The PW3336 (2-channel) and PW3337 (3-channel) can measure DC and a variety of power connections ranging from single-phase 2-wire to 3-phase 4-wire*.

- For development and production of motors, inverters, power conditioners, power supplies, and other devices
- Assess and verify the energy-saving performance of industrial equipment such as heavy machinery, air-conditioners as well as household appliances

- Voltage, current, and power basic accuracy : ±0.1% **
- Measurement frequency bands : DC, 0.1 Hz to 100 kHz
- High-current measurement : Up to 65 A, direct input
- Low-loss current input : Input resistance of 1mΩ or less
- Harmonic measurement up to the 50th order : IEC 61000-4-7 compliant
- High-accuracy measurement, even with a low power factor : Ideal for no-load testing of transformers and motors
- Measure up to 5000 A AC : Built-in external sensor input terminals

* 3-phase 4-wire measurement: PW3337 series only
** For complete details, please refer to the specifications.
The PW3336 series (2-channel) and PW3337 series (3-channel) are easy-to-use, high-accuracy power meters that deliver current measurement of up to 65 A with direct input as well as built-in harmonic analysis functionality, all with accuracy that exceeds that of previous HIOKI power meters.

**World class performance**

**Measure up to 65 A with direct input**

1. **Measurement accuracy that remains unchanged for high-current measurement**
   Accuracy is guaranteed for currents of up to 65 A with direct input. The power meters can also measure high currents in excess of 65 A with optional current sensors. Direct-input power meters typically exhibit degraded accuracy when inputting high currents due to shunt resistor self-heating. However, the PW3336 and PW3337 reduce input resistance with a DCCT design that virtually eliminates this type of accuracy degradation.

2. **A 3-channel power meter**
   Enabling you to select the optimal range for each connection
   The advanced engineering of the PW3336 and PW3337 enables you to measure an inverter’s primary-side DC power supply and its secondary-side 3-phase output at the same time. The power meters make a tremendous contribution in applications that need to measure the input/output efficiency of inverters, uninterruptible power supplies, and other power supply equipment.

3. **Best-in-class accuracy of ±0.1% * **
   HIOKI has drawn on its accumulated base of technology and experience to deliver best-in-class accuracy for the PW3336/PW3337. This rock-solid accuracy serves to support customers throughout the full range of measurement situations.

* For complete details, please refer to the specifications.
Simultaneously measure power consumption and all harmonic parameters, from single-phase 2-wire to 3-phase 4-wire measurement lines

**World class performance**

4 Simultaneous processing of power data and all harmonic data

All data, including RMS values, mean values, DC components, AC components, fundamental wave components, harmonic measurement, and integration measurement, is processed in parallel internally. There is no need to switch modes depending on whether you wish to acquire power data or harmonic data - simply switch the display to obtain measured values with true simultaneity. Additionally, PC communications software* can be used to capture measurement data, including from multiple synchronized instruments.

*Available soon for free download from the HIOKI website.

5 High-accuracy measurement, even with low-power-factor input

Because power factor has little impact at just ±0.1% f.s., the PW3336/PW3337 can measure active power of low-power-factor input at a high level of accuracy, for example during no-load-loss testing, a technique that is used to evaluate energy-saving performance of transformers. Even though the high current waveform crest factor that typically accompanies no-load operation causes the power factor to deteriorate, measurements taken with the PW3336/PW3337 series remain accurate under these conditions.

6 Wide frequency band of DC and 0.1 Hz to 100 kHz

Thanks to a wide-band capability extending from DC and 0.1 Hz to 100 kHz, the PW3336/PW3337 can cover not only inverters’ fundamental frequency band, but also the carrier frequency band.

7 Integrating fluctuating power values

The power consumption of equipment subject to a fluctuating load, for example refrigerators, heaters, and pumps, varies considerably between rated operation and no-load operation. Thanks to its broad dynamic range, the PW3336/PW3337 can perform integrated power measurement with guaranteed accuracy using a single range, even if the power fluctuates dramatically during integration. Measurements can accommodate waveform peaks of up to 600% of the range rating.
Advanced functions

1 Extensive built-in features including harmonic measurement, current sensor input, synchronized control, and a wide selection of interfaces

The PW3336/PW3337 ships standard with all the functionality you need for measurement. Choose from a total of eight models depending on whether your application requires support for GP-IB communications and D/A output.

<table>
<thead>
<tr>
<th>Standard functionality by model</th>
<th>: Built-in function : Function not available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>No. of channels</td>
</tr>
<tr>
<td>PW3336</td>
<td>2</td>
</tr>
<tr>
<td>PW3336-01</td>
<td>—</td>
</tr>
<tr>
<td>PW3336-02</td>
<td>—</td>
</tr>
<tr>
<td>PW3336-03</td>
<td>PW3337</td>
</tr>
<tr>
<td>PW3337</td>
<td>—</td>
</tr>
<tr>
<td>PW3337-01</td>
<td>—</td>
</tr>
<tr>
<td>PW3337-02</td>
<td>—</td>
</tr>
<tr>
<td>PW3337-03</td>
<td>—</td>
</tr>
</tbody>
</table>

2 IEC61000-4-7 compliant harmonic measurement

The PW3336/PW3337 supports measurement that complies with IEC 61000-4-7:2002, the international standard governing harmonic measurement.

The power meters can measure voltage, current, and power harmonics up to the 50th order depending on the fundamental frequency, including total harmonic distortion (THD), fundamental wave component, harmonic level, phase difference, content percentage, and other parameters for each order. Since you can cap the number of orders for which harmonic analysis is performed to any order from the 2nd to the 50th, you can make standard-compliant calculations, even if the standard defines an upper limit order for THD calculations.

About IEC 61000-4-7

IEC 61000-4-7 is an international standard governing the measurement of harmonic current and harmonic voltage in power supply systems as well as harmonic current emitted from devices. It defines the performance of standard instruments used to make such measurements.

3 Large selection of interfaces

The PW3336/PW3337’s interfaces can be used to control the instrument and to capture its data - simply download the free PC application from the HIOKI website*. Functionality supported via LAN connections includes power meter configuration, measured value monitoring, waveform monitoring, display of time-series recordings, and capturing data at intervals.

4 16-channel D/A output (-02, -03)

D/A output-equipped instruments can generate voltage output for measured values and integrated power with their 16-bit D/A converter. By connecting an external data logger, HIOKI Memory HiCorder, recorder, or other device, you can simultaneously record data along with temperature and other non-power signals. The PW3336/PW3337 also offers the first active power level output on a cycle-by-cycle basis of any instrument in its class.

Three types of D/A output (switchable)

- **Instantaneous waveform output**: Output voltage, current, or power instantaneous waveforms. (Sampling speed: Approx. 87.5 kHz)
- **Level output**: Output voltage, current, power, and other selected parameters with an update cycle of approximately 200 ms.
- **High-speed active power level output**: Generate level output for the active power for each cycle of the measurement waveform.

D/A output waveforms when a fan motor is powered on

5 Synchronized control using up to 8 instruments

Eight units of PW3336/PW3337 can be connected and their measurements fully synchronized. That means you can have up to 24 channels of simultaneous calculations, display updates, data updates, integration control, display hold timing, and zero-adjustment. In addition, the master-slave configuration allows you to key lock all slave devices with the master unit, mirroring the master unit’s operations and modes on all of the other power meters. The free PC application* can be used to calculate efficiency values across multiple units.

6 Current sensor connectivity

The PW3336/PW3337 can also measure devices that exceed 65 A with the use of an optional current sensor. Measurements with guaranteed accuracy can be performed for currents of up to 5000 A AC. Choose from a range of high-accuracy, clamp-on or pass-through AC/DC current sensors and models specifically designed for 50/60 Hz measurement.
Applications

1. Research, development, and testing of equipment with 3-phase power supplies such as transformers, motors, air-conditioners, and heavy machinery

Key advantages
- Measure 3-phase 3-wire and 3-phase 4-wire* lines with a basic measurement accuracy of ±0.1%**
- Perform high-current measurement of 65 A with direct input without accuracy degradation caused by shunt resistor self-heating.
- Built-in IEC 61000-4-7 compliant harmonic measurement functionality as well as current sensor input terminals and a LAN interface.
- Accuracy is guaranteed for active power measurement from 0 W, as well as for measurement of integrated power for loads with large fluctuations.
- Measure active power at a high level of accuracy even with low power factors, for example during no-load operation testing of transformers.

2. Measuring the efficiency of power conditioners used in solar power installations

Key advantages
- Measure primary-side DC and secondary-side 3-phase output with a single PW3337, using the optimal range for each.
- Calculate efficiency: Perform output/input calculations and easily identify the resulting efficiency on the power meter’s screen.
- Ripple rate calculation: Display the ratio of the AC component that is superposed on a DC line.
- Built-in current sensor input terminals: Measure currents exceeding 65 A with an optional current sensor.
- Harmonic measurement: Test for harmonic components such as voltage THD, which can be a concern with grid-linked systems.

3. Measuring power supply devices such as 3-phase/3-phase inverters

Key advantages
- Connect multiple instruments to synchronize their operation, including display updates, data updates, and start of integration.
- Measure all data with simultaneous parallel processing, including RMS values, mean values, fundamental wave components, THD, and harmonic components.
- Wide frequency band from DC and 0.1 Hz to 100 kHz: Enjoy coverage for the inverter secondary-side frequency band.
- Built-in current sensor input terminals: Measure currents exceeding 65 A with an optional current sensor.

*3-phase 4-wire measurement: PW3337 series only  ** For complete details, please refer to the specifications.

Other DC/3-phase and 1-phase/3-phase measurement applications
- Measuring the efficiency of battery-powered devices (DC/3-phase) such as electric vehicles
- Measuring the efficiency of rapid chargers for electric vehicles (3-phase/DC)
Applications

4 Measuring the primary-side, internal circuitry, and secondary-side power consumption in uninterruptible power supplies (UPS)

Key advantages
✓ Set individual ranges and measurement types for each channel. Measure power consumption at each stage of the UPS.
✓ Hold waveform peak values and measured value maximum and minimum values.
✓ Measure all data with simultaneous parallel processing, including RMS values, mean values, fundamental wave components, THD, and harmonic components.

Simultaneous measurement of multiple loads

5 Simultaneous measurement of multiple loads

Key advantages
✓ Set individual ranges and measurement types for each channel. Measure power consumption at each stage of an uninterruptible power supply.
✓ Perform integrated measurement of widely fluctuating power signals without changing the range - useful during long-term integrated power evaluation tests.
✓ Use the synchronized control function to sync measurement timing and start/stop integration across a maximum of 8 power meters.
The PW3336/PW3337 Communicator connects with the power meters via the LAN, RS-232C, or GP-IB (-01, -03) interface, and is available for free download from the HIOKI website*. Functionality includes configuring instruments, capturing interval data, performing numerical calculations based on measurement data, calculating efficiency values across multiple units, displaying 10 or more measurement parameters, and displaying waveforms.

*Available soon.

**LabVIEW** to collect data and integrate the power meter into existing systems. (Available soon)

*LabVIEW is a trademark of National Instruments Corporation.

### Dimensions drawings

![Dimensional drawings](image)

(Unit: mm)

### Specifications

#### Input Specifications

<table>
<thead>
<tr>
<th>Measurement line type</th>
<th>PW3336 series</th>
<th>PW3337 series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiring</td>
<td>CH1 CH2</td>
<td>CH1 CH2 CH3</td>
</tr>
<tr>
<td>1P2W×2</td>
<td>1P2W</td>
<td>1P2W</td>
</tr>
<tr>
<td>1P3W</td>
<td>1P3W</td>
<td>1P3W</td>
</tr>
<tr>
<td>3P3W</td>
<td>3P3W</td>
<td>3P3W</td>
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<tr>
<td>3P3W2M</td>
<td>3P3W2M</td>
<td>3P3W2M</td>
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<td>3V3A</td>
<td>3V3A</td>
<td>3V3A</td>
</tr>
<tr>
<td>3P3W3M</td>
<td>3P3W3M</td>
<td>3P3W3M</td>
</tr>
<tr>
<td>3P4W</td>
<td>3P4W</td>
<td>3P4W</td>
</tr>
</tbody>
</table>

#### Input methods

- Voltage: Isolated input, resistance voltage division method
- Current: Isolated input, DCCT method isolated input from current sensors

#### Voltage measurement ranges

- AUTO: 15,000 V, 30,000 V, 60,000 V, 150,000 V, 300,000 V, 600,000 V, 1,000,000 V (set for each wiring mode)

#### Current measurement ranges

- AUTO: 200.00 mA, 500.00 mA, 1,000.00 A, 2,000.00 A, 5,000.00 A / 10,000 A, 20,000 A, 50,000 A (set for each wiring mode)

For more information about external current sensor input, see the external current sensor input specifications

#### Power ranges

- Depends on the combination of voltage and current ranges; PW3336: from 3.0000W to 100.00kW (also applies to VA, var) PW3337: from 3.0000W to 150.00kW (also applies to VA, var)

#### Input resistance

- Voltage input terminal: ≥ 2 MΩ or ≥ 0.4 MΩ
- Current direct input terminal: ≤ 1 MΩ or less

### Basic Measurement Specifications

- Measurement method: Simultaneous voltage and current digital sampling, zero-cross simultaneous calculation
- Sampling frequency: Approx. 700 kHz
- A/D converter resolution: 16-bit
- Rectifiers: AC-DC measurement, AC+DC measurement, AC+DC measurement, AC+DC measurement
- Max power: Display of true RMS values for both voltage and current
- Zero-Crossing Filter: 500 kHz to 200 kHz

### Zero-Crossing Filter

- 500 Hz to 200 kHz
- For 300 V, 650 V, and 1000 V ranges, ±1500 Vpeak

### Maximum effective peak value

- 600% of each voltage range
- However, for 300 V, 650 V, and 1000 V ranges, ±1500 Vpeak

### Maximum effective peak current

- 600% of each current range
- However, for 20 A range and 50 A range, ±100 Apeak
Voltage/Current/Active Power Measurement Specifications

- **Voltage Range:**
  - 0V to 1500V
  - 0V to 1000V
  - 0V to 1500V

- **Current Range:**
  - 0mA to 20A
  - 0mA to 20A
  - 0mA to 20A

- **Active Power Range:**
  - ±5% to ±100% of voltage range (up to ±1500V)
  - ±5% to ±100% of current range

**Effective measured range:**
- Voltage: 1% to 1000V
- Current: 0.1 Hz to 100 Hz

**Measurement accuracy:**
- ±0.1% rdg. ±1% dgt. (0°C to 40°C)

**Frequency Measurement Specifications**

- **Measurement source:**
  - U or A by channel

- **Measurement method:**
  - Calculated from input waveform period (periodical method)

- **Measurement range:**
  - 50Hz to 200kHz (linked to zero-cross filter)

- **Measurement accuracy:**
  - ±0.1% rdg. ±1% dgt. (67°C to 47°C)

- **Effective measuring range:**
  - 1.1 Hz to 100 kHz

**Display range:**
- 1.0000 to 612.00 (no polarity)

**Phase Angle:**
- Reactive Power/Reactive Power Calculation

**Phase Angle Measurement Specifications**

- **Measurement types:**
  - Rectifiers

**Phase angle measurement:**
- As voltage, current, and active power effective measurement ranges.

**Voltage Waveform Peak Value/Current Waveform Peak Value Measurement Specifications**

- **Measurement accuracy:**
  - Same as the voltage/current measurement accuracy at DC and when 0.1 Hz ≤ f ≤ 10 Hz (f: voltage peak range or current peak range)
  - Provided as reference value when 0.1 Hz < f ≤ 10 Hz and when in excess of 1 kHz

**Effective measuring range:**
- ±5% to ±100% of voltage peak range (up to ±1500V) or
  - ±5% to ±100% of current peak range (up to 20A)

**Display range:**
- ±0.3% to ±100% of voltage peak range or current peak range

**Voltage Crest Factor/Current Crest Factor Measurement Specifications**

- **Measurement method:**
  - Calculates values from display values only when display update interval for voltage and waveform peak values or current and waveform peak values.

**Synchronized Control**

- **Functions:**
  - Timing of calibrations, display updates, data updates, integration start/stop/reset events, display hold operation, key lock operation, and zero-adjustment operation for the slave PW3336/PW3337 are synchronized with the master PW3336/PW3337.

- **Terminal:**
  - IRC (terminal is not isolated)
### Voltage Ripple Rate / Current Ripple Factor Measurement Specifications

**Measurement method**
Calculates the AC component (peak to peak) as a proportion of the voltage or current DC component.

**Effective measuring range**
As per voltage and voltage waveform peak value or current and current waveform peak value effective measuring range.

**Display range**
0.00[\%] to 500.00[\%]

### Efficiency Measurement Specifications

**Efficiency Method**
Calculates the efficiency $\eta$ [%] from the ratio of active power values for channels and wires.

**Wiring modes and calculation equations**
Calculated based on the AC-DC rectifier active power PW3366 series:
- CH1 CH2 Calculation formulas
  - 1P2W x 2
  - 3P5W

**Display range**
0.00[\%] to 200.00[\%]

### Functional Specifications

**Auto range (AUTO)**
Automatically changes the voltage and current range for each wiring mode according to the input.

**Rang up**
- The range is increased when input exceeds 130% of the range or when the peak is exceeded.

**Rang down**
- The range is reduced when input falls below 15% of the range. However, the range is not decreased when the peak is exceeded at the lower range.

**Averaging (AVG)**
Averages the voltage, current, active power, apparent power, and reactive power.

**Math**
- The power factor and phase angle are calculated from averaged data.
- Measured values other than peak values, power factor, frequency, integrated values, voltage crest factor, ripple rate, total harmonic distortion, and harmonics are averaged.

**Method**
- Simple averaging

**Number of averaging iterations and display update interval**
- Number of averaging iterations range: 1 to 100
- Display update interval range: 10 ms to 20 s

**Scaling (V/R, CT)**
Applies user-defined VT and CT ratio settings to measured values. These settings can be configured separately for each wiring mode.

**VT ratio setting range:**
- OFF (1.0)
- 0.1 to 1000 (setting: 0000)

**CT ratio setting range:**
- OFF (1.0)
- 0.001 to 1000 (setting: 0000)

**HOLD (HOLD)**
Stops display updates for all measured values and freeze the display values at that point in time.

**Zero Adjustment (0 ADJ)**
Deactivates key input in the measurement state, except for the SHIFT key and KEY LOCK key.

**Backup**
Backs up settings and integration data if the instrument is turned off and if a power outage occurs.

**System Reset**
Initializes the instrument's settings. Communications-related settings (communications speed, address, and LAN-related settings) are not initialized.

### Integration Measurement Specifications

**Measurement items**
- Harmonic voltage RMS value
- Harmonic voltage content %
- Harmonic voltage phase angle
- Harmonic current content %
- Harmonic current phase angle
- Harmonic active power
- Harmonic current phase difference
- Total harmonic voltage distortion
- Total harmonic current distortion
- Current fundamental waveform
- Active power fundamental waveform
- Reactive power fundamental waveform
- Harmonic voltage phase angle
- Harmonic current phase angle
- Harmonic voltage current phase difference

**Number of FFT points**
- 256 points
- 512 points
- 1024 points
- 2048 points

**Synchronization**
- Synchronization source: IEC 61000-4-31 compliant
- Synchronization cycle: 30 Hz to 60 Hz

**Max. analysis order**
- Synchronization frequency range: 10 Hz to 60 Hz
- Analysis order: 10 Hz to 50 Hz
- Analysis order: 50 Hz to 200 Hz
- Analysis order: 200 Hz to 1000 Hz
- Analysis order: 1000 Hz to 20 kHz
- Analysis order: 20 kHz to 50 kHz
- Analysis order: 50 kHz to 200 kHz

**Measurement accuracy**
- ±0.15% rdg. ±0.15% f.s.

**Display Specifications**
- Display: 5 segment LED
- Number of displayed digits: 6
- Display resolution: Other than integrated values: 99,999 count
- Integrated values: 99,999 count
- Display update rate: 20 updates per sec. (varies with number of averaging iterations setting)
**External Current Sensor Input Specifications (built-in feature)**

**Current sensor type switching**
- Off / Type 1 / Type 2
  - When set to off, input from the external current sensor input terminal is ignored.

**Current sensor options**

<table>
<thead>
<tr>
<th>Type 1</th>
<th>9661 (500 A AC)</th>
<th>9660 (1000 A AC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 2</td>
<td>09650-10 and LS1217 (required; sold separately)</td>
<td></td>
</tr>
</tbody>
</table>

**Output accuracy f.s.:** Relative to the output voltage rated value for each output parameter

**Power range**
- Depends on the combination of voltage and current ranges; from 60.0000 to 15.0000MW (also applies to VA, var)

**Measurement accuracy**
- Current, Active power
  - Frequency: Input < 50%f.s. 50%f.s.
  - DC ±0.2%rdg. ±0.6%f.s. ±0.2%rdg. ±0.6%f.s. ±0.8%rdg.
  - 1kHz < f ≤ 10kHz ±5.0%rdg. ±0.5%f.s. ±1.0%rdg. ±5.5%f.s.
  - 10kHz < f ≤ 50kHz

**Response time**
- Level output: ±0.6 sec. or less (when the input changes abruptly from 0% to 100%, or from 100% to 0%, the time required in order to satisfy the accuracy range)
- Waveform output: ±0.2 ms or less
- High-speed active power level output: ±1 cycle

**Temperature characteristics**
- Current, active power
  - ±0.08% f.s./°C (instrument temperature coefficient; f.s.: instrument measurement range)
- Add current sensor temperature coefficient to above.

**Power factor effects**
- Instrument: ±0.15% f.s. or less (45 Hz to 66 Hz with power factor = 0)
- Add current sensor phase difference to the above current sensor's phase difference.
- Internal circuit voltage/current phase difference: ±0.06%
- Add the current sensor phase difference to the internal circuit voltage/current phase difference noted above.

**Current peak value measurement accuracy**
- External current sensor input instrument accuracy) + (±0.2% f.s. f.s.: current range peak)
- Add the current sensor accuracy to the above.

**Harmonic measurement accuracy**
- Frequency: ±0.1% @ 1 kHz ±0.2% @ 5 kHz ±0.4% @ 10 kHz ±0.5% @ 50 kHz ±0.8% @ 500 kHz
- Add current sensor's accuracy to the above current and active power accuracy figures.

---

**D/A Output Specifications (PW3336-02/03 and PW3337-02/03)**

**Number of output channels:** 16

**Configuration**
- 16-bit D/A converter (positively ± 15 bits)

**Output parameters**
- DC (voltage level) or I (current direct input level) (switchable) (1 to ±3 current level) or I (instantaneous current waveform) (switchable) (Pulse current level) or I (instantaneous current waveform) (switchable) (Pulse current level) or I (instantaneous current waveform) (switchable) (Pulse current level) or I (instantaneous current waveform) (switchable) (Pulse current level) or I (instantaneous current waveform) (switchable) (Pulse current level) or I (instantaneous current waveform) (switchable)

**Output voltage**
- Voltage, current, active power, apparent power, reactive power, time average current/active power
  - ±2 V DC for a 100% of range
  - Phase range
    - ±2 V DC at ±0.0000, 0 V DC at ±1.0000
    - 0 V DC at 0.0000, ±2 V DC at ±180.00°
  - Voltage/current ripple rate, total harmonic voltage/current distortion
    - ±2 V DC at 100.00%
  - Voltage/current crest factor
    - ±2 V DC at 10.000

**Frequency**
- ±2 V DC per 100 Hz from 0.100 Hz to 300.00 Hz
  - ±2 V DC per 10 kHz from 30.00 Hz to 30.00 kHz
  - ±2 V DC per 100 kHz from 30.00 Hz to 300.00 kHz

**Efficiency**
- ±2 V DC at 200.00%

**Current integration, active power integration**
- ±0 V DC at (range) + (integration set time)

**Waveform output**
- ±1.5% relative to 100% range

**Maximum output voltage**
- Approx. ±12 V DC

**Output update rate**

**External control (built-in feature)**

**General Specifications**

**Operating environment**
- Indoors, altitude up to 2000 m (6562-ft.), pollution degree 2

**Operating temperature and humidity**
- 10 to 50°C (14 to 122°F), 80% RH or less (non-condensing)

**Storage temperature and humidity**
- 10 to 50°C (14 to 122°F), 80% RH or less (non-condensing)

**D/A Output Specifications**

**Interface**
- VCC and GND: 5 V DC ±5V
- Data output: 3 V3A, 3P3W3M, or 3P4W

**Remote control**
- Start Hi → Lo
- Stop Lo → Hi
- Reset Lo interval of at least 200 ms

**GP-IB Interface (PW3336-01/03, PW3337-01/03)**

**Method**
- IEEE488.1 (1978) compliant; see IEEE488.2 (1987)

**Transmission medium**
- RS-232C (7-bit asynchronous)

**LAN interface (built-in feature)**

**Connector**
- RJ-45 connector × 1

**Data bits:** 8 (fixed), Parity: None

**Full duplex, Start-stop synchronization, Stop bits:** 1 (fixed), Data bits: 8 (fixed), Parity: None

**Remote control by controller (REMOTE lamp will light up.)**

**Specifications**

**Remote control by controller (REMOTE lamp will light up.)**

**Protocol**
- TCP/IP

**Functions**
- HTTP server (remote operation, firmware updates)

**Connector**
- RJ-45 connector × 1

**Technical specifications**
- IEEE488.3 compliant

**Transmission medium**
- RS-232C (7-bit asynchronous)

**Protocol**
- TCP/IP

**Functions**
- HTTP server (remote operation, firmware updates)

**Remote control by controller (REMOTE lamp will light up.)**

**Connector**
- RJ-45 connector × 1

**Remote control by controller (REMOTE lamp will light up.)**

**Dimensions**
- Approx. 330W (12.91") × 182H (7.17") × 256D (10.08") mm

**General Specifications**

**Remote control by controller (REMOTE lamp will light up.)**

**Dimensions**
- Approx. 80W (3.15") × 162H (6.38") × 280D (11.02") mm (excluding protrusions)

**Mass**
- PW3336 series Approx. 5.2 kg (18.34 oz.)
## Current Measurement Options [Type 1] Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>CLAMP ON SENSOR 9660</th>
<th>CLAMP ON SENSOR 9661</th>
<th>CLAMP ON SENSOR 9669</th>
<th>FLEXIBLE CLAMP ON SENSOR CT9667</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary current rating</td>
<td>100A AC</td>
<td>500A AC</td>
<td>1000A AC</td>
<td>500A AC, 5000A AC</td>
</tr>
<tr>
<td>Measurability limit</td>
<td>45 to 66Hz, DC</td>
<td>45 to 66Hz, DC</td>
<td>45 to 66Hz, DC</td>
<td></td>
</tr>
<tr>
<td>Amplitude accuracy</td>
<td>±0.3%rdg. ±0.0% f.s.</td>
<td>±0.3%rdg. ±0.01% f.s.</td>
<td>±0.1%rdg. ±0.01% f.s.</td>
<td>±0.5%rdg. ±0.3% f.s.</td>
</tr>
<tr>
<td>Phase accuracy</td>
<td>±1° or less</td>
<td>±0.5° or less</td>
<td>±1° or less</td>
<td>±1° or less</td>
</tr>
<tr>
<td>Frequency characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>50°C to 55°C (122°F)</td>
<td>80%RH or lower</td>
<td>50°C to 55°C (122°F)</td>
<td>80%RH or lower</td>
</tr>
<tr>
<td>Operating temperature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect of conductor position</td>
<td>Within ±0.5% (deviation from center)</td>
<td>Within ±1% (deviation from center)</td>
<td>Within ±3% (deviation from center)</td>
<td></td>
</tr>
<tr>
<td>Effect of external electromagnetic field</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude accuracy</td>
<td>±0.05%rdg. ±0.01% f.s.</td>
<td>±0.5%rdg. ±0.05% f.s.</td>
<td>180 minutes after power is turned on and after magnetization</td>
<td></td>
</tr>
<tr>
<td>Frequency characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>45 to 66Hz DC</td>
<td>45 to 66Hz DC</td>
<td>45 to 66Hz DC</td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options (sold separately)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Current Measurement Options [Type 2] Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>CLAMP ON SENSOR 9227-10</th>
<th>UNIVERAL CLAMP ON CT 9277</th>
<th>UNIVERAL CLAMP ON CT 9278</th>
<th>UNIVERAL CLAMP ON CT 9279</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary current rating</td>
<td>20A/200A AC</td>
<td>20A AC/DC</td>
<td>20A AC/DC</td>
<td>500A AC/DC</td>
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<tr>
<td>Measurability limit</td>
<td>45 to 66Hz, DC</td>
<td>45 to 66Hz, DC</td>
<td>45 to 66Hz, DC</td>
<td>45 to 66Hz, DC</td>
</tr>
<tr>
<td>Amplitude accuracy</td>
<td>±0.2% rdg. ±0.0% f.s.</td>
<td>±0.5%rdg. ±0.05% f.s.</td>
<td>±0.1%rdg. ±0.01% f.s.</td>
<td>±0.5%rdg. ±0.3% f.s.</td>
</tr>
<tr>
<td>Phase accuracy</td>
<td>±1° or less</td>
<td>±0.5° or less</td>
<td>±1° or less</td>
<td>±1° or less</td>
</tr>
<tr>
<td>Frequency characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>45 to 66Hz DC</td>
<td>45 to 66Hz DC</td>
<td>45 to 66Hz DC</td>
<td>45 to 66Hz DC</td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Options (sold separately)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Type 2 Current Sensor Options

<table>
<thead>
<tr>
<th>Type 2 Current Sensor Options</th>
<th>Sensor Unit 9555-10</th>
<th>Connection Cord L9217</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compatible current sensors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output terminals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Type 2 Current Sensor Connection Diagram

- **Sensor Unit 9555-10, Connection Cable L9217**:
  - 45 to 66Hz, DC: Compatible sensor
  - Includes derating characteristics
  - No phase precision regulations

### Accessories Instruction Manual
- AC Adapter 9418-15 (100 to 240 V AC)
# Instrument

**Power Meter PW3336**  
(2-channel)  
PW3336-01 (2-channel, with GP-IB terminal)  
PW3336-02 (2-channel, with D/A output terminal)  
PW3336-03 (2-channel, with GP-IB terminal and D/A output terminal)

**Power Meter PW3337**  
(3-channel)  
PW3337-01 (3-channel, with GP-IB terminal)  
PW3337-02 (3-channel, with D/A output terminal)  
PW3337-03 (3-channel, with GP-IB terminal and D/A output terminal)

Accessories: Instruction manual × 1, Measurement guide × 1, Power cord × 1

## Current measurement options: Type 1  
(For more information, see page 11.)

- **CLAMP ON SENSOR 9660**  
  100A AC  
  ø15mm (0.59")
- **CLAMP ON SENSOR 9661**  
  500A AC  
  ø26mm (1.02")
- **CLAMP ON SENSOR 9665**  
  1000A AC  
  ø55mm (2.17")

- **FLEXIBLE CLAMP ON SENSOR CT9667**  
  500A AC/500A AC (selectable)  
  ø25mm (1")
  Power supply: LR06 alkaline battery or AC ADAPTER 9445-02/03 (sold separately)

## Current measurement options: Type 2  
(For more information, see page 11.)

- **CLAMP ON SENSOR 9272-10**  
  20A/200A AC  
  ø15mm (0.59")
  POWER SUPPLY: 9555-10
- **UNIVERSAL CLAMP ON CT CT6862**  
  50A AC/DC  
  ø24mm (0.94")
  POWER SUPPLY: 9555-10
- **UNIVERSAL CLAMP ON CT CT6863**  
  200A AC/DC  
  ø26mm (1.02")
  POWER SUPPLY: 9555-10
- **UNIVERSAL CLAMP ON CT CT6865**  
  1000A AC/DC  
  ø36mm (1.42")
  POWER SUPPLY: 9555-10

- **SENSOR UNIT 9555-10**  
  POWER SUPPLY: 100V to 240V AC (50/60Hz)

## Communications and control options

- **RS-232C CABLE 9637**  
  Cable length: 1.8m (5.91ft)  
  9pin to 9pin
- **RS-232C CABLE 9638**  
  Cable length: 2m (6.56ft)  
  9pin to 25pin
- **GP-IB CONNECTOR CABLE 9151-02**  
  Cable length: 1.5m (4.92ft)  
  Conversion cable: isolated BNC to isolated BNC
- **LAN CABLE 9642**  
  Cable length: 5m (16.4ft)  
  Supplied with straight to cross conversion cable

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All information correct as of Jun.26, 2013. All specifications are subject to change without notice.