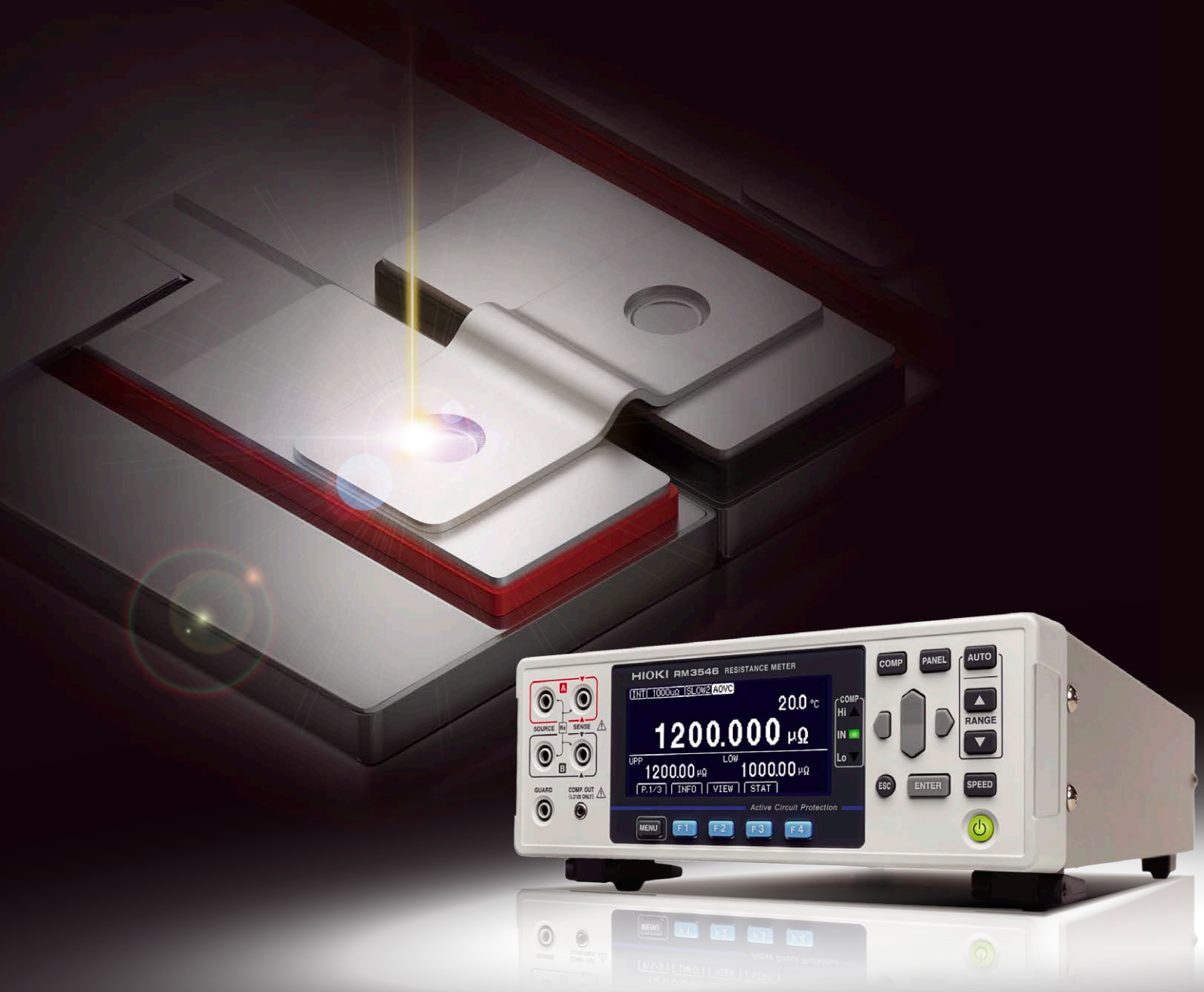
HIOKI

RESISTANCE METER RM3546

NEW

Redefining Weld Quality Inspection



C US

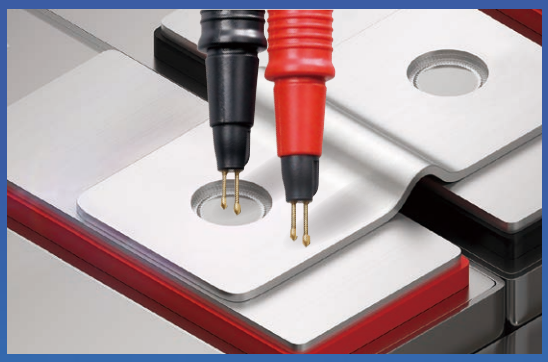
3 year Warranty

Next-generation battery inspection creates a safe future

EVs (electric vehicles) and ESSs (energy storage systems) that support social infrastructure: The explosive growth of the battery market is creating unprecedentedly high-level demands such as design battery lifespans of over 20 years, ultra-fast charging, and high safety. To achieve the development and production of safer batteries, Hioki has developed the RM3546, which can perform high-precision inspections on welded areas where large currents flow.

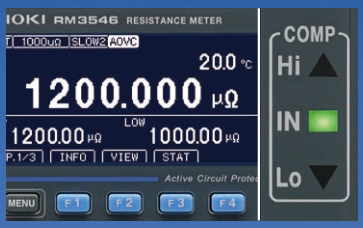
Frequently Asked Questions	Answers
1. Is the inspection accurate? To improve battery safety, I want to detect (potential) weld defects that could lead to accidents or fires. What kind of inspections can the RM3546 perform?	**It accurately determines pass/fail through electrical inspection** Weld defects are detected with a new method: running electricity through and measuring resistance. Tests can be done right after welding by effectively eliminating the influences of temperature.
2. Is installation difficult? We are already using image inspection, optical process monitors, tensile strength tests, and destructive tests. We want to add the RM3546 to our equipment to raise the inspection level—can it be easily installed?	**Installation is easy with simple wiring and dedicated probes** Installation is easy because it solves issues such as wiring noise and jig-probe customization, which become barriers during implementation.
3. Isn't it expensive? I'm concerned about costs related to maintenance of inspection equipment and downtime from malfunctions. I'm also worried about costs when increasing the number of measurement channels in the future. How is the RM3546's cost performance?	**Both long-term operation and channel expansion are low-cost** Its very long service life due to a protection function prevents failures (caused by overvoltage input), reducing downtime and maintenance costs. Furthermore, using the optional scanner enables easy expansion of up to 132 channels per unit.

Ideal for battery busbar weld inspection



Judges connection quality by measuring resistance

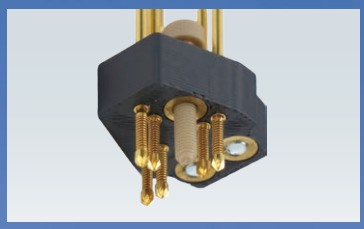
Product Features



Measures resistance to judge pass/fail

Equipped with temperature noise correction function

Long wiring is OK



Customizable probes

Durable and reliable

Expandable to multiple channels

Resistance Meter

RM3546

Concept video >

https://youtu.be/Xtdy8aE7VEE

Accurately Judges Pass/Fail Through Electrical Inspection

< Website

https://www.hioki.com/global/products/resistance-meters/resistance/id_1383368

Product overview

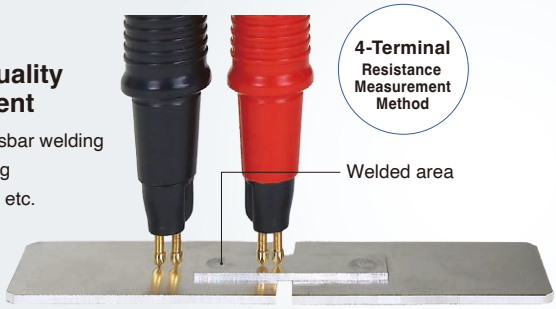
Current passes through the measurement target, such as the welded area, to measure electrical resistance. Good and defective products are sorted based on differences in resistance values. Weld resistance is as low as 10 μΩ to 100 μΩ. The RM3546 resistance meter is equipped with a 1000 μΩ range and can measure low resistance with high precision at 1 nΩ resolution. If the weld is insufficient, the resistance value becomes larger than in good products. By detecting slight differences in resistance between good and defective products, it determines pass/fail. All weld quality can be managed numerically on the production line, ensuring traceability.

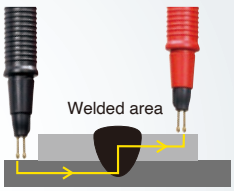
Basic performance

Minimum resolution	1 nΩ
Measurement range	1000 μΩ to 1000 MΩ
Basic accuracy	±0.006% of reading ± 0.002% of full scale
Compensation functions	A-OVC, A-TC
Malfunction prevention function	ACP (DC 60 V)
Path resistance tolerance	9 Ω (when measurement current is 500 mA and PR mode is on)

Welding Quality Measurement

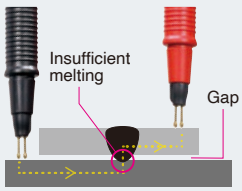
Battery pack busbar welding
- Current welding
- Laser welding, etc.





Good weld

Low welding resistance allows electricity to pass through easily



Defective weld

High welding resistance makes it harder for electricity to pass through

Useful Functions

No need for zero adjustment

Accuracy is guaranteed without the zero adjustment or instrument warmup. Simply power up the instrument and get to work.

Contact check function

This function detects erroneous measurement due to incomplete contact, reducing the risk of faulty judgments or mistaken inspection results.

Command monitor function

This function displays queries and responses from communications commands. It can significantly reduce the number of debugging man-hours when building systems.

Temperature measurement function

When using the Temperature Sensor Z2001, the instrument can measure temperature with a high degree of precision (±0.5°C). It can also accept analog input from a radiation thermometer (0 V to 2 V).

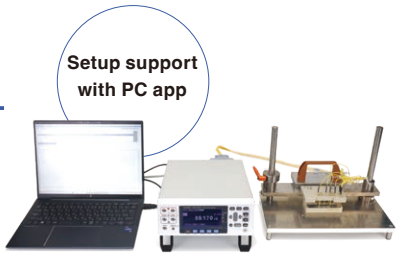
Temperature conversion (ΔT) function

This function calculates and displays temperature rise from the measured resistance value and ambient temperature.

Automatic input to PC

This function allows the instrument to automatically enter measurement results in Excel® or a text editor, freeing the operator from troublesome data entry work.

Measures Low Resistance with High Precision Using Temperature Noise Compensation



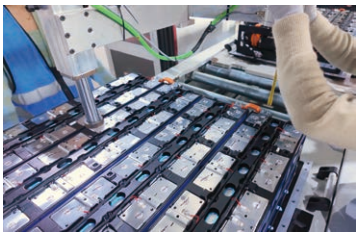
< Demo video

https://youtu.be/vugkQkbYn6Q

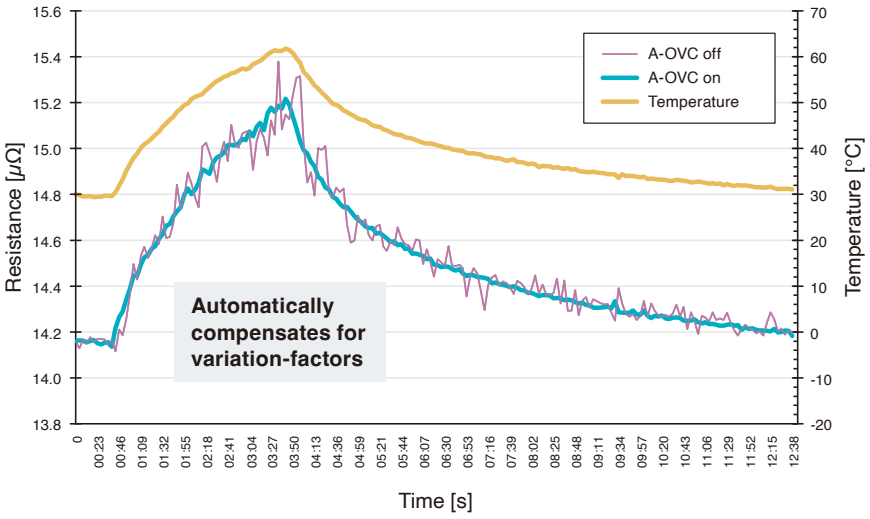
A-OVC function for stable measurement

Advanced Offset Voltage Compensation

The RM3546 is equipped with an A-OVC function that automatically compensates for thermoelectric power, offset voltage inside the instrument, etc., to make measurement errors as close to zero as possible.
It suppresses variations in measured values and enables measurements that maximize the performance of its 1 nΩ resolution.



Stable inspection on the line

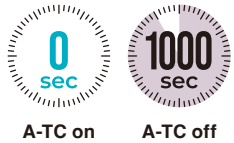


A-TC function compensates for temperature effects

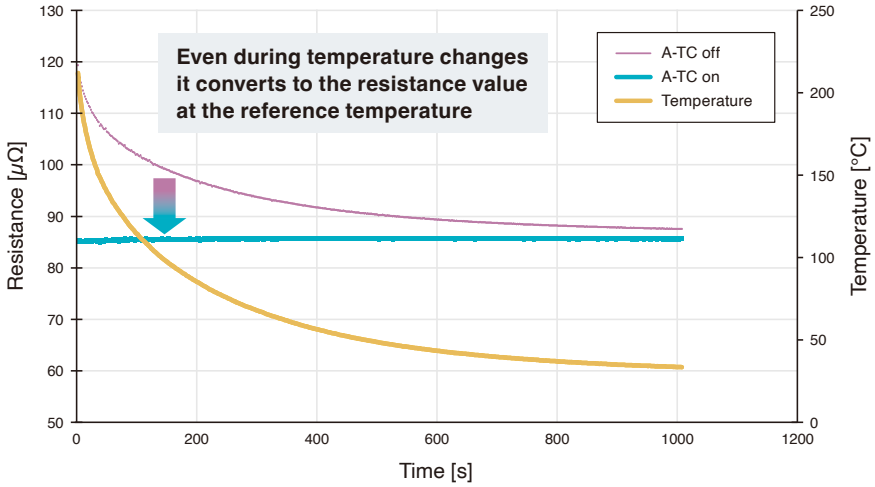
Advanced Temperature Correction

There is a correlation between resistance values and temperature. The RM3546 is equipped with the A-TC function that simultaneously measures the temperature and resistance value of the measurement target and compensates it in real time to the resistance value at a reference temperature. Even immediately after welding (when the temperature changes rapidly), it compensates to the resistance value at room temperature for accurate pass/fail judgement.

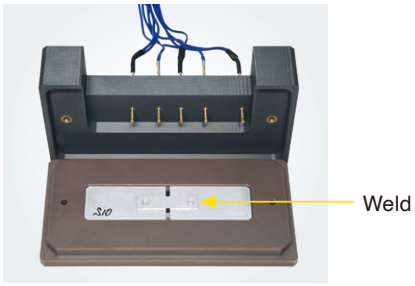
Significantly
less time waiting
for cooling



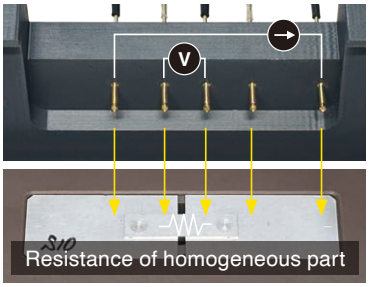
A-TC on **A-TC off**



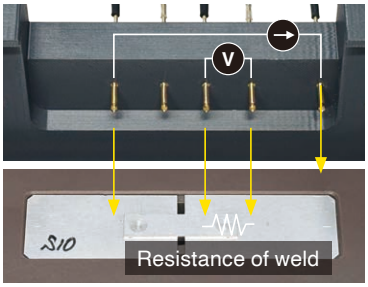
Measurement Method



Measurement jig sample



Measures resistance value and converts to temperature

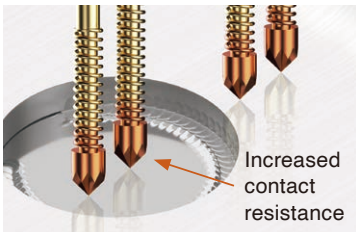


Compensates to resistance value at reference temperature

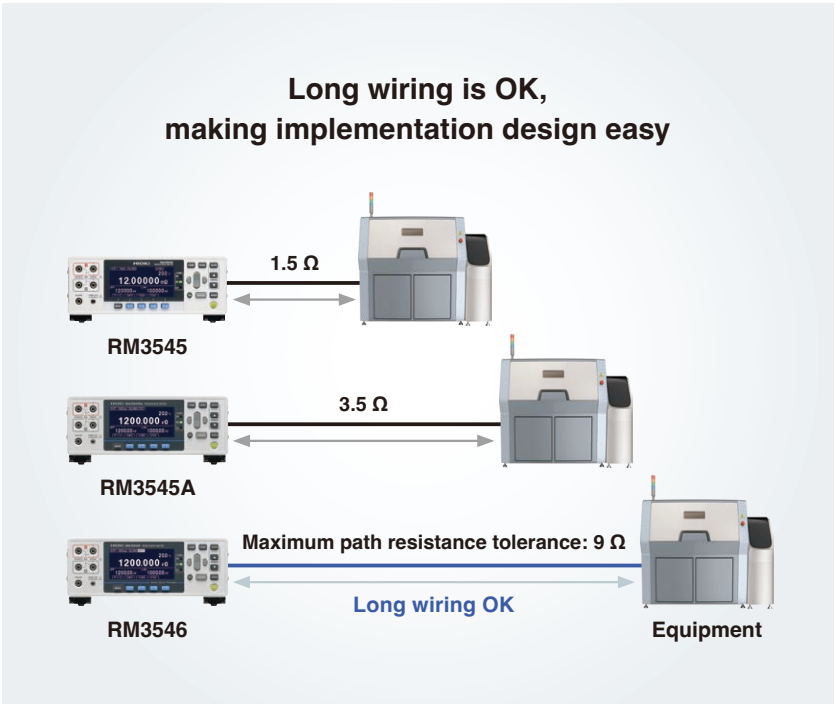
Simple Installation with Easy Wiring and Dedicated Probes

Design systems without worrying about path resistance

The large tolerance for path resistance allows for design of installations without considering complicating factors such as cable resistance, contact probe resistance, object resistance, relay resistance, etc.
High long-term measurement stability can be maintained even when path resistance increases due to cable extension or relay wear.

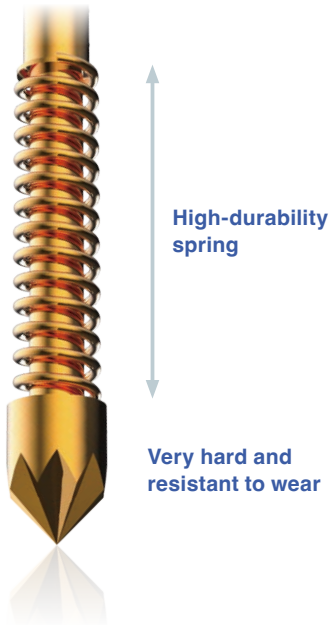


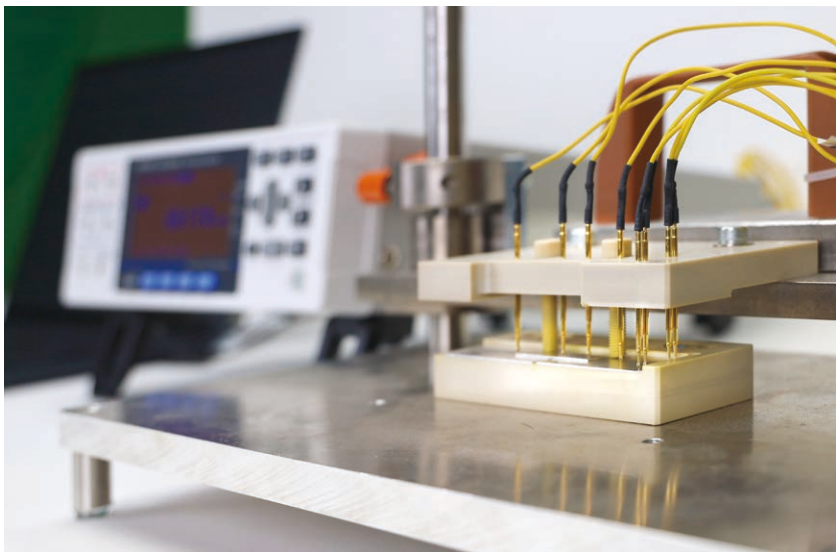
Measurement stability
despite age degradation



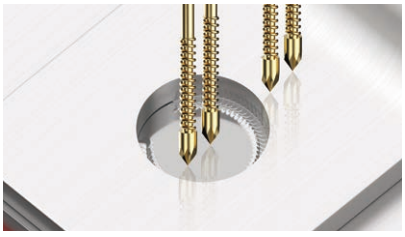
Customizable probes

A challenge during installation is obtaining appropriate probe pins and designing the probe section.
The RM3546 offers a lineup of recommended probe pins so that measurement jigs can be freely designed according to the measurement target. This removes implementation barriers for users and significantly reduces man-hours.
Tip of Probe Kit L9773





Pin placement even in narrow spaces



Firm contact even with unlevel surfaces

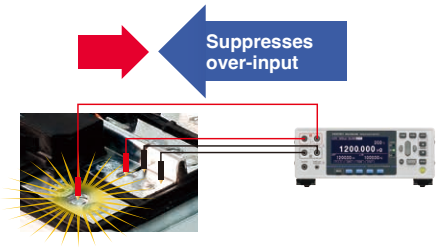
Probe Kit L9773

Low-Cost Maintenance and Channel Expansion

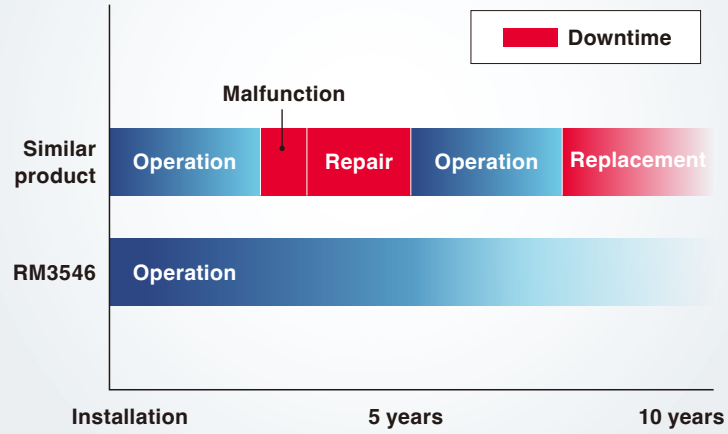
Prevent sudden malfunctions with the ACP function

Active Circuit Protection

The voltage protection circuit prevents malfunctions due to careless mistakes. Even if accidental contact is made with the battery's active terminal, the protection function automatically works to prevent damage. This not only reduces repair costs but also contributes to long-term stable operation of the line.

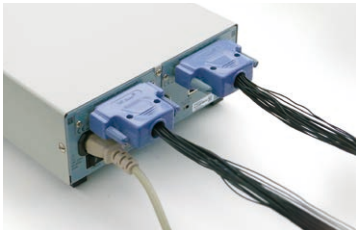


Prevents failure
with protection function



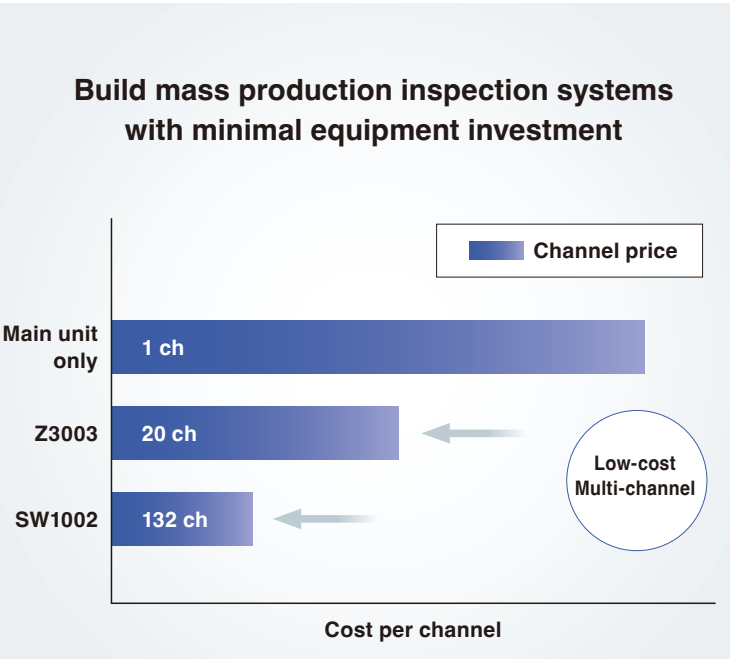
Up to 132 channels per unit

Up to 20 channels (4-terminal method) are supported by equipping 2 multiplexer units (Z3003). Finally, a total of 132 channels (4-terminal method) are possible when combining the switch mainframe SW1002. This meets the demand for multi-channel measurement with low cost and space savings.



Z3003: up to 20 channels

SW1002: up to 132 channels



Dedicated Multiplexer Optimized for High-Sspeed, High-Precision Measurement

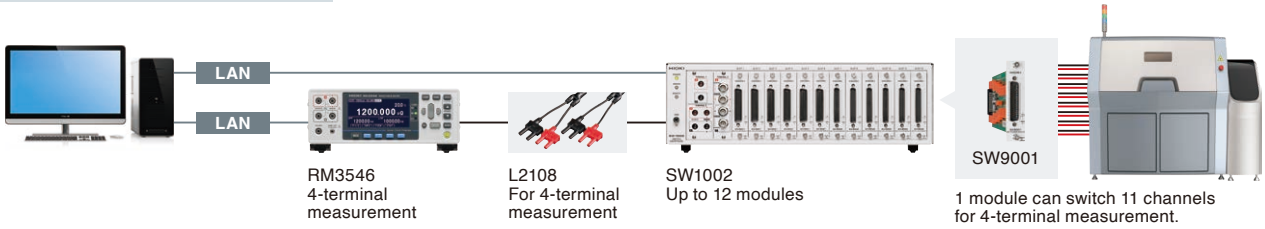
Options

For multichannel measurement

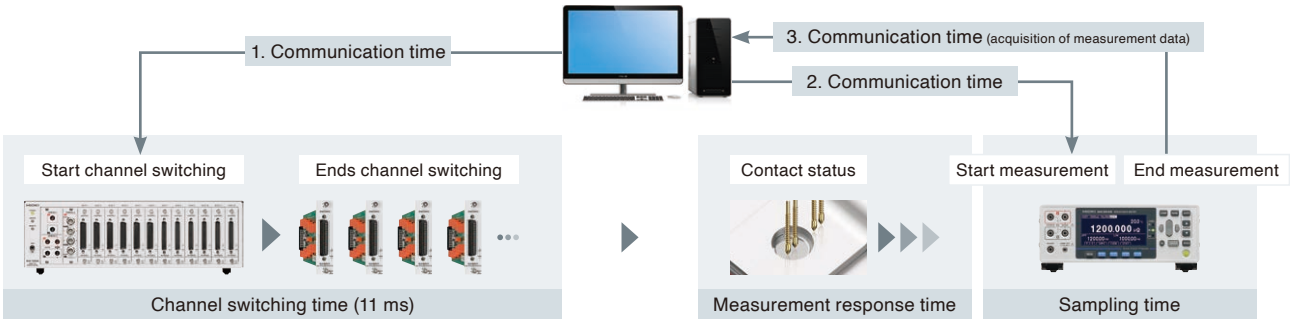
SW1002 web site >

https://www.hioki.com/global/products/resistance-meters/battery/id_6701

Example setup using the SW1002



Measurement time

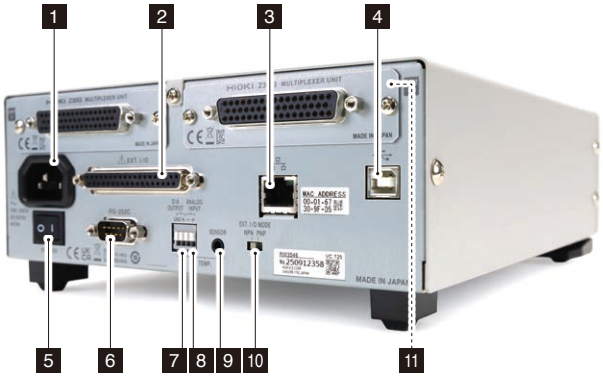


Cycle time = (Communication time + Channel switching time + Measurement response time + Sampling time) × Number of channels

Instrument	Function	Measurement speed	Number of channels	Measurement response time (delay time)	Switching time (all channels)	Conditions
RM3546	1000 µΩ range (PR mode: on; A-OVC: on; measurement current: high)	FAST (83 ms)	11	0	1.04 s (approx.94 ms/CH)	RM3546 communicates via LAN After normal reset Fixed range Self-calibration: manual External trigger (self-calibration done while idle)
		MED (60 Hz) (149 ms)	11	0	1.76 s (approx.160 ms/CH)	
		SLOW1 (482 ms)	11	0	5.43 s (approx.493 ms/CH)	
		SLOW2 (882 ms)	11	0	9.83 s (approx.893 ms/CH)	

Interfaces (RM3546)

1. Power inlet
2. EXT. I/O connector
3. LAN connector
4. USB connector
5. Main power switch
6. RS-232C connector
7. D/A OUTPUT terminal
8. TEMP. ANALOG INPUT terminal
9. TEMP. SENSOR
10. EXT. I/O MODE NPN/PNP switch
11. Multiplexer unit slot



Switch Mainframe SW1001, SW1002

	Switch Mainframe S1001, SW1002
Number of slots	3 slots (SW1001), 12 slots (SW1002)
Supported RM3546 module	Multiplexer module SW9001 (2-wire, 4-wire)
Maximum input voltage	DC 60 V, AC 30 V RMS, 42.4 V peak
Interfaces	LAN, USB, RS-232C (host use), RS-232C (command transfer function use)
EXT. I/O	SCAN input, SCAN_RESET input, CLOSE output (scan control use)

	Multiplexer Module SW9001
Wiring method	2-wire or 4-wire
Number of channels	22 channels (2-wire method), 11 channels (4-wire method)
Contact method	Mechanical relay
Channel switching time	11 ms (not including measurement time)
Maximum permissible voltage	DC 60 V, AC 30 V RMS, 42.4 V peak
Maximum permissible current	DC 1 A, AC 1 A RMS
Connectors used	D-sub 50-pin pin header

Influence by range/setting (A-OVC on)

Range	Measurement speed setting Add to accuracy ±(x% rdg. + y% f.s.)				Measurement current setting
	FAST	MED	SLOW1	SLOW2	
1000 µΩ	0.005 + 0.050	0.005 + 0.010		0.005 + 0.005	High
10 mΩ	0.005 + 0.007	0.005 + 0.002		0.005 + 0.001	High
100 mΩ	0.024 + 0.012	0.024 + 0.004			High
1000 mΩ	0.005 + 0.012	0.005 + 0.004			High
10 Ω	0.004 + 0.012	0.004 + 0.003			High
100 Ω	0.003 + 0.020	0.003 + 0.003			High
1000 Ω	0.003 + 0.020	0.003 + 0.004			High
10 kΩ	0.006 + 0.020	0.005 + 0.008			High
100 kΩ	0.024 + 0.020	0.023 + 0.008			High

(When the internal thermoelectromotive force is stable)

Maximum number of channels

Equipment used	Maximum number of channels
main unit only	1 ch
Main unit + Z3003 × 1	10 ch
Main unit + Z3003 × 2	20 ch
Main unit + SW1001	33 ch
Main unit + SW1002	132 ch

Conditions: measurement using 4 terminals and all channels

SW1001

SW1002

SW9001

Multiplexer Unit Z3003

Measurement targets	4-wire method: 10 locations (if using 2 units, 20 locations) 2-wire method: 21 locations (if using 2 units, 42 locations)
Measurement current/frequency	Measurement current: When equipped with Z3003, ≤ 1 A DC When externally connected, ≤ 1 A DC or ≤ 100 mA AC Measurement frequency: DC, 10 Hz to 1 kHz
Contact specifications	Contact type: mechanical relay Maximum permissible voltage: AC 33 V rms (46.7 V peak) or DC 70V Maximum permissible power: 30 W (DC, resistive load) Contact service life: 50 million cycles for 4-wire method (reference value)* 5 million cycles for 2-wire method (reference value)
Channel switching time	30 ms (without switching range or LP mode)
External dimensions	Approx. 92W × 24.5H × 182D mm (3.62W × 0.96H × 7.17D in.) (excluding protruding parts)
Connectors used	D-sub 50-pin receptacle
Accessories	Instruction manual, D-sub 50-pin connector (pin header, solder cup)

*If used 24 hours a day on a production line moving at the rate of 1 unit per second, the approximate service life would be 1.5 years.

Example scan times

Range	Number of channels	Measurement speed	Delay	Time from TRIG input to judgment results output (if measurement current is high)
1000 mΩ	10	FAST	0 ms	Approx. 300 ms
1000 mΩ	10	FAST	Preset	Approx. 800 ms

Total scan time: (switching time + measurement time, including delay) × number of channels

Additional accuracy specifications

Effects of leak current	Add the reading (rdg.) error shown on right based on the measurement current (when using guarding). (With humidity of less than 70% RH [If the humidity is greater than or equal to 70% RH, add the rdg. error on the right × 5])	$\frac{1\times10^{-9}\,[\mathrm{A}]}{I_{\mathrm{MEAS}}\,[\mathrm{A}]}\times100\,[\%\ \mathrm{rdg}]$
Effect of measurement speed	Add the f.s. error component shown on right when the integration time is not a whole-number multiple of the power supply cycle	$A_{\mathrm{fs}}\times0.5\,[\%\ \mathrm{rdg}]$
Effect of offset voltage	Add the resistance shown on right to the error when OVC is off	$\frac{10\times10^{-6}\,[\mathrm{V}]}{I_{\mathrm{MEAS}}\,[\mathrm{A}]}\,[\Omega]$
Effect of offset resistance fluctuations	When using a 2-wire setup, add the wiring resistance shown on right to the error component	0.1 Ω
Temperature coefficient	From 0°C to 18°C (32°F to 64.4°F) and 28°C to 40°C (82.4°F to 104°F), add a temperature coefficient of ±(1/10 of additional accuracy) / °C.	

I_{MEAS} measurement current A_{fs} full scale error component for main unit with the Z3003

Measurement cables for multichannel measurement must be prepared by the user based on each application's needs.

Measurement time, temperature measurement specifications (RM3546)

Representative value

Range	Measurement current	A-OVC	Measurement speed (unit: ms)				
			FAST	MED		SLOW1	SLOW2
				50Hz	60Hz		
PR1000 µΩ	High	On	83	162	149	482	882
PR10 mΩ	High	On	83	162	149	482	882
		On (OVC)	42	81	74	241	441
		Off	21	61	54	221	421
PR100 mΩ	N/A	Off	21	61	54	221	421
1000 mΩ	High	Off	3.7	43	37	203	403
10 Ω	High	Off	2.9	42	36	202	402
100 Ω	High	Off	3.0	42	36	202	402

Tolerance: ±10% ± 0.2 ms PR: pure resistance

Add to accuracy when used with Z2001

Temperature range	Accuracy
-10.0°C to 9.9°C	±(0.55 + 0.009 × |t-10|)°C
10.0°C to 30.0°C	±0.50°C
30.1°C to 59.9°C	±(0.55 + 0.012 × |t-30|)°C
60.0°C to 99.9°C	±(0.92 + 0.021 × |t-60|)°C

Standalone accuracy: ±0.2°C
t: measurement temperature [°C]

Temperature Sensor Z2001 specifications

Measurement range	-10.0°C to 99.9°C
Measurement speed	Approx. 2 s

Analog temperature measurement input

Accuracy guaranteed range	0 V to 2 V
Maximum permissible input	2.5 V
Resolution	1 mV
Display range	-99.9°C to 999.9°C
Measurement cycle (speed)	Approx. 50 ms, no moving average
Accuracy	±1% rdg. ± 3 mV

These specifications provide representative values. Actual performance will vary with measurement conditions. For more information, please see the instruction manual.

Basic specifications (resistance meter lineup comparison chart)

Model			RM3546		
					
Measurement	Measurement method		DC 4-terminal method (constant-current)		
	Maximum display, Resolution, Measurement current [high/low]	Resistance measurement ranges	Maximum display	Resolution	Measurement current [high, low]
		1000 µΩ	1200.000 µΩ	1 nΩ	1 A, 500 mA
		10 mΩ	12.00000 mΩ	10 nΩ	1 A, 500 mA
		100 mΩ	120.0000 mΩ	100 nΩ	1 A, 100 mA
		1000 mΩ	1200.000 mΩ	1 µΩ	100 mA, 10 mA
		10 Ω	12.00000 Ω	10 µΩ	10 mA, 1 mA
		100 Ω	120.0000 Ω	100 µΩ	10 mA, 1 mA
		1000 Ω	1200.000 Ω	1 mΩ	1 mA
		10 kΩ	12.00000 kΩ	10 mΩ	1 mA
		100 kΩ	120.0000 kΩ	100 mΩ	100 µA
		1000 kΩ	1200.000 kΩ	1 Ω	10 µA
		10 MΩ	12.00000 MΩ	10 Ω	1 µA
		100 MΩ (high-precision mode on)	120.0000 MΩ	100 Ω	100 nA
		100 MΩ (high-precision mode off)	120.00 MΩ	10 kΩ	1 µA or less
		1000 MΩ	1200.0 MΩ	100 kΩ	1 µA or less
	Representative accuracy (high mode, A-OVC function enabled, SLOW2, no zero adjustment)	1000 µΩ	±(0.045% rdg + 0.010% f.s.)		
		10 mΩ	±(0.045% rdg + 0.001% f.s.)		
		100 mΩ	±(0.045% rdg + 0.001% f.s.)		
		1000 mΩ	±(0.012% rdg + 0.001% f.s.)		
		1000 Ω	±(0.006% rdg + 0.001% f.s.)		
Measurement times			See table on bottom-right of p. 9		
Path resistance tolerance (reference values) Path resistance between SOURCE B and SOURCE A (other than measurement target)		Range: 10 mΩ or less, PR mode off	Max. 6.1 Ω		
		Range: 10 mΩ or less, PR mode on	Max. 9.0 Ω		
Maximum open-terminal voltage		Range: 1000 Ω or less, 10 kΩ or more	8.0 V, 20 V		
Interfaces	Multiplexer unit Z3003 (built-in option)	Max. number of installable units	2 units		
		Number of channels [4-wire method, 2-wire method]	20 channels, 42 channels		
		Switching time (reference value)	30 ms		
	LAN	TCP/IP, 10BASE-T/100BASE-TX	✓		
	RS-232C	Max. 115,200 bps, also used as printer interface	✓		
	USB	CDC class (COM mode)	✓		
		HID class (keyboard mode)	✓		
	GP-IB		–		
	EXT I/O	37-pin handler interface	✓		
	Analog output	Resistance measurement value	0 V to 1.5 V DC		
Functionality	ACP (Active Circuit Protection) function	Maximum allowable voltage	±60 V DC (between terminals)		
	Contact check		✓		
	Zero adjustment *Not possible with range ≥ 100 MΩ	Adjusts within ±50% f.s. of each range	✓		
	Zero-adjustment-free accuracy guaranteed		✓		
	OVC function	Offset Voltage Compensation	✓		
	A-OVC function	Advanced Offset Voltage Compensation	✓		
	Contact improvement function		✓		
	Low-power mode	Maximum open voltage: 20 mV	–		
	Auto-hold function		✓		
	Absolute value display function		✓		
	Comparator function	Mode	Hi, IN, Lo		
		L2105 LED Comparator Attachment output	✓		
	Temperature measurement function	Thermistor sensor (Z2001)	-10.0 to 99.9°C		
		Analog input (e.g., radiation thermometer)	0 V to 2.0 V DC		
	TC function	Temperature Correction	✓		
	A-TC function	Advanced Temperature Correction	✓		
	Temperature conversion (ΔT) function		✓		
	Statistical calculation function		Up to 30,000 data sets		
	Delay function		0 ms to 9999 ms		
	Averaging function	Average out of	2 to 100 times		
	Panel Save	Saving of measurement conditions	30 sets (MUX: 8 sets)		
	Data memory function		50 data sets		
	Command monitor function	Display of send/receive status of commands and queries	✓		
	LabVIEW® Driver compatibility (LabVIEW Driver is a trademark or registered trademark of National Instruments.)		✓		
Standards compliance			Safety: EN61010; EMC: EN61326 Class A		
CE marking			✓		
UL/CSA (Canadian Standards Assosiation) standard compliance			✓		
Dimensions			215W × 80H × 306.5D mm (8.46W × 3.15H × 12.07D in.)		
Weight			3.4 kg (7.5 lb.)		

	RM3545A-1 RM3545A-2			RM3545* RM3545-01 RM3545-02* *Discontinued		
						
DC 4-terminal method (constant-current)				DC 4-terminal method (constant-current)		
Maximum display	Resolution	Measurement current [high, low]		Maximum display	Resolution	Measurement current [high, low]
1200.000 µΩ	1 nΩ	1 A, N/A		N/A	N/A	N/A
12.00000 mΩ	10 nΩ	1 A, N/A		12.00000 mΩ	10 nΩ	1 A, N/A
120.0000 mΩ	100 nΩ	1 A, 100 mA		120.0000 mΩ	100 nΩ	1 A, 100 mA
1200.000 mΩ	1 µΩ	100 mA, 10 mA		1200.000 mΩ	1 µΩ	100 mA, 10 mA
12.00000 Ω	10 µΩ	10 mA, 1 mA		12.00000 Ω	10 µΩ	10 mA, 1 mA
120.0000 Ω	100 µΩ	10 mA, 1 mA		120.0000 Ω	100 µΩ	10 mA, 1 mA
1200.000 Ω	1 mΩ	1 mA		1200.000 Ω	1 mΩ	1 mA
12.00000 kΩ	10 mΩ	1 mA		12.00000 kΩ	10 mΩ	1 mA
120.0000 kΩ	100 mΩ	100 µA		120.0000 kΩ	100 mΩ	100 µA
1200.000 kΩ	1 Ω	10 µA		1200.000 kΩ	1 Ω	10 µA
12.00000 MΩ	10 Ω	1 µA		12.00000 MΩ	10 Ω	1 µA
120.0000 MΩ	100 Ω	100 nA		120.0000 MΩ	100 Ω	100 nA
120.0000 MΩ	100 Ω	100 nA		120.0000 MΩ	100 Ω	100 nA
1200.0 MΩ	100 kΩ	1 µA or less		1200.0 MΩ	100 kΩ	1 µA or less
±(0.045% rdg + 0.010% f.s.)				N/A		
±(0.045% rdg + 0.001% f.s.)				±(0.060% rdg + 0.001% f.s.)		
±(0.045% rdg + 0.001% f.s.)				±(0.060% rdg + 0.001% f.s.)		
±(0.012% rdg + 0.001% f.s.)				±(0.012% rdg + 0.001% f.s.)		
±(0.006% rdg + 0.001% f.s.)				±(0.006% rdg + 0.001% f.s.)		
See product specifications for RM3545A				See product specifications for RM3545		
2.6 Ω				1.5 Ω		
3.5 Ω				N/A		
8.0 V, 20 V				5.5 V, 20 V		
2 units (RM3545A-2 only)				2 units (RM3545-02 only)		
20 channels, 42 channels (RM3545A-2 only)				20 channels, 42 channels (RM3545-02 only)		
30 ms (RM3545A-2 only)				30 ms (RM3545-02 only)		
✓				–		
✓				✓		
✓				✓		
✓				✓		
–				✓ (RM3545-01 only)		
✓				✓		
0 V to 1.5 V DC				0 V to 1.5V DC		
–				–		
✓				✓		
✓				✓		
✓				✓		
✓				✓		
–				–		
✓				✓		
✓				✓		
✓				✓		
✓				–		
Hi, IN, Lo				Hi, IN, Lo		
✓				✓		
-10.0 to 99.9°C				-10.0 to 99.9°C		
0 V to 2.0 V DC				0 V to 2.0 V DC		
✓				✓		
–				–		
✓				✓		
Up to 30,000 data sets				Up to 30,000 data sets		
0 ms to 9999 ms				0 ms to 9999 ms		
2 to 100 times				2 to 100 times		
30 sets (MUX: 8 sets)				30 sets (MUX: 8 sets)		
50 data sets				50 data sets		
✓				✓		
✓				✓		
Safety: EN61010; EMC: EN61326 Class A				Safety: EN61010; EMC: EN61326 Class A		
✓				✓		
✓				✓		
215W × 80H × 306.5D mm (8.46W × 3.15H × 12.07D in.)				215W × 80H × 306.5D mm (8.46W × 3.15H × 12.07D in.)		
2.7 kg (6.0 lb.) (RM3545A-1), 3.4 kg (7.5 lb.) (RM3545A-2)				3.2 kg (7.1 lb.)		

https://www.hioki.com/global/download/47907

Datasheet
RM3546
RM3545A-1
RM3545A-2

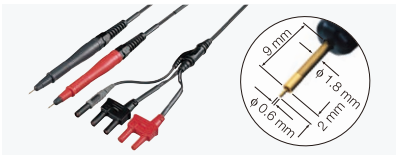
For detailed specifications, see here.

Options

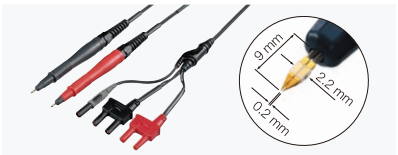
Measurement cables for multichannel measurement must be prepared by the user based on each application's needs.

Measurement probes

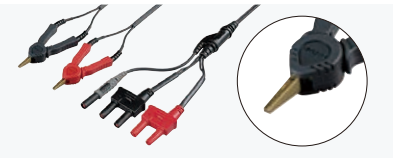
PIN TYPE LEAD L2100
A: 300 mm (11.81 in.); B: 172 mm (6.77 in.); L: 1.4 m (4.59 ft.); 1000 V DC; for low-resistance measurement



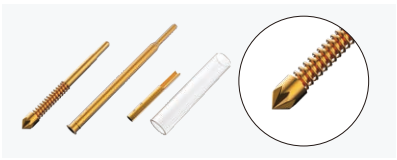
PIN TYPE LEAD L2102
A: 250 mm (9.84 in.); B: 178 mm (7.01 in.); L: 1.5 m (4.92 ft.); 60 V DC



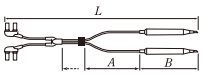
PIN TYPE LEAD L2103
A: 250 mm (9.84 in.); B: 176 mm (6.93 in.); L: 1.5 m (4.92 ft.); 60 V DC



CLIP TYPE LEAD L2101
A: 250 mm (9.84 in.); B: 84 mm (3.31 in.); L: 1.5 m (4.92 ft.); 60 V DC



PROBE KIT L9773
Set of L9773-01, L9773-01, and L9773-03



About lead length
A: from junction to probe
B: probe length
L: overall length

PROBE TIPS L9773-01
10 pieces

PROBE TIP SOCKETS L9773-02
10 pieces

PROBE TIP SOCKET ADAPTERS L9773-03
10 pieces

Measurement Lead Selection Guide
Download link
https://www.hioki.com/global/download/40985

Scanners

MULTIPLEXER UNIT Z3003
Two usable in RM3546, max. 10 channels (4-wire)

SWITCH MAINFRAME SW1001
3 slots, max. 33 channels (4-wire)

SWITCH MAINFRAME SW1002
12 slots, max. 132 channels (4-wire)

MULTIPLEXER MODULE SW9001
For SW1001/SW1002, max. 11 channels (4-wire), 2-wire/4-wire

CONNECTION CABLE L2108
4-terminal banana, 0.84 m (2.8 ft.)

Other

TEMPERATURE SENSOR Z2001
Included accessory, 1.75 m (5.74 ft.)

LED COMPARATOR ATTACHMENT L2105
2 m (6.56 ft.)

USB CABLE (A-B) L1002
1 m (3.28 ft.)

RS-232C CABLE L9637
9-pin/9-pin, 3 m (9.84 ft.)

LAN CABLE 9642
5 m (16.40 ft.), supplied with straight-through-to-crossover conversion adapter

DISTRIBUTED BY

HIOKI E.E. CORPORATION

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Scan for all regional contact information

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RM3546E1-5ZB