HIOKI

ASM®

ANALOG-MΩ-ISOLATIONSTESTER 3490

Feldmessgeräte

3-Messbereiche für die Prüfung von
ISOLATION UND DURCHGANG



3Ω-Bereich, 200mA
EN 61557
konform mit IEC 61557

helle LED



MESSLEITUNG MIT FERN-STEUERUNGSSCHALTER 9788

Isolationsprüfung in 3 Schritten

die Abdeckung öffnen, den Messbereich auswählen, die Prüfung starten





ISO 9001 JMI-0216

ISO14001 JQA-E-90091

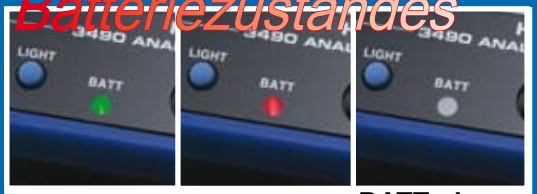


Warnung bei Spannungsführung



Diese LED leuchtet rot, wenn die Spannung zwischen den LINE- und EARTH-Anschlüssen 20V AC überschreitet, oder wenn nach der autom. Entladung noch mind. 20V DC Restladung geblieben ist.

Prüfung des Batteriezustandes



Die BATT-LED informiert Sie über den Aufladezustand der Batterien: spätestens bei der roten LED-Anzeige sollten die Batterien ausgetauscht werden.

Allgemeine Daten	
Stromversorgung	Versorgungsspannung: 1,5 VDC × 4, LR6 alkalische Batterien × 4
Betriebsdauer, kontinuierlich	ca. 20 h (beim 500V-Bereich, ohne Prüflast)
Autom. Abschaltung (Power Save)	ca. 15 Minuten
Betriebstemperatur und -feuchte	0 bis 40°C, bis 90% rel. Feuchte (nicht kondensierend) 40 bis 50°C, bis zu 50°C relativ mit linearem Rücklauf bis zu 50% rel. Feuchte
Lagertemperatur und -feuchte	0 bis 50°C, bis 90% rel. Feuchte (nicht kondensierend)
Max. Spannung gegen Erde	600 VAC, Messkategorie III, Prüfstoßspannung: 6000V
Spannungsfestigkeit	5312 VAC, 50/60Hz, zwischen Elektronik und Gehäuse, Empfindlichkeit 1 mA
Normenkonformität	Sicherheit EN61010, EMC EN61326, EN61557-1/-2/-4
Getestet im Fallversuch	auf Betonfläche: 1m/1 x
Abmessungen	ca. 159B × 177H × 53T mm (ohne herausragende Teile)
Gewicht	ca. 610g (mit Batterien, ohne Messleitungen)
Zubehör	9787 Messleitung, Bedienungsanleitung, Tragegurt, LR6 alkalische Batterien × 4

● 3490 Technische Daten

Garantiert für 1 Jahr 23˚C±5˚C und 90% rel. Feuchte

Isolations widerstands-messung	Ausgangsspannung (Prüfspannung)	250 V DC	500 V DC	1000 V DC
	Maximaler Anzeigewert	100 MΩ		4000 MΩ
	Anzeige Skalenmitte	1 MΩ		50 MΩ
	erster Messbereich	0,05 bis 50 MΩ		2 bis 1000 MΩ
		±5% vom Anzeigewert		
	zweiter Messbereich	0,01 bis 0,05 MΩ 50 bis 100 MΩ		0,5 bis 2 MΩ 1000 bis 4000 MΩ
		±10% vom Anzeigewert		
	Spannung des offenen Stromkreises	1 bis 1,2 mal höher als Prüfspannung		
	Niedrigster Widerstand bei Nennspannung	0,25 MΩ	0,5 MΩ	1 MΩ
	Nennstrom	1mA (Toleranz: 1 bis 1,2 mal höher als Nennstrom)		
	Überlastschutz	1200V AC (10 s)		
Widerstands-messung	Bereiche	3Ω		30Ω
	Anzeige Skalenmitte	1,5Ω		15Ω
	Genauigkeit	±0,09Ω		±0,9Ω
	Spannung des offenen Stromkreises	4,1 bis 6,9 V		
	Messstrom	200mA DC oder höher		20mA DC oder höher
	Überlastschutz	720V AC (10 s, Schutz mit Sicherung)		
AC-Spannungs-Messung	Messbereich	0 bis 600 V (50/60 Hz)		
	Genauigkeit	±5% vom max. Skalenwert		
	Eingangswiderstand	100 kΩ oder höher (50/60Hz)		
	Überlastschutz	1200V AC (10 s)		

Zubehör

MESSLEITUNG 9787 (1,2m)



Optionen

MESSLEITUNG MIT FERN-STEUERUNGSSCHALTER 9788 (1m)



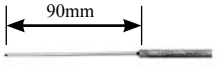
MESSLEITUNG 9294 (1,2m)



ANSCHLUSSLEITUNG 9257 (1,3m)



VERLÄNGERUNGSSPITZE 9288 (für 9294)



Das Gerät darf ausschließlich von ausgebildeten Elektrofachkräften und/oder elektrotechnisch unterwiesenen Personen benutzt werden. Es darf nicht von elektrotechnischen Laien verwendet werden.

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HIOKI

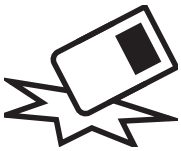
INSULATION TESTER Series



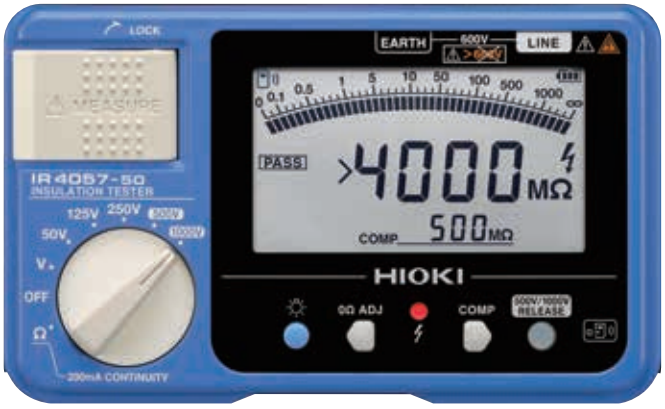
INSULATION TESTERS

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



*It will be supported by the 2021 upgrade.

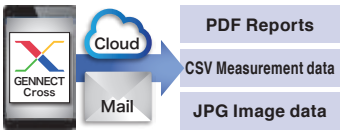


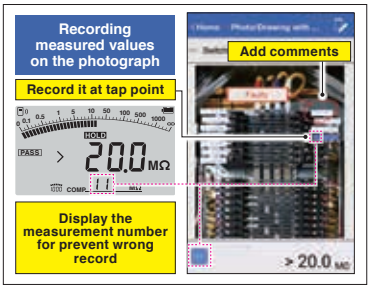
Open an Excel® file and select a cell. The measured value being held on the instrument's display will be transferred to the computer and entered into the selected cell.

Transport to GENNECT Cross



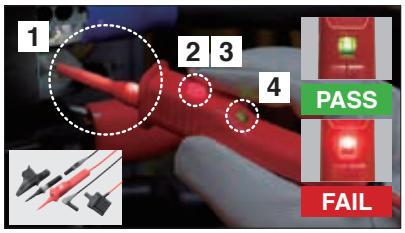
Learn More





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

Significantly improve testing speed using test lead with remote switch



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

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

Identify PASS / FAIL using light and sound



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

Convenient for inspections

Low resistance measurement*1

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

AC/DC voltage measurement

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

PV Ω dedicated function*2

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

*1 Excludes IR4053 *2 IR4053 Only

One-touch Start and Stop

Single test



Measurement voltage is applied while MEASURE key is pressed

Continuous test



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

Prevent Accidental High Voltage Generation

Flashing light



Release lock



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

Lineup

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

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

IR4056-20





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

IR4056-21 **Not CE marked**

CAT III | DISPLAY HOLD | AUTO OFF

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

INSULATION TESTER IR4057-50

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year

New





L4930



L4938



L4935

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

IR4057-50





WIRELESS ADAPTER
Z3210 (Option)

Attach to enable
Bluetooth®
wireless technology

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

CAT III | DISPLAY HOLD | AUTO OFF

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

INSULATION TESTER (For Photovoltaic Generation Systems) IR4053-10

CE
Product warranty for 3 years
Accuracy guaranteed for 1 year





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

IR4053-10

CAT III | DISPLAY HOLD | AUTO OFF

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

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

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

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

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

HIGH VOLTAGE INSULATION TESTER IR3455

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year



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

Order code **IR3455**

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

Accessories



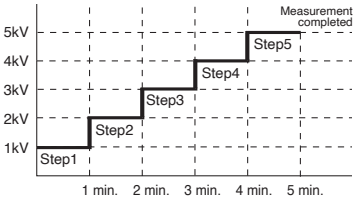
9750, 9751

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

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

Function introduction HIGH VOLTAGE INSULATION TESTER IR3455

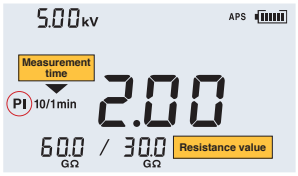
STEP 5.0 kV step voltage test



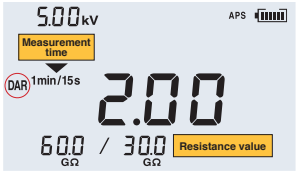
Voltage application time for each step: 30 s/1/2/5 m.

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



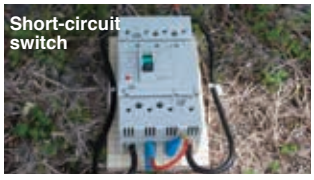
Built-in PV dedicated function

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.

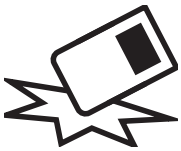
Accurate and safe measurement without creating shorts



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

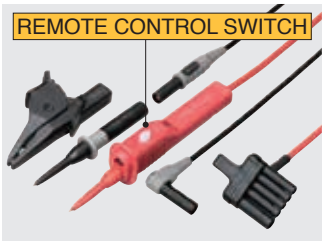
See better in the dark



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

BATT : Hi



BATT : Lo



BATT : Dead



Lineup

CE

Product warranty for 3 years
Accuracy guaranteed for 1 year

Measurement parameters

1 Range	IR4016 -20		Testing voltage (DC)	500 V		
			Effective maximum indicated value	100 MΩ		
			1st effective measuring range	0.1 MΩ to 50 MΩ		
			2nd effective measuring range	0.01 MΩ to 0.1 MΩ or less 50 MΩ or more to 100 MΩ		
	IR4017 -20		Testing voltage (DC)	500 V		
			Effective maximum indicated value	1000 MΩ		
			1st effective measuring range	1 MΩ to 500 MΩ		
			2st effective measuring range	0.5 MΩ to 1 MΩ or less 500 MΩ or more to 1000 MΩ		
	IR4018 -20		Testing voltage (DC)	1000 V		
			Effective maximum indicated value	2000 MΩ		
			1st effective measuring range	2 MΩ to 1000 MΩ		
			2nd effective measuring range	1 MΩ to 2 MΩ or less 1000 MΩ or more to 2000 MΩ		
3 Ranges	3490		Testing voltage (DC)	250 V	500 V	1000 V
			Effective maximum indicated value	100 MΩ		4000 MΩ
			1st effective measuring range	0.05 MΩ to 50 MΩ		2 MΩ to 1000 MΩ
			2nd effective measuring range	0.01 MΩ to 0.05 MΩ or less 50 MΩ to 100 MΩ		0.5 MΩ to 2 MΩ 1000 MΩ to 4000 MΩ
Accuracy (Insulation)				±5% of indicated value (1st effective measuring range) ±10% of indicated value (2nd effective measuring range)		
AC Voltage				0 to 600 V		

Other

Operating temperature	0°C to 40°C, 90% rh or less (non-condensating)
Storage temperature	-10°C to 50°C, 90% rh or less (non-condensating)
Dustproof and waterproof	IP40
Drop proof	YES
Backlight	YES
Safety standard category	CAT III 600 V
Standards	EN61010 (Safety), EN61326 (EMC)
Power supply Continuous operating time	LR6 alkaline battery ×4 20 hours
Dimensions(W × H × D)	IR4016, 17, 18: 162 × 182 × 57 mm (6.38 × 7.17 × 2.24 in) 3490: 162 × 167 × 52 mm (6.38 × 6.57 × 2.05 in)
Mass	IR4016, 17, 18: 820 g (28.9 oz), 3490: 840 g (29.6 oz)

Accessories



L9787

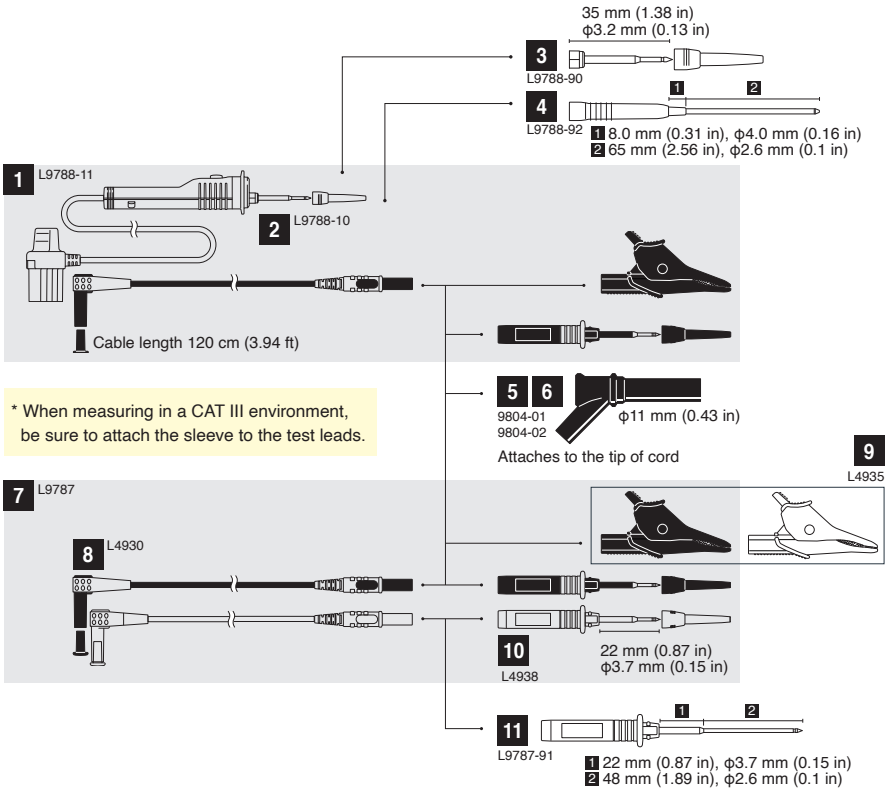
- TEST LEAD L9787 (1.2 m)
- Neck strap
- LR6 alkaline battery ×4
- Instruction manual

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

Options

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





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



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