

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



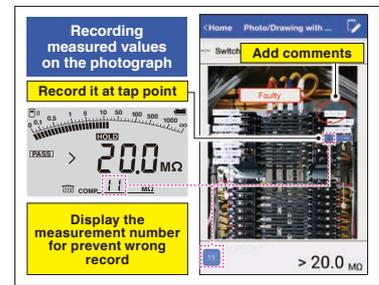
| Location | Circuit no. | Ref. value | Measurement place | Value(MΩ) |
|-----------------------|-------------|------------|-------------------|-----------|
| Mok Circuit Breaker A | L-A | 6.1MΩ | | |
| | S-E | 101 | M Ohm | |
| | S-E | 101 | M Ohm | |
| | T-E | 101 | M Ohm | |
| | S-T | 85.4 | M Ohm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

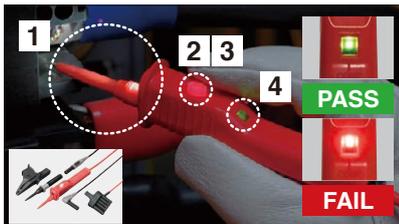
Transport to GENNECT Cross



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 measurement¹

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

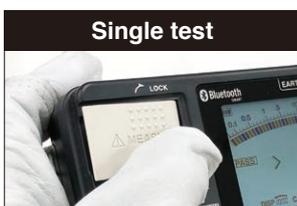
Automatically detect AC or DC for testing. Use as a tester thanks to DC voltage measurement functionality.

PV Ω dedicated function²

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

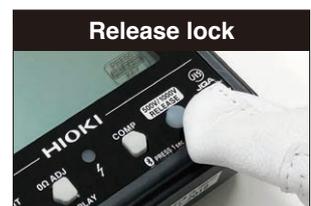
Prevent Accidental High Voltage Generation

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

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

*1 Excludes measuring terminals

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
Product warranty for 3 years
Accuracy guaranteed for 1 year



New



With
• CONNECTION CABLE L4930
• ALLIGATOR CLIP SET L4935
• TEST PIN SET L4938
• Neck strap
• LR6 alkaline battery x4
• Instruction manual

IR4057-50



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

With Z3210

Bluetooth

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

GENNECT Cross



5 ranges

Comparator decision response time : 0.3 s

Digital bar graph

CAT III 600 V

INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year



With
• TEST LEAD L9787
• Neck strap
• LR6 alkaline battery 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 | IR4053 | | | | | | Basic accuracy | | | |
|----------------------------|-------------------------------------|-------------|--|--|-------------------------------|---------------|--------------|----------------|----------------|--------------------------------|---|
| Measurement parameters | Insulation resistance | ✓ | Testing voltage (DC) | | | 50 V | 125 V | 250 V | 500 V | 1000 V | - |
| | | | Effective maximum indicated value (MΩ) | 100 | 250 | 500 | 2000 | 4000 | - | | |
| | | | 1st effective measuring range (MΩ) | 0.200 to 10.00 | 0.200 to 25.0 | 0.200 to 50.0 | 0.200 to 500 | 0.200 to 1000 | ±2% rdg ±2 dgt | | |
| | | | 2nd effective measuring range (MΩ) | 10.1 to 100.0 | 25.1 to 250 | 50.1 to 500 | 501 to 2000 | 1010 to 4000 | ±5% rdg | | |
| | PV Ω measurement | N / A | ✓ | Testing voltage (DC) | | | 500 V | 1000 V | - | | |
| | | | | Effective maximum indicated value (MΩ) | 2000 | 4000 | - | | | | |
| | | | | 1st effective measuring range (MΩ) | 0.200 to 500 | 1010 to 4000 | ±4% rdg | | | | |
| | 2nd effective measuring range (MΩ) | 501 to 2000 | ±8% rdg | | | | | | | | |
| DC Voltage | N / A | ✓ | 4.200 V/42.00 V/420.0 V/1000 V | | | | | | | ±1.3% rdg ±4 dgt ¹¹ | |
| | | | ✓ | N / A | 4.200 V/42.00 V/420.0 V/600 V | | | | | | |
| AC Voltage | ✓ | ✓ | 420.0 V ¹² /600 V | | | | | | | ±2.3% rdg ±8 dgt ¹¹ | |
| Low resistance measurement | ✓ | N / A | 10.00 Ω/100.0 Ω/1000 Ω | | | | | | | ±3% rdg ±2 dgt | |

| | | |
|-------|---|---|
| Other | Operating temperature | IR4056, 57-50: -25°C to 65°C, 90% RH or less (non-condensating) IR4053: 0°C to 50°C, 90% RH or less (non-condensating) |
| | Storage temperature | IR4056, 57-50: -25°C to 65°C, 90% RH or less (non-condensating) IR4053: -10°C to 50°C, 90% RH or less (non-condensating) |
| | Dustproof and waterproof | IP40 (Excludes measuring terminals) |
| | Standards | EN61326 (EMC) EN61557-1/-2/-4 ¹³ /-10 |
| | Power supply Continuous operating time | LR6 alkaline battery x4 20 hours |
| | Dimensions (W x H x D) | 159 x 177 x 53 mm (6.26 x 6.97 x 2.09 inch) |
| | Weight | IR4056, 53: 600 g (21.2 oz) IR4057-50: 640 g (22.6 oz) |

¹¹ Ranges in excess of 600 V/1000 V are outside the accuracy guarantee

¹² Minimum indicated value: 30.0 V

¹³ Subclause 4.3 of Part 4 (interchanging of test leads) is not applicable when L9788-10 is used

Order code **IR4056-20**

Order code **IR4056-21**

Order code **IR4057-50**

Order code **IR4057-90**

Order code **IR4053-10**

Order code **Z3210**

Model IR4057-90
includes Z3210 as a set



HIGH VOLTAGE INSULATION TESTER IR3455

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) | | |
| | Short-circuit current | 0.25 mA (Test voltage 2.60 kV to 5.00 kV) | | |
| | | 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



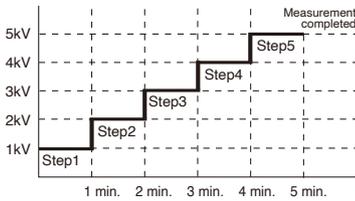
- TEST LEAD 9750 -01 (Red), -02 (Black), -03 (Blue) (3m) (x1 ea.)
- ALLIGATOR CLIP 9751 -01 (Red), -02 (Black), -03 (Blue) (x1 ea.)
- Instruction manual
- LR6 alkaline battery x6
- USB cable
- CD-R (Data Analysis Software)

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.

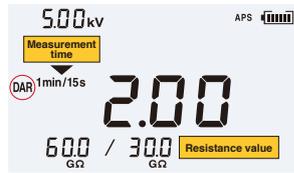
In this type of test, the voltage is gradually raised and the insulation resistance and leakage current change is measured.

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



Built-in PV dedicated function

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.

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.

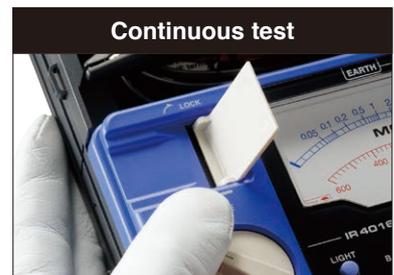
One-touch Start and Stop

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

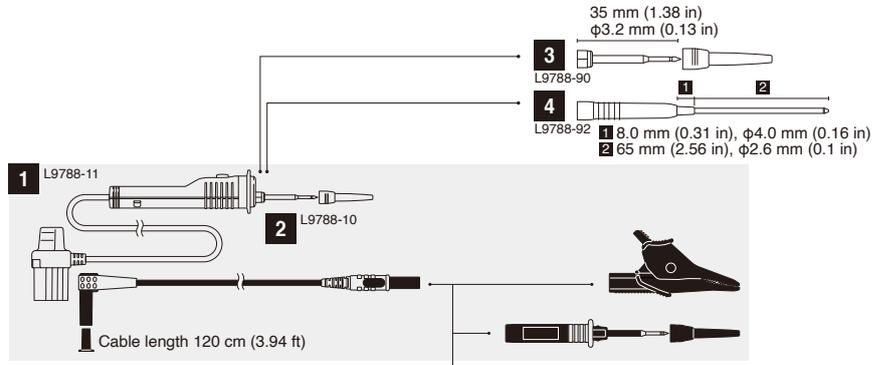
- TEST LEAD L9787 (1.2 m)
- Neck strap
- LR6 alkaline battery x4
- Instruction manual

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

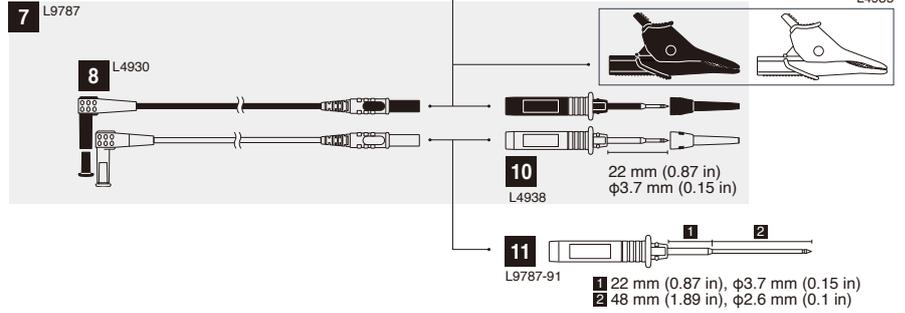
Options

IR4016-20, IR4017-20, IR4018-20, IR4056-20, IR4056-21, IR4057-50, IR4057-90, IR4053-10, 3490

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



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



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



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