Current Sensors & Accessories
CT1000/CT200/CT60/751574/751552
AC/DC Current Sensors & Accessories

High Accuracy and Wide-range AC/DC Current Measurement

Wide Variety of Current Sensors

Flat Frequency Characteristic

Excellent Phase Characteristic

1-Year Warranty

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High Accuracy and Wide-range AC/DC Current Sensors for Power Measurements Covering Large Current!

Yokogawa Meters & Instruments AC/DC Current Sensor Series Main Features

The high noise resistant current output mode minimizes the influence of the external noise even in a noisy location where an inverter is used.

Connection to the WT Series Power Meters and PZ Power Analyzer makes it possible to measure a wide range of current and power levels using powerful and sophisticated functions.

Excellent linearity ensures accurate measurements of even devices for which the current varies from low to high levels.

Low output noise minimizes the influence on the current readings, thus enabling accurate current and power measurements.

AC/DC current sensors allow you to take measurements of large DC and AC currents. The current output mode makes it possible to connect the AC/DC current sensors to the direct current input terminals of the WT Series Power Analyzers and PZ Power Analyzer for measurements. With a single power meter, you can measure very small currents by direct input and large currents of up to 1000 A using the current sensor (and of up to 1400 A using the 751552 clamp probe). The AC/DC current sensors can be used for large current and power measurements in a wide range of application areas, such as hybrid electric and pure electric vehicles, batteries, inverter motors, energy, railway, and industrial motors.

The two-power measurement method is used to measure power using the three-phase 3-wire connection system.

- 2V2A: Two-voltage and two-current measurement, 3V3A: Three-voltage and three-current measurement

* Synchronized measurement of two Power Analyzers. Efficiency calculations can be performed using WTViewer (760121).

AC/DC Current Sensors and Measurement Ranges

- CT60 Current Sensor: DC to 800 kHz, 60 A
- CT200 Current Sensor: DC to 500 kHz, 200 A
- 751574 Current Sensor: AC/DC DC to 100 kHz, 600 A

Current Sensors & Clamp-on Probes

- 30 Hz to 5 kHz, 1400 A (1000 Arms)
- Measurement using direct input terminal
- Measurement using current sensor
- Measurement using voltage input terminal

<table>
<thead>
<tr>
<th>Model</th>
<th>Current Sensor Series Main Features</th>
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<tr>
<td>CT60</td>
<td>1000 A at 1400 A (1000 Arms)</td>
</tr>
<tr>
<td>CT200</td>
<td>1500 A at 3000 A (1000 Arms)</td>
</tr>
<tr>
<td>CT1000</td>
<td>3000 A at 6000 A (1000 Arms)</td>
</tr>
</tbody>
</table>

Features

- Wide measurement range DC to 500 kHz (up to 3 MHz)
- Wide measurement range DC to 100 kHz (up to 3 MHz)
- Wide measurement range DC to 100 kHz (up to 3 MHz)
- High noise resistance and good CMRR characteristics achieved by optimizing the design of the housing
- Calibration can be performed in combination with the power meter

The current sensor unit allows you to measure large-current power that is difficult to measure directly. Taking advantage of the features of high accuracy and wide measurement range from DC to 100 kHz, the current sensor unit can be used in a wide range of applications such as power measurements of electric vehicles and inverter motors. Model 75152 is available for a single-phase system, and Model 751523 for a three-phase system.

The high noise resistant current output mode minimizes the influence of the external noise even in a noisy location where an inverter is used.

Connection to the WT Series Power Meters and PZ Power Analyzer makes it possible to measure a wide range of current and power levels using powerful and sophisticated functions.

Excellent linearity ensures accurate measurements of even devices for which the current varies from low to high levels.

Low output noise minimizes the influence on the current readings, thus enabling accurate current and power measurements.

A burden resistor is required for the secondary side of the current sensor output signal.

To measure current using the current sensor, select an input element for the secondary side of the current sensor.
**CT1000 1000Apk**

- **Rated current**: DC 0 to 1000 A
- **AC 1000 Apk**
- **Output current**: 666.6 mA at 1000 A rated primary current
- **Current transformation ratio**: 1500:1
- **Current direction**: Arrow direction displayed on the unit
- **Accuracy**: DC ±(0.05% of rdg + 30 µA)
  - 50/60 Hz ±(0.05% of rdg + 30 µA)
- **Sine wave**: Basic conditions
- **Common mode voltage**: 0 V
- **Effect of conductor position**: ±0.01% of reading
- **Conductor**: Use a linear conductor with Ø 25 mm and 300 mm or more in length
- **Load resistance**: 2.5 to 30 Ω
- **Dimensions**: Approx. 128 (W) x 160 (H) x 60 (D) mm
- **D-Sub-9pin connector**: (1 plug and 2 screws, part number B8200JQ) x1
- **Standard accessories**: Instruction manual x1
- **Optional accessories**
  - D-Sub 9-pin connector (1 plug and 2 screws, part number B8200JQ) x1
  - Load resistor (2.5 Ω) part number B8200JR, resistance accuracy ±0.1%, temperature coefficient 25 ppm/°C x1 (10 Ω x4; 4 resistors shall be connected in parallel resulting in a resistance of 2.5 Ω)

**CT200 200Apk**

- **Rated current**: 0 to 200 A
- **AC 200 Apk**
- **Output current**: 200 mA at 200 A rated primary current
- **Current transformation ratio**: 1000:1
- **Current direction**: Arrow direction displayed on the unit
- **Accuracy**: DC ±(0.05% of rdg + 30 µA)
  - 50/60 Hz ±(0.05% of rdg + 30 µA)
- **Sine wave**: Basic conditions
- **Common mode voltage**: 0 V
- **Effect of conductor position**: ±0.01% of reading
- **Conductor**: Use a linear conductor with Ø 25 mm and 300 mm or more in length
- **Load resistance**: 0 to 30 Ω
- **Dimensions**: Approx. 93 (W) x 77 (H) x 38 (D) mm
- **D-Sub-9pin connector**: (1 plug and 2 screws, part number B8200JQ) x1
- **Standard accessories**: Instruction manual x1
- **Optional accessories**
  - D-Sub 9-pin connector (1 plug and 2 screws, part number B8200JQ) x1
  - Load resistor (2.5 Ω) part number B8200JR, resistance accuracy ±0.1%, temperature coefficient 25 ppm/°C x1 (10 Ω x4; 4 resistors shall be connected in parallel resulting in a resistance of 2.5 Ω)
Models and Specifications

- **Primary current hole diameter**: Ø 26 mm
- **Maximum allowable instantaneous input**: 300 A peak 0.1 sec or less (reference value)
- **Operating temperature range**: 10 to 50°C
- **Power voltage**: ±(15 V ±5%)
- **Effect of conductor position**: ±0.01% of reading
- **Rated current**: 0 to 60 A
- **Power consumption (at each power voltage)**: Approx. (80 mA + output current)
- **Recommended fixing screw and tightening torque**: M4 stainless steel screw x4; 2.8 Nm
- **Measurement range**: DC to 800 kHz (-3 dB)
- **Dimensions**: Approx. 93 (W) x 77 (H) x 38 (D) mm
- **Load resistance**: 0 to 20
- **Maximum rated voltage**: 7 VA
- **Guarantee accuracy period**: 12-month
- **Standard accessories**: Instruction manual x1
- **Optional accessories**: • D-Sub 9-pin connector (1 plug and 2 screws, part number B8200JQ) x1

CT60 60Apk

**Rated current**: 0 to 60 A
**Output current**: 100 mA at 60 A rated primary current
**Current transformation ratio**: 600:1
**Output current**: 100 mA at 60 A rated primary current
**Secondary connector**: D-Sub-9pin
**CT60 frequency characteristic (example)*

**CT60 phase characteristic (example)*

**CT60 Derating of primary current based on frequency**
Input type: Floating input using CT
Rated currents: DC: -600 A to 0 A to +600 A
AC: 600 A peak
Output current: 400 mA (with primary rated current of 600 A)
Current transformation ratio: 1500:1
Current direction: Direction of arrow on unit
Amplitude accuracy: ±(0.05% of rdg + 40 µA) DC
within three months of calibration
Reference conditions: 23±5°C, 30 to 70% RH, AC input as sinewave
Primary current: 2 to 600 A, In-phase voltage: 0 V
Supply voltage: DC ±(15 V ±0.75 V)
Continuous maximum allowable input current: 600 A peak
External dimensions: Approximately 122 × 98 × 57 mm (WHD)
Immunity: Standard EN61326.
Operating temperature and humidity ranges: 10 to 50°C, 20 to 80% RH (no condensation)
Supply voltage: 95-105 V AC, 110-120 V AC, or 220-240 V AC
Storage temperature range: 0 to 60°C (no condensation)
Primary current hole diameter: Ø26 mm
Secondary conductor: D-Sub 9 pin
Weight: Approximately 1 kg
Supply voltage: ±15 V ±5%
Consumed power: Approximately 5 VA (when secondary output current is zero)
Consumed current: Approximately 0.3 mA (output current)
Emissions: Standard EN61810.
Immunity: Standard EN61810.

Primary current derating by frequency

Primary current derating by load resistance

751574 frequency characteristic (example)

751523 frequency characteristic (example)
**Rated current**
AC 0.001 to 1200 Arms (1400 A peak)

When inputting 1000 Arms to 1200 Arms (1 kHz), a 20 minute rest is required after 40 minutes of electrical continuity.

**Output current**
1000 mA (with 1000 A primary current)

**Current transformation ratio**
1000:1

**Current direction**
Direction of arrow on unit

**Amplitude accuracy**
Input current (I) accuracy with respect to output current

- 1 mA ≤ I < 10 A: ±(3% of rdg + 5 µA), phase error: 2 deg
- 10 A ≤ I < 1200 A: ±0.5% of rdg, phase error: 1 deg

**Reference conditions**
23±3°C, 20 to 75% RH, 48 to 65 Hz sinewave input

**Input current:**
0.001 to 1200 A, common mode voltage: 0 V

**Conductor:**
Clamp center

**Primary input:**
No DC current component, no AC magnetic field, external magnetic field below 40 A/m, secondary load resistance 1 W or less, no effects from current flowing through adjacent external conductors

**Measurement range**
30 Hz ≤ f < 5 kHz
30 Hz ≤ f < 48 Hz: Under ±0.5% of output signal
65 Hz ≤ f < 1 kHz: Under ±1% of output signal
1 kHz ≤ f < 5 kHz: Under ±2% of output signal

**Conductor position effect**
Add ±0.1% of rdg (400 Hz or less)

**DC current effect**
1% of output current at superimposition of 15 A dc

**Temperature effect**
0.02%/°C or less of the output signal

**Maximum output voltage:**
30 V peak or less

**Continuous maximum allowable input**
For a continuous frequency f of 1 kHz or less
- I ≤ 1000 A

For an input signal of 1000 A ≤ I ≤ 1200 A at 1 kHz, the probe can be used continuously for a maximum of 40 minutes. Do not perform measurement 20 minutes thereafter.

**Working voltage**
Maximum 600 Vrms

**Secondary load resistance**
1 Ω or less

**Secondary load resistance effect**
1 to 5 Ω: 0.1% of rdg, 0.2° phase error
5 to 50 Ω: 0.1% of rdg, 0.2° phase error
50 to 90% RH: (no condensation)

**Temperature range**
-40 to 70°C (no condensation)

**External dimensions**
111 x 216 x 45 mm (WHD)

**Measurable conductor diameter**
Maximum Ø52 mm

**Output current connector**
Plug-in terminal (safety terminal)

**Weight**
Approximately 620 g

**Emissions**
Standard EN61326 Class B.

**Immunity**
Standard EN61326 Annex A (for industrial environments).

**Safety standards**
Standard EN61010-1.
Standard EN61010-2-032.
600 V overvoltage category III pollution level 2
300 V overvoltage category IV pollution level 2

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**751552**

**Frequency characteristic**

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**751574 600Apk**

**Secondary connector signal assignments**

<table>
<thead>
<tr>
<th>Pin No</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>(Do not connect)</td>
</tr>
<tr>
<td>4</td>
<td>Power supply 0 V input</td>
</tr>
<tr>
<td>5</td>
<td>Power supply -15 V input</td>
</tr>
<tr>
<td>6</td>
<td>Secondary signal output</td>
</tr>
<tr>
<td>7, 8</td>
<td>(Do not connect)</td>
</tr>
<tr>
<td>9</td>
<td>Power supply +15 V input</td>
</tr>
</tbody>
</table>

*1: Use an insulated conductor or cable for wiring on the primary side.

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**751521/751523**

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**751552**

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**751574**

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**751521**

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**751523**

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**Models and Specifications**

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### Models and Suffix Codes

#### ■ AC/DC Current Sensors and Clamp-on Probes

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT100</td>
<td>AC/DC Current sensor</td>
<td>Measurement range: DC to 300 kHz, basic accuracy: ±0.05% of rdg + 30 µA, 1000 Apek</td>
</tr>
<tr>
<td>751574</td>
<td>AC/DC Current sensor</td>
<td>Measurement range: DC to 100 Hz, basic accuracy: ±0.05% of rdg + 40 µA, 600 Apek</td>
</tr>
<tr>
<td>CT200</td>
<td>AC/DC Current sensor</td>
<td>Measurement range: DC to 500 kHz, basic accuracy: ±0.05% of rdg + 30 µA, 200 Apek</td>
</tr>
<tr>
<td>CT160</td>
<td>AC/DC Current sensor</td>
<td>Measurement range: DC to 600 kHz, basic accuracy: ±0.05% of rdg + 30 µA, 60 Apek</td>
</tr>
<tr>
<td>751552</td>
<td>Clamp-on probe</td>
<td>Measurement range: 30 Hz to 5 kHz, basic accuracy: ±0.3% of rdg, 1400 Apek (1000 Arms)</td>
</tr>
</tbody>
</table>

*CT series do not confirm to CE Marking.*

#### ■ Current Sensor Unit

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>751521</td>
<td>10</td>
<td>Current sensor unit (for single-phase)</td>
<td>Measurement range: DC to 100 kHz</td>
</tr>
<tr>
<td>751523</td>
<td>20</td>
<td>Current sensor unit (for three-phase U and V)</td>
<td>Basic accuracy: ±0.05% of rdg + 40 µA</td>
</tr>
<tr>
<td>751524</td>
<td>30</td>
<td>Current sensor unit (for three-phase U, V, and W)</td>
<td></td>
</tr>
<tr>
<td>759391</td>
<td>I</td>
<td>Power cable</td>
<td>100 V A.C (50/60 Hz)</td>
</tr>
<tr>
<td>759392</td>
<td>M</td>
<td>Power cable</td>
<td></td>
</tr>
</tbody>
</table>

#### ■ Separately Sold Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>758917</td>
<td>Measurement lead set</td>
<td>75-cm long cable, 2 pieces (red and black) in set</td>
</tr>
<tr>
<td>758922</td>
<td>Small alligator-clip adapter set</td>
<td>Safety terminal-to-alligator-clip adapter, 2 pieces (black and red) in set, Rated 300 V</td>
</tr>
<tr>
<td>759926</td>
<td>Large alligator-clip adapter set</td>
<td>Safety terminal-to-alligator-clip adapter, 2 pieces (black and red) in set, Rated 1000 V</td>
</tr>
<tr>
<td>759931</td>
<td>Safety terminal adapter set</td>
<td>Spring-loaded type, 2 pieces (black and red) in set</td>
</tr>
<tr>
<td>759932</td>
<td>Safety terminal adapter set</td>
<td>Spring fastened type, 2 pieces (black and red) in set</td>
</tr>
<tr>
<td>759934</td>
<td>Safety terminal adapter set</td>
<td>4 mm banana plug to fork terminal, 2 pieces (black and red) in set</td>
</tr>
<tr>
<td>701959</td>
<td>Safety mini-clip</td>
<td>Hook type, 2 pieces (black and red) in set</td>
</tr>
<tr>
<td>759924</td>
<td>Conversion adapter</td>
<td>BNC to binding post adapter</td>
</tr>
<tr>
<td>366924</td>
<td>BNC-BNC cable</td>
<td>1 m</td>
</tr>
<tr>
<td>366925</td>
<td>BNC-BNC cable</td>
<td>2 m</td>
</tr>
<tr>
<td>882001J</td>
<td>Output connector</td>
<td>D-Sub 9 pin connector with 2 screws (female on connector side)</td>
</tr>
<tr>
<td>882001JR</td>
<td>Output connector</td>
<td>10 (â/0.25 W (x4))</td>
</tr>
</tbody>
</table>

Be careful not to touch the metal parts that are easily accessible. Doing so may cause an electric shock.

#### Specifications

- Add the error of the power meter and that of the current sensor unit or AC/DC current sensor.
- Use the current probe in a circuit at a voltage less than the maximum circuit voltage in order to prevent a short circuit, physical injury, etc.
- Use the current probe for a bare conductor as doing so may result in a short circuit, physical injury, etc. due to exposing the tip of the clamp core.

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