



# HIOKI

## POWER HiTESTER 3333

Power Measuring Instruments



### Your Solution to Meeting Energy Saving Requirements



- **High Accuracy ( $\pm 0.1\%$  rdg.  $\pm 0.1\%$  f.s. for 1 year)**  
Exceeds the 0.5% accuracy benchmark stipulated by international standards.
- **Extended Period of Guaranteed Accuracy of 3 Years**  
Calibration expenses are reduced by a calibration interval six times that of our former models.
- **Maximum Cost Performance**  
All the necessary functions and accuracy requirements are provided in an easy-to-use, no-frills device.



ISO 9001  
JMI-0216



ISO 14001  
JQA-E-90091



<http://www.hioki.co.jp/>

Hioki company overview, new products, environmental considerations and other information are available on our website.

# Fully Answering the Needs for a High Accuracy, Long-lasting, and User-

## Accuracy That Can Only Be Realized with a Digital Display

### ■ Multifunctional - 3 Meters In One

Selectable simultaneous display of voltage, current, power (active or apparent) or power factor

Display a: voltage, current or active power

Display b: current, active power or apparent power

Display c: active power, power factor, voltage or current

Operation: Press the a, b or c key to switch between parameters

### ■ Easy-to-see display

Bright emissive numeric and unit symbol display

### ■ Quick and Simple Settings

Press the SET key to display settings

Display a: AVG setting (number of samples to average)

convenient for displaying severely fluctuating values

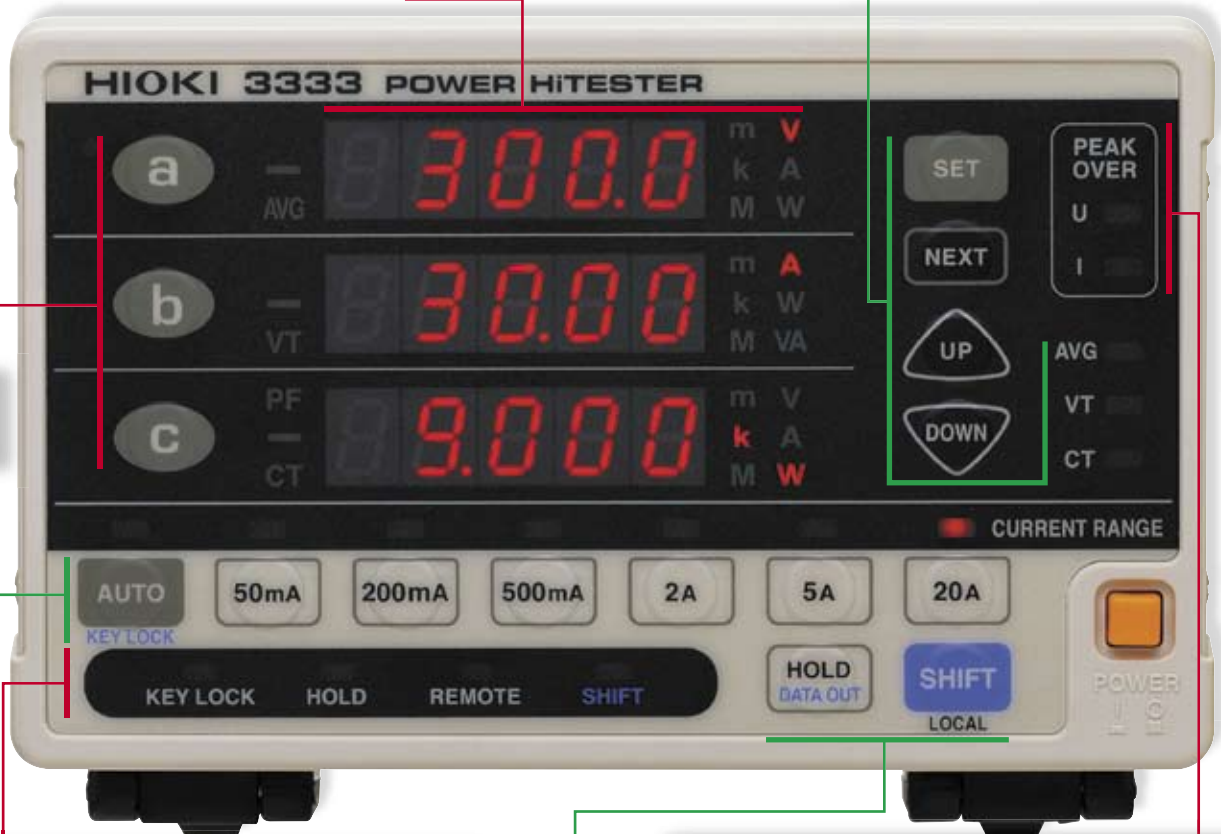
Display b: VT (voltage transformer) ratio setting

Display c: CT (current transformer) ratio setting

To expand the measurement input level, VT and CT ratios can be set for transformer measurements. Primary winding input values can be read directly.

Operation: Press NEXT or the a, b or c key to select a setting item  
Press the UP/DOWN keys to set a numerical value

Actual Size



### ■ Clearly visible instrument status

Display hold, remote control and key-lock states are indicated separately.

### ■ Check for Errors at a Glance

Warning lights indicate out-of-range input to Model 3333 when measuring voltage and current of distorted waveforms, such as in power switching circuits.

### ■ Easy range setting

Select current range simply by pressing the button (accepts up to 30 AAC, including auto-ranging)

No voltage range setting required (accepts up to 300 VAC)

### ■ Convenient functions

#### 1. Key Lock (SHIFT + KEY LOCK keys)

Useful for avoiding inadvertent operations on production lines.

#### 2. Data Print (SHIFT + DATA OUT keys)

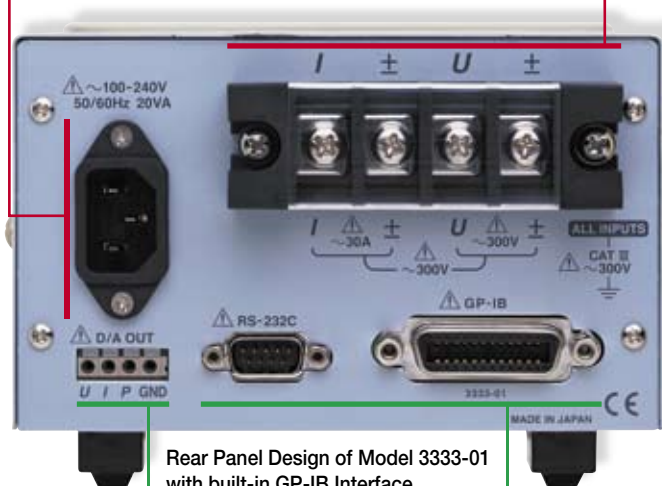
Obtain hard copies of measurement data using the optional Printer Model 9442.

# Friendly Power Measuring Device for the Production and Inspection Lines

Model 3333	What are the advantages?
Measurement accuracy: $\pm 0.5\%$ rdg. or better	Model 3333 fully exceeds the accuracy level of traditional analog meters that has an accuracy of only $\pm 0.5\%$ f.s.
Period of guaranteed accuracy (Recommended calibration interval): 3 years	$\pm 0.5\%$ f.s is assured for a full three years, reducing calibration costs and production time losses
Easy Operation	Gone is the need to check for zero-position before measurement as you would on traditional analog meters
Digital Display	Quickly grasp the measurement data at a glance
Data management on a PC	Facilitate reporting and data recording needs using your computer
Cost-Performance	Take care of a multitude of measurement needs with a single low-cost instrument

## Automatic supply voltage setting

**Auto-selecting 100 to 240VAC**  
Compatible with standard AC mains voltages worldwide.



## Three-channel analog output

Voltage, current and active power measurements are simultaneously output as +2 VDC f.s. levels (refreshed about five times per second).

## Connect to Printer Model 9442

Use the optional **Printer Model 9442** to print without concern for troublesome settings.



## Secure terminal block connections

**Screw-in terminal block affixes wires securely**  
Because bad wiring connections can present a fire hazard, the screw-type terminal block has been incorporated to ensure secure wiring.

\*Be sure to use a No. 3 Phillips screwdriver (available as an optional accessory) to loosen and secure the screws.

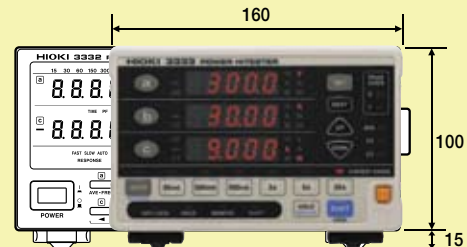
Actual Size



## Space-saving footprint

**Smaller installation space.**  
The installed footprint of the **POWER HiTESTER 3333** is about 34% smaller than that of former models. This size reduction makes the instrument especially easy to install.

\*Rack mounts for various installations also available on special order. Please inquire for details.



## PC measurement and data management

- RS-232C interface built-in
- Select Model 3333-01 for additional built-in GP-IB interface

## Specifications

Measurable lines	Single-phase, 2-wire
Measurement method	Simultaneous digital sampling of voltage and current True RMS
Input impedance	2.4 MΩ for voltage, 7 mΩ or better (50/60 Hz) for current
Maximum input voltage	300 Vrms, 425 Vpeak
Maximum input current	30 Arms, 42.5 Apeak
Maximum in-phase voltage	300 V (50/60 Hz)
Measurement parameters	voltage, current, active power, apparent power, power factor

### Measurement ranges

Parentheses ( ) indicate when input 150% of range.

Current Voltage	50.00 mA (75.00 mA)	200.0 mA (300.0 mA)	500.0 mA (750.0 mA)	2.000 A (3.000 A)	5.000 A (7.500 A)	20.00 A (30.00 A)
	200.0 V (300.0 V)	10.000 W (15.000 W)	40.00 W (60.00 W)	100.00 W (150.00 kW)	400.0 W (600.0 W)	1.0000 kW (1.5000 kW)

Effective measurement range	10% to 150% of voltage, current and active power range (zero is suppressed for less than 1%)
Displacement power factor	0.000 to 1.000 (no polarity display)
Display refresh rate	approx. 5 times per second
Period of guaranteed accuracy	3 years (however, accuracy specifications provided for 1- and 3-year periods)

### Measurement accuracy

(Conditions: 23 ± 5 °C, 80% RH or less, after 10 minutes warmup, sine wave input, PF = 1, in-phase voltage = 0 V)

One-year accuracy: Parentheses ( ) indicate accuracy when input exceeds 100% of range.

Frequency	Voltage, current and active power [input current 20 A or less]	Current and active power [input current over 20 A]
45 Hz ≤ f ≤ 66 Hz	±0.1% rdg. ±0.1% f.s. (±0.2% rdg.)	±0.1% rdg. ±0.1% f.s. (±0.2% rdg.)
66 Hz < f ≤ 1 kHz	±0.1% rdg. ±0.2% f.s. (±0.3% rdg.)	—
1 kHz < f ≤ 5 kHz	±3.0% f.s. (±3.0% rdg.)	—

Three-year accuracy: Parentheses ( ) indicate accuracy when input exceeds 100% of range.

Frequency	Voltage, current and active power [input current 20 A or less]	Current and active power [input current over 20 A]
45 Hz ≤ f ≤ 66 Hz	±0.1% rdg. ±0.2% f.s. (±0.3% rdg.)	±0.1% rdg. ±0.2% f.s. (±0.3% rdg.)
66 Hz < f ≤ 1 kHz	±0.1% rdg. ±0.35% f.s. (±0.45% rdg.)	—
1 kHz < f ≤ 5 kHz	±4.5% f.s. (±4.5% rdg.)	—

Measurement voltage	100 V	120 V	200 V	230 V
One-year accuracy	±0.30 rdg.	±0.27 rdg.	±0.20 rdg.	±0.20 rdg.
Three-year accuracy	±0.50 rdg.	±0.43 rdg.	±0.30 rdg.	±0.30 rdg.

### Calculation accuracy

Apparent power	±1 dgt. for values calculated from voltage and current values
Power factor	±1 dgt. for values calculated from active and apparent power values

● Functions	
<b>D/A output</b>	
Parameter output representation	voltage, current and active power (3 simultaneous channels)
Voltage output	+2 VDC f.s. for each range (up to 152% of maximum range [+3.04 VDC]) *For active power, +2 VDC f.s. for ±100% of range (absolute value output)
Output accuracy	±0.5% f.s. + individual measurement accuracy (@23 ± 5 °C)
Temperature coefficient	±0.03% f.s./°C or better
Output refresh rate	same as display refresh rate (approx. 5 times per second)
Response time	within 0.5 s (time to rated accuracy after abrupt change in input [0 to 90% or 100 to 10% of range])
Output impedance	approx. 100 Ω
<b>Overrange indicator:</b> "o.r." displayed	
Voltage and current	when input exceeds 152% of range
Power	when "o.r." is displayed for either voltage or current
<b>Excessive input warning indicators:</b> "PEAK OVER U" or "PEAK OVER I" displayed	
Voltage	when peak value exceeds 425 V
Current	when peak value exceeds 42.5 A or 300% of range
<b>Average function indicator:</b> "AVG" displayed	
Simple averaging of specified number of samples: 1, 2, 5, 10, 25, 50 or 100	
<b>VT or CT ratio setting:</b> "VT" or "CT" displayed	
VT ratios	1, 2, 4, 10, 20, 30, 60 or 100
CT ratios	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 16, 20, 24, 25, 30, 40, 50, 60, 75, 80 or 100
<b>Miscellaneous</b>	
Display Hold (HOLD), Key Lock (KEYLOCK), Settings backup (preserves settings)	

### ● External Interfaces

<b>RS-232C interface:</b> included as standard	
Asynchronous communication method: full-duplex; Baud rate: 9600 bps (fixed)	
<b>GP-IB interface:</b> Model 3333-01 only	
IEEE-488.1 1987 compliant, IEEE-488.2 1987 reference	

### ● General Specifications

<b>Safety</b>	EN61010-1:2001 Pollution Factor 2, Measurement Category III (4000 V anticipated overvoltage)
<b>EMC</b>	EN61326:1997+A1:1998+A2:2001+A3:2003 Class A, EN61000-3-2:2000, EN61000-3-3:1995+A1:2001
<b>Operating environment</b>	0 to 40 °C, 80% RH or less, non-condensating
<b>Storage environment</b>	-10 to 50 °C, 80% RH or less, non-condensating
<b>Rated supply voltage</b>	100 to 240 VAC, 50/60 Hz
<b>Maximum rated power</b>	20 VA
<b>Size and weigh</b>	160W × 100H × 227D mm (excluding feet and projections), 1.9 kg

## POWER HiTESTER 3333

## POWER HiTESTER (with GP-IB) 3333-01

(Accessories: Instruction Manual (1), Power cord (1))

### Options

#### PRINTER 9442

CONNECTION CABLE (for printer 9442) **9444**

RECORDING PAPER **1196**

AC ADAPTER (for printer 9442 operation in Europe, except Switzerland) **9443-02**

AC ADAPTER (for printer 9442, for USA) **9443-03**

RS-232C CABLE (9-pin to 9-pin, crossed cable/1.8m(0.07ft)) **9637**


RS-232C CABLE (9-pin to 25-pin, crossed cable/1.8m(0.07ft)) **9638**

GP-IB CONNECTOR CABLE (2m) **9151-02**


GP-IB CONNECTOR CABLE (4m) **9151-04**

No. 3 Phillips screwdriver


Print method : Thermal serial dot printing  
Paper width : 112 mm(4.41ft)  
Power supply : 9443-02/03 AC adapter, or supplied nickel-metal hydride battery  
Dimensions and weight : 160W(6.30")×66.5H(2.62")×17D(0.67") mm, 580g(20.5oz.)



PRINTER 9442



CONNECTION CABLE 9444



AC ADAPTER 9443-02

When purchasing the Printer 9442, make sure you also purchase the Connection cable 9444 and AC adapter 9443-02/03 so that you can connect it to the 3333/3333-01.



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