

RM9006

MAINTENANCE TOOL

Instruction Manual

EN

June 2022 Edition 1

RM9006A961-00 22-06H



HIOKI

www.hioki.com/



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Edited and published by HIOKI E.E. CORPORATION

Printed in Japan

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Warranty Certificate

HIOKI

Model	Serial number	Warranty period
		One (1) year from date of purchase (___ / ___ / ___)

Customer name: _____
Customer address: _____

Important

- Please retain this warranty certificate. Duplicates cannot be reissued.
- Complete the certificate with the model number, serial number, and date of purchase, along with your name and address. The personal information you provide on this form will only be used to provide repair service and information about Hioki products and services.

This document certifies that the product has been inspected and verified to conform to Hioki's standards. Please contact the place of purchase in the event of a malfunction and provide this document, in which case Hioki will repair or replace the product subject to the warranty terms described below.

Warranty terms

- The product is guaranteed to operate properly during the warranty period (one [1] year from the date of purchase). If the date of purchase is unknown, the warranty period is defined as one (1) year from the date (month and year) of manufacture (as indicated by the first four digits of the serial number in YYMM format).
- If the product came with an AC adapter, the adapter is warranted for one (1) year from the date of purchase.
- The accuracy of measured values and other data generated by the product is guaranteed as described in the product specifications.
- In the event that the product or AC adapter malfunctions during its respective warranty period due to a defect of workmanship or materials, Hioki will repair or replace the product or AC adapter free of charge.
- The following malfunctions and issues are not covered by the warranty and as such are not subject to free repair or replacement:
 - 1. Malfunctions or damage of consumables, parts with a defined service life, etc.
 - 2. Malfunctions or damage of connectors, cables, etc.
 - 3. Malfunctions or damage caused by shipment, dropping, relocation, etc., after purchase of the product
 - 4. Malfunctions or damage caused by inappropriate handling that violates information found in the instruction manual or on precautionary labelling on the product itself
 - 5. Malfunctions or damage caused by a failure to perform maintenance or inspections as required by law or recommended in the instruction manual
 - 6. Malfunctions or damage caused by fire, storms or flooding, earthquakes, lightning, power anomalies (involving voltage, frequency, etc.), war or unrest, contamination with radiation, or other acts of God
 - 7. Damage that is limited to the product's appearance (cosmetic blemishes, deformation of enclosure shape, fading of color, etc.)
 - 8. Other malfunctions or damage for which Hioki is not responsible
- The warranty will be considered invalidated in the following circumstances, in which case Hioki will be unable to perform service such as repair or calibration:
 - 1. If the product has been repaired or modified by a company, entity, or individual other than Hioki
 - 2. If the product has been embedded in another piece of equipment for use in a special application (aerospace, nuclear power, medical use, vehicle control, etc.) without Hioki's having received prior notice
- If you experience a loss caused by use of the product and Hioki determines that it is responsible for the underlying issue, Hioki will provide compensation in an amount not to exceed the purchase price, with the following exceptions:
 - 1. Secondary damage arising from damage to a measured device or component that was caused by use of the product
 - 2. Damage arising from measurement results provided by the product
 - 3. Damage to a device other than the product that was sustained when connecting the device to the product (including via network connections)
- Hioki reserves the right to decline to perform repair, calibration, or other service for products for which a certain amount of time has passed since their manufacture, products whose parts have been discontinued, and products that cannot be repaired due to unforeseen circumstances.

HIOKI E.E. CORPORATION
http://www.hioki.com 18-07 EN-1

Introduction

Thank you for choosing the Hioki RM9006 Maintenance Tool. To ensure your ability to get the most out of this instrument over the long term, please read this manual carefully and keep it available for future reference. Please review the instruction manual of the RM2610 Electrode Resistance Measurement System and "Operating Precautions" that came with the RM2610 before using the device.

The latest edition of the instruction manual

The contents of this manual are subject to change, for example as a result of product improvements or changes to specifications. The latest edition can be downloaded from Hioki's website.
<https://www.hioki.com/global/support/download>



Target audience

This manual has been written for use by individuals who use the product or provide information about how to use the product. In explaining how to use the product, it assumes electrical knowledge (equivalent of the knowledge possessed by a graduate of an electrical program at a technical high school).

Trademark

Microsoft is either a registered trademark or a trademark of Microsoft Corporation in the United States and other countries.

Overview

The instrument is used to maintain the RM9004 Test Fixture. You can clean a test fixture with air while observing its probes with the camera (microscope). Eight-direction air blasts are available.

Notations

Safety notations

This manual classifies seriousness of risks and hazard levels as described below.

	CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury or potential risks of damage to the supported product (or to other property).
		Indicates a mandatory action.
		Indicates a prohibited action.

Symbol for a standard

Indicates that the product complies with standards imposed by EU directives.

Safety Information



- CAUTION**
- Please review the safety information below before using the device.
Failure to do so could cause damage to the device.

Usage Notes

Be sure to follow the precautions listed below in order to use the device safely and in a manner that allows it to function effectively.



- CAUTION**
- ⊘ Do not place the device on an unstable stand or angled surface.
Failure to do so could cause improper use of the device, resulting in serious bodily injury or damage to the device.
- Turn off the RM2611 Electrode Resistance Meter before connecting or disconnecting the RM9005 Connection Cable.
Failure to do so could cause damage to the device.
- ⓘ Do not unplug the USB cable while communications are ongoing.
Failure to do so could cause damage to the device and your computer.

The device requires a current of at least 100 mA to operate. Check the specifications of your computer or USB hub before use.

Inspection

Inspect the device for damage due to storage or transport and verify operation before use. If you find any damage, contact your authorized Hioki distributor or reseller.

Troubleshooting

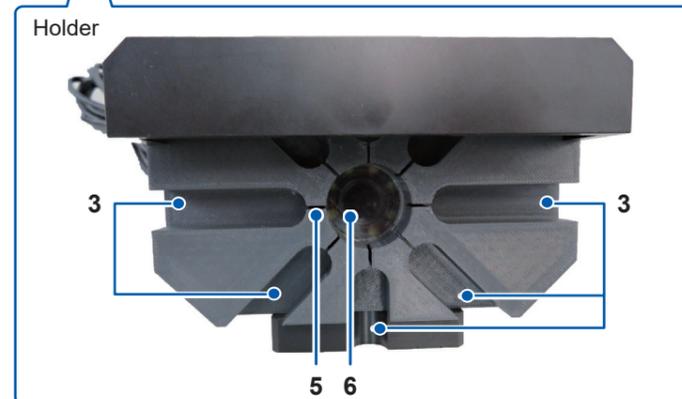
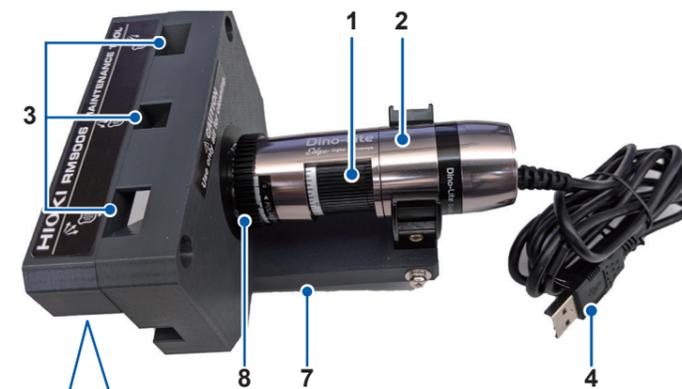
If the device seems to be malfunctioning, contact your authorized Hioki distributor or reseller.

Cleaning



- CAUTION**
- ⓘ If the device becomes dirty, wipe the device clean with a soft cloth moistened with water or a neutral detergent.
Never use solvents such as benzene, alcohol, acetone, ether, ketone, thinners or gasoline. Doing so could deform and discolor the instrument.

Parts Names



Side



- Focus magnification adjustment dial
- Digital microscope*
- Air supply ports (x8)
- USB cable
- Vent
- Transparent protective cover
- The serial number consists of nine digits. The first two digits indicate the year of manufacture, while the second two digits indicate the month of manufacture. Do not remove this sticker as the number is important.
- Polarizing dial (adjustment unnecessary for this application)
- Clip adjusting screw (adjustment unnecessary for this application)

* You can download specialized software from the digital microscope. The specialized software has a built-in image zoom function. For more information, visit the following website.
<https://www.dino-lite.com/download.php>

Specifications

Operating environment	Indoor use, pollution degree 2, altitude up to 2000 m (6562 ft.)
Operating temperature and humidity range	0°C to 40°C (32°F to 104°F), 80% RH or less (non-condensing)
Storage temperature and humidity range	0°C to 50°C (32°F to 122°F), 80% RH or less (non-condensing)
Model on which the device is mountable	RM9004 only
Dimensions	Approx. 110W × 91.5D × 135H mm (4.33"W × 3.60"D × 5.31"H)
Weight	Approx. 480 g (16.9 oz.)
Product warranty duration	1 year
Accessories	Instruction Manual Blower Cleaning film
Dimensions of air nozzles that can be inserted into the air supply ports	• Nozzle outer diameter: 1 mm to 9 mm • Nozzle length: 40 mm or more
Consumption current	0.5 A (at a voltage of 5 V)
Interface	USB 2.0
Operating environment (computer)	Windows 10, Windows 8, Windows 7

Basic Operation

CAUTION

Do not clean probes with liquid.

If the probe tips are cleaned with a liquid such as alcohol or water, the electrode material that has been attached to probes could melt, penetrate the gaps and solidify, preventing probes from moving.

Do not use any tool not specified by Hioki that makes direct contact with the probe.

Doing so could cause damage to probes.

Wear a dust mask and protective goggles during operation.

Failure to do so could cause splash of air to get into the eye or mouth.

Limit the projecting pressure of the air to 207 kPa (2.1 kgf/cm² or 30 psi).

Otherwise, the operator could suffer from air embolism.

You will need:

- Air (e.g., air duster spray, air gun, blower included accessories) Keep in mind that if the air contains oil or other foreign objects, it could settle on the RM9004.
- Nozzle outer diameter: 1 mm to 9 mm
- Nozzle length: 40 mm or more
- Computer Prepare a computer that matches the operating environment of the device.

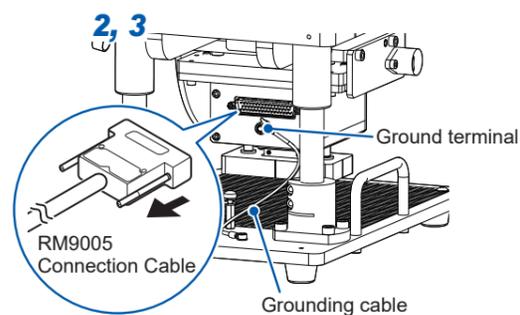
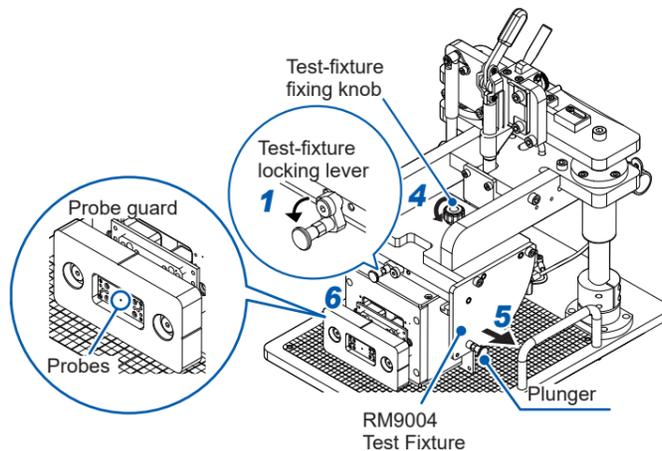
Check out the video on basic operation here.

https://www.hioki.com/global/products/resistance-meters/resistance/id_6740

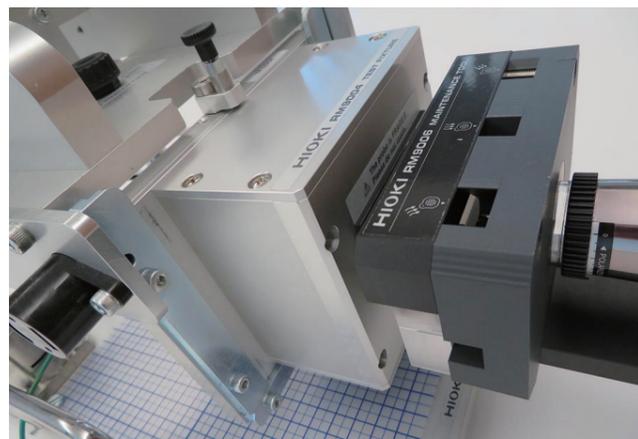
The customer is responsible for carrier charges.



- 1 Check that the locking lever of the RM9004 Test Fixture is lowered.
- 2 Disconnect the RM9005 Connection Cable from the RM9004.
- 3 Disconnect the grounding cable from the RM9004's ground terminal.
- 4 Turn the test fixture fixing knob counterclockwise to disengage the lock.
At this time, while pressing down the RM9004, turn the fixing knob on the Test Fixture to the UNLOCK side until the screw is completely removed.
The bottom of the RM9004 faces slowly.
- 5 Pull the RM9004's maintenance plunger outward to secure the RM9004 in place.



- 6 Hang the device on the probe guard.



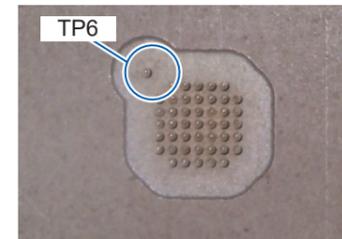
- 7 Connect the device's USB cable to your computer.



- 8 Use the computer's camera function to display the probe tips of the RM9004 on the display.

Rotate the focus magnification adjustment dial to focus on and observe the tips of the probes. If there are multiple cameras connected to the computer, switch the cameras so that the image from the device's camera is displayed.

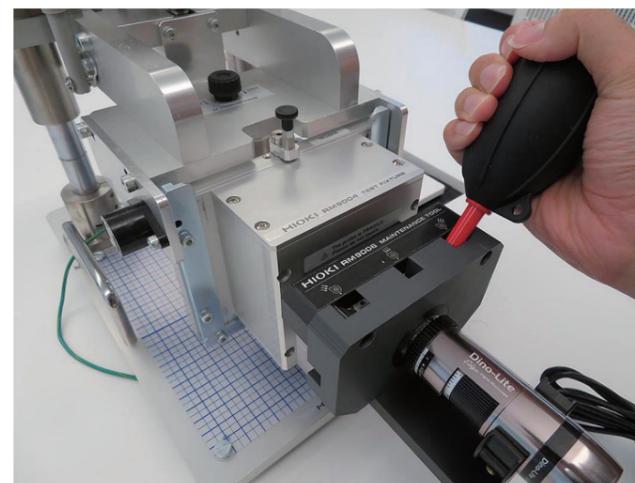
Turn the digital microscope so that the TP6 probe is visible in the position shown below.



- 9 Try to eliminate deposits on the tips of the probes by injecting air while checking the camera image.

Insert the blower's nozzle all the way into the vent before supplying air.

While observing deposits, spray air from multiple supply ports.



Operating precautions

- To ensure proper operation of the RM9004 over a long period of time, remove any probe deposits after you have finished working.
- Remove any deposits as soon as possible. Repeated measurements while there are deposits on probes will cause the deposits to settle between the probes, making it difficult to remove with air. Moreover, an error may be displayed during the open and short inspections of the RM2610.
- If deposits cannot be removed, have the test fixture repaired.
- If any objects adhere to the transparent protective cover of the device, remove them with air or a soft, dry cloth.

Cleaning film

Removing insulation at the tips of the probes using the included cleaning film may cause the electrical contact to resume. Use the cleaning film only when the short test of the RM2610 yields fail judgments frequently. The abrasive contained in the cleaning film could scratch the plating on the surface of the probes, causing it to oxidize, resulting in more liable to yield fail judgment during the short inspection.

How to use

- 1 Place the cleaning film on the measurement stage with the non-glossy side facing up.
- 2 Move the test fixture up or down several times and allow the probes to make contact with the cleaning film.

The tips of the probes are polished, resulting in better contact.

- Replace the film with a new one when it comes ineffective.
- If the short inspection of the RM2610 yields fail judgment frequently, even when a cleaning film is used, have the RM9004 repaired.

