

# HIOKI

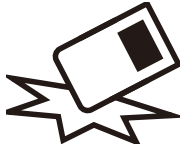
## INSULATION TESTER Series



# INSULATION TESTERS

# Digital

## DROP PROOF



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



## 5 ranges

Rated output voltage (DC)  
Effective maximum indicated value

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

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



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



Learn More

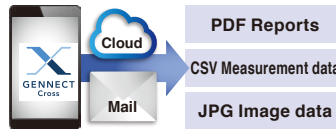
### Transport to the Excel® file



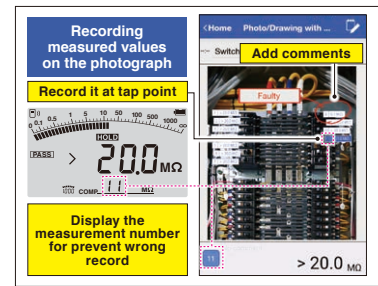
Location	Circuit no.	Ref. value	Measurement place	Value(MΩ)
Mok Circuit Breaker A	L-A	6.1MΩ	S-E	101 M Ohm
			S-F	101 M Ohm
			T-E	101 M Ohm
			S-T	85.4 M Ohm
			S-F	99.9 M Ohm
			T-F	99.9 M Ohm

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.

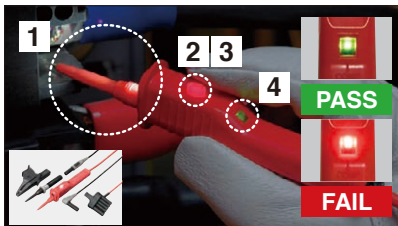
### Transport to GENNECT Cross



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 IR4056-21, Not CE Marked

## Identify PASS / FAIL using light and sound



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

## Convenient for inspections

### Low resistance measurement<sup>\*1</sup>

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

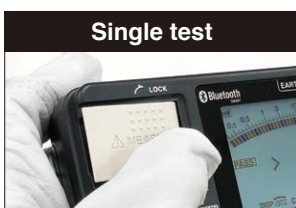
Automatically detect AC or DC for testing. Use as a tester thanks to DC voltage measurement functionality.

### PV Ω dedicated function<sup>\*2</sup>

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

## Continuous test



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

## Prevent Accidental High Voltage Generation

### Flashing light



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

### Release lock










# Lineup - Digital

Product warranty for 3 years  
Accuracy guaranteed for 1 year

\*1 : IR4056-21 excluded \*2 : Terminal excluded \*3 : While in storage

Measurement type	Standard	High-speed	EV	PV	High-voltage
Model	IR4056-20 IR4056-21	IR4057-50	IR4059	IR4053-10	IR3455
Appearance					
Number of ranges	5	5	5	5	5
Testing voltage (DC) / Effective maximum indicated value	50 V /100 MΩ 125 V /250 MΩ 250 V /500 MΩ 500 V /2000 MΩ 1000 V /4000 MΩ				250 V /500 GΩ 500 V /1.00 TΩ 1000 V /2.00 TΩ 2500 V /5.00 TΩ 5000 V /10.0 TΩ
1st effective measuring range	0.200 to 10.00 MΩ (50 V) 0.200 to 25.0 MΩ (125 V) 0.200 to 50.0 MΩ (250 V) 0.200 to 500 MΩ (500 V) 0.200 to 1000 MΩ (1000 V)				0.00 to 500 GΩ (250 V) 0.00 to 1.00 TΩ (500 V) 0.00 to 2.00 TΩ (1000 V) 0.00 to 5.00 TΩ (2500 V) 0.00 to 10.0 TΩ (5000 V)
PV Ω measurement	N / A	N / A	N / A	✓	N / A
Leakage current	N / A	N / A	N / A	N / A	1.00 nA to 1.20 mA
DC voltage	600 V	600 V	600 V	1000 V	1.00 kV
AC voltage	600 V	600 V	600 V	600 V	750 V
Low resistance measurement	✓	✓	✓	N / A	N / A
Displaying 1-min. values	N / A	✓	✓	N / A	N / A
Comparator decision response time	0.8 second	0.3 second	0.3 second	0.8 second (PV : 4 s)	N / A
AUTO power save	✓	✓	✓	✓	✓
AUTO range	✓	✓	✓	✓	✓
Data hold	MANUAL	MANUAL	MANUAL	MANUAL	MANUAL
Bluetooth® communication	N / A	✓ (With Z3210)	✓ (With Z3210)	N / A	N / A
Bar graph	N / A	✓	✓	N / A	✓
Backlight	✓	✓	✓	✓	✓
Safety standard category	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT III 600 V	CAT IV 600 V CAT III 1000 V
CE	✓*1	✓	✓	✓	✓
Dustproof and waterproof	IP40*2	IP40*2	IP40*2	IP40*2	IP40*3
Drop proof	✓	✓	✓	✓	N / A
Power supply	LR03 × 4 alkaline	LR03 × 4 alkaline	LR03 × 4 alkaline	LR03 × 4 alkaline	LR03 × 6 alkaline
Dimensions (W × H × D)	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	160 × 98 × 46 mm 6.30 × 3.86 × 1.81 in	159 × 177 × 53 mm 6.26 × 6.97 × 2.09 in	260 × 250.6 × 119.5 mm 10.24 × 9.87 × 4.70 in
Weight	600 g (21.2 oz)	640 g (22.6 oz)	536 g (18.9 oz)	600 g (21.2 oz)	2.8 kg (98.8 oz)

## INSULATION TESTER IR4056-20, IR4056-21

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



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

**IR4056-20**



With  
 • TEST LEAD SET WITH REMOTE SWITCH L9788-11  
 • 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

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



**IR4057-50**



**IR4059**



**L4930**



**L4938**



**WIRELESS ADAPTER Z3210 (Option)**

Attach to enable Bluetooth® wireless technology

**With Z3210**



Please see [www.hioki.com](http://www.hioki.com) for list of supported regions.



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

Included accessories  
 • CONNECTION CABLE L4930  
 • ALLIGATOR CLIP SET L4935  
 • TEST PIN SET L4938  
 • TEST LEAD SET WITH REMOTE SWITCH (RED) L9788-10 (IR4059 only)  
 • PROTECTOR Z5042 (IR4059 only)  
 • Neck strap  
 • LR6 alkaline battery x4  
 • Instruction manual



## INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

Product warranty for 3 years  
 Accuracy guaranteed for 1 year



With  
 • 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						
						Testing voltage (DC)	50 V	125 V	250 V	500 V	1000 V	-
Measurement parameters	Insulation resistance	✓	✓	✓	✓	Effective maximum indicated value (MΩ)	100	250	500	2000	4000	-
						1st effective measuring range (MΩ)	0.200 to 10.00	0.200 to 25.0	0.200 to 50.0	0.200 to 500	0.200 to 1000	±2% rdg ±2 dgt
						2nd effective measuring range (MΩ)	10.1 to 100.0	25.1 to 250	50.1 to 500	501 to 2000	1010 to 4000	±5% rdg
						Testing voltage (DC)	500 V		1000 V		-	
PV Ω measurement	N/A	N/A	N/A	✓	✓	Effective maximum indicated value (MΩ)	2000	4000	2000 to 10000	1010 to 4000	-	
						1st effective measuring range (MΩ)	0.200 to 500	0.200 to 1000	±4% rdg			
						2nd effective measuring range (MΩ)	501 to 2000	±8% rdg				
DC Voltage	N/A	✓	N/A	✓	N/A	4.200 V/42.00 V/420.0 V/1000 V	±1.3% rdg ±4 dgt <sup>-1</sup>					
						4.200 V/42.00 V/420.0 V/600 V	±1.3% rdg ±4 dgt <sup>-1</sup>					
AC Voltage	✓	✓	✓	✓	✓	420.0 V <sup>-2</sup> /600 V	±2.3% rdg ±8 dgt <sup>-1</sup>					
Low resistance measurement	✓	✓	✓	✓	✓	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-condensating)	Order code	<b>IR4056-20</b>
	IR4053: 0°C to 50°C, 90% RH or less (non-condensating)	Order code	<b>IR4056-21</b>
Storage temperature	IR4056-20, IR4056-21, IR4057-50, IR4059: -25°C to 65°C, 90% RH or less (non-condensating)	Order code	<b>IR4057-50</b>
	IR4053: -10 °C to 50°C, 90% RH or less (non-condensating)	Order code	<b>IR4057-90</b>
Dustproof and waterproof	IP40 (Terminal excluded)	Order code	<b>IR4059</b>
Standards	EN61326 (EMC), EN61557-1/-2/-4 <sup>-3</sup> /10	Order code	<b>IR4053-10</b>
Power supply	LR6 alkaline battery x4	Order code	<b>Z3210</b>
Continuous operating time	20 hours	Order code	Model IR4057-90 includes Z3210 as a set
Dimensions ( W x H x D )	IR4056-20, IR4056-21, IR4057-50, IR4053-10: 159 x 177 x 53 mm (6.26 x 6.97 x 2.09 inch)		
	IR4059: 160 x 98 x 46 mm (6.30 x 3.86 x 1.81 inch)		
Weight	IR4056-20, IR4056-21, IR4053: 600 g (21.2 oz)		
	IR4059: 536 (18.9 oz)		
	IR4057-50: 640 g (22.6 oz)		

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



# HIGH VOLTAGE INSULATION TESTER IR3455

Product warranty for 3 years  
Accuracy guaranteed for 1 year



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



Measurement parameters	Insulation resistance	Testing voltage (DC)	250 V	0.00 MΩ to 500 GΩ
		: measuring range	500 V	0.00 MΩ to 1.00 TΩ
			1 kV	0.00 MΩ to 2.00 TΩ
			2.5 kV	0.00 MΩ to 5.00 TΩ
			5 kV	0.00 MΩ to 10.0 TΩ
	Measurement current	1 mA (Test voltage 250 V to 1.00 kV) 0.5 mA (Test voltage 1.10 kV to 2.50 kV) 0.25 mA (Test voltage 2.60 kV to 5.00 kV)		
Short-circuit current	2 mA or less			
Accuracy	±5% rdg ±5 dgt.*1			
Leakage current	10 nA/100 nA/1000 nA/10 μA/100 μA/1 mA Guaranteed accuracy range: 1.00 nA to 1.20 mA Basic accuracy: ±2.5% rdg ± 5 dgt.			
DC Voltage	±50 V to ±1.00 kV Basic accuracy: ±5% rdg ±5 dgt			
AC Voltage	50 V to 750 V Basic accuracy: ±5% rdg ±5 dgt			
Temperature	-10.0°C to 70.0°C Basic accuracy: ±1.0°C			
Other	Operating temperature	-10°C to 40°C, 80% RH or less (non-condensating)		
	Storage temperature	-10°C to 50°C, 90% RH or less (non-condensating)		
	Dustproof and waterproof	IP40*2		
	Standards	EN61010 (safety) , EN61326 (EMC)		
	Power supply	LR6 (AA) alkaline battery x6: 5 hours BATTERY PACK 9459*3: 9 hours AC ADAPTER 9418-15*3		
Continuous operating time				
Dimensions ( W x H x D )	260 x 250.6 x 119.5 mm (10.24 x 9.87 x 4.70 in)			
Weight	2.8 kg (98.8 oz)			

Order code **IR3455**

### Accessories



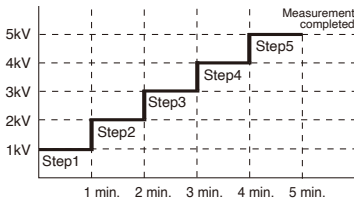
- TEST LEAD 9750 -01 (Red), -02 (Black), -03 (Blue) (3m) (x1 ea.)
- ALLIGATOR CLIP 9751 -01 (Red), -02 (Black), -03 (Blue) (x1 ea.)
- Instruction manual
- LR6 alkaline battery x6
- USB cable
- CD-R (Data Analysis Software)

**9750, 9751**

\*1 Up to [Test voltage (setting value)/Resistance measurable at 100 nA]  
\*2 While in storage \*3 Options

## Function introduction HIGH VOLTAGE INSULATION TESTER IR3455

### STEP 5.0 kV step voltage test

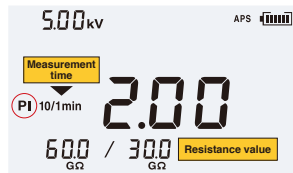


Voltage application time for each step:  
30 s/1/2/5 m.

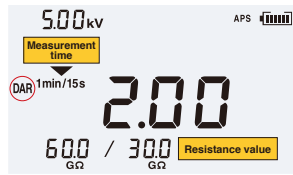
In this type of test, the voltage is gradually raised and the insulation resistance and leakage current change is measured.

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.

### PI: Polarization Index DAR: Dielectric Absorption Ratio



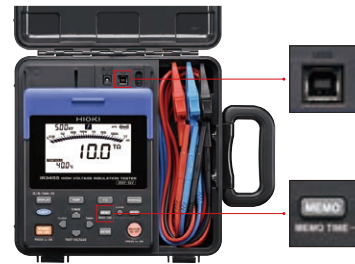
#### PI value display



#### DAR value display

The PI and DAR values which are used as an evaluation standard for insulation are automatically calculated.

### Data Memory Function



The IR3455 provides a manual storage function for 100 data and a logging function for 10 data (360 times). Date and time are also stored, reducing the need for handwritten notes.

Install the included software on your computer and connect via USB to transfer the data stored in the internal memory of the IR3455 to your computer.

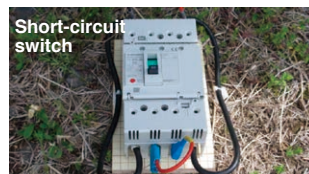
## Function introduction INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

### Measurement not affected by generating PV



The IR4053, which was designed for PV, can accurately measure insulation resistance without being affected by the generating PV.

### Accurate and safe measurement without creating shorts



Normally, to accurately measure the insulation resistance of a generating PV, one needs to short the measured circuit. That's not necessary with the IR4053.



**Built-in PV dedicated function**

# Analog Meters

**DROP PROOF**



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



Single range  
IR4016-20  
IR4017-20  
IR4018-20

3 range  
3490

**See better in the dark**



Bright LED

**Significantly improve testing speed using test lead with remote switch**



L9788-11 (Option)

- Start and stop the test at the touch of a button
- Illuminate the test location with a bright white LED
- Work safely knowing that when the RED is lit, live wires, high voltage or electrical discharge is present

**Check for Live Circuits**



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

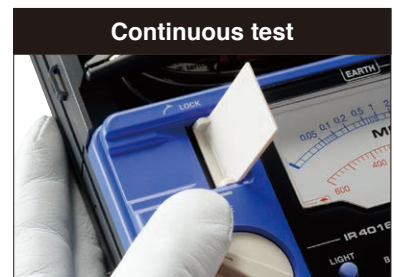
**One-touch Start and Stop**

**Single test**



Measurement voltage is applied while MEASURE key is pressed

**Continuous test**



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

**Flip the Cover**

Quick and easy storage without disconnecting the leads



**Check the Battery Status**





Product warranty for 3 years  
Accuracy guaranteed for 1 year

# Lineup - Analog Meters

		Measurement parameters		
		1 Range	3 Ranges	
 IR4016 -20	Testing voltage (DC)	500 V		
	Effective maximum indicated value	100 MΩ		
	1st effective measuring range	0.1 MΩ to 50 MΩ		
	2nd effective measuring range	0.01 MΩ to 0.1 MΩ or less 50 MΩ or more to 100 MΩ		
	 IR4017 -20	Testing voltage (DC)	500 V	
		Effective maximum indicated value	1000 MΩ	
		1st effective measuring range	1 MΩ to 500 MΩ	
	2nd effective measuring range	0.5 MΩ to 1 MΩ or less 500 MΩ or more to 1000 MΩ		
	 IR4018 -20	Testing voltage (DC)	1000 V	
		Effective maximum indicated value	2000 MΩ	
		1st effective measuring range	2 MΩ to 1000 MΩ	
	2nd effective measuring range	1 MΩ to 2 MΩ or less 1000 MΩ or more to 2000 MΩ		
 3490	Testing voltage (DC)	250 V	500 V	1000 V
	Effective maximum indicated value	100 MΩ		4000 MΩ
	1st effective measuring range	0.05 MΩ to 50 MΩ		2 MΩ to 1000 MΩ
	2nd effective measuring range	0.01 MΩ to 0.05 MΩ or less 50 MΩ to 100 MΩ		0.5 MΩ to 2 MΩ 1000 MΩ to 4000 MΩ
Accuracy (Insulation)		±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 (Excludes measuring terminals)
Drop proof	YES
Backlight	YES
Safety standard category	CAT III 600 V
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply	LR6 alkaline battery x4
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)

## Accessories



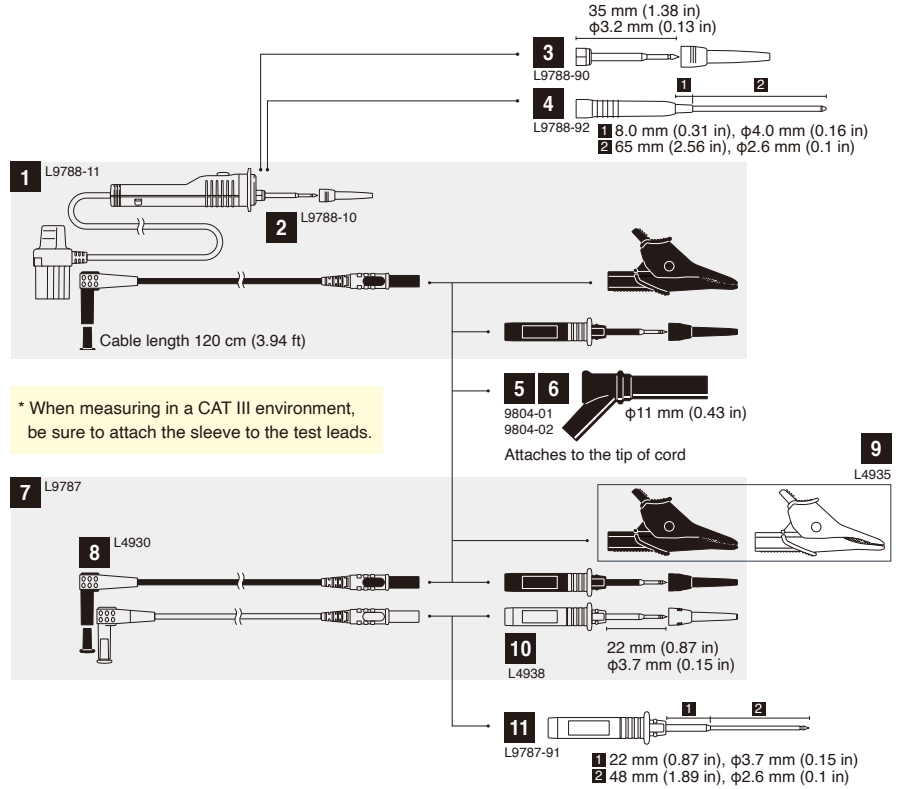
L9787

- TEST LEAD L9787 (1.2 m)
- Neck strap
- LR6 alkaline battery x4
- Instruction manual

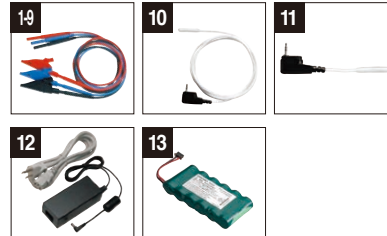
Order code	IR4016-20
Order code	IR4017-20
Order code	IR4018-20
Order code	3490

# Options

<b>IR4016-20, IR4017-20, IR4018-20, IR4056-20, IR4056-21, IR4057-50, IR4057-90, IR4053-10, IR4059, 3490</b>
1 TEST LEAD SET WITH REMOTE SWITCH L9788-11
2 TEST LEAD WITH REMOTE SWITCH (RED) L9788-10
3 TIP PIN L9788-90
4 BREAKER PIN L9788-92
5 MAGNETIC ADAPTER 9804-01
6 MAGNETIC ADAPTER 9804-02
7 TEST LEAD L9787
8 CONNECTION CABLE SET L4930
9 ALLIGATOR CLIP SET L4935
10 TEST PIN SET L4938
11 BREAKER PIN L9787-91
12 WIRELESS ADAPTER Z3210 (For IR4057-50, IR4059)
13 PROTECTOR Z5042 (For IR4059)
14 CARRYING CASE C0213 (EV MAINTENANCE MANUAL INCLUDED)



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



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