A to 1000A) | ±0.5˚ or less |
| **Amplitude Frequency Characteristic** (less than 1% deviation from specified accuracy) | 50/60 Hz to 5 kHz | 50/60 Hz to 5 kHz |
| **Maximum Test Circuit Voltage** | 600Vrms AC | 600Vrms AC |
| **Measurable Conductor Diameter** | 15 mm | 46 mm |
| **Size & Weight** | 40W (1.81") x 131H (5.11") x 21D (0.8") mm, 230g (8.1 oz) | 72W (2.83") x 315H (12.4") x 42D (1.65") mm, 360g (12.8 oz) |

**Options**

- **9458 AC ADAPTER**
- **9459 BATTERY PACK**
  - 200V to 240V AC, 50/60 Hz
  - Power: 130W (5.58") x 155H (6.1") x 42D (1.65") mm, 360g (12.8 oz)
- **9339 CARRYING CASE**
  - Soft Case
- **9290 CLAMP-ON ADAPTER**
  - Cool length 1m
  - Voltage input terminals: 1000Vrms AC
  - Measurable conductor diameter: 10 mm, 40 mm See Last, CT size 10/1

**9670 PRINTER Option Components**

The 9671 AC ADAPTER should be purchased along with the 9670 PRINTER. Also, the 9638 RS-232 CONNECTION CABLE or RS-232 cable (9- to 25-pin crossover) is required to connect to the 3196.

**3196 POWER QUALITY ANALYZER**

- 9438-02 VOLTAGE MEASUREMENT CABLE (one each of red, yellow, blue and gray, plus four black lines)

**Supplied Accessories**

- 3196 POWER QUALITY ANALYZER
- 9438-02 VOLTAGE MEASUREMENT CABLE (one each of red, yellow, blue and gray, plus four black lines)

- **9339 CARRYING CASE**
  - Soft Case

**Standard Combination Example**

Suits 3-phase, 3-wire (3P3W3M) and 3-phase, 4-wire measurements

- Models 3196 + 9661 (500A) × 3 + 9339

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**9638 RS-232 CONNECTION CABLE**

- Options

- 9660 CLAMP-ON SENSOR (100A) Voltage output type
- 9661 CLAMP-ON SENSOR (500A) Voltage output type
- 9290 CLAMP-ON ADAPTER
- 9264-01 WIRING ADAPTER (3P3W)
- 9264-02 WIRING ADAPTER (3P4W)
- 9459 BATTERY PACK
- 9670 PRINTER (with one roll recording paper)
- 9671 AC ADAPTER (for 9670)
- 9237 RECORDING PAPER (4 rolls, 80mm x 25m, for 9670)
- 9638 RS-232C CABLE (1.5m, with straight and crossover connectors)
- 9339 CARRYING CASE (soft)
- 9340 CARRYING CASE (hard)
- PC application software

**Option Specifications**

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<thead>
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<th>Specifications</th>
<th>9660</th>
<th>9661</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rated Input Current</strong></td>
<td>100A</td>
<td>500A</td>
</tr>
<tr>
<td><strong>Rated Output Current</strong></td>
<td>0.1V AC</td>
<td>0.5V AC</td>
</tr>
</tbody>
</table>
| **Amplitude Accuracy**  
  (45 to 66 Hz) | ±0.3% rdg. ±0.03% f.s. | ±0.3% rdg. ±0.03% f.s. |
| **Phase Accuracy**  
  (45 to 66 Hz) | ±1˚ or less (up to 90A), ±3˚ or less (up to 100A) | ±0.5˚ or less |
| **Amplitude Frequency Characteristic** (less than 1% deviation from specified accuracy) | 50/60 Hz to 5 kHz | 50/60 Hz to 5 kHz |
| **Maximum Test Circuit Voltage** | 600Vrms AC | 600Vrms AC |
| **Measurable Conductor Diameter** | 15 mm | 46 mm |
| **Size & Weight** | 40W (1.81") x 131H (5.11") x 21D (0.8") mm, 230g (8.1 oz) | 72W (2.83") x 315H (12.4") x 42D (1.65") mm, 360g (12.8 oz) |