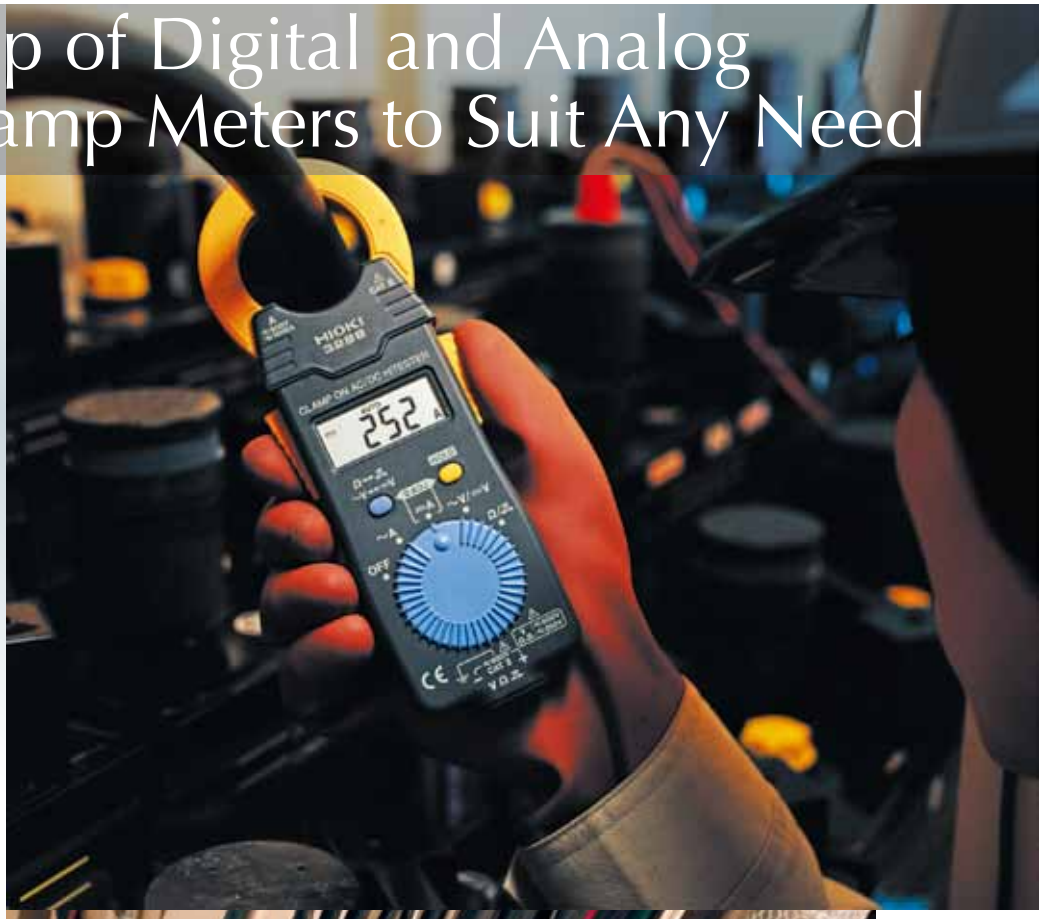
HIOKI

CLAMP ON HiTESTER SERIES

Field measuring instruments

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



www.hioki.com

From Basic Testing to

Quality Hioki Products Online at: www.GlobalTestSupply.com sales@GlobalTestSupply.com

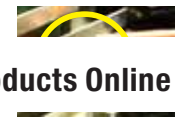
Selection Guide

A Complete HIOKI Digital & Analog Clamp Tester

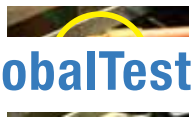
	3291-50 True RMS	**3280-10** MEAN value **3280-20** True RMS	**3281** True RMS **3282** True RMS	**3287** True RMS **3288** MEAN value **3288-20** True RMS	**3284** True RMS **3285** True RMS **3285-20** True RMS
AC Current ranges	60.00/600.0/1000 A AC	42.00/420.0/1000A AC	3281: 30.00/300.0/600A AC 3282: 30.00 /300.0/1000A AC	3287: 10.00/100.0A AC/ 3288/-20: 100.0/1000A AC	AC, AC+DC (True RMS or Peak value) 3284: 20.00/200.0A AC 3285/3285-20: 200.0/2000A AC
Other current ranges	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	DC (Average or Peak value) 3284: 20.00/200.0A DC 3285/3285-20: 200.0/2000A DC
AC Voltage ranges	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	AC, AC+DC (True RMS or Peak value) 30.00/300.0/600V AC
Other voltage ranges	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	DC (Average or Peak value) 30.00/300.0/600V DC
Other functions	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)	Resistance: 1k or 10kΩ range (3285-20 only)
Analog output Printer output	None	None	None	None	DC, or AC 1V / f.s. Level output with REC mode Waveform output with MON mode (except for 3285-20)
Basic accuracy (at 50 or 60Hz)	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.	AC current: ±1.3% rdg. ±3 dgt. AC voltage: ±1.0% rdg. ±3 dgt. Frequency: ±0.3% rdg. ±1 dgt.
Frequency characteristics AC current / voltage	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	3284: DC, 10 to 2kHz 3285/3285-20: DC, 10 to 1kHz
Display	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.	Current / 2500 dgt. Voltage / 3750 dgt. Bar graph /35 seg.
Sampling rate	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	2 or 4 times /sec (Slow: 1 time /3 sec)
Crest factor (RMS)	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, 100V maximum) 3288: Not defined 3288-20: 3 (1000A/2 max, voltage/1.5 max.)	3284: 2.5 (1.5 at 200A range) 3285/3285-20: 2.5 (1.42 at 2000A range)
Effect of external magnetic fields	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	3284: 0.5A equivalent max. at 400 A/m 3285/ 3285-20: 2.0A equivalent max. at 400 A/m
Max. rated voltage to earth	600 V AC rms	600V AC rms	600V AC rms	600 V AC rms	600V AC rms
Measurement categories (A)	CAT III 600V CAT IV 300V	CAT III 600V	CAT III 600V (3281) CAT IV 600V (3282)	CAT III 600V	CAT III 600V
Measurement categories (V)	None	CAT III 300V CAT II 600V	CAT IV 600V	CAT III 300V CAT II 600V	CAT III 600V
Core jaw dia	ϕ30 mm	ϕ33 mm	3281: ϕ33 mm 3282: ϕ46 mm	ϕ35 mm	3284: ϕ33 mm 3285/3285-20: ϕ55 mm
Power supply	CR2032 (3VDC) × 1	CR2032 (3 VDC) × 1	6F22 (006P) × 1	CR2032 (3VDC) × 1	6F22 (006P) × 1 or AC adapter (except for 3285-20)
Dimensions and mass	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	3284: 62W × 230H × 39D mm, 460 g 3285/3285-20: 62W × 260H × 39D mm, 540 g

New insulated sleeves prevent short-circuits

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



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



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.)

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Line-up to Suit Your Needs

3290 True RMS **3290-10** True RMS	**3293-50** True RMS	**3283** True RMS	**3286-20** True RMS
3290/-10+CT9691: 20.00A/100.0A AC 3290-10+CT9692: 20.00A/200.0A AC 3290/-10+CT9693: 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
3290/-10+CT9691 : 20.00A/100.0A DC 3290/-10+CT9692 : 20.00A/200.0A DC 3290/-10+CT9693 : 200.0A/2000A DC	None	None	None
None	None	None	150.0/300.0/600 V AC
None	None	None	None
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 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/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)
DC to 500Hz (CT9691) DC to 1kHz (CT9692, CT9693) ±2.3 % rdg. + 8 dgt.	45 to 400Hz	40 to 2 kHz	AC current: 45 to 1kHz AC voltage: 30 to 1kHz
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.
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)
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)
CT9691 : 0.5 A equivalent max. at 400 A/m CT9692 : 0.7 A equivalent max. at 400 A/m CT9693 : 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
600 V AC rms	300 V AC rms	300 V AC rms	600 V AC rms
CAT III 600V (Sensor rating)	CAT III 300V	CAT III 300V	CAT III 600V
None	None	None	CAT III 600V
CT9691 : ϕ35 mm CT9692 : ϕ33 mm CT9693 : ϕ55 mm	ϕ24 mm	ϕ40 mm	ϕ55 mm or 80mm busbar
LR6 (AA) alkaline batteries × 4 or AC adapter or +8.4 to 15.6 VDC external power (3290-10 only)	CR2032 (3VDC) × 1	6F22 (006P) × 1 or AC adapter	6LR61/6LF22 (006P) × 1
3290/-10 : 155W × 98H × 47D mm/545 g CT9691 : 53W × 129H × 18D mm/230 g CT9692 : 62W × 167Hx 35D mm/410 g CT9693 : 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
	CAT III 1000V	

Sleeve attached
CAT III, CAT IV

Sleeve
included as a

No sleeve attached
CAT I, CAT II

Detachable!

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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
Instruction manual ×1

3280-20

3 years Guaranteed for 3 years

CE

DROP PROOF

True RMS

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
Instruction manual ×1

3 years Guaranteed for 3 years

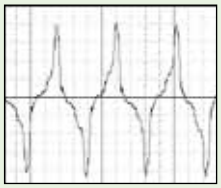
CE

True RMS

3287/ 3288-20

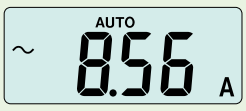
True RMS vs. MEAN Value

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.



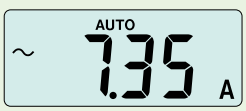
When measuring current waveforms distorted by inverters…

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

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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
Instruction manual ×1

CE
True RMS

CLAMP ON AC/DC HiTESTER

3284 3285 3285-20

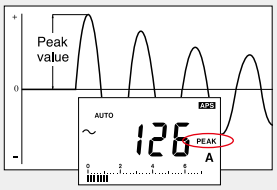
Analysis for DC to distorted waves

- 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

CE
True RMS

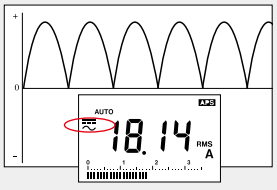
Inrush current peak value

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



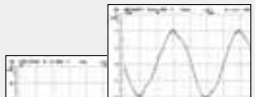
RMS value of full-wave rectified waveforms

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



Accessories

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

Options

AC ADAPTER (for USA)	9445-02
AC ADAPTER (for EU)	9445-03
CLAMP ON ADAPTER	9290-10
OUTPUT CORD (Not CE marked)	9094

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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
Instruction manual ×1

CLAMP ON AC/DC HiTESTER 3290 3290-10
CLAMP ON AC/DC SENSOR CT9691 CT9692 CT9693

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

- Choice of three sensors (Example combinations)
  3290/-10 +CT9691 : Measure up to 100A (ϕ35mm)
  3290/-10 +CT9692 : Measure up to 200A (ϕ33mm)
  3290/-10 +CT9693 : 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

3 years
Guaranteed for 3 years

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 CT9691, CT9692 or CT9693) must also be purchased separately.

Accessory

Hand strap ×1 Instruction manual ×1

Options

CLAMP ON AC/DC SENSOR (100A) CT9691 OUTPUT CORD 9094

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CLAMP ON LEAK HiTESTER 3293-50

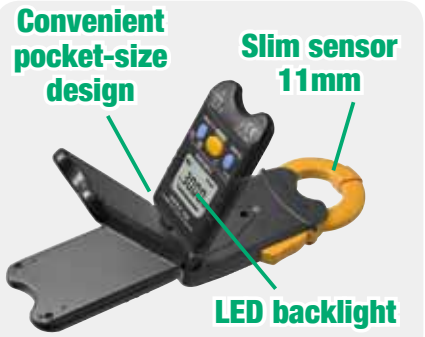
Easily read measured values from all heights with the adjustable display

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
Instruction manual ×1

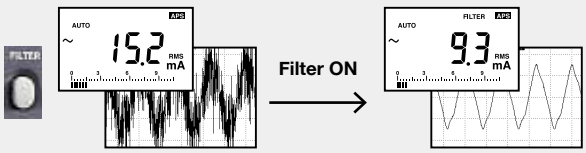
CLAMP ON LEAK HiTESTER 3283

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

CE
Insulated conductor
True RMS

Accessories

CARRYING CASE 9399 ×1
Hand strap ×1
Instruction manual ×1

Options

AC ADAPTER (for USA)	9445-02
AC ADAPTER (for EU)	9445-03
CLAMP ON ADAPTER	9290-10
OUTPUT CORD (Not CE marked)	9094
CONNECTOR ADAPTER	9199

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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

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

Accessories

VOLTAGE CORD L9635-01 ×1
CARRYING CASE 9245 ×1
Hand strap ×1
Instruction manual ×1

⚠ **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.

Note: Company names and Product names appearing in this catalog are trademarks or registered trademarks of various companies.

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