HIOKI

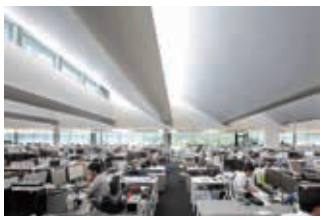
Field Measuring Instruments

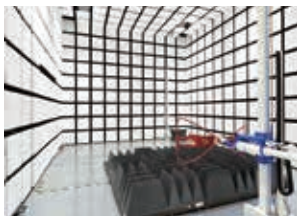
2021

Field-Proven Strength.

Measurement • Protection • Advancement

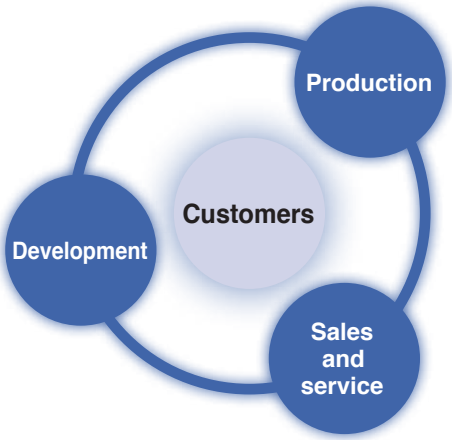
Since 1935





In our mission to provide measurement technologies that protect the safety of society, we seek to contribute to the advancement of a brighter and more prosperous future.

Hioki's measurement technology is widely used in the maintenance, repair and operation of factories, businesses and infrastructures, contributing to the safety and security of our daily lives. We also support the development of next generation technologies in the automotive and new energy sectors by delivering high quality instruments at a reasonable cost.



Founded in 1935, Hioki has grown to become a world leader in providing consistent delivery of test and measuring instruments. By integrating both R&D and manufacturing in a central facility, we succeed in implementing a fully sustainable end-to-end product innovation life cycle to deliver instruments characterized by precision, safety and quality to customers around the world.

HIOKI, an R&D-focused company

Technology advances on a daily basis, making possible safer and more comfortable human lifestyles and helping make dreams come true. The measuring instruments that underpin these advances also continue to evolve. To develop electrical measuring instruments that meet the changing needs of our times, one-third of all HIOKI employees work in research and development, an area where we invest approximately 10% of all revenue.

Pursuing agile production

HIOKI works to implement optimal production structures that are capable of meeting changing market needs with high-quality products.Due to the nature of electrical measuring instruments, which serve as yardsticks for measuring electricity, it is necessary to ensure a high level of quality in their production. Working with the cooperation of suppliers, we continuously strive to ensure our manufacturing operations conform to the world's highest standards of product quality.

Practicing customer-centric sales

Working with distributors, we actively visit customers to resolve their concerns. Information obtained during these visits is also utilized in product development, laying the groundwork for our ability to create products that satisfy our customers.

JET REGISTERED FIRM
ISO14001
E18-667
Head Office

JET REGISTERED FIRM
ISO9001
JET-0835

ISO 14001 / ISO 9001 certified

ISO14001 : The HIOKI head office is certified under the ISO14001 international standard for environmental management systems.

ISO9001 : HIOKI's development, production, sales and service (repair and calibration) of electric measuring instruments are certified under the ISO9001 international standard for quality management and quality assurance.

Contents

About the Catalog

About the Marks

CE	**Compliant with CE**
New	**New release**

	GENNECT Cross Free app for mobile devices to manage measurement data
	GENNECT One Free PC software to manage measurement data

Download on the App Store GET IT ON Google Play Bluetooth®

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*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by HIOKI E.E. CORPORATION is under license.
*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hioki website.

CAT S	**Safety standard measurement categories***
	Drop proof Robust design capable of withstanding a drop from a height of 1 m onto concrete
	Backlight
AUTO OFF	**Auto power OFF** Automatically turns off after a certain time
DISPLAY HOLD	**Display hold**
TRUE RMS	**True RMS** True RMS measurement for accurate measurement of even distorted current waveforms
FILTER	**Low-pass filter** Cuts high frequency content to provide stable numerical values for measurement
AUTO AC/DC	**AUTO AC/DC** Automatically detects and measures AC and DC voltage
dB	**Decibel conversion** Displays AC voltage measurements converted to decibel values (dbm/dbv)
MIN MAX	**MAX/MIN/AVG value*** Displays the maximum, minimum, and average of the displayed values
PEAK	**Peak measurement*** Displays the wave maximum and minimum peak values
REL	**Relative display** Pressing the REL button displays subsequent measurements as values relative to that displayed when the button was pressed
	Current sensor can be connected
	Flexible current sensor can be connected

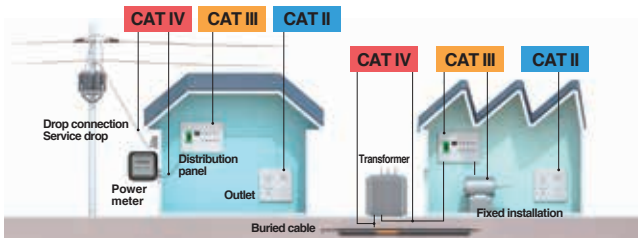
*For more detailed information, please refer to the next page.

~V	**AC voltage**
⎓V	**DC voltage**
⎓V	**DCV + ACV**
Hz	**Frequency**
Ω	**Resistance**
⊣⊢	**Capacitance**
°C	**Temperature**
~A	**ACA current**
⎓A	**DCA current**
⎓A	**DCA + ACA**
⎓VA	**DC Power**
	Continuity check Buzzer sounds when continuity is detected
	Diode check Displays voltage if in the correct direction, and OVER if in the reverse direction
NCV	**Voltage detection** Buzzer sounds when AC voltage is detected
INRUSH	**Inrush (Rush current)** Measures inrush current when power is turned on, etc.

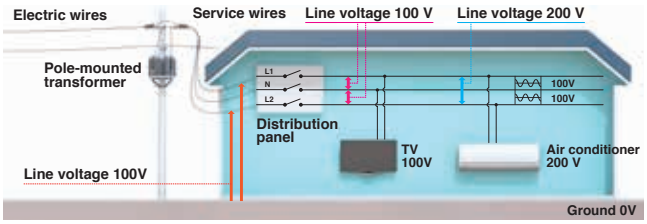
Measurement Category・Anticipated Transient Overvoltage

Under safety standards (EN61010 Series, JIS C 1010 Series), measurement is classified into Categories II to IV according to the measurement point's rated voltage to ground, current capacity (size of current that flows in a short-circuit fault), etc., and the transient overvoltage that occurs at the measurement point.

Measurement Category



Rated voltage to ground



CAT II :	Measurement at a point from the power plug to the equipment's power circuits, where equipment is directly connected to an outlet.
CAT III :	Measurement at a point on the power distribution cabling or power supply circuits, or at a point from the distribution panel to a distribution terminal behind an outlet, where equipment (for example a fixed installation) takes electricity directly from a distribution panel.
CAT IV :	Measurement at a point on a service drop to a building, or on the line from the drop connection to the power meter or distribution panel.

Anticipated Transient Overvoltage

Rated voltage to ground	Transient overvoltage		
	CAT II	CAT III	CAT IV
300 V	2500 V	4000 V	6000 V
600 V	4000 V	6000 V	8000 V
1000 V	6000 V	8000 V	12000 V

Power lines in factories and similar facilities will at times include transient overvoltage (impulse voltage) that is around 10 times the power source voltage.
The transient overvoltage of the measurement points must be predicted in advance, and the instrument will need a safety design that will enable it to withstand such overvoltage.

Marks

CAT IV Measurement Category　**600V** Rated voltage to ground

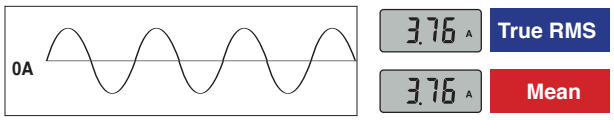
Assuming 600 V for the measurement point's voltage to ground, a Category IV location could potentially include transient overvoltage of 8000 V. Hence, CAT IV measurement instruments are designed to withstand transient overvoltage of 8000 V. CAT III measurement instruments can only withstand up to 6000 V, so if 8000 V transient overvoltage enters, it will cause insulation breakdown that could result in electric shock.

Never measure a measurement point with a higher category number than the category indicated on the measuring instrument. Doing so could lead to a serious accident such as electric shock.

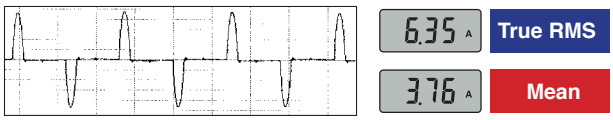
Rectification Methods: True RMS and Mean

A measuring instrument uses one of two rectification methods, “True RMS" or “Mean”. Using mean rectification assumes that the signal is based on a sine wave without distortions in order to calculate the value. Distorted waveforms cannot be measured accurately using this method. As the performance of equipment increases, so do distorted waveforms. In order to accurately measure in these situations, using the True RMS method is necessary.

Non-distorted current waveforms



Waveforms distort due to switching power supplies and similar technologies



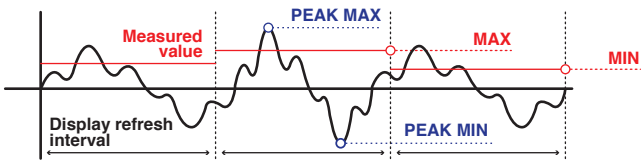
Low-Pass Filter Reduces the Effects of Harmonics and Measures the Fundamental Wave Component Accurately

Switching power supplies and the secondary side of inverters include harmonic components. Waveforms containing harmonics are distorted and difficult to measure with accuracy. By using a low-pass filter to remove harmonic components, accurate measurement values can be obtained.

Occurs during AC/DC switching

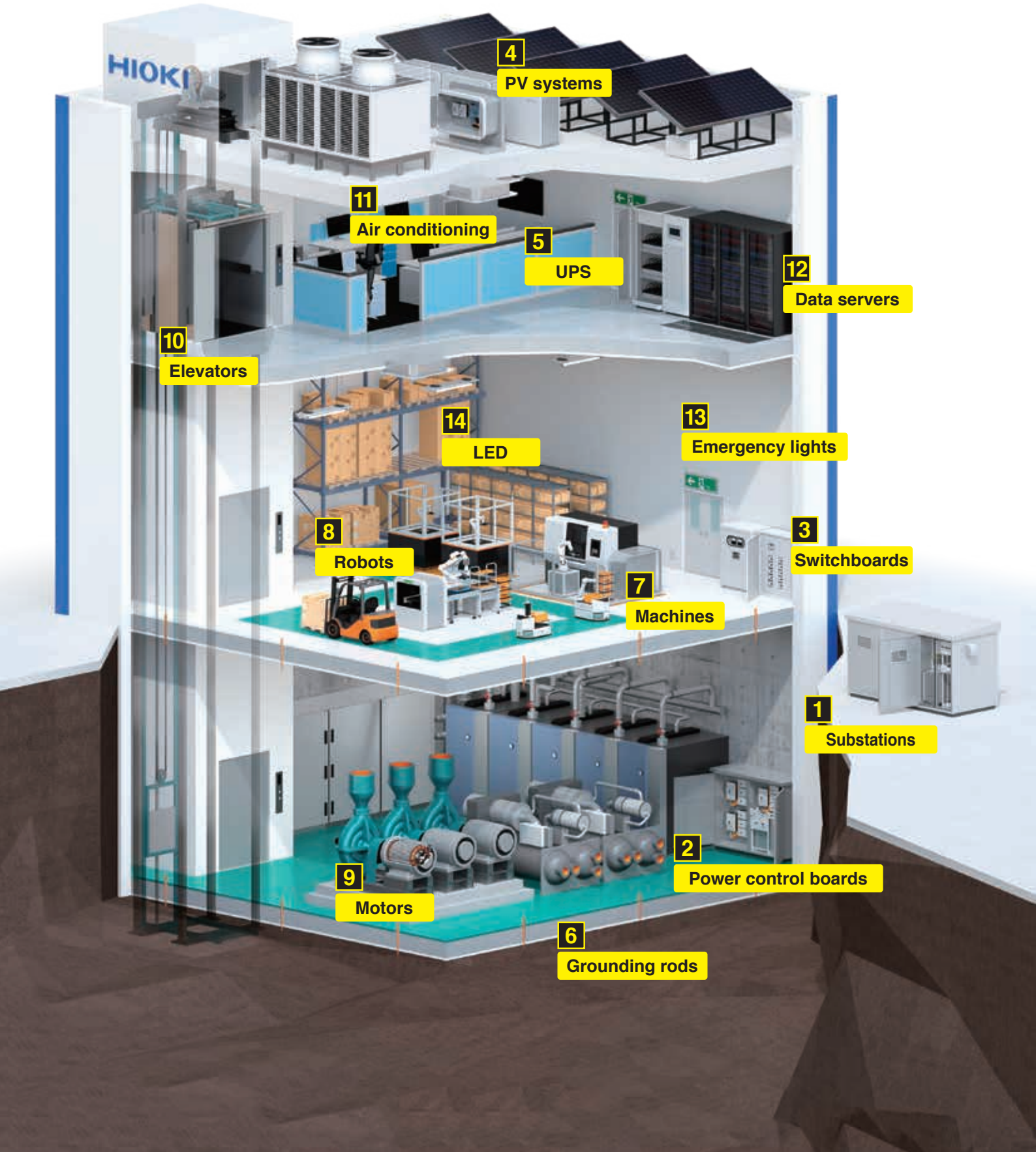
Harmonics are removed by the low-pass filter

MAX/MIN/AVG/PEAK value



The ability to identify the maximum, minimum, average, and crest maximum and minimum values for equipment like machine tools whose load current fluctuates is useful in preventive maintenance and quality control.

Applications
Factory



1 2 3 Power receiving and transforming equipment • Power Control Boards • Switchboards

Verify phase rotation	Test insulation	Test supply voltage	Verify load current	Detect leakage current	Detect electrical disturbances • Analyze power quality	Record and analyze electrical consumption	Test 5kV insulation
							
PD3259 (pp. 36-37) PD3129 (pp. 36-37)	IR405Xs (pp. 22-27)	DT42XXs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)	PQ3100 (pp. 40-45) PQ3198 (pp. 40-45)	PW3360 (pp. 42-45) PW3365 (pp. 42-45)	IR3455 (p. 27)

4 PV systems

Test bypass diodes	Verify grounding	Test PV insulation	Verify string current	Verify string current
				
FT4310 (p. 48)	FT6031 (pp. 38-39)	IR4053 (pp. 22-27)	DT4254 (pp. 28-35)	CM437Xs (p. 12-21) CM414Xs (p. 12-21)

5 UPS

Test battery resistance and voltage

BT3554 (pp. 46-47)

6 Earth • Ground

Verify grounding

FT6031 (pp. 38-39)

7 8 9 Machines • Robots • Motors

Test supply voltage	Test load current	Check temperature
		
DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	FT3700 (p. 54) FT3701 (p. 54)

10 Elevators

Verify motor insulation	Test supply voltage	Test load current	Verify phase rotation
			
IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	PD3259 (pp. 36-37) PD3129 (pp. 36-37)

11 Air conditioning

Check temperature and humidity	Check temperature	Test insulation	Test supply voltage	Test load current
				
LR5001 (pp. 49-52) LR8514 (pp. 49-52)	FT3700 (p. 54) FT3701 (p. 54)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)

12 Servers

Verify LAN wiring

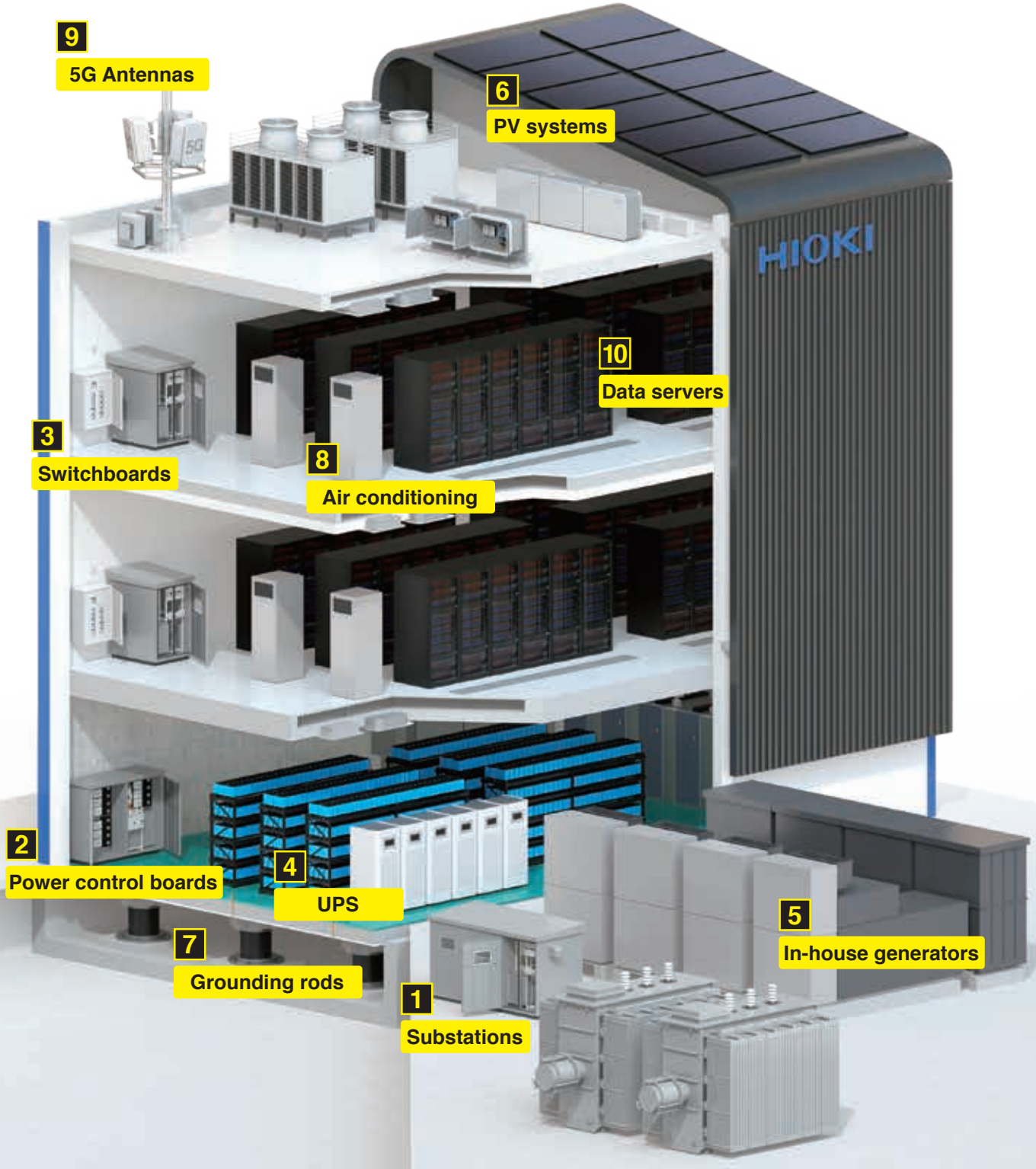
3665 (p. 53)

13 14 Emergency lights

Measure illuminance

FT3424 (p. 54) FT3425 (p. 54)

Applications
Data Centers



1 2 3
Power receiving and transforming equipment • Power control boards • Switchboards

Verify phase rotation	Test insulation	Test supply voltage	Verify load current	Detect leakage current	Detect electrical disturbances • Analyze power quality	Record and analyze electrical consumption	Test 5kV insulation
							
PD3259 (pp. 36-37) PD3129 (pp. 36-37)	IR405Xs (pp. 22-27)	DT42XXs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)	PQ3100 (pp. 40-45) PQ3198 (pp. 40-45)	PW3360 (pp. 42-45) PW3365 (pp. 42-45)	IR3455 (p. 27)

4
UPS

Test battery resistance and voltage	Verify motor insulation	Test supply voltage	Test load current	Verify phase rotation
				
BT3554 (pp. 46-47)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	PD3259 (pp. 36-37) PD3129 (pp. 36-37)

5
Power generators

6
PV systems

Test bypass diodes	Verify grounding	Test PV insulation	Verify string current	Verify string current
				
FT4310 (p. 48)	FT6031 (pp. 38-39)	IR4053 (pp. 22-27)	DT4254 (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)

7
Earth • ground

Verify grounding

FT6031 (pp. 38-39)

8 9
Air conditioning • 5G Antennas

Check temperature and humidity	Check temperature	Test insulation	Test supply voltage	Test load current
				
LR5001 (pp. 49-52) LR8514 (pp. 49-52)	FT3700 (p. 54) FT3701 (p. 54)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)

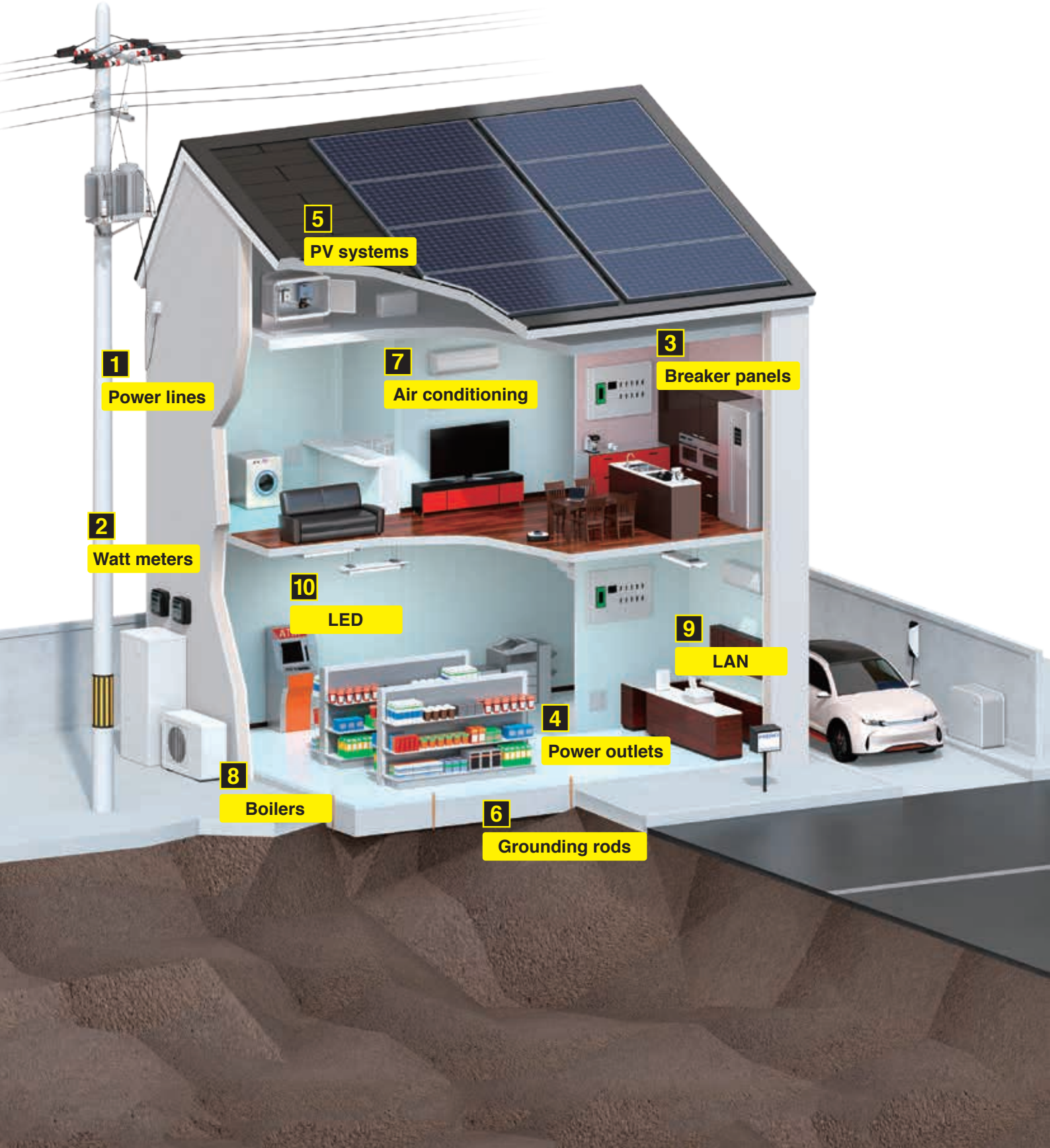
10
Servers

Verify LAN wiring

3665 (p. 53)

Applications

Residences & Commercial Buildings



1 2 3 Power lines • Watt meters • Breaker panels

Test insulation	Test supply voltage	Verify load current	Detect leakage current	Record and analyze electrical consumption
				
IR405Xs (pp. 22-27)	DT42XXs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)	PW3360 (pp. 42-45) PW3365 (pp. 42-45)

4 Power outlets

Verify absence of voltage	Test supply voltage	Verify load current
		
3481 (p. 37)	3244 (p. 34) 3246 (p. 34)	CM328Xs (pp. 12-21) CM3291 (pp. 12-21)

5 PV systems

Test bypass diodes	Verify grounding	Test PV insulation	Verify string current	Verify string current
				
FT4310 (p. 48)	FT6031 (pp. 38-39)	IR4053 (pp. 22-27)	DT4254 (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)

6 Earth • ground

Verify grounding

FT6031 (pp. 38-39)

7 Air conditioning

Check temperature and humidity	Check temperature	Test insulation	Test supply voltage	Test load current	Detect leakage current
					
LR5001 (pp. 49-52) LR8514 (pp. 49-52)	FT3700 (p.54) FT3701 (p.54)	IR4050s (pp. 22-27)	DT42XXs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)

8 Boilers

Test insulation	Test supply voltage	Test load current	Detect leakage current
			
IR405Xs (pp. 22-27)	DT42XXs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)

9 LAN

Verify LAN wiring

3665 (p. 53)

10 LED

Measure illuminance

FT3424 (p. 54) FT3425 (p. 54)

Manage Data on Mobile Devices and PC

for mobile devices

GENNECT Cross

GENNECT Cross Dedicated website

Checking and saving measured values

The measurement values displayed on the instrument can be displayed and saved on the tablet in real time.

Record fluctuations in measured values

Measurement values can be saved at set recording intervals. You can also check the maximum, minimum, and average values.

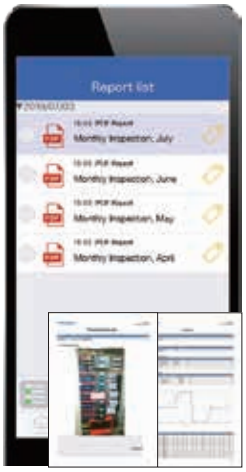
Waveform observation/ FFT analysis

Waveforms such as current and voltage, and FFT analysis waveforms can be displayed.

Record on photos and drawings

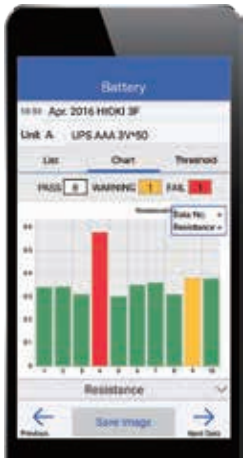
Measurements can be recorded on top of captured photos or imported drawing data.

Report writing



You can create reports from saved data, exporting them as PDF, JPG, or CSV.

Display judgment results in color and bar graph



The measured value is compared with the judgment value, and the result is displayed in PASS/ WARNING/FAIL.

Check power quality by analyzing harmonics up to the 30th order

Calculate and display harmonic levels for individual orders, content percentages, and total harmonic distortion (THD-F and THDR).

Record the occurrence of intermittent leakage current

When a value greater than the threshold is measured, the time of occurrence, end time, and the maximum value for that period are recorded.

Display of disequilibrium rates and vector diagrams

Displays the disequilibrium rate and vector diagram.

Audio guidance about the battery measurement sequence

The app provides audio guidance about the battery measurement sequence.And, automatically saves the measurement results.

Supported instruments (Available functions vary depending on the measurement device. For details, please visit the GENNECT Cross special website.)

CM4372 CM4374 CM4376 CM4142 CM3286-01 FT3425 FT4310 CM7291

Wireless adapter Z3210 (optional) must be attached to use GENNECT Cross.

CM4001 CM4002 CM4003 IR4057-50 FT6031-50 FT6380-50 PD3259-50 BT3554-5x

WIRELESS ADAPTER Z3210 (Option)

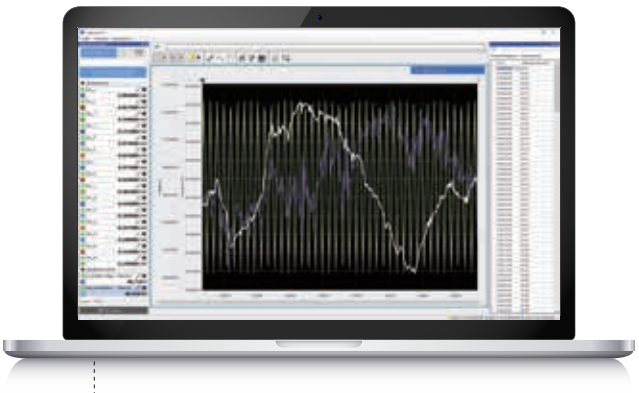
Attach to enable Bluetooth® wireless technology

Downloading GENNECT Cross

Data can be downloaded to tablets and smartphones using Hioki's dedicated appsavailable from the Google Play or App Store.
Search for "HIOKI" and download the "GENNECT Cross" app

for PCs
GENNECT One

GENNECT One
Dedicated website



HUB

Connect each measuring instrument with LAN cable
(BT3554-5x series is USB connection)

LAN

Power Analysis

LAN

Monitoring Power Quality

LAN

Understanding Power Consumption

LAN

Voltage and temperature management

LAN

Waveform Analysis

USB

UPS Inspection

Connect to and manage instruments with a computer

Collect and Display measured values by instrument

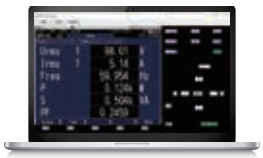
Collect values in graphs and lists

Logging: When logging is started, measurement data is acquired at regular intervals from multiple measuring instruments. The acquired data is displayed and stored on the PC in real time.

Combine images and other elements

Dashboard: Create a dashboard by laying out measurements, background images, and other parts on the screen. You can display the measured values on the dashboard in real time.

Change instrument settings from your office



Change instrument settings from a computer

Remote control: Available to change the settings of the instrument and start and stop the measurement from the PC.
Instrument clock synchronization: The clock of the measuring instrument can be synchronized with the PC clock.

Collect and organize measurement files from scattered locations

Transfer measurement files to a computer

Automatic file transfer: Measurement data stored in the instrument can be automatically transferred to the PC.
Data import: The measurement data stored in the instrument can be transferred to the PC manually.

Review acquired files on a single time axis

Time-series viewer: After acquiring the measurement data stored in the main unit of the instrument, the data can be checked in a single time series.

Supported instruments (Available functions vary depending on the measurement device. For details, please visit the GENNECT One special website.)

PW6001

PW3390

PQ3198

PQ3100

PW3365

PW3360

LR8400
LR8401
LR8402

LR8410

LR8450
LR8450-01

MR6000

BT3554-50
BT3554-51
BT3554-52

Downloading GENNECT One
GENNECT One is a free PC application.Please download from the HIOKI websiteby going to the "GENNECT One" landing page.

CLAMP METERS

Remarkable Ease of Use, New "Slim Jaw" Design

Easily Clamp Within Crowded Cables with New Slim Jaw Design

Slim Jaw

Traditional design

Innovative slim jaw resolves worksite issues such as crowded wiring to deliver safe, accurate and high-performance testing.

CM4375, CM4376	CM4141, CM4142	CM3289	CM3281, CM3291	CM4001
AC / DC Current	AC Current			Leakage

Manage measurement data using GENNECT Cross[*1]

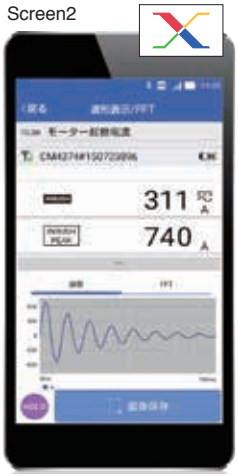
Bluetooth® communications

Transfer data to a tablet wirelessly

Screen1

Take a picture of the test location and map measured values on it

Screen2



Verify current waveforms on your mobile device

Screen3

Visualize intermittent GFCI and RCD trips Review trip times and maximum current values

- Save data and create reports right on the App
- Share data via cloud services or E-mail

-25°C to 65°C[*2] operating temperature

CM4000 Series can be used in freezing temperatures or on the hottest summer days.

Dustproof and waterproof performance[*2]

International Protection Code: IP54
Jaws (current sensor portion): IP50
Measurement functionality is maintained despite exposure to sand or dust as well as water droplets.

CAT IV 600V[*2]

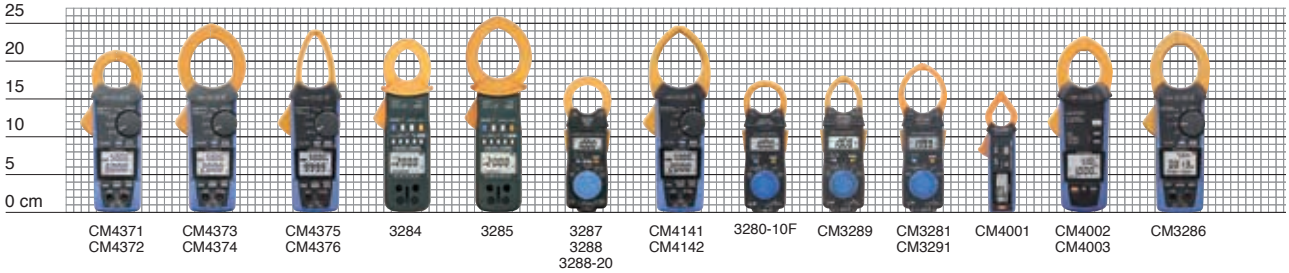
Safely measure embedded cables and electric panels with a maximum rated voltage to earth of 600V

[*1] Supported models : CM4372, CM4374, CM4376, CM4142, CM4001 with Z3210, CM4002 with Z3210, CM4003 with Z3210, CM3286-01
[*2] Supported models : CM4371, CM4372, CM4373, CM4374, CM4375, CM4376, CM4141, CM4142, CM3286, CM3286-01

Lineup

Measurement type	AC / DC Current						
Model	**CM4371 CM4372**	**CM4373 CM4374**	**CM4375 CM4376**	**3284**	**3285**	**3287**	**3288 3288-20**
Appearance							
Core jaw diameter	ϕ33 mm (1.30 in)	ϕ55 mm (2.17 in)	ϕ34 mm (1.34 in)	ϕ33 mm (1.30 in)	ϕ55 mm (2.17 in)	ϕ35 mm (1.38 in)	ϕ35 mm (1.38 in)
AC measurement system	True RMS	True RMS	True RMS	True RMS	True RMS	True RMS	MEAN Value True RMS (-20)
Frequency characteristics	10 Hz to 1 kHz	10 Hz to 1 kHz	10 Hz to 1 kHz	10 Hz to 2 kHz	10 Hz to 1 kHz	10 Hz to 1 kHz	10 Hz to 500 Hz
Measurement parameters: AC current (Resolution) Guaranteed accuracy range	600 A (0.01) 1 A to 600 A	2000 A (0.1) 1 A to 2000 A	1000 A (0.1) 1 A to 999.9 A	200 A (0.01) 1 A to 200 A	2000 A (0.1) 10 A to 2000 A	100 A (0.01) Full display range*5	1000 A (0.1) Full display range*5
Measurement parameters: DC current (Resolution)	600 A (0.01)	2000 A (0.1)	999.9 A (0.1)	200 A (0.01)	2000 A (0.1)	100 A (0.01)	1000 A (0.1)
Measurement parameters: AC Voltage	1000 V	1000 V	1000 V	600 V	600 V	600 V	600 V
Measurement parameters: DC Voltage	1500 V*1	1500 V*1	1500 V*1	600 V	600 V	600 V	600 V
Measurement parameters: Power	1020 kVA (DC)*1	3400 kVA (DC)*1	1700 kVA (DC)*1	N / A	N / A	N / A	N / A
Measurement parameters: Resistance	600 kΩ	600 kΩ	600 kΩ	N / A	N / A	42 MΩ	42 MΩ
Measurement parameters: Temperature	-40°C to 400°C	-40°C to 400°C	-40°C to 400°C	N / A	N / A	N / A	N / A
Measurement parameters: Electrostatic capacity	✔	✔	✔	N / A	N / A	N / A	N / A
Measurement parameters: Frequency	999.9 Hz	999.9 Hz	999.9 Hz	1000 Hz	1000 Hz	N / A	N / A
Measurement parameters: Rush current	✔	✔	✔	N / A	N / A	N / A	N / A
Measurement parameters: Continuity check	✔	✔	✔	N / A	N / A	✔	✔
Measurement parameters: Diode check	✔	✔	✔	N / A	N / A	N / A	N / A
Measurement parameters: Voltage detection	✔	✔	N / A	N / A	N / A	N / A	N / A
Low-pass filter	✔	✔	✔	N / A	N / A	N / A	N / A
Auto power off	✔	✔	✔	✔	✔	✔	✔
Auto range	✔	✔	✔	✔	✔	✔	✔
Data hold	AUTO / MANUAL	AUTO / MANUAL	AUTO / MANUAL	MANUAL	MANUAL	MANUAL	MANUAL
Automatic AC/DC detection	✔	✔	✔	N / A	N / A	N / A	N / A
MAX / MIN / AVG	✔	✔	✔	✔	✔	N / A	N / A
Output	N / A	N / A	N / A	✔	✔	N / A	N / A
Bluetooth® communication	✔ (CM4372 only)	✔ (CM4374 only)	✔ (CM4376 only)	N / A	N / A	N / A	N / A
Backlight	✔	✔	✔	N / A	N / A	N / A	N / A
Display refresh rate	5 times / s	5 times / s	5 times / s	4 times / s *3	4 times / s *3	2.5 times / s	2.5 times / s
Safety standard category	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT III 600 V	CAT III 600 V	V: CAT III 300 V A: CAT III 600 V	V: CAT III 300 V A: CAT III 600 V
CE	✔	✔	✔	N / A	N / A	✔	✔
Dustproof and waterproof	IP54*2	IP54*2	IP54*2	IP40	IP40	N / A	N / A
Drop proof	N / A	N / A	N / A	N / A	N / A	N / A	N / A
Power supply	LR03 ×2 Alkaline	LR03 ×2 Alkaline	LR03 ×2 Alkaline	6F22 ×1 Stacked manganese	6F22 ×1 Stacked manganese	CR2032 ×1 Coin type	CR2032 ×1 Coin type
Dimensions (W × H × D)	65 × 215 × 35 mm 2.56 × 8.46 × 1.38 in	65 × 250 × 35 mm 2.56 × 9.84 × 1.38 in	65 × 242 × 35 mm 2.56 × 9.53 × 1.38 in	62 × 230 × 39 mm 2.44 × 9.06 × 1.54 in	62 × 260 × 39 mm 2.44 × 10.24 × 1.54 in	57 × 180 × 16 mm 2.24 × 7.09 × 0.63 in	57 × 180 × 16 mm 2.24 × 7.09 × 0.63 in
Weight	340 g / 12.0 oz	530 g / 18.7 oz	330 g / 11.6 oz	460 g / 16.2 oz	540 g / 19.0 oz	170 g / 6.0 oz	150 g / 5.3 oz

Size comparison



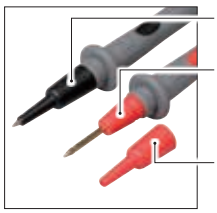
*1 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:
1. The circuit under measurement is isolated from the commercial power grid. 2. The circuit under measurement is isolated from ground.
e.g.: when measuring the no-load voltage of an ungrounded PV panel. Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.
*2 Grip only, jaws: IP50, measurement functionality is maintained despite exposure to sand or dust as well as water droplets.
*3 4 times / s (FAST), 2 times / s (NORMAL), 1 time / 3s (SLOW) *4 Input Voltage *5 displayed 0 with below 0.06

Measurement type		AC Current					Leakage Current		AC Power
Model		CM4141 CM4142	3280-10F	CM3289	CM3281	CM3291	CM4001	CM4002 CM4003	CM3286 CM3286-01
Appearance									
Core jaw diameter		ϕ55 mm (2.17 in)	ϕ33 mm (1.30 in)	ϕ33 mm (1.30 in)	ϕ46 mm (1.81 in)	ϕ46 mm (1.81 in)	ϕ24 mm (0.94 in)	ϕ40 mm (1.57 in)	ϕ46 mm (1.81 in)
AC measurement system		True RMS	MEAN Value	True RMS	MEAN Value	True RMS	True RMS	True RMS	True RMS
Frequency characteristics		45 Hz to 1 kHz	50 / 60 Hz	40 Hz to 1 kHz	50 / 60 Hz	40 Hz to 1 kHz	40 Hz to 1 kHz	15 Hz to 2 kHz	45 Hz to 1 kHz
Measurement parameters	AC current (Resolution) Guaranteed accuracy range	2000 A (0.01) 1 A to 2000 A	1000 A (0.01) 4 A to 1000 A	1000 A (0.01) 4 A to 1000 A	2000 A (0.01) 4 A to 1999 A	2000 A (0.01) 4 A to 1999 A	600 A (0.01mA)) 0.6 mA to 600 A	200 A (0.001mA) 0.06 mA to 200 A	600 A (0.001) 0.06 A to 600 A
	DC current (Resolution)	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	AC Voltage	1000 V	600 V	600 V	600 V	600 V	N / A	N / A	600 V
	DC Voltage	1500 V*1	600 V	600 V	600 V	600 V	N / A	N / A	N / A
	Power	N / A	N / A	N / A	N / A	N / A	N / A	N / A	360 kW (AC)
	Resistance	600 kΩ	42 MΩ	42 MΩ	42 MΩ	42 MΩ	N / A	N / A	N / A
	Temperature	-40°C to 400°C	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Electrostatic capacity	✔	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Frequency	999.9 Hz	N / A	N / A	N / A	N / A	999.9 Hz	2000 Hz	999.9 Hz
	Rush current	✔	N / A	N / A	N / A	N / A	✔	✔	N / A
	Continuity check	✔	✔	✔	✔	✔	N / A	N / A	N / A
	Diode check	✔	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Voltage detection	N / A	N / A	N / A	N / A	N / A	N / A	N / A	N / A
Low-pass filter		✔	N / A	N / A	N / A	N / A	✔	✔	N / A
Auto power off		✔	✔	✔	✔	✔	✔	✔	✔
Auto range		✔	✔	✔	✔	✔	✔	✔	✔
Data hold		AUTO / MANUAL	MANUAL	MANUAL	MANUAL	MANUAL	AUTO / MANUAL	AUTO / MANUAL	AUTO / MANUAL
Automatic AC/DC detection		✔ (Voltage only)	N / A	N / A	N / A	N / A	N / A	N / A	N / A
MAX / MIN / AVG		✔	N / A	N / A	N / A	N / A	✔	✔	✔
Output		N / A	N / A	N / A	N / A	N / A	N / A	✔ (CM4003 only)	N / A
Bluetooth® communication		✔ (CM4142 only)	N / A	N / A	N / A	N / A	✔ (with Z3210)	✔ (with Z3210)	✔ (CM3286-01 only)
Backlight		✔	N / A	N / A	N / A	N / A	✔	✔	✔
Display refresh rate		5 times / s	2.5 times / s	2.5 times / s	2.5 times / s	2.5 times / s	5 times / s	5 times / s	2 times / s
Safety standard category		CAT IV 600 V CAT III 1000 V	V: CAT III 300 V A: CAT IV 300 V	V: CAT III 300 V A: CAT IV 300 V	V: CAT III 300 V A: CAT IV 300 V	V: CAT III 300 V A: CAT IV 300 V	CAT III 300 V	CAT IV 300 V (CM4002) CAT III 600 V (CM4002) CAT III 300 V (CM4003)	CAT IV 600 V CAT III 1000 V
CE		✔	✔	✔	✔	✔	✔	✔	✔
Dustproof and waterproof		IP54*2	IP40	IP40	IP40	IP40	N / A	IP40	IP54*2
Drop proof		N / A	✔	✔	✔	✔	N / A	N / A	N / A
Power supply		LR03 ×2 Alkaline	CR2032 ×1 Coin type	CR2032 ×1 Coin type	CR2032 ×1 Coin type	CR2032 ×1 Coin type	LR03 ×1 Alkaline	LR6 ×2 Alkaline	LR03 ×2 Alkaline
Dimensions (W × H × D)		65 × 247 × 35 mm 2.56 × 9.72 × 1.38 in	57 × 175 × 16 mm 2.24 × 6.89 × 0.63 in	57 × 181 × 16 mm 2.24 × 7.13 × 0.63 in	57 × 198 × 16 mm 2.24 × 7.80 × 0.63 in	57 × 198 × 16 mm 2.24 × 7.80 × 0.63 in	37 × 160 × 27 mm 1.46 × 6.30 × 1.06 in	64 × 233 × 36 mm 2.52 × 9.17 × 1.41 in	82 × 241 × 37 mm 3.23 × 9.49 × 1.46 in
Weight		300 g / 10.6 oz	100 g / 3.5 oz	100 g / 3.5 oz	103 g / 3.6 oz	103 g / 3.6 oz	115 g / 4.1 oz	400 g / 14.1 oz	450 g / 15.9 oz

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.



Sleeve attached
CAT III, CAT IV

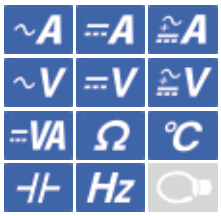
No sleeve attached
CAT II
When a sleeve is not attached, the test leads can only be used in a CAT II environment.

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

AC/DC Current

AC/DC CLAMP METER CM4371, CM4372, CM4373, CM4374, CM4375, CM4376

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year



Accessories

L9207-10 C0203

- LR03 Alkaline battery ×2
- Instruction manual

ϕ33 mm =1.30 in

CM4371
600 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

CM4372
600 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

GENNECT Cross
Bluetooth®
Please see www.hioki.com for list of supported regions.

ϕ55 mm =2.17 in

CM4373
2000 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

CM4374
2000 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

GENNECT Cross
Bluetooth®
Please see www.hioki.com for list of supported regions.

ϕ34 mm =1.34 in

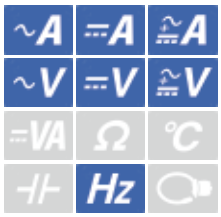
CM4375
1000 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

CM4376
1000 A AC/DC
True RMS
CAT IV 600 V
CAT III 1000 V

GENNECT Cross
Bluetooth®
Please see www.hioki.com for list of supported regions.

CLAMP ON AC/DC HiTESTER 3284, 3285

Not CE marked
Product warranty for 3 years
Accuracy guaranteed for 1 year



Accessories

L9207-10 9399/9345*

- Hand strap
- Stacked manganese battery 6F22
- Instruction manual

Model 3284 includes the 9399, and Model 3285 includes the 9346 carrying case.

ϕ33 mm =1.30 in

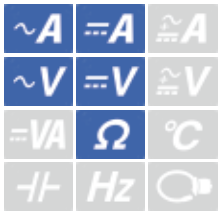
3284
200 A AC/DC
True RMS
CAT III 600 V

ϕ55 mm =2.17 in

3285
2000 A AC/DC
True RMS
CAT III 600 V

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year

CLAMP ON AC/DC HiTESTER 3287, 3288, 3288-20



Accessories

L9208 9398

- Coin type lithium battery CR2032×1
- Instruction manual

ϕ35 mm =1.38 in

3287
100 A AC/DC
True RMS
V: CAT III 300 V
A: CAT III 600 V

ϕ35 mm =1.38 in

3288
1000 A AC/DC
True RMS
V: CAT III 300 V
A: CAT III 600 V

ϕ35 mm =1.38 in

3288-20
1000 A AC/DC
True RMS
V: CAT III 300 V
A: CAT III 600 V

*1

Model	CM4371・72	CM4373・74	CM4375・76		Basic accuracy
Measurement parameters					
AC Current	✔	N / A	N / A	20.00 A/600.0 A (guaranteed accuracy range: 1.00 A to 600.0 A)	±1.3% rdg ±0.08 A
	N / A	✔	N / A	600.0 A/2000 A (guaranteed accuracy range: 1.0 A to 2000 A)	±1.3% rdg ±0.3 A
	N / A	N / A	✔	1000 A (guaranteed accuracy range: 1.0 A to 999.9 A)	±1.3% rdg ±0.3 A
DC Current	✔	N / A	N / A	20.00 A/600.0 A (guaranteed accuracy range: ±1.00A to ±600.0 A)	±1.3% rdg ±0.08 A
	N / A	✔	N / A	600.0 A/2000 A (guaranteed accuracy range: ±1.0A to ±2000 A)	±1.3% rdg ±0.3 A
	N / A	N / A	✔	1000 A (guaranteed accuracy range: ±1.0 A to ±999.9 A)	±1.3% rdg ±0.3 A
AC + DC Current	✔	N / A	N / A	20.00 A/600.0 A	±1.3% rdg ±0.13 A
	N / A	✔	N / A	600.0 A/2000 A	±1.3% rdg ±1.3 A
	N / A	N / A	✔	30.0 A/900.0 A/999.9 A	±1.3% rdg ±1.3 A
AC Voltage	✔	✔	✔	6.000 V/60.00 V/600.0 V/1000 V	±0.9% rdg ±0.003 V
DC Voltage	✔	✔	✔	600.0 mV/6.000 V/60.00 V/600.0 V/1500 V*2	±0.5% rdg ±0.5 mV
AC + DC Voltage	✔	✔	✔	6.000 V/60.00 V/600.0 V/1000 V	±1.0% rdg ±0.013 V
DC Power	✔	N / A	N / A	0.0 VA to 1020 kVA*2	±2.0% rdg ±20 dgt
	N / A	✔	N / A	0.000 kVA to 3400 kVA*2	±2.0% rdg ±20 dgt
	N / A	N / A	✔	0.000 kVA to ±1700 kVA*2	±2.0% rdg ±0.020 kVA
Resistance	✔	✔	✔	600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ	±0.7% rdg ±0.5 Ω
Temperature	✔	✔	✔	-40.0°C to 400.0°C	±0.5% rdg ±3.0°C
Electrostatic capacity	✔	✔	✔	1.000 µF/10.00 µF/100.0 µF/1000 µF	±1.9% rdg ±0.005 µF
Frequency	✔	✔	✔	9.999 Hz/99.99 Hz/999.9 Hz	±0.1% rdg ±0.003 Hz

Other	
Display refresh rate	5 times/s*3
Operating temperature	-25°C to 65°C, 90% RH or less (non-condensating)
Storage temperature	-30°C to 70°C, 90% RH or less (non-condensating)
Dustproof and waterproof	Grip IP54*4
Power supply Continuous operating time	Alkaline battery LR03 ×2 45 hours*5
Dimensions (W × H × D)	CM4371, CM4372: 65 × 215 × 35 mm (2.56 × 8.46 × 1.38 in) CM4373, CM4374: 65 × 250 × 35 mm (2.56 × 9.84 × 1.38 in) CM4375, CM4376: 65 × 242 × 35 mm (2.56 × 9.53 × 1.38 in)
Weight	CM4371, CM4372: 340 g (12 oz) CM4373, CM4374: 530 g (18.7 oz) CM4375, CM4376: 330 g (11.6 oz)

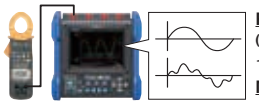
*1 Excludes CM4375, CM4376
*2 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:
1. The circuit under measurement is isolated from the commercial power grid.
2. The circuit under measurement is isolated from ground.
e.g.: when measuring the no-load voltage of an ungrounded PV panel
Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.
*3 Excludes electrostatic capacity, frequency, and temperature
*4 While in storage, or when measuring an insulated conductor.
Do not use when wet.
*5 With backlight and Bluetooth® communications turned OFF

Order code **CM4371**
Order code **CM4372**
Order code **CM4373**
Order code **CM4374**
Order code **CM4375**
Order code **CM4376**

Model	3284	3285		Basic accuracy
Measurement parameters				
AC Current	✔	N / A	20.00 A/200.0 A (guaranteed accuracy range: 1.00 A to 200.0 A)	±1.3% rdg ±3 dgt
	N / A	✔	200.0 A/2000 A (guaranteed accuracy range: 10.0 A to 2000 A)	±1.3% rdg ±3 dgt
DC Current	✔	N / A	20.00 A/200.0 A (guaranteed accuracy range: 1.00 A to 200.0 A)	±1.3% rdg ±3 dgt
	N / A	✔	200.0 A/2000 A (guaranteed accuracy range: 10.0 A to 2000 A)	±1.3% rdg ±3 dgt
AC + DC Current	✔	N / A	20.00 A/200.0 A	±1.3% rdg ±13 dgt
	N / A	✔	200.0 A/2000 A	±1.3% rdg ±13 dgt
AC Voltage	✔	✔	30.00 V/300.0 V/600 V	±1.0% rdg ±3 dgt
DC Voltage	✔	✔	30.00 V/300.0 V/600 V	±1.0% rdg ±3 dgt
AC + DC Voltage	✔	✔	30.00 V/300.0 V/600 V	±1.0% rdg ±7 dgt
Frequency	✔	✔	10.00 Hz/100.0 Hz/1000 Hz	±0.3% rdg ±1 dgt

Other	
Display refresh rate	4 times/s (FAST), 2 times/s (NORMAL), 1 time/3s (SLOW)
Operating temperature	0°C to 40°C, 80% RH or less (non-condensating)
Storage temperature	-10°C to 50°C (non-condensating)
Dustproof and waterproof	IP40
Power supply Continuous operating time	Stacked manganese battery 6F22 ×1, 25 hours or AC adapter 9445-02/-03 (Options)
Dimensions (W × H × D)	3284: 62 × 230 × 39 mm (2.44 × 9.06 × 1.54 in) 3285: 62 × 260 × 39 mm (2.44 × 10.24 × 1.54 in)
Weight	3284: 460 g (16.2 oz) 3285: 540 g (19 oz)

Includes external output function
Current and instantaneous waveforms can be recorded by connecting to the recorder.



*Requires optional L9094, L9095 or L9096 Output Cord

Recording output
(REC mode)
1V DC / f.s.
Monitor output
(MON mode)
1V AC / f.s.

Order code **3284**
Order code **3285**

Model	3287	3288	3288-20		Basic accuracy
Measurement parameters					
AC Current	✔	N / A	N / A	10.00 A/100.0 A (Display range: 0A to 10.00 A/100.0 A)	±1.5% rdg ±5 dgt
	N / A	✔	✔	100.0 A/1000 A (Display range: 0A to 100.0 A/1000 A)	±1.5% rdg ±5 dgt
DC Current	✔	N / A	N / A	10.00 A/100.0 A	±1.5% rdg ±5 dgt
	N / A	✔	✔	100.0 A/1000 A	±1.5% rdg ±5 dgt
AC Voltage	✔	✔	✔	4.200 V/42.00 V/420.0 V/600 V	±2.3% rdg ±8 dgt
DC Voltage	✔	✔	✔	420.0 mV/4.200 V/42.00 V/420.0 V/600 V	±1.3% rdg ±4 dgt
Resistance	✔	✔	✔	420.0 Ω/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ	±2.0% rdg ±4 dgt

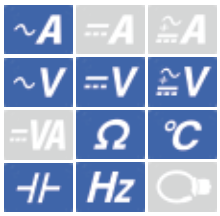
Other	
Display refresh rate	2.5 times/s
Operating temperature	0°C to 40°C, 80% RH or less (non-condensating)
Storage temperature	-10°C to 50°C, 80% RH or less (non-condensating)
Dustproof and waterproof	N / A
Power supply Continuous operating time	Coin type lithium battery CR2032 ×1 25 hours
Dimensions(W × H × D)	57 × 180 × 16 mm (2.24 × 7.09 × 0.63 in)
Weight	3287: 170 g (6.0 oz), 3288, 3288-20: 150 g (5.3 oz)

Order code **3287**
Order code **3288**
Order code **3288-20**

AC Current

AC CLAMP METER CM4141, CM4142

Product warranty for 3 years
Accuracy guaranteed for 1 year



Accessories

L9207-10 C0203

- LR03 Alkaline battery ×2
- Instruction manual

ϕ55 mm =2.17 in

CM4141

2000 A AC

True RMS

CAT IV 600 V
CAT III 1000 V

ϕ55 mm =2.17 in

CM4142

2000 A AC

True RMS

CAT IV 600 V
CAT III 1000 V

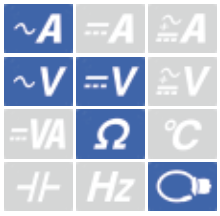
GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

AC CLAMP METER 3280-10F, CM3289, CM3281, CM3291

Product warranty for 3 years
Accuracy guaranteed for 1 year



Accessories

L9208

- CARRYING CASE (models vary as shown on right)
- Coin type lithium battery CR2032×1
- Instruction manual

ϕ33 mm =1.30 in

3280-10F
3280-70F

1000 A AC

MEAN Value

V: CAT III 300 V
A: CAT IV 300 V

9398 (-10F)

C0205 (-70F)

ϕ33 mm =1.30 in

CM3289

1000 A AC

True RMS

V: CAT III 300 V
A: CAT IV 300 V

9398

ϕ46 mm=1.81 in

CM3281
CM3291

New

2000 A AC

CM3281: MEAN Value
CM3291: True RMS

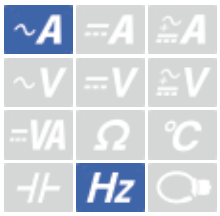
V: CAT III 300 V
A: CAT IV 300 V

CARRYING CASE

Leakage Current

AC LEAKAGE CLAMP METER CM4001, CM4002, CM4003

Product warranty for 3 years
Accuracy guaranteed for 1 year



WIRELESS ADAPTER
Z3210 (Option)
Attach to enable Bluetooth® wireless technology

ϕ24 mm=0.94 in

CM4001

New

0.6 mA to 600 A AC

True RMS

CAT III 300 V

Accessories

CARRYING CASE

- STRAP
- LR03 Alkaline battery ×1
- Instruction manual

With Z3210

GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

ϕ40 mm=1.57 in

CM4002

New

0.06 mA to 200 A AC

True RMS

CAT IV 300 V
CAT III 600 V

Accessories

C0203

- LR6 Alkaline battery ×2
- Instruction manual

With Z3210

GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

ϕ40 mm=1.57 in

CM4003

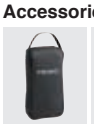
New

0.06 mA to 200 A AC

True RMS

CAT III 300 V

Accessories



C0203 **L9097**

- LR6 Alkaline battery ×2
- Instruction manual
- USB cable

With Z3210

GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

Functions

- **External output**
- **External power supply**

Model		CM4141・CM4142		Basic accuracy
Measurement parameters	AC Current	✔	60.00 A/600.0 A/2000 A (guaranteed accuracy range: 1.00A to 2000 A)	±1.5% rdg ±0.08 A
	AC Voltage	✔	6.000 V/60.00 V/600.0 V/1000 V	±0.9% rdg ±0.003 V
	DC Voltage	✔	600.0 mV/6.000 V/60.00 V/600.0 V/1500 V *1	±0.5% rdg ±0.5 mV
	AC + DC Voltage	✔	6.000 V/60.00 V/600.0 V/1000 V	±1.0% rdg ±0.013 V
	Resistance	✔	600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ	±0.7% rdg ±0.5 Ω
	Temperature	✔	-40.0°C to 400.0°C	±0.5% rdg ±3.0°C
	Electrostatic capacity	✔	1.000 µF/10.00 µF/100.0 µF/1000 µF	±1.9% rdg ±0.005 µF
	Frequency	✔	9.999 Hz/99.99 Hz/999.9 Hz	±0.1% rdg ±0.003 Hz

Other	Display refresh rate	5 times/s*2
	Operating temperature	-25°C to 65°C, 90% RH or less (non-condensating)
	Storage temperature	-30°C to 70°C, 90% RH or less (non-condensating)
	Dustproof and waterproof	Grip IP54*3
	Power supply Continuous operating time	Alkaline battery LR03 ×2 48 hours*4
	Dimensions(W × H × D)	65 × 247 × 35 mm (2.56 × 9.72 × 1.38 in)
	Weight	300 g (10.6 oz)

*1 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:
1. The circuit under measurement is isolated from the commercial power grid.
2. The circuit under measurement is isolated from ground.
e.g.: when measuring the no-load voltage of an ungrounded PV panel
Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.
*2 Excludes electrostatic capacity, frequency, and temperature
*3 While in storage, or when measuring an insulated conductor.
Do not use when wet.
*4 With backlight and Bluetooth® communications turned OFF

Order code **CM4141**

Order code **CM4142**

*1

Model		3280-10F	CM3289	CM3281・CM3291		Basic accuracy
Measurement items	AC Current	✔	✔	N / A	42.00 A/420.0 A/1000 A (guaranteed accuracy range: 4.00A to 1000 A)	±1.5% rdg ±5 dgt
		N / A	N / A	✔	42.00 A/420.0 A/2000 A (guaranteed accuracy range: 4.00A to 1999 A)	±1.5% rdg ±5 dgt
	AC Voltage	✔	✔	✔	4.200 V/42.00 V/420.0 V/600 V	±1.8% rdg ±7 dgt
	DC Voltage	✔	✔	✔	420.0 mV/4.200 V/42.00 V/420.0 V/600 V	±1.0% rdg ±3 dgt
	Resistance	✔	✔	✔	420.0 Ω/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ	±2.0% rdg ±4 dgt

Other	Display refresh rate	2.5 times/s
	Operating temperature	-25°C to 65°C, 80% RH or less (non-condensating)
	Storage temperature	-25°C to 65°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP40 (EN60529)
	Power supply Continuous operating time	Coin type lithium battery CR2032 ×1 3280-10F, CM3281: 120 hours CM3289: 70 hours CM3291: 70 hours
	Dimensions (W × H × D)	3280-10F: 57 × 175 × 16 mm (2.24 × 6.89 × 0.63 in) CM3289: 57 × 181 × 16mm (2.24 × 7.13 × 0.63 in) CM3281, CM3291: 57 × 198 × 16 mm (2.24 × 7.80 × 0.63 in)
	Weight	3280-10F: 100 g (3.5 oz) CM3289: 100 g (3.5 oz) CM3281, CM3291: 103 g (3.6 oz)

*1 Excludes 3280F

3280F,CM3289,CM3291 are compatible with the CT6280 AC Flexible Current Sensor

Φ130mm (5.1 in), 4200 A AC

Model 3280-70F includes 3280-10F AC Clamp Meter and CT6280 AC Flexible Sensor as a set

Order code **3280-10F**

Order code **3280-70F**

Order code **CM3289**

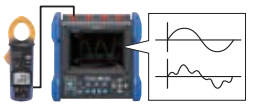
Order code **CM3291**

Model		CM4001	CM4002・CM4003		Basic accuracy
Measurement items	AC Current	✔	N / A	60.00 mA/600.0 mA/6.000A/60.00A/600.0A (guaranteed accuracy range: 0.60 mA to 600.0A)	±1.5% rdg ±0.05 mA
		N / A	✔	6.000 mA/60.00 mA/600.0 mA/6.000A/60.00A/200.0A (guaranteed accuracy range: 0.060 mA to 200.0A)	±1.0% rdg ±0.005 mA
	Frequency	✔	N / A	999.9 Hz	±1.5% rdg ±0.1 Hz
		N / A	✔	999.9 Hz/2000 Hz	±0.1% rdg ±0.1 Hz

Other	Display refresh rate	5 times/s
	Operating temperature	-10°C to 65°C (non-condensating)
	Storage temperature	CM4001: -10°C to 65°C (non-condensating) CM4002, CM4003: -30°C to 70°C (non-condensating)
	Dustproof and waterproof	CM4002, CM4003: IP40
	Power supply Continuous operating time	CM4001: LR03 Alkaline battery × 1, 32 hours CM4002, CM4003: LR6 Alkaline battery × 2, 48 hours (LR6, without Z3210) CM4003: AC ADAPTER Z1013 (Option)
	Dimensions(W × H × D)	CM4001: 37 × 160 × 27 mm (1.46 × 6.30 × 1.06 in) CM4002, CM4003: 64 × 233 × 36 mm (2.52 × 9.17 × 1.41 in)
	Weight	CM4001: 115 g (4.1 oz) CM4002, CM4003: 400 g (14.1 oz)

Includes external output function
(CM4003 Only)

Current and instantaneous waveforms can be recorded by connecting to the recorder.



*Using CONNECTION CABLE L9097 (Accessories)

RMS value output
(RMS mode)
DC 600 mV/f.s.
Waveform output
(WAVE mode)
AC 600 mV/f.s.

Model CM4001-90, CM4002-90, CM4003-90 includes Z3210 as a set

Order code **CM4001**

Order code **CM4001-90**

Order code **CM4002**

Order code **CM4002-90**

Order code **CM4003**

Order code **CM4003-90**

Order code **Z3210**

AC Power

For more details

AC CLAMP POWER METER CM3286, CM3286-01

Product warranty for 3 years
Accuracy guaranteed for 1 year

ϕ46 mm=1.81 in

CM3286 CM3286-01

CM3286
AC 600 A
True RMS
CAT IV 600 V
CAT III 1000 V

CM3286-01
AC 600 A
True RMS
CAT IV 600 V
CAT III 1000 V

GENNECT Cross
Bluetooth®
Please see www.hioki.com for list of supported regions.

Accessories

L9257 C0203

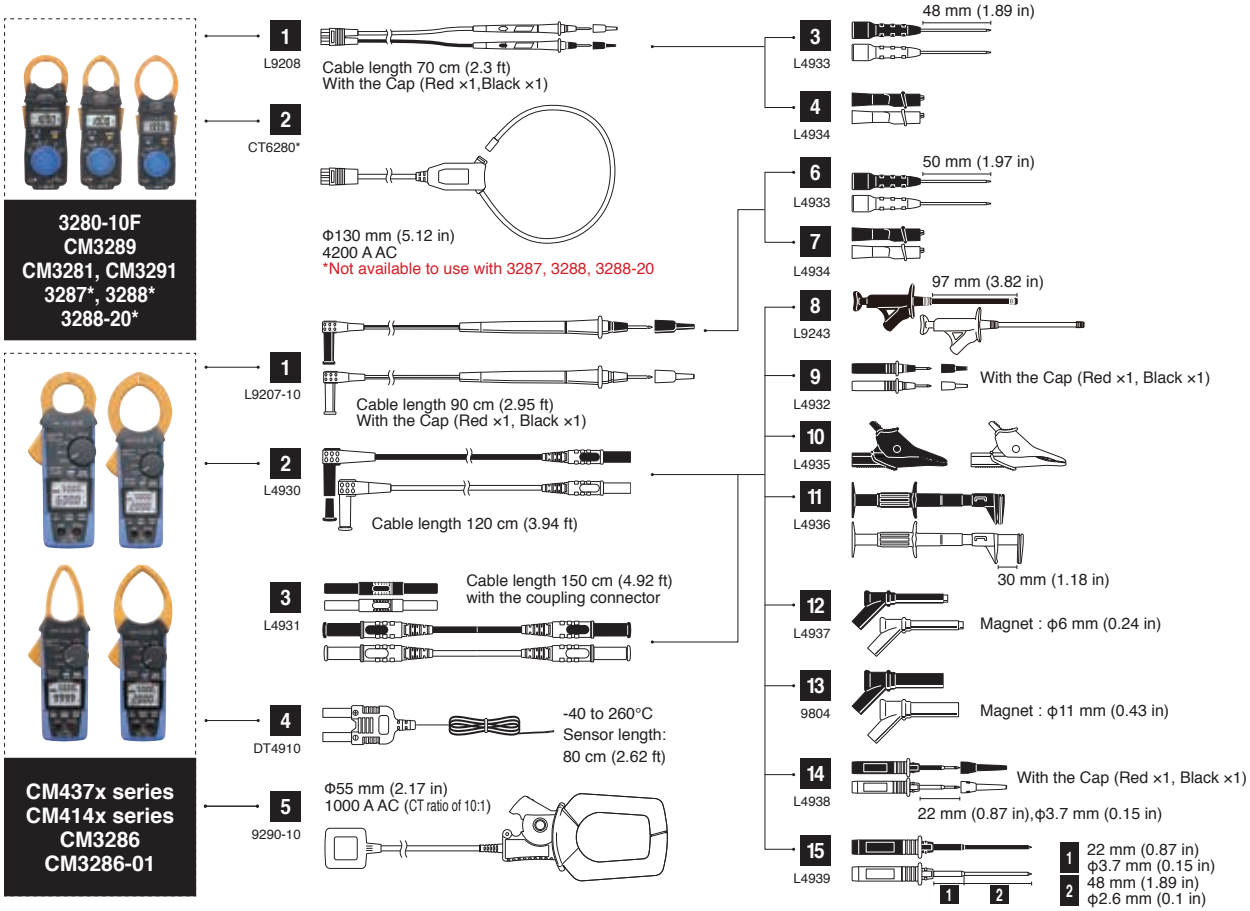
- LR03 Alkaline battery ×2
- Instruction manual

Order code **CM3286**
Order code **CM3286-01**

Measurement parameters	Power (Active/ reactive/ apparent)	Single phase	3.600 kW/36.00 kW/360.0 kW Guaranteed accuracy range: 0.005 kW to 360.0 kW Basic accuracy: ±2.0% rdg ±7 dgt
		Balanced three-phase 3-wire	7.200 kW/72.00 kW/720.0 kW guaranteed accuracy range: 0.020 kW to 623.5 kW Basic accuracy: ±3.0% rdg ±10 dgt
		Balanced three-phase 4-wire	10.80 kW/108.0 kW/1080 kW guaranteed accuracy range: 0.040 kW to 1080 kW Basic accuracy: ±2.0% rdg ±3 dgt
	AC Current		6.000 A/60.00 A/600.0 A Basic accuracy: ±1.0% rdg ±3 dgt
	AC Voltage		600.0 V Basic accuracy: ±0.7% rdg ±3 dgt
	Power factor		Single-phase, Balanced three-phase 4-wire: [Regeneration] -1.000 to -0.001, [Consumption] 0.000 to 1.000 Balanced three-phase 3-wire: [Regeneration] -0.001, [Consumption] 0.000 to 1.000
	Phase angle		Single-phase, Balanced three-phase 4-wire : [lead] -180.0° to -0.1°, [lag] 0.0° to 179.9° Balanced three-phase 3-wire: [lead] -90.0° to -0.1°, [lag] 0.0° to 90.0°
	Frequency		45.0 Hz to 999.9 Hz
	Simple Active Energy Consumption (Single-phase)		99.99 Wh/999.9 Wh/9.999 kWh/ 99.99 kWh/999.9 kWh/9999 kWh/
	Harmonic*1 CM3286-01 only		Voltage or current harmonic levels up to 30th order, content factor, total harmonic distortion ratio
Other	Display refresh rate		2 times/s
	Operating temperature		-25°C to 65°C, 80% RH or less (non-condensating)
	Storage temperature		-25°C to 65°C, 80% RH or less (non-condensating)
	Dustproof and waterproof		Grip IP54*2
	Power supply Continuous operating time		LR03 Alkaline battery ×2 25 hours
	Dimensions (W × H × D)		82 × 241 × 37 mm (3.23 × 9.49 × 1.46 inch)
	Weight		450 g (15.9 oz)

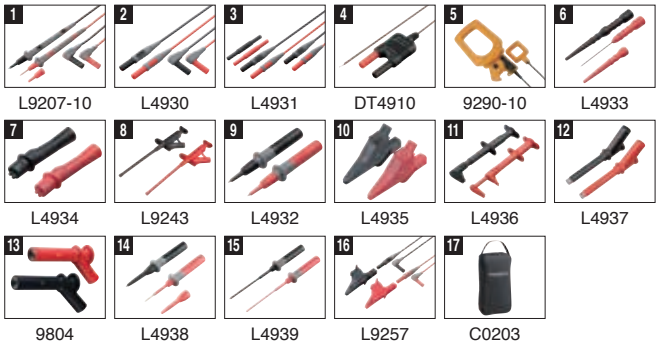
*1 Harmonics can be displayed using dedicated application software (GENNECT Cross)
*2 While in storage, or when measuring current on an insulated conductor

Options

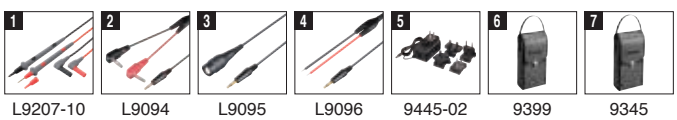


3280-10F, CM3289, CM3281, CM3291, 3287, 3288, 3288-20		
1	TEST LEAD L9208	
2	AC FLEXIBLE CURRENT SENSOR CT6280	For 3280-10F, CM3289, CM3281, CM3291
3	CONTACT PIN SET L4933	
4	SMALL ALLIGATOR CLIP SET L4934	
5	CARRYING CASE 9398	For 3280-10F, CM3289, 3287, 3288, 3288-20
6	CARRYING CASE C0205	Bundled accessory for CT6280
7	TEST LEADS HOLDER 9209	For 3280-10F, CM3289, 3287, 3288, 3288-20

CM437x series, CM4141, CM4142, CM3286, CM3286-01		
1	TEST LEAD L9207-10	
2	CONNECTION CABLE SET L4930	
3	EXTENSION CABLE SET L4931	
4	THERMOCOUPLES(K) DT4910	For CM437x series, CM4141, CM4142
5	CLAMP ON ADAPTER 9290-10	For CM3286, CM3286-01
6	CONTACT PIN SET L4933	
7	SMALL ALLIGATOR CLIP SET L4934	
8	GRABBER CLIP L9243	
9	TEST PIN SET L4932	
10	ALLIGATOR CLIP SET L4935	
11	BUS BAR CLIP SET L4936	
12	MAGNETIC ADAPTER SET L4937	
13	MAGNETIC ADAPTER SET 9804	
14	TEST PIN SET L4938	
15	BREAKER PIN SET L4939	
16	CONNECTION CORD L9257	Combination of L4930 and L4935
17	CARRYING CASE C0203	



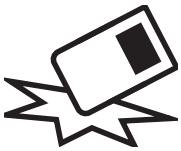
3284, 3285		
1	TEST LEAD L9207-10	3284, 3285 only, 90cm
2	OUTPUT CORD L9094	1.5m, Banana terminal
3	OUTPUT CORD L9095	1.5m, BNC terminal
4	OUTPUT CORD L9096	1.5m, Block terminal
5	AC ADAPTER 9445-02	
6	CARRYING CASE 9399	3284 only
7	CARRYING CASE 9345	3285 only



CM4002, CM4003		
1	CONNECTION CABLE L9097	
2	CONVERSION ADAPTER 9704	
3	AC ADAPTER Z1013	
4	CARRYING CASE C0203	

INSULATION TESTERS

DROP PROOF



Built tough to withstand
a 1-meter
drop onto a concrete floor

5 ranges

Rated output voltage (DC)
Effective maximum indicated value

- 50 V / 100 MΩ
- 125 V / 250 MΩ
- 250 V / 500 MΩ
- 500 V / 2000 MΩ
- 1000 V / 4000 MΩ

Manage measurement data using Bluetooth® communication (IR4057-50 with Z3210 Only)

WIRELESS ADAPTER
Z3210 (Option)

Attach to enable Bluetooth® wireless technology

Learn More

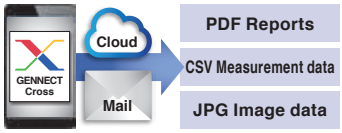
Transport to the Excel® file

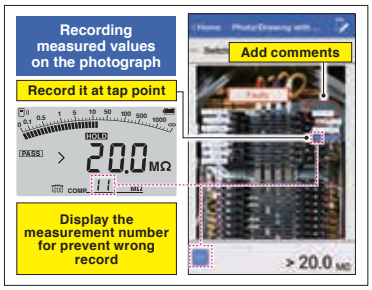
*It will be supported by the 2021 upgrade.

Open an Excel® file and select a cell. The measured value being held on the instrument's display will be transferred to the computer and entered into the selected cell.

Transport to GENNECT Cross

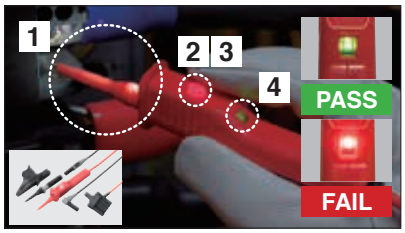
Learn More





GENNECT Cross, a free app designed specifically for use with Hioki measuring instruments, lets you check and manage measurement results and create reports. The software provides a range of functionality that helps manage data in the field, including photographing measurement sites, placing measurement results on photographs, and saving handwritten memos.

Significantly improve testing speed using test lead with remote switch



1. LED light shines a spotlight on the target
2. Red light warns of live voltage detection
3. Measurement start switch
4. Identify pass/fail decisions with red or green light

TEST LEAD SET WITH REMOTE SWITCH L9788-11 (Option)
*Standard with the IR4056-21, Not CE Marked

Identify PASS / FAIL using light and sound

Compare measured values to pre-set reference values to generate a pass or fail decision with the Comparator function.

Convenient for inspections

Low resistance measurement*1

Perform EV and HEV continuity checks as well as resistance measurement of protective conductors in facility electrical equipment as defined by IEC 60364.

AC/DC voltage measurement

Automatically detect AC or DC for testing. Use as a tester thanks to DC voltage measurement functionality.

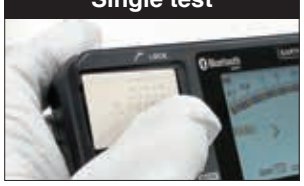
PV Ω dedicated function*2

Measurement is not affected even when the PV system is online.

*1 Excludes IR4053 *2 IR4053 Only

One-touch Start and Stop

Single test



Measurement voltage is applied while MEASURE key is pressed

Continuous test

Lift and lock the MEASURE key to apply a continuous stream of voltage

Prevent Accidental High Voltage Generation

Flashing light

Release lock

Under [500V], [1000V], or [PVΩ] settings, the RELEASE button will blink. Press to unlock the release of high voltages as an extra safety meaure.

Lineup - Digital

CE *Excludes IR4056-21
Product warranty for 3 years
Accuracy guaranteed for 1 year

Measurement type	Standard	High-speed	PV	High-voltage
Model	**IR4056-20 IR4056-21**	**IR4057-50**	**IR4053-10**	**IR3455**
Appearance				
Number of ranges	5	5	5	5
Testing voltage (DC) / Effective maximum indicated value	50 V /100 MΩ 125 V /250 MΩ 250 V /500 MΩ 500 V /2000 MΩ 1000 V /4000 MΩ			250 V /500 GΩ 500 V /1.00 TΩ 1000 V /2.00 TΩ 2500 V /5.00 TΩ 5000 V /10.0 TΩ
1st effective measuring range	0.200 to 10.00 MΩ (50 V) 0.200 to 25.0 MΩ (125 V) 0.200 to 50.0 MΩ (250 V) 0.200 to 500 MΩ (500 V) 0.200 to 1000 MΩ (1000 V)			0.00 to 500 GΩ (250 V) 0.00 to 1.00 TΩ (500 V) 0.00 to 2.00 TΩ (1000 V) 0.00 to 5.00 TΩ (2500 V) 0.00 to 10.0 TΩ (5000 V)
PV Ω measurement	N / A	N / A	✔	N / A
Leakage current	N / A	N / A	N / A	1.00 nA to 1.20 mA
DC voltage	600 V	600 V	1000 V	1.00 kV
AC voltage	600 V	600 V	600 V	750 V
Low resistance measurement	✔	✔	N / A	N / A
Displaying 1-min. values	N / A	✔	N / A	N / A
Comparator decision response time	✔ 0.8 second	✔ 0.3 second	✔ 0.8 second (PV : 4 s)	N / A
AUTO power save	✔	✔	✔	✔
AUTO range	✔	✔	✔	✔
Data hold	MANUAL	MANUAL	MANUAL	MANUAL
Bluetooth® communication	N / A	✔ (With Z3210)	N / A	N / A
Bar graph	N / A	✔	N / A	✔
Backlight	✔	✔	✔	✔
Safety standard category	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V
CE	✔	✔	✔	✔
Dustproof and waterproof	IP40	IP40	IP40	IP40
Drop proof	✔	✔	✔	N / A
Power supply	LR03 × 4 alkaline	LR03 × 4 alkaline	LR03 × 4 alkaline	LR03 × 6 alkaline
Dimensions (W × H × D)	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	260 × 250.6 × 119.5 mm 10.24 × 9.87 × 4.70 in
Weight	600 g (21.2 oz)	640 g (22.6 oz)	600 g (21.2 oz)	2.8 kg (98.8 oz)

Lineup - Analog Meters

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

Measurement parameters

1 Range

IR4016 -20

Testing voltage (DC)	500 V
Effective maximum indicated value	100 MΩ
1st effective measuring range	0.1 MΩ to 50 MΩ
2nd effective measuring range	0.01 MΩ to 0.1 MΩ or less 50 MΩ or more to 100 MΩ

IR4017 -20

Testing voltage (DC)	500 V
Effective maximum indicated value	1000 MΩ
1st effective measuring range	1 MΩ to 500 MΩ
2st effective measuring range	0.5 MΩ to 1 MΩ or less 500 MΩ or more to 1000 MΩ

IR4018 -20

Testing voltage (DC)	1000 V
Effective maximum indicated value	2000 MΩ
1st effective measuring range	2 MΩ to 1000 MΩ
2nd effective measuring range	1 MΩ to 2 MΩ or less 1000 MΩ or more to 2000 MΩ

3 Ranges

3490

Testing voltage (DC)	250 V	500 V	1000 V
Effective maximum indicated value	100 MΩ		4000 MΩ
1st effective measuring range	0.05 MΩ to 50 MΩ		2 MΩ to 1000 MΩ
2nd effective measuring range	0.01 MΩ to 0.05 MΩ or less 50 MΩ to 100 MΩ		0.5 MΩ to 2 MΩ 1000 MΩ to 4000 MΩ

Accuracy (Insulation)	±5% of indicated value (1st effective measuring range) ±10% of indicated value (2nd effective measuring range)
AC Voltage	0 to 600 V

Other

Operating temperature	0°C to 40°C, 90% RH or less (non-condensating)
Storage temperature	-10°C to 50°C, 90% RH or less (non-condensating)
Dustproof and waterproof	IP40
Drop proof	YES
Backlight	YES
Safety standard category	CAT III 600 V
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	LR6 alkaline battery ×4 20 hours
Dimensions(W × H × D)	IR4016, IR4017, IR4018: 162 × 182 × 57 mm (6.38 × 7.17 × 2.24 in) 3490: 162 × 167 × 52 mm (6.38 × 6.57 × 2.05 in)
Weight	IR4016, IR4017, IR4018: 820 g (28.9 oz), 3490: 840 g (29.6 oz)

Accessories

L9787

- TEST LEAD L9787 (1.2 m)
- Neck strap
- LR6 alkaline battery ×4
- Instruction manual

Order code **IR4016-20**
Order code **IR4017-20**
Order code **IR4018-20**
Order code **3490**

INSULATION TESTER IR4056-20, IR4056-21

CE * IR4056-20 only
Product warranty for 3 years
Accuracy guaranteed for 1 year

With
• TEST LEAD L9787
• Neck strap
• LR6 alkaline battery ×4
• Instruction manual

IR4056-20

With
• TEST LEAD SET WITH REMOTE SWITCH L9788-11
• Neck strap
• LR6 alkaline battery ×4
• Instruction manual

IR4056-21 Not CE marked

CAT S | DISPLAY HOLD | AUTO OFF

5 ranges
Comparator decision response time : 0.8 s
CAT III 600 V

INSULATION TESTER IR4057-50

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year

New

L4930

L4938

L4935

With
• CONNECTION CABLE L4930
• ALLIGATOR CLIP SET L4935
• TEST PIN SET L4938
• Neck strap
• LR6 alkaline battery ×4
• Instruction manual

IR4057-50

WIRELESS ADAPTER
Z3210 (Option)

Attach to enable Bluetooth® wireless technology

With Z3210

GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

CAT S | DISPLAY HOLD | AUTO OFF

5 ranges
Comparator decision response time : 0.3 s
Digital bar graph
CAT III 600 V

INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year

With
• TEST LEAD L9787
• Neck strap
• LR6 alkaline battery ×4
• Instruction manual

IR4053-10

CAT S | DISPLAY HOLD | AUTO OFF

5 ranges
Comparator decision response time : 0.8 s
Comparator decision response time (PV) : 4 s
CAT III 600 V

Model		IR4056, 57-50	IR4053						Basic accuracy
Measurement parameters	Insulation resistance	✔	✔	**Testing voltage (DC)**	**50 V**	**125 V**	**250 V**	**500 V**	**1000 V**	-
				Effective maximum indicated value (MΩ)	100	250	500	2000	4000	-
				1st effective measuring range (MΩ)	0.200 to 10.00	0.200 to 25.0	0.200 to 50.0	0.200 to 500	0.200 to 1000	±2% rdg ±2 dgt
				2nd effective measuring range (MΩ)	10.1 to 100.0	25.1 to 250	50.1 to 500	501 to 2000	1010 to 4000	±5% rdg
	PV Ω measurement	N / A	✔	**Testing voltage (DC)**	**500 V**		**1000 V**			-
				Effective maximum indicated value (MΩ)	2000		4000			-
				1st effective measuring range (MΩ)	0.200 to 500		0.200 to 1000			±4% rdg
				2nd effective measuring range (MΩ)	501 to 2000		1010 to 4000			±8% rdg
	DC Voltage	N / A	✔	4.200 V/42.00 V/420.0 V/1000 V						±1.3% rdg ±4 dgt *1
		✔	N / A	4.200 V/42.00 V/420.0 V/600 V						±1.3% rdg ±4 dgt *1
	AC Voltage	✔	✔	420.0 V *2/600 V						±2.3% rdg ±8 dgt *1
	Low resistance measurement	✔	N / A	10.00 Ω/100.0 Ω/1000 Ω						±3% rdg ±2 dgt

Other		
	Operating temperature	IR4056, 57-50: -25°C to 65°C, 90% RH or less (non-condensating) IR4053: 0°C to 50°C, 90% RH or less (non-condensating)
	Storage temperature	IR4056, 57-50: -25°C to 65°C, 90% RH or less (non-condensating) IR4053: -10 °C to 50°C, 90% RH or less (non-condensating)
	Dustproof and waterproof	IP40
	Standards	EN61326 (EMC) EN61557-1/-2/-4*3/-10
	Power supply Continuous operating time	LR6 alkaline battery ×4 20 hours
	Dimensions (W × H × D)	159 × 177 × 53 mm (6.26 × 6.97 × 2.09 inch)
	Weight	IR4056, 53: 600 g (21.2 oz) IR4057-50: 640 g (22.6 oz)

*1 Ranges in excess of 600 V/1000 V are outside the accuracy guarantee
*2 Minimum indicated value: 30.0 V
*3 Subclause 4.3 of Part 4 (interchanging of test leads) is not applicable when L9788-10 is used

Order code **IR4056-20**
Order code **IR4056-21**
Order code **IR4057-50**
Order code **IR4057-90**
Order code **IR4053-10**
Order code **Z3210**

Model IR4057-90 includes Z3210 as a set

HIGH VOLTAGE INSULATION TESTER IR3455

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

5 ranges
Bar graph
CAT IV 600 V, CAT III 1000 V

Order code **IR3455**

Accessories

9750, 9751

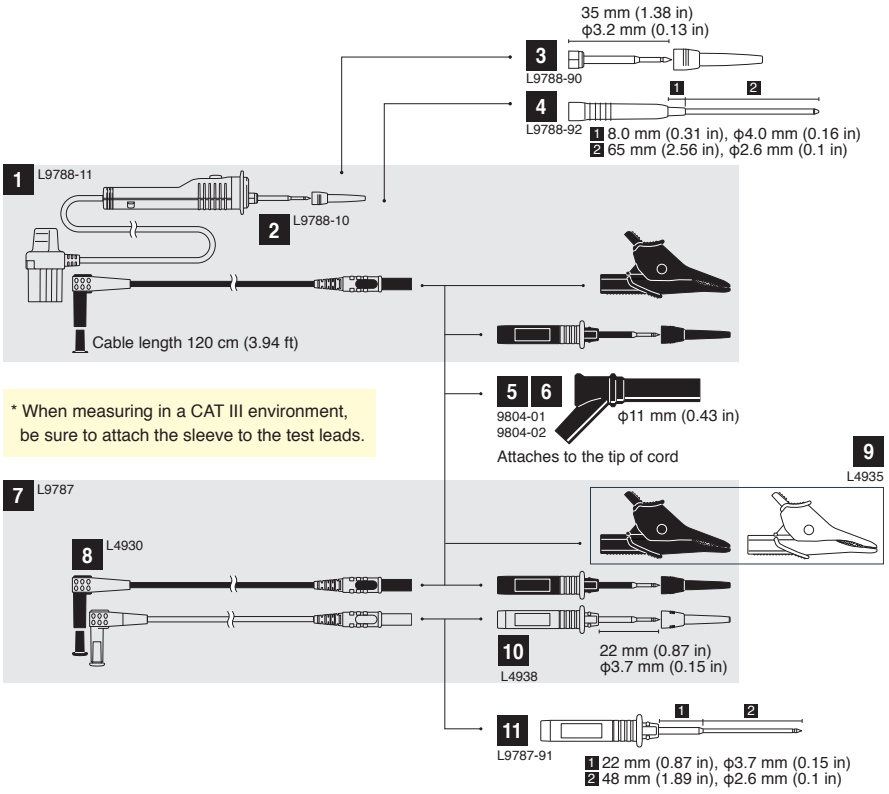
- TEST LEAD 9750 -01 (Red), -02 (Black), -03 (Blue) (3m) (×1 ea.)
- ALLIGATOR CLIP 9751 -01 (Red), -02 (Black), -03 (Blue) (×1 ea.)
- Instruction manual
- LR6 alkaline battery ×6
- USB cable
- CD-R (Data Analysis Software)

*1 Up to [Test voltage (setting value)/Resistance measurable at 100 nA]
*2 When the USB terminal is covered with the shutter *3 Options

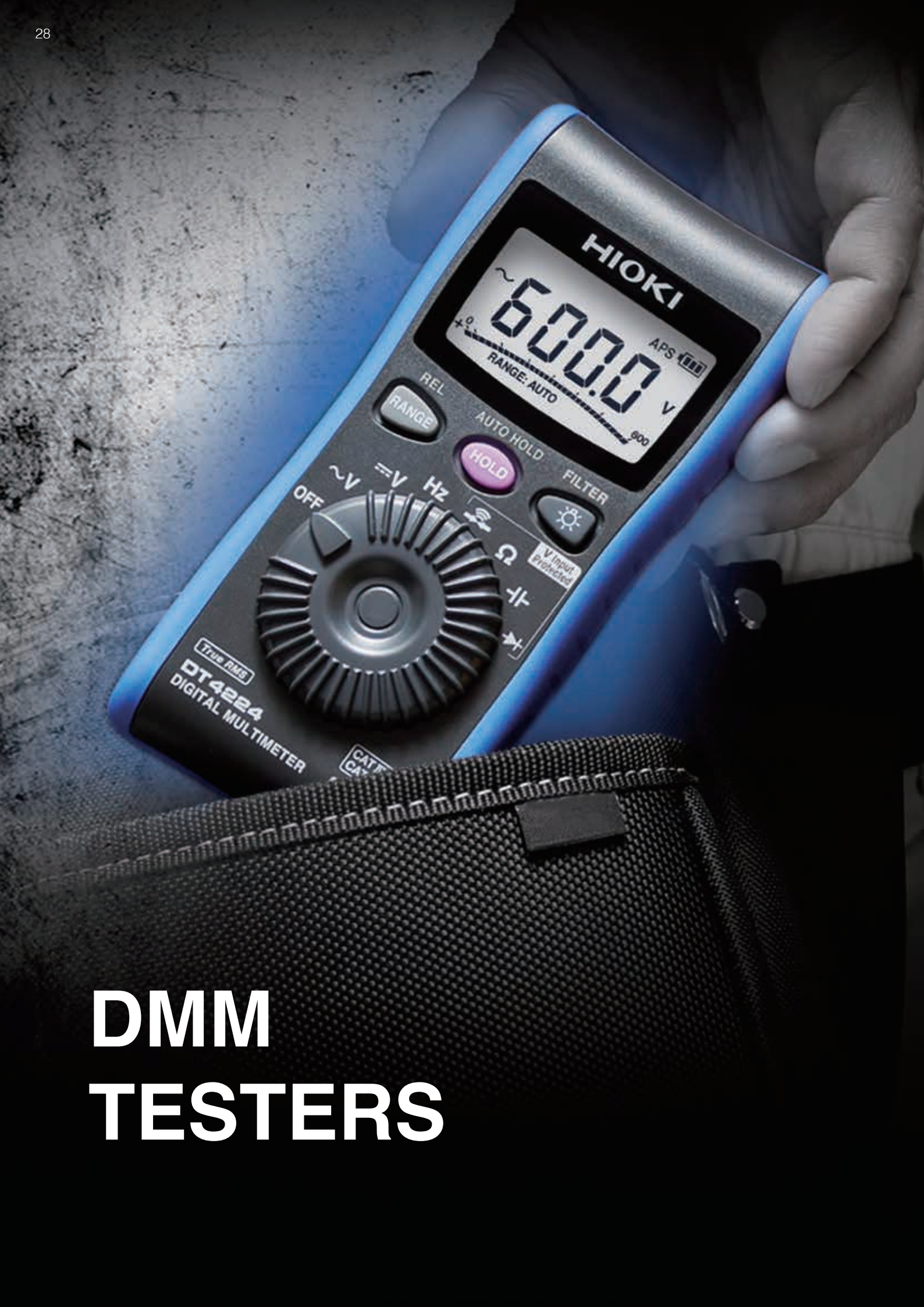
Measurement parameters	Insulation resistance	Testing voltage (DC) : measuring range	250 V: 0.00 MΩ to 500 GΩ
			500 V: 0.00 MΩ to 1.00 TΩ
			1 kV: 0.00 MΩ to 2.00 TΩ
			2.5 kV: 0.00 MΩ to 5.00 TΩ
			5 kV: 0.00 MΩ to 10.0 TΩ
		Measurement current	1 mA (Test voltage 250 V to 1.00 kV) 0.5 mA (Test voltage 1.10 kV to 2.50 kV) 0.25 mA (Test voltage 2.60 kV to 5.00 kV)
		Short-circuit current	2 mA or less
		Accuracy	±5% rdg ±5 dgt.*1
	Leakage current		10 nA/100 nA/1000 nA/10 µA/100 µA/1 mA Guaranteed accuracy range: 1.00 nA to 1.20 mA Basic accuracy: ±2.5% rdg ± 5 dgt.
	DC Voltage		±50 V to ±1.00 kV Basic accuracy: ±5% rdg ±5 dgt
	AC Voltage		50 V to 750 V Basic accuracy: ±5% rdg ±5 dgt
	Temperature		-10.0°C to 70.0°C Basic accuracy: ±1.0°C
Other	Operating temperature		-10°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature		-10°C to 50°C, 90% RH or less (non-condensating)
	Dustproof and waterproof		IP40 (EN60529)*2
	Standards		EN61010 (safety) , EN61326 (EMC)
	Power supply Continuous operating time		LR6 (AA) alkaline battery ×6: 5 hours BATTERY PACK 9459*3: 9 hours AC ADAPTER 9418-15*3
	Dimensions (W × H × D)		260 × 250.6 × 119.5 mm (10.24 × 9.87 × 4.70 in)
	Weight		2.8 kg (98.8 oz)

Options

IR401X, IR405X, 3490	
1	TEST LEAD SET WITH REMOTE SWITCH L9788-11
2	TEST LEAD WITH REMOTE SWITCH (RED) L9788-10
3	TIP PIN L9788-90
4	BREAKER PIN L9788-92
5	MAGNETIC ADAPTER 9804-01
6	MAGNETIC ADAPTER 9804-02
7	TEST LEAD L9787
8	CONNECTION CABLE SET L4930
9	ALLIGATOR CLIP SET L4935
10	TEST PIN SET L4938
11	BREAKER PIN L9787-91
12	WIRELESS ADAPTER Z3210



IR3455		
1	TEST LEAD 9750 -01	RED, 3 m (9.84 ft)
2	TEST LEAD 9750 -02	BLACK, 3 m (9.84 ft)
3	TEST LEAD 9750 -03	BLUE, 3 m (9.84 ft)
4	TEST LEAD 9750 -11	RED, 10 m (32.81 ft)
5	TEST LEAD 9750 -12	BLACK, 10 m (32.81 ft)
6	TEST LEAD 9750 -13	BLUE, 10 m (32.81 ft)
7	ALLIGATOR CLIP 9751 -01	RED
8	ALLIGATOR CLIP 9751 -02	BLACK
9	ALLIGATOR CLIP 9751 -03	BLUE
10	TEMPERATURE SENSOR 9631-01	Molded plastic thermistor type (1 m (3.28 ft))
11	TEMPERATURE SENSOR 9631-05	Molded plastic thermistor type (5 cm (0.16 ft))
12	AC ADAPTER 9418-15	
13	BATTERY PACK 9459	


HIOKI
6000
V
APS
RANGE: AUTO
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AUTO HOLD
HOLD
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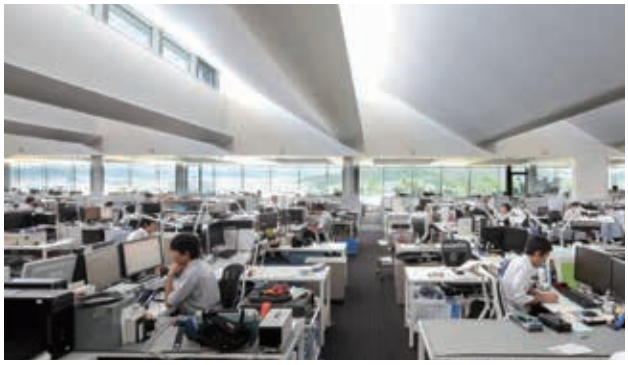
V Input Protected
True RMS
DT4224
DIGITAL MULTIMETER

DMM TESTERS

Designed and manufactured in Japan



Development, design, and manufacturing processes for almost all Hioki digital multimeters are carried out at our headquarters in Nagano Prefecture.

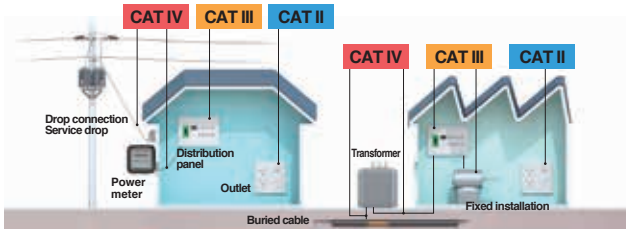
Withstand a 1-meter drop onto a concrete floor

Products are dropped repeatedly until they are damaged in order to validate their impact performance. Test results are used to make design improvements and enhance durability.

The DT4200 Series Supports CAT IV Measurement Environments

The international standard IEC61010-1 regarding the safety of electrical testing equipment classifies the usage locations of measuring instruments into CAT II, CAT III, and CAT IV. The larger the number, the larger the transient impulse voltage that can be allowed.
To safely test, you will need instruments that are designed to be used in locations characterized by its category.

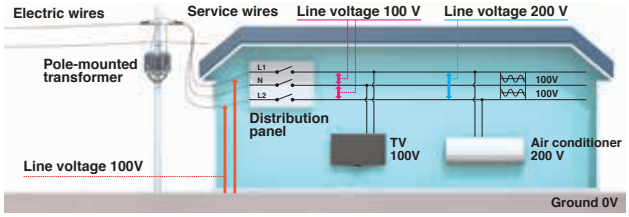
Measurement Category



CAT II :	Measurement at a point from the power plug to the equipment's power circuits, where equipment is directly connected to an outlet.
CAT III :	Measurement at a point on the power distribution cabling or power supply circuits, or at a point from the distribution panel to a distribution terminal behind an outlet, where equipment (for example a fixed installation) takes electricity directly from a distribution panel.
CAT IV :	Measurement at a point on a service drop to a building, or on the line from the drop connection to the power meter or distribution panel.

Rated voltage to ground	Transient overvoltage		
	CAT II	CAT III	CAT IV
300 V	2500 V	4000 V	6000 V
600 V	4000 V	6000 V	8000 V
1000 V	6000 V	8000 V	12000 V

Rated voltage to ground



Marks

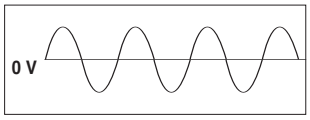
CAT IV — Measurement Category
600V — Rated voltage to ground

An instrument labeled CAT IV 600V fully withstands impulse voltages of 8000V.

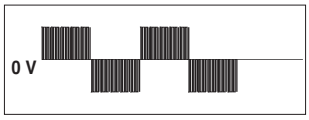
High-end models	**: CAT III 1000 V/CAT IV 600 V**
Standard models	**: CAT III 1000 V/CAT IV 600 V**
Pocket models	**: CAT III 600 V/CAT IV 300 V**

Accurately measure the voltage of the secondary side of inverters

Non-distorted current waveforms

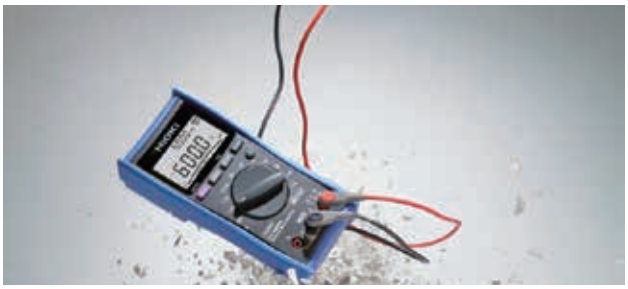


Voltage waveforms with harmonic components

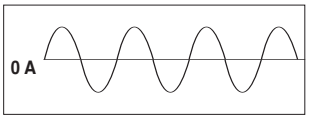


The secondary side of inverters include harmonic components. Waveforms containing harmonics are distorted and difficult to measure with accuracy. By using a low-pass filter to remove harmonic components, accurate measurement values can be obtained.

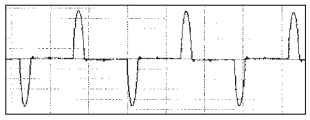
True RMS measurement correctly captures distorted current waveforms



Non-distorted current waveforms



Distorted waveforms due to switching power supplies



A measuring instrument uses one of two rectification methods, “True RMS" or “Mean”. Using mean rectification assumes that the signal is based on a sine wave without distortions in order to calculate the value. Distorted waveforms cannot be measured accurately using this method.

Lineup

Measurement type		Electrical work	General use	General use	Air conditioning/ instrumentation	PV	Electrical work	General use
Model		High-end models		Standard models				
		DT4281	DT4282	DT4252	DT4253	DT4254	DT4255	DT4256
Appearance								
AC measurement system		True RMS	True RMS	True RMS	True RMS	True RMS	True RMS	True RMS
Display counts		60000	60000	6000	6000	6000	6000	6000
DCV typical accuracy		±0.025% rdg ±2 dgt	±0.025% rdg ±2 dgt	±0.2% rdg ±5 dgt	±0.3% rdg ±5 dgt	±0.3% rdg ±3 dgt	±0.3% rdg ±3 dgt	±0.3% rdg ±3 dgt
Frequency characteristics		20 Hz to 100 kHz	20 Hz to 100 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz
Measurement parameters	DC voltage (Resolution)	1000 V (0.001 mV)	1000 V (0.001 mV)	1000 V (0.1 mV)	1000 V (0.1 mV)	1500 V (*1) (0.1 mV)	1000 V (0.1 mV)	1000 V (0.1 mV)
	AC voltage (Resolution)	1000 V (0.001 mV)	1000 V (0.001 mV)	1000 V (0.001 V)	1000 V (0.001 V)	1000 V (0.001 V)	1000 V (0.001 V)	1000 V (0.001 V)
	DCV + ACV	1000 V	1000 V	N / A	N / A	N / A	N / A	N / A
	DC current (Resolution)	600 mA (0.01µA)	10 A (0.01 µA)	10 A (0.001 A)	60 mA (0.01 µA)	N / A	N / A	10 A (0.01 mA)
	AC current (Resolution)	600 mA (0.01 µA)	10 A (0.01 µA)	10 A (0.001 A)	N / A	N / A	N / A	10 A (0.1 mA)
	AC current (Clamp)	1000 A	N / A	N / A	1000 A	N / A	1000 A	1000 A
	Resistance	600 MΩ	600 MΩ	60 MΩ	60 MΩ	N / A	60 MΩ	60 MΩ
	Temperature	-40°C to 800°C	-40°C to 800°C	N / A	-40°C to 400°C	N / A	N / A	N / A
	Capacitance	100 mF	100 mF	10 mF	10 mF	N / A	10 mF	10 mF
	Frequency	500 kHz	500 kHz	99 kHz	99 kHz	99 kHz	99 kHz	99 kHz
	Continuity check	✔	✔	✔	✔	N / A	✔	✔
	Diode check	✔	✔	✔	✔	N / A	✔	✔
	Conductance	N / A	✔	N / A	N / A	N / A	N / A	N / A
	Voltage detection	N / A	N / A	N / A	N / A	✔	✔	✔
Additional functions	AUTO AC/DCV	N / A	N / A	N / A	✔	✔	✔	✔
	MAX/MIN/AVG	MAX/MIN	MAX/MIN	✔	✔	✔	✔	✔
	PEAK display	✔	✔	N / A	N / A	N / A	N / A	N / A
	Relative display	✔	✔	✔	✔	✔	✔	✔
	Decibel conversion	✔	✔	N / A	N / A	N / A	N / A	N / A
	Percentage conversion display (4-20 mA)	✔	✔	N / A	✔	N / A	N / A	N / A
Display	AUTO range	✔	✔	✔	✔	✔	✔	✔
	Hold display value	AUTO /MANUAL	AUTO /MANUAL	AUTO /MANUAL	AUTO /MANUAL	AUTO /MANUAL	AUTO /MANUAL	AUTO /MANUAL
	Dual display	✔	✔	✔	✔	✔	✔	✔
	Bar graph display	N / A	N / A	✔	✔	✔	✔	✔
	Backlight	✔	✔	✔	✔	✔	✔	✔
Internal memory		✔	✔	N / A	N / A	N / A	N / A	N / A
USB communication (*2)		✔	✔	✔	✔	✔	✔	✔
Safety	Mis-insertion prevention shutters	✔	✔	N / A	N / A	N / A	N / A	N / A
	Circuit breaker false trip prevention	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Safety standard category	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V
	CE	✔	✔	✔	✔	✔	✔	✔
	Dustproof and waterproof	IP40	IP40	IP42	IP42	IP42	IP42	IP42
	Drop proof	✔	✔	✔	✔	✔	✔	✔
Auto power off		✔	✔	✔	✔	✔	✔	✔
Power supply		LR6 ×4 alkaline battery	LR6 ×4 alkaline battery	LR03 ×4 alkaline battery	LR03 ×4 alkaline battery	LR03 ×4 alkaline battery	LR03 ×4 alkaline battery	LR03 ×4 alkaline battery
Dimensions (W × H × D)		93 × 197 × 53 mm 3.66 × 7.76 × 2.09 in	93 × 197 × 53 mm 3.66 × 7.76 × 2.09 in	84 × 174 × 52 mm 3.31 × 6.85 × 2.05 in	84 × 174 × 52 mm 3.31 × 6.85 × 2.05 in	84 × 174 × 52 mm 3.31 × 6.85 × 2.05 in	84 × 174 × 52 mm 3.31 × 6.85 × 2.05 in	84 × 174 × 52 mm 3.31 × 6.85 × 2.05 in
Weight		650 g /22.9 oz	650 g /22.9 oz	390 g /13.8 oz	390 g /13.8 oz	390 g /13.8 oz	390 g /13.8 oz	390 g /13.8 oz

*1 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied:
1. The circuit under measurement is isolated from the commercial power grid. 2. The circuit under measurement is isolated from ground.
e.g.: when measuring the no-load voltage of an ungrounded PV panel. Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock.
*2 Requires optional DT4900-01 Communication Package

Measurement type		Electrical work	General use	Electrical work	General use	Electrical work	Electrical work	Electrical work
Model		Pocket models				3030-10	3244-60	3246-60
		DT4221	DT4222	DT4223	DT4224			
Appearance								
AC measurement system		True RMS	True RMS	True RMS	True RMS	N / A	MEAN Value	MEAN Value
Display count		6000	6000	6000	6000	N / A	4199	4199
DCV typical accuracy		±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt	f.s. reading ±2.5%	±0.7% rdg ±4 dgt	±1.3% rdg ±4 dgt
Frequency characteristics		40 Hz to 1 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz	40 Hz to 1 kHz	N / A	50 Hz to 500 Hz	50 Hz to 500 Hz
Measurement parameters	DC voltage (Resolution)	600 V (0.1 mV)	600 V (0.1 mV)	600 V (0.1 mV)	600 V (0.1 mV)	600 V	500 V (0.1 mV)	600 V
	AC voltage (Resolution)	600 V (0.001 V)	600 V (0.001 V)	600 V (0.001 V)	600 V (0.001 V)	600 V	500 V (0.001 V)	600 V
	DCV + ACV	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	DC current (Resolution)	N / A	N / A	N / A	N / A	300 mA	N / A	N / A
	AC current (Resolution)	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	AC current (Clamp)	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Resistance	60 MΩ	60 MΩ	60 MΩ	60 MΩ	3 kΩ	42 MΩ	42 MΩ
	Temperature	N / A	N / A	N / A	N / A	150°C	N / A	N / A
	Capacitance	N / A	10 mF	N / A	10 mF	N / A	N / A	N / A
	Frequency	9.9 kHz	9.9 kHz	9.9 kHz	9.9 kHz	N / A	N / A	N / A
	Continuity check	✔	✔	✔	✔	N / A	✔	✔
	Diode check	N / A	✔	N / A	✔	N / A	N / A	✔
	Conductance	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Voltage detection	✔	N / A	✔	N / A	N / A	N / A	N / A
Additional functions	AUTO AC/DCV	✔	N / A	✔	N / A	N / A	N / A	N / A
	MAX/MIN/AVG	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	PEAK display	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Relative display	✔	✔	✔	✔	N / A	N / A	N / A
	Decibel conversion	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Percentage conversion display (4-20 mA)	v	N / A	N / A	N / A	N / A	N / A	N / A
Display	AUTO range	✔	✔	✔	✔	N / A	✔	✔
	Hold display value	MANUAL	MANUAL	AUTO /MANUAL	AUTO /MANUAL	N / A	N / A	✔
	Dual display	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Bar graph display	✔	✔	✔	✔	N / A	N / A	N / A
	Backlight	✔	✔	✔	✔	N / A	N / A	✔
Internal memory		N / A	N / A	N / A	N / A	N / A	N / A	N / A
USB communication*3		N / A	N / A	N / A	N / A	N / A	N / A	N / A
Safety	Mis-insertion prevention shutters	N / A	N / A	N / A	N / A	N / A	N / A	N / A
	Circuit breaker false trip prevention	N / A	N / A	✔	✔	N / A	N / A	N / A
	Safety standard category	CAT IV 300 V CAT III 600 V	CAT IV 300 V CAT III 600 V	CAT IV 300 V CAT III 600 V	CAT IV 300 V CAT III 600 V	CAT III 600 V	CAT III 300 V	CAT IV 300 V CAT III 600 V
	CE	✔	✔	✔	✔	N / A	✔	N / A
	Dustproof and waterproof	IP42	IP42	IP42	IP42	N / A	N / A	N / A
	Drop proof	✔	✔	✔	✔	✔	N / A	N / A
Auto power off		✔	✔	✔	✔	N / A	✔	✔
Power supply		LR03 × 1 alkaline battery	LR03 × 1 alkaline battery	LR03 × 1 alkaline battery	LR03 × 1 alkaline battery	R6P × 2 manganese battery	CR2032 × 1 coin type battery	CR2032 × 1 coin type battery
Dimensions (W × H × D)		72 × 149 × 38 mm 2.83 × 5.87 × 1.50 in	72 × 149 × 38 mm 2.83 × 5.87 × 1.50 in	72 × 149 × 38 mm 2.83 × 5.87 × 1.50 in	72 × 149 × 38 mm 2.83 × 5.87 × 1.50 in	95 × 141 × 39 mm 3.74 × 5.55 × 1.54 in	55 × 109 × 9.5 mm 2.17 × 4.29 × 0.37 in	30 × 182 × 26.5 mm 1.18 × 7.17 × 1.04 in
Weight		190 g /6.7 oz	190 g /6.7 oz	190 g /6.7 oz	190 g /6.7 oz	280 g /9.9 oz	60 g /2.1 oz	80 g /2.8 oz

DIGITAL MULTIMETER DT4281, DT4282

Product warranty for 3 years
Accuracy guaranteed for 1 year

DT4281

Electrical work

DT4282

General use

Premium DMMs Deliver High Precision and Full Array of Features

High-end models

- 60000 Counts
- DCV typical accuracy: ±0.025% rdg ±2 dgt
- CAT IV 600 V /CAT III 1000 V

Mis-insertion prevention shutters

A range	V range
Only the A and COM terminal inlets open	Only the V and COM terminal inlets open

DIGITAL MULTIMETER DT4252, DT4253, DT4254, DT4255, DT4256

Product warranty for 3 years
Accuracy guaranteed for 1 year

DT4252 — General use

DT4253 — Air conditioning/ instrumentation

DT4254 — PV

DT4255 — Electrical work

DT4256 — General use

Choose from 5 Models to Fit Your Application

Standard models

- 6000 Counts
- DCV typical accuracy: ±0.3% rdg ±5 dgt
- CAT IV 600 V /CAT III 1000 V

Equipped with specialized functions catering to your needs

Air conditioning/ instrumentation	• Measure low currents with 60 µA range • Test temperature • 4 to 20 mA % display
PV	• Test open-circuit voltage up to 1700V DC • Intentionally designed without current function to prevent short-circuits
Electrical work	• Prevent short-circuit accidents with a fast-blow fuse and current-limiting resistor

DIGITAL MULTIMETER DT4221, DT4222, DT4223, DT4224

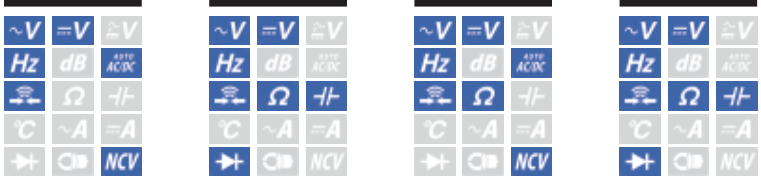
Product warranty for 3 years
Accuracy guaranteed for 1 year

DT4221 — Electrical work

DT4222 — General use

DT4223 — Electrical work

DT4224 — General use

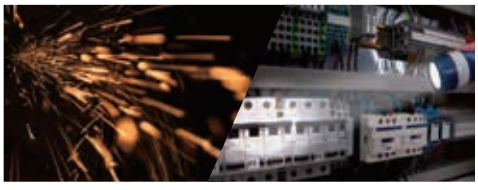


Compact and Convenient

Pocket models

- 6000 Counts
- DCV typical accuracy: ±0.5% rdg ±5 dgt
- CAT IV 300 V /CAT III 600 V

Circuit breaker false trip prevention (DT4223, DT4224 Only)



Eliminate accidents such as tripped earth leakage breakers or flash arcs even when mistakenly inputting voltage while in resistance measurement mode

CAT III | CAT IV | DISPLAY HOLD | AUTO OFF | TRUE RMS | REL | MIN MAX | PEAK | FILTER | INRUSH

Model (DT42XX)		81	82	Basic accuracy	Basic accuracy
Measurement parameters	DC voltage	✔	✔	60.000 mV/600.00 mV/6.0000 V/60.000 V/600.00 V/1000.0 V	±0.025% rdg ±2 dgt
	AC voltage	✔	✔	60.000 mV/600.00 mV/6.0000 V/60.000 V/600.00 V/1000.0 V	±0.2% rdg ±25 dgt
	DCV + ACV	✔	✔	6.0000 V/60.000 V/600.00 V/1000.0 V	±0.3% rdg ±30 dgt
	DC current	✔	N/A	600.00 µA/6000.0 µA/60.000 mA/600.00 mA	±0.05% rdg ±5 dgt
		N/A	✔	600.00 µA/6000.0 µA/60.000 mA/600.00 mA/6.0000 A/10.000 A	±0.05% rdg ±5 dgt
	AC current	✔	N/A	600.00 µA/6000.0 µA/60.000 mA/600.00 mA	±0.6% rdg ±5 dgt
		N/A	✔	600.00 µA/6000.0 µA/60.000 mA/600.00 mA/6.0000 A/10.000 A	±0.6% rdg ±3 dgt
	AC current (Clamp)	✔	N/A	10.00 A/20.00 A/50.00 A/100.0 A/200.0 A/500.0 A/1000 A	±0.6% rdg ±2 dgt
	Resistance	✔	✔	60.000 Ω/600.00 Ω/6.0000 kΩ/60.000 kΩ/600.00 kΩ/6.0000 MΩ/60.00 MΩ/600.0 MΩ	±0.03% rdg ±2 dgt
	Temperature	✔	✔	-40.0°C to 800.0°C	±0.5% rdg ±3°C
	Capacitance	✔	✔	1.000 nF/10.00 nF/100.0 nF/1.000 µF/10.00 µF/100.0 µF/1.000 mF/10.00 mF/100.0 mF	±1% rdg ±5 dgt
	Frequency	✔	✔	99.999 Hz/999.99 Hz/9.9999 kHz/99.999 kHz/500.00 kHz	±0.005% rdg ±3 dgt
	Continuity check	✔	✔	(Short detection) 20 Ω/50 Ω/100 Ω/500 Ω or less, (Open detection) 220 Ω/ 250 Ω/ 300 Ω/ 600 Ω or more	-
	Diode check	✔	✔	0.15 V/ 0.5 V/ 1 V/ 1.5 V/ 2 V/ 2.5 V/ 3 V (continuous buzzer sound, flashing red light)	-
	Conductance	N/A	✔	600.00 nS	-

Other	
Operating temperature	-15°C to 55°C (non-condensating)
Storage temperature	-30°C to 60°C (non-condensating)
Dustproof and waterproof	IP40
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	LR6 alkaline battery ×4 100 hours (backlight OFF)
Dimensions (W × H × D)	93 × 197 × 53 mm (3.66 × 7.76 × 2.09 in)
Weight	650 g (22.9 oz)

Accessories

L9207-10

- LR6 alkaline battery × 4
- Instruction manual

Order code **DT4281**

Order code **DT4282**

CAT III | CAT IV | DISPLAY HOLD | AUTO OFF | TRUE RMS | REL | MIN MAX | PEAK | FILTER | INRUSH

Model (DT42XX)		52	53	54	55	56		Basic accuracy
Measurement parameters	DC voltage	N/A	✔	✔	✔	✔	600.0 mV/6.000 V/60.00 V/600.0 V/1000 V/1500 V*1*2	±0.3% rdg ±5 dgt
		✔	N/A	N/A	N/A	N/A	600.0 mV/6.000 V/60.00 V/600.0V/1000 V	±0.2% rdg ±5 dgt
	AC voltage	✔	✔	✔	✔	✔	6.000 V/60.00 V/600.0 V/1000 V	±0.9% rdg ±3 dgt
	DC current	N/A	✔	N/A	N/A	N/A	60.00 µA/600.0 µA/6.000 mA/60.00 mA	±0.8% rdg ±5 dgt
		N/A	N/A	N/A	N/A	✔	60.00 mA/600.0 mA/6.000 A/10.00 A	±0.9% rdg ±3 dgt
		✔	N/A	N/A	N/A	N/A	6.000 A/10.00 A	±0.9% rdg ±5 dgt
	AC current	N/A	N/A	N/A	N/A	✔	600.0 mA/6.000 A/10.00 A	±1.4% rdg ±3 dgt
		✔	N/A	N/A	N/A	N/A	6.000 A/10.00 A	±1.4% rdg ±3 dgt
	AC current (Clamp)	N/A	✔	N/A	✔	✔	10.00 A/20.00 A/50.00 A/100.0 A/200.0 A/500.0 A/1000 A	±0.9% rdg ±3 dgt
	Resistance	✔	✔	N/A	✔	✔	600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ/6.000 MΩ/60.00 MΩ	±0.7% rdg ±5 dgt
	Temperature	N/A	✔	N/A	N/A	N/A	-40.0°C to 400.0°C	±0.5% rdg ±2°C
	Capacitance	✔	✔	N/A	✔	✔	1.000 µF/10.00 µF/100.0 µF/1.000 mF/10.00 mF	±1.9% rdg ±5 dgt
	Frequency	✔	✔	✔	✔	✔	99.99 Hz/999.9 Hz/9.999 kHz/99.99 kHz	±0.1% rdg ±1 dgt
	Continuity check	✔	✔	N/A	✔	✔	(Short detection) 25 Ω or less, (Open detection) 245 Ω or more	-
	Diode check	✔	✔	N/A	✔	✔	0.15 V to 1.5 V (continuous buzzer sound, flashing red light)	-
	Voltage detection	N/A	N/A	✔	✔	✔	(Detection voltage range) 40 V AC to 600 V AC, (Detection frequency range) 50 Hz/60 Hz	-

Other	
Operating temperature	DT4254, 55, 56: -25°C to 65°C (non-condensating) DT4252, 53: -10°C to 50°C (non-condensating)
Storage temperature	DT4254, 55, 56: -30°C to 70°C (non-condensating) DT4252, 53: -30°C to 60°C (non-condensating)
Dustproof and waterproof	IP42
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	LR03 alkaline battery × 4 130 hours (backlight OFF)
Dimensions (W × H × D)	84 × 174 × 52 mm (3.31 × 6.85 × 2.05 in)
Weight	390 g (13.8 oz)

Accessories

L9207-10

- LR6 alkaline battery × 4
- Instruction manual

Order code **DT4252**

Order code **DT4253**

Order code **DT4254**

Order code **DT4255**

Order code **DT4256**

*1 Your instrument can be used to measure voltages in excess of 1000 V DC if and only if both of the following conditions are satisfied: 1. The circuit under measurement is isolated from the commercial power grid. 2. The circuit under measurement is isolated from ground. e.g.: when measuring the no-load voltage of an ungrounded PV panel. Do not use the instrument with circuits whose terminal-to-ground voltage exceeds 1000 V. Doing so may result in electric shock. *2 DT4254 Only

CAT III | CAT IV | DISPLAY HOLD | AUTO OFF | TRUE RMS | REL | MIN MAX | PEAK | FILTER | INRUSH

Model (DT42XX)		21	22	23	24		Basic accuracy
Measurement parameters	DC voltage	✔	✔	✔	✔	600.0 mV/6.000 V/60.00 V/600.0 V	±0.5% rdg ±5 dgt
	AC voltage	✔	✔	✔	✔	6.000 V/60.00 V/600.0 V	±1.0% rdg ±3 dgt
	Resistance	N/A	✔	✔	✔	600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ/6.000 MΩ/60.00 MΩ	±0.9% rdg ±5 dgt
	Capacitance	N/A	✔	N/A	✔	1.000 µF/10.00 µF/100.0 µF/1.000 mF/10.00 mF	±1.9% rdg ±5 dgt
	Frequency	✔	✔	✔	✔	99.99 Hz/999.9 Hz/9.999 kHz	±0.1% rdg ±2 dgt
	Continuity check	✔	✔	✔	✔	(Short detection) 25 Ω or less, (Open detection) 245 Ω or more	-
	Diode check	N/A	✔	N/A	✔	0.15 V to 1.5 V (continuous buzzer sound, flashing red light)	-
	Voltage detection	✔	N/A	✔	N/A	(Detection voltage range) 80 V AC to 600 V AC, (Detection frequency range) 50 Hz/60 Hz	-

Other	
Operating temperature	DT4221, 22: -10°C to 50°C (non-condensating) DT4223, 24: -10°C to 65°C (non-condensating)
Storage temperature	DT4221, 22: -30°C to 60°C (non-condensating) DT4223, 24: -30°C to 70°C (non-condensating)
Dustproof and waterproof	IP42
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	LR03 alkaline battery × 1 40 hours (backlight OFF)
Dimensions (W × H × D)	72 × 149 × 38 mm (2.83 × 5.87 × 1.50 in)
Weight	190 g (6.7 oz)

Accessories

DT4911

- LR03 alkaline battery ×1
- Instruction manual

Order code **DT4221**

Order code **DT4222**

Order code **DT4223**

Order code **DT4224**

HiTESTER 3030-10

Not CE marked
Product warranty for 3 years
Accuracy guaranteed for 1 year

CAT III 600 V

CARRYING CASE 9390

Order code **3030-10**

Accessories

L9207-30

- TEST LEAD L9207-30
- CARRYING CASE 9390
- R6P manganese battery ×2
- Spare fuse
- Instruction manual

Measurement parameters	DC Voltage	0.3 V/3 V/12 V/30 V/120 V/300 V/600 V Accuracy: ±2.5% of f.s. reading
	AC Voltage	12 V/ 30 V/120 V/300 V/600 V Accuracy: ±2.5% of f.s. reading, (12V: ±4%)
	DC Current	60μA/30 mA/300 mA Accuracy: ±3% of f.s. reading
	Resistance	0 to 3kΩ, R×1/ R×10/ R×100/ R×1k Accuracy : ±3% of scale length
	Battery check	0.9 to 1.8 V Accuracy : ±6% of f.s. reading
Other	Operating temperature	0°C to 40°C (non-condensating)
	Storage temperature	-10°C to 50°C (non-condensating)
	Power supply	R6P manganese battery ×2
	Dimensions (W × H × D)	95 × 141 × 39 mm (3.74 × 5.55 × 1.54 in)
	Weight	280 g (9.9 oz)

CARD HiTESTER 3244-60

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year

CAT III 300V, CAT II 600V

Cord length
46cm (1.51 ft)

CARRYING CASE
C0204

Order code **3244-60**

Accessories

- CARRYING CASE C0204
- Sleeves (Red, Black @ 1 each)
- CR2032 coin type battery ×1
- Instruction manual

Measurement parameters	DC Voltage	420.0 mV/ 4.200 V/ 42.00 V/ 420.0 V/ 500 V Accuracy: ±0.7% rdg ±4 dgt.
	AC Voltage	4.200 V/ 42.00 V/ 420.0 V/ 500 V Accuracy: ±2.3% rdg ±8 dgt.
	Resistance	420.0 Ω/ 4.200 kΩ/ 42.00 kΩ/ 420.0 kΩ/ 4.200 MΩ/ 42.00 MΩ Accuracy: ±2.0% rdg ±4 dgt.
	Continuity check	Detection level: 50 Ω ±40 Ω or less
Other	Operating temperature	0°C to 40°C (non-condensating)
	Storage temperature	-20°C to 60°C (non-condensating)
	Power supply	CR2032 coin type battery ×1
	Dimensions (W × H × D)	55 × 109 × 9.5 mm (2.17 × 4.29 × 0.37 in)
	Weight	60 g (2.1 oz)

PENCIL HiTESTER 3246-60

Not CE marked
Product warranty for 3 years
Accuracy guaranteed for 1 year

CAT IV 300 V, CAT III 600 V

Cord length
80 cm (2.62 ft)

Test lead fits neatly
into back of instrument

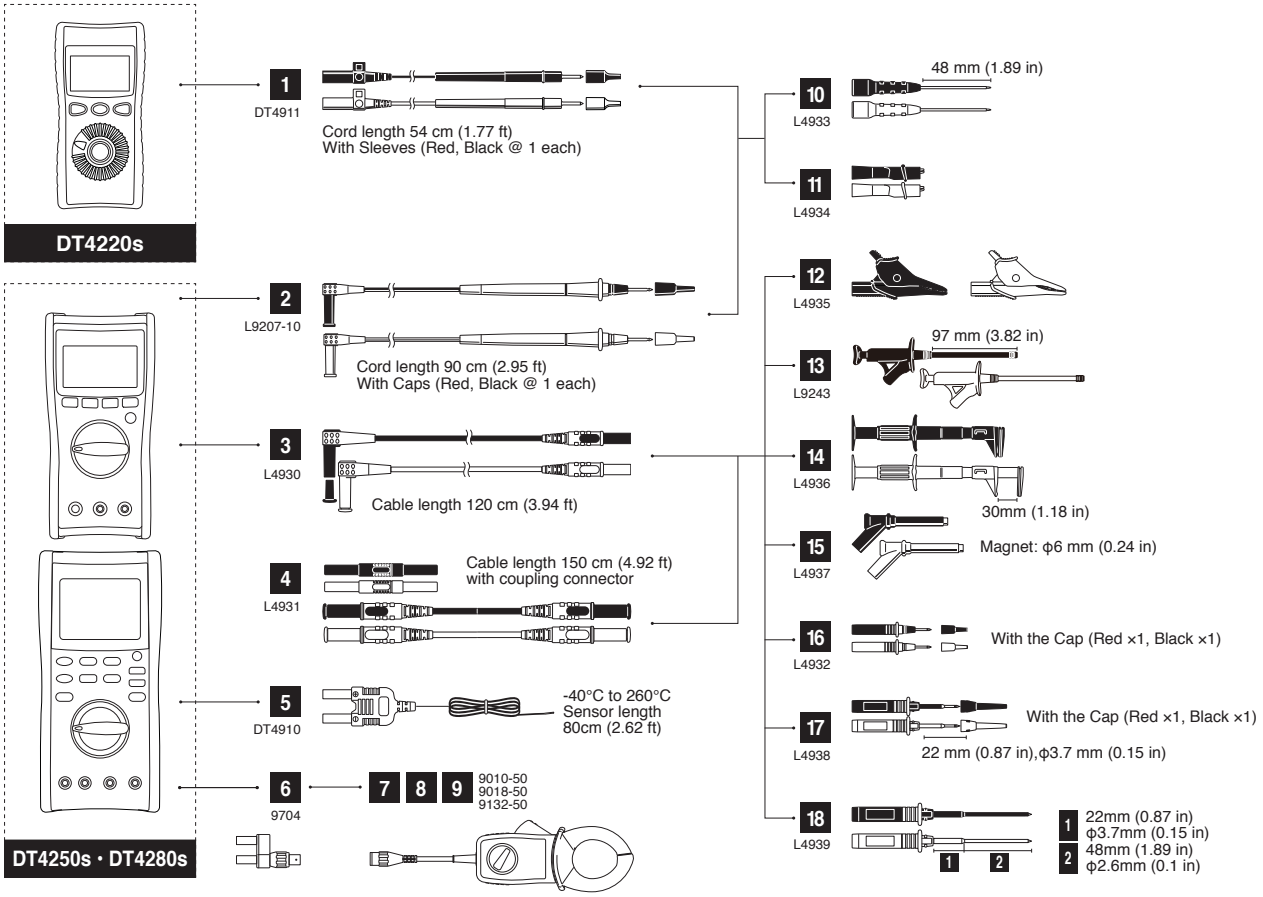
Accessories

- Sleeves (Red, Black @ 1 each)
- CR2032 coin type battery ×1
- Instruction manual

Order code **3246-60**

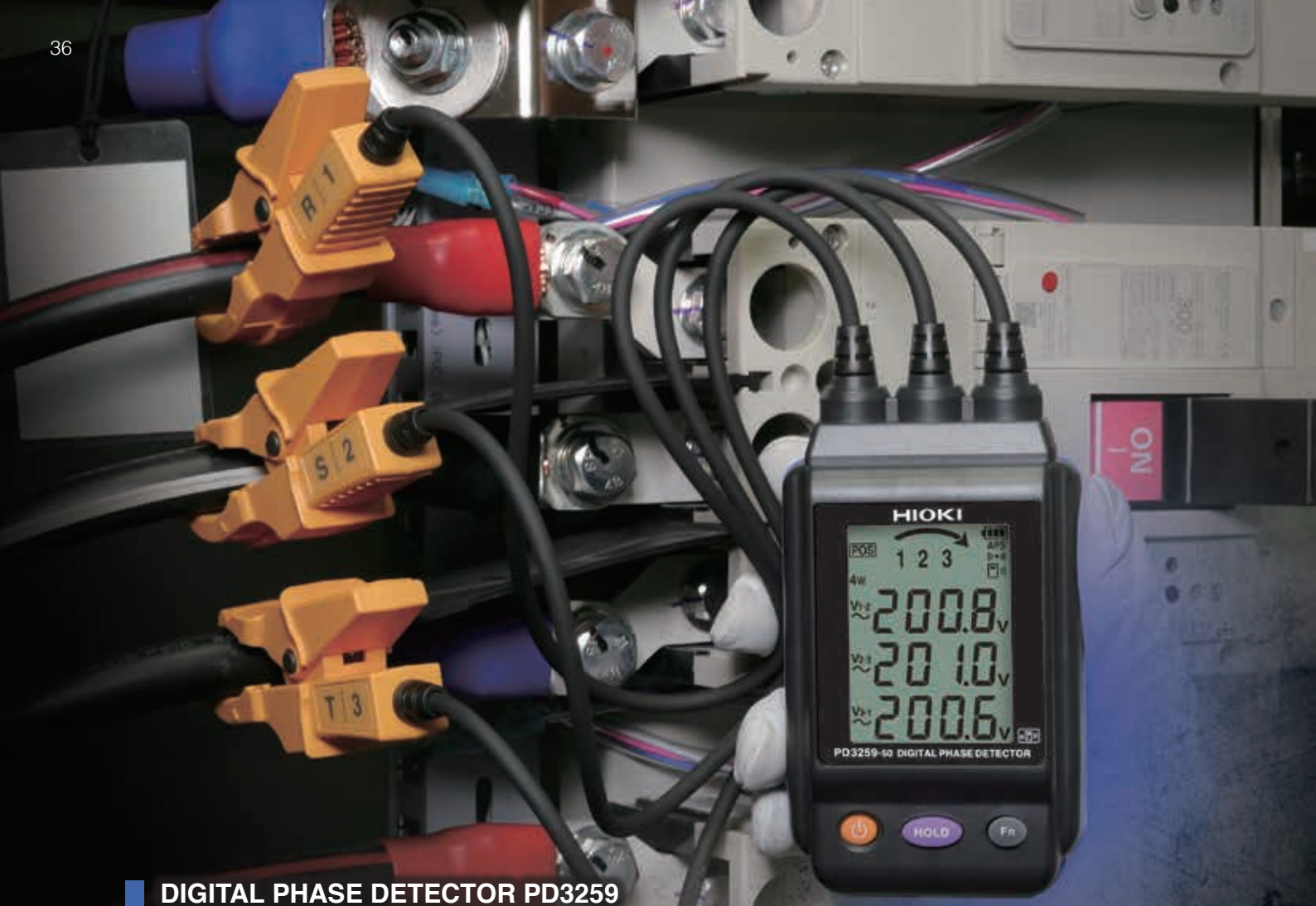
Measurement parameters	DC Voltage	420.0 mV/4.200 V/42.00 V/420.0 V/600 V Accuracy: ±1.3% rdg ±4 dgt.
	AC Voltage	4.200 V/42.00 V/420.0 V/600 V Accuracy: ±2.3% rdg ±8 dgt.
	Resistance	420.0 Ω/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ Accuracy: ±2.0% rdg ±4 dgt.
	Continuity check	Detection level: 50 Ω ±40 Ω or less
	Diode check	Judges the right direction only, Open terminal voltage 3.4 V or less
Other	Operating temperature	0°C to 40°C (non-condensating)
	Storage temperature	-20°C to 60°C (non-condensating)
	Power supply	CR2032 coin type battery ×1
	Dimensions (W × H × D)	30 × 182 × 26.5 mm (1.18 × 7.17 × 1.04 in)
	Weight	80 g (2.8 oz)

Options



DT4220 Series, DT4250 Series, DT4280 Series		
1	TEST LEAD DT4911	For DT4220 Series
2	TEST LEAD L9207-10	For DT4250 Series, DT4280 Series
3	CONNECTION CABLE L4930	For DT4250 Series, DT4280 Series
4	EXTENSION CABLE SET L4931	For DT4250 Series, DT4280 Series
5	THERMOCOUPLES (K) DT4910	For DT4253, DT4280 Series
6	CONVERSION ADAPTER 9704	For DT4253, 55, 56, DT4281
7	AC CLAMP ON PROBE 9010-50*1	500 A AC, ϕ46mm, Frequency characteristics: 40 Hz to 1 kHz
8	AC CLAMP ON PROBE 9018-50*1	500 A AC, ϕ46mm, Frequency characteristics: 40 Hz to 3 kHz
9	AC CLAMP ON PROBE 9132-50*1	1000 A AC, ϕ55mm, Frequency characteristics: 40 Hz to 1 kHz
10	CONTACT PIN SET L4933	
11	SMALL ALLIGATOR CLIP SET L4934	
12	ALLIGATOR CLIP SET L4935	For DT4250 Series, DT4280 Series
13	GRABBER CLIP L9243	For DT4250 Series, DT4280 Series
14	BUS BAR CLIP SET L4936	For DT4250 Series, DT4280 Series
15	MAGNETIC ADAPTER SET L4937	For DT4250 Series, DT4280 Series
16	TEST PIN SET L4932	For DT4250 Series, DT4280 Series
17	TEST PIN SET L4938	For DT4250 Series, DT4280 Series
18	BREAKER PIN L4939	For DT4250 Series, DT4280 Series
19	COMMUNICATION PACKAGE (USB) DT4900-01	For DT4250 Series, DT4280 Series Windows 8.1/8/ 7/Vista (SP1 or later)
20	MAGNETIC STRAP Z5004	For DT4220 Series, DT4250 Series
21	MAGNETIC STRAP Z5020	Extra strength
22	CARRYING CASE C0200	For DT4220 Series
23	CARRYING CASE C0201	For DT4252, 53, 54, 55
24	CARRYING CASE C0202	For DT4250 Series, DT4280 Series
25	CARRYING CASE 3853	For DT4252, 53, 54, 55

*1 Adapter Model 9704 is required to connect AC CLAMP ON PROBES 9010-50, 9018-50 and 9132-50 to the DT4281, DT4253, DT4255, or DT4256.

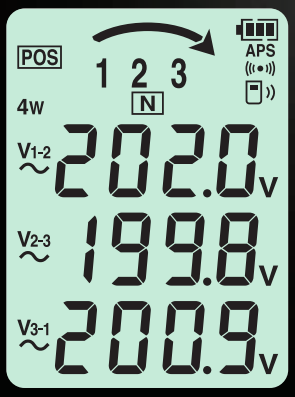


DIGITAL PHASE DETECTOR PD3259

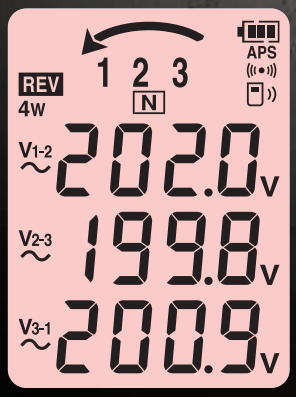
Just clip the probes onto covered cables, and your 3-phase power line inspection is complete

phase sequence

3-phase voltage



Positive phase sequence display



Negative phase sequence display

Display phase sequence, 3-phase voltage
Use as-is in work certification photos

PHASE DETECTORS
VOLTAGE DETECTORS

DIGITAL PHASE DETECTOR PD3259-50

Product warranty for 3 years
Accuracy guaranteed for 1 year

Without metal contact


Hands free Z5020 (Option)


WIRELESS ADAPTER Z3210 (Option)
Attach to enable Bluetooth® wireless technology

GENNECT Cross
Bluetooth®
Please see www.hioki.com for list of supported regions.

With Z3210

Model PD3259-90 includes Z3210 as a set

Order code PD3259-50
Order code PD3259-90
Order code Z3210

CAT IV 600 V

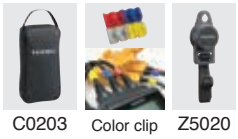
Soil, residue, or moisture on the insulated wires may result in lower voltage and power values than their true values. Use a dry cloth to remove before measuring.

Measurement parameters	Detection functions	Phase detection, open phase, prediction of ground phase (Three-phase line)
	Three-phase AC voltage (line-to-line voltage and voltage to ground)	90.0 V to 520.0 V AC (Three-phase line) accuracy: ±2.0% rdg ±8 dgt
	Frequency	45 Hz to 66 Hz Accuracy: ±0.5% rdg ±1 dgt
	Measurement targets	Covered cables, metal portions*1 Finished outer diameter 6 to 30 mm (0.24 to 1.18 in)
Other	Operating temperature	-25°C to 65°C, 80% RH or less (non-condensating)
	Storage temperature	-25°C to 65°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP54 (device body only)
	Standards	EN61010 (Safety), EN61326 Class A (EMC)
	Power supply Continuous operating time	LR6 alkaline battery ×4 5 hours (Without Z3210)
	Dimensions (W × H × D)	84 × 146 × 46 mm (3.31 × 5.75 × 1.81 in) Cable length 50 cm (1.64 ft)
	Weight	590 g (20.8 oz)

*1 Shielded cables not supported

Accessories
- CARRYING CASE C0203
  Dimensions:
  W135 mm (5.31 in) × H265 mm (10.43 in) × D65 mm (2.56 in)
- LR6 alkaline battery ×4
- Color clips (White ×2, red ×2, blue ×2, yellow ×2)
- Spiral tubes (black ×1)
- Instruction manual

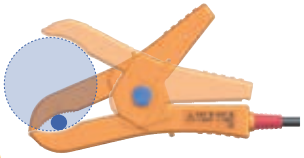
Options
- MAGNETIC STRAP Z5020


C0203 Color clip Z5020

PHASE DETECTOR PD3129, PD3129-10

Product warranty for 3 years
Accuracy guaranteed for 1 year


ϕ2.4 mm (0.09 in) to ϕ17 mm (0.67 in)
PD3129: Thin Conductors


ϕ7 mm (0.28 in) to ϕ40 mm (1.57 in)
PD3129-10: Thick Conductors

PD3129 **CAT IV 600 V**
PD3129-10 **CAT IV 600 V, CAT III 1000 V**

Measurement parameters	Detection functions		Phase detection (positive and negative)
	Voltage range	PD3129	70 to 600 V AC (continuous sine wave)
		PD3129-10	70 to 1000 V AC (continuous sine wave)
	Frequency range		45 Hz to 66 Hz
	Measurement targets	PD3129	2.4 mm (0.09 in) to 17 mm (0.67 in) of insulated wiring
		PD3129-10	7 mm (0.28 in) to 40 mm (1.57 in) of insulated wiring
	Phase-detection indication	Positive	4 LEDs lit in clockwise order and the buzzer sounds intermittently, green arrow lights up
		Negative	4 LEDs lit in counterclockwise order and the buzzer sounds continuously
	Functions		Live line check, Battery check function
Other	Operating temperature		0°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature		-20°C to 60°C, 80% RH or less (non-condensating)
	Standards		EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time		R6P manganese battery × 2 5 hours
	Dimensions(W × H × D)		70 × 75 × 30 mm (2.76 × 2.95 × 1.18 in) Cable length 70 cm (2.30 ft)
	Weight		PD3129: 200 g (7.1 oz), PD3129-10: 240 g (8.5 oz)

Accessories
- CARRYING CASE
- Strap
- R6P manganese battery ×2
- Spiral tube
- Instruction manual

Order code PD3129
Order code PD3129-10

VOLTAGE DETECTOR 3481-20

Product warranty for 3 years
Accuracy guaranteed for 1 year


with LED light


Red for voltage detection

CAT IV 600 V

Measurement parameters	Operating voltage range	40 to 600 V AC (50Hz/60Hz)
	Maximum sensitivity variable range	40 to 80 V AC (50Hz/60Hz)
	Pilot light	Red LED lights up and the buzzer sounds when the wire is live
Other	Operating temperature	0°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature	-20°C to 60°C, 80% RH or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time	LR44 button alkaline battery × 3 5 hours
	Dimensions (W × H × D)	20 × 126 × 15 mm (0.79 × 4.96 × 0.59 in)
	Weight	30 g (1.1 oz)

Accessories
- LR44 button alkaline battery ×3
- Instruction manual

Order code 3481-20

EARTH TESTER FT6031

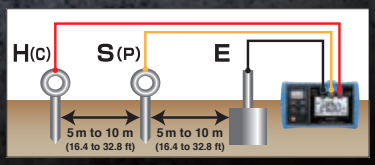
Remarkable waterproof and dustproof performance
One-touch testing for all 4 ground types

Ground types

Type	Criterion	Locations used
Class A	10 Ω or less	Special high voltage, high voltage
Class B	As per calculations	Transformer neutral point
Class C	10 Ω or less* 500 Ω or less*	Low voltages in excess of 300 V
Class D	10 Ω or less* 500 Ω or less*	Low voltages of 300 V or less

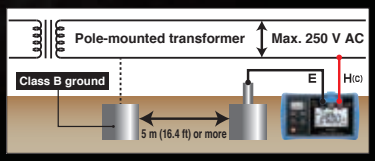
*With ground-fault interrupter that trips within 0.5 sec.

3 electrode method (classes A to D)



Measurement is performed after inserting a auxiliary grounding rod into the soil. For accurate measurement, position E-S(P)-H(C) in a straight line at an interval of about 5 to 10 m.

2 electrode method (classes D)



Class D ground installations can be measured by using the Class B ground of a pole-mounted transformer. The measured value will include the resistance value of the Class B ground. The distribution panel's main ground terminal is typically connected to the power supply's ground line.

Sturdy, thin rods drive easier into the ground

Cord winders make cleanup a snap

EARTH TESTERS

EARTH TESTER FT6031-50

Product warranty for 3 years
Accuracy guaranteed for 1 year

2-electrode Class D
3-electrode Class A to D
CAT IV 100 V, CAT III 150 V, CAT II 300 V

WIRELESS ADAPTER Z3210 (Options): Attach to enable Bluetooth® wireless technology

Model FT6031-90 includes Z3210 as a set

With Z3210

Z3210*

GENNECT Cross

Bluetooth®

Order code **FT6031-50**

Order code **FT6031-90**

Order code **Z3210**

Please see www.hioki.com for list of supported regions.

Measurement parameters	Measurement system	Two-electrode method (Class D) Three-electrode method (Class A to D)
	Range configuration : Accuracy	20 Ω (0 to 20.00 Ω): ±1.5% rdg ±8 dgt 200 Ω (0 to 200.0 Ω): ±1.5% rdg ±4 dgt 2000 Ω (0 to 2000 Ω): ±1.5% rdg ±4 dgt
	Earth potential : Accuracy	0 to 30.0 Vrms 50/60 Hz: ±2.3% rdg ±8 dgt DC: ±1.3% rdg ±4 dgt
Other	Operating temperature	-25°C to 65°C (non-condensating)
	Storage temperature	-25°C to 65°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP65, IP67
	Standards	EN61010 (Safety, Main unit, Measuring circuit), EN61326 (EMC), EN61557 (Earth tester)
	Power supply Number of uses	LR6 alkaline battery × 4 500 times*1
	Dimensions(W × H × D)	185 × 111 × 44 mm (7.28 × 4.37 × 1.73 in)
	Weight	570 g (20.1 oz)

*1 3-electrode method, measuring 10 Ω in 10-second intervals, Without Z3210

ANALOG EARTH TESTER FT3151

Product warranty for 3 years
Accuracy guaranteed for 1 year

2-electrode Class D
3-electrode Class A to D
CAT II 300 V

Order code **FT3151**

Measurement parameters	Measurement system	Two-electrode method (Class D) Three-electrode method (Class A to D)
	Range configuration Accuracy	10 Ω (0 to 11.5 Ω): ±0.25 Ω 100 Ω (0 to 115 Ω): ±2.5 Ω 1000 Ω (0 to 1150 Ω): ±25 Ω
	Earth potential: Accuracy	0 to 30 V: ±3.0% f.s.
Other	Operating temperature	0°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature	-10°C to 50°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP40 (EN60529)
	Standards	EN61010 (Safety, measuring circuit, probe), EN61326 (EMC), EN61557-1/-5 (Earth tester)
	Power supply Number of uses	LR6 alkaline battery × 6 1100 times*1
	Dimensions (W × H × D)	164 × 119 × 88 mm (6.46 × 4.69 × 3.46 in)
	Weight	760 g (26.8 oz)

*1 30 sec. measurement/30 sec. rest, 3-electrode method, 575 Hz, auxiliary grounding electrode resistance of 100 Ω, measuring 10 Ω in the instrument's × 1 Ω range

FT6031 • FT3151

Accessories

C0106

L9840

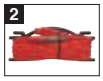
L9842-11

L9842-22

- CARRYING CASE C0106
- AUXILIARY EARTHING ROD L9840 (2 piece set)
- MEASUREMENT CABLE L9842-11 (Yellow 10 m (32.81 ft) length, equipped with winder)
- MEASUREMENT CABLE L9842-22 (Red 20 m (65.62 ft) length, equipped with winder)
- MEASUREMENT CABLE L9841 (black 4 m (13.12 ft) length)
- LR6 alkaline battery × 6
- Instruction manual

Options

1	MEASUREMENT CABLE L9843-51	50 m (164.04 ft)
2	MEASUREMENT CABLE L9843-52	50 m (164.04 ft)
3	MEASUREMENT CABLE L9844	For earthing terminal board red/yellow/black 1.2 m (3.94 ft) each
4	TEST LEAD L9787	For simplified measurement method
5	EARTH NETS 9050	2 sheets in set
6	SHOULDER STRAP Z5022	



CLAMP ON EARTH TESTER FT6380-50

Product warranty for 3 years
Accuracy guaranteed for 1 year

ϕ32 mm
True RMS
For multi-grounded systems
CAT IV 600 V

WIRELESS ADAPTER Z3210 (Options): Attach to enable Bluetooth® wireless technology

Model FT6380-90 includes Z3210 as a set

With Z3210

Z3210*

GENNECT Cross

Bluetooth®

Order code **FT6380-50**

Order code **FT6381-90**

Order code **Z3210**

Please see www.hioki.com for list of supported regions.

Accessories

Carrying case

Resistance check loop

- Carrying case
- Resistance check loop (1 Ω, 25 Ω)
- Strap
- LR06 alkaline battery ×2
- Instruction manual

Measurements for Multi-Grounded Systems

Hazardous Storage Tanks

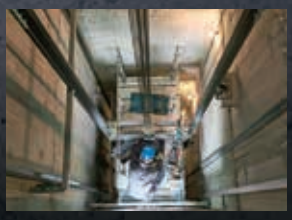
Transmission Towers

Measurement parameters	Measurement system	Instrument has two cores for voltage injection and current measurement. Total circuit loop resistance is calculated from defined voltage and measured current.*1
	Earthing resistance range	0.20 Ω/2.00 Ω/20.00 Ω/50.0 Ω/100.0 Ω/200.0 Ω/400 Ω/600 Ω/1200 Ω/1600 Ω Guaranteed accuracy range: 0.02 Ω to 1600 Ω Accuracy: ±1.5% rdg ±0.02 Ω
	AC Current range	20.00 mA/200.0 mA/2.000 A/20.00 A/60.0 A Guaranteed accuracy range: 1.00 mA to 60.0 A Accuracy: ±2.0% rdg ±0.05 mA
Other	Operating temperature	-10°C to 50°C, 80% RH or less (non-condensating)
	Storage temperature	-20°C to 60°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP40 (EN60529)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time	LR6 alkaline battery × 2 35 hours (backlight OFF)
	Dimensions (W × H × D)	73 × 218 × 43 mm (2.87 × 8.58 × 1.69 in)
	Weight	620 g (21.9 oz)

*1 For multi-grounded systems only. In a multi-grounded system, the larger the number of grounding poles, the more accurate the measured value.

POWER QUALITY ANALYZER PQ3198, PQ3100

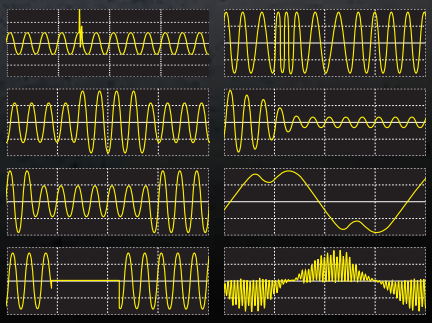
Monitor power quality and analyze the cause of equipment issues



Power anomalies are a major cause of equipment malfunction and damage. The PQ3198 and PQ3100 detect power supply abnormalities without fail to help diagnose the cause of problems.

Capture all of these power anomalies simultaneously

- Transient voltages
- Voltage swells
- Voltage dips
- Interruptions
- Frequency fluctuations
- Inrush current
- Harmonics
- High-order harmonics



POWER QUALITY ANALYZERS

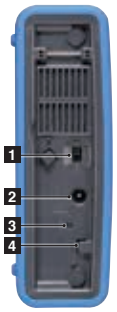
POWER QUALITY ANALYZER PQ3198, PQ3100

CE

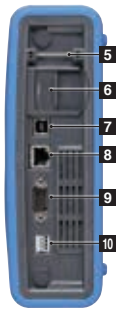
Product warranty for 3 years
Accuracy guaranteed for 1 year

Shared features: Side

Left side



Right side



1 Power switch
2 AC adapter terminal
3 Charging indicator
4 Cable hook

5 Strap attachment point
6 SD card terminal
7 USB terminal
8 LAN terminal
9 RS-232C terminal
10 External I/O terminal

PQ3198 (High-end model)

CAT IV 600 V

Voltage input terminals (4 channels: channels 1/2/3 and channel 4 are isolated from each other)

Current input terminals (4 channels)

PQ3100 (Standard model)

CAT IV 600 V, CAT III 1000 V

Voltage input terminals (4 channels)

Current input terminals (4 channels)

Model		PQ3198 (High-end model)	PQ3100 (Standard model)
Measurement parameters	Measurement lines	1-phase/2-wire, 1-phase/3-wire, 3-phase/3-wire, 3-phase/4-wire + CH 4	
	Fundamental frequency	DC/50 Hz/60 Hz/400 Hz	DC/50 Hz/60 Hz
	Voltage ranges Accuracy	Voltage measurement: 600.00 V rms Transient measurement: 6.0000 kV peak ±0.1% of nominal voltage	Voltage measurement: 1000.0 V rms or DC Transient measurement: 2.200 kV peak ±0.2% of nominal voltage
	Current ranges Accuracy	500.00 mA to 5.0000 kA AC *1 ±0.1% rdg ±0.1% f.s. + current sensor accuracy	(AC) 50.000 mA to 5.0000 kA *1 (DC) 10.000 A to 2.0000 kA *1 ±0.1% rdg ±0.1% f.s.+ current sensor accuracy
	Power ranges Accuracy	300.00 W to 3.0000 MW (AC) ±0.2% rdg ±0.1% f.s. + current sensor accuracy (DC) ±0.5% rdg ±0.5% f.s+ current sensor accuracy (CH4 Only)	50.000 W to 6.0000 MW (AC) ±0.2% rdg ±0.1% f.s.+ current sensor accuracy (DC) ±0.5% rdg ±0.5% f.s+ current sensor accuracy
	Measurement items	1. Transient voltage: 2MHz sampling 2. Frequency cycle: calculated as one cycle 3. Voltage (1/2) RMS: one cycle calculation refreshed every half cycle Current (1/2) RMS: half-cycle calculation 4. Voltage swell, voltage dips, voltage interruption 5. Inrush current 6. Voltage waveform comparison 7. Instantaneous flicker value: As per IEC61000-4-15 8. 200 ms frequency: calculated as 10 or 12 cycles, 40 to 70 Hz 9. 10 sec frequency: calculated as the whole-cycle time during the specified 10 s period, 40 to 70 Hz 10. Voltage waveform peak, Current waveform peak 11. Voltage, current, active power, apparent power, reactive power, active energy, reactive energy, power factor, displacement power factor, voltage unbalance factor, current unbalance factor, and efficiency 12. High-order harmonic component (voltage/current): 2 kHz to 80 kHz 13. Harmonic/Harmonic phase angle (voltage/current), harmonic power: 0th to 50th orders 14. Harmonic voltage-current phase angle: 1st to 50th orders 15. Total harmonic distortion factor (voltage/current) 16. Inter harmonic (voltage/current): 0.5th to 49.5th order 17. K Factor (multiplication factor) 18. IEC Flicker, Δ V10 Flicker	1. Transient voltage: 200 kHz sampling 2. Frequency cycle: calculated as one cycle 3. Voltage (1/2) RMS • Current (1/2) RMS: one cycle calculation refreshed every half cycle 4. Voltage swell, voltage dips, voltage interruption, RVC: Voltage (1/2) RMS calculation 5. Inrush current 6. Frequency 200 ms: calculated as 10 or 12 cycles 7. 10-sec frequency: calculated as the whole-cycle time during the specified 10 s period 8. Voltage waveform peak, current waveform peak 9. Voltage, current, active power, apparent power, reactive power, active energy, apparent energy, reactive energy, energy cost, power factor, displacement power factor, voltage unbalance factor, current unbalance factor 10. Voltage crest factor, current crest factor 11. Harmonic/Harmonic phase angle (voltage/current), harmonic power: 0th to 50th orders 12. Harmonic voltage-current phase angle: 1st to 50th orders 13. Total harmonic distortion factor (voltage/current) 14. Inter harmonic (voltage/current): 0.5th to 49.5th orders 15. K Factor (multiplication factor) 16. IEC Flicker, Δ V10 Flicker
Other	Record	Repeated ON: 1 year, maximum recording event: 9999 x 366 days (up to 9999 events per day) Repeated off: 35 days, maximum recording event: 9999 events	Maximum recording interval: 1 year, maximum number of recordable events: 9999 × 365 days
	Setup assistance	Simplified setup function	QUICK SET (navigation-style assistance from connecting the instrument to the start of recording)
	Interfaces	SD/SDHCmemory card *2, RS-232C, USB2.0, LAN	
	Operating temperature	0°C to 30°C (95% RH or less), 30°C to 50°C (80% RH or less) (non-condensating)	-20°C to 50°C (80% RH or less) (non-condensating)
	Storage temperature	10°C greater than operating temperature and humidity range	
	Standards	EN61010 (Safety), EN61326 Class A (EMC)	
	IEC 61000-4-30	Class A	Class S
	Power supply	AC ADAPTER Z1002, BATTERY PACK Z1003	
	Battery operating time	3 hours	8 hours
	Dimensions (W x H x D)	300 × 211 × 68 mm (11.81 × 8.31 × 2.68 in)	
	Weight	2.6 kg (91.7 oz) (including BATTERY PACK)	2.5 kg (88.2 oz) (including BATTERY PACK)

L1000

L1000-05

Z1002

Z1003

Z4001

PQ3198 Accessories

- VOLTAGE CORD L1000
- AC ADAPTER Z1002
- BATTERY PACK Z1003
- PQ ONE (software CD)
- SD MEMORY CARD Z4001
- USB cable
- Color clips
- Spiral tubes
- Strap
- Measurement guide
- User manual

PQ3100 Accessories

- VOLTAGE CORD L1000-05
- AC ADAPTER Z1002
- BATTERY PACK Z1003
- PQ ONE (software CD)
- USB cable
- Color clips
- Spiral tubes
- Strap
- Measurement guide
- User manual

Order code **PQ3198**

Order code **PQ3198-92** **Value Kits:** PQ3198, CT7136*3 (600A) × 4, L1021-02×3, CARRYING CASE C1009

Order code **PQ3198-94** **Value Kits:** PQ3198, CT7045*3 (6000A) × 4, L1021-02×3, CARRYING CASE C1009

Order code **PQ3100**

Order code **PQ3100-91** **Value Kits:** PQ3100, CT7136*3 (600A) × 2, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009

Order code **PQ3100-92** **Value Kits:** PQ3100, CT7136*3 (600A) × 4, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009

Order code **PQ3100-94** **Value Kits:** PQ3100, CT7045*3 (6000A) × 4, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009

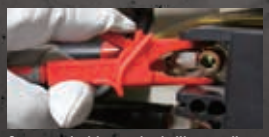
*1 Depends on current sensor in use
*2 Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers.
*3 For more detailed information on CT7136, CT7045, and options, please refer to p.44 and p.45.

CLAMP ON POWER LOGGER PW3365, PW3360

Accurately measure power consumption, also available with non-contact voltage sensor for added safety

SAFETY VOLTAGE SENSOR PW9020
(for PW3365 only)

- Clamp on top of cable insulation
- Quick setup
- Safely avoid contact with live parts



Compared with standard alligator clips that are hard to use and require metal-to-metal contact

Toggle displays to easily verify data

List display

Demand Graph

Waveform

Trend Graph

QUICK SET navigation

Highly Intuitive

Check Connection Status

POWER CONSUMPTION

CLAMP ON POWER LOGGER PW3365, PW3360

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

SAFETY VOLTAGE SENSOR PW9020
Compatible with PW3365 only
Finished outer diameter
ϕ6 mm (0.24 in) to ϕ30 mm (1.18 in)

PW3365

CAT IV 300 V, CAT III 600 V

PW3360

CAT IV 300 V, CAT III 600 V

Model			PW3365 + PW9020	PW3360
Measurement parameters	Measurement line		1-phase/2-wire (1/2/3 circuits), 1-phase/3-wire (1 circuit), 3-phase/3-wire (1 circuit), 3-phase/4-wire (1 circuit), Current only: 1 to 3 channels	
	Frequency		50 Hz/60 Hz	
	Voltage ranges Accuracy		400 V AC (Effective measurement range: 90.0 V to 520.0 V) ±1.5% rdg ±0.2% f.s. (combined accuracy with PW9020)	600 V AC (Effective measurement range: 90.0 V to 780.0 V) ±0.3% rdg ±0.1% f.s.
	Current ranges Accuracy		500.00 mA AC to 5.0000 kA[*1] (Leak clamp on sensor only: 50.000 mA AC to 5.0000 A) ±0.3% rdg ±0.1% f.s. + current sensor accuracy	
	Power ranges Accuracy		200.00 W to 6.0000 MW ±2.0% rdg ±0.3% f.s. + current sensor accuracy	300.00 W to 9.0000 MW ±0.3% rdg ±0.1% f.s. + current sensor accuracy
	Measurement items	Voltage	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle, frequency (U1)	
		Current	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle	
		Power	Active power, reactive power, apparent power, power factor, (with lag, lead display) or displacement power factor (with lag, lead display), active energy (consumption, regeneration), reactive energy (lag, lead) Energy cost display (per-kWh price × power consumption)	
		Demand	Active power demand value (consumption, regeneration), reactive power demand value (lag, lead), Active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), power factor demand value	
		Harmonics	Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R), up to the 13th order	PW3360-21 Only: Harmonic voltage, current, power level, content, phase angle, total harmonic distortion factor (THD-F or THD-R), up to the 40th order
		Pulse input	N / A	✔
Other	Data save interval		1 sec to 30 sec, 1 minute to 60 minutes, 14 selections	
	Interfaces		SD/ SDHC memory card [*2], LAN, USB2.0, FTP	
	Operating temperature		0°C to 50°C, 80% RH or less (non-condensating)	-10°C to 50°C, 80% RH or less (non-condensating)
	Storage temperature		-10°C to 60°C, 80% RH or less (non-condensating)	-20°C to 60°C, 80% RH or less (non-condensating)
	Standards		EN61010 (Safety), EN61326 (EMC)	
	Power supply		AC ADAPTER Z1008, BATTERY PACK 9459	AC ADAPTER Z1006, BATTERY PACK 9459
	Battery operating time		5 hours	8 hours
	Dimensions (W × H × D)		180 × 100 × 68 mm (7.09 × 3.94 × 2.68 in) (with PW9002)	180 × 100 × 67.2 mm (7.09 × 3.94 × 2.65 in) (with PW9002)
	Weight		820 g (28.9 oz) (with PW9002)	830 g (29.3 oz) (with PW9002)

SAFETY VOLTAGE SENSOR PW9020 Specifications

Compatible conductor types	Insulated wires[*3] (indoor PVC) or metal parts
Compatible conductor diameters	Finished outer diameter ϕ6 mm to ϕ30 mm (ϕ0.24 in to ϕ1.18 in)
Effective measurement range	90 V to 520 V
Safety standard category	CAT IV 300 V/CAT III 600 V
Operating temperature	0°C to 50°C, 80% RH or less (non-condensating)
Storage temperature	-10°C to 60°C, 80% RH or less (non-condensating)
Standards	EN61010 (Safety), EN61326 (EMC)
Cord length	3 m (9.84 ft)
Weight	220 g (7.8 oz)

[*1] Depends on current sensor in use. For more detailed information on sensors, please refer to p.44, and p.45.
[*2] Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers.
[*3] Shielded wires cannot be measured. The product may not be able to accurately measure multicore cables or cables that have thick insulation.

PW9020

Z1008

L9438-53

Z1006

PW3360 Accessories

- VOLTAGE CORD L9438-53 (black, red, yellow, blue @ 1 each)
- AC ADAPTER Z1006
- USB cable 0.9 m (2.95 ft)
- Instruction manual, Measurement guide
- Color clips (red, blue, yellow, white @ 2 each)
- Spiral tubes × 5

PW3365 Accessories

- SAFETY VOLTAGE SENSOR PW9020 ×4
- AC ADAPTER Z1008
- USB cable 0.9 m (2.95 ft)
- Instruction manual, Measurement guide
- Color clips (red, blue, yellow, white @ 4 each)
- Spiral tubes × 10

Order code **PW3365-20**

Order code **PW3360-20**

Order code **PW3360-21** **with harmonic analysis function**

Options

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

CURRENT SENSOR (For PQ3198, PQ3100, CM7290, CM7291)

Features	Make measurements over extended period of time without zero-adjustment, even in locations with temperature variations			AC/DC current sensors for observing instantaneous waveforms		
Model name	AC/DC AUTO-ZERO CURRENT SENSOR			AC/DC CURRENT SENSOR		
Model	CT7731	CT7736	CT7742	CT7631	CT7636	CT7642
Appearance	 PL14	 PL14	 PL14	 PL14	 PL14	 PL14
Rated measurement current	100 A AC/DC	600 A AC/DC	2000 A AC/DC	100 A AC/DC	600 A AC/DC	2000 A AC/DC
Max. allowable peak input	150 A peak	900 A peak	2840 A peak	150 A peak	900 A peak	2840 A peak
Bandwidth	DC to 5 kHz (-3dB)	DC to 5 kHz (-3dB)	DC to 5 kHz (-3dB)	DC to 10 kHz (-3dB)	DC to 10 kHz (-3dB)	DC to 10 kHz (-3dB)
Amplitude accuracy (DC, 45 to 66 Hz)	±1.0% rdg ±0.5% f.s.	±2.0% rdg ±0.5% f.s.	±1.5% rdg ±0.5% f.s.	±1.0% rdg ±0.5% f.s.	±2.0% rdg ±0.5% f.s.	±1.5% rdg ±0.5% f.s.
Output rate	1 mV/A	1 mV/A	0.1 mV/A	1 mV/A	1 mV/A	0.1 mV/A
Max. rated voltage to earth	(AC/DC) CAT IV 600 V	(AC/DC) CAT IV 600 V, CAT III 1000 V	(AC/DC) CAT IV 600 V, CAT III 1000 V	(AC/DC) CAT IV 600 V	(AC/DC) CAT IV 600 V, CAT III 1000 V	(AC/DC) CAT IV 600 V, CAT III 1000 V
Operating temperature	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C
Core jaw diameter	ϕ33 mm or less	ϕ33 mm or less	ϕ55 mm or less	ϕ33 mm or less	ϕ33 mm or less	ϕ55 mm or less

Features	Attaches easily to thick cables, even in confined spaces			For accurately measuring load current			For measuring leakage current
Model name	AC FLEXIBLE CURRENT SENSOR			AC CURRENT SENSOR			AC LEAKAGE CURRENT SENSOR
Model	CT7044	CT7045	CT7046	CT7126	CT7131	CT7136	CT7116
Appearance	 PL14	 PL14	 PL14	 PL14	 PL14	 PL14	 PL14 Insulated conductor General purpose ZCT
Rated measurement current	6000 A AC	6000 A AC	6000 A AC	60 A AC	100 A AC	600 A AC	6 A AC
Max. allowable peak input	15000 A peak	15000 A peak	15000 A peak	100 A peak	200 A peak	900 A peak	30 A peak
Bandwidth	10 to 50 kHz (within ±3 dB)	10 to 50 kHz (within ±3 dB)	10 to 50 kHz (within ±3 dB)	40 to 20 kHz	40 to 20 kHz	40 to 20 kHz	40 to 5 kHz
Amplitude accuracy (45 to 66 Hz)	±1.5% rdg ±0.25% f.s.*	±1.5% rdg ±0.25% f.s.*	±1.5% rdg ±0.25% f.s.*	±0.3% rdg ±0.01% f.s.	±0.3% rdg ±0.02% f.s.	±0.3 % rdg ±0.01% f.s.	±1.0% rdg ±0.05% f.s.
Output rate	1 mV/A (600 A) 0.1 mV/A (6000 A)	1 mV/A (600 A) 0.1 mV/A (6000 A)	1 mV/A (600 A) 0.1 mV/A (6000 A)	10 mV/A	1 mV/A	1 mV/A	100 mV/A
Max. rated voltage to earth	(AC) CAT IV 600 V, CAT III 1000 V	(AC) CAT IV 600 V, CAT III 1000 V	(AC) CAT IV 600 V, CAT III 1000 V	(AC) CAT III 300 V	(AC) CAT III 300 V	(AC) CAT IV 600 V,CAT III 1000 V	Insulated conductor
Operating temperature	-25°C to 65°C	-25°C to 65°C	-25°C to 65°C	-10°C to 50°C	-10°C to 50°C	-10°C to 50°C	-25°C to 65°C
Core jaw diameter	ϕ100 mm or less	ϕ180 mm or less	ϕ254 mm or less	ϕ15 mm or less		ϕ46 mm or less	ϕ40 mm or less

CURRENT SENSOR (For PW3365, PW3360)

Features	For load current levels: Voltage output					
Model name	CLAMP ON SENSOR					
Model	9694	9660	9661	9669	9695-02	9695-03
Appearance	 BNC	 BNC	 BNC	 BNC	 Requires the 9219 Insulated conductor Not CE marked	 Requires the 9219 Insulated conductor Not CE marked
Rated measurement current	5 A AC	100 A AC	500 A AC	1000 A AC	50 A AC	100 A AC
Output rate	10 mV/A	1 mV/A	1 mV/A	0.5 mV/A	10 mV/A	1 mV/A
Amplitude accuracy (45 to 66 Hz)	±0.3% rdg ±0.02% f.s.	±0.3% rdg ±0.02% f.s.	±0.3% rdg ±0.01% f.s.	±1.0% rdg ±0.01% f.s.	±0.3% rdg ±0.02% f.s.	±0.3% rdg ±0.02% f.s.
Max. rated voltage to earth	(AC) CAT III 300 V	(AC) CAT III 300 V	(AC) CAT III 600 V	(AC) CAT III 600 V	(AC) CAT III 300 V	(AC) CAT III 300 V
Operating temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C	0°C to 50°C	0°C to 50°C	0°C to 50°C
Core jaw diameter	ϕ15 mm or less	ϕ15 mm or less	ϕ46 mm or less	ϕ55 mm or less 80×20 mm busbar	ϕ15 mm or less	ϕ15 mm or less

Features	For load current levels: Voltage output			For leak current: Voltage output	
Model name	AC FLEXIBLE CURRENT SENSOR			CLAMP ON LEAK SENSOR	
Model	CT9667-01	CT9667-02	CT9667-03	9657-10	9675
Appearance	 BNC	 BNC	 BNC	 BNC Insulated conductor General purpose ZCT	 BNC Insulated conductor Branch circuit ZCT
Rated measurement current	5000 A AC/500 A AC	5000 A AC/500 A AC	5000 A AC/500 A AC	10 A AC	10 A AC
Output rate	0.1 mV/A (5000 A) 1 mV/A (500 A)	0.1 mV/A (5000 A) 1 mV/A (500 A)	0.1 mV/A (5000 A) 1 mV/A (500 A)	100 mV/A	100 mV/A
Amplitude accuracy (45 to 66 Hz)	±2% rdg ±0.3% f.s.*	±2% rdg ±0.3% f.s.*	±2% rdg ±0.3% f.s.*	±1.0% rdg ±0.05% f.s.	±1.0% rdg ±0.005% f.s.
Max. rated voltage to earth	(AC) CAT IV 600 V (AC) CAT III 1000 V	(AC) CAT IV 600 V (AC) CAT III 1000 V	(AC) CAT IV 600 V (AC) CAT III 1000 V	Insulated conductor	Insulated conductor
Operating temperature	-25°C to 65°C	-25°C to 65°C	-10°C to 50°C	0°C to 50°C	0°C to 50°C
Core jaw diameter	ϕ100 mm or less	ϕ180 mm or less	ϕ254 mm or less	ϕ40 mm or less	ϕ30 mm or less

*At center of flexible loop

1	EXTENSION CABLE L0220-01	2 m (6.56 ft), for PL14 connectors
2	EXTENSION CABLE L0220-02	5 m (16.4 ft), for PL14 connectors
3	EXTENSION CABLE L0220-03	10 m (32.81 ft), for PL14 connectors
4	EXTENSION CABLE L0220-04	20 m (65.62 ft), for PL14 connectors
5	EXTENSION CABLE L0220-05	30 m (98.43 ft), for PL14 connectors
6	EXTENSION CABLE L0220-06	50 m (164.04 ft), for PL14 connectors
7	EXTENSION CABLE L0220-07	100 m (328.08 ft), for PL14 connectors
8	CONNECTION CABLE 9219	For 9695, 3 m (9.84 ft)
9	AC ADAPTER 9445-02	For CT9667
10	CONVERSION CABLE L9910	To convert output connector: BNC to PL 14

L0220

9219

9445-02

L9910

PQ3198, PQ3100

Voltage	1	VOLTAGE CORD L1000	Red/ Yellow/ Blue/Gray @ 1 each, Black x 4, 3 m (9.84 ft) , Alligator clip x 8
	2	VOLTAGE CORD L1000-05	Red/ Yellow/ Blue/Gray/Black @ 1 each 1, 3 m (9.84 ft) , Alligator clip x 5
	3	MAGNETIC ADAPTER 9804-01	Red, Alternative tip for the L1000, L1000-05
	4	MAGNETIC ADAPTER 9804-02	Black, Alternative tip for the L1000, L1000-05
	5	GRABBER CLIP L9243	Alternative tip for the L1000, L1000-05
	6	PATCH CORD L1021-01	0.5 m (1.64 ft), Red, Banana branch-banana
	7	PATCH CORD L1021-02	0.5 m (1.64 ft), Black, Banana branch-banana
Record	8	SD MEMORY CARD 2GB Z4001	Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers.
	9	SD MEMORY CARD 8GB Z4003	
Communication	10	RS-232C CABLE 9637	For PQ3100, pin - 9 pin, cross, 1.8 m (5.91 ft)
	11	LAN CABLE 9642	5 m (16.4 ft), Straight, Cross conversion adapter
Power supply	12	AC ADAPTER Z1002	100 V AC to 240 V AC
	13	BATTERY PACK Z1003	7.2 V, Ni-MH
Connection	14	WIRING ADAPTER PW9000	For PQ3198, for 3-phase/3-wire connection
	15	WIRING ADAPTER PW9001	For PQ3198, for 3-phase/4-wire connection
	16	GPS BOX PW9005	For PQ3198
Other	17	CARRYING CASE C1009	Bag type
	18	CARRYING CASE C1001	Soft type
	19	CARRYING CASE C1002	Hard trunk type
	20	MAGNETIC STRAP Z5004	
	21	MAGNETIC STRAP Z5020	Extra strength

PW3365, PW3360

Voltage	1	SAFETY VOLTAGE SENSOR PW9020	For PW3365, 3 m (9.84 ft)
	2	VOLTAGE CORD L9438-53	For PW3360, Black/ Red/ Yellow/ Blue, 3 m (9.84 ft) length, Alligator clip x 4
	3	MAGNETIC ADAPTER 9804-01	For PW3360, Red, Φ11 mm (0.43 in)
	4	MAGNETIC ADAPTER 9804-02	For PW3360, Black, Φ11 mm (0.43 in)
	5	PATCH CORD L1021-01	For PW3360, 0.5 m (1.64 ft), Red, Banana branch-banana
	6	PATCH CORD L1021-02	For PW3360, 0.5 m (1.64 ft), Black, Banana branch-banana
Record	7	SD MEMORY CARD 2GB Z4001	Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers.
	8	SD MEMORY CARD 8GB Z4003	
Communication	9	LAN CABLE 9642	5 m (16.4 ft), Straight, Cross conversion adapter
	10	POWER LOGGER VIEWER SF1001	Software to analyze measurement data
Power supply	11	AC ADAPTER Z1008	For PW3365, 100V AC to 240V
	12	AC ADAPTER Z1006	For PW3360, 100V AC to 240V
	13	BATTERY SET PW9002	Battery case and 9459 Set
	14	BATTERY PACK 9459	
Other	15	CARRYING CASE C1005	
	16	CARRYING CASE C1008	For PW3365
	17	MAGNETIC STRAP Z5004	

CM7290, CM7291

Output	1	OUTPUT CORD L9094	Connect to Banana terminal,1.5 m (4.92 ft)
	2	OUTPUT CORD L9095	Connect to BNC terminal,1.5 m (4.92 ft)
	3	OUTPUT CORD L9096	Connect to terminal block, 1.5 m (4.92 ft)
Power supply	4	AC ADAPTER 9445-02	
Other	5	CARRYING CASE C0220	
	6	CARRYING CASE C0221	
	7	MAGNETIC STRAP Z5004	

DISPLAY UNIT CM7290, CM7291

CE

Product warranty for 3 years
Accuracy guaranteed for 3 years

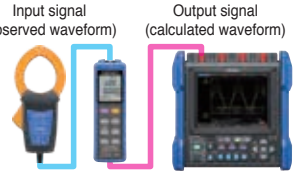
Measurement sensors sold separately


CM7290


CM7291

Bluetooth®

Please see www.hioki.com for list of supported regions.



Output and monitor as waveform on recorder

- Built-in Bluetooth® wireless technology
- Verify and record measured data with free GENNECT Cross mobile app

*Available only with products displayed with the GENNECT Cross icon

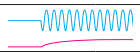
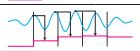
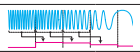
Accessories

- Alkaline battery LR6 x 2
- Instruction manual
- Protector

Order code **CM7290**

Order code **CM7291**

Measurement parameters

Measurement parameters		DC, AC, DC+AC, Hz	
Output method	WAVE		Input signal Output signal
	RMS		Convert and output as RMS value
	PEAK		Output peak of each interval as absolute value
	FREQ		Output frequency count per interval

Sensor		CT7731 CT7631	CT7736 CT7636	CT7742 CT7642	CT7044 CT7045 CT7046
Accuracy (output)	DC WAVE	±1.5% rdg ±1.3 mV	±2.5% rdg ±3.8 mV	±2.0% rdg ±1.8 mV	-
	AC WAVE	±1.5% rdg ±1.3 mV	±2.5% rdg ±3.8 mV	±2.5% rdg ±1.8 mV	±2.0% rdg ±2.3 mV
	AC RMS	±1.8% rdg ±1.3 mV	±2.8% rdg ±3.8 mV	±2.8% rdg ±1.8 mV	±2.3% rdg ±2.3 mV

Other

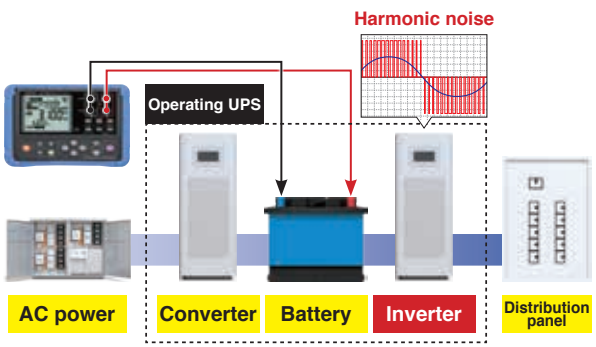
Output update time	PEAK: 0.02s (FAST)/0.2s (NORMAL)/1s (SLOW) FREQ: 0.2s (FAST)/0.2s (NORMAL)/3s (SLOW) (WAVE, RMS: analog output)
Operating temperature	-25°C to 65°C, 80% RH or less (non-condensating)
Storage temperature	-25°C to 65°C, 80% RH or less (non-condensating)
Dustproof and waterproof	IP54[*1]
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	Alkaline battery LR6 × 2, external power supply 16 hours (backlight OFF)
Dimensions(W × H × D)	52 × 163 × 37 mm (2.05 × 6.42 × 1.46 in)
Weight	220 g (7.8 oz)

[*1] With sensor connected and caps fitted to AC adapter and power connector

BATTERY TESTER BT3554-50, BT3554-51,BT3554-52

Properly diagnose deterioration of UPS lead-acid batteries even under noisy environments

Tough against inverter noise during UPS startup



Completing an intensive inspection workload efficiently

BATTERY TESTERS

BATTERY TESTER BT3554-50, BT3554-51, BT3554-52

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

BT3554-50: Instrument only

With Z3210

GENNECT Cross

Bluetooth® Please see www.hioki.com for list of supported regions.

BT3554-51: with 9465-10

With Z3210

GENNECT Cross

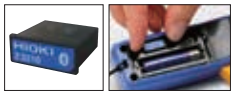
Bluetooth® Please see www.hioki.com for list of supported regions.

BT3554-52: with L2020

With Z3210

GENNECT Cross

Bluetooth® Please see www.hioki.com for list of supported regions.



WIRELESS ADAPTER Z3210 (Options): Attach to enable Bluetooth® wireless technology

Accessories

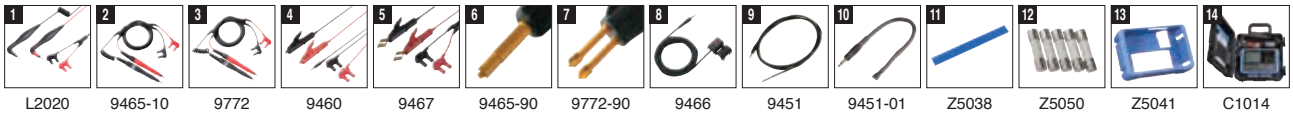
- PIN TYPE LEAD 9465-10 (BT3554-51 only)
- PIN TYPE LEAD L2020 (BT3554-51 only)
- Carrying Case C1014
- Protector Z5041
- Fuse Set Z5050
- ZERO ADJUSTMENT BOARD
- Neck strap
- USB cable
- GENNECT One Software CD
- Power-on option sticker
- Alkaline battery LR6 × 8
- Instruction manual

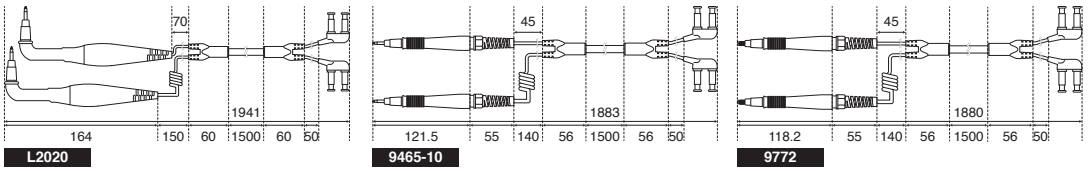
Order code	BT3554-50	Instrument only
Order code	BT3554-51	With 9465-10
Order code	BT3554-52	With L2020
Order code	BT3554-91	With 9465-10, Z3210
Order code	BT3554-92	With L2020, Z3210
Order code	Z3210	

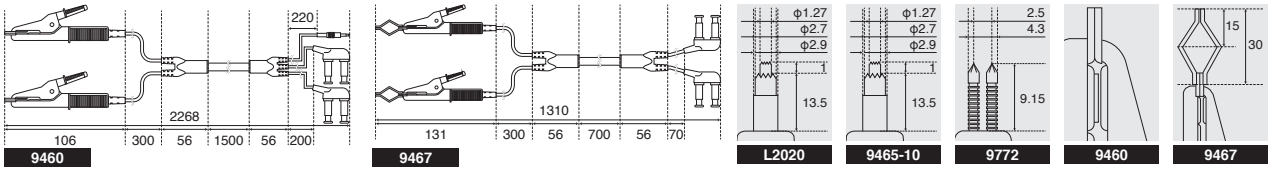
Options		
1	PIN TYPE LEAD L2020	
2	PIN TYPE LEAD 9465-10	
3	PIN TYPE LEAD 9772	
4	CLIP TYPE LEAD WITH TEMPERATURE SENSOR 9460	
5	LARGE CLIP TYPE LEAD 9467	
6	TIP PIN 9465-90	For L2020, 9465-90
7	TIP PIN 9772-90	For 9772
8	REMOTE CONTROL SWITCH 9466	2 m (6.56 ft)
9	TEMPERATURE PROBE 9451	
10	TEMPERATURE PROBE 9451-01	
11	0 ADJ BOARD Z5038	
12	FUSE SET Z5050	This contains 5 pieces
13	PROTECTOR Z5041	
14	CARRYING CASE C1014	

Measurement	Measurement parameters		Internal resistance measurement for batteries (AC four-terminal method) Terminal voltage measurement for batteries (DC voltage) Temperature measurement (when using the 9460)
	Resistance	Range Accuracy	3 mΩ (Max. display: 3.100 mΩ, Resolution: 1 μΩ) 30 mΩ (31.00 mΩ,10 μΩ) 300 mΩ (310.0 mΩ,100 μΩ) 3 Ω (3.100 Ω,1 mΩ) Accuracy: ±0.8% rdg ±6 dgt
		Measurement Current	160 mA (3 mΩ, 30 mΩ range) 16 mA (300 mΩ range) 1.6 mA (3 Ω range)
		Measurement frequency	1 kHz ±30 Hz (with function for avoiding noise frequency enabled: 1 kHz ±80 Hz)
	Voltage		6.000 V/60.00 V Accuracy: ±0.08% rdg ±6 dgt
	Temperature		-10.0°C to 60.0°C Accuracy: ±1.0°C
Other	Function		• Memory function (Up to 6000 data) • Auto memory function • Auto-hold function • Measurement Navigator (When using Z3210, GENNECT Cross: Voice guide output) • Tablet app (GENNECT Cross) • PC app (GENNECT One) • Comparator function (PASS/ WARNING/ FAIL) • Excel® Direct Input function (When using Z3210)
	Interfaces		USB2.0
	Operating temperature		0°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature		-10°C to 50°C, 80% RH or less (non-condensating)
	Standards		EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time		LR6 alkaline battery × 8 8.5 hours
	Dimensions (W × H × D)		199 × 132 × 60.6 mm (7.83 × 5.20 × 2.39 in)
	Weight		960 g (33.8 oz)

The thresholds for determining the pass/fail condition of a battery depend on the specifications and standards of the battery manufacturer, battery type, capacity, etc. It is important and necessary to always conduct battery testing against the internal resistance and terminal voltage of a new or reference battery. In some cases, it may be difficult to determine the deterioration state of traditional open type (liquid) lead-acid or alkaline batteries, which demonstrate smaller changes in internal resistance than sealed lead acid batteries.



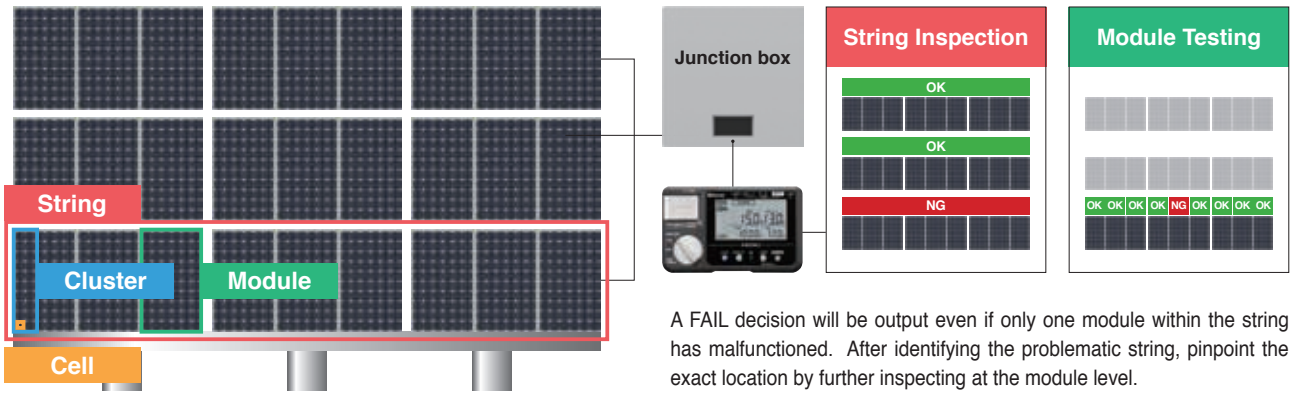




PV Maintenance

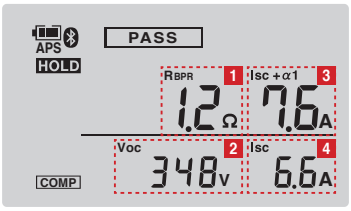
Inspect solar panel bypass diodes for opens and shorts

Improve testing efficiency by first inspecting the PV string, then testing individual modules for issues

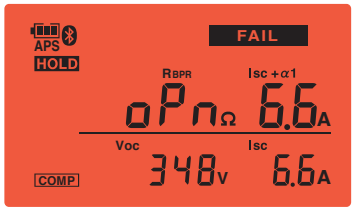


A FAIL decision will be output even if only one module within the string has malfunctioned. After identifying the problematic string, pinpoint the exact location by further inspecting at the module level.

1 RBPR: Bypass route resistance
2 Voc: Open-circuit voltage
3 Isc + α1: Measurement current
4 Isc: Short-circuit current

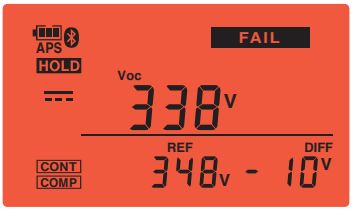


Normal reading



Open fault

Test open-circuit voltage, short-circuit current, and bypass route resistance at the same time



Short-circuit fault

Measure open-circuit voltage within 1 second and compare to reference value

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

BYPASS DIODE TESTER FT4310

Bluetooth®
Please see www.hioki.com for list of supported regions.

Order code **FT4310**

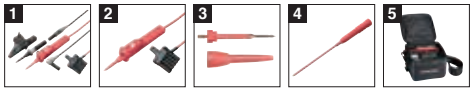
Accessories


L9788-11


C0206

- TEST LEAD SET WITH REMOTE SWITCH L9788-11
- CARRYING CASE C0206
- Instruction manual
- Alkaline battery LR6 ×6

Options		
1	TEST LEAD SET WITH REMOTE SWITCH L9788-11	1.2 m (3.94 ft)
2	TEST LEAD WITH REMOTE SWITCH L9788-10	1.2 m (3.94 ft)
3	TIP PIN L9788-90	For L9788, L9788-10
4	BREAKER PIN L9788-92	For checking breaker terminal
5	CARRYING CASE C0206	



L9788-11 L9788-10 L9788-90 L9788-92 C0206

*For detailed information about L9788, please refer to p.27

Measurement parameters		
BPD TEST mode (Bypass diode)		
	Measurement items	Bypass diode comparator judgment Bypass route resistor Open-circuit voltage Short-circuit current Measurement (applied) current
	Measurement object	Crystal system string Open-circuit voltage: 1000 V DC or less Rated current: 2 A to 12 A DC
	Measurement method	Short-circuit and pulse voltage application
	Duration of shorting between terminals	10 ms or less
	Output pulse	Voltage: 100 V DC or less, Pulse width: 5 ms or less Limiting current: Measured short-circuit current + 1 A or less, Maximum: 13 A
Voc mode (Open-circuit voltage)		
	Measurement items	Open-circuit voltage
	Measurement range	0 V to 1000 V DC (displayed up to 1200 V DC)
	Response time	Within 1 sec.
	Functions	Displays the number of bypass diode measurements Automatic polarity judgment function Comparison display Live circuit indicator Comparator Auto hold Backlight Auto power off Buzzer sounds Battery indicator
Other	Operating temperature	-10 to 65°C, 80% RH or less (non-condensating)
	Storage temperature	-20 to 65°C, 80% RH or less (non-condensating)
	Dustproof and waterproof	IP40 (EN60529)
	Standards	EN61010 (Safety), EN61326 ClassA (EMC)
	Maximum input voltage	1000 V DC
	Power supply Continuous operating time	LR6 alkaline battery × 6 45 hours (Bluetooth® OFF)
	Dimensions (W × H × D)	152 × 92 × 69 mm (5.98 × 3.62 × 2.72 in), Cable length 0.5m (1.64 ft)
	Weight	650 g (22.9 oz)

LOGGERS

Measure with remote modules and collect data with central logging station

Send data to the LR8410 via Bluetooth® wireless communication

Measurement units

LR8512 LR8513 LR8514 LR8515

LR8510 LR8511

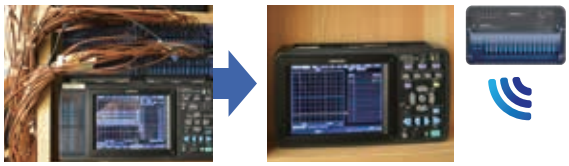
Connect
Up to 7

Communication range
30 m, line of sight

Main unit

LR8410

Model		LR8510	LR8511	LR8512	LR8513	LR8514	LR8515
No. of input channels		15	15	2	2	2	2
Input type	Voltage	✔	✔				✔
	Temperature	✔	✔			✔	✔
	Humidity		✔			✔	
	Resistance		✔				
	Pulse			✔			
	Current				✔		



Sensor cable to main unit is eliminated. Shorter thermocouple cable lengths are less susceptible to noise, reducing effects on the measurement data. Complete wiring quickly and efficiently.

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

WIRELESS LOGGING STATION LR8410-20

For more details about the LR85XX Series, please refer to p.51.

LR8410-20

LR8510

LR8511

Order code **LR8410-20**

Order code **LR8510**

Order code **LR8511**

LR8410-20 Accessories
- SD MEMORY CARD 2GB Z4001
- USB cable
- AC ADAPTER Z1008 (also bundled with the LR8510, LR8511)
- CD-R (data collection software "Logger Utility")
- Instruction manual
- Measurement guide

Z4001

Z1008

Options		
1	AC ADAPTER Z1008	100 V to 240 V AC
2	SD MEMORY CARD 2GB Z4001	
3	SD MEMORY CARD 8GB Z4003	
4	BATTERY PACK Z1007	
5	CARRYING CASE C1007	
6	FIXED STAND Z1009	
7	LAN CABLE 9642	5 m (16.4 ft), with straight-to-cross conversion adapter

Z1008 Z4001 Z4003 Z1007 C1007 Z1009 9642

LR8410-20		
Measurement	No. of measurement channels	Connect up to seven units wirelessly*1 (Units: LR8510, LR8511, LR8512, LR8513, LR8514, LR8515)
	Pulse, digital input	2 pulse input channels 2 digital input channels (when using the LR8512)
	Recording intervals	100 ms*2, 200 ms to 1 hour, 16 selections
	Data storage	Internal memory: 8M-words; Data storage media: SD memory card or USB memory stick*3
	Interfaces	LAN: 100BASE-TX, USB: USB 2.0 series mini-B receptacle
	Functions	Save waveform data in real time to the SD memory card or USB memory stick, numerical value calculations, waveform calculations, 4ch alarm output (not isolated, common ground), and other functions
Other	Operating temperature	-10 to 50°C, 80% rh or less (non-condensating)
	Storage temperature	-20 to 60°C, 80% rh or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 classA, EN61000-3-2, EN61000-3-3 (EMC)
	Power supply	AC ADAPTER Z1008 (100 to 240 V AC, 50/60 Hz)
	Dimensions (W × H × D)	230 × 125 × 36 (9.06 × 4.92 × 1.42 in)
	Weight	700 g (24.7 oz) (excluding battery pack)

LR8510	
Log	Voltage, thermocouple
Channels	15ch (M3 screw type terminal block, 2 terminals per channel)
Measurement range	Voltage: -10 mV to 100 V, Thermocouple: -200°C to 1800°C*4
Accuracy	Voltage: ±10 µV, Thermocouple: ±0.6°C

LR8511	
Log	Voltage, thermocouple, RTDs, resistance, humidity
Channels	15ch (Push-button terminals, 4 terminals per channel)
Measurement range	Voltage: -10 mV to 100 V, Thermocouple: -200 to 1800°C*4 RTDs: -100 to 500°C*4, Resistance: 0 to 200 Ω, Humidity: 5.0 to 95.0% rh
Accuracy	Voltage: ±10 µV, Thermocouple: ±0.6°C RTDs: -±0.6°C, Resistance: ±10 mΩ, Humidity: ±5% rh

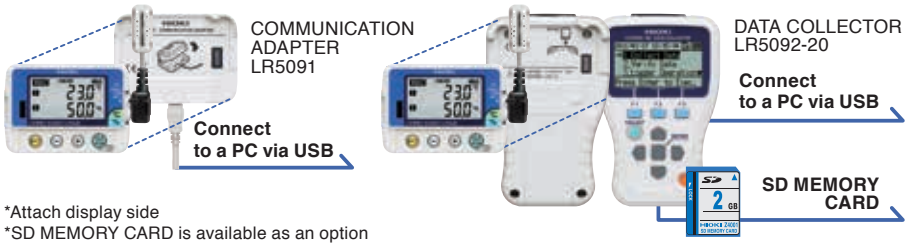
*1 Using Bluetooth® wireless technology
*2 Setting not available when the thermocouple burnout detection setting is ON
*3 Only data recorded to a genuine HIOKI SD memory card is guaranteed
*4 Depends on current sensor in use

Note: The LR8410-20 alone is not capable of making measurements. One or more input modules are necessary to measure.
The main unit and input modules are not bundled with the Battery Pack Z1007 (Li-ion).
Thermocouples are not provided by HIOKI, and must be purchased from a separate vendor.
Use only HIOKI SD memory cards, which are manufactured to strict industrial standards, for long-term storage of important data.
Correct operation of non-HIOKI SD cards or USB memory sticks is not guaranteed.

These products emit radio waves. Use of radio waves is subject to licensing requirements in certain countries.
Use in countries or regions other than those listed above may constitute a violation of law, exposing the operator to legal penalties.

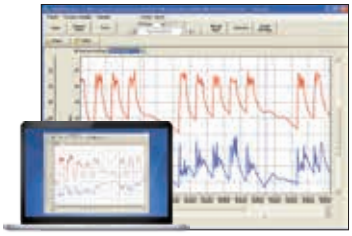
Collect data with portable transfer devices

Use the LR5091 or LR5092 to capture data and upload to the PC for analysis



*Attach display side
*SD MEMORY CARD is available as an option

Utility for LR5000



Model	HUMIDITY LOGGER LR5001	TEMPERATURE LOGGER LR5011	INSTRUMENTATION LOGGER LR5031	CLAMP LOGGER LR5051
Log	Temperature, Humidity	Temperature	4-20 mA Instrumentation Signals	Load Current, Leak Current
Appearance				
Channels	1ch (temperature), 1ch (humidity)	1ch	1ch	2ch
Measurement range	–40.0°C to 85.0°C (temperature) 0% RH to 100% RH (humidity)	–40.0°C to 180.0°C*1	-30.00 mA to 30.00 mA	0.00 A to 1000 A AC*1
Accuracy	±0.5°C (temperature) ±5% RH (humidity)	±0.5°C	±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt
Bundled sensor	HUMIDITY SENSOR LR9504	Sensor sold separately	CONNECTION CABLE LR9801	Sensor sold separately

Model	VOLTAGE LOGGER LR5041	VOLTAGE LOGGER LR5042	VOLTAGE LOGGER LR5043
Log	Instrumentation signals, Analog outputs		
Appearance			
Channels	1ch	1ch	1ch
Measurement range	–50.00 mV to 50.00 mV	–5.000 V to 5.000 V	–50.00 V to 50.00 V
Accuracy	±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt	±0.5% rdg ±5 dgt
Bundled sensor	CONNECTION CABLE LR9802	CONNECTION CABLE LR9802	CONNECTION CABLE LR9802

*1 Depends on current sensor in use

LR5091 or LR5092-20 is necessary to transfer data from a LR5000 series logger to a PC

COMMUNICATION ADAPTER LR5091
(USB cable bundled)

DATA COLLECTOR LR5092-20
(USB cable bundled)

LR50XX Series Shared Specifications

Measurement	Recording intervals	1/2/5/10/15/20/30 sec. /1/2/5/10/15/20/30/60 min.
	Recording modes	Instantaneous value, MAX/MIN/AVG
	Storage capacity	60,000 data sets per channel (instantaneous value)
Other	Operating temperature	LR5001, LR5011, LR5031, LR5041, LR5042, LR5043: -20°C to 70°C, 80% RH or less LR5051: 0°C to 50°C, 80% RH or less
	Power supply	LR6 alkaline battery ×1 LR5051: LR6 alkaline battery ×2
	Continuous operating time	LR5001: 3 months (1min. recording interval), 20 days (1sec.) LR5011: 2 years (1min. recording interval), 2 months (1sec.) LR5051: 1 years (1min. recording interval), 1 month (1sec.) LR5031, LR5041, LR5042, LR5043: 2 years (1min. recording interval), 2 months (1sec.)
	Dimensions (W × H × D)	79 × 57 × 28 mm (3.11 × 2.24 × 1.10 in) LR5051: 79 × 70 × 37 mm (3.11 × 2.76 × 1.46 in)
	Weight	105 g (3.7 oz), LR5051: 165 g (5.8 oz)

Order code	**LR5001**	HUMIDITY SENSOR LR9504, Kickstand
Order code	**LR5011**	Kickstand
Order code	**LR5031**	CONNECTION CABLE LR9801, Kickstand
Order code	**LR5041**	CONNECTION CABLE LR9802, Kickstand
Order code	**LR5042**	CONNECTION CABLE LR9802, Kickstand
Order code	**LR5043**	CONNECTION CABLE LR9802, Kickstand
Order code	**LR5051**	

LR50XX Series Shared Accessories

- LR6 alkaline battery × 1 (LR5051: LR6 alkaline battery × 2)
- Instruction manual, Operation guide

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

Make logger settings and transfer data via Bluetooth® wireless communication

Use your tablet or PC to download data and configure measurement conditions

Model	WIRELESS PULSE LOGGER LR8512	WIRELESS CLAMP LOGGER LR8513	WIRELESS HUMIDITY LOGGER LR8514	WIRELESS VOLTAGE/ TEMP LOGGER LR8515	WIRELESS FUNGAL LOGGER LR8520
Log	Pulse	Load Current, Leak Current	Temperature, Humidity	DCV, Temperature	Fungal Growth
Appearance					
Channels	2ch	2ch	2ch (temperature), 2ch (humidity)	2ch	1ch (temperature), 1ch (humidity)
Measurement range	Pulse: 0 to 1000M pulse No. of revolutions: 0 to 5000/n*1 [r/s]	500.0 mA to 5000 A AC*2 10.00 A to 2000 A DC*2	–40.0°C to 80.0°C (temperature) 0.0% rh to 100% RH (humidity)	Voltage: -50 V to 50 V Thermocouple (K): -200°C to 999.9°C Thermocouple (T): -200°C to 400°C	Temperature: -40°C to 80°C Humidity: 0% RH to 100% RH (Calculates fungal index*4 from temperature and humidity.)
Accuracy	-	±0.5 % rdg ±5 dgt	Temperature: ±0.5°C Humidity: ±3% RH*3	Voltage: ±0.05 mV Thermocouple: ±0.6°C	Thermocouple: ±0.5°C Humidity: ±3% RH*3
Bundled sensor	CONNECTION CABLE L1010	Sensor sold separately	Sensor sold separately	Sensor sold separately	Sensor sold separately

*1 n is the number of pulses, 1 to 1000, per revolution. *2 Depends on current sensor in use *3 Hysteresis: ±1% rh (added to the humidity measurement accuracy).
*4 This index, which predicts how easy it is for fungi to grow, was proposed by the late Keiko Abe, Doctor of Agriculture. Because fungal growth has a direct correlation with temperature and relative humidity, expected occurrence can be predicted.

LR85XX Series Shared Specifications

Measurement	Recording intervals	0.1*1/0.2*1/0.5/1/2/5/10/20/30 sec./1 min./2/5/10/20/30/1h
	Recording modes	Instantaneous value, MAX/MIN/AVG (LR8513 only)
	Communication reaches	30 m, line of sight
	Storage capacity	500,000 data sets per channel
Other	Operating temperature	-20°C to 60°C,80% RH or less
	Power supply	LR6 alkaline battery × 2 AC ADAPTER Z2003 (option, DC12V)
	Continuous operating time*2	LR8512: 2 months (1min. recording interval), 2 months (1sec.) LR8513: 3 months (1min. recording interval), 1 month (1sec.) LR8514: 3.5 months (1min. recording interval), 3 months (1sec.) LR8515: 2.5 months (1min. recording interval), 10 days (1sec.) LR8520: 3.5 months (1min. recording interval), 3 months (1sec.)
	Dimensions (W × H × D)	LR8512, LR8514, LR8520: 85 × 61 × 31 mm (3.35 × 2.40 × 1.22 in) LR8513, LR8515: 85 × 75 × 38 mm (3.35 × 2.95 × 1.50 in)
	Weight	LR8512, LR8514, LR8520: 95 g (3.4 oz), LR8513: 130 g (4.6 oz), LR8515: 126 g (4.4 oz)

*1 LR8512, LR8515 only *2 With Bluetooth® communication OFF

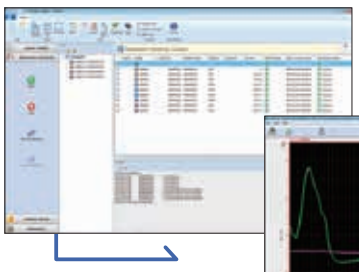
Order code	LR8512	CONNECTION CABLE L1010 × 2
Order code	LR8513	-
Order code	LR8514	-
Order code	LR8515	-
Order code	LR8520	CONNECTION CABLE L1010 × 1

LR85XX Series Shared Accessories
- LR6 alkaline battery × 2
- CD-R, Measurement Guide, Caution for Using Radio Waves
(CD-R: Instruction Manual PDF, Logger Utility, Wireless Logger Collector)

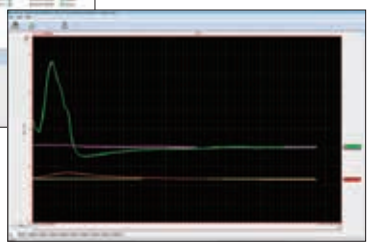
Wireless Logger Collector (for collecting measurement data)	
Supported devices	Android tablet/Android smartphone Windows PC/Windows tablet
OS	Android OS 4.0.3 or later Windows 10/8/7 (32/64bit)
Number of available registrations	Max. 100 units
Output format	Logger Utility format LR5000 format Smart Site compatible format CSV format Text format

How to obtain software

For Windows PC: Supplied CD-R/Download from the HIOKI website
For Android tablet: Google Play™



Use Logger Utility to view data acquired by the Wireless Logger Collector



Logger Utility
- Display waveform
- Analyze measurement data

Options

Product warranty for 1 year
Accuracy guaranteed for 1 year

HUMIDITY LOGGER LR5001		
1	HUMIDITY SENSOR LR9501	1 m (3.28 ft)
2	HUMIDITY SENSOR LR9502	5 m (16.4 ft)
3	HUMIDITY SENSOR LR9503	10 m (32.81 ft)
4	HUMIDITY SENSOR LR9504	4 cm (1.57 in)
TEMPERATURE LOGGER LR5011		
5	TEMPERATURE SENSOR LR9601	Molded plastic type, 1 m (3.28 ft)
6	TEMPERATURE SENSOR LR9602	Molded plastic type, 5 m (16.4 ft)
7	TEMPERATURE SENSOR LR9603	Molded plastic type, 10 m (32.81 ft)
8	TEMPERATURE SENSOR LR9604	Molded plastic type, 4.5 cm (1.77 in)
9	TEMPERATURE SENSOR LR9611	Lug type, 1 m (3.28 ft)
10	TEMPERATURE SENSOR LR9612	Lug type, 5 m (16.4 ft)
11	TEMPERATURE SENSOR LR9613	Lug type, 10 m (32.81 ft)
12	TEMPERATURE SENSOR LR9621	Sheathed type, 1 m (3.28 ft)
13	TEMPERATURE SENSOR LR9631	Needle type, 1 m (3.28 ft)
INSTRUMENTATION LOGGER LR5031		
14	CONNECTION CABLE LR9801	1 m (3.28 ft), 2 wires
VOLTAGE LOGGER LR5041, LR5042, LR5043, PULSE LOGGER LR5061		
15	CONNECTION CABLE LR9802	1 m (3.28 ft), 4 wires
LR50XX Series		
16	WALL-MOUNTED HOLDER LR9901	Cannot be used with LR5051
17	MAGNETIC STRAP Z5004	
DATA COLLECTOR LR5092		
18	SD MEMORY CARD 2GB Z4001	Use only SD Cards sold by HIOKI. Compatibility and performance are not guaranteed for PC cards made by other manufacturers.

WIRELESS PULSE LOGGER LR8512, WIRELESS FUNGAL LOGGER LR8520		
1	CONNECTION CABLE L1010	1.5 m (4.92 ft)
WIRELESS HUMIDITY LOGGER LR8514, WIRELESS FUNGAL LOGGER LR8520		
2	HUMIDITY SENSOR Z2010	50 mm (1.97 in)
3	HUMIDITY SENSOR Z2011	1.5 m (4.92 ft)
LR85XX Series		
4	AC ADAPTER Z2003	100 V to 240 V AC
5	MAGNETIC STRAP Z5004	
6	MAGNETIC STRAP Z5020	Extra strength

*1 At center of flexible loop
*2 Maximum measurable current when used with the LR8513, LR5051

CURRENT SENSORS (For LR8513, LR5051)

Measurement application	For load current levels: Voltage output					
Model name	CLAMP ON SENSOR			AC FLEXIBLE CURRENT SENSOR		
Model	9669	9695-02	CT6500	CT9667-01	CT9667-02	CT9667-03
Appearance	BNC	Requires the 9219, Insulated conductor, Not CE marked	BNC	BNC	BNC	BNC
Rated measurement current	1000 A AC	50 A AC	500 A AC	5000 A AC/500 A AC	5000 A AC/500 A AC	5000 A AC/500 A AC
Output rate	0.5 mV/A	10 mV/A	1 mV/A AC	0.1 mV/A (5000 A) 1 mV/A (500 A)	0.1 mV/A (5000 A) 1 mV/A (500 A)	0.1 mV/A (5000 A) 1 mV/A (500 A)
Amplitude accuracy (DC, 45 to 66 Hz)	±1.0% rdg ±0.01%f.s.	±0.3% rdg ±0.02% f.s.	±1.5% rdg ±0.03% f.s.	±2% rdg ±0.3% f.s.*1	±2% rdg ±0.3%f.s.*1	±2% rdg ±0.3% f.s.*1
Max. rated voltage to earth	CAT III 600 V	CAT III 300 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 1000 V	CAT IV 600 V CAT III 100 V
Operating temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C	-25°C to 65°C	-25°C to 65°C	-10°C to 50°C
Core jaw diameter	ϕ55 mm or less 80 × 20 mm busbar	ϕ15 mm or less	ϕ46 mm or less	ϕ100 mm or less	ϕ180 mm or less	ϕ254 mm or less

Measurement application	For leak current: Voltage output	
Model name	CLAMP ON LEAK SENSOR	
Model	9657-10	9675
Appearance	BNC, Insulated conductor General purpose ZCT	BNC, Insulated conductor Branch circuit ZCT
Rated measurement current	5 A AC*2	5 A AC*2
Output rate	100 mV/A	100 mV/A
Amplitude accuracy (DC, 45 to 66 Hz)	±1.0% rdg ±0.05% f.s.	±1.0% rdg ±0.005% f.s.
Max. rated voltage to earth	Insulated conductor	Insulated conductor
Operating temperature	0°C to 50°C	0°C to 50°C
Core jaw diameter	ϕ40 mm or less	ϕ30 mm or less


9219

For CLAMP ON SENSOR 9695-02

CONNECTION CABLE 9219 For 9695, 3 m (9.84 ft)

The following sensors can be used with Model LR8513 via the DISPLAY UNIT CM7290 or CM7291 (requires OUTPUT CORD L9095)

- AC/DC CURRENT SENSOR CT7631 : ϕ33 mm, 100 A
- AC/DC CURRENT SENSOR CT7636 : ϕ33 mm, 200 A*
- AC/DC CURRENT SENSOR CT7642 : ϕ55 mm, 2000 A
- AC/DC AUTO-ZERO CURRENT SENSOR CT7731 : ϕ33 mm, 100 A
- AC/DC AUTO-ZERO CURRENT SENSOR CT7736 : ϕ33 mm, 200 A*
- AC/DC AUTO-ZERO CURRENT SENSOR CT7742 : ϕ55 mm, 2000 A
- AC FLEXIBLE CURRENT SENSOR CT7044 : ϕ100 mm, 5000 A*
- AC FLEXIBLE CURRENT SENSOR CT7045 : ϕ180 mm, 5000 A*
- AC FLEXIBLE CURRENT SENSOR CT7046 : ϕ254 mm, 5000 A*

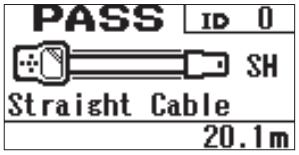
* Maximum measurable current when used with the LR8513.
For more detailed information about sensors and output cords, please refer to p.44 & p.45.

LAN Cable Testers

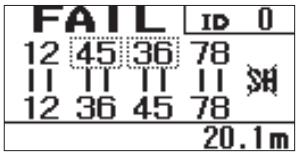
LAN CABLE HiTESTER 3665

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year



Display wire map, cable length, and ID of connected terminal



Pins 3 and 6 have been incorrectly paired with Pins 4 and 5

Measurement	Measurable cable	Twisted-pair cable, characteristic impedance: 100 Ω, shielded and unshielded, CAT 3, 4, 5, 5e and 6
	Compatible connectors	RJ-45 plugs
	Measurement parameters: Wire Map test (Detectable errors)	Open, short, reversed, transposed, split pairs and other incorrect wiring
	Measurement parameters: Cable length	2.0 to 300.0 m Accuracy: ±4% rdg ± 1 m
	Measurement parameters: Direction	Up to 21 cables can be identified*1
	Functions	Backlight, auto power off
Other	Operating temperature	0°C to 40°C, 80% rh or less (non-condensating)
	Storage temperature	-10°C to 50°C, 80% rh or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time	LR6 alkaline battery × 2 50 hours
	Dimensions (W × H × D)	85 × 130 × 33 mm (3.35 × 5.12 × 1.30 in)
	Mass	160 g (5.6 oz)

*1Using the supplied Terminator 9690 and optional Models 9690-01 to 9690-04

Accessories
- TERMINATOR 9690 (ID 0)
- Carrying case
- LR6 alkaline battery × 2
- Instruction manual

Order code **3665**

Options		
1	TERMINATOR 9690-01	ID 1 to 5
2	TERMINATOR 9690-02	ID 6 to 10
3	TERMINATOR 9690-03	ID 11 to 15
4	TERMINATOR 9690-04	ID 16 to 20
5	CARRYING CASE 9249	


1 9690-0X


2 9249

Signal Generators

DC SIGNAL SOURCE SS7012

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

Instrumentation system loop test:
- Verify the sensor output of 2-wire transmission sensors
- Verify distributor operation

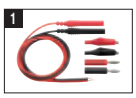
Sourcing	Constant Voltage (CV)	0 to ±2.5000 V Accuracy: ±0.03% of setting ±300 µV 0 to ±25.000 V Accuracy: ±0.03% of setting ±3 mV
	Constant Current (CC)	0 to ±25.000 mA Accuracy: ±0.03% of setting ±3 µA
	Thermoelectromotive Force (TC: 0°C) (TC: RJ)	(K) -174.0°C to 1372.0°C (E) -220.0°C to 839.0°C (J) -208.0°C to 1108.0°C (T) -169.0°C to 400.0°C (R) -50°C to 1768°C (S) -50°C to 1768°C (B) 300°C to 1820°C (N) -113.0°C to 1300.0°C Accuracy: ±0.05% of setting ±0.5°C
	Memory Sourcing (RECALL, SCAN)	One type for each function: CV2.5, CV25, CC, TC (0°C and RJ)
	Standard Resistance (Rs)	100 Ω
Measurement	Voltage	0 V to ±2.8000 V (Accuracy: ±0.03% rdg ±300 µV) 0 V to ±28.000 V (Accuracy: ±0.03% rdg ±3 mV)
	Current	0 A to ±28.000 mA (Accuracy: ±0.03% rdg ±3 µA)
	Temperature	-25.0 to 80.0°C (Accuracy: ±0.5°C at 23 ±5 °C)
Other	Interfaces	USB Communication
	Operating temperature	0°C to 40°C, 80% rh or less (non-condensating)
	Storage temperature	-20°C to 50°C, 80% rh or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time	LR6 alkaline battery × 4 HR6 Ni-MH batteries Z0101 AC ADAPTER 9445-02/-03
	Dimensions (W × H × D)	104 × 180 × 58 mm (4.09 × 7.09 × 2.28 in)
	Mass	570 g (20.1 oz) without batteries

Accessories
- INPUT CORD 9168
- TEST LEAD L9170-10
- Spare fuse
- LR6 alkaline battery × 4
- Instruction manual

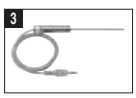
Order code **SS7012**

Options

Options		
1	INPUT CORD 9168	
2	TEST LEAD L9170-10	
3	TEMPERATURE PROBE 9184	
4	COMMUNICATION PACKAGE SS9000	for reference contact compensation
5	CARRYING CASE 9782	
6	CARRYING CASE 9380	
7	AC ADAPTER 9445-02	


1 9168


2 L9170-10


3 9184


4 SS9000


5 9782


6 9380


7 9445-02

Lux Testers

LUX METER FT3424, FT3425

Product warranty for 3 years
Accuracy guaranteed for 2 years, Post-adjustment accuracy guaranteed for 2 years

FT3424

FT3425

GENNECT Cross

Bluetooth®

Please see www.hioki.com for list of supported regions.

Extension cart minimizes physical stress

• Built-in Bluetooth® wireless technology
• Verify and record measured data with free GENNECT Cross mobile app
*Available only with products displayed with the GENNECT Cross icon

Order code **FT3424**

Order code **FT3425**

Measurement	Standards	DIN 5032-7: 1985 Class B/JIS C 1609-1: 2006 General Class AA
	Light receiving element	Silicon photo-diode
	Measurement ranges	20.00 lx/200.0 lx/2000 lx/20000 lx/200000 lx
	Linearity	±2% rdg [*1]
	D/A output	Output level: 2 V / range f.s. Output accuracy: ±1% rdg ±5 mV (at output rate)
	Functions	Timer hold function, memory function (up to 99 measured data can be saved.), hold, auto power off, buzzer sound, backlight, zero adjustment
Other	Interfaces	USB2.0 (FT3425 only: Bluetooth®4.0LE)
	Operating temperature	-10°C to 40°C, 80% RH or less (non-condensating)
	Storage temperature	-20°C to 50°C, 80% RH or less (non-condensating)
	Accuracy guarantee for temperature and humidity	21°C to 27°C, 75% RH or less (non-condensating)
	Dustproof and waterproof	IP40 (EN60529)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply Continuous operating time	LR6 alkaline battery × 2, or USB bus power (5 V DC) 300 hours (Bluetooth® communication OFF)
	Dimensions (W × H × D)	78 × 170 × 39 mm (3.07 × 6.69 × 1.54 in)
	Weight	FT3424: 310 g (10.9 oz), FT3425: 320 g (11.3 oz)

[*1] Multiply by 1.5 for display values in excess of 3000 lx.

Accessories
- CARRYING CASE
- LR6 alkaline battery × 2
- Sensor cap (with strap)
- Strap
- USB cable (0.9 m)
- CD-R (USB driver, dedicated computer application software, and communications specifications)
- Instruction manual
- Precautions Concerning Use of Equipment that Emits Radio Waves (only FT3425)

Options		
1	EXTENSION CART Z5023	
2	CONNECTION CABLE L9820	
3	CARRYING CASE C0202	Soft case
4	CARRYING CASE C0201	Semi-hard case
5	OUTPUT CORD L9094	Mini plug to banana 1.5 m (4.92 ft)
6	OUTPUT CORD L9095	Connect to BNC terminal 1.5 m (4.92 ft)
7	OUTPUT CORD L9096	Connect to terminal block 1.5 m (4.92 ft)

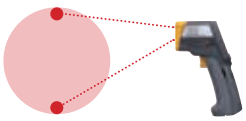
Temperature Testers

INFRARED THERMOMETER FT3700-20, FT3701-20

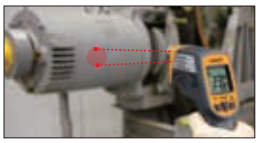
Product warranty for 1 years
Accuracy guaranteed for 1 year

FT3700

FT3701

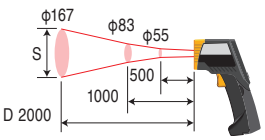


Measure the average temperature inside a circle whose diameter is defined by the two indicated points.

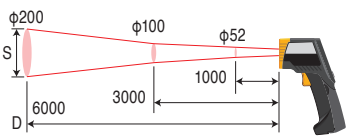


Measure areas that cannot be touched or unreachable locations due to moving parts

D : Distance (mm) S : Spot (mm)



D : S = 12 : 1 **FT3700**



D : S = 30 : 1 **FT3701**

Measurement	Measurement range	FT3700: −60.0 to 550.0°C (-76 to 1022°F)[*1] FT3701: −60.0 to 760.0°C (-76 to 1400°F)[*1]
	Accuracy	0.0 to 100.0°C (-32.0 to 212.0°F): ±2°C 100.1 to 500.0°C (212.1 to 932.0°F): ±2% rdg -35.0 to -0.1°C (-31.0 to 31.9°F): ±10% rdg ±2°C[*2]
	Measurement field diameter	FT3700: ϕ83 mm at 1000 mm FT3701: ϕ100 mm at 3000 mm
	Functions	MAX/MIN/DIF (MAX-MIN)/AVG measurement, alarm, backlight, continuous measurement mode, auto power off
Other	Operating temperature	0°C to 50°C, 80% RH or less (non-condensating)
	Storage temperature	-10°C to 50°C, 80% RH or less (non-condensating) 50°C to 60°C,70% RH or less (non-condensating)
	Accuracy guarantee for temperature and humidity	23°C ±3°C, 80% RH or less (non-condensating)
	Standards	JIS C6802: 2005 (Laser), EN61326 (EMC)
	Power supply Continuous operating time	LR03 alkaline battery × 2 140 hours
	Dimensions (W × H × D)	48 × 172 × 119 mm (1.89 × 6.77 × 4.69 in)
	Weight	256 g (9.0 oz)

[*1] Guaranteed accuracy range is -35 to 500°C.
[*2] -60.0 to -35.1°C (-76.0 to -31.1°F) : Accuracy not specified

Accessories
- CARRYING CASE
- LR03 alkaline battery × 2
- Instruction manual

Order code **FT3700-20**

Order code **FT3701-20**

Sound Testers

SOUND LEVEL METER FT3432

Product warranty for 3 years
Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year

Accessories
- Wind screen WS-14
- Hand strap VM-63-017
- Silicon cover NL-27-089
- Windscreen fall out prevention rubber NL-27-014
- LR03 alkaline batteries × 2
- CARRYING CASE 9757
- Instruction manual

Order code **FT3424**

Order code **FT3425**

Options	
1	AC MONITOR OUTPUT CABLE CC-98A
2	DC OUTPUT CABLE CC-98D
3	SOUND LEVEL METER TRIPOD ST-80
4	TRIPOD EXTENSION ROD ST-80-100
5	CARRYING CASE 9757


1 2 CC-98


3 4 ST-80


5 9757

Measurement	Measurement functions	Sound level, Equivalent continuous sound level, Sound exposure level, Maximum Sound level, C weighting peak sound level[*1]
	Measurement times	1/5/10 minutes, or 1 hour
	Frequency weighting characteristics	A weighting, or C weighting
	Measurement level range	Wide range [A] 30 dB to 137 dB [C] 36 dB to 137 dB Peak range [A] 65 dB to 137 dB [C] 65 dB to 137 dB
	Frequency range	20 Hz to 8000 Hz
	Microphone	1/2-inch electret condenser microphone
	Time weighting characteristics	Fast, Slow
	Functions	Storing processing results (Storing capacity: 199 pieces of data), warning indications, bar graph
	Output	DC output connector: DC output: 3 V (full scale), 25 mV/dB AC monitor output connector: 1Vrms + 600 mVrms, -400 mVrms[*2]
Other	Operating temperature	-10°C to 50°C, 10 to 90% RH or less (non-condensating)
	Storage temperature	-10°C to 50°C, 10 to 90% RH or less (non-condensating)
	Standards	IEC 61672-1: 2013 Class 2 JIS C 1509-1: 2017 Class 2 JIS C 1516:2014 Class 2
	Power supply Continuous operating time	LR03 alkaline battery × 2 9 hours (at wide range)
	Dimensions (W × H × D)	63 × 120 × 23.5 mm (2.48 × 4.72 × 0.93 in)
	Weight	105 g (3.7 oz)

[*1] Measurement possible only when peak range is selected
[*2] Output voltage upper limit: 1.8 Vrms

Product warranties

HIOKI products are generally covered by a three-year warranty.

Product warranty

In the event HIOKI is responsible for the failure of a product during the warranty term beginning on the date of purchase (or beginning in the month the product was manufactured if the date of purchase is unclear), we will repair or replace the product free of charge.

(**Warranty scope:** We check products on a standalone basis to verify their specifications, performance, and functionality. Although we verify proper operation of components that are connected to HIOKI products in standard configurations, we ask that customers verify proper operation of their HIOKI products when connected to other manufacturers' products. The scope of HIOKI's warranty is limited to HIOKI products. Connected devices and issues caused by connected devices are considered outside the scope of the warranty. In the event of physical damage, any compensation that might be provided by HIOKI is limited to the purchase price of the product.)

Accuracy guarantee

For products with an accuracy guarantee, we guarantee the level of accuracy indicated in the specifications for a certain period of time following shipment from the factory. In the event of an accuracy defect during that period of time, we will adjust the product free of charge.

Calibration, adjustment, and repair service

Calibrated products

No warranty term is provided. The period of time for which a calibration is considered valid must be determined by the customer. Calibration includes a statement of values as of the date of calibration as calibration results.

Calibration interval : We suggest a product-specific accuracy guarantee term as the recommended calibration interval.

Adjusted products

If an adjusted product falls out of accuracy during the post-adjustment accuracy guarantee term, we will readjust it free of charge.

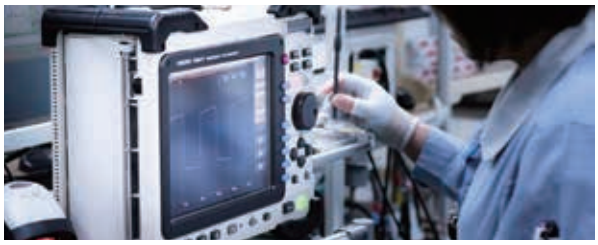
Guarantee term	:	The post-adjustment accuracy guarantee term is determined on a product-by-product basis. With some exceptions, we offer a post-adjustment accuracy guarantee for the duration of the recommended accuracy interval. The month of adjustment serves as the starting point when calculating the duration of the guarantee.
Guarantee conditions	:	The post-adjustment accuracy guarantee is intended to guarantee the accuracy of measured values. It is not a product warranty. If the product's falling out of accuracy is the result of the service life or deterioration of a part, the customer will be charged for the repair. If the product's falling out of accuracy is deemed likely to be the result of damage or the environment in which the product was operated or stored, the customer will be charged for the repair. If we conclude that a product received from a customer is likely to fall out of accuracy after shipment, we may contact the customer and decline to provide a post-adjustment accuracy guarantee. These terms apply to calibration and adjustment performed at HIOKI E.E. CORPORATION headquarters.

Repaired products

If, within six months of the original repair, HIOKI is responsible for an issue requiring an additional repair (a repair of the same issue) of a product that has been used as described in its user manual, we will repair it free of charge.

Repair term	:	We may improve products or switch models without notice in order to enhance the competitiveness of our products and our productivity. We will repair discontinued products for a minimum of five years from the date of their discontinuation, although we may elect to propose that the customer switch to an alternative model if it is difficult to repair a product due to social or economic conditions. *Once five years have passed since a product's discontinuation, we will only accept inspection and calibration requests for that product if we are able to perform that work in-house.

Quality of HIOKI's calibration, adjustment, and repair service



80 years of history and fine-grained, expert service

Technicians performing calibration, adjustment, and repair work undergo in-house training to ensure they possess the specialized expertise and skills that such work demands. We carry out rigorous inspections that extend from product functionality to accessories, including to assess potential wiring breaks in probes, remaining battery life, and display performance.

Precise calibration and adjustment guidelines compiled by product designers

We determine everything from the procedures for measuring instrument functionality checks to calibration points based on the results of reviews conducted by designers who are well versed in the characteristics of products' internal circuitry and the principles that underlie their operation. In this way, we are able to provide optimal, extensive calibration and adjustment service as only the manufacturer can.

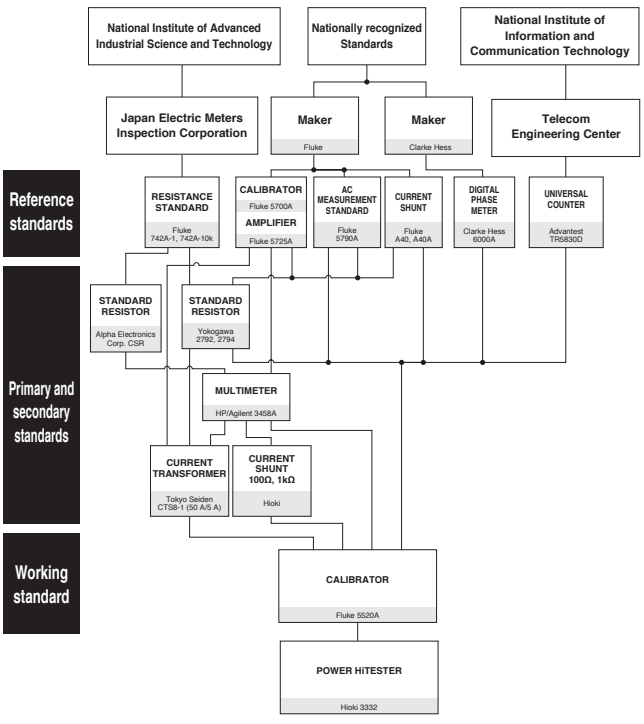
Highly reliable service that's traceable to national standards

The standard devices we use to calibrate and adjust products are all linked to national standards, ensuring that we can issue inspection reports with accurate, reliable calibrated values.

Comprehensive calibration, adjustment, and repair service with fast turnaround

If we discover a malfunction or failure during the calibration process, we'll contact you to let you know where the problem is and what's necessary to address it. If you wish, we'll then repair the product. This capability eliminates unnecessary back-and-forth so you can put your product back to work as soon as possible.

Traceability Chart



Calibration, Adjustment and Repair Service

(1) Service content

HIOKI recommended calibration

General calibration with adjustment	General calibration	17025 calibration (JCSS)	Repair
General calibration	General calibration	General calibration	Confirmation of issue
Adjustment		Adjustment	Repair
General calibration		General calibration	Adjustment
		17025 calibration (JCSS)	General calibration
		JCSS calibration certificate	

- JCSS calibration is also available as a standalone service.
  (HIOKI recommends that customers have general calibration with adjustment performed prior to JCSS calibration of their instrument.)
- Products can be bundled with JCSS calibration at the time of purchase.
- Customers can also specify calibration points.
  We will provide a list of supported calibration points and ask that customers specify points as desired from that list.

(2) Documents we can issue and their content

Inspection report

- Calibration results
- Judgment

General calibration certificate

- Calibration certificate declaration
- Information about equipment used in calibration

JCSS calibration certificate

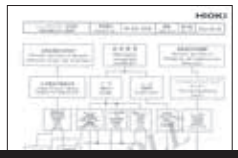
- Calibration results
- Inaccuracies
- Coverage factor
- Calibration certificate declaration
- ilac-MRA, IA Japan, and JCSS logos

Traceability certificate (special-order)

- Calibration certificate declaration
- Information about lighting standards

Traceability chart (overall)

An overview tracing HIOKI product groups to national standards via individual standard devices



Traceability chart (model-specific)

A detailed diagram tracing a particular product model to national standards via individual standard devices

(3) Applying for calibration, adjustment, or repair service

From the distributor where you purchased the product
Download the "Repair/Calibration Request Form" from the Hioki website, then complete the required information and take the form along with your instrument to the distributor from whom you purchased the product. If you wish to receive a quotation before requesting service, please send just the "Repair/Calibration Request Form" to the distributor. (For distributor information, please contact your nearest Hioki subsidiary.)

Repair/Calibration Request Form
Available from the HIOKI website:
> Technical Support > Repair and Calibration
> Requesting Repair and Calibration Service

Calibration

Calibration provides a way to check the condition of a measuring instrument by comparing the ideal value indicated by a standard device with the value indicated by the instrument being calibrated.

Adjustment

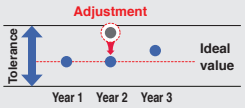
Adjustment corrects for the difference between the ideal value indicated by a standard device and the value indicated by the instrument being adjusted. HIOKI recommends that calibration and adjustment be performed together. Adjustment lets you use your instrument with ideal values.
*Products that have undergone adjustment are covered by a post-adjustment accuracy guarantee.

General calibration only

Although the instrument may perform to tolerance at the time of calibration, it may fall out of tolerance subsequently.

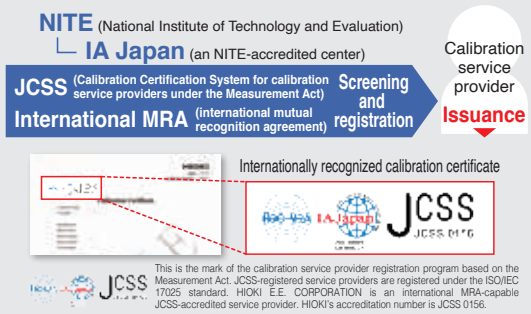
General calibration and adjustment

By adjusting the instrument at the time of calibration, it is possible to compensate for divergence from true values so that the performance of the instrument can be maintained subsequently.



HIOKI products are designed so that they will not fall out of tolerance before the calibration interval is up as long as calibration with adjustment is performed at the recommended calibration interval and the instrument is used and stored under the specified environmental conditions. If an instrument falls out of tolerance, it may be due to an issue that needs to be repaired.

Difference between general calibration and 17025 calibration (JCSS)



JCSS calibration is a type of third-party-accredited calibration based on ISO/IEC 17025. General calibration is a type of calibration determined by HIOKI based on ISO 9001. HIOKI can issue calibration certificates bearing the JCSS mark for instruments that have undergone JCSS certification, and they are valid internationally since they are international MRA-compliant.

Differences in calibration points

General calibration
Calibration is performed for all parameters that need to be checked in order to maintain the performance of the measuring instrument as determined by the product designer.

17025 calibration (JCSS)
Calibration is performed using points registered as the JCSS calibration range and selected by the customer.

Differences in information on calibration documents

General calibration
- Calibration results: Included on inspection report
- Inaccuracies: Not included
- Traceability chart: Yes

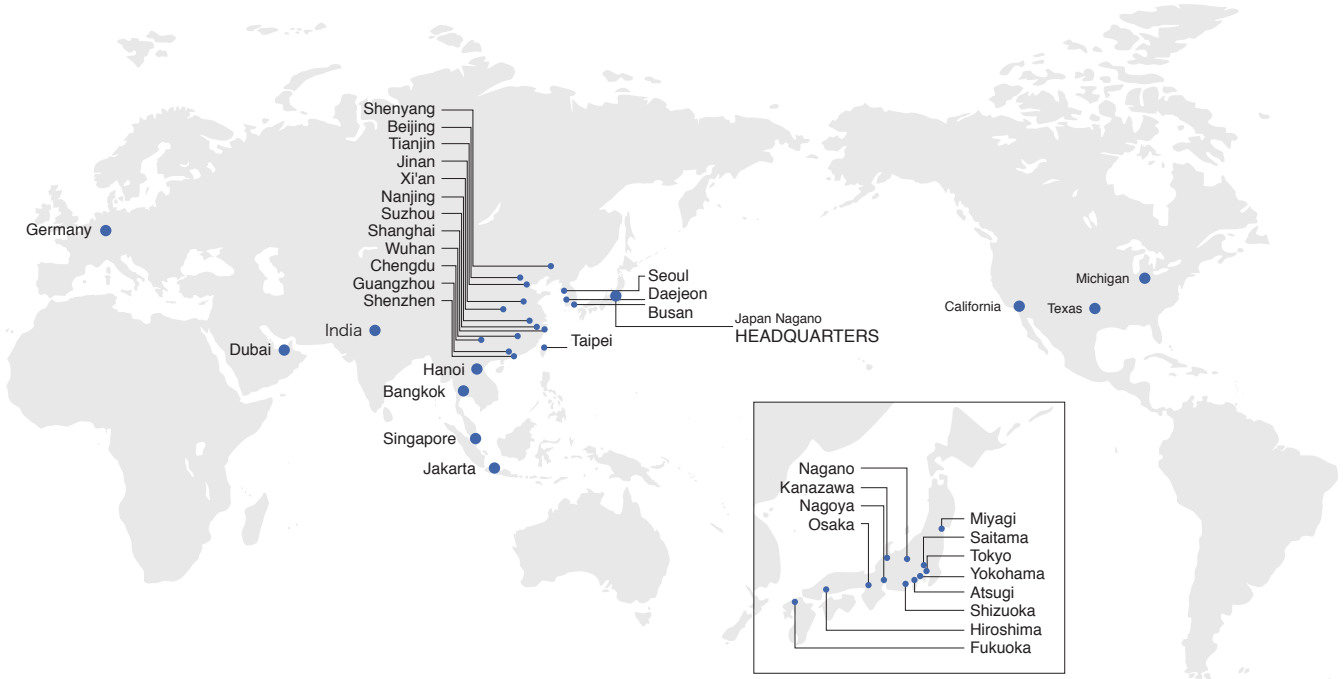
17025 calibration (JCSS)
- Calibration results: Included on calibration certificate
- Inaccuracies: Included on calibration certificate
- Traceability chart: No

(*JCSS and other logos certify traceability.)

Service capability and warranty duration

You can find out whether HIOKI accepts repair and calibration requests for your instrument, associated lead times if so, and the information listed below simply by entering the product model number on HIOKI's website.

- Availability of repair and calibration service
- Recommended Calibration Interval
- Post-adjustment accuracy guarantee period
- Product warranty period
- Date production discontinued



Global sales network

Japan Bases	
Japan	HEADQUARTERS : HIOKI E. E. CORPORATION (Nagano)
	Tohoku Sales Branch (Miyagi)
	Nagano Sales Branch
	Kanazawa Sales Branch
	Kita-Kanto Sales Branch (Saitama)
	Greater Tokyo Sales Branch
	Yokohama Sales Branch
	Atsugi Office
	Shizuoka Sales Branch
	Nagoya Sales Branch
	Osaka Sales Branch
	Hiroshima Office
	Fukuoka Sales Branch
Representative Offices	
China	Tianjin Representative Office（CHINA）
UAE	MEA Representative Office（DUBAI）
Overseas Bases	
America	HIOKI USA CORPORATION (Plano, TX)
	HIOKI USA CORPORATION Michigan Office (Novi, MI)
China	HIOKI (Shanghai) SALES & TRADING CO., LTD. (Shanghai)
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Beijing Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Guangzhou Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Shenzhen Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Chengdu Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Suzhou Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Shenyang Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Xi'an Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Wuhan Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Jinan Representative Office
	HIOKI (Shanghai) SALES & TRADING CO., LTD. Nanjing Representative Office
	HIOKI (Shanghai) Technology Development Co., LTD. (Shanghai)
Singapore	HIOKI SINGAPORE PTE. LTD.
Thailand	HIOKI SINGAPORE PTE. LTD. Thailand Representative Office
Vietnam	HIOKI SINGAPORE PTE.LTD. Vietnam Representative office
Indonesia	PT. HIOKI ELECTRIC INSTRUMENT (Jakarta)
Korea	HIOKI KOREA CO., LTD. (Seoul)
	HIOKI KOREA CO., LTD. Daejeon Office (Daejeon)
	HIOKI KOREA CO., LTD. Busan Office (Busan)
India	HIOKI INDIA PRIVATE LIMITED
Germany	HIOKI EUROPE GmbH
Taiwan	HIOKI TAIWAN CO., LTD. (Taipei)

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