HIOKI

CLAMP ON HiTESTER SERIES

Field measuring instruments

A Full Line-up of Digital and Analog Clamp Meters to Suit Any Need

ISO 9001 JMI-0216

ISO14001 JQA-E-90091

www.hioki.com

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

From Basic Testing to High Performance Analysis

Selection Guide

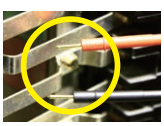
A Complete HIOKI Digital & Analog Clamp Tester

	3127-10 MEAN value	**3291-50** True RMS	**3280-10** MEAN value **3280-20** True RMS	**3281** True RMS **3282** True RMS	**3287** True RMS **3288** MEAN value **3288-20** True RMS
AC Current ranges	6/15/60/150/300A AC	60.00/600.0/1000 A AC	42.00/420.0/1000A AC	**3281**: 30.00/300.0/600A AC **3282**: 30.00 /300.0/1000A AC	**3287**: 10.00/100.0A AC/ **3288/-20**: 100.0/1000A AC
Other current ranges	None	None	None	Wave peak value at AC Current **3281**: 75.0 to 1000A peak 3 ranges **3282**: 75.0 to 1700A peak 3 ranges	DC current range **3287**: 10.00 or 100.0 A DC, 2 ranges **3288/-20**: 100.0 or 1000 A DC, 2 ranges
AC Voltage ranges	150/300/750V AC	None	4.200/42.00/420.0/600V AC	300.0/600V AC	**3287**: 4.200/42.00/420.0/600V AC **3288/-20**: 4.200/42.00/420.0/600V AC
Other voltage ranges	DC voltage range: 75 V DC 1 range	None	DC voltage range: 420.0m/4.200/42.00/420.0/600V DC	Wave peak value at AC voltage up to 750/1000V peak	DC voltage range: 420.0m/4.200/42.00/420.0/600 V DC
Other functions	Resistance:1k or 100kΩ range ~~Temperature*: -50 to 200°C~~ ~~* TEMPERATURE PROBE 9021-01 required, (sold separately)~~	None	Resistance: 420.0 to 42.00 MΩ, 6 ranges Accuracy: ±2.0 % rdg. ±4 dgt. (at 420 to 420 kΩ range) Continuity: 420.0Ω (Buzzer sounds less than approx. 50Ω ±40Ω)	Distortion check: 1 to 5 Crest factor Resistance:1k or 10kΩ range Frequency: 30.0 to 1000 Hz Mode: Slow/Peak/C.F./RMS Record mode/Auto-off/ Conduction	Resistance: 420.0Ω/4.200Ω/42.00kΩ/ 420.0kΩ/4.200MΩ/42.00MΩ Accuracy: ±2.0% rdg. ±4 dgt. (at 420 to 420kΩ range) Continuity: 420.0Ω (Buzzer sounds less than approx. 50Ω ±40Ω)
Analog output Printer output	None	None	None	None	None
Basic Accuracy (at 50 or 60Hz)	AC current: ±3% f.s. AC/DC voltage: ±3% f.s.	AC current: ±1.5 % rdg. ±5 dgt.	AC current: ±1.5 % rdg. ±5 dgt. AC voltage: ±2.3 % rdg. ±8 dgt. DC voltage: ±1.3 % rdg. ±4 dgt. Continuity: ±2.0 % rdg. ±6 dgt.	AC current: ±1% rdg. ±5 dgt. AC voltage: ±1% rdg. ±3 dgt. Peak: ±3% rdg. ±5 dgt. Frequency: ±0.3% rdg. ±1 dgt.	AC current: ±1.5 % rdg. ±5 dgt. AC voltage: ±2.3 % rdg. ±8 dgt. DC current: ±1.5 % rdg. ±5 dgt. DC voltage: ±1.3 % rdg. ±4 dgt. Continuity: ±2.0 % rdg. ±6 dgt.
Frequency characteristics AC current / voltage	50 or 60 Hz	45 to 400Hz	AC voltage: 50 to 500Hz AC current: 50 or 60Hz (**3280-10**) 40 to 1kHz (**3280-20**)	40 to 1000 Hz	AC current: **3287** DC, 10 to 1kHz AC current: **3288/-20** DC, 10 to 500Hz AC voltage: 30 to 500Hz
Display	Indicator type	Digital /LCD, maximum 6000 dgt. Bar graph / 91 seg.	Digital /LCD, maximum 4199 dgt.	Digital /3000 dgt. Bar graph /35 seg.	Digital /LCD, maximum 4199 dgt.
Sampling rate	None	Maximum 1.1 sec	2.5 times /sec or 1 time /3 sec	2 or 4 times /sec (Slow: 1 time /3 sec)	2.5 times /sec
Crest factor (RMS)	Not defined	2.8 or less (1.68 at 1000 A range)	**3280-10**: Not defined **3280-20**: 2.5 or less	**3281**:2.5 (1.7 at 600A range) **3282**:2.5 (1.7 at 1000A range)	**3287**: 2.5 (150A, 1000V maximum) **3288**: Not defined **3288-20**: 3 (1000A/2 max, voltage/1.5 max.)
Effect of external magnetic fields	Yes; level not defined	Yes; level not defined	Yes; level not defined	**3281**: 1.5A equivalent max. at 400 A/m **3282**: 0.2A equivalent max. at 400 A/m	Yes; level not defined
Max. rated voltage to earth	750V AC rms	600 V AC rms	600V AC rms	600V AC rms	600 V AC rms
Measurement categories (A)	None	CAT III 600V CAT IV 300V	CAT III 600V	CAT III 600V (3281) CAT IV 600V (3282)	CAT III 600V
Measurement categories (V)	None	None	CAT III 300V CAT II 600V	CAT IV 600V	CAT III 300V CAT II 600V
Core jaw dia	ϕ33 mm	ϕ30 mm	ϕ33 mm	**3281**: ϕ33 mm **3282**: ϕ46 mm	ϕ35 mm
Power supply	R6P (AA) × 1	CR2032 (3VDC) × 1	CR2032 (3 VDC) × 1	6F22 (006P) × 1	CR2032 (3VDC) × 1
Dimensions/mass	78W × 190H × 34D mm/340 g	50W × 136H × 26D mm/115 g	57W × 175H × 16D mm /100 g	**3281**: 62W × 216.5H × 39D mm/350 g **3282**: 62W × 231H × 39D mm/400 g	**3287**: 57W × 180H × 16D mm/170 g **3288/-20**: 57W × 180H × 16D mm/150 g

New insulated sleeves prevent short-circuits

No sleeves attached to the tip of test leads?
DANGER of short-circuit accident!!

Previous model



With sleeve attached to the tip of test leads,
short-circuit accidents can be prevented.

NEW!

Conforms to safety standard IEC61010-031 (revised) for hand-held probes

What are the new and additional requirements of the international safety standards?

1. "Exposed metal part must be 4mm or shorter" (Previously, 19mm max.) for CAT III and IV environments to prevent short-circuits from occurring.
2. Double-coating with different colors enables you to identify the wear condition of the test leads. (Previously, single-coated)

Line-up to Suit Your Needs

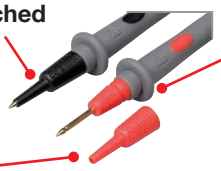
3284 True RMS **3285** True RMS **3285-20** True RMS	**3290** True RMS **3290-10** True RMS	**3293-50** True RMS	**3283** True RMS	**3286-20** True RMS
AC, AC+DC (True RMS or Peak value) 3284: 20.00/200.0A AC 3285/3285-20: 200.0/2000A AC	3290/-10+9691: 20.00A/100.0A AC 3290-10+9692: 20.00A/200.0A AC 3290/-10+9693: 200.0A/2000A AC AC+DC, AC True RMS, AC MEAN	30.00 m/300.0 m/ 6.000/60.00/600.0/1000 A AC	10.00m/100.0m/ 1.000/10.00/200.0 A AC	20.00/200.0/1000 A AC
DC (Average or Peak value) 3284: 20.00/200.0A DC 3285/3285-20: 200.0/2000A DC	3290/-10+9691 : 20.00A/100.0A DC 3290/-10+9692 : 20.00A/200.0A DC 3290/-10+9693 : 200.0A/2000A DC	None	None	None
AC, AC+DC (True RMS or Peak value) 30.00/300.0/600V AC	None	None	None	150.0/300.0/600 V AC
DC (Average or Peak value) 30.00/300.0/600V DC	None	None	None	None
Resistance: 1k or 10kΩ range (3285-20 only)	Frequency : 10.00Hz/100.0Hz/1000 Hz	None	Frequency: 30.0 to 1000 Hz Filter function: 180Hz±30Hz/-3dB	Power (Single-phase or 3 phase): 3kW to 600kW(Single-phase) 6kW to 1200kW(3-phase) Power factor, Phase angle: Frequency: 30.0 to 1000Hz Voltage/current harmonic levels
DC, or AC 1V / f.s. Level output with REC mode Waveform output with MON mode (except for 3285-20)	DC,or AC Current : 2V/f.s. Level output with REC mode Waveform output with MON mode Integ./Frequency : 1V/f.s.	None	DC, or AC 1V / f.s. (200A range:2V / f.s.) Level output with REC mode Waveform output with MON mode	None
AC current: ±1.3% rdg. ±3 dgt. AC voltage: ±1.0% rdg. ±3 dgt. Frequency: ±0.3% rdg. ±1 dgt.	AC/DC/AC+DC Current: ±1.3 % rdg.+3 dgt. (Typical) Frequency: ±0.3 % rdg.+1 dgt. (Typical)	AC current: ±1.5 % rdg. ±5 dgt.	10m to 10A range: ±1.0 % rdg. ±5 dgt. 200A range: ±1.5 % rdg. ±5 dgt. Frequency: ±0.3 % rdg. ±1 dgt.	AC current: ±1.3 % rdg. ±3 dgt. AC voltage: ±1.0 % rdg. ±3 dgt. Power: ±2.3% rdg. ±5 dgt.(1f) ±3.0% rdg. ±10 dgt.(3f) (Accuracy guaranteed only for 50/60Hz cosf=1)
3284: DC, 10 to 2kHz 3285/3285-20: DC, 10 to 1kHz	DC to 500Hz (9691) DC to 1kHz (9692, 9693) ±2.3 % rdg. + 8 dgt.	45 to 400Hz	40 to 2 kHz	AC current: 45 to 1kHz AC voltage: 30 to 1kHz
Current / 2500 dgt. Voltage / 3750 dgt. Bar graph /35 seg.	Digital / LCD maximum 3000 dgt. Bar graph / 20 seg. 3290-10 maximum 9999 dgt.	Digital /LCD, maximum 6000 dgt. Bar graph / 91 seg.	Digital /2000 dgt. Bar graph /35 seg.	Digital /LCD, maximum 6000 dgt.
2 or 4 times /sec (Slow: 1 time /3 sec)	3290 FAST : 4 times/sec (3290-10 AC, AC+DC FAST: 10 times/sec) Normal : 2 times/ sec Slow : 1 time / 3sec	Maximum 1.1 sec	2 or 4 times /sec (Slow: 1 time /3 sec)	Normal: 1 time /sec (Slow: 1 time /3 sec)
3284: 2.5 (1.5 at 200A range) 3285/3285-20: 2.5 (1.42 at 2000A range)	2.5 or less	2.8 or less (1.68 at 1000 A range)	2.5 (1.5 at 200A range)	2.5 (1.7 at 1000 A, 600 V range)
3284: 0.5A equivalent max. at 400 A/m 3285/ 3285-20: 2.0A equivalent max. at 400 A/m	9691 : 0.5 A equivalent max. at 400 A/m 9692 : 0.7 A equivalent max. at 400 A/m 9693 : 2.0 A equivalent max. at 400 A/m	7.5 mA equivalent max. at 400 A/m	7.5 mA equivalent max. at 400 A/m	1.00 A equivalent max. at 400 A/m
600V AC rms	600 V AC rms	300 V AC rms	300 V AC rms	600 V AC rms
CAT III 600V	CAT III 600V (Sensor rating)	CAT III 300V	CAT III 300V	CAT III 600V
CAT III 600V	None	None	None	CAT III 600V
3284: ϕ33 mm 3285/3285-20: ϕ55 mm	9691 : ϕ35 mm 9692 : ϕ33 mm 9693 : ϕ55 mm	ϕ24 mm	ϕ40 mm	ϕ55 mm or 80mm busbar
6F22 (006P) × 1 or AC adapter (except for 3285-20)	LR6 (AA) alkaline batteries × 4 or AC adapter	CR2032 (3VDC) × 1	6F22 (006P) × 1 or AC adapter	6LR61/6LF22 (006P) × 1
3284: 62W × 230H × 39D mm, 460 g 3285/3285-20: 62W × 260H × 39D mm, 540 g	3290/-10 : 155W × 98H × 47D mm/545 g 9691 : 53W × 129H × 18D mm/230 g 9692 : 62W × 167Hx 35D mm/410 g 9693 : 62W × 196H × 35D mm/500 g	50W × 130H × 26D mm/135 g	62W × 225H × 39D mm/400 g	100W × 287H × 39D mm /650 g

Accessories : TEST LEAD L9208/ L9207-10/ L9207-30

Sleeve attached	CAT IV 600V	When the CAT (measurement category) rating of the main unit is lower than that of test leads, the CAT of the main unit takes precedence. When measuring in a CAT IV or CAT III environment, be sure to attach the sleeve to the test leads.
	CAT III 1000V	
No sleeve attached	CAT II 1000V	

Sleeve attached
CAT III, CAT IV

Sleeve
included as a standard accessory
(This sleeve cannot be attached to previous products)



No sleeve attached
CAT I, CAT II

Detachable!
When a sleeve is not attached, the test leads can only be used in a CATII environment.

Pocket size CLAMP SERIES

CLAMP ON AC/DC HiTESTER

3280-10 3280-20

Easy operation !

- 3280-10: MEAN Value / 3280-20: True RMS
- AC 1000 A clamp aperture: 33 mm dia.
- 100g light and 16mm slim
- Independent-opening double-lever design
- Slim body allows easy clamping even for narrow conductors
- No metal (iron core) exposure, ensuring enhanced safety

Accessories

TEST LEAD L9208 (1)
CARRYING CASE 9398 (1)

Option

LINE SPLITTER *CT-101A

***Note:** Non-CE mark product*

CE
DROP PROOF
True RMS
3280-20

3280-20

CLAMP ON AC/DC HiTESTER

3287 3288 3288-20

Compact & easy, one-touch maintenance on all types of AC/DC equipment

- New Model 3288-20 True RMS AC/DC pocket clamp meter mearuring up to 1000 A further expands the HIOKI lineup
- The 3287 can handle even cogenerator / inverter energy-saving equipment (10/ 100A)
- Use the 3288 for high current measurements such as UPS emergency batteries and train motors (100/ 1000A)
- A slim core of only 10 mm (0.39") for easy clamping even in crowded wiring

Accessories

TEST LEAD L9208 (1)
CARRYING CASE 9398 (1)

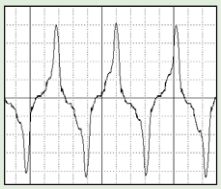
Option

LINE SPLITTER *CT-101A ***Note:** Non-CE mark product*

CE
True RMS
3287/ 3288-20

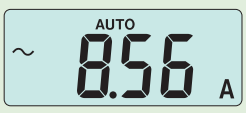
True RMS vs. MEAN Value

Two ways to convert alternating current to RMS are "true RMS response" and "average rectified RMS response" (averaging). Both display the same value for a sine wave, but can display very different values for distorted waveforms.



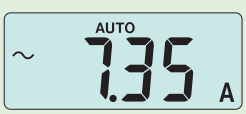
When measuring current waveforms distorted by inverters…

True RMS



High-frequency waveform components are included in the calculated RMS display value.

MEAN Value



The measured waveform is treated as a single-frequency (undistorted) sine wave, and the calculated average of the AC signal is converted to an RMS display value. Measurement error increases with waveform distortion.

As inverters and switching power supplies proliferate, the need for the capability to measure distorted current waveforms grows.
A true RMS clamp-on current meter is the proper tool for accurate measurements.

DIGITAL CLAMP ON HiTESTER

3281 3282

The true RMS is shown in the distorted waveform

- 3281: 600A ACrms, Φ33mm dia.
- 3282: 1000A ACrms, Φ46mm dia.
- Non-fuse type protects up to 600VAC

Accessories

TEST LEAD L9207-10 (1)
CARRYING CASE 9399 (1)
Hand strap (1)

Option

LINE SPLITTER *CT-101A

***Note:** Non-CE mark product*

3281 3282

CE True RMS

CLAMP ON AC/DC HiTESTER

3284 3285 3285-20

Analysis for DC to distorted waves

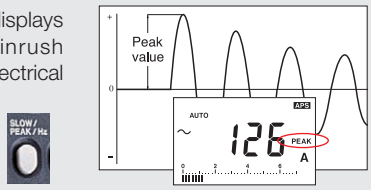
- 3284: 200 Arms, clamp aperture: 33 mm dia.
- 3285: 2000 Arms, clamp aperture: 55 mm dia.
- 3285-20: With resistance measurement range
  No analog output
  Cannot be used with AC adapter
- Inrush current peak value
- RMS value of full-wave rectified waveforms
- Waveform and harmonic analysis

3285 3285-20

CE True RMS

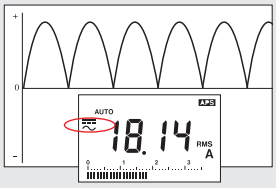
Inrush current peak value

The peak hold function displays the peak value of the inrush current occurring when electrical equipment is started.



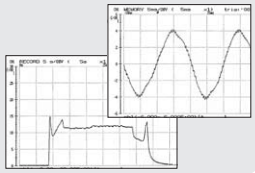
RMS value of full-wave rectified waveforms

The AC+DC mode enables measurement of the RMS value of full- or half-wave rectified waveforms used in electrical machinery.



Easily monitor current fluctuations

Using the external output functions of the 3284 or 3285 in combination with a HIOKI MEMORY HiCORDER enables recording of current and frequency fluctuations and recording and harmonic analysis of instantaneous waveforms.



3284

Accessories

TEST LEAD L9207-10 (1)
CARRYING CASE (for 3284) 9399
CARRYING CASE (for 3285, 3285-20) 9345
Hand strap (1)

Options

AC ADAPTER (for USA) 9445-02
AC ADAPTER (for EU) 9445-03
CLAMP ON ADAPTER 9290-10
LINE SPLITTER *CT-101A (cannot be used for DC, AC+DC current, for use on AC current only)
OUTPUT CORD 9094
CONNECTOR ADAPTER (BNC to Banana [female]) 9199

***Note:** Non-CE mark product*

Flip CLAMP and Detachable Designs

CLAMP ON HiTESTER 3291-50

Easily read measured values from all heights with the adjustable display

FLiP CLAMP

- Innovative flip clamp design
- Flip display to see measurement readings from any angle
- Max. 1000A, 3 ranges, Bar graph display
- Filter out high frequency noises for a clean signal

CE True RMS

Accessories

CARRYING CASE 9757 (1)
Hand strap (1)

CLAMP ON AC/DC HiTESTER 3290 3290-10
CLAMP ON AC/DC SENSOR 9691 9692 9693

All the Functions You Need for Measurement at DC or 1Hz and Up

- Choice of three sensors (Example combinations)
  3290/-10 +9691 : Measure up to 100A (ϕ35mm)
  3290/-10 +9692 : Measure up to 200A (ϕ33mm)
  3290/-10 +9693 : Measure up to 2000A (ϕ55mm)
- Choice of measurement methods
  DC (for battery measurement)
  AC+DC RMS (for full-/ half-wave rectification measurement)
  AC RMS (for current distortion measurement)
  PEAK (for peak value measurement of inrush current, etc.)
- Choice of output (Simultaneous output)
  RMS value output, frequency output, waveform output
- Choice of response times (Switchable among three response times)
- LPF function (filters out unnecessary harmonics : fc=550Hz)
- 3290-10 Functions
  Current integral measurement
  (obtain polarity-specific integrated DC values)
  Operating time/duty measurement

CE True RMS

Measurement is not available with only the **CLAMP-ON AC/DC HiTESTER 3290** or **3290-10**. A **CLAMP-ON AC/DC SENSOR** (Model 9691, 9692 or 9693) must also be purchased separately.

Accessory

Hand strap (1)

Options

CLAMP ON AC/DC SENSOR (100A)	9691	OUTPUT CORD	9094
CLAMP ON AC/DC SENSOR (200A)	9692	CARRYING CASE	9400
CLAMP ON AC/DC SENSOR (2000A)	9693	CONNECTOR ADAPTER (BNC to Banana[female])	9199
AC ADAPTER (for USA)	9445-02		
AC ADAPTER (for EU)	9445-03		

CLAMP ON LEAK HiTESTER 3293-50

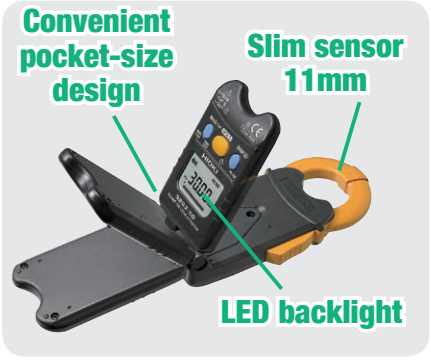
Easily read measured values from all heights with the adjustable display

FLiP CLAMP

- Measure for leakage current and load all with the same device
- Innovative flip clamp design
- Flip display to see measurement readings from any angle
- 1mA to 1000A accuracy guaranteed, 6 ranges and bar graph display
- Measure and display only the leakage current of commercial frequency components using the filter function

CE
True RMS

Easy-to-read measurements
Adjustable display angle!



Accessories

CARRYING CASE 9757 (1)
Hand strap (1)

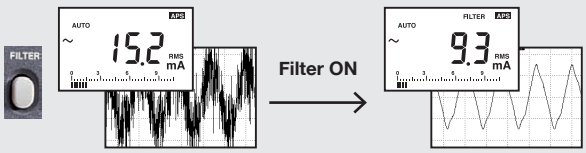
CLAMP ON LEAK HiTESTER 3283

Easily monitor leakage current fluctuations

- High-sensitivity with a full scale of 10mA (resolution:10μA)
- High-accuracy at ±1%
- True RMS measurement
- Analyzer functions, for filtering and output signals
- Wide bandwidth, 5Hz to 15kHz (Monitor output)

Filtering

Sharp Low-pass filter reduces harmonic currents.



Output signal

recording (REC) waveform (MON)

Easily monitor leakage current fluctuations

In combination with a HIOKI MEMORY HiCORDER the 3283 can be used for long-term monitoring for leakage current fluctuations.

CE
Insulated conductor
True RMS

Accessories

CARRYING CASE 9399(1)
Hand strap (1)

Options

AC ADAPTER (for USA)	9445-02
AC ADAPTER (for EU)	9445-03
CLAMP ON ADAPTER	9290-10
LINE SPLITTER (cannot be used for leakage current, for use on load current only)	*CT-101A
OUTPUT CORD	9094
CONNECTOR ADAPTER (BNC to Banana [female])	9199

***Note:** Non-CE mark product*

Analog CLAMP Meter and Power Measuring

CLAMP ON HiTESTER *3127-10

One meter drop-proof "Tested Tough!"

- With the range of 300 A
- Ohmmeter circuit tested to 250 V AC over voltage-OK

Cannot be used with any industrial power line of greater than 250V

Max.rated voltage to earth 750V rms insulated wire
Insulated conductor

DROP PROOF

Accessories

TEST LEAD L9207-30 (1)
CARRYING CASE 9351 (1)

Options

CLAMP ON ADAPTER (for large AC current) 9290-10
LINE SPLITTER *CT-101A

***Note:** Non-CE mark product*

CLAMP ON POWER HiTESTER 3286-20

All powerful ! Easy operation !
True-RMS Clamp-on Power Meter !

- Use as a single-phase power meter or power factor meter (3kW to 600kW range)
- Simple checking of three-phase lines (6kW to 1200kW range)
- Check power supply fluctuations
- 1000 A, 1000 Hz, peak and harmonic measurement
- True RMS (effective value) display method

CE
RS-232C
OPTION
True RMS

Basic specifications

Measurement lines	Single-phase/two-wires, Three-phase/three-wires (balanced load only)
Measurement items	Voltage, current, voltage/current peak, effective/reactive/apparent power(Single-phase or 3-phase), power factor, reactivity, phase angle, frequency, phase detection(3-phase), voltage/current harmonic levels(up to 20th)
Measurement ranges	Voltage: 150.0 V to 600 V, 3 ranges, Current: 20.00 to 1000 A, 3 ranges, Power: 3.000 kW to 1200 kW, 18 combination patterns, Note: 3-phase power is calculated and displayed on the basis of a balanced, 50/60 Hz, sine wave input. For apparent power and reactive power, the unit of watts in the above table is replaced by VA and var respectively.
Basic accuracy at 50/60 Hz, cos ϕ=1	Power/single-phase: ±2.3 % rdg. ±5 dgt., Power/3-phase: ±3.0 % rdg. ±10 dgt. (at balanced load) Voltage: ±1.0 % rdg. ±3 dgt. (True RMS), Current: ±1.3 % rdg. ±3 dgt. (True RMS)
Frequency characteristics	AC current : 45 to 1 kHz AC voltage : 30 to 1 kHz
Other functions	Phase detection, Record (Max. value/Min. value), Battery capacity display, Data hold, Auto power off, Data output (RS-232C interface by optical insulating coupler)

Accessories

VOLTAGE CORD L9635-01 (1)
CARRYING CASE (1)
Hand strap (1)

Option

RS-232C PACKAGE 9636-01

⚠ **WARNING** Inspect the unit and check that it is operating correctly before use. When carrying out measurement on live lines, wear proper protective gear, insulating rubber gloves, insulating rubber boots and safety helmet, and use extreme caution to avoid electric shock accidents.

⚠ **DANGER** In order to prevent short-circuits and injury, use the clamp product on electrical circuits with a voltage less than the maximum operation circuit oltage.

HIOKI
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