A Clear Path to Electrical Power Excellence!

CW500
Power Quality Analyzer
Electrical power measurement is a key for innovation.

The Yokogawa CW500 is a portable power meter that utilizes a current clamp sensor for use in the field enabling consumption and power quality measurement of the power line.

By the navigation screen of the unit, the connection setting and detail setting of the unit is simple and direct by following the screens.

Keys which directly turn on desired measuring screens allow comfortance at the use of field.

Stored measured data are easily accessed by a click on the file with included PC software.

**Features**

- Power Measure and Logging
- Power Quality Measuring
- User Support
- Analysis of Data and Report Generation

**Power Measuring and Logging**

- Simultaneously measures 3 CH Voltage input, 4 CH current clamp-on probe input, 2 CH DCV input.
- Displays value list or trend graph screen of Instantaneous/Average/Maximum/Minimum of Voltage/Current/Power/Power factor/Phase Angle/Phase Advanced Capacitance Calculation and DCV input.
- Integration Value of Active/Reactive/Apparent Energy is each displayed by consumption and generation.
- Demand value can be monitored by screens of present power consumption compared to aimed demand power value.

**User Support**

**Quick Start Guide Function:**

- Start Guide Function supports secure wiring and setting before measuring.
- Automatically recognize the type of current clamp-on probe.

**Vector Display:**

- Indicates Voltage and Current phase difference and values between input channels of voltage and current.
- Checks whether the wiring is appropriate or not.
Power Quality Measuring

Measure Temporary Malfunction of Power Line
• Captures temporary malfunction phenomena of power line which causes malfunction or destruction of devices by types (Voltage swell, Voltage dip, Voltage interruption, Transient overvoltage, inrush current) as an event by high sampling rate of 24 µs and RMS calculation.
• Event data contains the type of malfunction, occurred time or occurrence finish time, measured value and waveform of voltage and current of all channels for approx. 200 ms period.
• Measurement method conforms to IEC standard 61000-4-30 Class S

Measure Continuous Malfunction of Power Line

Harmonics
• Measure and display graphs and list of up to the 50th Harmonic components of voltage, current and power for each phase and in total.

Waveform
• Displays with up to 10 or 12 waveforms of voltage and current for each CH.

Flicker
• Measures, 1 minute flicker (Pst, 1 min), short flicker (Pst) and long flicker (Pllt).

Unbalance rate
• Displays voltage and current unbalance rate on 3 phase wiring.

Analysis of Data and Report Generation

CW500 Viewer (Included PC software)
• Automatically generates graph and report by simple clicking on a file data displayed on screen.
• Uniform management of main unit settings
• Realtime measuring by USB communication.

Types of data
• Power data, Power quality event data, Main Unit Setting data, Screen capture data.

Memory card and interface
• SD Memory card, USB communication, Bluetooth communication (Available for USA, Canada and Japan only)
Function

Power Measuring
Power line and Input Channel: 3 CH Voltage, 4 CH for Current Clamp Probe.
1P2W (up to 4 system), 1P3W (up to 2 system), 3P3W2current (up to 2 system), 3P3W3current, 3P4W

Power measuring item:
Instantaneous, Average, Maximum and Minimum values:
Voltage/Current/Power (Active, Reactive, Apparent)/Power factor/ Phase Angle/Frequency/Calculated Phase Shift Condensor/DC voltage value 2 CH.

Integration Value
• Energy (Active, Reactive, Apparent) each by consumption and generation
• Demand (Occurrence of max. demand time, current demand, estimated demand value)

Recording Interval Period:
1/2/5/10/15/20/30 second, 1/2/5/10/15/20/30 minute, 1 hour/2 hours

Recording method
Manual, time setting, period setting

Estimated Recording Length with 2 GB SD card.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Power recording</th>
<th>+Harmonics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 sec.</td>
<td>13 days</td>
<td>3 days</td>
</tr>
<tr>
<td>1 min.</td>
<td>Over 1 year</td>
<td>3 months</td>
</tr>
<tr>
<td>30 min.</td>
<td>Over 10 years</td>
<td>Over 7 years</td>
</tr>
</tbody>
</table>

• The recording length shortens according to the number of power quality events.
• Only included SD memory card or dedicated SD memory card is guaranteed.

Various Measuring Screen
• List display, Zoom display by 4 or 8 division,
  Trend graph display
• Integration Value Display for Energy
• Demand List display of value,
  Demand Graph display for change of period,
  Demand Graph display for whole recording

List Display
Hems of measuring values can be selected with position.

Zoom Display
Zoom display can be selected by 4 or 8 division.

Trend Graph
Trend graph of voltage/current/power/power factor/frequency/advanced phase condensor/DC voltage

Energy Display
List of Active, Apparent, Reactive by consumption or generation
Demand measuring
Demand is the average power value of a specific period (usually 30 minutes). Contract with the power supplier conditionally concerns the maximum average power value between period for the consumption fee. This function supports how to maintain within the target consumption by monitoring the estimated demand value to the setting rate, with the maximum demand value.

List of Demand Value
When the estimated demand value line is displayed inside this area, it means that the demand value will be over the target value.

Graph display of change on specific period

Graph display of whole demand trend

Analysis and Report of recorded data
Analysis and report is enabled by simply clicking on the desired data on software screen. Analysis is capable by trend graph, average, maximum and minimum value of voltage, current, power, power factor. Report generating could be set by day time, night time, working day, off day or monthly period. Additionally energy data to quantity of crude oil barrels, or to CO₂ can be converted.
## Power Quality Function

Short period power line malfunctions such as voltage swells/dips/interruptions/transient overvoltage or inrush currents, or long period such as harmonic distortion, flicker may damage or reset your devices. The CW500 helps to identify each of those short period malfunctions, by recording occurrence time, occurrence finish time and waveforms. Additionally there is a digital output on occurrence. Long period malfunctions can be analyzed by harmonics, flicker, waveform or checking on the unbalance rate calculation for 3 phase measurement. All data can be finalized to a report format with included software. The CW500 conforms to the IEC standard of 61000-4-30 Class S.

<table>
<thead>
<tr>
<th>Power line malfunction phenomena</th>
<th>Example of cause and influence</th>
<th>Example of waveform</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Swell</td>
<td>Lightnings or heavy load switching on power line may cause momentary swell on voltage.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td></td>
</tr>
<tr>
<td>Voltage Dip</td>
<td>Generating moments on motor load may cause an inrush current and cause dips on voltage.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td>Occurred time and waveform is recorded. Digital output is set on during the occurred period.</td>
</tr>
<tr>
<td>Voltage interruption</td>
<td>Momentary or long interruption to power distribution by lightning or open breakers</td>
<td><img src="image.png" alt="Waveform" /></td>
<td></td>
</tr>
<tr>
<td>Transient overvoltage (impulse)</td>
<td>Lightning or heavy load switching on power line may cause momentary change on voltage.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td></td>
</tr>
<tr>
<td>Inrush current</td>
<td>Generating moments on motor load may cause an inrush current.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td></td>
</tr>
<tr>
<td>Flicker</td>
<td>Increase and decrease on certain phases could cause flickering distortion on voltage and currents.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td>Pst (1 min), Pst or Plt is measured.</td>
</tr>
<tr>
<td>Harmonics</td>
<td>Inverter and Thyristor circuits (phase control circuits) which are used for the control circuit of general devices could affect currents and cause harmonic distortion.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td>Up to 50th harmonic contents are measured.</td>
</tr>
<tr>
<td>Unbalance rate</td>
<td>Heavy loading on a specific phase, could influence motor operation and could cause harmonic distortion.</td>
<td><img src="image.png" alt="Waveform" /></td>
<td>Voltage and Current unbalance rate measured on vector screen for 3 phase</td>
</tr>
</tbody>
</table>

The CW500 conforms to the IEC standard of 61000-4-30 Class S.
Power Quality Measuring Function

Capture temporary power line issues
Various kind of power issues are captured by high sampling rate of 24 µs and overlapping RMS measuring by half cycles. They are recorded as an event by occurred time, occurrence finish time and waveforms are recorded.

- Main unit displays list of occurred issue by types.
- Recorded data are easily analyzed and report is generated by PC software.

Capture continuous power line issues

Harmonic Measuring
- Displays components of up to the 50th Harmonics contents by individual channel or overall by graph or list
- Displays the maximum occurred point on graph.

Waveform
Displays voltage and current waveform by all or individually. It can be zoomed in and out by vertical or horizontal with rate selection below.
Vertical rate: 0.1, 0.5, 1, 2, 5, 10
Horizontal rate: 1, 2, 5, 10
User Support Function

User Friendly

Quick start guide and Automatic type of clamp identification
A quick start guide will show how to wire and how to set the range before measuring which ensures the settings are correct.
The sensor identification will detect the type of clamp-on probe and set the highest range of the type.

Start of guidance
PUSH “START/STOP”key and select “Quick start guide”.
Recording item selection will be displayed.

Wiring
Select the wiring and the appropriate connection diagram will be displayed.
Connect the voltage probe and clamp-on probe accordingly.

Wiring check/self diag./self id.
Wiring check, self check and type of clamp-on probe identification will be executed and the results will be displayed. If NG is displayed, detail could be confirmed by ENTER key.

Recording setting
Set recording interval time and recording time or period.

Power supply from measuring line
Power (under 240 VAC) can be supplied by using the “Power supply adapter” (sold separately).

Note: This is not available for EU region.

Leakage current measuring
External magnetic field effect is 0.002 A or less, at 400 A/m.
Yokogawa’s proprietary technology has achieved a magnetic field impact amount of 30 ppm even in adjacent power lines (at 100 A), Below is an example to measure neutral line of 3 phase 4 line.

Multiple line measuring
4 system load measuring
Maximum of 4 systems is capable for 1 phase 2 line
Maximum of 2 systems is capable for 1 phase 3 line or 3 phase 3 line.
Software for Analysis and Setting (Free) CW500 Viewer

Data analysis, making reports of data, making setting file and doing a real time measuring can be easily done with the CW500 Viewer.
The data can be transferred by SD memory card, USB communication or Bluetooth communication (for USA, Canada, Japan only).

**Graph and lists are created by a click on the data file.**
- Graph and lists of the recorded data file are created by clicking on the desired data file. They can be displayed and copied on a clip board so it can be used on other software such as Word or Excel spread sheet.
- The time axis and measure axis can be zoomed in or out easily. With this capability, micro and macro changes, can be displayed desirably.
- Waveforms of power quality events (Voltage swell, voltage dips, voltage interrupt, transient overvoltage and inrush current) which are recorded by 200 ms period can be displayed and printed.
- The integrated data can be added on one graph which enables the whole energy integration data to be displayed.
- Integrated energy data can be scaled into CO₂ or crude oil value.

**Settings management**
- Setting data can be read out from and to the main unit via SD memory card, USB communication cable or Bluetooth communication*.
- Settings data can be easily edited saved and managed.

**Real time measurement**
- Real time measurement can be achieved up to 2 units simultaneously via USB communication or Bluetooth communication*

**System requirement**

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OS</strong></td>
<td>Windows 8/7/Vista (32 bit/64 bit)</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>Pentium 4 or Pentium Processor over 2 GHz</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>1024 × 768 dots, 65536 colors or more</td>
</tr>
<tr>
<td><strong>HDD (Hard-disk space required)</strong></td>
<td>1 GByte or more (including Framework)</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>.NET Framework (3.5)</td>
</tr>
</tbody>
</table>

Note: Windows is a registered trademark of Microsoft in the United States. Pentium is a registered trademark of Intel in the United States. Bluetooth is a registered trademark of Bluetooth SIG. Other company names or names of merchandise are trademarks of their company.

Software for Analysis and Setting (Free) CW500 Viewer

Example of multiple graph display

Example of setting display

*Only available for US, Canada and Japan.
Application

Power Measuring + Power Quality Examination

Examination of main power line quality for factory system control and assets

• Confirm to check quality of power line for factory system control and assets.
• Simultaneously measure the consumption of energy trend and consider solutions for energy saving.

CW500 not only continuously measures harmonics but captures malfunction of power line and records occurrence time with waveforms. Simultaneously it can measure power and leakage current of neutral phase. Additionally users can confirm the condition of assets when signals are connected to the DCV input channels.

Power Line Measuring Examination

LED lighting introduction for checking power saving effect

Introduce the effect of power saving to use LED lightning compared to the non LED lightning by measuring before and after.

Checking power consumption of driving pumps of a manufacturing line

Inverters were applied to many driving pumps in a liquid manufacturing line. Power consumption checking was needed to check the effect before and after. Many settings to measure many pumps is easily and efficiently arranged by PC software. Additionally the power line quality is checked to be safely operated with the new inverters.
Improving power line of a printing factory by measuring harmonics (Printing factory)

**Purpose:** Investigation of the cause of periodic malfunction for printing machine. Harmonics distortion on line could be the reason?

**Measuring: CW500 merit**
- Compact size and easy to carry.
- Up to 50\textsuperscript{th} Harmonics measuring.
- Long term recording

**Result:** Confirming high level harmonic contents on 5\textsuperscript{th} and 7\textsuperscript{th}.
Found harmonics were generated by internal assets.
Especially 5\textsuperscript{th} harmonics damages the direct reactor of condensor for improving power factor

**Before**
- Harmonics on current input
- Harmonic contents on current input

**After**
- Harmonics on current input
- Harmonic contents on current input

Effect of correspondence: Harmonic contents of 5\textsuperscript{th} and after dropped and malfunction rate of printing machine decreased.

**Others**

**Improvement of Power factor for power efficiency**
CW500 can calculate the appropriate condensor value by setting the aimed power factor value.
By setting the appropriate advanced condensor and improving the power factor, users will benefit for power saving with less load current and improve the capacity of the whole power system.

500kV transformers of factory “A”.

500kV transformers of factory “A”.

500kV transformers of factory “A”. 
**External Appearance**

1. START/STOP SWITCH
2. Screen switch of W and Wh item
3. Vector and wiring check switch
4. Power button
5. Waveform screen switch
6. Harmonic screen switch
7. Power quality screen switch
8. Setting screen switch
9. Print screen switch
10. Data Hold/Key lock (long press)
11. LCD Key/Contrast (long press)
   - Turn ON/OFF the display and change brightness and contrast by long press
12. Cursor and Enter Key
13. USB terminal
   - Mini B pin for PC communication
14. Digital output terminal
   - Trigger signal output on event
15. Analog input terminal 2 CH
   - For 100 mV, 1 V, 10 V, DC input
16. SD card interface
17. Voltage input terminal
18. AC power supply input
19. Clamp-on probe connection
**Accessories**

## Clamp-on Probe (sold separately)

<table>
<thead>
<tr>
<th>Model code</th>
<th>For Leakage</th>
<th>For Load current</th>
<th>For load current (flexible type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>96060</td>
<td>96061</td>
<td>96062</td>
<td>96063</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96064</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96065</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96066</td>
</tr>
</tbody>
</table>

**Photo**

- Clamp-on Probe (sold separately)
- For Leakage
- For Load current
- For load current (flexible type)

**Measurable diameter**

<table>
<thead>
<tr>
<th></th>
<th>40 mm</th>
<th>18 mm</th>
<th>24 mm</th>
<th>30 mm</th>
<th>40 mm</th>
<th>110 mm</th>
<th>150 mm</th>
</tr>
</thead>
</table>

**Input Range**

- AC 2 A
- AC 50 A
- AC 100 A
- AC 200 A
- AC 500 A
- AC 1000 A
- AC 3000 A
- AC 300 A

**Output voltage**

- AC 50 mV (25 mV/A)
- AC 500 mV
- For each range AC 500 mV
- AC 500 mV
- AC 500 mV
- AC 500 mV
- For each range AC 500 mV

**Accuracy Level**

<table>
<thead>
<tr>
<th>50 Hz/60 Hz</th>
<th>±0.1% rdg</th>
<th>±0.5% rdg</th>
<th>±0.5% rdg</th>
<th>±0.5% rdg</th>
<th>±0.8% rdg</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Hz to 1 kHz</td>
<td>±0.2% rdg</td>
<td>±0.1 mV</td>
<td>±0.5% rdg</td>
<td>±0.1 mV</td>
<td>±0.8% rdg</td>
</tr>
<tr>
<td>1 kHz to 3.5 kHz</td>
<td>±3.0% rdg</td>
<td>±0.2 mV</td>
<td>±1.0% rdg</td>
<td>±0.4 mV</td>
<td>—</td>
</tr>
</tbody>
</table>

**Accuracy Degree**

- Less than ±2.0° (0.5 to 50 A, 40 Hz to 3.5 kHz)
- Less than ±2.0° (1 to 100 A, 45 Hz to 65 Hz)
- Less than ±1.0° (2 to 200 A, 40 Hz to 3.5 kHz)
- Less than ±1.0° (5 to 500 A, 45 Hz to 65 Hz)
- Less than ±1.0° (45 Hz to 65 Hz)
- Less than ±1.0° (40 Hz to 1 kHz)
- Less than ±2.0° (45 Hz to 65 Hz)
- Less than ±2.0° (40 Hz to 1 kHz)

**Max Circuit voltage**

- AC 300 Vrms
- AC 300 Vrms
- AC 300 Vrms
- AC 600 Vrms
- AC 600 Vrms
- AC 600 Vrms
- AC 600 Vrms

**Dimension**

<table>
<thead>
<tr>
<th></th>
<th>approx. 70(W) × 120(H) × 25(D) mm</th>
<th>approx. 52(W) × 106(H) × 25(D) mm</th>
<th>approx. 60(W) × 100(H) × 25(D) mm</th>
<th>approx. 73(W) × 130(H) × 30(D) mm</th>
<th>approx. 81(W) × 128(H) × 30(D) mm</th>
<th>approx. 73(W) × 130(H) × 30(D) mm</th>
<th>approx. 61(W) × 111(H) × 43(D) mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>approx. 230 g</td>
<td>approx. 170 g</td>
<td>approx. 160 g</td>
<td>approx. 240 g</td>
<td>approx. 260 g</td>
<td>approx. 260 g</td>
<td>approx. 950 g</td>
</tr>
</tbody>
</table>

The CW500 main unit requires the Clamp-on Probe (96060 - 96066) for measurement. The Clamp-on Probe (96060 - 96066) is not included; please purchase separately. Please note that the Clamp-on Probe (96060 - 96066) cannot be used with the old products: CW240, CW120 and CW121.

1. 45 to 65 Hz
2. Clamp-on Probe 96060 cannot be used for power measurement.

**Other accessory (sold separately)**

- Extension code 98082
- Power supply adapter 98031
- Portable case (for CW500) 93047
- Conversion Cable (Banana-DIN) 99073

*1 Extension code 98082 corresponds to below current probe. 96060, 96061, 96062
*2 Non-CE product. Not available for CE marking necessary region.
*3 The following clamp-on probe are able to be connected. 96030, 96033, 96036
# Specifications

<table>
<thead>
<tr>
<th>Model code</th>
<th>CW500-B0</th>
<th>CW500-B1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bluetooth function</strong></td>
<td>No Bluetooth Function</td>
<td>With Bluetooth Function*1</td>
</tr>
<tr>
<td><strong>Wiring connections</strong></td>
<td>1P2W (max. 4 systems), 1P3W (max. 2 systems), 3P3W (max. 2 systems), 3P3W3current, 3P4W</td>
<td></td>
</tr>
<tr>
<td><strong>Measurements items</strong></td>
<td>Voltage, Current, Frequency, Active power, Reactive power, Apparent power, Active energy, Reactive energy, Apparent energy, Power factor, Phase Advancing Condensor, Neutral current, Demand, Harmonics, Power Quality (Swell/ Dip/Interrupt/Transient overvoltage, Inrush current, Unbalance rate, IEC flicker)</td>
<td></td>
</tr>
<tr>
<td><strong>Other function</strong></td>
<td>Digital output, Analog DCV input function</td>
<td></td>
</tr>
<tr>
<td><strong>Voltage (RMS)</strong>&lt;br&gt;<strong>Range</strong></td>
<td>600.0/1000 V</td>
<td></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±0.2% rdg ±0.2% rng. (sine wave, 40 to 70 Hz)</td>
<td></td>
</tr>
<tr>
<td><strong>Allowable input</strong></td>
<td>1 to 120% (rms) of each range, 200% for peak of each range</td>
<td></td>
</tr>
<tr>
<td><strong>Display range</strong></td>
<td>0.15 to 130% of each range</td>
<td></td>
</tr>
<tr>
<td><strong>Crest factor</strong></td>
<td>3 or less</td>
<td></td>
</tr>
<tr>
<td><strong>Sampling speed of voltage transient</strong></td>
<td>24 µs</td>
<td></td>
</tr>
<tr>
<td><strong>Current (RMS)</strong>&lt;br&gt;<strong>Range</strong>&lt;br&gt;96060 (2 A type): 2000 mA&lt;br&gt;96061 (50 A type): 5000 mA/50 A/AUTO&lt;br&gt;96062 (100 A type): 10/100 A/AUTO&lt;br&gt;96063 (200 A type): 20/200 A/AUTO&lt;br&gt;96064 (500 A type): 50/500 A/AUTO&lt;br&gt;96065 (1000 A type): 100/1000 A/AUTO&lt;br&gt;96066 (3000 A type): 300/1000/3000 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>±0.2% rdg ±0.2% mg. + accuracy of clamp-on probe (sine wave, 40 to 70 Hz)</td>
<td></td>
</tr>
<tr>
<td><strong>Allowable input</strong></td>
<td>1 to 110% (rms) of each range, 200% for peak of each range</td>
<td></td>
</tr>
<tr>
<td><strong>Display range</strong></td>
<td>0.15 to 130% of each range</td>
<td></td>
</tr>
<tr>
<td><strong>Crest factor</strong></td>
<td>3 or less</td>
<td></td>
</tr>
<tr>
<td><strong>Active power</strong>&lt;br&gt;<strong>Accuracy</strong></td>
<td>±0.3% rdg ±0.2% mg. + accuracy of clamp-on probe (Power factor 1, sine wave, 40 to 70 Hz)</td>
<td></td>
</tr>
<tr>
<td><strong>Effect of Power Factor</strong></td>
<td>±1.0% rdg (40 to 70 Hz, reading at power factor 0.5 against 1.0)</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency meter range</strong></td>
<td>40 to 70 Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply (AC Line)</strong></td>
<td>AC100 to 240 V/50 to 60 Hz/7 VA max.</td>
<td></td>
</tr>
<tr>
<td><strong>Power supply (DC Battery)</strong></td>
<td>Alkaline size AA battery LR6 or Ni-Mh (HR15-51) × 6 pcs&lt;br&gt;Battery life approx. 3 hours (LR6 Backlight OFF)</td>
<td></td>
</tr>
<tr>
<td><strong>Internal memory</strong></td>
<td>Flash memory (4 MB)</td>
<td></td>
</tr>
<tr>
<td><strong>External memory card</strong></td>
<td>SD Card (2 GB)</td>
<td></td>
</tr>
<tr>
<td><strong>PC communication</strong></td>
<td>USB Ver. 2.0&lt;br&gt;USB Ver. 2.0/Bluetooth Ver. 2.1 + EDR Class2*2</td>
<td></td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>320 × 240 (RGB) Pixel, 3.5 inch color TFT</td>
<td></td>
</tr>
<tr>
<td><strong>Display update period</strong></td>
<td>1 s</td>
<td></td>
</tr>
<tr>
<td><strong>Display Language</strong></td>
<td>English, French, Spanish, Polish, Korean, Chinese, Japanese</td>
<td></td>
</tr>
<tr>
<td><strong>Temperature and humidity range</strong></td>
<td>23±5°C, less than 85% RH (without condensation)</td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature and humidity range</strong></td>
<td>0 to 45°C, less than 85% RH (without condensation)</td>
<td></td>
</tr>
<tr>
<td><strong>Storage temperature and humidity range</strong></td>
<td>−20 to 60°C, less than 85% RH (without condensation)</td>
<td></td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>120 (W) × 175 (H) × 68 (D) mm</td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 900 g (with battery)</td>
<td></td>
</tr>
<tr>
<td><strong>Included accessories (attached)</strong></td>
<td>98078 Voltage Probe,&lt;br&gt;93046 Carrying case&lt;br&gt;97060 SD Memory Card 2 GB&lt;br&gt;USB cable, Power cord,&lt;br&gt;Quick manual, Alkaline size AA battery LR6 × 6pcs, Input terminal plate × 6 pcs, PC software (CD-ROM)</td>
<td></td>
</tr>
<tr>
<td><strong>Optional accessories (sold separately)</strong></td>
<td>96060, 96061, 96062, 96063, 96064 (Clamp-on Probe)&lt;br&gt;96065, 96066 (Clamp-on probe, flexible type)&lt;br&gt;98031 (Power supply adapter)*2&lt;br&gt;93047 (Portable case with magnet)</td>
<td></td>
</tr>
</tbody>
</table>

*1 Bluetooth model is available only for USA, Canada and Japan

*2 98031 Power supply adapter is not available for EU region.
Applicable Standard

| Safety Standard | EN 61010-1: CAT IV 300 V, CAT III 600 V, CAT II 1000 V, Pollution level 2 |
| EN 61010-2-030 |
| EN 61010-2-033 |
| EN 61010-031 |
| EMC* | EN 61326-1 Class A Table 2 |
| EN 55011 Class A Group 1 |
| Power Quality | IEC 61000-4-30 Ed. 2 Class S, IEC 61000-4-15, IEC 61000-4-7 |
| Wireless | FCC approval, IC approval, Radio Electric technology engineering Radio technology standard |

*This is a Class A instrument designed for an industrial environment. Operation of this equipment in a residential area may cause radio interference, in which case users will be responsible for any interference which they cause.

Power list of choosing clamp-on probe

For 1P2W (multiply 2 for 1P3W and 3P3W, multiply 3 for 3P4W)

<table>
<thead>
<tr>
<th>Voltage range</th>
<th>Clamp-on Probe Model code (rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current range</td>
</tr>
<tr>
<td>600.0 V</td>
<td>96061 (50 A) 96062 (100 A) 96063 (200 A) 96064 (500 A) 96065 (1000 A) 96066 (3000 A)</td>
</tr>
<tr>
<td>1000 V</td>
<td>6000 W 60.00 kW 600.0 kW 3000 W 1800 kW</td>
</tr>
<tr>
<td></td>
<td>3000 W 30.00 kW 600.0 kW 1800 kW</td>
</tr>
</tbody>
</table>

96060 is dedicated for leakage only and is incapable for power measuring.
Accessories (included with CW500)

<table>
<thead>
<tr>
<th>Model code</th>
<th>Model name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>98078</td>
<td>Voltage Probe</td>
<td>1 set 4 pcs Red Black White Blue 4 mm Approx. 3 m</td>
</tr>
<tr>
<td>93046</td>
<td>Carrying Case</td>
<td>CW500 and Clamp-on probe can be contained</td>
</tr>
<tr>
<td>97060</td>
<td>SD Memory Card</td>
<td>2 GB SD Memory Card</td>
</tr>
</tbody>
</table>

Accessories sold separately

<table>
<thead>
<tr>
<th>Model code</th>
<th>Model name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>96060</td>
<td>Clamp-on probe</td>
<td>φ40 mm AC 2 A, Leakage current measurement</td>
</tr>
<tr>
<td>96061</td>
<td>Clamp-on probe</td>
<td>φ18 mm AC 50 A, Load current measurement</td>
</tr>
<tr>
<td>96062</td>
<td>Clamp-on probe</td>
<td>φ24 mm AC 100 A, Load current measurement</td>
</tr>
<tr>
<td>96063</td>
<td>Clamp-on probe</td>
<td>φ30 mm AC 200 A, Load current measurement</td>
</tr>
<tr>
<td>96064</td>
<td>Clamp-on probe</td>
<td>φ40 mm AC 500 A, Load current measurement</td>
</tr>
<tr>
<td>96065</td>
<td>Clamp-on probe</td>
<td>max. approx. 110 mm AC 1000 A Flexible type load current measurement</td>
</tr>
<tr>
<td>96066</td>
<td>Clamp-on probe</td>
<td>max. approx. 150 mm AC 3000 A, 3 CH Load current measurement</td>
</tr>
<tr>
<td>96067</td>
<td>Extension cable</td>
<td>Extension cable for Clamp-on Probe</td>
</tr>
<tr>
<td>98031*</td>
<td>Power supply adapter</td>
<td>Power supply from measure line (100 to 240 V)</td>
</tr>
<tr>
<td>99073*</td>
<td>Conversion Cable (Banana-DIN)</td>
<td>for 96030, 96033, 96036</td>
</tr>
</tbody>
</table>

*Available for USA, Canada and Japan only

NOTICE

Before operating the product, read the user’s manual thoroughly for proper and safe operation.

Outline drawing

(Unit: mm)

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