

HIOKI

Field Measuring Instruments



2024

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 tests 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.

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About the Catalog

About the Marks	
	Compliant with CE
	Compliant with CSA
	New product



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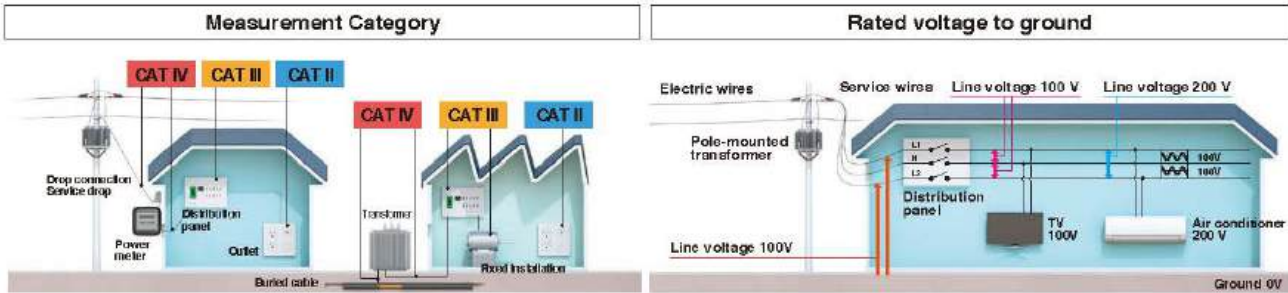
*For the latest information about countries and regions where wireless operation is currently supported, please visit the Hoki website.

	Safety standard measurement categories*		AC voltage
	Drop proof Robust design capable of withstanding a drop from a height of 1 m onto concrete		DC voltage
	Backlight		DCV + ACV
	Auto power OFF Automatically turns off after a certain time		Frequency
	Display hold		Resistance
	True RMS True RMS measurement for accurate measurement of even distorted current waveforms		Capacitance
	Low-pass filter Cuts high frequency content to provide stable numerical values for measurement		Temperature
	AUTO AC/DC Automatically detects and measures AC and DC voltage		ACA current
	Decibel conversion Displays AC voltage measurements converted to decibel values (dbm/dbv)		DCA current
	MAX/MIN/AVG value* Displays the maximum, minimum, and average of the displayed values		DCA + ACA
	Peak measurement* Displays the wave maximum and minimum peak values		DC Power
	Relative display Pressing the REL button displays subsequent measurements as values relative to that displayed when the button was pressed		Continuity check Buzzer sounds when continuity is detected
	Current sensor can be connected		Diode check Displays voltage if in the correct direction, and OVER if in the reverse direction
	Flexible current sensor can be connected		Voltage detection Buzzer sounds when AC voltage is detected
			Inrush (Rush current) Measures inrush current when power is turned on, etc.

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

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.



- 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	8000 V
600 V	4000 V	6000 V	8000 V
1000 V	6000 V	8000 V	12000 V
1500 V	8000 V	10000 V	15000 V
2000 V	12000 V	16000 V	19000 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

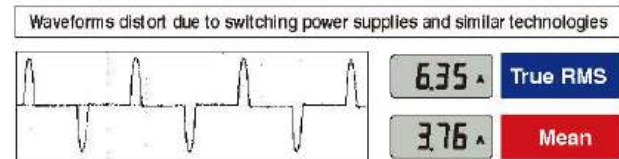
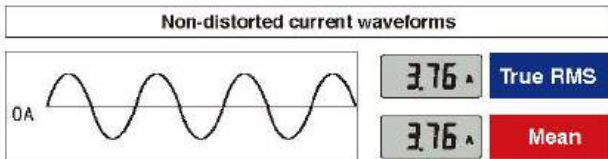
CAT IV 600V
 Measurement Category Rated voltage to ground

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.

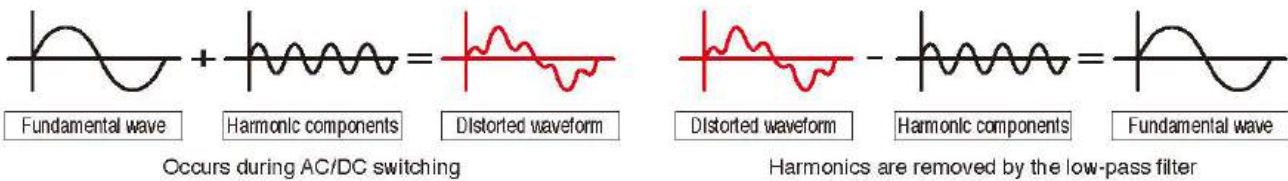
Rectification Methods: True RMS and Mean

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.

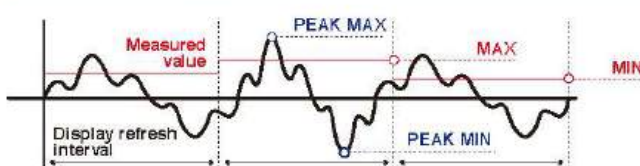


Low-Pass Filter Reduces the Effects of Harmonics and Measures the Fundamental Wave Component Accurately

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.

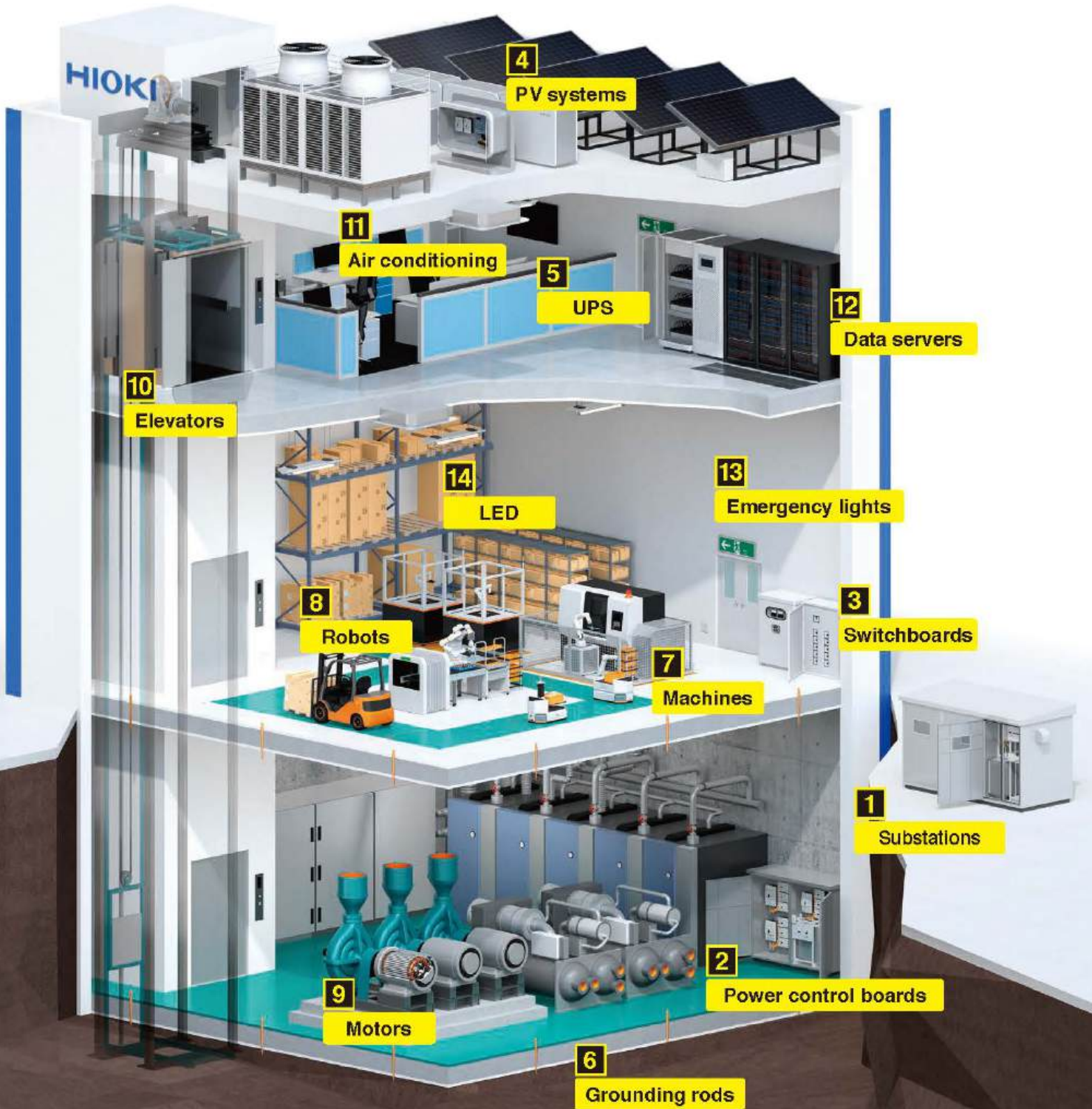


MAX/MIN/AVG/PEAK value



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

<p>Verify phase rotation</p>  <p>PD3259 (pp. 36-37) PD3129 (pp. 36-37)</p>	<p>Test insulation</p>  <p>IR405Xs (pp. 22-27)</p>	<p>Test supply voltage</p>  <p>DT42XXs (pp. 28-35)</p>	<p>Verify load current</p>  <p>CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)</p>	<p>Detect leakage current</p>  <p>CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)</p>	<p>Detect electrical disturbances • Analyze power quality</p>  <p>PQB100 (pp. 44-45) PQB198 (pp. 44-45)</p>	<p>Record and analyze electrical consumption</p>  <p>PV3360 (pp. 46-47) PV3365 (pp. 46-47)</p>	<p>Test 5k V insulation</p>  <p>IR5060 (p. 27)</p>
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PV systems

<p>Test bypass diodes</p>  <p>FT4310 (p. 52)</p>	<p>Test PV insulation</p>  <p>IR5051 (pp. 22-27)</p>	<p>Verify string voltage</p>  <p>DT4261 + P2000 (pp. 29-35)</p>	<p>Verify string voltage</p>  <p>CM4XXXs + P2000 (pp. 12-21)</p>	<p>Verify string current</p>  <p>CM437Xs (pp. 12-21)</p>	<p>Test battery resistance and voltage</p>  <p>BT3554-50 (pp. 50-51)</p>	<p>Verify grounding</p>  <p>FT6041 (pp. 38-43)</p>
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5

UPS

6

Earth • Ground

7 8 9

Machines • Robots • Motors

<p>Test supply voltage</p>  <p>DT425Xs (pp. 28-35) DT4261 (pp. 28-35) DT428Xs (pp. 28-35)</p>	<p>Test load current</p>  <p>CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)</p>	<p>Check temperature</p>  <p>FT3700 (p. 59) FT3701 (p. 59)</p>	<p>Verify motor insulation</p>  <p>IR405Xs (pp. 22-27)</p>	<p>Test supply voltage</p>  <p>DT425Xs (pp. 28-35) DT428Xs (pp. 28-35)</p>	<p>Test load current</p>  <p>CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)</p>	<p>Verify phase rotation</p>  <p>PD3259 (pp. 36-37) PD3129 (pp. 36-37)</p>
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10

Elevators

11

Air conditioning

<p>Check temperature and humidity</p>  <p>LR5001 (pp. 53-56) LR9514 (pp. 53-56)</p>	<p>Check temperature</p>  <p>FT3700 (p. 59) FT3701 (p. 59)</p>	<p>Test insulation</p>  <p>IR405Xs (pp. 22-27)</p>	<p>Test supply voltage</p>  <p>DT425Xs (pp. 28-35) DT4261 (pp. 28-35) DT428Xs (pp. 28-35)</p>	<p>Test load current</p>  <p>CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)</p>	<p>Verify LAN wiring</p>  <p>3665 (p. 57)</p>	<p>Measure illuminance</p>  <p>FT3424 (p. 58) FT3425 (p. 58)</p>
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12

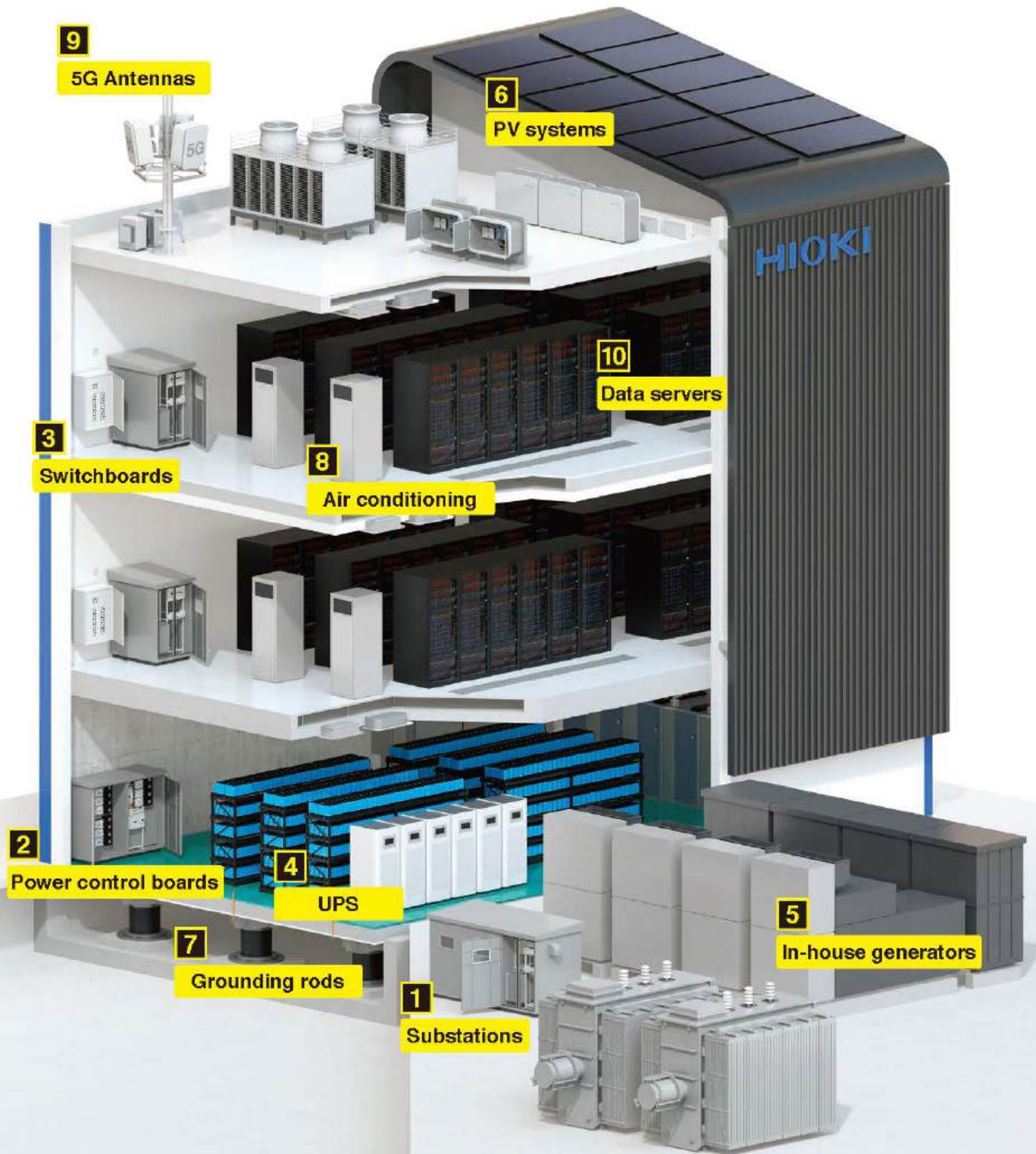
Servers

13 14

Emergency lights

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 5k V insulation
							
PD3259 (pp. 36-37) PD3129 (pp. 36-37)	IR405Xs (pp. 22-27)	DT42Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	CM4001 (pp. 12-21) CM4002 (pp. 12-21) CM4003 (pp. 12-21)	PQB 100 (pp. 44-45) PQB 198 (pp. 44-45)	PV3360 (pp. 46-47) PV3365 (pp. 46-47)	IR5060 (p. 27)

4**UPS****5****Power generators**

Test battery resistance and voltage	Verify motor insulation	Test supply voltage	Test load current	Verify phase rotation
				
BT3554-50 (pp. 50-51)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT4261 (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	PD3259 (pp. 36-37) PD3129 (pp. 36-37)

6**PV systems**

Test bypass clodes	Test PV insulation	Verify string voltage	Verify string voltage	Verify string current	Verify grounding
					
FT4310 (p. 52)	IR5051 (pp. 22-27)	DT4261 + P2000 (pp. 28-35)	CM4XXXs + P2000 (pp. 12-21)	CM437Xs (pp. 12-21)	FT6041 (pp. 38-39)

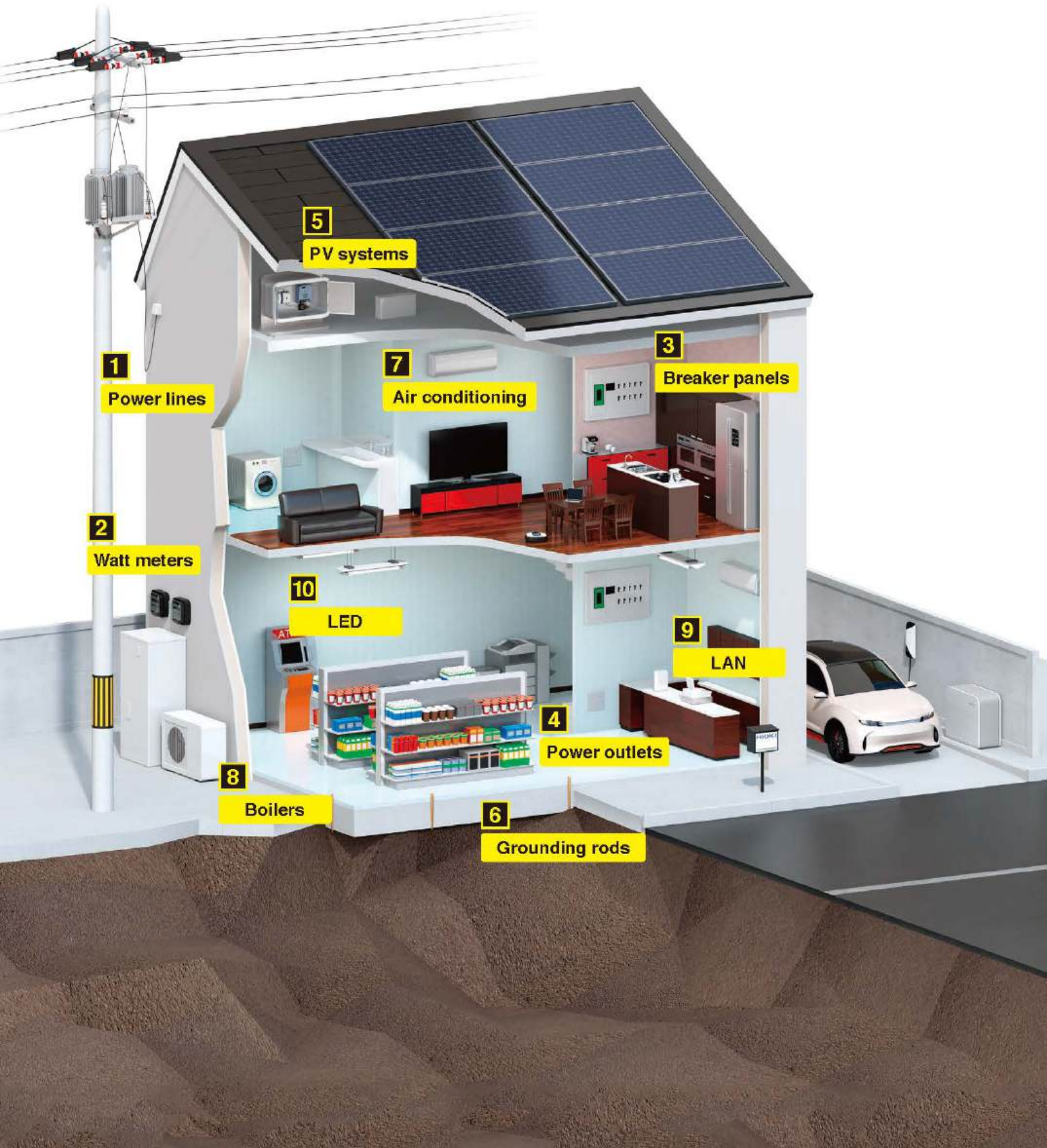
7**Earth • ground****8 9****Air conditioning • 5G Antennas**

Check temperature and humidity	Check temperature	Test insulation	Test supply voltage	Test load current	Verify LAN wiring
					
LR5001 (pp. 53-56) LR9514 (pp. 53-56)	FT3700 (p. 59) FT3701 (p. 59)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT4261 (pp. 28-35) DT428Xs (pp. 28-35)	CM437Xs (pp. 12-21) CM414Xs (pp. 12-21)	3665 (p. 57)

10**Servers**

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)	DT42X Xs (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. 46-49) PW3365 (pp. 46-49)

4

Power outlets

Verify absence of voltage	Test supply voltage	Verify load current
3481 (p. 37)	3244 (p. 34) 3246 (p. 34)	CM326Xs (pp. 12-21) CM3291 (pp. 12-21)

5

PV systems

Test bypass diodes	Test PV insulation	Verify string voltage	Verify string voltage	Verify string current	Verify grounding
FT4310 (p. 52)	IR4053 (pp. 22-27)	DT4261 + P2000 (pp. 28-35)	CM4XX Xs + P2000 (pp. 12-21)	CM437Xs (pp. 12-21)	FT6081 (pp. 38-39)

6

Earth • ground

7

Air conditioning

Check temperature and humidity	Check temperature	Test insulation	Test supply voltage	Test load current	Detect leakage current
LR5001 (pp. 53-56) LR8514 (pp. 53-56)	FT3700 (p. 59) FT3701 (p. 59)	IR405Xs (pp. 22-27)	DT425Xs (pp. 28-35) DT4261 (pp. 28-35) DT428Xs (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)	DT42X Xs (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. 57)

10

LED

Measure illuminance
FT3424 (p. 58) FT3425 (p. 58)

Manage Data on Mobile Devices and PC



for mobile devices
GENNECT Cross

GENNECT Cloud expands your potential.

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



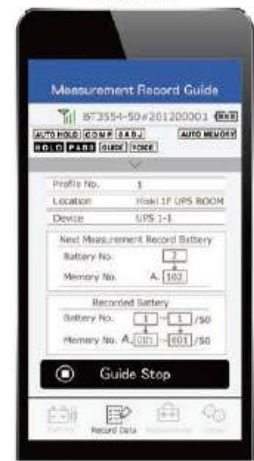
When a value greater than the threshold is measured, the time of occurrences, end time, and the maximum value for that period are recorded.

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.)



Downloading GENNECT Cross

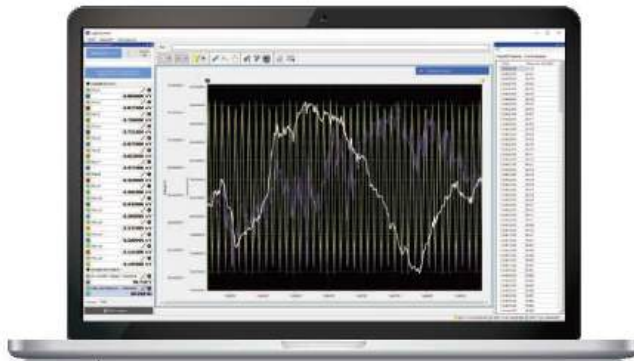
Data can be downloaded to tablets and smartphones using HioKI's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app



for PCs
GENNECT One

GENNECT Cloud expands your potential.

GENNECT One
Dedicated website



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

<p>Power Analysis</p>	<p>Monitoring Power Quality</p>	<p>Understanding Power Consumption</p>
<p>Voltage and temperature management</p>	<p>Waveform Analysis</p>	<p>UPS Inspection</p>



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.)

PW8001	PW3335	PQ3198	PW3365	LR8400	LR8410	LR8450	LR5001	BT3554-50	MR8000	BT5525
PW6001	PW3336	PQ3100	PW3360	LR8401	LR8416	LR8450-01	LR5011	BT3554-51		
PW3390	PW3337			LR8402			LR5021	BT3654-52		
							LR5031	BT3554-91		
							LR5041	BT3654-92		
							LR5042			
							LR5043			
							LR5051			
							LR5061			

Downloading GENNECT One

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



CLAMP METERS

Remarkable Ease of Use, New "Slim Jaw" Design

Traditional design



Slim Jaw



Easily Clamp Within Crowded Cables with New Slim Jaw Design

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



CM4375-50 CM4141-50 CM3289 CM3281 CM3291 CM4001

Manage measurement data using Z3210¹



WIRELESS ADAPTER Z3210 (Option)



Attach to enable Bluetooth[®] wireless technology



Transport to the Excel[®] file

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.



Learn more Z3210



Transport to GENNECT Cross

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 hand written memos.



Learn more GENNECT Cross



Verify current waveforms on your mobile device

Safety PV measurement using P2000²

**Available to measure 2000 V DC
DC HIGH VOLTAGE PROBE
P2000 (Option)**



CAT IV 1000 V
CAT III 2000 V



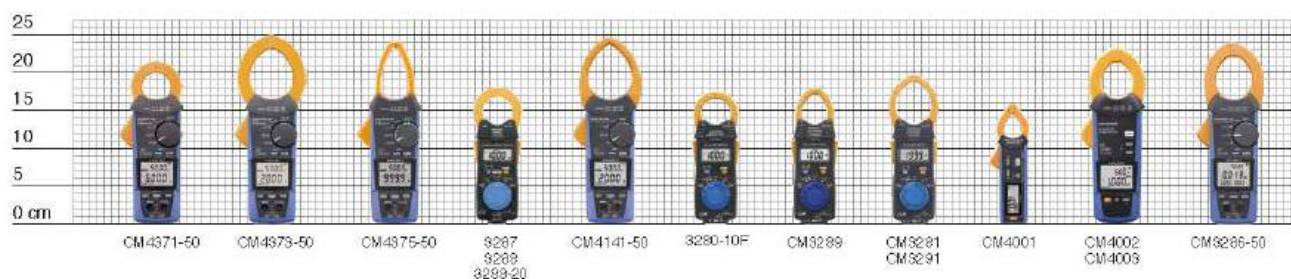
CM4371-50 CM4373-50 CM4375-50 CM4141-50

¹: Supported models : CM4371-50, CM4373-50, CM4375-50, CM4141-50, CM4001, CM4002, CM4003, CM3286-50 (Requires attaching WIRELESS ADAPTER Z3210)
²: Supported models : CM4371-50, CM4373-50, CM4375-50, CM4141-50 (Requires using DC HIGH VOLTAGE PROBE P2000)

Lineup









Measurement type	AC / DC Current					
Model	CM4371-50	CM4373-50	CM4375-50	3287	3288 3288-20	
Appearance						
Core jaw diameter	φ33 mm (1.30 in)	φ55 mm (2.17 in)	φ34 mm (1.34 in)	φ35 mm (1.38 in)	φ35 mm (1.38 in)	
AC measurement system	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 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	100 A (0.01) Full display range ²⁵	1000 A (0.1) Full display range ²⁵
	DC current (Resolution)	600 A (0.01)	2000 A (0.1)	999.9 A (0.1)	100 A (0.01)	1000 A (0.1)
	AC Voltage	1000 V	1000 V	1000 V	600 V	600 V
	DC Voltage	1000 V/2000 V ¹	1000 V/2000 V ¹	1000 V/2000 V ¹	600 V	600 V
	Power	1200 kVA (DC) ¹	4000 kVA (DC) ¹	2000 kVA (DC) ¹	N / A	N / A
	Resistance	6 MΩ	6 MΩ	6 MΩ	42 MΩ	42 MΩ
	Temperature	-40°C to 400°C	-40°C to 400°C	-40°C to 400°C	N / A	N / A
	Electrostatic capacity	✓	✓	✓	N / A	N / A
	Frequency	999.9 Hz	999.9 Hz	999.9 Hz	N / A	N / A
	Rush current	✓	✓	✓	N / A	N / A
	Continuity check	✓	✓	✓	✓	✓
	Diode check	✓	✓	✓	N / A	N / A
	Non-Contact Voltage	✓	✓	N / A	N / A	N / A
Low-pass filter	✓	✓	✓	N / A	N / A	
Auto power off	✓	✓	✓	✓	✓	
Auto range	✓	✓	✓	✓	✓	
Data hold	AUTO / MANUAL	AUTO / MANUAL	AUTO / MANUAL	MANUAL	MANUAL	
Automatic AC/DC detection	✓	✓	✓	N / A	N / A	
MAX / MIN / AVG	✓	✓	✓	N / A	N / A	
Output	N / A	N / A	N / A	N / A	N / A	
Bluetooth® communication	✓ (with Z3210)	✓ (with Z3210)	✓ (with Z3210)	N / A	N / A	
Backlight	✓	✓	✓	N / A	N / A	
Display refresh rate	5 times / s	5 times / s	5 times / s	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	V: CAT III 300 V A: CAT III 600 V	V: CAT III 300 V A: CAT III 600 V	
Safety standard category (with P2000)	CAT IV 1000 V CAT III 2000 V	CAT IV 1000 V CAT III 2000 V	CAT IV 1000 V CAT III 2000 V	N / A	N / A	
CE	✓	✓	✓	✓	✓	
Dustproof and waterproof	IP20 ²⁶ /IP54 ²⁷	IP20 ²⁶ /IP54 ²⁷	IP20 ²⁶ /IP54 ²⁷	N / A	N / A	
Drop proof	N / A	N / A	N / A	N / A	N / A	
Power supply	LR03 ×2 Alkaline	LR03 ×2 Alkaline	LR03 ×2 Alkaline	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	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	350 g / 12.3 oz	170 g / 6.0 oz	150 g / 5.3 oz	

Size comparison



*1: Only when DC-HIGH VOLTAGE PROBE P2000 is used *2: Voltage measurement in a completely dry condition. When jaw closes. *3: While in storage

*4: When measuring the current in an insulated conductor. Do not use it when wet. *5: Displayed 0 with below 0.05

Measurement type	AC Current					Leakage Current		AC Power	
Model	CM4141-50	3280-10F	CM3289	CM3281	CM3291	CM4001	CM4002 CM4003	CM3286-50	
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)	2000 A (0.01)	1000 A (0.01)	1000 A (0.01)	2000 A (0.01)	2000 A (0.01)	600 A (0.01 mA)	200 A (0.001 mA)	600 A (0.001)
	Guaranteed accuracy range	1 A to 2000 A	4 A to 1000 A	4 A to 1000 A	4 A to 1999 A	4 A to 1999 A	0.6 mA to 600 A	0.06 mA to 200 A	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	1000 V/2000 V [†]	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	6 MΩ	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	
Non-Contact Voltage	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	✓ (with Z3210)	N / A	N / A	N / A	N / A	✓ (with Z3210)	✓ (with Z3210)	✓ (with Z3210)	
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	
Safety standard category (with P2000)	CAT IV 1000 V / CAT III 2000 V	N / A	N / A	N / A	N / A	N / A	N / A	N / A	
CE	✓	✓	✓	✓	✓	✓	✓	✓	
Dustproof and waterproof	IP50 ^{††}	IP40 ^{††}	N / A	N / A	N / A	N / A	IP40	IP20 ^{††} / IP50 ^{††}	
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 × 85 mm / 2.56 × 9.72 × 1.99 in	57 × 175 × 18 mm / 2.24 × 6.89 × 0.63 in	57 × 181 × 16 mm / 2.24 × 7.13 × 0.63 in	57 × 198 × 18 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	65 × 241 × 85 mm / 2.56 × 9.49 × 1.98 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	

Test leads with an integrated cap for greater convenience and safety



CAT IV 600 V / CAT III 1000 V

CAT II 1000 V



The L9300 test lead with an integrated cap is included as a standard. The finger guard can be easily slid to switch between measurement categories without worrying about losing the cap.

AC/DC Current



AC/DC CLAMP METER CM4371-50, CM4373-50, CM4375-50

Product warranty for 3 years
Accuracy guaranteed for 1 year



Included accessories



L9300 C0203

- L9300 Alkaline battery x2
- Instruction manual



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



φ35 mm = 1.30 in

CM4371-50

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

With P2000
CAT IV 1000 V DC
CAT III 2000 V DC

With Z3210
Bluetooth®
Please see www.hioki.com for list of supported regions.



φ55 mm = 2.17 in

CM4373-50

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

With P2000
CAT IV 1000 V DC
CAT III 2000 V DC

With Z3210
Bluetooth®
Please see www.hioki.com for list of supported regions.



φ34 mm = 1.34 in

CM4375-50

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

With P2000
CAT IV 1000 V DC
CAT III 2000 V DC

With Z3210
Bluetooth®
Please see www.hioki.com for list of supported regions.

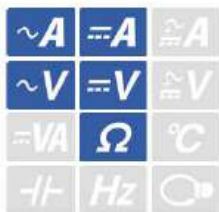


DC HIGH VOLTAGE PROBE
P2000 (Option)
Available to measure 2000 V DC.

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



Product warranty for 3 years
Accuracy guaranteed for 1 year



Included accessories



L9208 9398

- Coin type lithium battery CR2032x1
- 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



For more details

Clamp

Insulation

DiMMe

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature



Model	CM4371-50	CM4373-50	CM4375-50		Basic accuracy
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 ±0.8 A
	N/A	N/A	✓	1000 A (guaranteed accuracy range: 1.0 A to 999.9 A)	±1.3% rdg ±0.8 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 ±0.8 A
	N/A	N/A	✓	1000 A (guaranteed accuracy range: ±1.0 A to ±999.9 A)	±1.3% rdg ±0.8 A
AC + DC Current	✓	N/A	N/A	20.00 A/600.0 A (guaranteed accuracy range: 1.00 A to 600.0 A)	±1.3% rdg ±0.13 A
	N/A	✓	N/A	600.0 A/2000 A (guaranteed accuracy range: 1.0 A to 2000 A)	±1.3% rdg ±1.3 A
	N/A	N/A	✓	1000 A (guaranteed accuracy range: 1.0 A to 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/1000 V/2000 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 ±1200 kVA ³	±2.0% rdg ±20 dgt
	N/A	✓	N/A	0.000 kVA to ±4000 kVA ³	±2.0% rdg ±20 dgt
	N/A	N/A	✓	0.000 kVA to ±200 kVA ³	±2.0% rdg ±0.020 kVA
Resistance	✓	✓	✓	600.0 Ω/6.000 kΩ/60.00 kΩ/600.0 kΩ/6.000 MΩ	±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

Display refresh rate	5 times/s ⁵
Operating temperature	-25°C to 65°C, 90% RH or less (non-condensing)
Storage temperature	-30°C to 70°C, 90% RH or less (non-condensing)
Dustproof and waterproof	IP20 ⁴ /IP54 ⁵
Power supply	Alkaline battery LR03 x2
Continuous operating time	40 hours ⁶
Dimensions (W x H x D)	CM4371-50: 65 x 215 x 35 mm (2.56 x 8.46 x 1.38 in) CM4373-50: 65 x 250 x 35 mm (2.56 x 9.84 x 1.38 in) CM4375-50: 65 x 242 x 35 mm (2.56 x 9.53 x 1.38 in)
Weight	CM4371-50: 340 g (12 oz) CM4373-50: 530 g (18.7 oz) CM4375-50: 350 g (12.3 oz)

Order code	CM4371-50	Includes Z3210
Order code	CM4373-50	Order code CM4371-90
Order code	CM4375-50	Order code CM4373-90
Order code	Z3210	Order code CM4375-90
Order code	P2000	Includes P2000
		Order code CM4373-91
		Order code CM4375-91
		Includes Z3210 and P2000
		Order code CM4373-92
		Order code CM4375-92

¹: Excludes CM4375-50
²: Only when DC HIGH VOLTAGE PROBE P2000 is used
³: Excludes electrostatic capacity, frequency, and temperature
⁴: Voltage measurement in a completely dry condition. When jaw closes.
⁵: While in storage
⁶: With backlight and Bluetooth® communications turned OFF



Model	3287	3288	3288-20		Basic accuracy
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

Display refresh rate	2.5 times/s
Operating temperature	0°C to 40°C, 60% RH or less (non-condensing)
Storage temperature	-10°C to 50°C, 90% RH or less (non-condensing)
Dustproof and waterproof	N/A
Power supply	Coin type lithium battery CR2032 x1
Continuous operating time	25 hours
Dimensions (W x H x D)	57 x 180 x 16 mm (2.24 x 7.09 x 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 CM4141-50



Product warranty for 3 years
Accuracy guaranteed for 1 year



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



DC HIGH VOLTAGE PROBE
P2000 (Option)
Available to measure 2000 V DC

φ55 mm=2.17 in



CM4141-50

2000 A AC

True RMS
CAT IV 600 V
CAT III 1000 V

With P2000

CAT IV 1000 V DC
CAT III 2000 V DC

With Z3210



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



Included accessories



L9300 C0203

- LR03 Alkaline battery x2
- Instruction manual

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



Product warranty for 3 years
Accuracy guaranteed for 1 year



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 (3280-10F) C0205 (3280-70F)



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

2000 A AC

CM3281: MEAN Value
CM3291: True RMS

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



CARRYING CASE

Included accessories



L9208

- CARRYING CASE (models vary as shown on right)
- Coin type lithium battery CR2032x1
- Instruction manual

Leakage Current

AC LEAKAGE CLAMP METER CM4001, CM4002, CM4003



Product warranty for 3 years
Accuracy guaranteed for 1 year



φ24 mm=0.94 in

CM4001

0.6 mA to 600 A AC

True RMS

CAT III 300 V

Included accessories



CARRYING CASE

- STRAP
- LR03 Alkaline battery x1
- Instruction manual

With Z3210



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



φ40 mm=1.57 in

CM4002

0.06 mA to 200 A AC

True RMS

CAT IV 300 V
CAT III 600 V

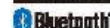
Included accessories



C0203

- LR6 Alkaline battery x2
- Instruction manual

With Z3210



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



φ40 mm=1.57 in

CM4003

0.06 mA to 200 A AC

True RMS

CAT III 300 V

Included accessories



C0203 L9097

- LR6 Alkaline battery x2
- Instruction manual
- USB cable

With Z3210



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



Functions

- External output
- External power supply



For more details



Model	CM4141-50		Basic accuracy
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/1000 V/2000 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/6.000 MΩ	±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-condensing)
Storage temperature	-30°C to 70°C, 90% RH or less (non-condensing)
Dustproof and waterproof	IP50 ^{‡4}
Power supply	Alkaline battery LR03 x2
Continuous operating time	48 hours ^{‡5}
Dimensions (W x H x D)	65 x 24.7 x 35 mm (2.56 x 0.72 x 1.36 in)
Weight	300 g (10.6 oz)

Order code **CM4141-50**

Order code **CM4141-90**

Order code **Z3210**

Model CM4141-90 includes Z3210 as a set

^{†1}: Only when DC HIGH VOLTAGE PROBE P2000 is used. ^{†2}: Excludes electrostatic capacity, frequency, and temperature.
^{†3}: Voltage measurement in a completely dry condition. When jaw closes. ^{†4}: While in storage. ^{†5}: With backlight and Bluetooth[®] communications turned OFF.



Model	3280-10F	CM3289	CM3281 • CM3291	Basic accuracy
AC Current	✓	✓	N/A	42.00 A/420.0 A/1000 A (guaranteed accuracy range: 4.00A to 1000 A)
AC Voltage	N/A	N/A	✓	42.00 A/420.0 A/2000 A (guaranteed accuracy range: 4.00A to 1999 A)
DC Voltage	✓	✓	✓	4.200 V/42.00 V/420.0 V/600 V
Resistance	✓	✓	✓	420.0 mΩ/4.200 kΩ/42.00 kΩ/420.0 kΩ/4.200 MΩ/42.00 MΩ

Other	
Display refresh rate	2.5 times/s
Operating temperature	-25°C to 65°C, 60% RH or less (non-condensing)
Storage temperature	-25°C to 65°C, 60% RH or less (non-condensing)
Dustproof and waterproof	IP40 (EN60529) ^{†3}
Power supply	Coin type lithium battery CR2002 x1
Continuous operating time	3280-10F: 120 hours CM3289: 70 hours CM3291: 70 hours
Dimensions (W x H x D)	3280-10F: 57 x 175 x 16 mm (2.24 x 6.89 x 0.63 in) CM3289: 57 x 181 x 16mm (2.24 x 7.13 x 0.63 in) CM3281, CM3291: 57 x 198 x 16 mm (2.24 x 7.80 x 0.63 in)
Weight	3280-10F: 100 g (3.5 oz) CM3289: 100 g (3.5 oz) CM3281, CM3291: 103 g (3.6 oz)



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**

Order code **CM3281**

^{†1}: Excludes 3280-10F, 3280-70F
^{†2}: Excludes CM3289, CM3281, CM3291
^{†3}: While in storage



Model	CM4001	CM4002	CM4003	Basic accuracy
AC Current	✓	N/A	N/A	60.00 mA/600.0 mA/6.000 A/60.00 A/600.0 A (guaranteed accuracy range: 0.60 mA to 600.0 A)
Frequency	✓	✓	✓	6.000 mA/60.00 mA/600.0 mA/6.000 A/60.00 A/600.0 A (guaranteed accuracy range: 0.060 mA to 200.0 A)
	N/A	N/A	N/A	999.9 Hz
	N/A	✓	✓	999.9 Hz/2000 Hz

Other	
Display refresh rate	5 times/s
Operating temperature	-10°C to 65°C (non-condensing)
Storage temperature	CM4001: -10°C to 65°C (non-condensing) CM4002, CM4003: -30°C to 70°C (non-condensing)
Dustproof and waterproof	CM4002, CM4003: IP40 (EN60529)
Power supply	CM4001: LR03 Alkaline battery x 1, 32 hours CM4002, CM4003: LR6 Alkaline battery x 2, 48 hours (LR6 without Z3210)
Continuous operating time	CM4003: AC ADAPTER Z1013 (Option)
Dimensions (W x H x D)	CM4001: 37 x 160 x 27 mm (1.46 x 6.30 x 1.06 in) CM4002, CM4003: 64 x 233 x 36 mm (2.52 x 9.17 x 1.41 in)
Weight	CM4001: 115 g (4.1 oz) CM4002, CM4003: 400 g (14.1 oz)

Includes external output function (CM4003 Only)

Pair with a recorder to capture instantaneous or current waveforms



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

*Using CONNECTION CABLE L9097 (Included accessories)

Order code **CM4001**

Order code **CM4001-90**

Order code **CM4002**

Order code **CM4002-90**

Order code **CM4003**

Order code **CM4003-90**

Order code **Z3210**

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



For more details

Product warranty for 3 years
Accuracy guaranteed for 1 year

AC Power

AC CLAMP POWER METER CM3286-50

φ46 mm=1.81 in

CATs



DISPLAY HOLD

AUTO OFF

TRUE RMS

NCV



MIN/MAX

PEAK

FILTER

AUTO AC/DC

INRUSH



CM3286-50

AC 600 A

True RMS

CAT IV 600 V
CAT III 1000 V

With Z3210

Bluetooth

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

WIRELESS ADAPTER
Z3210 (Option)Attach to enable Bluetooth®
wireless technology.Order code **CM3286-50**Order code **CM3286-90**Order code **Z3210**Model CM3286-90
includes Z3210 as a set

Included accessories



L9257

C0203

- LR03 Alkaline battery ×2
- Instruction manual

*1. Harmonics can be displayed using dedicated application software (GENNECT Cross)

*2. Voltage measurement in a completely dry condition. When jaw closes.

*3. While in storage.

Measurement parameters		Power (Active/reactive/apparent)	
		Single phase	Balanced three-phase 3-wire
Measurement parameters	Single phase	3.600 kW/36.00 kVar/360.0 kVA Guaranteed accuracy range: 0.005 kW to 360.0 kW Basic accuracy: ±2.0% rdg ±7 dgt	7.200 kW/72.00 kVar/720.0 kVA guaranteed accuracy range: 0.020 kW to 623.5 kW Basic accuracy: ±3.0% rdg ±10 dgt
	Balanced three-phase 3-wire	10.80 kW/108.0 kVar/1080 kVA guaranteed accuracy range: 0.040 kW to 1080 kW Basic accuracy: ±2.0% rdg ±3 dgt	
	Balanced three-phase 4-wire		
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	
Other	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} (With Z3210)	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	IP20 ² /IP50 ³	
	Power supply	LR03 Alkaline battery ×2	
	Continuous operating time	25 hours	
	Dimensions (W × H × D)	65 × 241 × 35 mm (2.56 × 9.49 × 1.38 inch)	
Weight	450 g (15.9 oz)		

Clamp

Insulation

DIMMs

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

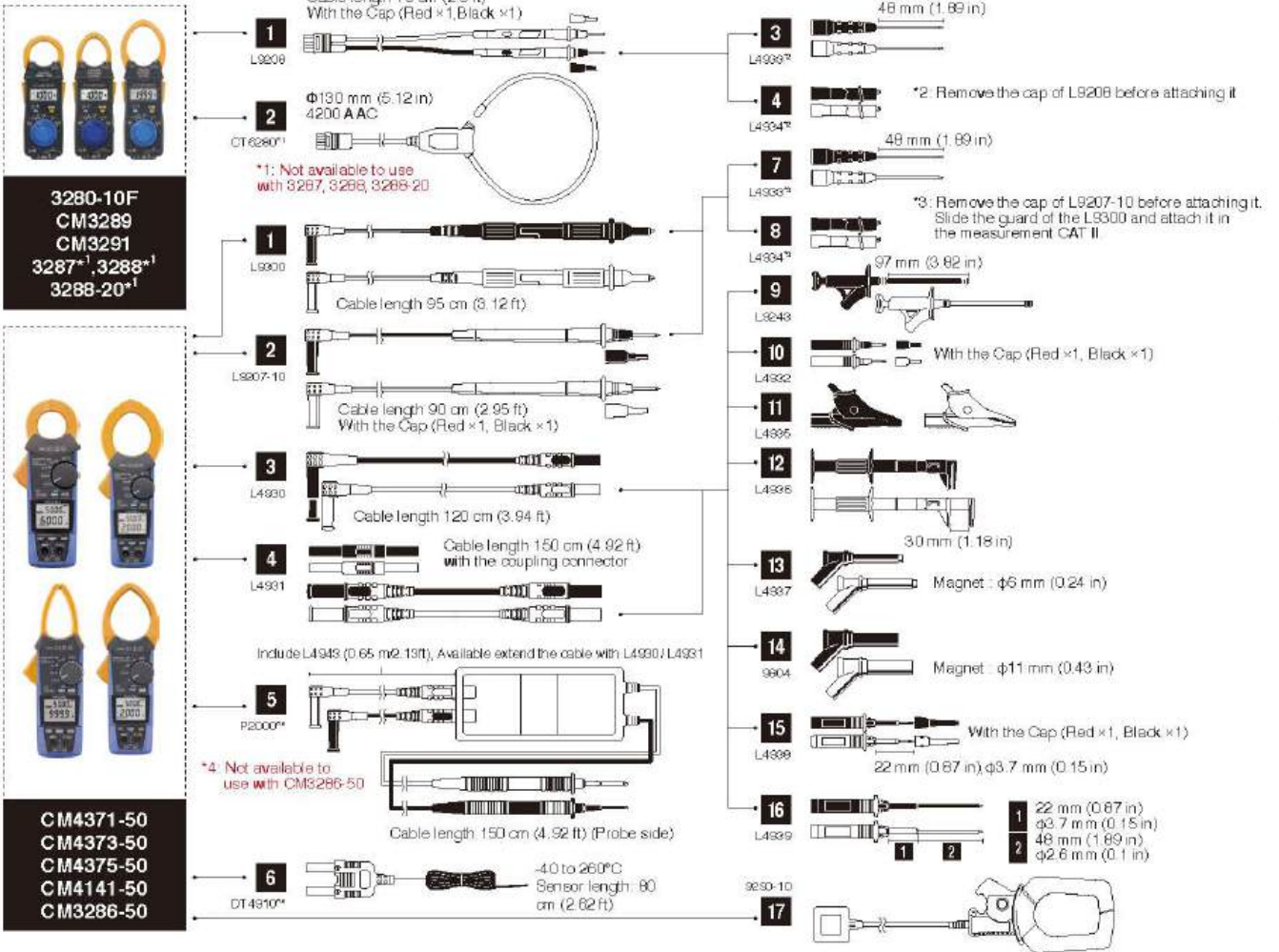
LAN

Signal

Lux

Temperature

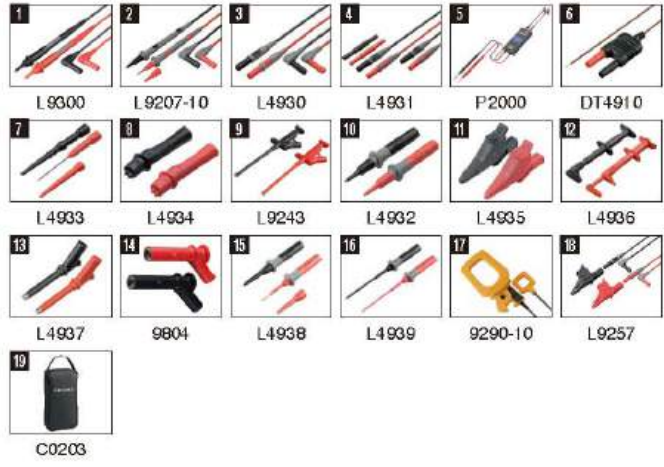
Options



3280-10F, CM3289, CM3281, CM3291, 3287, 3288, 3288-20	
1	TEST LEAD L9208
2	AC FLEXIBLE CURRENT SENSOR CT6280 For 3280-10F, CM3289, CM3291, 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



CM4371-50, CM4373-50, CM4375-50, CM4141-50, CM3286-50	
1	TEST LEAD L9300
2	TEST LEAD L9207-10
3	CONNECTION CABLE SET L4930
4	EXTENSION CABLE SET L4931
5	DC HIGH VOLTAGE PROBE P2000 For CM437x-50 series, CM4141-50
6	THERMOCOUPLES(K) DT4910 For CM437x-50 series, CM4141-50
7	CONTACT PIN SET L4933
8	SMALL ALLIGATOR CLIP SET L4934
9	GRABBER CLIP L9243
10	TEST PIN SET L4932
11	ALLIGATOR CLIP SET L4935
12	BUS BAR CLIP SET L4936
13	MAGNETIC ADAPTER SET L4937
14	MAGNETIC ADAPTER SET 9904
15	TEST PIN SET L4939
16	BREAKER PIN SET L4939
17	CLAMP ON ADAPTER 9290-10 For CM3286-50
18	CONNECTION CORD L9257 Combination of L4930 and L4935
19	CARRYING CASE C0203



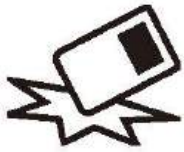
CM4002, CM4003	
1	CONNECTION CABLE L9097 For CM4003
2	CONVERSION ADAPTER 9704 For CM4003
3	AC ADAPTER Z1013 For CM4003
4	CARRYING CASE C0203





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



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



Learn More

Transport to the Excel® file



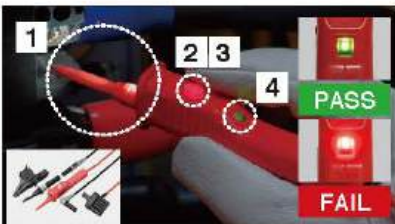
Open an Excel® file and select a cell. The measured value being held on the instrument's display will be transferred to the computer and entered into the selected cell.

Transport to GENNECT Cross



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 IR4059 and IR4058-21

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



Measurement voltage is applied while MEASURE key is pressed



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







Prevent Accidental High Voltage Generation



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



Lineup - Digital

Measurement type	Low voltage (less than 1000 V)				High voltage (less than 5000 V)	
	Standard	High-speed	EV	PV		Standard
Model	IR4056-20 IR4056-21	IR4057-50	IR4059	IR4053-10	IR5051	IR5050
Appearance						
Number of ranges	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 /10.00 TΩ	
PV Ω measurement	N / A			500 V / 2000 MΩ 1000 V / 4000 MΩ	500 V /100 GΩ 1000 V /100 GΩ 1500 V /100 GΩ	N / A
Leakage current measurement	N / A				0.00 nA to 3.00 mA	
DC voltage measurement	600 V			1000 V	2000 V	
AC voltage measurement	600 V				1000 V	
Low resistance measurement	✓			N / A	N / A	
Displaying 1-min. values	N / A	✓		N / A	✓	
Comparator decision response time	✓ 0.8 second	✓ 0.3 second		✓ 0.8 second (PV : 4 second)	✓	
AUTO power save	✓				✓	
Bluetooth® communication	N / A	✓ (With Z3210)		N / A	✓ (With Z3210)	
Resistance gauge	N / A	✓		N / A	✓	
Backlight	✓				✓	
Safety standard category	CAT III 600 V				CAT IV 1000 V CAT III 2000 V	
CE	✓ ¹				✓	
Dustproof and waterproof	IP40 ²				IP40 ^{2,3} , IP65 ⁴	
Drop proof	✓				N / A	
Power supply	LR03 (AAA) alkaline battery x 4 HR6 (AA) NiMH rechargeable battery x4				LR6 (AA) alkaline battery x 8 HR6 (AA) NiMH rechargeable battery x8	
Dimensions (W × H × D)	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in.		160 × 98 × 46 mm 6.30 × 3.86 × 1.81 in.	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in.	195 × 254 × 89 mm 7.68 × 10 × 3.50 in.	
Weight	600 g (21.2 oz)	640 g (22.6 oz)	536 g (18.9 oz)	600 g (21.2 oz)	1.7 kg (59.97 oz)	

1: IR4056-21 excluded 2: Terminal not included 3: With protector attached 4: CARRYING CASE C0212

Lineup - Analog Meters



Product warranty for 3 years
Accuracy guaranteed for 1 year

Measurement parameters	1 Range	<p>IR4016 -20</p>	Testing voltage (DC)	500 V		
			Effective maximum indicated value	100 MΩ		
			1st effective measuring range	0.1 MΩ to 50 MΩ		
	1 Range	<p>IR4017 -20</p>	Testing voltage (DC)	500 V		
			Effective maximum indicated value	1000 MΩ		
			1st effective measuring range	1 MΩ to 500 MΩ		
	1 Range	<p>IR4018 -20</p>	Testing voltage (DC)	1000 V		
			Effective maximum indicated value	2000 MΩ		
			1st effective measuring range	2 MΩ to 1000 MΩ		
	3 Ranges	<p>3490</p>	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)		±2% of scale length (1st effective measuring range) ±2% of scale length (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 (Terminal excluded)
	Drop proof	YES
	Backlight	YES
	Safety standard category	CAT III 600 V
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply	LR6 alkaline battery ×4
	Continuous operating time	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)

Included 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

- Clamp
- Insulation
- DMMS
- Detectors
- Earth
- Power quality
- Power loggers
- Battery
- PV
- Logger
- LAN
- Signal
- Lux
- Temperature

INSULATION TESTER IR4056-20, IR4056-21

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



Included accessories
• TEST LEAD L9787
• Neck strap
• LR6 alkaline battery x4
• Instruction manual

IR4056-20



Included accessories
• TEST LEAD SET WITH REMOTE SWITCH L9789-11
• Neck strap
• LR6 alkaline battery x4
• Instruction manual

IR4056-21 **Not CE marked**

5 ranges

Comparator decision response time : 0.8 s

CAT III 600 V

INSULATION TESTER IR4057-50, IR4059

CE **US** * IR4057-50 only
Product warranty for 3 years
Accuracy guaranteed for 1 year



IR4057-50



IR4059



L4930



WIRELESS ADAPTER Z3210 (Option)

Attach to enable Bluetooth* wireless technology

With Z3210

Bluetooth

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



L4938



L4936

GENNECT Cross



5 ranges

Comparator decision response time : 0.3 s

Digital bar graph

CAT III 600 V

Included accessories

- CONNECTION CABLE L4930
- ALLIGATOR CLIP SET L4936
- TEST PIN SET L4938
- TEST LEAD SET WITH REMOTE SWITCH (RED) L9789-10 (IR4059 only)
- PROTECTOR Z5042 (IR4059 only)
- Neck strap
- LR6 alkaline battery x4
- Instruction manual

CE

INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

Product warranty for 3 years
Accuracy guaranteed for 1 year



Included accessories
• TEST LEAD L9787
• Neck strap
• LR6 alkaline battery x4
• Instruction manual

IR4053-10



5 ranges

Comparator decision response time : 0.8 s

Comparator decision response time (PV) : 4 s

CAT III 600 V

Model	IR4056-20	IR4056-21	IR4057-50	IR4059	IR4053	Basic accuracy						
Measurement parameters	✓	✓	✓	✓	✓	Testing voltage (DC)	50 V	125 V	250 V	500 V	1000 V	-
						Effective maximum indicated value (MO)	100	250	500	2000	4000	-
						1st effective measuring range (MO)	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 (MO)	10.1 to 100.0	25.1 to 250	50.1 to 500	501 to 2000	1010 to 4000	±5% rdg
						Testing voltage (DC)	500 V		1000 V		-	
						Effective maximum indicated value (MO)	2000		4000		-	
PV Ω measurement	N/A	N/A	N/A	N/A	✓	1st effective measuring range (MO)	0.200 to 500		0.200 to 1000		±4% rdg	
						2nd effective measuring range (MO)	501 to 2000		1010 to 4000		±5% rdg	
						DC Voltage	N/A	✓	N/A	✓	4.200 V/42.00 V/420.0 V/1000 V	±1.3% rdg ±4 dgt ¹⁾
AC Voltage	✓	✓	✓	✓	✓	4.200 V/42.00 V/420.0 V/600 V	±1.3% rdg ±4 dgt ¹⁾					
						4.20.0 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					

Operating temperature IR4056-20, IR4056-21, IR4057-50, IR4059: -25°C to 65°C, 90% RH or less (non-condensing)

IR4053: 0°C to 50°C, 90% RH or less (non-condensing)

Storage temperature IR4056-20, IR4056-21, IR4057-50, IR4059: -25°C to 65°C, 90% RH or less (non-condensing)

IR4053: -10 °C to 60°C, 90% RH or less (non-condensing)

Dustproof and waterproof IP40 (Terminal excluded)

Standards EN61326 (EM C), EN61557-1/2/4/7/10

Power supply LR6 alkaline battery x4

Continuous operating time 20 hours

Dimensions (W x H x D) IR4056-20, IR4056-21, IR4057-50, IR4059: 159 x 177 x 53 mm (6.26 x 6.97 x 2.09 inch)

IR4053: 180 x 98 x 46 mm (6.80 x 3.86 x 1.81 inch)

Weight IR4056-20, IR4056-21, IR4053: 600 g (21.2 oz)

IR4059: 596 (19.9 oz)

IR4057-50: 640 g (22.6 oz)

Order code **IR4056-20**Order code **IR4056-21**Order code **IR4057-50**Order code **IR4057-90**Order code **IR4059**Order code **IR4053-10**Order code **Z3210**

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 L9786-10 is used

Model IR4057-90 includes Z3210 as a set



HIGH VOLTAGE INSULATION TESTER IR5050, IR5051

Product warranty for 3 years
Accuracy guaranteed for 1 year



IR5050

IR5051
IR5051-90
(Include Z3210 as a set)

5 ranges

For PV systems

CAT IV 1000 V, CAT III 2000 V

Order code **IR5050**

Order code **IR5051**

Order code **IR5051-90**

Included accessories

- TEST LEAD L9850-01 (Red), -02 (Black), -03 (Blue), 3 m (9.84 ft.)
- ALLIGATOR CLIP L9851-01 (Red), -02 (Black), -03 (Blue)
- CARRYING CASE C0212
- LR6 alkaline battery x8
- Instruction manual
- TEST PIN SET L9852 (IR5051 and IR5051-90 only)
- WIRELESS ADAPTER Z3210 (IR5051-90 only)

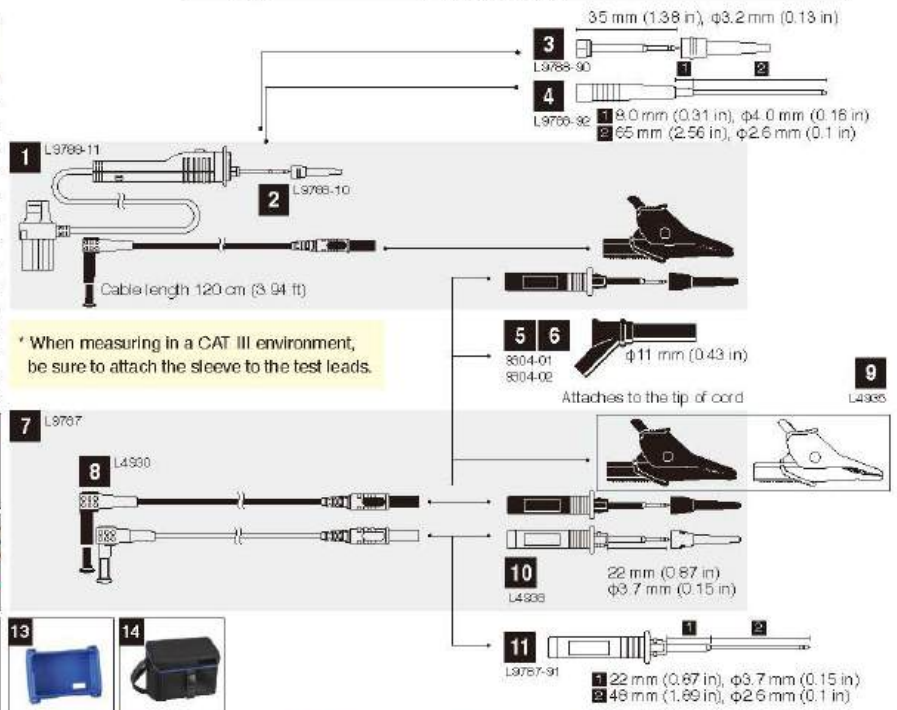
L9850, L9851

1. With protector attached, excluding terminals

Options

IR4016-20, IR4017-20, IR4018-20, IR4056-20, IR4056-21, IR4057-50, IR4057-90, IR4053-10, IR4059, 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
- 6 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 L4936
- 11 BREAKER PIN L9787-91
- 12 WIRELESS ADAPTER Z3210 (For IR4057-50, IR4059)
- 13 PROTECTOR Z5042 (For IR4059)
- 14 CARRYING CASE C0213 (EVMAINTENANCE MANUAL INCLUDED)



IR5050, IR5051

- 1 TEST LEAD L9850-01 Red, 3 m (9.84 ft.)
- 2 TEST LEAD L9850-02 Black, 3 m (9.84 ft.)
- 3 TEST LEAD L9850-03 Blue, 3 m (9.84 ft.)
- 4 TEST LEAD L9850-11 Red, 10 m (32.81 ft.)
- 5 TEST LEAD L9850-12 Black, 10 m (32.81 ft.)
- 6 TEST LEAD L9850-13 Blue, 10 m (32.81 ft.)
- 7 ALLIGATOR CLIP L9851-01 Red
- 8 ALLIGATOR CLIP L9851-02 Black
- 9 ALLIGATOR CLIP L9851-03 Blue
- 10 TEST PIN SET L9852 Red and black
- 11 CARRYING CASE C0212
- 12 WIRELESS ADAPTER Z3210
- 13 COMMUNICATION PACKAGE DT4900-01 USB

Measurement parameters	250 V		500 V		1000 V		2500 V		5000 V				
	Insulation resistance	0.00 MΩ to 500 GΩ	0.00 MΩ to 1.00 TΩ	0.00 MΩ to 2.00 TΩ	0.00 MΩ to 5.00 TΩ	0.00 MΩ to 10.00 TΩ	Rated current	1 mA to 1.2 mA	Short-circuit current	2 mA or less			
Leakage current	Accuracy	±5% rdg. ±5 dgt., ±20% rdg.					Inrush current removal	3 mA max.					
	DC voltage	±10 V to ±2000 V Accuracy: ±3% rdg. ±3 dgt.					AC voltage	30 V to 1000 V Accuracy: ±3% rdg. ±3 dgt.					
Capacitance	Accuracy	±10% rdg. ±5 nF					PV insulation resistance (IR5051 only)	500 V	0.00 MΩ to 100 GΩ		Operating temperature and humidity range	-20°C to 40°C, less than 80% RH (no condensation) 40°C to 45°C, less than 60% RH (no condensation) 45°C to 50°C, less than 50% RH (no condensation)	
	Storage temperature and humidity range	-25°C to 65°C, less than 80% RH (no condensation)											
Other	Standards	IEC61557-1, -2 (insulation resistance tester)											
	Power supply	• LR6 (AA) alkaline battery x8 • Approx. 5 hours without Z3210 installed • Approx. 4 hours with Z3210 installed and using wireless communication											
Dimensions (W x H x D)	195mm (7.68 in.) x 254 mm (10 in.) x 89 mm (3.50 in.)												
Weight	1.7 kg (59.97 oz.)												





DMM TESTERS

Safely inspects and easily manages measurement data for high-voltage solar power generation

High voltage measurement up to CAT III 2000 V by connecting "P2000"

Supports wireless communication to increase work efficiency



CAT IV 1000 V
CAT III 2000 V



DC HIGH VOLTAGE PROBE P2000 (Options)

WIRELESS ADAPTER Z3210 (Options)

DT4261

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

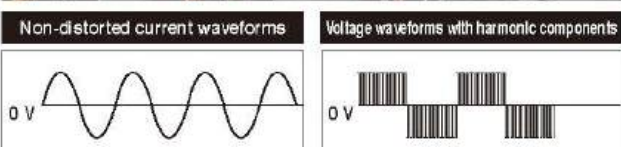


Products are dropped repeatedly until they are damaged in order to validate their impact performance. Test results are used to make design improvements and enhance durability.

Accurately measure the voltage of the secondary side of inverters



True RMS measurement correctly captures distorted current waveforms










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.








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.

- Clamp
- Insulation
- DMMS
- Detectors
- Earth
- Power quality
- Power loggers
- Battery
- PV
- Logger
- LAN
- Signal
- Lux
- Temperature

Lineup

Measurement type	Electrical work	General use	Solar power/ General use	General use	Air conditioning/ Instrumentation	Electrical work	General use	
Model	High-end models		New standard model	Standard models				
	DT4281	DT4282	DT4261	DT4252	DT4253	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	$\pm 0.025\% \text{ rdg} \pm 2 \text{ dgt}$	$\pm 0.025\% \text{ rdg} \pm 2 \text{ dgt}$	$\pm 0.15\% \text{ rdg} \pm 2 \text{ dgt}$	$\pm 0.2\% \text{ rdg} \pm 5 \text{ dgt}$	$\pm 0.3\% \text{ rdg} \pm 5 \text{ dgt}$	$\pm 0.3\% \text{ rdg} \pm 3 \text{ dgt}$	$\pm 0.3\% \text{ rdg} \pm 3 \text{ dgt}$	
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/2000 V [†] (0.1 mV)	1000 V (0.1 mV)	1000 V (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	1000 V	N/A	N/A	N/A	N/A
	DC current (Resolution)	600 mA (0.01 μ A)	10 A (0.01 μ A)	10 A (0.1 mA)	10 A (0.001 A)	60 mA (0.01 μ A)	N/A	10 A (0.01 mA)
	AC current (Resolution)	600 mA (0.01 μ A)	10 A (0.01 μ A)	10 A (0.1 mA)	10 A (0.001 A)	N/A	N/A	10 A (0.1 mA)
	AC current (Clamp)	1000 A	N/A	1000 A	N/A	1000 A	1000 A	1000 A
	Resistance	600 M Ω	600 M Ω	60 M Ω	60 M Ω	60 M Ω	60 M Ω	60 M Ω
	Temperature	-40°C to 800°C	-40°C to 800°C	N/A	N/A	-40°C to 400°C	N/A	N/A
	Capacitance	100 mF	100 mF	10 mF	10 mF	10 mF	10 mF	10 mF
	Frequency	500 kHz	500 kHz	99 kHz	99 kHz	99 kHz	99 kHz	99 kHz
	Continuity check	✓	✓	✓	✓	✓	✓	✓
	Diode check	✓	✓	✓	✓	✓	✓	✓
	Conductance	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	✓	✓
MAX/MIN/AVG		MAX/MIN	MAX/MIN	✓	✓	✓	✓	
PEAK display		✓	✓	✓	N/A	N/A	N/A	
Relative display		✓	✓	N/A	✓	✓	✓	
Decibel conversion		✓	✓	N/A	N/A	N/A	N/A	
Percentage conversion display (4-20 mA)		✓	✓	N/A	N/A	✓	N/A	
Display	AUTO range	✓	✓	✓	✓	✓	✓	
	Hold display value	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⁾	✓	✓	✓	✓	✓	✓	✓	
Bluetooth [®] communication	N/A	N/A	✓ (with Z3210)	N/A	N/A	N/A	N/A	
Safety	Mis-insertion prevention shutters	✓	✓	✓	N/A	N/A	N/A	
	Circuit breaker false trip prevention	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	N/A	N/A	✓	✓	✓	✓	
	Dustproof and waterproof	IP40	IP40	IP54 ³⁾	IP40 (When operating) IP42 (While in storage) ^{3) 4)}	IP40 (When operating) IP42 (While in storage) ^{3) 4)}	IP40 (When operating) IP42 (While in storage) ^{3) 4)}	IP40 (When operating) IP42 (While in storage) ^{3) 4)}
Drop proof	✓	✓	✓	✓	✓	✓	✓	
Auto power off	✓	✓	✓	✓	✓	✓	✓	
Power supply	LR6 \times 4 alkaline battery	LR6 \times 4 alkaline battery	LR6 \times 3 alkaline battery	LR03 \times 4 alkaline battery	LR03 \times 4 alkaline battery	LR03 \times 4 alkaline battery	LR03 \times 4 alkaline battery	
Dimensions (W \times H \times D)	93 \times 197 \times 53 mm 3.66 \times 7.76 \times 2.09 in	93 \times 197 \times 53 mm 3.66 \times 7.76 \times 2.09 in	87 \times 185 \times 47 mm 3.43 \times 7.28 \times 1.85 in	84 \times 174 \times 52 mm 3.31 \times 6.85 \times 2.05 in	84 \times 174 \times 52 mm 3.31 \times 6.85 \times 2.05 in	84 \times 174 \times 52 mm 3.31 \times 6.85 \times 2.05 in	84 \times 174 \times 52 mm 3.31 \times 6.85 \times 2.05 in	
Weight	650 g /22.9 oz	650 g /22.9 oz	480 g /16.9 oz	390 g /13.8 oz	390 g /13.8 oz	390 g /13.8 oz	390 g /13.8 oz	

*1: 2000 V is supported only when using the optional DC HIGH VOLTAGE PROBE P2000 *2: Requires optional COMMUNICATION PACKAGE(USB) DT4900-01 *3: Do not use in wet conditions.
*4: Excludes measuring terminals.

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)	✓	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*	N / A	N / A	N / A	N / A	N / A	N / A	N / A	
Bluetooth® communication	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	N / A
	Dustproof and waterproof	IP40 (When operating) IP42 (While in storage) *3 *4	IP40 (When operating) IP42 (While in storage) *3 *4	IP40 (When operating) IP42 (While in storage) *3 *4	IP40 (When operating) IP42 (While in storage) *3 *4	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	

Product warranty for 3 years
Accuracy guaranteed for 1 year

Product warranty for 3 years
Accuracy guaranteed for 1 year **CE**

DIGITAL MULTIMETER DT4281, DT4282



DT4281

DT4282

Electrical work



General use



High-end models

60000 Counts

DCV typical accuracy: $\pm 0.025\%$ rdg ± 2 dgt

CAT IV 600 V / CAT III 1000 V

Premium DMMs Deliver High Precision and Full Array of Features

extensive additional functionality

It is equipped with additional functions for more advanced measurements. It has a PEAK value display, useful for measuring ripple voltage in DC power supply systems, and a 4-20 mA/0-20 mA conversion display, useful for measuring instrumentation signals.

- Display of maximum/ minimum values
- Display of PEAK value
- Relative display
- Percent conversion 4-20mA

DIGITAL MULTIMETER DT4261



DT4261

General use



New standard model

6000 Counts

DCV typical accuracy: $\pm 0.15\%$ rdg ± 2 dgt

CAT IV 600 V / CAT III 1000 V

With P2000 CAT IV 1000 V / CAT III 2000 V

Safely inspects for high-voltage solar power generation

Safety and Convenience

measurable up to CAT III 2000 V.
DC HIGH VOLTAGE PROBE P2000 (Options)

Bluetooth® communication is available
WIRELESS ADAPTER Z3210 (Options)

DIGITAL MULTIMETER DT4252, DT4253, DT4255, DT4256

Product warranty for 3 years
Accuracy guaranteed for 1 year **CE**



DT4252

DT4253

DT4255

DT4256



Standard models

6000 Counts

DCV typical accuracy: $\pm 0.3\%$ rdg ± 5 dgt

CAT IV 600 V / CAT III 1000 V

Choose from 4 Models to Fit Your Application

Equipped with specialized functions catering to your needs

- Air conditioning/ instrumentation**
- Measure low currents with 80 μ A range
 - Test temperature
 - 4 to 20 mA % display
- 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 **CE**



DT4221

DT4222

DT4223

DT4224



Pocket models

6000 Counts

DCV typical accuracy: $\pm 0.5\%$ rdg ± 5 dgt

CAT IV 300 V / CAT III 600 V

Compact and Convenient

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



Model	DT4281	DT4282	Basic accuracy	Basic accuracy
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
AC current	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 (Clamp)	✓	N/A	600.00 µA/6000.0 µA/60.000 mA/600.00 mA	±0.6% rdg ±5 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	±0.09% 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/999.99 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-condensing)
Storage temperature	-30°C to 60°C (non-condensing)
Dustproof and waterproof	IP40
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply	LR6 alkaline battery x4
Continuous operating time	100 hours (backlight OFF)
Dimensions (W x H x D)	93 x 197 x 53 mm (3.66 x 7.76 x 2.09 in.)
Weight	650 g (22.9 oz)

Included accessories



- LR6 alkaline battery x 4
- Instruction manual

Order code **DT4281**

Order code **DT4282**

L9207-10



Model	DT4252	DT4253	DT4255	DT4256	DT4261	Basic accuracy	
DC voltage	N/A	✓	✓	✓	N/A	600.0 mV/6.000 V/60.00 V/600.0 V/1000 V	±0.3% rdg ±5 dgt
AC voltage	✓	✓	✓	✓	✓	600.0 mV/6.000 V/60.00 V/600.0V/1000 V	±0.2% rdg ±5 dgt
DCV + ACV	✓	✓	✓	✓	✓	600.0 mV/6.000 V/60.00 V/600.0 V/1000 V/2000 V ²	±0.15% rdg ±2 dgt
DC current	N/A	✓	✓	✓	✓	6.000 µA/60.00 µA/600.0 µA/6000.0 mA	±0.9% rdg ±3 dgt
AC current	N/A	✓	✓	✓	✓	6.000 µA/60.00 µA/600.0 µA/6000.0 mA	±0.9% rdg ±3 dgt
AC current (Clamp)	✓	✓	✓	✓	✓	600.0 mA/6000.0 mA/60.00 A/100.0 A	±0.9% rdg ±3 dgt
Resistance	✓	✓	✓	✓	✓	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	✓	✓	✓	✓	-40.0°C to 400.0°C	±0.5% rdg ±2°C
Capacitance	✓	✓	✓	✓	✓	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	✓	✓	✓	✓	✓	(Short detection) 25 Ω or less, (Open detection) 245 Ω or more	-
Diode check	✓	✓	✓	✓	✓	0.15 V to 1.5 V (continuous buzzer sound, flashing red light)	-
Voltage detection	N/A	✓	✓	✓	✓	(Detection voltage range) 40 V AC to 600 V AC (Detection frequency range) 50 Hz/60 Hz	-

Other	
Operating temperature	DT4255, DT4256, DT4261: -25°C to 65°C (non-condensing) DT4252, DT4253: -10°C to 50°C (non-condensing)
Storage temperature	DT4255, DT4256, DT4261: -30°C to 70°C (non-condensing) DT4252, 53: -30°C to 60°C (non-condensing)DT42
Dustproof and waterproof	DT4252, DT4253, DT4255, DT4256: IP40 (When operating) IP42 (While in storage) ^{*1, *2} DT4261: IP54 ^{*3}
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply	DT4252, DT4253, DT4255, DT4256: LR03 alkaline battery x 4 DT4261: LR6 alkaline battery x 3
Continuous operating time	130 hours (backlight OFF)
Dimensions (W x H x D)	DT4252, DT4253, DT4255, DT4256: 84 x 174 x 52 mm (3.31 x 6.85 x 2.05 in.) DT4261: 97 x 195 x 47 mm (3.81 x 7.72 x 1.85 in.)
Weight	DT4252, DT4253, DT4255, DT4256: 390 g (13.8 oz) DT4261: 480 g (16.9 oz)

Included accessories



- Included with DT4252, DT4253, DT4255, DT4256
- L9207-10
 - alkaline battery (LR03) x 4
 - Instruction manual

Order code **DT4252**

Order code **DT4253**

Order code **DT4255**

Order code **DT4256**

Order code **DT4261**

Order code **DT4261-90**

Order code **Z3210**



- Included with DT4261
- L9300
 - alkaline battery (LR6) x 3
 - Instruction manual

Model DT4261-90 includes Z3210 as a set

*1: DT4261 Only *2: Only when using the optional DC HIGH VOLTAGE PROBE P2000
*3: Do not use in wet conditions *4: Excludes measuring terminals



Model	DT4221	DT4222	DT4223	DT4224	Basic accuracy	
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	✓	✓	✓	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	✓	✓	✓	0.15 V to 1.5 V (continuous buzzer sound, flashing red light)	-
Voltage detection	✓	✓	✓	✓	(Detection voltage range) 60 V AC to 600 V AC, (Detect on frequency range) 50 Hz/60 Hz	-

Other	
Operating temperature	DT4221, DT4222: -10°C to 50°C (non-condensing) DT4223, DT4224: -10°C to 65°C (non-condensing)
Storage temperature	DT4221, DT4222: -30°C to 60°C (non-condensing) DT4223, DT4224: -30°C to 70°C (non-condensing)
Dustproof and waterproof	IP40 (When operating), IP42 (While in storage) ^{*1, *2}
Standards	EN 61010 (Safety), EN61326 (EMC)
Power supply	LR03 alkaline battery x 1
Continuous operating time	40 hours (backlight OFF)
Dimensions (W x H x D)	72 x 149 x 39 mm (2.83 x 5.87 x 1.50 in.)
Weight	190 g (6.7 oz)

Included accessories



- LR03 alkaline battery x1
- Instruction manual

Order code **DT4221**

Order code **DT4222**

Order code **DT4223**

Order code **DT4224**

DT4911

*1: Do not use in wet conditions *2: Excludes measuring terminals

Clamp
Insulation
DMMs
Detectors
Earth
Power quality
Power loggers
Battery
PV
Logger
LAN
Signal
Lux
Temperature

HITESTER 3030-10

Product warranty for 3 years
Accuracy guaranteed for 1 year



CAT III 600 V

CARRYING CASE 9390



Order code **3030-10**

Included accessories



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

L9207-30



Measurement parameters	DC Voltage	0.3 V/3 V/12 V/30 V/120 V/300 V/600 V Accuracy: $\pm 2.5\%$ of f.s. reading
AC Voltage	12 V/30 V/120 V/300 V/600 V Accuracy: $\pm 2.5\%$ of f.s. reading, (12V: $\pm 4\%$)	
DC Current	60 μ A/30 mA/300 mA Accuracy: $\pm 3\%$ of f.s. reading	
Resistance	0 to 3k Ω , R \times 1/ R \times 10/ R \times 100/ R \times 1k Accuracy: $\pm 3\%$ of scale length	
Battery check	0.9 to 1.8 V Accuracy: $\pm 6\%$ of f.s. reading	
Operating temperature	0°C to 40°C (non-condensing)	
Storage temperature	-10°C to 50°C (non-condensing)	
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

Product warranty for 3 years
Accuracy guaranteed for 1 year



CAT III 300V, CAT II 600V

CARRYING CASE C0204



Cord length
46cm (1.51 ft)

Order code **3244-60**

Included 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: $\pm 0.7\%$ rdg ± 4 dgt.
AC Voltage	4.200 V/42.00 V/420.0 V/500 V Accuracy: $\pm 2.3\%$ rdg ± 8 dgt.	
Resistance	420.0 Ω /4.200 k Ω /42.00 k Ω /420.0 k Ω /4.200 M Ω /42.00 M Ω Accuracy: $\pm 2.0\%$ rdg ± 4 dgt.	
Continuity check	Detection level: 50 Ω \pm 40 Ω or less	
Operating temperature	0°C to 40°C (non-condensing)	
Storage temperature	-20°C to 60°C (non-condensing)	
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

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

Included accessories

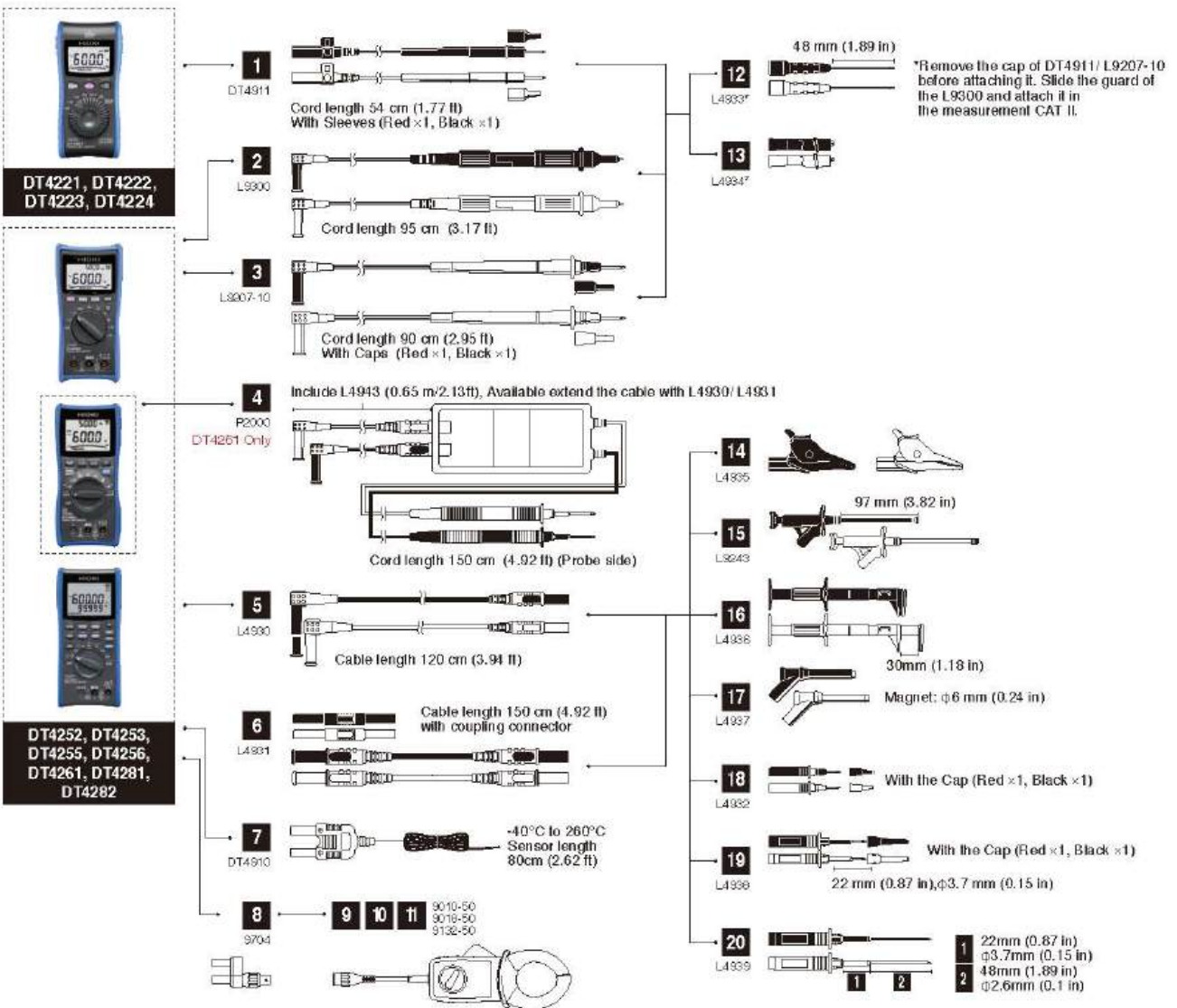
- Sleeves (Red, Black @ 1 each)
- CR2032 coin type battery × 1
- Instruction manual

Order code **3246-60**



Measurement parameters	DC Voltage	420.0 mV/4.200 V/42.00 V/420.0 V/600 V Accuracy: $\pm 1.3\%$ rdg ± 4 dgt.
AC Voltage	4.200 V/42.00 V/420.0 V/600 V Accuracy: $\pm 2.3\%$ rdg ± 8 dgt.	
Resistance	420.0 Ω /4.200 k Ω /42.00 k Ω /420.0 k Ω /4.200 M Ω /42.00 M Ω Accuracy: $\pm 2.0\%$ rdg ± 4 dgt.	
Continuity check	Detection level: 50 Ω \pm 40 Ω or less	
Diode check	Judges the right direction only, Open terminal voltage 3.4 V or less	
Operating temperature	0°C to 40°C (non-condensing)	
Storage temperature	-20°C to 60°C (non-condensing)	
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



DT4221, DT4222, DT4223, DT4224, DT4252, DT4253, DT4255, DT4256, DT4261, DT4281, DT4282		
1	TEST LEAD DT4911	
2	TEST LEAD L9300	
3	TEST LEAD L9207-10	
4	DC HIGH VOLTAGE PROBE P2000 For DT4261	
5	CONNECTION CABLE L4930	
6	EXTENSION CABLE SET L4931	
7	THERMOCOUPLES (K) DT4910	
8	CONVERSION ADAPTER 9704	
9	AC CLAMP ON PROBE 9010-50 ¹	500 A AC, $\phi 46$ mm, Frequency characteristics 40 Hz to 1 kHz
10	AC CLAMP ON PROBE 9018-50 ¹	500 A AC, $\phi 46$ mm, Frequency characteristics 40 Hz to 3 kHz
11	AC CLAMP ON PROBE 9132-50 ¹	1000 A AC, $\phi 55$ mm, Frequency characteristics 40 Hz to 1 kHz
12	CONTACT PIN SET L4933	
13	SMALL ALLIGATOR CLIP SET L4934	
14	ALLIGATOR CLIP SET L4935	
15	GRABBER CLIP L9243	
16	BUS BAR CLIP SET L4936	
17	MAGNETIC ADAPTER SET L4937	
18	TEST PIN SET L4932	
19	TEST PIN SET L4938	
20	BREAKER PIN L4939	
21	COMMUNICATION PACKAGE (USB) DT4900-01	For DT425x series, DT4261, DT428x series Windows 10
22	MAGNETIC STRAP Z5004	For DT422x series, DT425x series, DT4261
23	MAGNETIC STRAP Z5020	Extra strength
24	CARRYING CASE C0200	For DT422x series
25	CARRYING CASE C0201	For DT425x series
26	CARRYING CASE C0202	For DT425x series, DT4261, DT428x series
27	CARRYING CASE C0207	



¹ Adapter Model 9704 is required to connect AC CLAMP ON PROBES 9010-50, 9018-50 and 9132-50 to the DT4281, DT4253, DT4255, DT4256 or DT4261

Clamp

Insulation

DMMS

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature



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 Z3210 (Option)

With Z3210



Attach to enable Bluetooth® wireless technology

WIRELESS ADAPTER Z3210 (Option)

Bluetooth

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

GENNECT Cross

Model PD3259-90 includes Z3210 as a set

Order code **PD3259-50**

Order code **PD3259-90**

Order code **Z3210**

Included accessories

- CARRYING CASE C0203
- Dimensions: W135 mm (5.31 in) × H265 mm (10.43 in) × D66 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** 



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 8 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	LR6 alkaline battery ×4
Continuous operating time	5 hours (Without Z3210)	
Dimensions (W × H × D)	Device	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

PHASE DETECTOR PD3129, PD3129-10



Product warranty for 3 years



42.4 mm (0.69 in) to 417 mm (0.67 in)

PD3129: Thin Conductors



47 mm (0.28 in) to 440 mm (1.57 in)

PD3129-10: Thick Conductors

Included accessories

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

Order code **PD3129**

Order code **PD3129-10**



PD3129

CAT III 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 counter-clockwise order and the buzzer sounds continuously
Other	Functions	Live line check, Battery check function
	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	R6P manganese battery × 2
Continuous operating time	5 hours	
Dimensions (W × H × D)	Device	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)

VOLTAGE DETECTOR 3481-20



Product warranty for 3 years



with LED light



Red for voltage detection

Included accessories

- LR44 button alkaline battery ×3
- Instruction manual

Order code **3481-20**



CAT IV 600 V

Measurement parameters	Operating voltage range	40 to 600 V AC (50Hz/60Hz)
	Maximum sensibly 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	LR44 button alkaline battery × 3
	Continuous operating time	5 hours
Dimensions (W × H × D)	Device	20 × 128 × 15 mm (0.79 × 4.96 × 0.59 in)
	Weight	30 g (1.1 oz)

Clamp

Insulation

DIMMS

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature



EARTH TESTER FT6041
Field-capable, Fast-working



Shorter work times

6 sec. measurements

Fast measurement!
 Cord rewinding that doesn't tangle or twist



Allowable resistance
100 kΩ

Insert just once thanks to 100 kΩ max. allowable resistance



Make measurements, even on concrete.
 Newly designed Earth Nets Module L9846



IP67

Dirt, sand, and rain resistance
 IP67 dust and water protection



Operating temperature range
-25°C to 65°C

Extreme cold, extreme heat. The FT6041 won't fail, even during extended operation.







With protector attached
 Drop-proof design

1 m

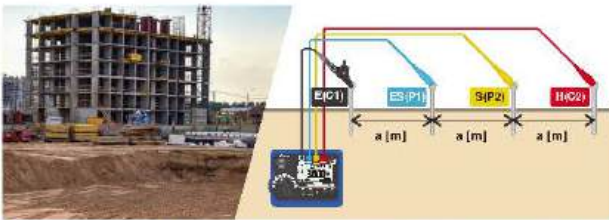
Withstands being dropped onto concrete from a height of 1 m

EARTH TESTERS

Lineup

Model	FT6041	FT6031-50	FT3151	FT6380-50
Appearance				
Ground resistance	Two-pole method	✓	✓	-
	Three-pole method	✓	✓	-
	MEC function	✓	-	-
	2-clamp method	✓	-	✓
Soil resistivity	Four-pole method	✓	-	-
Ground potential	0 to 30.0 V RMS	0 to 30.0 V RMS	0 to 30.0 V RMS	-
Measurement range (ground resistance)	3 Ω to 300 kΩ	20 Ω to 2000 Ω	10 Ω to 1000 Ω	0.20 Ω to 1600 Ω
Measuring frequency	94, 105, 111, 128, 55 Hz	128 Hz	575, 600 Hz	2875 Hz
Allowable ground potential	30 V RMS (DC or sine wave)	25.0 V RMS (DC or sine wave)	10 V	3 V RMS (DC or sine wave)
Allowable resistance of auxiliary grounding electrode	Max. 100 kΩ	Max. 50 kΩ	Max. 5 kΩ	-
Cord winders	✓	✓	✓	-
Operating temperature	-25°C to 65°C (-13°F to 149°F)	-25°C to 65°C (-13°F to 149°F)	0°C to 40°C (32°F to 104°F)	-10°C to 50°C (14°F to 122°F)
Dustproof and waterproof	IP67	IP67	IP40	IP40 with jaws closed
Drop-proof	1 m above concrete (with protector attached)	1 m above concrete (with protector attached)	-	-
Support for GENNECT Cross (storage of measured values)	✓	✓	-	✓
Clamp measurement method (maximum measurable conductor diameter)	✓ (with optional sensor) φ 52 mm (2.05 in.) 78 mm (3.07 in.) × 20 mm (0.79 in.) busbar	-	-	φ 32 mm (1.26 in.)

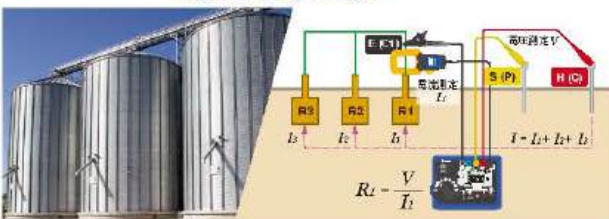
EARTH TESTER FT6041 Extensive measurement functionality



4-pole method Measure soil resistivity when surveying a grounding design



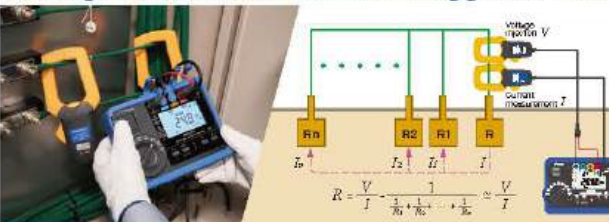
3-pole method Precisely measure ground resistance



MEC function MEC stands for "measuring earth with a clamp." Measure ground resistance without disconnecting ground electrodes



3-pole method using 4-terminal measurement Measure ground resistance values of several ohms or less



2-clamp method Measure grounding resistance at multiple grounds



Low-resistance measurement Continuity test after ground resistance measurement

- Clamp
- Insulation
- DMMS
- Detectors
- Earth
- Power quality
- Power loggers
- Battery
- PV
- Logger
- LAN
- Signal
- Lux
- Temperature

EARTH TESTER FT6041

Product warranty for 3 years
Accuracy guaranteed for 1 year



Extensive measurement
functionality

Dustproof and waterproof: IP67

4-pole
method
Werner's
4-pole method

3-pole
method

2-pole
method

Low-resistance
measurement

2-clamp
method
for multi-grounded
systems

MEC
function

CAT IV 100 V
CAT III 150 V
CAT II 300 V

With Z3210

Bluetooth[®]

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



Z3210

Order code **FT6041**

Order code **FT6041-91**

Order code **Z3210**

FT6041-91: FT6041 and included accessories,
also includes clamps FT9847 and CT9848

Basic specifications

Measurement parameters	<ul style="list-style-type: none"> Ground resistance measurement: 4-pole method, 3-pole method, 2-pole method, MEC function, clamp-on measurement (two clamps) Soil resistivity measurement: 4-pole method • Low-resistance measurement: 4-terminal method, 2-terminal method Ground potential measurement
Ground potential	0 to 30.0 V RMS, accuracy: $\pm 2.3\%$ rdg. ± 8 dgt. (50/60 Hz), $\pm 1.3\%$ rdg. ± 4 dgt. (DC)
Functions	Live wire warning, auto power save, soil resistivity display (4-pole method only), zero-adjustment, auto-hold, continuous measurement mode, wireless communication (only when Z3210 is connected), buzzer sound, comparator, switching the display, ground potential overload display (when measuring ground resistance)
Operating temperature and humidity	-25°C to $65^{\circ}\text{C}^{\ast 1}$ (non-condensing)
Storage temperature and humidity	-25°C to 65°C : 80% RH or less (non-condensing)
Dustproof and waterproof	IP65/IP67 (EN60529)
Applicable standards	EN 61010 (safety), EN 61326 (EMC), EN61557-1/EN61557-10/EN61557-14 (low-resistance measurement, earth testers), EN61557-5 (earth testers)
Power supply	HR6 nickel-metal hydride battery x 4 or LR03 alkaline battery x 4
Number of measurements per battery charge ²	500 times (3-pole method, without Z3210 installed) 400 times (3-pole method, with Z3210 installed and using wireless communication)
Dimensions and mass	Approx. 189 mm (7.44 in.)W × 148 mm (5.83 in.) H × 48 mm (1.89 in.) D, approx. 765 g (26.98 oz.) (including battery, protector)

Ground resistance measurement: 4-pole method, 3-pole method, 2-pole method					
Measurement principle	Apply voltage and measure voltage and current (measures effective resistance by synchronous detection)				
Ground resistance range	3 Ω (0 to 3.000 Ω)	30 Ω (0 to 30.00 Ω)	300 Ω (30.0 Ω to 300.0 Ω)	3000 Ω (300 Ω to 3000 Ω)	30.00 k Ω (3.00 k Ω to 30.00 k Ω)
Accuracy	-	$\pm 1.5\%$ rdg. ± 6 dgt.			$\pm 1.5\%$ rdg. ± 4 dgt.
Allowable resistance of auxiliary grounding electrode	5 k Ω		50 k Ω	100 k Ω	
Allowable ground potential	30 V RMS or 42.4 V peak				
MEC function: 4-pole method with clamp sensor, 3-pole method with clamp sensor					
Measurement principle	Apply voltage and measure voltage and current (measures effective resistance by synchronous detection)				
Ground resistance range	30 Ω (0.00 to 30.00 Ω)	300 Ω (30.0 Ω to 300.0 Ω)	3000 Ω (300 Ω to 3000 Ω)	30.00 k Ω (3 k Ω to 30.00 k Ω)	
Accuracy	$\pm 5\%$ rdg. ± 6 dgt.		$\pm 5\%$ rdg. ± 3 dgt.		
Ground resistance measurement: 2-clamp method					
Measurement principle	Apply voltage and measure voltage and current (measures effective resistance by synchronous detection)				
Ground resistance range	20 Ω (0.02 Ω to 20.00 Ω)	200 Ω (20.0 Ω to 200.0 Ω)	500 Ω (200 Ω to 500 Ω)		
Accuracy	$\pm 7\%$ rdg. ± 3 dgt.		$\pm 3.5\%$ rdg.		
Low-resistance measurement					
Open-circuit voltage	4.0 V to 6.9 V				
Measuring current	200 mA or more				
Measurement range	30 Ω (0.00 to 30.00 Ω)	300 Ω (30.0 Ω to 300.0 Ω)	3000 Ω (300 Ω to 3000 Ω)		
Accuracy	± 3 dgt. (0.00 to 0.19 Ω) $\pm 2\%$ rdg. ± 2 dgt. (0.20 Ω to 10.00 Ω)		$\pm 2\%$ rdg. ± 2 dgt.		

¹: -25°C to 40°C , -13°F to 104°F (80% RH or less), 40°C to 45°C , 104°F to 113°F (60% RH or less), 45°C to 50°C , 113°F to 122°F (50% RH or less), 50°C to 55°C , 122°F to 131°F (40% RH or less), 55°C to 60°C , 131°F to 140°F (30% RH or less), 60°C to 65°C , 140°F to 149°F (25% RH or less)

²: NiMH battery x 4 (reference value at 23°C)



Cord winders make cleanup a snap



Sturdy, thin rods drive easier into the ground



Make measurements, even on concrete.

Included accessories

1	AUXILIARY EARTHING ROD L9840	2 sets (2 pieces/set), 270 mm/10.63 in, Stainless steel
2	MEASUREMENT CABLE L9845-31	Yellow, 25 m (82.02 ft.), equipped with winder
3	MEASUREMENT CABLE L9845-33	Blue, 25 m (82.02 ft.), equipped with winder
4	MEASUREMENT CABLE L9845-52	Red, 50 m (164.04 ft.), equipped with winder
5	MEASUREMENT CABLE L9841	Black 4 m (13.12 ft.) length
6	TEST LEAD L9787	Bundled with line/ground lead, alligator clip, 1.2 m (3.94 ft.) long
7	EARTH NETS MODULE L9846	Use with measuring cord set, built-in grounding/earth nets (2 pieces are included in FT6041)
8	CARRYING CASE C0208	For storing FT6041 and clamp sensors, hard type
9	CARRYING CASE C0209	For storing measurement cables, soft type
10	Protector	Attaches to and protect FT6041
11	LR6 alkaline battery	4 pcs.
12	Instruction manual, Operating precautions	



L9840

L9845-31

L9845-33

L9845-52

L9841

L9787

L9846

C0208

C0209



Protector
(attaches to FT6041)

Options

1	SIGNAL INDUCTION CLAMP FT9847	For signal induction, including resistance check loop
2	CLAMP ON SENSOR CT9848	For detection
3	WIRELESS ADAPTER Z3210	Bluetooth® communication will be possible by attaching to the FT6041
4	MEASUREMENT CABLE L9842-11	Yellow 10 m (32.81 ft.) long, equipped with winder
5	MEASUREMENT CABLE L9842-22	Red 20 m (65.62 ft.) long, equipped with winder
6	MEASUREMENT CABLE L9843-51	Yellow 50 m (164.04 ft.) long, equipped with flat cable winder
7	MEASUREMENT CABLE L9843-52	Red 50 m (164.04 ft.) long, equipped with flat cable winder
8	MEASUREMENT CABLE L9844	For grounding terminal board, red/yellow/black, each 1.2 m (3.94 ft.) long
9	PIN TYPE LEAD 9772	For low-resistance measurement by 4-terminal method
10	LARGE CLIP TYPE LEAD 9467	For low-resistance measurement by 4-terminal method
11	EARTH NETS 9050	2 sheets in set



FT9847

CT9848

Z3210

L9842-11

L9842-22

L9843-51

L9843-52

L9844

9772



9467

9050

EARTH TESTER FT6031-50

Product warranty for 3 years
Accuracy guaranteed for 1 year **CE**



Dustproof and waterproof: **IP67**

2-pole method
Class D

3-pole method
Class A to Class D

CAT IV 100 V

CAT III 150 V

CAT II 300 V

With Z3210

Bluetooth

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

GENNECT Cross

Z3210

Order code **FT6031-50**

Order code **FT6031-90**

Order code **Z3210**

Basic specifications

Measurement system	Two-pole method or three-pole method		
Measurement range	20 Ω (0 to 20.00 Ω)	200 Ω (0 to 200.0 Ω)	2000 Ω (0 to 2000 Ω)
Accuracy	±1.5% rdg. ±8 dgt.	±1.5% rdg. ±4 dgt.	±1.5% rdg. ±4 dgt.
Ground potential	0 to 30.0 V RMS Accuracy: ±2.3% rdg. ±8 dgt. (50/60 Hz), ±1.3% rdg. ±4 dgt. (DC)		
Allowable ground potential	25.0 V RMS (DC or sine wave)		
Operating temperature and humidity	-25°C to 65°C ⁻¹ (non-condensing)		
Storage temperature and humidity	-25°C to 65°C (-13°F to 149°F); 80% RH or less (non-condensing)		
Dustproof and waterproof	IP65/IP67 (EN60529)		
Applicable standards	Safety: EN 61010 (main unit), EN 61010 (measuring circuit); EMC: EN 61326; earth testers: EN 61557		
Power supply	LR6 alkaline battery ×4, possible number of measurements for one set of batteries: 500 times (measurement conditions: three-pole method, measuring 10 Ω at 10-second intervals without Z3210 installed)		
Dimensions and mass	185 mm (7.28 in.) W × 111 mm (4.37 in.) H × 44 mm (1.73 in.) D, 570 g (20.1 oz.) (including batteries and protector, excluding terminal covers and other accessories)		



Included accessories

No.	Accessories	Quantity
1	AUXILIARY EARTHING ROD L9840	2 piece set, 270 mm/10.63 in, Stainless steel
2	MEASUREMENT CABLE L9842-11	Yellow 10 m (32.81 ft) length, equipped with winder
3	MEASUREMENT CABLE L9842-22	Red 20 m (65.62 ft) length, equipped with winder
4	MEASUREMENT CABLE L9841	Black 4 m (13.12 ft) length
5	CARRYING CASE C0106	Soft type, includes compartment for options
6	LR6 alkaline battery	6 pcs
7	Instruction manual	



Options

No.	Options	Quantity
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	WIRELESS ADAPTER Z3210	Bluetooth® communication will be possible by attaching to the FT6031-50
6	EARTH NETS 9050	2 sheets in set

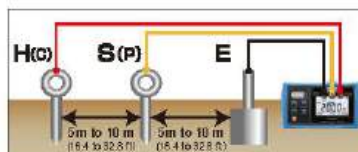


Ground types

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

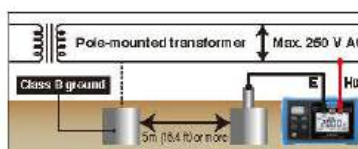
3

electrode method
(classes A to D)



2

electrode method
(classes D)



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

EARTH TESTER FT3151

Product warranty for 3 years
Accuracy guaranteed for 1 year **CE**



Rewind with ease

2-pole
method
Class D

3-pole
method
Class A to Class D

CAT II 300 V

Order code **FT3151**

Basic specifications

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

¹30 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



Cord winders make cleanup a snap



Sturdy, thin rods drive easier into the ground

Included accessories

1	AUXILIARY EARTHING ROD L9840	2 piece set, 270 mm (10.63 in), Stainless steel
2	MEASUREMENT CABLE L9842-11	Yellow 10 m (32.81 ft) length, equipped with winder
3	MEASUREMENT CABLE L9842-22	Red 20 m (65.62 ft) length, equipped with winder
4	MEASUREMENT CABLE L9841	Black 4 m (13.12 ft) length
5	CARRYING CASE C0106	Soft type, includes compartment for options
6	LR6 alkaline battery	6 pieces
7	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	SHOULDER STRAP Z5022	
6	EARTH NETS 9050	2 sheets in set



CLAMP ON EARTH TESTER FT6380-50

Product warranty for 3 years
Accuracy guaranteed for 1 year **CE** **UL**



For multi-grounded systems only

Clamp-on
method

Current
measurement
True RMS

CAT IV 600 V

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

Model FT6380-90 includes Z3210 as a set

Order code **FT6380-50**

Order code **FT6380-90**

Order code **Z3210**

With Z3210

Bluetooth

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



**GENNECT
Cross**



Z3210

Included accessories



Carrying case Resistance check loop

- Carrying case
- Resistance check loop (1 Ω, 25 Ω)
- Strap
- LR06 alkaline battery x2
- Instruction manual

Measurements for Multi-Grounded Systems



Hazardous Storage Tanks

Transmission Towers

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/500 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
Operating temperature	-10°C to 50°C, 80% RH or less (non-condensing)
Storage temperature	-20°C to 60°C, 80% RH or less (non-condensing)
Dustproof and waterproof	IP40 (EN60529) ²⁾
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply	LR6 alkaline battery x 2
Continuous operating time	3.5 hours (backlight OFF)
Dimensions (W x H x D)	73 x 218 x 43 mm (2.87 x 8.58 x 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.

²⁾When jaw closes.

Clamp

Insulation

DMMS

Detectors

Earth

Power
quality

Power
loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature



POWER QUALITY ANALYZER PQ3198, PQ3100
Monitor power quality and analyze
the cause of equipment issues

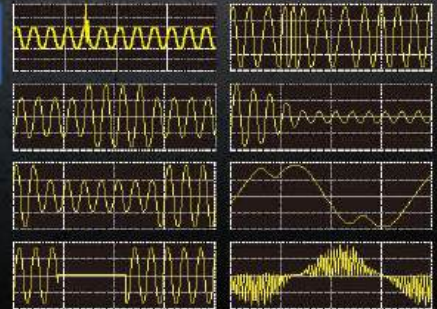


Power anomalies are a major cause of equipment malfunction and damage. The PQ3198 and PQ3100 detect power supply abnormalities without fail to help diagnose the cause of problems.



Capture all of these power anomalies simultaneously

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



POWER QUALITY ANALYZERS



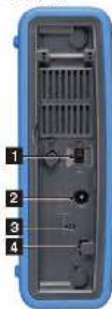
POWER QUALITY ANALYZER PQ3198, PQ3100

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 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	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	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	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 (CH 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 4. Voltage swell, voltage dips, voltage interruption 5. Inrush current 6. Voltage waveform comparison 7. Instantaneous/true 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 (supraharmonic) component (voltage/current): 2 kHz to 80 kHz 13. Harmonic/harmonic phase angle (voltage/current): 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 V/I0 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 V/I0 Flicker
Record	Repeated ON: 1 year, maximum recording event: 9999 × 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/SDHC memory card ²⁾ , RS-232C, USB 2.0, LAN	
Operating temperature	0°C to 30°C (50% 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 × H × D)	300 × 211 × 68 mm (11.81 × 8.31 × 2.68 in)	
Weight	2.6 kg (5.7 oz) (including BATTERY PACK)	



- PQ3198 Included 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 Included 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, CT7136³⁾ (600A) × 4, L1021-02×3, CARRYING CASE C1009
- Order code: **PQ3198-94** Value Kits: PQ3198, CT7045³⁾ (6000A) × 4, L1021-02×3, CARRYING CASE C1009
- Order code: **PQ3100**
- Order code: **PQ3100-91** Value Kits: PQ3100, CT7136³⁾ (600A) × 2, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009
- Order code: **PQ3100-92** Value Kits: PQ3100, CT7136³⁾ (600A) × 4, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009
- Order code: **PQ3100-94** Value Kits: PQ3100, CT7045³⁾ (6000A) × 4, SD MEMORY CARD 2GB Z4001, CARRYING CASE C1009

¹⁾ Depends on current sensor in use
²⁾ Use only SD Cards sold by HICKI. 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.48 and p.49.



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 LOGGERS

CLAMP ON POWER LOGGER PW3365, PW3360

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 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	400 V AC (Effective measurement range: 90.0 V to 520.0 V)	600 V AC (Effective measurement range: 90.0 V to 780.0 V)	
Accuracy	±1.5% rdg ±0.2% f.s. (combined accuracy with PW9020)	±0.3% rdg ±0.1% f.s.	
Current ranges	500.00 mA AC to 5.0000 kA ¹⁾ (Leak clamp on sensor only: 50.000 mA AC to 5.0000 A)		
Accuracy	±0.3% rdg ±0.1% f.s. + current sensor accuracy		
Power ranges	200.00 W to 6.0000 MW	300.00 W to 9.0000 MW	
Accuracy	±2.0% rdg ±0.3% 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)	
	Harmonics	Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or THD-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	✓
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-condensing)	-10°C to 50°C, 80% RH or less (non-condensing)	
Storage temperature	-10°C to 60°C, 80% RH or less (non-condensing)	-20°C to 60°C, 80% RH or less (non-condensing)	
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 (29.3 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-condensing)
Storage temperature	-10°C to 60°C, 80% RH or less (non-condensing)
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.48, and p.49.

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.

**PW3360 Included 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 Included 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






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

Features	Basic 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	2940 A peak	150 A peak	900 A peak	2940 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 (45 to 60Hz)	±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) 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	CT7125	CT7131	CT7135	CT7116
Appearance	 PL14	 PL14	 PL14	 PL14	 PL14	 PL14	 PL14 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 60Hz)	±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	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	 BNC Requires the 9219 Not CE marked	 BNC Requires the 9219 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 60Hz)	±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	9675-10	9675
Appearance	 BNC	 BNC	 BNC	 BNC General purpose ZCT	 BNC 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 60Hz)	±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 ±0.05% 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 PL14



PQ3198, PQ3100			
Voltage	1	VOLTAGE CORD L1000	Red/Yellow/Blue/Gray @ 1 each, End x4.3m (14ft), Alligator clip x8
	2	VOLTAGE CORD L1000-05	Red/Yellow/Blue/Gray/Black @ 1 each, End x3m (9ft), Alligator clip x5
	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 HOKI. 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 4-wire connection
	15	WIRING ADAPTER PW9001	For PQ3198, for 3-phase 4-wire connection
Other	16	GPS BOX PW9005	For PQ3198
	17	CARRYING CASE C1009	Bag type
	18	CARRYING CASE C1002	Hard trunk type
	19	MAGNETIC STRAP Z5004	
	20	MAGNETIC STRAP Z5020	Extra strength

* Only for PQ3198



PW3365, PW3360			
Voltage	1	SHIELD VOLTAGE SENSOR PW9020	For PW3365, 3 m (9.84 ft)
	2	VOLTAGE CORD L9498-59	For PW3360, Black/Red/Yellow/Blue, 3 m (9.84 ft) length, Alligator clip x4
	3	MAGNETIC ADAPTER 9804-01	For PW3360, Red, $\phi 11$ mm (0.43 in)
	4	MAGNETIC ADAPTER 9804-02	For PW3360, Black, $\phi 11$ mm (0.43 in)
Record	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
	7	SD MEMORY CARD 2GB Z4001	Use only SD Cards sold by HOKI. 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 Z1006	For PW3365, 100V AC to 240V
	12	AC ADAPTER Z1008	For PW3360, 100V AC to 240V
	13	BATTERY SET PW602	Battery case and 9-6-9 Set
Other	14	BATTERY PACK 9459	
	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	
	5	CARRYING CASE C0220	
Other	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



- 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



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



- Included accessories**
- Alkaline battery LR6 x 2
 - Instruction manual
 - Protector

Order code: **CM7290**

Order code: **CM7291**

Measurement parameters	Measurement parameters	DC, AC, DC+AC, Hz				
	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	Sensor	CT7731 CT7631	CT7736 CT7636	CT7742 CT7642	CT7044 CT7045 CT7046	
	Accuracy (output)	DC WAVE	±15% rdg ±13mV	±25% rdg ±23mV	±2% rdg ±18mV	-
		AC WAVE	±15% rdg ±13mV	±25% rdg ±23mV	±2% rdg ±18mV	±2% rdg ±23mV
		AC RMS	±18% rdg ±13mV	±28% rdg ±23mV	±2% rdg ±18mV	±3% rdg ±23mV
Output update time	PEAK: 0.02s (FAST) 0.2s (NORMAL) 1s (SLOW) FREQ: 0.2s (FAST) 0.2s (NORMAL) 1s (SLOW) (WAVE, RMS: analog output)					
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 ¹⁾				
	Standards	EN61010 (Safety), EN61326 (EMC)				
	Power supply	Alkaline battery LR6 x 2, external power supply				
Continuous operating time	16 hours (backlight OFF)					
Dimensions (W x H x D)	52 x 163 x 37 mm (2.05 x 6.42 x 1.46 in)					
Weight	220 g (7.8 oz)					

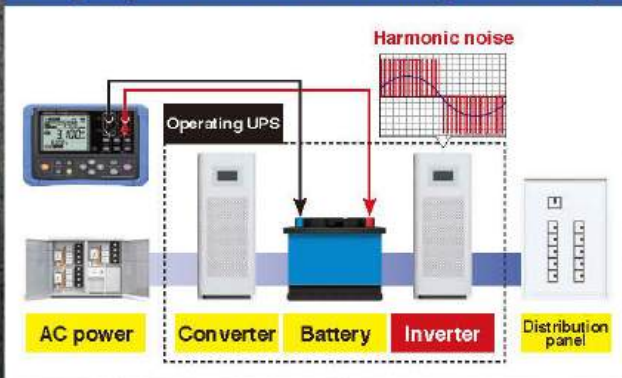
¹⁾ With sensor connected and caps fitted to AC adapter and power connector



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

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

Z3210

1 2 3 4 5 ... 500

NEXT: Battery No.1

Receive measurement results

No.1 PASS

BATTERY TESTERS



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

Product warranty for 3 years
Accuracy guaranteed for 1 year



BT3554-50: Instrument only

With Z3210



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



GENNECT Cross

BT3554-51: with 9465-10

With Z3210



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



GENNECT Cross

BT3554-52: with L2020

With Z3210



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



GENNECT Cross



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



9465-10



L2020

Included accessories

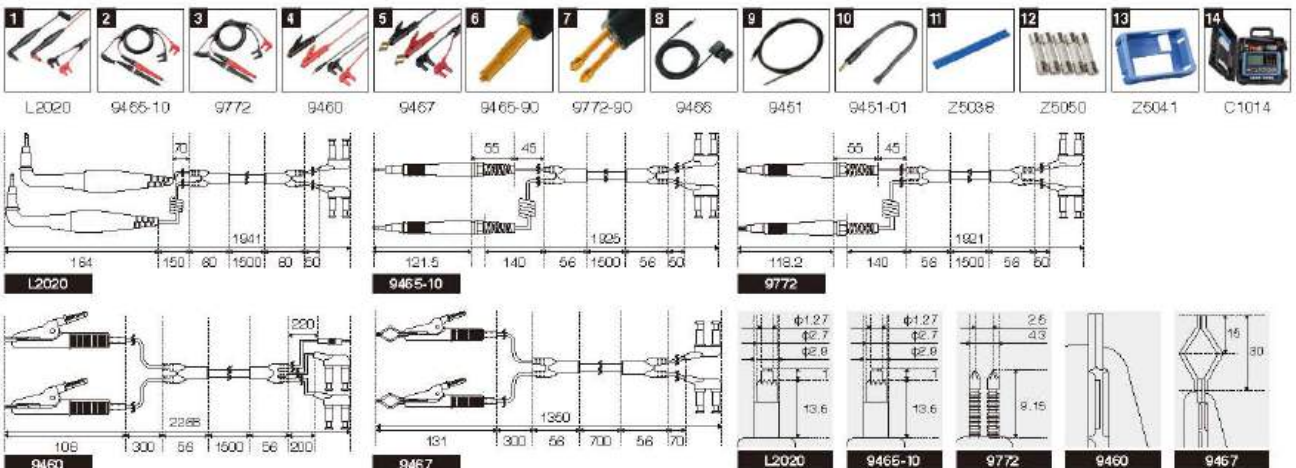
- PIN TYPE LEAD 9465-10 (BT3554-51 only)
- PIN TYPE LEAD L2020 (BT3554-51 only)
- Carrying Case C1014
- Protector Z5041
- Fuse Set Z5050
- ZERO ADJUSTMENT BOARD
- Neck strap
- USB cable
- GENNECT One Software CD
- Power-on option sticker
- Alkaline battery LR6 × 8
- Instruction manual

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 parameters		Internal resistance measurement for batteries (AC four-terminal method) Terminal voltage measurement for batteries (DC voltage) Temperature measurement (when using the 9460)
Measurement	Range	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: ±0.0% rdg ±8 dgt
	Accuracy	
	Resistance	
	Measurement Current	160 mA (3 mΩ, 30 mΩ range) 16 mA (300 mΩ range) 1.6 mA (3 Ω range)
Other	Measurement frequency	1 kHz ±30 Hz (with function for avoiding noise frequency enabled: 1 kHz ±90 Hz)
	Voltage	6.000 V/60.00 V Accuracy: ±0.06% rdg ±6 dgt
Other	Temperature	-10.0°C to 60.0°C Accuracy: ±1.0°C
	Function	<ul style="list-style-type: none"> • 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)
Other	Interface	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	LR6 alkaline battery × 8
	Continuous operating time	8.5 hours
	Dimensions (W × H × D)	139 × 132 × 60.6 mm (7.63 × 5.20 × 2.39 in.)
Weight	960 g (33.6 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.



Clamp
Insulation
DIMMS
Detectors
Earth

Power quality
Power loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature

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 R_{BP}: Bypass route resistance
- 2 V_{oc}: Open-circuit voltage
- 3 I_{sc} + α1: Measurement current
- 4 I_{sc}: 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

BYPASS DIODE TESTER FT4310



Product warranty for 3 years
Accuracy guaranteed for 1 year



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



Order code **FT4310**

Included accessories



- 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 | |



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

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 shoring 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: 18 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
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 Class A (EMC)
Maximum input voltage	1000 V DC
Power supply	LR6 alkaline battery × 6
Continuous operating time	45 hours (Bluetooth® OFF)
Dimensions (W × H × D)	152 × 92 × 88 mm (5.98 × 3.62 × 2.72 in), Cable length 0.6 m (1.04 ft)
Weight	650 g (22.9 oz)

COMPACT DATA LOGGERS

Measure with remote modules and collect data with central logging station

Send data to the LR8410 via Bluetooth® wireless communication

Measurement units



Connect
Up to 7
Communication range
30 m, line of sight

Main unit



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.

WIRELESS LOGGING STATION LR8410-20

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



Order code **LR8410-20**

Order code **LR8510**

Order code **LR8511**

LR8410-20 Included 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 9842 5 m (16.4 ft), with straight-to-cross conversion adapter



Z1008

Z4001

Z4003

Z1007

C1007

Z1009

9842

LR8410-20

No. of measurement channels	Connect up to seven units wirelessly* (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: 9M-words, Data storage media: SD memory card or USB memory stick ²
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
Operating temperature	-10 to 50°C, 80% rh or less (non-condensing)
Storage temperature	-20 to 60°C, 80% rh or less (non-condensing)
Standards	EN61010 (Safety), EN61326 class A, EN61000-32, EN61000-33 (EMC)
Power supply	AC ADAPTER Z1008 (100 to 240 V AC, 50/60 Hz)
Dimensions (W × H × D)	230 × 125 × 38 (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 1600°C ³
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 1600°C ³ RTDs: -100 to 500°C ³ , Resistance: 0 to 200 Ω, Humidity: 5.0 to 95.0% rh
Accuracy	Voltage: ±10 μV, Thermocouple: ±0.6°C ³ RTDs: ±0.6°C ³ , Resistance: ±10 mΩ, Humidity: ±5% rh

* 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.



Product warranty for 3 years
Accuracy guaranteed for 1 year

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

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	1 ch (temperature), 1 ch (humidity)	1 ch	1 ch	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

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



¹ Depends on current sensor in use

LR50XX Series Shared Specifications

Measurement	Recording intervals	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)	
Operating temperature	LR6001, LR6011, LR6031, LR6041, LR6042, LR6043: -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	
Other	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.) LR6031, LR6041, LR6042, LR6043: 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 Included accessories

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



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 5000h 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 60°C Humidity: 0% RH to 100% RH (Kabukusangyōhō ³⁾ 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	
Operating temperature	-20°C to 60°C, 80% RH or less	
Power supply	LR6 alkaline battery × 2 A.C. ADAPTER Z2003 (option, DC12V)	
Other	LR8512: 2 months (1min. recording interval), 2 months (1sec.) LR8513: 3 months (1min. recording interval), 1 month (1sec.) LR8514: 35 months (1min. recording interval), 3 months (1sec.) LR8515: 35 months (1min. recording interval), 10 days (1sec.) LR8520: 35 months (1min. recording interval), 3 months (1sec.)	
Dimensions (W × H × D)	LR8512, LR8514, LR8520: 85 × 81 × 31 mm (3.35 × 2.40 × 1.22 in.) LR8513, LR8515: 85 × 75 × 39 mm (3.35 × 2.95 × 1.50 in.)	
Weight	LR8512, LR8514, LR8520: 95 g (0.4 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 Included 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 HICKI 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



HUMIDITY LOGGER LR6001		
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 LR6011		
6	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 LR6031		
14	CONNECTION CABLE LR9801	1 m (3.28 ft), 2 wires
VOLTAGE LOGGER LR6041, LR6042, LR6043, PULSE LOGGER LR6061		
15	CONNECTION CABLE LR9802	1 m (3.28 ft), 4 wires
LR60XX Series		
16	WALL-MOUNTED HOLDER LR9901	Cannot be used with LR5051
17	MAGNETIC STRAP Z5004	
DATA COLLECTOR LR6092		
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



CURRENT SENSORS (For LR8513, LR5051)

Measurement application	For load current levels: Voltage output					
	CLAMP ON SENSOR			AC FLEXIBLE CURRENT SENSOR		
Model name	9669	9695-02	CT6500	CT9667-01	CT9667-02	CT9667-03
Model						
Appearance		 Requires the 9219 Not CE marked				
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 55 Hz]	±1.0% rdg ±0.1% f.s.	±0.3% rdg ±0.02% f.s.	±1.5% rdg ±0.03% f.s.	±2% rdg ±0.3% f.s. ^{*)}	±2% rdg ±0.3% f.s. ^{*)}	±2% rdg ±0.3% f.s. ^{*)}
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 85°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	φ48 mm or less	φ100 mm or less	φ180 mm or less	φ254 mm or less

^{*)} At center of flexible loop

^{*)} Maximum measurable current when used with the LR8513, LR5051

Measurement application		For leak current: Voltage output	
Model name		CLAMP ON LEAK SENSOR	
Model		9657-10	9675
Appearance			
Rated measurement current		5 A AC ^{*)}	5 A AC ^{*)}
Output rate		100 mV/A	100 mV/A
Amplitude accuracy [DC, 45 to 55 Hz]		±1.0% rdg ±0.05% f.s.	±1.0% rdg ±0.05% 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



For CLAMP ON SENSOR 9695-02

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

9219

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



- ACDC CURRENT SENSOR CT7631
- ACDC CURRENT SENSOR CT7636
- ACDC CURRENT SENSOR CT7642
- ACDC AUTO-ZERO CURRENT SENSOR CT7731
- ACDC AUTO-ZERO CURRENT SENSOR CT7736
- ACDC AUTO-ZERO CURRENT SENSOR CT7742
- AC FLEXIBLE CURRENT SENSOR CT7044
- AC FLEXIBLE CURRENT SENSOR CT7045
- AC FLEXIBLE CURRENT SENSOR CT7046

- φ80 mm, 100 A
- φ80 mm, 200 A^{*)}
- φ65 mm, 2000 A
- φ30 mm, 100 A
- φ30 mm, 200 A^{*)}
- φ55 mm, 2000 A
- φ100 mm, 5000 A^{*)}
- φ180 mm, 5000 A^{*)}
- 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



Product warranty for 3 years
Accuracy guaranteed for 1 year



PASS ID 0
SH
Straight Cable
20.1m

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

FAIL ID 0
SH
12 45 36 78
11 11 11 11
12 36 45 78
20.1m

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

Included 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
6	CARRYING CASE 9249	



9690-0X 9249

Measurement	Measurable cable	Twisted pair cable, characteristic impedance: 100 Ω, shielded and unshielded, CAT 3, 4, 5, 5e, 6 and 6A *Not available for CAT 7
	Compatible connectors	RJ-45 plugs
	Wire Map test (Detectable errors)	Open, short, reversed, transposed, split pairs and other incorrect wiring
	Measurement parameters	Cable length
Direction		Up to 21 cables can be identified ¹⁾
Other	Functions	Backlight, auto power off
	Operating temperature	0°C to 40°C, 80% rh or less (non-condensating)
	Storage temperature	-10°C to 50°C, 60% rh or less (non-condensating)
	Standards	EN61010 (Safety), EN61326 (EMC)
	Power supply	LR6 alkaline battery × 2
	Continuous operating time	50 hours
	Dimensions (W × H × D)	85 × 130 × 33 mm (3.35 × 5.12 × 1.30 in)
Mass	160 g (5.6 oz)	

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

Signal Generators

DC SIGNAL SOURCE SS7012



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

Included accessories

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

Order code **SS7012**

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) -50.0°C to 1768°C (S) -50.0°C to 1768°C (B) 300.0°C to 1820°C (N) -113.0°C to 1300.0°C Accuracy: ±0.05% of setting ±0.5°C
Measurement	Memory Sourcing (RECALL, SCAN)	One type for each function CV2.5, CV25, CC, TC (0°C and RJ)
	Standard Resistance (Rs)	100 Ω
	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 25 ±5 °C)
	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)
	Other	Power supply
Continuous operating time		HR6 Ni-MH batteries 20101 AC ADAPTER 9445-02/03
Dimensions (W × H × D)		104 × 160 × 58 mm (4.09 × 7.09 × 2.28 in)
Mass	570 g (20.1 oz) without batteries	

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	



9168

L9170-10

9184

SS9000

9782

9380

9445-02

Clamp

Insulation

DMMs

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

LAN

Signal

Lux

Temperature

Lux Testers

LUX METER FT3424, FT3425



Product warranty for 3 years
Accuracy guaranteed for 2 years



FT3424

FT3425



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	DIN5032-7: 1995 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)
Other	Functions	Timer hold function, memory function (up to 99 measured data can be saved), hold, auto power off, buzzer sound, backlight, zero adjustment
	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), JIS C 1609-1: 2006 General Class AA, DIN 5032-7: 1995 Class B
	Power supply	LR6 alkaline battery × 2, or USB bus power (5 V DC)
	Continuous operating time	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 8000 lx.

Included 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

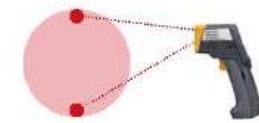
INFRARED THERMOMETER FT3700-20, FT3701-20

CE

 Product warranty for 1 year
 Accuracy guaranteed for 1 year


FT3700

FT3701



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

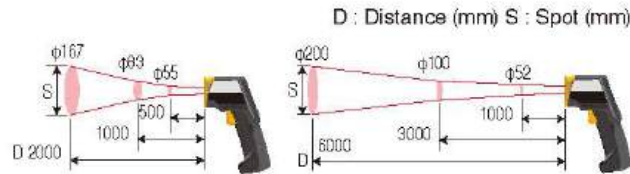


Measure areas that cannot be touched or unreachable locations due to moving parts

Included accessories

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

 Order code: **FT3700-20**

 Order code: **FT3701-20**

 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
Other	Functions	MAX/MIN/DIF (MAX-MIN)/AVG measurement, alarm, backlight, continuous measurement mode, auto power off
	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	IEC 60825-1 CLASS2 (Laser), EN 61326 (EMC)
	Power supply	LR03 alkaline battery × 2
	Continuous operating time	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

Clamp

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DMMs

Detectors

Earth

Power quality

Power loggers

Battery

PV

Logger

LAN

Signal

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Temperature

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 and repair service

Calibration Expiration (Calibration Interval)	Values obtained on the date of calibration are used as the calibration results. When calibration expires (i.e., the calibration interval) depends on the customer's operating conditions and environment. Consequently, the customer is ultimately responsible for determining calibration expiration while taking into account the calibration interval recommended by Hioki.
Recommended calibration interval	Hioki recommends that each product's accuracy guarantee period be treated as the recommended calibration interval.
Guarantee after Calibration Service*1	If a customer reports a loss of accuracy after calibration while the instrument in question is covered by the recommended calibration interval and we are able to verify the issue, we will adjust the instrument free of charge. (If the product is subject to a regular calibration request, we will adjust it as part of the calibration fee.)
Guarantee Conditions	<ul style="list-style-type: none"> • If a loss of accuracy is caused by a part's having reached its service life or deteriorated, fees will apply to the repair. • If the loss of accuracy is deemed likely to have been caused by damage or by the operating or storage environment, fees will apply to the repair. • If a product is deemed likely to experience a loss of accuracy after shipment, for example due to the end of the repair period, we may contact the customer and decline to offer a guarantee. • The guarantee applies to products that are calibrated at Hioki.
Guarantee of 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	<p>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.</p> <p>*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.</p>

*1: Not all products are covered by this guarantee.

Quality of HIOKI's calibration 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.

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.

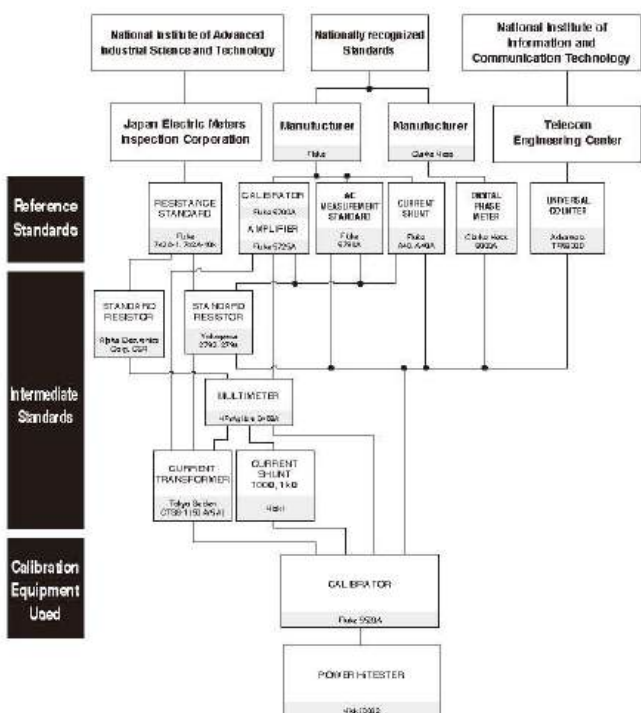
Highly reliable service that's traceable to national standards

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 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 and Repair Service

(1) Service content

Hicki's calibration services were updated effective April 2022. "Calibration Services"

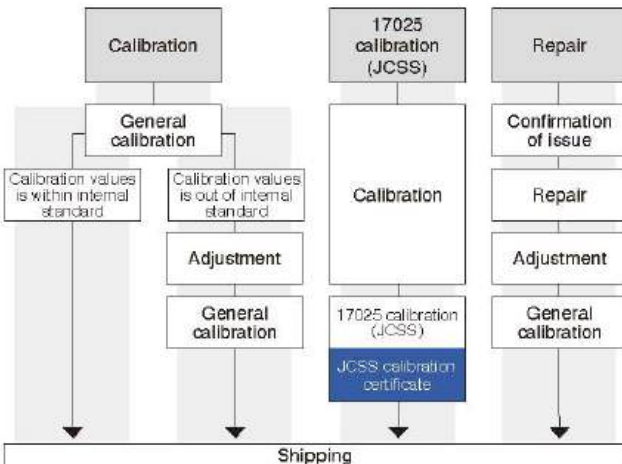
When an instrument is calibrated and its measured values are found not to satisfy internal Hicki standards, the instrument is adjusted. Through the ongoing use of calibration services offered as only an instrument manufacturer can, customers are able to use their instruments with peace of mind while maintaining their precision.

This calibration service will allow us to return products to customers with minimal downtime, since there are no work interruptions.

Notes

*If you do not wish your instrument to be adjusted, please let us know when you request calibration. Your product will be returned without adjustment, even if the calibration report indicates a FAIL judgment (non-compliance).

*This service does not extend to products that cannot be adjusted or to discontinued products.



*JCSS calibration is also available as a standalone service

(2) Documents we can issue and their content

Sample documents are also available on Hicki's website.

<p>Test report</p> <ul style="list-style-type: none"> • Calibration results • Judgment 	<p>General calibration certificate</p> <ul style="list-style-type: none"> • Calibration certificate declaration • Information about equipment used in calibration
<p>JCSS calibration certificate</p> <ul style="list-style-type: none"> • Calibration results • Coverage factor • Calibration certificate declaration • IAC-MRA, IA Japan, and JCSS logos 	<p>Traceability certificate (special-order)</p> <ul style="list-style-type: none"> • Calibration certificate declaration • Information about lighting standards
<p>Traceability chart (overall)</p> <p>An overview tracing HICKI product groups to national standards via individual standard devices</p>	<p>Traceability chart (model-specific)</p> <p>A detailed diagram tracing a particular product model to national standards via individual standard devices</p>

Calibration

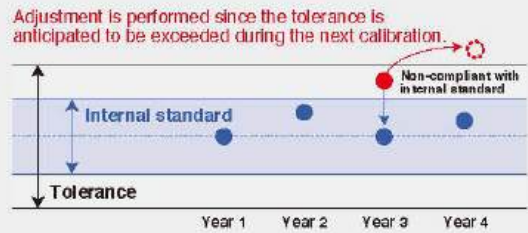
Calibration provides a way to check the condition of a measuring instrument by comparing the ideal value indicated by a standard device with the value indicated by the instrument being calibrated.

Adjustment

Calibration values will be optimized so that the instrument satisfies Hicki's internal standards.

If an instrument is adjusted as part of calibration service

Values are optimized so that they satisfy Hicki's internal standards to reduce the risk that they will subsequently exceed the tolerance.



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 HICKI based on ISO 9001. HICKI 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.
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Differences in information on calibration documents

General calibration <ul style="list-style-type: none"> • Calibration results: Included on inspection report • Inaccuracies: Not included • Traceability chart: Yes 	17025 calibration (JCSS) <ul style="list-style-type: none"> • Calibration results: Included on calibration certificate • Inaccuracies: Included on calibration certificate • Traceability chart: No (JCSS and other logos certify traceability)
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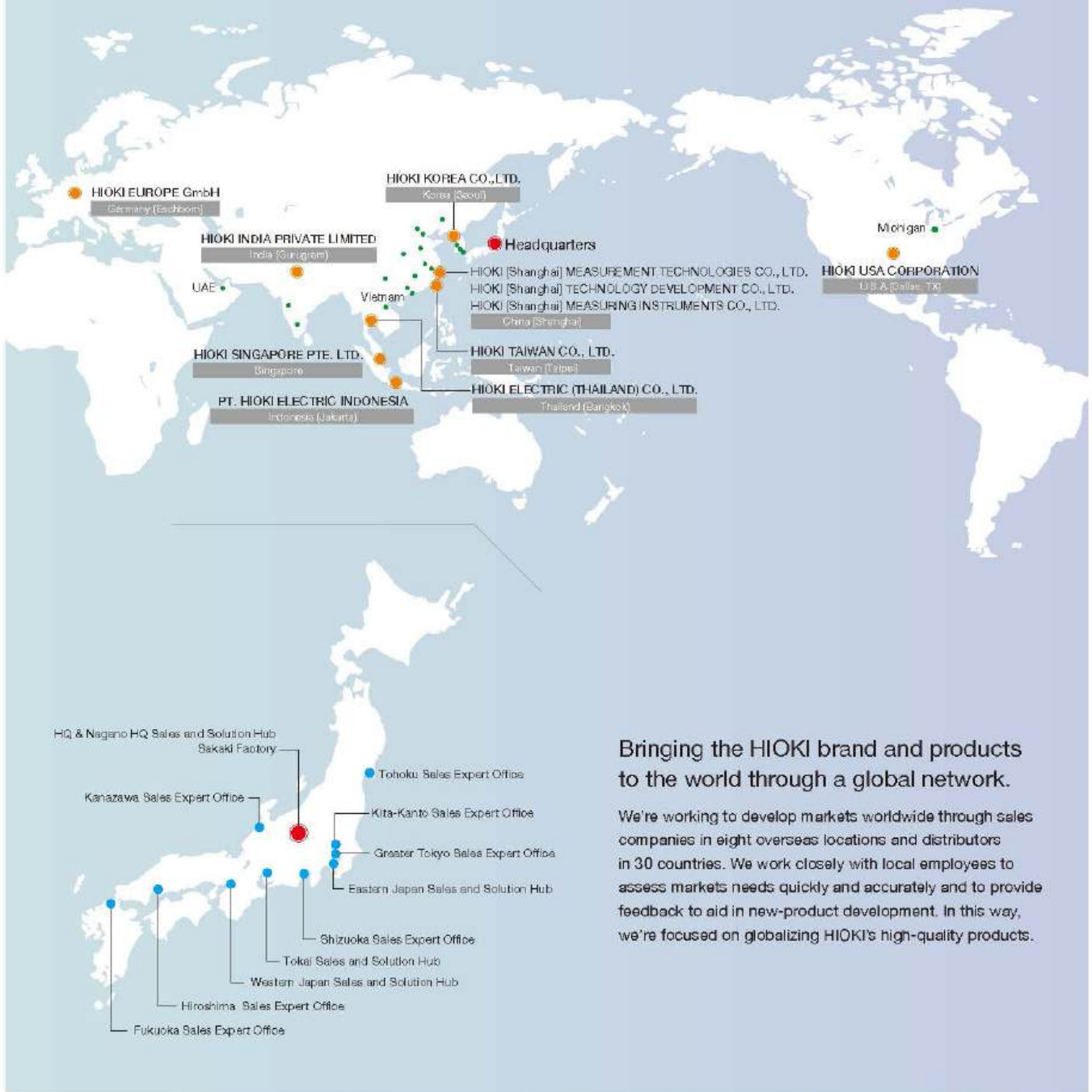
Service capability and warranty duration

You can find out whether HICKI 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 HICKI's website.

Product Search: <input type="text" value="5422"/> <input type="button" value="SEARCH"/>	Availability of repair and calibration service										
Results	Calibration Interval										
<table border="1"> <thead> <tr> <th>Model</th> <th>Model</th> <th>Availability</th> <th>Calibration Interval</th> <th>Warranty Period</th> </tr> </thead> <tbody> <tr> <td>5422</td> <td>MODEL 5422 (2018)</td> <td>1 (CALIB)</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	Model	Model	Availability	Calibration Interval	Warranty Period	5422	MODEL 5422 (2018)	1 (CALIB)	1	1	Product warranty period
Model	Model	Availability	Calibration Interval	Warranty Period							
5422	MODEL 5422 (2018)	1 (CALIB)	1	1							
Date production discontinued: 2022	Date production discontinued										

Sales and service network

● HQ ● Regional Group HQ ● Offices of Group Companies



Bringing the HIOKI brand and products to the world through a global network.

We're working to develop markets worldwide through sales companies in eight overseas locations and distributors in 30 countries. We work closely with local employees to assess markets needs quickly and accurately and to provide feedback to aid in new-product development. In this way, we're focused on globalizing HIOKI's high-quality products.

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