

INSULATION TESTER SERIES

Field measuring instruments



A Full Line-up of Insulation Testers to Suit Any Need

Flip the Cover



ISO 9001
JMI-0216



ISO 14001
JQA-E-90091



www.hioki.com

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

From Basic Testing to High Performance Analysis

INSULATION TESTER SERIES

Selection guide

	3454-11	3454-10	3453	IR4016-20 to IR4018-20	3490	3455		
Basic Specifications								
Display	Digital	Digital	Digital (Bar graph)	Analog Meter			Digital (Bar graph)	
				IR4016-20	IR4017-20	IR4018-20	Analog Meter	
Display backlight function	●	●	●	●	●	●	●	
Testing voltage	50V DC	—	●	—	—	—	—	
	125V DC	—	●	—	—	—	—	
	250V DC	●	●	●	—	—	●	
	500V DC	●	●	●	●	●	●	
	1000V DC	●	—	●	—	—	●	
	2500V DC	—	—	—	—	—	—	
5000V DC	—	—	—	—	—	—		
Effective maximum indicated value	500M Ω (250,500V DC) 4000M Ω (1000V DC)	200M Ω (50, 125V DC) 2000M Ω (250, 500V DC)	20M Ω (125V) 2000M Ω (250, 500V) 4000M Ω (1000V DC)	100M Ω (500V DC)	1000M Ω (500V DC)	2000M Ω (1000V DC)	100M Ω (250,500V DC) 4000M Ω (1000V DC)	250G Ω (250V) 500G Ω (500V) 1.00T Ω (1kV) 2.50T Ω (2.50kV) 5.00T Ω (5.00kV)
Low resistance	●	●	●	—	—	—	●	
AC Voltage	●	●	●	●	●	●	●	
Function								
Comparator	●	●	●	—	—	—	—	
Memory	—	—	●	—	—	—	●	

DIGITAL M Ω HiTESTER

3454-10/-11

Revolutionary insulation resistance tester with continuity function all in one low price

- 50V/125V/250V/500VDC (3454-10)
- 250V/500V/1000VDC (3454-11)
- Complies with EN 61557 (3454-11 only)



CE
CAT III 600 V

Flip the Cover



Compact storage without disconnecting test probes

Insulation measurement through sight and sound!

The reference value is set separately for each measurement range.

Function	Reference value (3454-11)
Insulation	250 V/500 V 0.2/0.4/0.5/1/2/3/5/10/20/30/50/100/200 (M Ω)
	1000 V 1/2/3/5/10/20/30/50/100/200/500/1000/2000 (M Ω)
Continuity	0.5/1/2/3/4/5/6/10/20/30/50/100/200/1k (Ω)

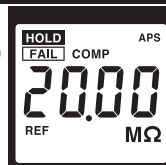
Insulation Ω : Meas. value < Ref. value \Rightarrow FAIL, Ref. value \leq Meas. value \Rightarrow PASS

Continuity: Meas. value \leq Ref. value \Rightarrow PASS, Ref. value < Meas. value \Rightarrow FAIL

Buzzer can be set to sound on either PASS or FAIL

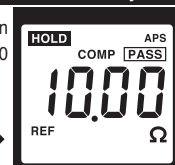
Ex. Insulation resistance

Buzzer on
FAIL at 20
M Ω or less



Ex. Continuity

Buzzer on
PASS at 10
 Ω or less



INSULATION TESTER SERIES

SPECIFICATIONS

3454-10

Insulation resistance	Testing voltage	50V	125V	250V	500V
	Effective maximum indicated value	200 MΩ	200 MΩ	2000 MΩ	2000 MΩ
	First effective measurement range	±3 % rdg. ±4 dgt. at 0.200 to 10.00 MΩ	±3 % rdg. ±4 dgt. at 0.200 to 10.00 MΩ	±3 % rdg. ±4 dgt. at 0.200 to 100.0 MΩ	±3 % rdg. ±4 dgt. at 0.200 to 100.0 MΩ
	Second effective measurement range	±5 % rdg. ±5 dgt. at 10.01 to 200.0 MΩ	±5 % rdg. ±5 dgt. at 10.01 to 200.0 MΩ	±5 % rdg. ±5 dgt. at 100.1 to 2000 MΩ	±5 % rdg. ±5 dgt. at 100.1 to 2000 MΩ
	Other measurement range	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ
	Voltage with no load	Not more than 1.2 5 rated measurement voltage			
	Min. resistance measurement value (Resistance value to maintain rated voltage)	0.1 MΩ	0.125 MΩ	0.25 MΩ	0.5 MΩ
	Short circuit current	1.2 mA max.			
Response time	∞ to center, ∞ to 0 MΩ within 5 s (within accuracy range)				

3454-11

Insulation resistance	Testing voltage	250V	500V	1000V
	Effective maximum indicated value	500 MΩ	500 MΩ	4000 MΩ
	First effective measurement range	±3 % rdg. ±4 dgt. at 0.200 to 50.00 MΩ	±3 % rdg. ±4 dgt. at 0.200 to 50.00 MΩ	±3 % rdg. ±4 dgt. at 0.200 to 200.0 MΩ
	Second effective measurement range	±5 % rdg. ±5 dgt. at 50.1 to 500 MΩ	±5 % rdg. ±5 dgt. at 50.1 to 500 MΩ	±5 % rdg. ±5 dgt. at 200.1 to 4000 MΩ
	Other measurement range	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ	±5 % rdg. ±5 dgt. 0 to 0.199 MΩ
	Voltage with no load	Not more than 1.2 5 rated measurement voltage		
	Min. resistance measurement value (Resistance value to maintain rated voltage)	0.25 MΩ	0.5 MΩ	1 MΩ
	Short circuit current	1.2 mA max.		
Response time	∞ to center, ∞ to 0 MΩ within 5 s (within accuracy range)			

COMMON SPECIFICATIONS

Low resistance (continuity)	Measurement range: 40.00 / 400.0 / 4.000 k / 40.00 k / 400.0 k / 4.000 MΩ Short circuit current: 200 mA Accuracy: ±3 %rdg. ±6dgt. (±5 %rdg. ±6dgt. at 400 kΩ range or higher) Open terminal voltage: 4 to 6 V Response time: 5 s max.
AC voltage	Display indication range: 0 to 750 V Accuracy: ±3 %rdg. ±6 dgt.(up to 600V), Frequency range: 50 / 60 Hz, Input impedance: 100kΩ
Accessories	TEST LEAD L9787 (1), Strap band (1)

● **Other functions:** Insulation and low resistance mode - comparator, measurement value hold; Insulation resistance mode - auto discharge; Insulation and AC voltage mode - live wire warning (when voltage of 70V ±10V exists across measurement terminals); Low resistance mode - zero adjust; All measurement modes - battery indicators, auto power save

● **Display update rate:** 2 times / second

● **Power source:** R6P manganese battery×4 or LR6 alkaline battery×4

● **Dimensions and Mass:** Approx. 175 W×148 H×56 D mm (6.89"W × 5.83"H × 2.20"D) Approx. 530g (18.7 oz)(with display cover closed)

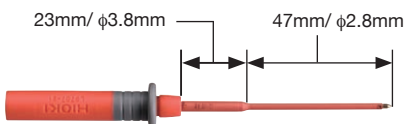
OPTIONS

BREAKER PIN (for Models L9787) L9787-91

MAGNETIC ADAPTER (for Models L9788-01, L9787) 9804-02

BREAKER PIN

L9787-91 (for Model L9787)



Extra long tips extend deep into the breaker openings for more reliable testing

MAGNETIC ADAPTER (L9787 / L9788 Option)

9804-02

φ11mm

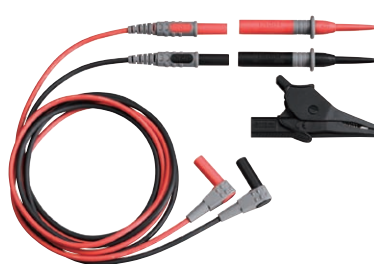


Magnetic tip for use with the standard Models L9788, L9788-01, L9787 (generally compatible with M6 pan screws)

Accessories

TEST LEAD L9787 (1.2m)

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



Detachable!



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

When measuring in a CAT III environment, be sure to attach the sleeve to the test leads.

INSULATION TESTER SERIES

DIGITAL MΩ HiTESTER 3453, 3453-01

For efficient insulation measurement!

- One body with four ranges: 125 V/20 MΩ, 250 V/2000 MΩ, 500 V/2000 MΩ, and 1000 V/4000 MΩ
- Accurate digital display
- Insulation measurement through sight and sound
- Store data on the spot (Memorizes up to 20 data points)
- Recognizes variations of resistance
- Measure AC voltage and low resistance (continuity)



3453-01

SPECIFICATIONS

Testing voltage	125 V DC	250 V DC	500 V DC	1000 V DC
Effective maximum indicated value	20 MΩ	2000 MΩ	2000 MΩ	4000 MΩ
First effective measurement range	±2 % rdg. ±3 dgt. at 0.100 to 10.00 MΩ	±2 % rdg. ±3 dgt. at 0.200 to 20.00 MΩ	±2 % rdg. ±3 dgt. at 0.200 to 50.00 MΩ	±2 % rdg. ±3 dgt. at 0.200 to 999 MΩ
Second effective measurement range	±5 % rdg. at 10.01 to 20.00 MΩ	±5 % rdg. at 20.01 to 2000 MΩ	±5 % rdg. at 50.1 to 2000 MΩ	±5 % rdg. at 1000 to 4000 MΩ
Other measurement range	±2 % rdg. ±6 dgt. 0 to 0.099 MΩ	±2 % rdg. ±6 dgt. 0 to 0.199 MΩ		
Voltage with no load	Not more than 1.2 times rated testing voltage			
Min. resistance measurement value (Resistance value to maintain rated voltage)	0.125 MΩ	0.250 MΩ	0.500 MΩ	2.000 MΩ
Shorting measurement current	1.2 mA max.			0.6 mA max.
Response time	Infinitude to center, infinitude to zero-MΩ within 5 second (within accuracy range)			
Low resistance (continuity)	±2 % rdg. ±8 % dgt. at 0 to 400.0Ω (aural warning below: 30Ω). Open terminal voltage: 4 V max.			
AC voltage range and accuracy	±3 % rdg. ±8 dgt. at 0 to 600 V, 50 to 60 Hz, Input resistance: 170 kΩ			

Discharge function : effective

Display : Digital/4000 dgt. LCD, Bar graph/42 seg. with backlight

Functions : Insulation resistance mode: comparator, memory (20 data), measurement value hold, auto discharge, bar graph display (measurement switch ON: insulation resistance; measure switch OFF: voltage across measurement terminals), auto display of measurement value 1 minute after measurement start, All measurement mode: live wire warning, battery indicators, auto power save

Sampling rate : 2 times/second

Power supply : R6P(AA) × 4 or LR6(AA) × 4

Dimensions : Approx. 155W × 98H × 80D mm, 500g (6.10"W × 3.86"H × 3.15"D, 17.64 oz.)

Accessories : TEST LEAD L9787(1), display cover and suspension band(1)

OPTIONS

BREAKER PIN (for Models L9787) L9787-91

MAGNETIC ADAPTER (for Models L9787) 9804-02

● Refer to P.3 →

Double Action for Safety

■ 3454 Series

When switching to a higher voltage range, (Model 3454-10: 500V, Model 3454-11: 1000V) for measuring high voltage systems, users are required to press the 0Ω ADJ button while rotating the function selector switch.

If the 0Ω ADJ button is not pressed, the testing voltage will not be output, and an alarm [OUTPUT PROTECT] will be indicated for the user's safety.

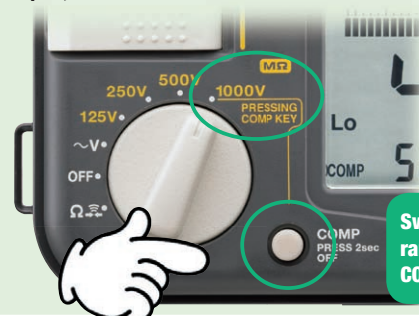
Switch to the 1000V (3454-11) / 500V (3454-10) range while pressing 0-ohm ADJ button.



■ 3453 Series

When switching to the 1000V range, users are required to press the COMP button while rotating the function selector switch.

If this button is not pressed, the testing voltage will not be output, and an alarm will sound.



Switch to the 1000V range while pressing COMP button.

INSULATION TESTER SERIES

ANALOG MΩ HiTESTER IR4016-20 to IR4018-20

Reliable and Efficient Insulation Testing in the field

- Single range insulation resistance meters
- Luminous scale lets you see better in the dark
- Drop proof (1m)

Common SPECIFICATIONS

Discharge function : effective

Power source : Rated power voltage: 1.5 VDC× 4,
AA alkaline (LR6) battery × 4

Dimensions, mass : Approx. 159W × 177H × 53D mm, 610 g
(6.26"W × 6.97"H × 2.09"D, 21.5 oz.)
including battery, not including test lead

Accessories : TEST LEAD L9787(1), Shoulder strap(1)

Safety : EN61010, EMC EN61326, EN61557-1/-2



OPTIONS

- Refer to P.3 →
BREAKER PIN (for Models L9787) L9787-91
MAGNETIC ADAPTER (for Models L9788-01, L9787) 9804-02
- Refer to P.6 →
TEST LEAD WITH REMOTE CONTROL SWITCH (1m) L9788
COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH (1m) L9788-01
TIP PIN (replacement pin for Model L9788) L9788-90

SPECIFICATIONS

Model	IR4016-20	IR4017-20	IR4018-20
Testing voltage	500 V DC	500 V DC	1000 V DC
Effective maximum indicated value	100 MΩ	1000 MΩ	2000 MΩ
First effective measurement range and tolerances	±5 % of scale indication at 0.1 to 50 MΩ	±5 % of scale indication at 1 to 500 MΩ	±5 % of scale indication at 2 to 1000 MΩ
Second effective measurement range and tolerances	±10 % of scale indication at 0.01 to 0.1 MΩ, 50 to 100 MΩ	±10 % of scale indication at 0.5 to 1 MΩ, 500 to 1000 MΩ	±10 % of scale indication at 1 to 2 MΩ, 1000 to 2000 MΩ
Lower limit measurement resistance value to be maintained rated output voltage	0.5 MΩ	0.5 MΩ	1 MΩ
Open circuit voltage	1 to 1.2 times of rated output voltage		
Rated current	1mA (Tolerance: 1 to 1.2 times of the rating value)		
AC voltage range	0 to 600 V (50/60 Hz), ±5% of maximum scale value accuracy		
Input resistance	500 kΩ or more (50/60Hz)		

Advanced Features (IR4016-20 to IR4018-20 and 3490)

Flip the Cover



Quick and easy storage without disconnecting the leads

Luminous Scale



See better in the dark

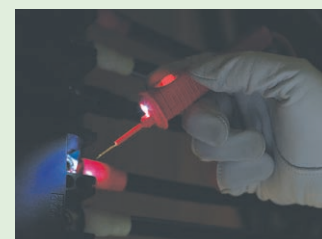
Bright LED

- Work safely knowing that when the RED is lit, live wires, high voltage or electrical discharge is present
- The super bright light at the tip of the optional 9788 Test Leads adds to efficiency

Check for Live Circuits



The LIVE CIRCUIT LED will light up in red whenever the voltage exceeds 20V AC between the LINE and EARTH terminals, and when at least 20V DC is still remaining during the auto discharge.



INSULATION TESTER SERIES

ANALOG MΩ HiTESTER

3490

**Insulation Testing in 3 Easy Steps
Flip the Cover, Select Range & Test**

- 3-range testing voltage, Insulation meter
- Luminous scale
- Check for live circuits
- Check for the battery status
- Complies with EN 61557



CAT III 600 V



SPECIFICATIONS

Testing voltage	250 V DC	500 V DC	1000 V DC
Rated resistance	100 MΩ	100 MΩ	4000 MΩ
Accuracy	±5 % of indicated value	±5 % of indicated value	±5 % of indicated value
1st effective measuring range	0.05 to 50 MΩ	0.05 to 50 MΩ	2 to 1000 MΩ
Rated measurement current	1 mA		
Low resistance	3 Ω range, ±0.09 Ω accuracy, 200 mA DC measuring current, 4.1 to 6.9 V open-circuit voltage		30 Ω range, ±0.9 Ω accuracy, 20 mA DC measuring current, 4.1 to 6.9 V open-circuit voltage
AC voltage range	0 to 600 V (50/60 Hz), ±5 % of maximum scale value accuracy		
Other functions	Luminous scale, Battery status check, Live circuit check		
Power consumption	AA alkaline (LR6) battery × 4, Continuous use: 20 hours (at 500 V range, no load)		
Dimensions, mass	159 mm (6.26 in) W × 177 mm (6.97 in) H × 53 mm (2.09 in) D, 610g (21.5 oz.)		
Accessories	TEST LEAD L9787 × 1, Operation manual × 1, Shoulder strap × 1, AA alkaline battery (LR6) × 4		

OPTIONS

TEST LEAD WITH REMOTE CONTROL SWITCH (1m) L9788 BREAKER PIN (for Models L9787) L9787-91
 COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH (1m) L9788-01 MAGNETIC ADAPTER (for Models L9788-01, L9787) 9804-02
 TIP PIN (replacement pin for Model L9788) L9788-90

● Refer to P.3 →

COMPLETE TEST LEAD WITH REMOTE CONTROL SWITCH L9788-01 (1m)

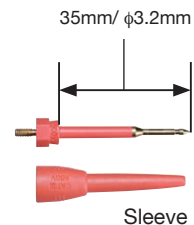


TEST LEAD WITH REMOTE CONTROL SWITCH L9788 (1m)



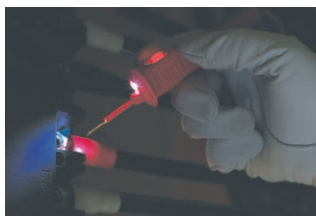
TIP PIN L9788-90

(for Model L9787)



When measuring in a CAT III environment, be sure to attach the sleeve to the test leads.

TEST LEAD WITH REMOTE CONTROL SWITCH



REMOTE CONTROL SWITCH

- Start and stop the test at the touch of a button
- Test for insulation resistance single-handedly

LED LIGHT

- Illuminate the test location with a bright white LED

HIGH VOLTAGE INSULATION TESTER

HIGH VOLTAGE INSULATION HITESTER 3455

Maximum 5kV Test Voltage - Up to 5TΩ of Insulated Resistance Testing
Safely evaluate the insulation characteristics of high voltage transformers, motors and cables

- Wide voltage range (250V to 5kV) for maximum 5TΩ of insulation resistance measurements
- Automatically calculate and display the PI (Polarization Index) and DAR (Dielectric Absorption Ratio) for all types of insulation evaluations
- Temperature compensation to accurately respond to variations in insulation material
- Internal memory stores 100 blocks of manually recorded data and 10 sets of log data
- USB interface, compact rugged case, and safe design



SPECIFICATIONS

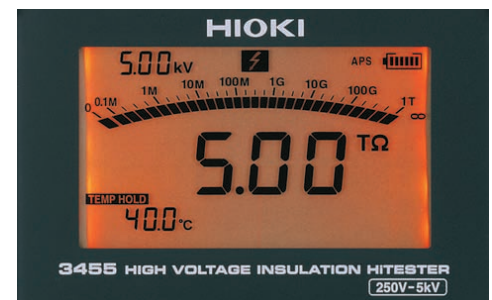
250 V range	0.00 MΩ to 250 GΩ, Accuracy :±5 % rdg. ±5 dgt. (0 to 2.50 GΩ) ±20 % rdg. ±5 dgt. (2.50 to 250 GΩ)
500 V range	0.00 MΩ to 500 GΩ , Accuracy :±5 % rdg. ±5 dgt. (0 to 5.00 GΩ) ±20 % rdg. ±5 dgt. (5.00 to 500 GΩ)
1 kV range	0.00 MΩ to 1.00 TΩ , Accuracy :±5 % rdg. ±5 dgt. (0 to 10.0 GΩ) ±20 % rdg. ±5 dgt. (10.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 1.00 TΩ)
2.5 kV range	0.00 MΩ to 2.50 TΩ, Accuracy :±5 % rdg. ±5 dgt. (0 to 25.0 GΩ) ±20 % rdg. ±5 dgt. (25.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 2.50 TΩ)
5 kV range	0.00 MΩ to 5.00 TΩ , Accuracy :±5 % rdg. ±5 dgt. (0 to 50.0 GΩ) ±20 % rdg. ±5 dgt. (50.0 to 500 GΩ) ±30 % rdg. ±50 dgt. (500 G to 5.00 TΩ)
Functions	Insulation resistance mode: Data memory(100 data), measurement value hold, average, bar graph display, timer etc. Leak current: (1.00nA to 1.20mA), Temperature: (-10°C to 70°C) Voltage: (DC±50V to 1kV AC 50V to 750V) All measurement mode: live wire warning, battery indicators, auto power save
Interface	USB ver 2.0 (full speed)
Display	LCD with backlight
Power supply	LR6(AA) alkaline batteries × 6, BATTERY PACK 9459, AC ADAPTER 9753
Dimensions, mass	Approx.260 W × 251 H × 120 D mm (10.2"W × 9.9"H × 4.7"D) Approx.2.8 kg (98.8 oz.)
Accessories	TEST LEAD (red, 3m) 9750-01(1) TEST LEAD (black, 3m) 9750-02(1) TEST LEAD (blue 3m) 9750-03(1) ALLIGATOR CLIP (red) 9751-01(1) ALLIGATOR CLIP (black) 9751-02(1) ALLIGATOR CLIP (blue) 9751-03(1) LR6(AA) Alkaline batteries (6), USB CABLE(1)

TEST LEAD (red, black, blue 3m) 9750-01 to 03



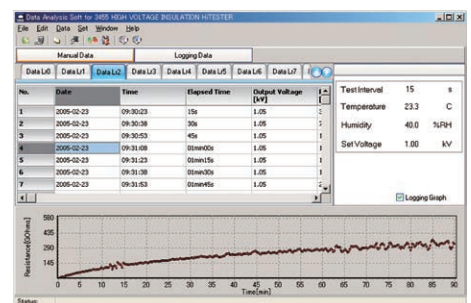
ALLIGATOR CLIP (red, black, blue) 9751-01 to 03

Large, Easy to Read Display



The display is backlit and features a logarithmic bar graph similar to an analog type indicator in addition to the digital readout.

USB Interface



Easily transfer data to a PC via the USB interface using our free PC application software. The software also features a convenient report creation function.

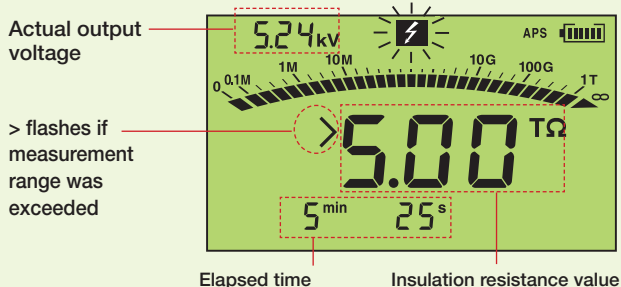
HIGH VOLTAGE INSULATION TESTER

Primary Measurement Functions

Insulation resistance measurement

Measurement voltage is selectable from 250 V, 500 V, 1.00 kV, 2.50 kV, and 5.00 kV. More finely graded settings are also possible. When measurement is completed, the unit shows the insulation resistance value, test voltage (setting and actual output), leakage current, DAR, PI, and elapsed time.

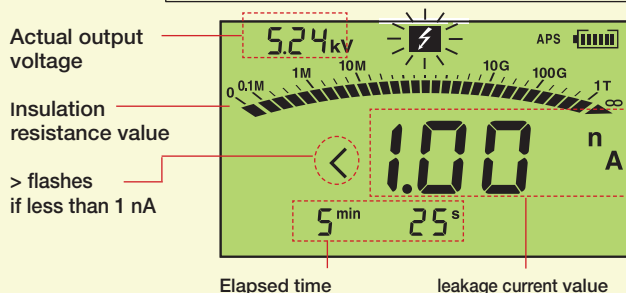
Insulation resistance measurement display



Leakage current display

When measuring insulation resistance, the instrument can be switched to display leakage current. This is possible before, during, and after measurement.

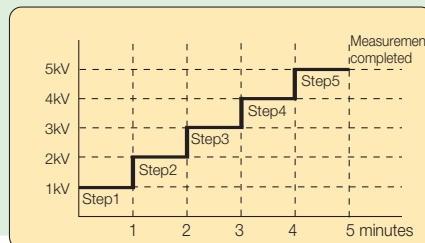
Display of leakage current during measurement



Step voltage test

In this type of test, the voltage is gradually raised and the insulation resistance and leakage current change is measured. Two different step settings are available: 500 V → 1 kV → 1.5 kV → 2 kV → 2.5 kV and 1 kV → 2 kV → 3 kV → 4 kV → 5 kV. The test time for each step can also be selected.

STEP 5.0 kV step voltage test



OPTIONS

TEMPERATURE SENSOR (1m)	9631-01
TEMPERATURE SENSOR (6cm)	9631-05
TEST LEAD (red, 10m)	9750-11
TEST LEAD (black, 10m)	9750-12
TEST LEAD (blue, 10m)	9750-13
BATTERY PACK	9459
AC ADAPTER	9753

TEMPERATURE SENSOR 9631-01
Molded plastic, thermistor type

TEMPERATURE SENSOR 9631-05
Molded plastic, thermistor type



BATTERY PACK 9459

AC ADAPTER 9753



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

HIOKI
HIOKI E. E. CORPORATION

HEAD OFFICE :

81 Koizumi, Ueda, Nagano, 386-1192, Japan
TEL +81-268-28-0562 / FAX +81-268-28-0568
http://www.hioki.co.jp / E-mail: os-com@hioki.co.jp

HIOKI USA CORPORATION :

6 Corporate Drive, Cranbury, NJ 08512 USA
TEL +1-609-409-9109 / FAX +1-609-409-9108
http://www.hiokiusa.com / E-mail: hioki@hiokiusa.com

HIOKI (Shanghai) Sales & Trading Co., Ltd. :

1608-1610, Shanghai Times Square Office, 93 Huai Hai Zhong Road
Shanghai, P.R.China POSTCODE: 200021
TEL +86-21-63910090/63910092 FAX +86-21-63910360
http://www.hioki.cn / E-mail: info@hioki.com.cn

Beijing Office :

TEL +86-10-84418761/84418762

Guangzhou Office :

TEL +86-20-38392673/2676

HIOKI SINGAPORE PTE. LTD. :

33 Ubi Avenue 3, #03-02 Vertex, Singapore 408868

TEL +65-6634-7677 FAX +65-6634-7477

E-mail: info@hioki.com.sg

HIOKI INDIA PRIVATE LIMITED :

Khandela House, 24 Gulmohar Colony Indore 452 018 (M.P.), India

TEL +91-731-4223901, 4223902 FAX +91-731-4223903

http://www.hioki.in / E-mail: info@hioki.in

DISTRIBUTED BY