

SA2654

SENSOR UNIT

Instruction Manual

EN

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HIOKI

www.hioki.com/

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All regional contact information

Warranty

Malfunctions occurring under conditions of normal use in conformity with the Instruction Manual and Product Precautionary Markings will be repaired free of charge. This warranty is valid for a period of one (1) year from the date of purchase. Please contact the distributor from which you purchased the product for further information on warranty provisions.

Introduction

Thank you for choosing the Hioki SA2654 Sensor Unit. To ensure you 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 separate *Operating Precautions* before using this instrument.

The latest edition of the instruction manual

Please note that the information contained in this manual is subject to change due to product improvements or specification updates. To obtain the most recent version of this manual, please visit Hioki's website at:
<https://www.hioki.com/global/support/download/>



Target audience

This manual has been written for use by individuals who use the instrument or provide information about how to use the instrument. 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).

Inspecting package contents

Upon receiving the product, inspect it for any damage or anomalies. If you discover any damage or find that the product does not perform as indicated in the specifications, please contact your authorized Hioki distributor or reseller.

- SA2654 Sensor Unit
- Instruction Manual (this document)
- Power cord
- USB cable (Type A to Type B), 1.8 m
- Functional ground cable (for SA9003 functional ground connection)
- CD (USB driver)
- Operating Precautions (0990A905)

Shipping precautions

Store the packaging materials after unpacking the instrument. Use the original packaging materials when shipping the instrument.

Overview

The SA2654 Sensor Unit is an integral component of the instrumentation for the Powder Impedance Measurement System. It cannot function independently. All settings and operations must be managed using the SA2653 Measurement Software. For details on precautions for use of the Powder Impedance Measurement System, please refer to the Instruction Manual for the Powder Impedance Measurement System.

Powder Impedance Measurement System Instruction Manual

<https://www.hioki.com/global/support/download/>

SA2653



Notations

Safety notations

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

	DANGER	Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.
	WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
	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 prohibited actions.
		Indicates mandatory actions.

Symbols on the instrument

	Indicates the presence of a potential hazard. See the <i>Precautions for Use</i> section and warning messages listed at the beginning of each operating instruction in the instruction manual, as well as the accompanying document entitled <i>Operating Precautions</i> .
	Indicates the on position of the power switch.
	Indicates the off position of the power switch.
	Indicates the functional ground terminal.
	Indicates that the product can be used to measure alternating current (AC) voltage/current or can be powered by utility AC power.

Symbols for various standards

	Indicates that the product complies with standards mandated by EU directives.
	Indicates that the product complies with Korean regulations. Declarer: HIOKI KOREA CO., LTD. http://www.rra.go.kr/selform/HKO-SA2654

Screen display

The screen of this instrument displays the numbers as follows.



Safety Information

This instrument has been designed in accordance with the international standard IEC 61010 and has undergone rigorous safety testing prior to shipment. However, using the instrument in a way not specified in this manual may compromise its safety features. Carefully read the following safety notes and the instruction manual for the measuring instrument to which this instrument is connected before use.

DANGER

- Familiarize yourself with the contents of this manual before use.

Failure to follow this guidance will result in misuse, leading to serious bodily injury or damage to the instrument.

Precautions for Use

Observe the following precautions to ensure the safe use of the instrument and to maximize its capabilities.

WARNING

- Do not use the instrument in locations such as the following:

- Where it would be subject to direct sunlight or high temperatures
- Where it would be exposed to corrosive or explosive gases
- Where it would be exposed to powerful electromagnetic radiation or close to objects carrying an electric charge
- Where it would be close to an inductive heating device (such as high-frequency inductive heating devices and IH cooktops)
- Where it would be subject to a large amount of mechanical vibration
- Where it would be exposed to water, oil, chemicals, solvents
- Where it would be exposed to high humidity or condensation
- Where it would be exposed to an excessive amount of dust
- Where it would be unstable or inclined

Failure to follow this guidance could damage the instrument or cause it to malfunction, resulting in bodily injury.

WARNING

- Place the instrument, leaving enough space around it to facilitate unplugging the power cord.

If there is not enough space left around, the power cannot be shut off immediately in an emergency. Failure to follow this guidance could result in bodily injury, fire, or damage to the instrument.

- Before plugging the power cord into an outlet, ensure that your supply voltage falls within the supply voltage range indicated close to the power inlets of the instrument.

Supplying a voltage outside the specified range to the instrument could damage it, causing bodily injury.



- Connect the power cord to a grounded two-prong power outlet.

Connecting the power cord to an ungrounded power outlet could result in electric shock.

- First, connect the protective conductor terminal to the ground.

Failure to follow this guidance could result in electric shock while connecting other wires.

- Ensure to ground the protective conductor terminal to the earth.

Failure to follow this guidance could result in electric shock.

CAUTION

- Do not subject the instrument to vibration or mechanical shock while transporting or handling it.

Failure to follow this guidance could damage the instrument.

- Do not disconnect the USB cable while the instrument is sending or receiving data.



Failure to follow this guidance could damage the instrument or the computer.

- Ground the instrument and the computer at a single point.

Connecting the cable when there is a difference in ground potentials between them could cause damage or malfunction.

The instrument is classified as a Class A device under the EN 61326 standard.

Use of the instrument in a residential setting such as a neighborhood could interfere with reception of radio and television broadcasts. If this occurs, take appropriate steps to counteract the issue.

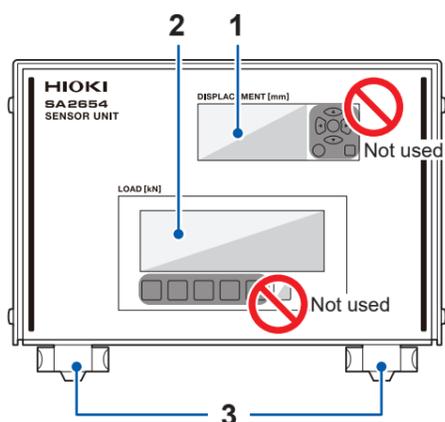
Inspection Before Use

Inspect the instrument for malfunctions or damage and check it for proper operation before use. If there is any malfunction or damage, please contact your authorized Hioki distributor or reseller.

Check item	Remedy
The instrument is not damaged.	If the instrument is damaged, contact your authorized Hioki distributor or reseller for repair.
The cables do not have any damaged insulation or exposed metal.	Do not use them if they are damaged, because this could cause unstable readings or errors. If the instrument is damaged, contact your authorized Hioki distributor or reseller for repair.

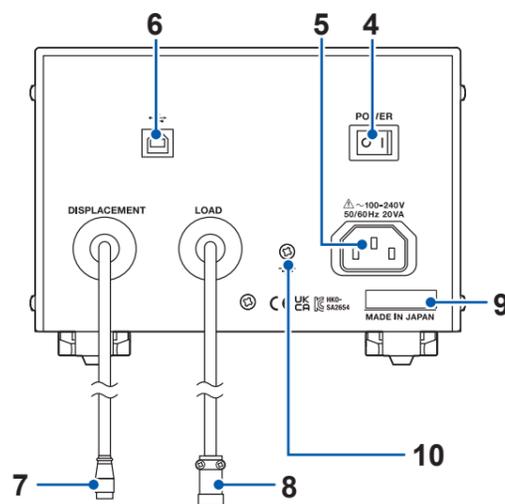
Part Names and Functions

Front



No.	Name	Function
1	Displacement-meter display	Displays displacement-meter measurements of the SA9003 Press Unit.
2	Load-cell display	Displays load-cell measurements of the SA9003 Press Unit.
3	Stands	Extract to tilt the instrument.

Rear



No.	Name	Function
4	Power switch	Use to turn the instrument on and off.
5	Power inlet	Connect the included power cord here.
6	USB connector	Connect the USB cable here.
7	Displacement-sensor connector	Connect to the displacement-meter terminal of the SA9003 Press Unit.
8	Load-cell connector	Connect to the load-cell connector of the SA9003 Press Unit.
9	Serial number	The first four digits of the 9-digit number indicate the year (its last two digits only) and the month of manufacture. Do not remove this sticker because the number is required for product tracking.
10	Functional ground terminal	Reduces the effect of noise. For use in noisy locations, connect the functional ground terminals of the SA2654 Sensor Unit and the SA9003 Press Unit using the functional ground cable supplied with the Sensor Unit.

Specifications

Dimensions	Approx. 180W × 120H × 245D mm (7.1W × 4.7H × 9.6D in.) (not including protrusions and cables)	
Weight	Approx. 2.3 kg (5.1 lb.)	
Connection target	The SA9003 Press Unit only	
Sensor cable length	Displacement-sensor connector	Approx. 870 mm (34.3 in.)
	Load-cell connector	Approx. 870 mm (34.3 in.)
Interface	USB 2.0 compliant, Type B (female)	
Operating temperature and humidity range	23°C ±5°C (73°F ±9°F), 80% RH or less (non-condensing)	
Storage temperature and humidity range	-10°C to 50°C (14°F to 122°F), 80% RH or less	
Operating environment	Indoor use, pollution degree 2, altitude up to 2000 m (6562 ft.)	
Included accessories	See "Inspecting package contents."	
Product warranty duration	1 year	
Standards	Safety	EN 61010
	EMC	EN 61326 Class A
Power supply	Rated supply voltage	100 V to 240 V AC (Assuming voltage fluctuation of ±10%)
	Rated power-supply frequency	50 Hz, 60 Hz
	Anticipated transient overvoltage	2500 V
Power consumption	Ordinary power consumption (a value for reference purpose): 5 W (with the SA9003 connected, in USB communication mode) Maximum rated power: 20 VA	

How to Make Connection

For details, see the Instruction Manual for the Powder Impedance Measurement System.

Connecting the Sensor Unit and the Press Unit

CAUTION

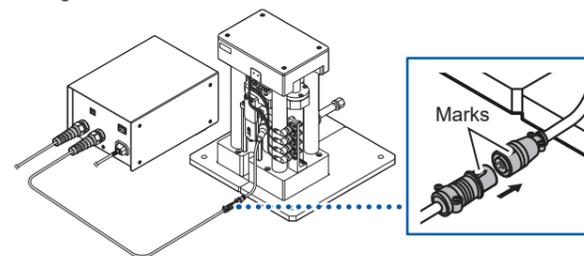
- When connecting the displacement-sensor connector to the displacement-meter terminal, insert it so that it is not tilted, and tighten the screw on the end of the displacement-sensor connector firmly. (Recommended tightening torque: 0.4 N·m to 0.5 N·m)

If the connector becomes loose, for example, due to vibration, the terminal may have poor contact, resulting in inaccurate measurements.

- Check that the rear-mounted power switch of the Sensor Unit is set to the off position (O).
- Connect the accompanying power cord to the power inlet of the instrument.
- Connect the plug of the power cord to the outlet. (100 V to 240 V AC)

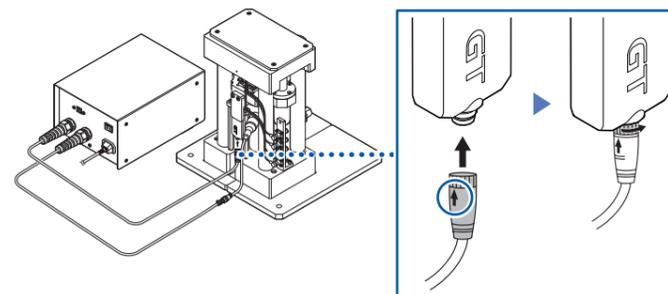
- Connect the load-cell connector of the Sensor Unit to that of the Press Unit.

Align the marks and insert the connector until it sounds.



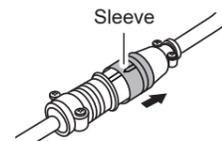
- Connect the displacement-sensor connector to the displacement-meter terminal of the Press Unit.

Insert the displacement-sensor connector with its arrow facing the left side of the displacement-meter terminal, then rotate the collar on the end of the displacement-sensor connector to secure it.

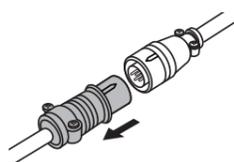


Removing the Sensor Unit from the Press Unit

- Slide the sleeve of the Press Unit's load-cell connector to unlock it.



- Once unlocked, pull out the load-cell connector of the Sensor Unit.



Removing the displacement-sensor connector from the displacement-meter terminal

Rotate the collar on the end of the displacement-sensor connector to unlock it, and then pull out the connector.



Connecting the Sensor Unit and the Computer

- Check that the rear-mounted power switch of the Sensor Unit is set to the off position (O).
- Connect the USB cable to the USB connector of the Sensor Unit.

- Connect the USB cable to the computer.

Maintenance and Service

Calibration

The appropriate schedule for calibration depends on factors such as the operating conditions and environment. Determine the appropriate calibration interval based on your operating conditions and environment, and have Hioki calibrate the instrument accordingly.

Backing up your data

When repairing or calibrating the instrument, Hioki may reset them to factory settings or update it by installing the latest version of the firmware. It is recommended to back up (save/write) data, such as the settings and measured data, before requesting service.

Cleaning

CAUTION

- To clean the instrument, wipe it using a soft cloth moistened with water or a neutral detergent.
- Using solvent-containing detergents, such as benzene, alcohol, acetone, ether, ketone, thinner, and gasoline, or wiping the instrument with excessive force could cause deformation or discoloration.

Troubleshooting

Problem	Cause	Remedy
The instrument suddenly turns off.	It is affected by transient outages.	Set the rear-mounted power switch to the off position (O), wait about 10 seconds, and then set it to the on position (I).

Error messages

When an error is displayed, the instrument needs confirmation or repair. Contact your authorized Hioki distributor or reseller.

Error messages	Remedy
E r H	<ul style="list-style-type: none"> If the displacement-sensor connector is not connected. Connect it with the displacement-meter terminal of the SA9003 Press Unit. If the displacement-sensor connector has a break or is damaged. Contact your authorized Hioki distributor or reseller.
E r C	An overcurrent may flow through the displacement-sensor cable. Ensure that the output lines are not in contact with other lines or frames.
E r E	Data may not have been read or written properly. Turn off the SA2654 Sensor Unit and then turn it on again.
o f L 1	Connect the load-cell connector with that of the SA9003 Press Unit. If this error message is still displayed even after the connectors are connected, contact your authorized Hioki distributor or reseller.
o f L 2	The load-cell connector may not be connected or the load-cell connector may have a break. If this error message is still displayed even after the connectors are connected, contact your authorized Hioki distributor or reseller.