

CLAMP ON POWER METER

HIOKI

CLAMP ON POWER & P.F. HI TESTER

3163

Direct Read-Out of Power Factors



The unique features of Model 3163 make reading both power and power factor from current-carrying conductors a quick, simple operation.

- Power measurement capabilities include effective, reactive and apparent power.
- Integral battery source provides continuous operating time of up to 20 hours. An optional AC adapter is also available for operation from regular AC outlets.
- Power in 3-phase unbalanced circuits may also be measured.
- Superior frequency response and phase characteristics also permit the accurate measurement of distorted waveforms typically produced by circuits containing thyristor control devices.
- Power factors and apparent power readings are based on effective and reactive power measurements.
- Convenient carrying-case provided.

Power-Factor Display

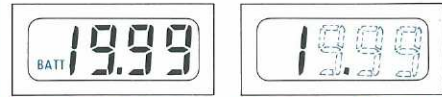
Three-phase power factor is indicated based on the effective or reactive power measurement. (Digits shown by dashes extinguished in actual display.)



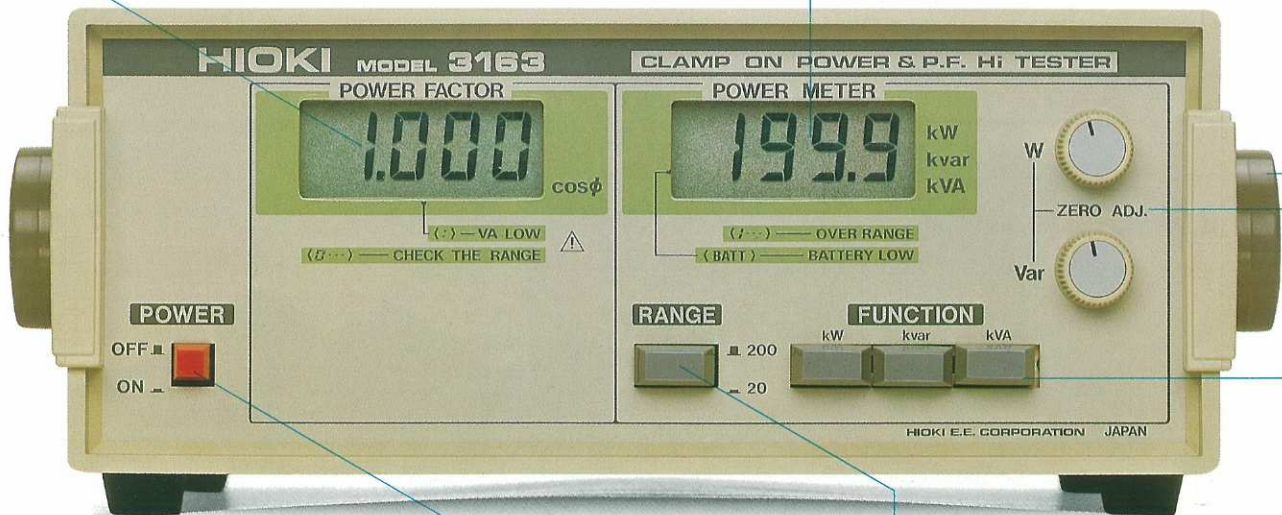
Leading power factor indication Overrange input indication Low VA value indication

Power Meter Display

Power values (kW, kvar, kVA) are indicated according to FUNCTION selection. (Digits shown by dashes extinguished in actual display.)



Low battery indication Overrange input indication



DC Analog Output

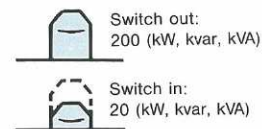
Values for power (W, var, VA) are simultaneously output to an externally connected instrument independent of the display or FUNCTION switch setting. The system may thus be expanded to meet your data acquisition requirements through optional HIOKI recorders, printers, and integrators. Output is 2VDC at full-scale, and cables with banana-plug or DIN connector terminations may be used.

Power Switch

The 3163 may be operated from its own battery source or from a commercial source via an AC adapter. The internal battery source provides up to 20 hours of continuous operation and offers the user portability for field service applications.

Range Selector

Ranging is by push-push switch, and a full-scale range value of 200 (199.9) or 20 (19.99) may be selected.



Battery Box

Uses four size C (SUM-2) batteries.

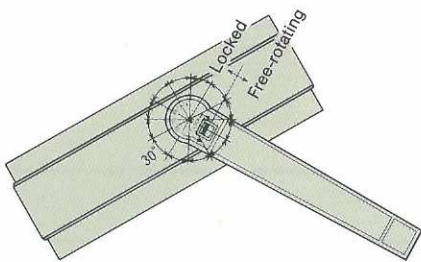
AC Adapter Jack (6V, 300mA)

Dual Power Source Flexibility

- Allows power usage planning to improve power factor.
- Ideal for power monitoring applications in an energy-savings, cost-reduction program.
- Lets you determine power factors and power usage in individual lines for efficiency planning.
- Measures power usage, load conditions, and power factor of equipment.
- Valuable for inspection and maintenance applications.

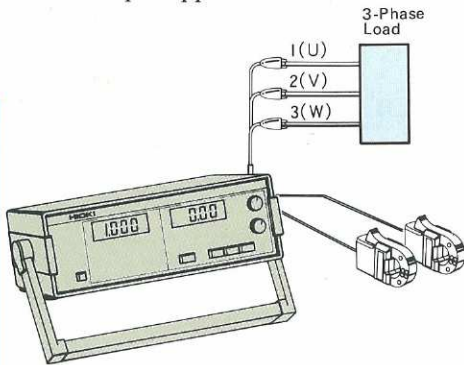
● Handle

The free-rotating (360°) bucket-bail handle can be locked in 12 different positions for the most convenient viewing angle.



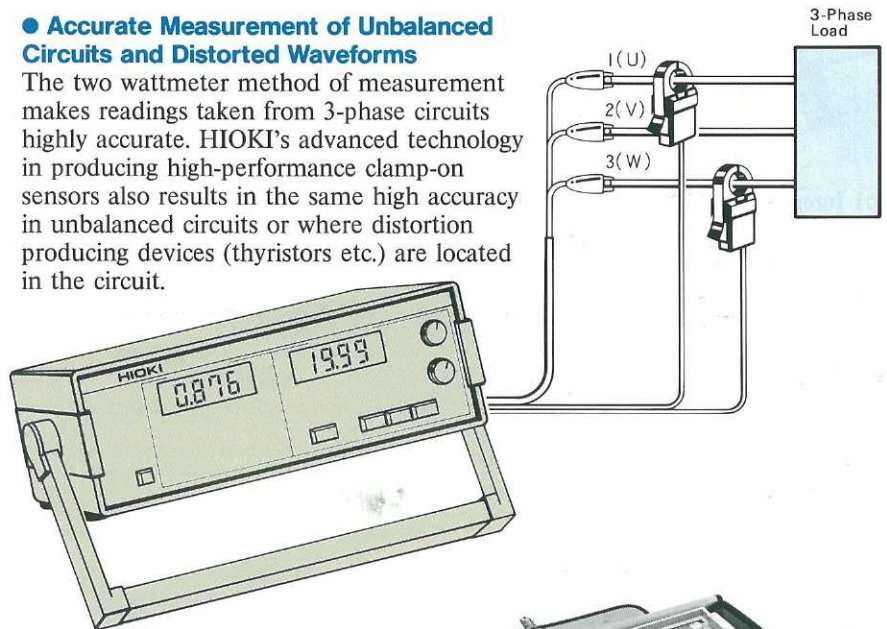
● Zero Adjust

Turn to adjust display to 0.00 reading with no input applied.



● Accurate Measurement of Unbalanced Circuits and Distorted Waveforms

The two wattmeter method of measurement makes readings taken from 3-phase circuits highly accurate. HIOKI's advanced technology in producing high-performance clamp-on sensors also results in the same high accuracy in unbalanced circuits or where distortion producing devices (thyristors etc.) are located in the circuit.



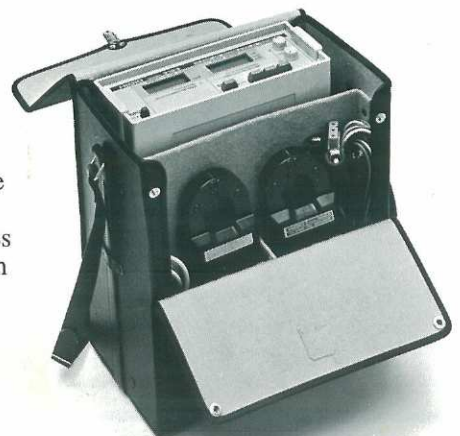
● Function Selector

The Function Selector places the 3163 in the following measurement modes:

- kW (Single or 3-phase effective power)
- kvar (3-phase reactive power)
- kVA (3-phase apparent power)

● Convenient Carrying-Case for Field Applications

The 3163 comes with a carrying-case fitted with a shoulder strap. The instrument and all related accessories fit right into it; protecting them from loss or damage.



■ Specifications

	Power Meter		Power-Factor Meter
Display	Digital Display (LCD: 1999)		Digital Display (LCD: 1.000)
Measurement Function	Single & 3-phase effective Power; 3-phase reactive power; 3-phase apparent power		3-phase power factor
Range	Effective Power	20/200kW	1.000***
	Reactive Power	20/200kvar	
	Apparent Power	20/200kVA*	
Accuracy (23 ±5% C)	Effective-Reactive Power	±1% of rdg ±0.5% f.s.**	±2° ±0.01
	Apparent Power	±1.4% of rdg ±0.5% f.s.**	
Power Factor Induced Error	Less than ±3% rdg at cos θ = 0.5		—
Output Terminal Voltage	2V DC at f.s. in both ranges		—
Frequency Response	Within ±3% at 40 ~ 500Hz**		
Error Induced by Sensor Positioning	Less than ±1% at any conductor position within sensor core		
Max. Circuit Voltage	500Vrms		
Rated Current	500Arms		
Jaw Diameter	30mm (max.)		
Temperature Induced Error	Less than ±3%, 0 ~ 40°C		
Battery Voltage Induced Error	Above specifications accurate until BATT appears in display (approx. 4V)		
Power Source	AC adapter (6V, 300mA); Four size C (SUM-2) batteries (battery life: approx. 20 hour)		
Dimensions Weight	3163	85H × 250W × 220D (mm); 2.5kg (approx.)	
	Clamp-on sensor	175H × 85W × 40D (mm); 600g (approx.) Lead length: 3m	
Accessories	Clamp-on sensor 9009, 2 ea.; 9092 Voltage test lead, 1 ea.; Instruction Manual, 1 ea.; Midzet fuse (0.3A) 1 ea.; Carrying-case, 1 ea.		

Note: *watt \geq 0

**Indicates accuracy at cos θ = 1 or sin θ = 1

***watt \geq 0 and VA \geq 1/10 f.s.

Standard Packing (double carton box)	Sets	N.W.(kg)	G. W.(kg)	cft
	3	16	18	3.3

■ Optional Accessories

8201 – 8202 MICRO HI CORDER



Direct-writing dot recorder
Writing Span: 50mm curvilinear
Chart Feed: 2 cm/hr. to 20 cm/min.
8201 Range: DC 10mV – 50V;
0.1mA – 10mA
8202 Range: AC/DC 0.1V – 500V;
1 – 100mA

Dimensions/Weight:
94H × 96W × 280L (mm)/1.7kg (approx.)

3163 Power & P.F. Meter
cos ϕ , kW, kVA and kvar measurements

Recorders: 1 CH: 8201, 8202,
kW, kVA and kvar chart recording

3141 Integrator
Integrates kW or kVA and displays as kWh or kVAh

3171 Printer
Print-out of integration data

3141 Integrator



Dimensions/Weight: 150H × 215W × 300D (mm)/3kg (approx.)

Accepts analog output from power meter and uses it to calculate integration data (kWh etc.). Results are reported by digital display. Integral timer also permits integration over intervals ranging from 1 to 99 minutes or 1 to 99 hours.

Display: 6-digit LED
Input Voltage: 2VDC
Accuracy: ±1% rdg. ±1 dgt.

3171 Digital Printer



Dimensions/Weight: 75H × 250W × 220D (mm)/2.6kg (approx.)

Accepts digital output from integrator and produces a data print-out at selectable intervals ranging from 1 to 99 minutes.

Print Type: 5 × 7 dot-matrix
Recording Paper: Thermal sensitive, 38mm wide
Print-Out Data: Elapsed time; Cumulative power integration; Integrated power occurring over selected interval plus that value averaged; Appropriate comments (units, operational modes etc.)

9131 Clamp on Adapter



Dimensions/Weight: 192H × 99W × 33D (mm)/450g (approx.)

The Model 9131 Clamp on adapter is designed to handle power lines up to 55mm in diameter, or busbars up to 80mm wide.

Measurement Range: AC 0 ~ 1500A
CT Ratio: 10:1
Accuracy: ±3% rdg. (100A to 1500A)
Frequency Range: 20 ~ 1000Hz
Maximum DUT Circuit Voltage: AC 600V
Maximum Jaw Opening: Clamps over 55mm conductor or 80mm wide busbar

HIOKI E.E. CORPORATION

DISTRIBUTED BY

HEAD OFFICE: P.O. Box 1, Sakaki, Nagano, 389-06 Japan.
Tlx: 3327508 HIOKI J / Cable: HEWLOV, Ueda
Tel. (0268) 82-3030 / Fax. (0268) 82-3215

HIOKI-RCC, INC.: 11B Princess Road Lawrenceville,
New Jersey 08648 U.S.A.
Telephone: (609) 895-0505