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%**
   Highest basic accuracy and DC accuracy of any instrument in its class
   Thanks to Hioki’s accumulated technology and track record, the PW3336/PW3337 delivers the highest basic accuracy and DC accuracy of any instrument in its class. Reliable measurement accuracy ensures robust performance in customers’ measurement applications.

2mA  5000A
65A  Direct input
Sensor input

Configure multiple ranges with a single instrument

* 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

2ch
PW3336 series (2-channel models)
Measurement lines: 1P2W/1P3W/3P3W

3ch
PW3337 series (3-channel models)
Measurement lines: 1P2W/1P3W/3P3W/3P4W

**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.

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

5

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.

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

6

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.

**Integrating fluctuating power values**

7

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.

**Simultaneous processing of all data**

- Voltage RMS value
- Voltage mean value
- Voltage fundamental wave component
- Total harmonic distortion (THD)

**Rated operation**

No-load operation

Integrated measurement using the same range
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.

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

**Standard functionality by model**

<table>
<thead>
<tr>
<th>Model</th>
<th>No. of channels</th>
<th>Harmonic measurement</th>
<th>Current sensor input</th>
<th>Synchronized control</th>
<th>LAN</th>
<th>RS-232C</th>
<th>GP-IB</th>
<th>D/A output</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW3336</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PW3336-01</td>
<td>2</td>
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<td></td>
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</tr>
<tr>
<td>PW3336-02</td>
<td>2</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PW3336-03</td>
<td>2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PW3337</td>
<td>3</td>
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<td></td>
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</tr>
<tr>
<td>PW3337-01</td>
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<td></td>
</tr>
<tr>
<td>PW3337-02</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW3337-03</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**IEC 61000-4-7 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.

**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.

**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.

**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.

**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 or pass-through AC/DC current sensors and models specifically designed for 50/60 Hz measurement.
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.

![Diagram of 3-phase power supply and equipment](image1)

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

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.

![Diagram of solar power panel, power conditioner, and power supply](image2)

* 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)

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.

![Diagram of 3-phase power supply, 3-phase/3-phase inverter, and load](image3)
**Applications**

### 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

**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.
**Software**

### PW3336/PW3337 Communicator

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.

### LabVIEW Driver

Use LabVIEW* to collect data and integrate the power meter into existing systems.

*LabVIEW is a trademark of National Instruments Corporation.

### Dimensional drawings

![Dimensional drawing](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</td>
<td>CH2</td>
</tr>
<tr>
<td>1P2W</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>
</tr>
<tr>
<td>3P3W2M</td>
<td>3P3W2M</td>
<td>3P3W2M</td>
</tr>
<tr>
<td>PW3337 series</td>
<td>CH1</td>
<td>CH2</td>
</tr>
<tr>
<td>1P2W+1P2W</td>
<td>1P2W</td>
<td>1P2W</td>
</tr>
<tr>
<td>1P3W+1P3W</td>
<td>1P3W</td>
<td>1P3W</td>
</tr>
<tr>
<td>3P3W+1P3W</td>
<td>3P3W</td>
<td>1P2W</td>
</tr>
<tr>
<td>3P3W2M</td>
<td>3P3W2M</td>
<td>3P3W2M</td>
</tr>
</tbody>
</table>

**Input methods**

- **Voltage**: Isolated input, resistance voltage division method
- **Current**: Isolated input, DCCT method isolated output from current sensor

**Voltage measurement ranges**

- AUTO: 15.000 V, 20.000 V, 30.000 V, 50.000 V, 70.000 V, 100.000 V, 200.000 V, 300.000 V, 600.000 V, 800.000 V, 1000.000 V

**Current measurement ranges**

- AUTO: 200.00 mA, 500.00 mA, 1000.00 mA, 2000.00 mA, 5000.00 mA, 10 000.00 A, 20 000.00 A, 50 000.00 A

**Power ranges**

- PW3336: From 3.0000 W to 100.000 kW
- PW3337: From 3.0000 W to 150.000 kW

**Input resistance**

- DC: 2.0 MΩ or more
- AC: 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

**Frequency bands**

- DC: 0 Hz to 100 kHz

**Synchronization sources**

- U1, U2, U3, I1, I2, I3, DC (fixed at 200 ms)

**Measurement items**

- Voltage
- Current
- Active power
- Apparent power
- Reactive power
- Power factor
- Phase angle
- Frequency
- Efficiency
- Current
- Power factor
- Integrated time
- Voltage waveform peak value
- Current waveform peak value
- Voltage crest factor
- Current crest factor
- Voltage ripple factor
- Current ripple factor
- Harmonic parameters
- Harmonic voltage RMS value
- Harmonic current RMS value
- Harmonic active power
- Total harmonic voltage distortion
- Total harmonic current distortion
- Voltage fundamental waveform
- Current fundamental waveform
- Apparent power fundamental waveform
- Reactive power fundamental waveform
- Power factor fundamental waveform
- Interchannel voltage fundamental wave phase difference
- Interchannel current fundamental wave phase difference

**Rectifiers**

- AC+DC: AC+DC measurement
- AC+DC Umn: AC+DC measurement
- Display of average value rectified RMS converted values for voltage and true RMS values for current
- AC+DC: DC measurement
- Display of simple averages for both voltage and current
- Display of values calculated by voltage DC value × (current DC value)
- AC: AC measurement
- Display of values calculated by both voltage and current
- Display of values calculated by voltage DC value × (current DC value)
- AC: AC measurement
- For active power
- For reactive power
- For power factor
- For harmonics
- Extraction and display of the fundamental waveform component from harmonic measurement

**Zero-Crossing Filter**

- 500 Hz/200 kHz: 0.1 Hz to 200 kHz, 0.1 Hz to 200 kHz

**Maximum effective peak voltage**

- ±600% of each voltage range

**Maximum effective peak current**

- ±600% of each current range

**For active power**

- ±600% of each current range
- ±100 Apeak

**For reactive power**

- ±600% of each current range
- ±100 Apeak

**For power factor**

- ±600% of each current range
- ±100 Apeak

**For harmonics**

- ±600% of each current range
- ±100 Apeak

---

**Unit: mm**
Voltage/Current/Active power/Phase angle/Angle measurement formulas:

\[ S_{\text{sum}} = (S(1) + S(2) + S(3)) \]
\[ P_{\text{sum}} = (P(1) + P(2) + P(3)) \]
\[ Q_{\text{sum}} = (Q(1) + Q(2)) \]

Voltage/Current/Active power/Phase angle/Phase measurement formulas:

\[ \sum = \text{sisum} |180 - \cos^{-1}| \sum || \]

Frequency Measurement Specifications:

- **Number of measurement channels**: 7
- **Measurement source**: Select from U (Hz) or I (Hz) by channel
- **Measurement method**: Calculated from input waveform period (reciprocal method)
- **Measurement range**: 500 Hz to 200 kHz (linked to zero-cross filter)
- **Measurement accuracy**: ±0.1% rdg ± 1 digit (0°C to 40°C)
- **Effective measuring range**: ±1 Hz to ±100 Hz range

- **Display format**: 9 kHz to 9,999 kHz, 9.9 kHz to 99.99 kHz, 99.0 kHz to 999 kHz

Apparent Power/Reactive Power/Power Factor/Phase Angle Measurement Specifications:

- **Measurement types**: Recorders
- **Apparent Power/Reactive Power/Power Factor**: AC-DC, AC, AN, AC-DC Unit
- **Phase Angle**: AC, AN, DC

Effective measuring range: As per voltage, current, and active power effective measurement ranges.

Display range: Apparent Power/Reactive Power

- **Polarity**: Reactive Power/Power Factor/Phase Angle

- **Voltage**: ±0.0000 to ±1.0000
- **Phase Angle**: ±180.00 to ±190.00

Power channel and sum value calculation formulas:

\[ S = S(1) + S(2) + S(3) \]
\[ P = P(1) + P(2) + P(3) \]

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

- **Measurement method**: Measures the waveform's peak value (for both positive and negative polarity) based on sampled instantaneous voltage values.
- **Sampling frequency**: Approx. 700 kHz

Range conversion:

- **Power peak voltage**: 10V, 30V, 60V, 150V, 300V, 600V, 1000V
- **Current peak voltage**: 90.000V, 180.00V, 360.00V, 900.00V, 1.8000kV, 3.6000kV, 7.2000kV

Synchronization signal can be input (slave).

Voltage Crest Factor/Current Crest Factor Measurement Specifications:

- **Measurement method**: Calculates values from display values once each display update interval for voltage and voltage waveform peak values or current and current waveform peak values.
- **Effective measurement range**: As per voltage and voltage waveform peak value or current and current waveform peak value effective measurement ranges.
- **Display range**: 0.0000 to 612.00 (no polarity)

Synchronized Control:

- **Functions**: Timing of calculations, display updates, data updates, integration (start/stop/reset events), display hold operation, key lock operation, and zero-adjust operation for the slave PW3336/PW3337 are synchronized with the master PW3336/PW3337.
- **Terminal**: IEC terminal x 1 (non-isolated)
- **Terminal name**: EXT SYNC
- **I/O settings**: Off: Synchronized control function off
  - On: The EXT SYNC terminal is set to input, and a dedicated synchronization signal can be input (slave).
  - Out: The EXT SYNC terminal is set to output, and a dedicated synchronization signal can be output (master).

Number of units for which synchronized control can be performed:

- 1 master unit and 7 slave units (total 8 units)
Voltage Ripple Rate / Current Ripple Factor Measurement Specifications

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

Effective
As positive and negative voltage/ripple factor or current/ripple factor effective measurement ranges.

Display range
0.00\% to 200.00\% (HOLD)

Efficiency Measurement Specifications

Measurement method
Calculates the efficiency η [%] 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 PW3336 series

<table>
<thead>
<tr>
<th>Wiring (WIRING)</th>
<th>CH1</th>
<th>CH2</th>
<th>CH3</th>
<th>Calculation formulas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1P2W × 2</td>
<td>1P2W</td>
<td>1P2W</td>
<td>η = 100 × [P2] / [P1]</td>
<td></td>
</tr>
<tr>
<td>1P2W</td>
<td>1P2W</td>
<td>η = 100 × [P2] / [P1]</td>
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</tr>
<tr>
<td>3P3W</td>
<td>3P3W</td>
<td>3P3W</td>
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<tr>
<td>3P3W</td>
<td>3P3W</td>
<td>3P3W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1P3W &amp; 3P3W</td>
<td>1P3W</td>
<td>3P3W</td>
<td>η = 100 × [P1] / [P3]</td>
<td></td>
</tr>
<tr>
<td>1P3W &amp; 3P3W</td>
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<td>3P3W</td>
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<tr>
<td>3P3W</td>
<td>3P3W</td>
<td>3P3W</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Display update interval
200ms 400ms 1s 2s 5s 10s 20s

Display resolution
Other than integrated values: 99999 count
Integrated values: 999999 count

Synchronization source
Conforms to synchronization source (STNC) for the basic measurement specifications

Synchronization frequency
10 Hz to 640 Hz

Display update rate
200 ms ± 50 ms (approx. 5 updates per sec.) to 20 s (varies with number of averaging iterations)

Harmonic Measurement Specifications (built-in function)

Measurement method
Zero-cross simultaneous calculation method (separate windows by channel according to the wiring mode)
Uniform thining between zero-cross events after processing with a digital anti-aliasing filter

Interpolation calculations (Lagrange interpolation)
When the synchronization frequency falls within the 45 Hz to 66 Hz range
IEC 61000-4-7:2002 compliant

When the synchronization frequency falls outside the 45 Hz to 66 Hz range
No gaps or overlaps will occur

Frequency
500 Hz < f < 640 Hz
50 Hz ≤ f ≤ 500 Hz
66 Hz ≤ f ≤ 100 Hz
500 Hz < f ≤ 660 Hz

Data update rate
Depends on window width

Analysis order
10 Hz to 640 Hz

Analysis order
Synchronization frequency (f) range
Analysis order
10 Hz ≤ f < 45 Hz
50 Hz
45 Hz ≤ f ≤ 50 Hz
50 Hz
50 Hz ≤ f ≤ 66 Hz
50 Hz
66 Hz ≤ f ≤ 100 Hz
50 Hz
100 Hz ≤ f ≤ 300 Hz
50 Hz
200 Hz ≤ f ≤ 300 Hz
50 Hz
300 Hz ≤ f ≤ 500 Hz
50 Hz
500 Hz ≤ f ≤ 640 Hz
50 Hz
640 Hz ≤ f ≤ 1000 Hz
50 Hz
1000 Hz ≤ f ≤ 2000 Hz
50 Hz
2000 Hz ≤ f ≤ 4000 Hz
50 Hz
4000 Hz ≤ f ≤ 4500 Hz
50 Hz
4500 Hz ≤ f ≤ 5000 Hz
50 Hz
5000 Hz ≤ f ≤ 6000 Hz
50 Hz
6000 Hz ≤ f ≤ 6400 Hz
50 Hz
6400 Hz ≤ f ≤ 10000 Hz
50 Hz
Analysis order
Upper limit set to None

Measurement accuracy
±0.01% rdg. ±1 digit

Display Specifications

Display resolution
Other than integrated values: 99999 count
Integrated values: 999999 count

Display update rate
500 ms or 500 ms (approx. 5 updates per sec.) to 20 s (varies with number of averaging iterations set)

Display update rate
50 Hz, 50 Hz, 50 Hz
### Current measurement range
Auto | 10 A | 20 A | 50 A (range on panel)

### Power range configuration
Depends on the combination of voltage and current ranges: from 60.0002A to 15.0005A (also applies to VA, VAR).

### Measurement accuracy current, Active power

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Input &lt; 50Hz</th>
<th>&lt; 100Hz</th>
<th>100 Hz ≤ Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC</td>
<td>±0.2%rdg.</td>
<td>±0.6%rsd</td>
<td>±0.8%rsd</td>
</tr>
<tr>
<td>1Hz ≤ f &lt; 10Hz</td>
<td>±0.2%rdg.</td>
<td>±0.4%rsd</td>
<td>±0.4%rsd</td>
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<tr>
<td>1kHz ≤ f &lt; 4kHz</td>
<td>±0.4%rdg.</td>
<td>±0.4%rsd</td>
<td>±0.4%rsd</td>
</tr>
<tr>
<td>4kHz ≤ f &lt; 6kHz</td>
<td>±0.2%rdg.</td>
<td>±0.1%rsd</td>
<td>±0.3%rsd</td>
</tr>
<tr>
<td>6kHz ≤ f &lt; 50kHz</td>
<td>±0.2%rdg.</td>
<td>±0.4%rsd</td>
<td>±0.4%rsd</td>
</tr>
<tr>
<td>50kHz ≤ f &lt; 1kHz</td>
<td>±0.2%rdg.</td>
<td>±0.3%rsd</td>
<td>±0.5%rsd</td>
</tr>
<tr>
<td>1kHz ≤ f &lt; 10kHz</td>
<td>±0.5%rsd.</td>
<td>±0.1%rsd</td>
<td>±0.5%rsd</td>
</tr>
<tr>
<td>10kHz ≤ f &lt; 50kHz</td>
<td>±0.5%rsd.</td>
<td>±0.1%rsd</td>
<td>±0.5%rsd</td>
</tr>
<tr>
<td>50kHz ≤ f &lt; 100kHz</td>
<td>±0.6%rsd.</td>
<td>±0.1%rsd</td>
<td>±0.6%rsd</td>
</tr>
</tbody>
</table>

### DC Output Specifications (PW3336-02/03 and PW3337-02/03)

<table>
<thead>
<tr>
<th>Number of output channels</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>16-bit D/A converter (polyval = 16 bits)</td>
</tr>
</tbody>
</table>

### D/A Output Specifications

- **Voltage (V):** 0 to ±10 V (0 to 10 V for analog output) or 0 to ±10 V (0 to 10 V for analog output)
- **Current (A):** 0 to ±10 A (0 to 10 A for analog output)
- **Power (W):** 0 to ±10 W (0 to 10 W for analog output)
- **Frequency (Hz):** 0 to 10 kHz (0 to 10 kHz for analog output)

### External control (built-in feature)

- **Functions:** Integration start/stop, integration reset and hold via external control.
- **Communication Speed:** 9600bps/38400bps
- **Connector:** DB-9-pin connector × 1
- **Address:** 0 to 30

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

- **Method:** IEEE488.1/IEEE488.2 (IEEE-1787)
- **Transmission Method:** 10BASE-T/100BASE-TX (automatic detection)
- **Data bits:** 8 (fixed), **Parity:** None
- **Addressing:** 00 to 30
- **Addressing:** 00 to 30
- **Network:** TCP/IP
- **Interface:** IEEE-1787
- **Transmission Method:** I/OBASE-TX (automatic detection)
- **Function:** HTTP server (remote operation, firmware updates)
- **Remote control:** Remote control by controller (remote lamp touch will light up.)

### General Specifications (product guaranteed for one year)

- **Operating environment:** Indoor, altitude up to 2000 m (6562 ft), pollution degree 2
- **Operating temperature and humidity:** 0 to 40°C (32 to 104°F), 80% RH or less (non-condensable)
- **Dielectric strength:** 2900 Vrms AC (sensed current: 1 mA)
- **Input voltage:** 10.000 VA (IP2X, type B, category II) (IP2X, type B, category II)
- **Maximum power:** ±100 W (IP2X, type B, category II) (IP2X, type B, category II)
- **Input current:** ±100 A (IP2X, type B, category II) (IP2X, type B, category II)
- **Maximum voltage:** ±100 V (IP2X, type B, category II) (IP2X, type B, category II)
- **Dimensions:** 303x152x110 mm (11 3/4 x 6 x 4 3/8 in)
- **Weight:** 11.3 kg (25 lbs)
- **Max. power:** 20 VA or less
- **Applicable Standards:** IEC 61000-4-3, AMWA-32 Class A, EN61000-3-2, EN61000-3-3, EN61000-3-2, EN61000-3-3
- **Rated supply voltage:** 100 VAC to 240 VAC, Rated power supply frequency: 50/60 Hz
- **Dimensions:** 303x152x110 mm (11 3/4 x 6 x 4 3/8 in)
- **Weight:** 3 kg (6.6 lbs)
- **Max. power:** 20 VA or less
- **Applicable Standards:** IEC 61000-4-3, AMWA-32 Class A, EN61000-3-2, EN61000-3-3, EN61000-3-3
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- **Rated supply voltage:** 100 VAC to 240 VAC, Rated power supply frequency: 50/60 Hz

### LAN interface (built-in feature)

- **Connector:** RJ-45 connector × 1
- **Addressing:** 00 to 30
- **Network:** TCP/IP
- **Interface:** IEEE-1787
- **Transmission Method:** 10BASE-T/100BASE-TX (automatic detection)
- **Function:** HTTP server (remote operation, firmware updates)
- **Remote control:** Remote control by controller (remote lamp touch will light up.)
# Current Measurement Options [Type 1] Specifications

- **Current Measurement Options [Type 2]** Specifications

  **Operating Temperature**: -40°C to 85°C (-40°F to 185°F)

  **Dimensions**:
  - **Mass**: 350 g (12.3 oz)
  - **Mass**: 370 g (13.1 oz)
  - **Mass**: 400 g (14.1 oz)
  - **Mass**: 860 g (30.3 oz)
  - **Mass**: 990 g (34.9 oz)

  **Rated primary current**: 20 A AC/DC

  **Frequency characteristics**: ±1.0% or less (At 40Hz to 5kHz)

  **Effect of conductor position**: Within ±0.5% (deviation from center)

  **Effect of external electromagnetic field**: ±0.05 % rdg. ±0.01 % f.s. (amplitude)

  **View**: The figure shows the current measurement options.

  **Connection Cord**: L9217

  **Power Supply**: AC Adapter 9445-02/9445-03 (sold separately)

- **Current Measurement Options [Type 2]** Specifications

  **Rated primary current**: 20 A AC/DC

  **Frequency band**: DC to 1 MHz

  **Dimensions**: 150 W (5.90”) × 210 (8.3 l) mm

  **Mass**: 460 g (16.2 oz)

  **Dimensions**: 150 W (5.90”) × 210 (8.3 l) mm

  **Mass**: 460 g (16.2 oz)

- **Type 2 Current Sensor Options**

  - **SENSOR UNIT CT9555 - CT9557**
  - **SENSOR UNIT CT9667 - CT9857**
  - **SENSOR UNIT CT9665 - CT9725**

## Type 2 Current Sensor Connection Diagram

- **Connection Cord**: L9217

- **Current Sensor**: CT9555 or CT9557

- **Power Supply**: AC Adapter 9445-02/9445-03 (sold separately)
Options

Current measurement options [Type 1] Can be directly connected to the current sensor input terminals on the PW3336/ PW3337 series

Requires SENSOR UNIT CT9555 or CT9557, and CONNECTION CORD L9217 to be connected to the current sensor input terminals on the PW3336/ PW3337 series

Current measurement options [Type 2] 200 A or lower

200 A or lower

Type 2 Current sensor options

Communications and control options

RS-232C CABLE 9637
Cable length: 1.8 m (5.91 ft)
9pin to 9pin

RS-232C CABLE 9638
Cable length: 1.8 m (5.91 ft)
9pin to 25pin

GP-IB CONNECTOR CABLE 9191-02
Cable length: 2 m (6.5 ft)

LAN CABLE 9642
Cable length: 5 m (16.4 ft)
Used to connect to the cross conversion cable

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