

LR5092-20 Instruction Manual DATA COLLECTOR



0	 Be sure to read this manual before using the instrument. 				
-	When using the instrument for the first time		Troubleshooting		
	Part Names/Functions	▶ p.10	Troubleshooting	▶ p.130	
	Preparation for Use	▶ p.15	Error Display	▶ p.132	

Mar. 2021 Revised edition 4 LR5092B980-04 21-03H



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Introduction

Thank you for purchasing the HIOKI "Model LR5092-20 Data Collector." To obtain maximum performance from the instrument, please read this manual first, and keep it handy for future reference.

Trade Marks

- · Microsoft and Excel are either registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.
- The SD logo is a trademark of SD-3C, LLC.

Notation

\bigotimes	Indicates a prohibited action.		
(p.)	Indicates the location of reference information.		
@ +	Indicates hints on operation and troubleshooting.		
*	Indicates that descriptive information is provided below.		
[]	Menus, commands, dialogs, buttons in a dialog, and other names on the screen and the keys are indicated in brack- ets.		
SET (Bold characters)	Bold characters within the text indicate operating key labels.		
Windows	Unless otherwise specified, "Windows" represents Windows 7 or Windows 10.		
Dialog	Dialog box represents a Windows dialog box.		

Mouse Operation

Click	Press and quickly release the left button of the mouse.
Right-click	Press and quickly release the right button of the mouse.
Double click	Double click: Quickly click the left button of the mouse twice.
Drag	While holding down the left button of the mouse, move the mouse and then release the left button to deposit the cho- sen item in the desired position.
Activate	Click on a window on the screen to activate that window.

Verifying Package Contents

When you receive the instrument, inspect it carefully to ensure that no damage occurred during shipping. In particular, check the accessories, panel switches, and connectors. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.

Quantities in parentheses ().



Transporting Precautions

Use the original packing materials when transporting the logger, if possible.

Pack the logger so that it will not sustain damage during shipping, and include a description of existing damage. We do not take any responsibility for damage incurred during shipping.

Safety Information

This manual contains information and warnings essential for safe operation of the instrument and for maintaining it in safe operating condition. Before using it, be sure to carefully read the following safety precautions.

DANGER This logger is designed to comply with IEC 61010 Safety Standards, and has been thoroughly tested for safety prior to shipment. However, mishandling during use could result i n injury or death, as well I a s damage to the logger. However, using the logger in a way not described in this manual may negate the provided safety features.

Be certain that you understand the instructions and precautions in the manual before use. We disclaim any responsibility for accidents or injuries not resulting directly from logger defects.

Safety Symbols

Markings on the logger have the following meanings.



Symbols for Various Standards

Markings on the logger have the following meanings.



Danger Levels

The following symbols in this manual indicate the relative importance of cautions and warnings.

 Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.

 Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.

 Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.

 Indicates that incorrect operation presents a possibility of injury to the user or damage to the instrument.

 NOTE
 Indicates advisory items related to performance or correct operation of the instrument.

Operating Precautions

Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

Installation Precautions

Operating temperature and humidity: 0 to 40°C, 80%RH or less (non-condensating) Storage temperature and humidity: -10 to 50°C, 80%RH or less (non-condensating)



Avoiding Collector Damage

ACAUTION To avoid damage to the instrument, protect it from physical shock when transporting and handling. Be especially careful to avoid physical shock from dropping.

CD Handling

 Always hold the disc by the edges, so as not to make fingerprints on the disc or scratch the printing.Never touch the recorded side of the disc. Do not place the disc directly on anything hard.

- · Do not wet the disc with volatile alcohol or water, as there is a possibility of the label printing disappearing.
- To write on the disc label surface, use a spirit-based felt pen. Do not use a ball-point pen or hard-tipped pen, because there is a danger of scratching the surface and corrupting the data. Do not use adhesive labels
- · Do not expose the disc directly to the sun's rays, or keep it in conditions of high temperature or humidity, as there is a danger of warping, with consequent loss of data.
- To remove dirt, dust, or fingerprints from the disc, wipe with a dry cloth, or use a CD cleaner. Always wipe from the inside to the outside, and do no wipe with circular movements. Never use abrasives or solvent cleaners.
- Hioki shall not be held liable for any problems with a computer system that arises from the use of this CD, or for any problem related to the purchase of a Hioki product.

Preliminary Checks

Before using the instrument the first time, verify that it operates normally to ensure that the no damage occurred during storage or shipping. If you find any damage, contact your dealer or Hioki representative.

MARNING Before using the instrument, make sure that the insulation on the USB cable is undamaged and that no bare conductors are improperly exposed. Using the device in such conditions could cause an electric shock, so contact your dealer or Hioki representative for replacements.

Preparation for Use to Data Analysis

The steps from measurement preparation to data analysis are illustrated with a typical usage example for the collector.

Example Case: The variations in the temperature and humidity of a warehouse have been measured with eight LR5001 Temperature/Humidity Loggers. Collect the data of all loggers, send the data to a computer, and analyze and store the data on the computer.

Required Items: Quantities in parentheses ().



Procedure:



7 Preparation for Use to Data Analysis





The settings of a logger can be made with the collector or the LR5000 Utility Program.

The collector can control the starting and stopping of recording on

See: "3.1" (p.21), "7.2" (p.72), "7.3" (p.83)

?

the logger. See: "3.6" (p.29)



How can data be printed?

See: "7.9" (p.113)

Overview

Chapter 1

1.1 Product Overview and Features

This instrument is a compact data collector that can set the measurement conditions and import the recording data of the LR5000-series loggers. This is useful when you are using multiple loggers.



Part Names/Functions 1.2

Front

Display (p.11)

The backlight turns off if no operation is performed for approximately 30 seconds. The backlight turns on again when a button is pressed or communication is performed.



Operating Buttons

Back

USB Port (p.72)

Connect a computer using the supplied USB cable



SD Memory Card Slot (p.17)

Insert an SD memory

IR Port (p.31)

Enables communication with the IR port of

Battery Cover (p.15)



Display



1.3 Basic Button Operations and Display Organization

This section describes the basic button operations and display organization of the collector.



1

1.3 Basic Button Operations and Display Organization

Display Organization Startup Display (Top Display) ΗΙΟΚΙ This display is shown for several seconds. LR5092 DATA COLLECTOR Ver. 1.00 -Software version information ©нюкі 2010 Memory Usage Status Display Memory Status 50**(IIII** This display appears when [Startup Dis-play] is set to [Memory Status]. 2/16 block used Use the F button to select the next dis-Empty block 14 play to show. Menu SD To Menu display To SD Card display (p.14) **Top Display** This display appears when [Startup Dis-2011-01-25 15:34:40 🔊 💷 play] is set to [Menu Display]. .Collect Data 2.Verify Data Select and execute a menu to show the 3 Logger Operation▼ corresponding display. Press Enter to Exec. **Collect Data** Shows the Data Collection display. (p.13) Verify Data Shows the Data Verification display. (p.13) Logger Operation Shows the Logger Operation/Settings display. (p.13) SD Card Shows the SD Card display. (p.14) **Unit Settings** Shows the Collector Settings display. (p.14)

Chapter 1 Overview

Data Collection display



Shows the data collection operation menu items.

Set the collection destination and collection method for data.

See: "Selecting the Data Save Destination and Then Performing Collection" (p.35)

Data Verification display

Unit Me	mory	50 (1111
→01:LR	5001 2	2ch
02:LR	5001 2	2ch
03:LR	<u>5041 1</u>	lch
SD	CMNT	Cance1

Shows a list of the recorded data that was collected.

The following operations are possible.

- Showing detailed display of data (numerical values and graph) (p.39)
- Moving data to SD memory card (p.42)
- Clearing data (p.49)

Logger Operation/Settings display



Shows operation menu items for operating and setting a logger.

The following operations are possible.

- Setting the measurement conditions of a logger (p.21)
- Sending the settings of measurement conditions to a logger (p.26)
- Receiving the settings of a logger (p.27)
- Verifying the recording conditions and setting conditions of a logger (p.28)
- Starting and stopping recording on a logger (p.29)

SD Card display



Shows the data management menu items.

The following operations are possible.

- Showing a list of data in an SD memory card (p.39)
- Moving data from the collector memory to an SD memory card (p.42)
- Saving the logger setting conditions in the collector to an SD memory card, or importing logger setting conditions from an SD memory card (p.46)
- Clearing individual or all data in an SD memory card (p.49)
- Initializing an SD memory card (p.54)

Collector Settings display



Shows menu items for the system settings and other settings.

The following operations are possible.

- Showing and changing the system settings of the collector (one-touch collection, startup display, language setting, and clock setting) (p.55)
- Performing self checks (p.60)
- Initializing the collector (restoring the settings to the factory default settings) (p.64)

Preparation for Use Chapter 2

2.1 Installing (or Replacing) the Battery

• After replacing the batteries, replace the cover before using the instrument.

- Do not mix old and new batteries, or different types of batteries. Also, be careful to observe battery polarity during installation. Otherwise, poor performance or damage from battery leakage could result.
- Battery may explode if mistreated. Do not short-circuit, recharge, disassemble or dispose of in fire.
- Handle and dispose of batteries in accordance with local regulations.

NOTE

- Data and settings stored in the collector are retained even when the batteries are depleted, and during battery replacement.
 - The clock can keep good time for several minutes even when the battery is removed during a battery change.

Battery Replacement

Required Items: LR6 alkaline battery (2)



2

Battery Status Indicator

This indicator is displayed at the top right corner.

Battery power remaining (The blocks disappear from the left as battery power reduces.)

Batteries depleted (It is time to replace the batteries. Communication with a logger is not possible in this state.)

- The data saved to the collector and time settings are retained even when the batteries are depleted or replaced.
- When the collector is connected to a computer via a USB cable, the battery power is not consumed because power is supplied to the collector from the computer.



The \square indicator appears when battery voltage becomes low. Replace the batteries as soon as possible.

Using a NiMH Battery

The battery status indicator does not accurately show the remaining battery capacity when using a NiMH battery. Moreover, the battery life will vary greatly with the capacity, charging conditions and repeated uses. Please take note of these points when using it.

The device's battery status display and battery life are based on the usage of a brandnew alkaline battery.

When the logger will not be used for long time

CAUTION To avoid corrosion and damage to this instrument from battery leakage, remove the batteries from the instrument if it is to be stored for a long time (1 week).

2.2 Inserting an SD Card (When Necessary)

The recording data of a logger can also be collected in not just the collector memory but also in an SD memory card.

When you want to collect the data in an SD memory card, insert the SD memory card in the collector.

It is also possible to move the data in the collector memory to an SD memory card. (p.42)

 Inserting a SD memory card upsidedown, backwards or in the wrong direction may damage the instrument or the SD memory card. Never remove an SD memory card while it is being accessed by the collector. The data in the SD memory card may be corrupted. When the collector is using the batteries, the data may not be able to be saved properly if the batteries are depleted during saving. In the worst case, the memory card may be damaged so pay sufficient attention to amount of remaining battery power. NOTE · SD memory cards have a limited life due to using flash memory. If an SD memory card is used for a long time, the storage and importing of data will become no longer possible. If this happens, purchase a new SD memory card. · Hioki will not compensate for the loss of any data stored in an SD memory card regardless of circumstances or cause of the failure or damage that resulted in the loss. Be sure to back up any important data in an SD memory card. It is possible to record the Data Logger's recorded data (60,000 data) up to 10000ch (up to 5000 for 2 ch recorded Data Logger of LR5001,

etc.) on a 2GB SD memory card. However, avoid using up the total data storage capacity. Accessing the SD memory card from the LR5092 and PC utility program will become extremely slow.

It is recommended to regularly delete those data from the SD memory card that have been transferred to the PC.

2.2 Inserting an SD Card (When Necessary)

How to Insert an SD Memory Card

Required Items: SD memory card (1)



How to Remove an SD Memory Card



SD Memory Cards for which Operation is Guaranteed

HIOKI Z4001 SD Memory Card 2GB HIOKI Z4003 SD Memory Card 8GB We strongly recommend using Hioki optional SD memory cards.

2.3 Turning the Power On/Off

Each press of the **POWER** button (long press for approximately 1 second) turns the power on/off. (The power is turned on when the device is connected to the PC via a USB cable. The power will be turned off when the USB cable is removed.)



2

2.4 Inspection Before Use

Inspect the following items before use.



Settings (When Necessary) Chapter 3

You can set the measurement conditions of a logger with the collector, and then send the settings to the logger. (This feature is convenient when you want to set the same settings on multiple loggers.)

It is also possible to receive the settings of a logger, and then send those settings to a different logger. The setting can be made also from the LR5000 Utility Program. (p.72)

3.1 Making Settings with the Collector

This section describes how to make settings with the collector.

1 2	2011-01-25 16:07:13 ஹ(IIII) 1.Collect Data 2.Verify Data →3.Losser Operation Press Enter to Exec.	1 2	Show the top display. (To return to the top display from another display, select [Back] or [Cancel] .) Move the cursor to [Logger Operation] , and then press the D button.
3	2011-01-25 1. 53:20 ஹ(IIII) →1.Logger Settings 2.Logger Operation 3.Send/Receive Enter to Exec Cancel	3	Move the cursor to [Logger Settings] , and then press the D button. (To return to the top display, press the F3 but- ton.)
4	2011-01-25 1. 07:43 ₪ (IIII) → IR5001 HUMIDITY LR5011 TEMP LR5021 TEMP	4	Move the cursor to the model you want to set, and then press the button (or F2 button). (To return to the previous display, press the F1 button. To return to the top display, press the F3 button)
5	LR5001Sett ng 🔊 💷 Rec interval Rec start method 👻	5	Move the cursor to the item you want to set, and then press the button (or F2 button). (To return to the previous display, press the F1 button. To return to the top display, press the F3 button)
6	Back Set Cancel LR5001Sett 1g ₪000 Rec interval → 1sec	6	Use to select the item (use the F1 or F2 button to change the value), and then press the button (or F3 button). The setting is changed, and the previous display reappears.

3.2 Settings List

The following is a list of all settings.

Setting Item	Setting Description	Collector	LR5000 Util- ity Program
Logger Type (Collector) Model (LR5000 Utility Program)	Select the logger model.	(p.24)	(p.76)
Rec Interval	Select the recording interval.	(p.24)	(p.77)
Rec start time (Collector) Start Method (LR5000 Utility Program)	Select the recording start method. (The start time can be specified.)	(p.24)	(p.77)
Rec Stop Method (Collector) Stop Method (LR5000 Utility Program)	Select the recording stop method. (The stop time can be specified.)	(p.24)	(p.77)
Stop Time Data	Select whether or not to record data at the stop time.	(p.24)	Not settable
Recording Mode (Collector) Rec Mode (LR5000 Utility Program)	Select instantaneous value recording or statistical value recording (mea- surements are taken once per second, and the instantaneous, maximum, min- imum, and average values are saved at each recording interval).	(p.24)	(p.77)
Comment Settings (Collector) ModelComment and CH Comment (LR5000 Utility Program)	Set a comment for logger/measure- ment channel identification. (Set the comment text in the LR5000 Utility Program.)	(p.24) (Only possi- ble to select whether or not to send.)	(p.75) (p.76)
Scaling	Use to scale measured values to display as adjusted values.	(p.24)	(p.79)
Decimal Point (Collector) Display digits (LR5000 Utility Program)	Select the number of digits to display after the decimal point when scaling is set	(p.24)	(p.79)
Unit (Collector) Scaled units (LR5000 Utility Program)	Set the unit for when scaling is set. (Set the unit text in the LR5000 Utility Program.)	(p.24) (Only possi- ble to select whether or not to send.)	(p.79)
Alarm (Collector) Alarm Thresholds (LR5000 Utility Program)	If you set the upper and lower limit val- ues, the [AL] mark will appear on the display of the collector when a measure- ment value falls outside that range.	(p.24)	(p.81)

Setting Item	Setting Description	Collector	LR5000 Util- ity Program
Power Saving (Collector) Power save setting (LR5000 Utility Program)	If this is set to ON (enabled), the logger will run in power saving mode. (The dis- play turns off if no operation is per- formed for approximately 30 seconds.) The display turns on again when a but- ton is pressed or communication is performed. This prolongs the life of the batteries.	(p.24)	(p.76)
Sync to PC Time (LR5000 Utility Program)	Sends the time of the computer to the collector.	Not settable	(p.75)
Range	Select the measurement range.	(p.24)	Refer to the instruction manuals of LR5051.
Preheat	Outputs a preheat signal that is syn- chronized to measurement performed with the logger. This can be used to control the power of various sensors.	(p.24)	Refer to the instruction manuals of LR5041, LR5042 and LR5043.
Filter	Enables noise components to be removed and the influence of chatter- ing to be eliminated.	(p.24)	Refer to the instruction manuals of LR5051.

Settings and Options (Collector)

The following shows the options that can be selected for each setting that can be made with the collector.

Logger Type	LR5001 (Initial Setting) / LR5011 / LR5021 / LR5031 / LR5041 / LR5042 / LR5043 / LR5051 / LR5061
Rec Interval	1 (Initial Setting) / 2 / 5 / 10 / 15 / 20 / 30 sec. / 1 / 2 / 5 / 10 / 15 / 20 / 30 / 60 min /1 day* *: LR5061 only
Rec start time	Button operation <i>(Initial Setting)</i> / Scheduled time [*] / Start After Sent *: Set a date and time. See: "Recording Start/Stop Method" (p.25)
Rec Stop Method	Button (Endless) <i>(Initial Setting)</i> / Button (Once)/Sched. (End- less) [*] / Sched. (Once) [*] *: Set a date and time. See: "Recording Start/Stop Method" (p.25)
Stop Time Data	Include (Initial Setting) / Do Not Include
Recording Mode	Instantaneous (Initial Setting) / Statistical (STAT)
Comment Settings	No <i>(Initial Setting)</i> / Yes Note: Comment text is not settable.
Scaling	OFF (<i>Initial Setting</i>) / y=Ax+B ^{*1} / 2 Points Setting ^{*2} *1: Also set the values of A and B *2: Also set the values of each point.
Decimal Point	Not Fixed (Initial Setting) /0 digit/1 digit/2 digits/3 digits
Unit	Do Not Send (Initial Setting) / Send
Alarm	OFF (<i>Initial Setting</i>) / ON [*] *: Set the upper and lower limit values.
Power Saving	Auto Off (Initial Setting) / Always On
Range (Only when connected to LR5021 and LR5051)	LR5021: 200 / 800°C(<i>Initial Setting)</i> LR5051: 500 mA(<i>Initial Setting</i>) / 5 / 50 / 500 / 1000 A
Preheat (Only when connected to LR5041, LR5042, and LR5043)	OFF (<i>Initial Setting</i>) / 0.5 / 1 / 2 / 5 / 10 / 30 / 60 sec.
Filter (Only when connected to LR5051 and LR5061)	OFF (Initial Setting) / ON



A check mark is added to the set item.

🔶 R

Recording Start/Stop Method

Rec start time

Select the recording start method.

When [Scheduled time] is selected, specify the start date and time.

Setting Item	Setting Description
Button operation (Initial Setting)	Starts recording by pressing the button on the logger.
Start After Sent	Starts recording from specified time after settings sent to the Data Logger. (Endless recording)
Scheduled time	Starts recording from specified time after settings sent to the Data Logger.
Valid setting time range	01/01/2010, 00:00 to 12/31/2039, 23:59



When the [Scheduled time] start method is enabled, the [REC] indicator on the logger display blinks until the specified start time.

Rec Stop Method

When [Sched. (Endless)] or [Sched. (Once)] is selected, also set the time (year/month/day/hour/minute).

Setting Item	Setting Description
Setting item	
Button (End-	Stops recording by pressing the button on the logger.
less) ^{*2}	The oldest data is overwritten when memory is full.
Button (Once) ^{*2}	Starts recording by pressing the button on the logger. Recording is also stopped when memory becomes full.
Sched. (Endless)	Stops recording at the scheduled time. The oldest data is overwritten when memory is full.
Sched. (Once) (Initial Setting)	Stops recording at the scheduled time. Recording is also stopped when memory becomes full.

1: Measurement stops when the recorded data count of the logger becomes 60,000.

2: If the recorded data count of the logger exceeds 60,000, measurement continues and the data is overwritten starting from the oldest.

(*: 15,000 data items when instantaneous value recording or statistical value recording)

3.3 Sending Measurement Condition Settings to Logger

Connect a logger to the collector, and then send the measurement conditions to the logger.

Required Items: Logger to which you want to send the settings



3.4 Receiving Measurement Condition Settings from Logger

Connect a logger to the collector, and then receive the measurement conditions from the logger.

Required Items: Logger from which you want to receive the settings



3

3.5 Verifying Recording/Setting Status of Logger

You can verify the current recording/setting status of the logger.

Required Items: Logger for which you want to verify the recording/setting status



3.6 Starting and Stopping Recording on Logger

The collector can control the starting and stopping of recording on the logger.

Required Items: The logger for which you want to start/stop recording

1 Show the top display of the collector. 2011-01-25 16:07:13 🗊 💷 Collect Data (To return to the top display from another display, select [Back] or [Cancel].) Data 2 Operation Move the cursor to [Logger Operation], Press Enter to Exec. and then press the □ ■ □ button Move the cursor to [Logger Operation], 3 3 2011-01-25 16:33:03 🗊 💷 and then press the C D button Logger Settings 2.Logger Operation (To return to the previous display, press the F3 3. Send/Rece i ve button.) Enter to Exec ICance 4 Place the logger and collector so that their IR ports are aligned. Move the cursor to [Start Recording] or 5 [Stop Recording], and then press the 5 2011-01-26 05:17:42 🔊 🛲 **D** button. Logger Status \Box Start Recording (To return to the previous display, press the F3 3.Stop Recording button.) Enter to Exec Back 6 6 2011-01-26 05:18:01 🗊 💷 Press the \bigcirc **D** button (or **F2** button). Record... Recording starts or stops, and the previous Start display reappears. [Can<u>ce]</u> Back When you want to cancel the operation: OK Press the F1 button before the operation has been performed to return to the previous display. Press the F3 button to return to the top display.

3
Collecting and Browsing Data

Chapter 4

You can collect the recorded data of a logger with the collector, and then browse the data in the form of numerical values or a graph.

4.1 Collecting Recorded Data of Logger

One-touch Collection (Collecting Data Easily by Just Pressing COLLECT Button)

You can collect the recorded data of a logger by just pressing the **COLLECT** button. The save destination differs for a logger for which data is collected for the first time (new logger) and a logger for which data was previously collected (logger with same serial number).

New logger	Data is saved to the location set for the save destination setting (collec- tor memory or SD memory card) of [Unit Settings]-[One-Touch Coll.] of the top display. See: "One-touch Collection" (p.55)
Logger with same serial number	Data is saved to the location (collector memory or SD memory card) where the previous data was saved (data of logger with same serial number).

Δ

Required Items: Logger that recorded the data





NOTE

• In the case of a logger for which data was previously collected (logger with same serial number), the data is saved to the location where the previous data was saved. If data exists in both the collector memory and SD memory card, the save destination becomes the SD memory card.

• Data can be collected without stopping measurement on the logger. Data is collected up until the point in time when data collection was performed. However, the time required to perform data collection is longer than when measurement is stopped. Λ



What should I do if an error message appears?

See: "When attempting to collect recorded data:" (p.132)



What happens if collection is performed once during recording and then again after recording is finished?

The uncollected data will be collected.



What should be done if communication is interrupted during collection?

Check whether or not the IR port is scratched or dirty. Check the connection to the logger, and then perform collection again. The uncollected data will be collected.

Selecting the Data Save Destination and Then Performing Collection

Each time you perform collection, you can select the data save destination and then collect the recorded data from the logger.

Required Items: Logger that recorded the data

1	2011-01-25 15:34:40 🔊 📖	1	Show the top display of the collector.
3	→ <mark>1.Collect Data</mark> 2.Verify Data		(To return to the top display from another display, select [Back] or [Cancel] .)
	<u>3.Logger Operation</u> ▼ Press Ente <u>r</u> to Exec.	2	Place the logger and collector so that their IR ports are aligned.
2		3	Move the cursor to [Collect Data] and then press the D button.
	A CONTRACTOR	4	Note: This display may sometimes not appear. (Refer to the note on the next page.) Select the save destination, and then
4	2011-01-25 15-27:23 ₪())) Save to →1.Unit Memory 2.SD Card Unit SD Cancel		Press the button. (Pressing the F1 or F2 button allows you to go to the next display without pressing the button.) (To return to the previous display, press the F3 button.)
5	Save to Unit Coll Method →1.Uncollected Only 2 All data	5	Select the collection method, and then press the button.
	Back Cancel		button. To return to the previous display, press the F3 button.)
6	<u>Save to Un</u> rt LR5001 (101123447) (LR5001) <u>Collect this data</u> ?	6	Press the D button (or F1 button). When you want to cancel the operation: Press the F3 button before the operation has
	[Start] []Lance]		been performed to return to the top display.



(To return to the previous display, press the F3 button.)

 \cap

NOTE

- In the case of a logger for which data was previously collected (logger with same serial number), the data is saved to the location where the previous data was saved. If data exists in both the collector memory and SD memory card, the save destination becomes the SD memory card.
 - Data can be collected without stopping measurement on the logger. Data is collected up until the point in time when data collection was performed. However, the time required to perform data collection is longer than when measurement is stopped.



What should I do if an error message appears?

See: "When attempting to collect recorded data:" (p.132)



What happens if collection is performed once during recording and then again after recording is finished?

Select whether to collect only uncollected data or all data for the collection method in step "5" (p.35).



What should be done if communication is interrupted during collection?

Check whether or not the IR port is scratched or dirty. Check the connection to the logger, and then perform collection again. The uncollected data will be collected.

38 4.1 Collecting Recorded Data of Logger

Data Management Chapter 5

This section describes how to manage the data saved to the collector memory and SD memory card.

5.1 Displaying Data List

You can display a list of the data saved to the collector memory or SD memory card.

Displaying List of Data in Collector Memory



Displaying List of Data in SD Memory Card



File Structure in SD Memory Card

The following shows the file structure for the data in an SD memory card.





The latest data will be displayed when data is retrieved over a few times during recording.

The retrieved data display screen will switch to the previously-retrieved data \bigcirc

when the $\Box \blacksquare \Box$ and $\blacksquare \Box \Box$ button are pressed simultaneously. (The displayed

data is in units of data retrieved. Pressing the \Box and \Box button simultaneously will switch to the next data.)

5.2 Moving Data in Collector Memory to SD Memory Card

You can move the data in the collector memory to an SD memory card.





44 5.2 Moving Data in Collector Memory to SD Memory Card

Unit to SD 🔊 💷 Now moving	The display on the left is shown during moving. When you want to cancel moving part way through: Press the F3 button to return to the top display.
Unit to SD 🔊 💷 Now clearing	After the data is moved, the collector memory is cleared.
Unit to SD 🔊 💷 No Data move has L been completed II OK	A message appears when clearing of the collector memory is completed. (Press the F1 button to return to the display of step "3" (p.43).)

5.2 Moving Data in Collector Memory to SD Memory Card

1	2011-01-26 10:35:03 🔊 🎹		Moving All Data
2	2.Verify Data ▲	1	Show the top display of the collector.
	\rightarrow 4 SD Carr	10	(To return to the top display from another dis-
	Press Enter to Exec.		play, select [Back] or [Cancel].)
		2	Move the cursor to [SD Card], and then
3			press the 🛛 🗖 🗅 button.
	1 Dienlay Liet	-	Move the cursor to [Move Linit Data] and
	→2.Move Unit Data	5	then press the and button
	<u>3.Conditions</u> 🔻		
	Enter to Exec <u>Cancel</u>	4	Move the cursor to [Move All Data], and
			then press the 🛛 🗖 🖸 button (or F2 button).
4	Unit to SD 🔊 💷		(To return to the previous display, press the F1
	⇒1.Move All Data		button. Press the F3 button to return to the top
	2.Select Data		display.)
	Piove data to SU Reck II Even I Capcell	5	Press the 🗇 🗖 D button (or F1 button).
5			Press the F3 button before the operation be-
	<u>Unit to SD 🛛 🔊 🎟</u>		gins to return to the top display.
	Move all unit data to SD		The display on the left is shown during
	uata to op.		moving.
	Start Back		When you want to cancel moving part way through:
			Press the F3 button to return to the top display.
	Unit to SD 🗗 🕅		After the data is moved, the collector memory
	Now moving		is cleared.
			A message appears when clearing of the collector memory is completed
			(Press the F1 button to return to the display of step 3.)
	Unit to SD 🛛 🖻 🎟		Unit to SD 🔊 🎟
	Now clearing		NoData move has
			🛽 been completed 🔳

5.3 Saving and Importing Setting Conditions

You can save the logger setting conditions* in the collector memory to an SD memory card, or import logger setting conditions from an SD memory card. *: This means logger measurement conditions (p.21) set with the collector.



5.3 Saving and Importing Setting Conditions



NOTE

Up to 16 setting conditions can be saved.



5.4 Clearing Data

You can clear the data from the collector memory or SD memory card.

Clearing Data from Collector Memory





Clearing Data from SD Memory Card

There are two methods for clearing one desired data item from an SD memory card, and there is one method for clearing all data from an SD memory card.







NOTE

<u>Only the recorded data and setting conditions data are deleted.</u> Perform initialization when you want to delete all of the data in an SD memory card.

See: "5.5 Initializing SD Memory Card" (p.54)

5.5 Initializing SD Memory Card

You can initialize an SD memory card. All of the data in the SD memory card is cleared.



NOTE

Initialization cannot be stopped once it has been started. We recommend backing up any important data beforehand.

Collector System Settings Chapter 6

This section describes how to display and change the system settings of the collector, and perform self checks.

6.1 Displaying and Changing Collector System Settings

One-touch Collection

You can display and change the save destination setting of one-touch collection for a new logger.

* When data is collected from a logger for which data has been collected previously (logger with same serial number), the data is saved to the location (collector memory or SD memory card) where the previous collected data was saved regardless of the save destination setting of one-touch collection.



What is One-touch Collection?

A function that allows you to collect data in the collection destination set for recorded data of a logger by simply pressing the **COLLECT** button. (p.31)

The initial setting for the collection destination is [Collector Memory].

1 2	2011-01-26 16:06:16 ⊠∭∭ 3.Logger Operation▲ 4.SD Card →5.Unit Settings Press Enter to Exec.	1 2	Show the top display of the collector. (To return to the top display from another display, select [Back] or [Cancel].) Move the cursor to [Unit Settings], and then press the D button.
3	2011-01-26 16:54:52 ()) →1.One-Touch Coll. 2.Startup Display 3.LANGUAGE ▼ Enter to Exec. <u>Cancel</u>	3	Move the cursor to [One-Touch Coll.] , and then press the D button. (Press the F3 button to return to the top dis- play.)
4	One-touch Coll. ⊠∰ Save location for One-touch collection. ▼ Back Set	4	Move the cursor to the save destination ([Collector Memory] or [SD Card]), and then press the D button (or F2 button). When the collection destination is set, a check mark is added. (To return to the previous display, press the F1 button. Press the F3 button to return to the top display.)

Startup Display

You can change the setting for the display that appears at startup (top display). The initial setting is [Menu Display].

See: "Display Organization" (p.12)

1 2011-01-26 16:06:16 🗊 💷 Show the top display of the collector. Logger Operation≜ (To return to the top display from another dis-SD Card play, select [Back] or [Cancel].) 2 Settings Press Enter to Exec. Move the cursor to [Unit Settings], and 2 \cap then press the □ ■ □ button. Move the cursor to [Startup Display], 3 2011-01-26 16:55:55 🗊 💷 One-Touch Coll and then press the $\Box \Box \Box$ button. 3 Startup Display LANGUAGE (Press the F3 button to return to the top dis-Enter to Exec.|Cance play.) Move the cursor to the display you want to 4 Δ Startup Display 🗈 🎟 show at startup, and then press the C ≫√Menu Displav button (or F2 button). Memory Status (To return to the previous display, press the F1 button. Back Set Press the F3 button to return to the top display.) The previous display reappears. A check mark is added to the set display.

Language Setting

You can display and change the language setting for display on the collector. The initial setting is **[English]**.



Clock Setting

You can set the time of the clock displayed on the collector.



NOTE

- If the time of the clock is not correct, the wrong time will be mistakenly set on the logger and the time information for the collected data or SD memory card files will not be correct, resulting in undesirable consequences. Verify the clock display and set the correct time before using the collector.
- If the clock setting is significantly different from the actual time when the power is turned off and then back on again after the clock has been set, the life of the clock backup battery is over. The battery needs to be replaced so contact the place of purchase (dealer) or your nearest Hioki sales office.

See:"Requesting Repairs" (p.129)

6.2 Performing Self Checks

You can perform self checks on the collector and SD memory card.

Firmware

Perform a self check of the firmware of the collector.



LCD

Perform a self check of the LCD of the collector.



NOTE

If there is an abnormality with the LCD display, submit the collector for repairs. **See:** "Requesting Repairs" (p.129)

Buttons and Buzzers

NOTE

Perform a self check of the buttons and buzzers of the collector.



If there is an abnormality such as a button does not work, turn off the power and then submit the collector for repairs. See: "Requesting Repairs" (p.129)

SD Card

Perform a self check of an SD memory card.



6.3 Initializing the Collector (Restoring to Factory Default State)

6.3 Initializing the Collector (Restoring to Factory Default State)

You can initialize the collector.



Using the LR5000 Utility Program Chapter 7

You can use the LR5000 Utility Program to import (save) recorded data to a computer, and browse and print recorded data. It can also be used to make the settings of the collector or logger from a computer.

7.1 Installing the PC Application Program

CPU	1 GHz or faster processor clock
RAM	1 GB or more (32-bit), 2 GB or more (64-bit)
OS	Windows7 or Windows 10
Library	.NET Framework 4.5.2 or later
Interface	USB
Monitor Resolution	1024×768 or higher
Hard Disk	At least 30 MB free space (Additional space is required for storing recorded data.)

LR5000 Utility Program Operating Requirements

Installation Procedure

 Start the computer. Administrator authority may be required for the installation.



Set the included CD to the CD-ROM drive.

3.

Click [Start] to display the application list. Click [Windows System] - [File Explorer] to start Explorer.





Click [This PC], and then, double-click [CD Drive (D)] drive.





Double-click the [english] folder.

Image: Image	Manage Drive Tools	CD Drive (D:) LR509x	- 🗆 × ~ 🕐
\leftarrow \rightarrow \checkmark \uparrow \blacksquare \rightarrow Thi \rightarrow CD Dri.	- ~	ර් 🖉 Search CD Drive	(D:) LR509x
 Downloads Music Pictures Videos Local Disk (C:) CD Drive (D:) LR509x 	Name	/ish Innese	Date modified 1/11/2021 10:26 F 1/11/2021 10:26 F
> in Network 2 items	v <		>

6.

Double-click [setup.exe] (SET UP file).

📙 🕑 📃 🔻 english		Manage			-		×
File Home Share View	A	plication	Tools				~ ໃ
$\leftarrow \rightarrow \neg \uparrow $	sh	~	Ö	⊘ Search english			
Documents	^	Name		^		Date m	odified
🖶 Downloads		Do	tNetFX4	52		2/8/202	1 12:05 A
👌 Music						2/7/202	1 9:07 PI
E Pictures		a set	up.exe			2/7/202	1 9:07 PI
🛃 Videos		-					
Local Disk (C:)							
CD Drive (D:) LR509x	~	<					>
3 items 1 item selected 788 KB							

(The extension may not be displayed.) After the installer starts, follow the instruction to proceed with the installation.


If the computer fails in the installation

- Some computers, depending on system environments including OS and security, can fail in the installation using the CD-R. In such a case, download the executable program from the "Drivers, Firmware, Software" page of Hioki's website, and then install it again.
- The data logger series LR5000 programs consists of LR5000 Utility Program and LR5091/LR5092 Device Driver, both of which need to be installed.
- If the earlier version of LR5091/LR5092 Device Driver has been installed, uninstall it before installing the latest version of program.
- Ask your system administrator if installing application programs or changing system environments is prohibited for security reasons.

How to start the program?

- The program starts automatically from the next Windows logon. (The icon appears in the task tray (notification area)(p.72).)
- Click the icon and click [Show Main Screen].



For setting and importing recorded data from loggers other than the LR5000 series, use the Communication Utility program supplied with the model 3911 or 3912 Communication Base. You can browse the recorded data by using LR5000 Utility Program also.

68 7.1 Installing the PC Application Program

NOTE

The various settings and recorded data will not be deleted when you uninstall or update the software.

Uninstall Procedure

Follow this procedure to uninstall the LR5000 Utility Program.

1 Click [Start]-[Settin (The [Windows Set	ngs]. ittings] dialog box appears.)			
2 Click [Apps]. (The [Apps & feat	2 Click [Apps]. (The [Apps & features] screen appears.)			
3 Select the [LR5000 Utility Program], and click the [Uninstall] button.				
Click [Uninstall]. (The program is unins	talled.)			
Settings	×			
බ Home Find a setting	P HEIF Image Extensions 8.00 KB			
2 Apps IE Apps & features	Microsoft Corporation 10/28/2020 Image: Microsoft Corporation 10/28/2020 Image: Microsoft Corporation 22.2 MB Z/8/2021 2/8/2021			
i⊐ Default apps	Modify			
(FT 0.07)	Mail and Calendar 410 MP			
	Microsoft Corporation 10/28/2020			

Version Upgrading

Download the latest version of the LR5000 Utility Program from our website (http://www.hioki.com).

Follow the procedure on the download page to install the latest version. (The old version is uninstalled automatically.)

LR5000 Utility Program Screens



Setting Screens (p.73), (p.84)

Make and export logger and Data Collector settings.Logger settings can be saved to an SD Memory Card.

Example: Data Collector settings



Data Import Screens (p.94), (p.98)

Import data from the logger, Data Collector, or SD Memory Card with these screens.

Example: Data Collector import screen



Example: SD memory card import screen



Data Viewing Screens (p.88), (p.92), (p.101)

View imported data on these screens. Select a file to view, as a graph or table.

Example: Screens for viewing the latest data



Data Sorting Screens (p.114)

Sort imported data on these screens. You can copy, delete, move, combine, and extract data.

Example: Data Copy screen



Option Screens (p.119)

Make advanced settings on these screens. You can specify the data importing method.

Example: Import Method Setting screen



7.2 Setting the Collector from the LR5000 Utility Program

You can use the LR5000 Utility Program installed on the computer to make the collector settings (logger settings in the collector memory or SD memory card).

See:For how to make logger settings, refer to the Instruction manual supplied with the logger.

CAUTION To avoid damage to the instrument, do not short-circuit the USB terminal and do not input voltage to the USB terminal.

Required Items: LR5092-20 Data Collector, Logger, USB cable, Computer



Collector Settings



2 Data Collector	 2 For the [Setting], click the [Data Collector] button. The Data Collector Settings screen appears. (If the Data Collector is not connected, you are prompted to connect it. Connect the Data Collector.) 3 Select the logger from the device list*, and edit the settings. (p.75) 4 Click the [Send Settings] or [Send All Settings] button*. 	
Select this check box to also display data collectors (that are not connected) to which settings were saved previously in the list.	s are those previously made from the previo	
 How can the settings of the current data collector be reflected in the setting options? Click the [Import Settings] button at the upper right of screen. (A dialog (p.74) appears.) Select the check boxes of the settings you want to import, and then click the [Import Settings to Computer] button. (The settings are reflected in the setting options.) How can the settings of another logger be saved to the SD memory card? Edit the settings in the [Logger settings to save to SD card (in data collector)] list. (p.75) Click the [Send All Settings] button. (*:The settings to be saved to the SD memory card are sent together with the basic settings.) 		

74 7.2 Setting the Collector from the LR5000 Utility Program



How can I learn mo	e about c	hanging se	ettings?		
LR5092 Data Collector(Serial no 10059200 Basic Settings Model comment LR5092 DataCollector	1)				Import Settings
Sync to PC Time (PC time2011 Logger settings in the collector memory Model Model comment	-2-4 01:02:24) CH1 comment	CH2 comment	Rec interval	Start m	1
Edit button	CH1	CH2	1min	Button (Send settings
Logger settings to save to SD card (in dat Model Model com Delete button	a collector) ment CH1 c CH1	omment CH2 cc CH2	mment Reci	nterval	
2 LR5001 sample3	CH1	CH2	1sec		
Add button * This button is not	displayed if	there are 16 s	settings.		🝵 Send all

1 Setting the [Basic Settings].

Model Comme	Enter a comment to describe the data collector as needed.
Sync to PC Time	Check this to match the collector's clock setting to the computer's time
Logger set- tings in the collector memory	Display and edit the logger settings to save to the internal memory of data collector. Click the Edit button to display the setting dialog box.(p.76)

Note: Comments may consist of up to 20 characters.

The following characters are not allowed: \, /, :, *, ?, ", <, >, and |.

2 Edit the settings in [Logger settings to save to SD card (in data collector)]. (If necessary)

- Click the Edit button to display the setting dialog box. (p.76)
- · Click the Delete button to delete the corresponding setting.
- Click the Add button to display the setting dialog box. (p.76) (A new setting is added.)

When you want to know more about how to edit the logger settings: * This section explains editing settings using the LR5001 Humidity Logger as an example. For details on the setting items of each of the loggers, refer to "Making Settings from the LR5000 Utility Program" in the instruction manuals of the corresponding loggers. 🖵 Edit the logger settings See: P.82 Edit settings of Data Collector Please select [Model], or refer to the logger settings saved to the com Model LR5001 Humidity Logger 🔹 Save Settings Gen Open Cogger Settings Basic settings Model comment sample2 Power save setting Enabled • CH1 comment CH1 CH2 comment CH2 Send comment to logger asurement Method Recording Method Click this tab. Rec interval Isec 👻 Valid setting time range Start Method Button Operation 16hour 40min 0sec 2011- 2- 3 28:28 Button Operation(Endless) Stop method Endless Recording: The oldest data is overwritten when memory is full One-Time Recording Recording stops when memory becomes full 2011- 2- 3 23:28 * This is not displayed if the Add button was clicked in "2" (p.75). Update Add as new setting Gancel Select the logger to which you want to save the settings in [Model]. (When adding) Setting the [Basic Settings]. Model Enter a comment to describe the logger as needed. comment Power save Enable or disable the power save setting (p.23). settina CH1 comment Enter a comment to describe the measurement channel as needed. CH2 comment Note: Comments may consist of up to 20 characters. The following characters are not allowed: \, /, :, *, ?, ", <, >, and |, 3 Settings on the [Recording Method] tab. Continued \rightarrow

Rec interval

Sets the recording interval.

1/2/5/10/15/20/30 sec., 1/2 /5/10/15/20/30/60 min (1day: for the LR5061 only)

Start Method

Select the recording start method.

When [Scheduled Time] is selected, specify the start date and time.

Setting Item	Setting Description
Button Operation	Starts recording by pressing the button on the logger.
Start After Sent	Starts recording by pressing the [Send Settings] button.
Scheduled Time	Starts recording at the scheduled time after pressing the [Send Settings] button.

Valid setting time	01/01/2010 00:00 to 12/31/2030 23:50
range	01/01/2010, 00:00 10 12/31/2039, 23:59



When the [Scheduled Time] start method is enabled, the [REC] indicator on the logger display blinks until the specified start time.

Stop Method

Select the recording stop method.

When [Scheduled Time (Endless)] or [Scheduled Time (One-Time)] is selected, the date and time need to be set.

Setting Item	Setting Description
Button Operation	Stops recording by pressing the button on the logger.
(endless)	The oldest data is overwritten when memory is full.
Button Operation	Stops recording by pressing the button on the logger.
(one-time)	Recording also stops when memory becomes full.
Scheduled Time	Stops recording at the scheduled time.
(Endless)	The oldest data is overwritten when memory is full.
Scheduled Time	Stops recording at the scheduled time.
(One-Time)	Recording also stops when memory becomes full.
Hold Data at Sched-	Specify when setting [Scheduled Time (Endless)].
uled Time	Select this check box to record the data at the scheduled time and stop recording.

Rec Mode

Select the recording mode.

Setting Item	Setting Description
Instantaneous	The instantaneous value is recorded at each recording interval.
Statistical	Measurements are taken once per second, and instantaneous, maximum, mini- mum, and average values are recorded at each recording interval. (Up to 15,000 data values can be recorded.)

See: Statistical recording results in shorter logger battery life.



Statistical recording is not available when the recording interval is set to 1 second.

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4 Setti Click	ings on the [Measurement Method] tab the [Edit] button to display the setting dialog box.
	Edit the logger settings
	Edit settings of Data Collector
	Please select [Model], or refer to the logger settings saved to the computer, and then apply the settings.
	Model LR5001 Humidity Logger 👻 💭 Save 😂 Open 💕 Logger Settings
	Racin settines
	Model comment sample2 Power save setting Enabled
	CH1 comment CH1 CH2 comment CH2
	Send comment to logger
	Click a tab
4	
	Scaling Disabled Edit Scaling Disabled Edit (P.1.3)
	Alarm Lower=20Upper=28 Edit Alarm Lower=80Upper=70 Edit
	(p.81)
	* This is not displayed if the Add button was clicked in "2" (p.75).
	Add as new setting
	5 Click one of these buttons. The [Add as new setting] button i
	not displayed when there are 16 se
	tings.
	Continued

Scaling (set as needed) See: "What is Scaling?" (p.80)

The following scaling calculation is applied to measured values. Scaled Result = Raw data (measured value) × A + B × SI prefix (multiplier) The scaled result is displayed on the logger.

The following scaling calculation is applied to measure Scaled Result - Raw data (measured value)> A	ng ck box to enable scaling.
A/B (dope/difet) values Soedy by example Specify by example Specify by A/B Raw data Scaled result 02 0 Depley digts	Specify by example, or Specify by
C Solution C Image: Constraint of the solution of the	Clicking this tab changes the setting options. Make set- tings on either tab. (The settings are applied to the other tab.)

1. Set the following options.

Setting Item	Setting Description
Specify by example	Enter two known conversion points (up to ten digits each).
Specify by A/B	Enter the scaling coefficients (A and B, up to ten digits each).
Scaled units	 Select the [SI Prefix]. ([p]=1E-12, [n]=1E-9, [μ]=1E-6, [m]=1E-3, blank =1E0, [k]=1E3, [M]=1E6, [G]=1E9, [T]=1E12) Enter the [Char. String] to identify the scaled units. (Up to five characters, except /, :, *, ?, ", <, >, and .)
Display digits	 Select [Fixed decimal point] and specify the [Decimal digits] to be displayed to the right of the decimal point. Valid settings are 0 to 3. (Examples: selecting 0 displays values in the form 0000, and selecting 3 displays values in the form 0.000) When [Fixed decimal point] is not selected, values are displayed as four digits (0.000 to ±9999) with automatic decimal positioning.

2. Confirm the settings.

Setting confirmation	Confirm that scaling is performed properly. Enter any numerical value as raw data, and click the [Calc] button to display the scaled result.
-------------------------	--

3. Click the [Save] button.

(Scaling settings are saved, and the display returns to the Logger Settings screen.) Note: If you click the **[Cancel]** button without saving the settings, the display still returns to the Logger Settings screen.

What is Scaling?

Scaling converts actual measurement values to their corresponding values in arbitrarily determined units for display. It is useful for reconciling the difference between values measured with the logger and those of a reference device.

For example, when two points of correspondence are known between values measured with the logger and those of the reference device, select [Specify by example]. (1) When the logger measures 0.2°C the reference device measures 0.0°C, and (2) when the logger measures 50.4°C the reference device measures 50.0°C





Scaled units SI Prefix Char, String -Display digits Fixed decimal point Decimal digits 1 -

Alternatively, when one point of correspondence is known between the logger and reference device, select [Specify by A/B].

(1) The logger measures 0.2°C and the reference device measures 0.0°C.

Since only one point is known, set the slope to "1" and enter the offset only.

[°C]	A/B (slope/offset) values	Scaled units
	Specify by example Specify by A/B	SI Prefix Char. String
1		C
Slope (coefficient A)	A 1	
[°C]	B -0.2 C	Display digits
-0.2 Offset (coefficient B)		
		Decimal digits 1

Alarm Thresholds (set as needed)

Set the upper and lower alarm threshold values.

When a measurement is outside of the specified area, the **[AL]** (alarm) indicator is displayed on the logger.

Set the upper and lower alam threahold values Derivative alam judgment function Select this check box to enable the alarm. Upper and lower thresholds Enter numerical values between -9999 and 9999 (up to six digits). When scaling is enabled, enter these values as scaled results.	🖵 Alarm Thresholds	3
Upper and lower thresholds Enter numerical values between -9999 and 9999 (up to six digits). When scaling is enabled, enter these values as scaled results.	Set the upper and lower alarm threshold values Set the upper and lower alarm judgment	Enable alarm judgment function Select this check box to enable the alarm.
	Lower 15 13 Cancel Save	Upper and lower thresholds Enter numerical values between -9999 and 9999 (up to six digits). When scaling is enabled, enter these values as scaled results.

Click the [Save] button to save your settings.

(The display returns to the Logger Settings screen.)

- Note: If you click the [Cancel] button without saving the settings, the display still returns to the Logger Settings screen.
- Note: Alarm judgment is performed at every recording interval during instantaneous recording, and once per second during statistical recording.
- Note: Alarm judgment is performed using measurement values with a larger number of digits than the values (4 digits) indicated in the Data Logger's display.
- Note: The **[AL]** indicator appears when the measured value is out of range (OF/UF displayed), and when a sensor anomaly occurs (- - displayed).

Other Functions of the Edit Settings Dialog Box



Douion lint		
Module (Serial no)	Model comment	Basic Strings Model comment [LR5001 Power save setting Enabled v
LR5001 (100500001)	sample2	CHI comment CHI CH2 Messurement Method Recording Method
		want to import.

Pefer to Settings Dialog Poy

Sending Settings to Logger

Connect the logger to which you want to send the settings to the collector, and then send the settings.

See:"3.3 Sending Measurement Condition Settings to Logger" (p.26)

7.3 Saving Setting Data from the LR5000 Utility Program to the SD Memory Card

You can save logger setting data saved to the computer to an SD memory card. (You can also save the setting data in the SD memory card to the computer.) The saved data can also be edited.

Required Items: SD memory card, SD memory card reader, Computer



Saving Setting Data to SD Memory Card



7.3 Saving Setting Data from the LR5000 Utility Program to the SD Memory Card

Select the drive to which the SD memory card is connected from the list of 3 drives Click the [Next] button. Select the check boxes of the setting data you want to save to the SD memory 5 card, and then click the [Add to SD Card] button. LR5000 Utility [Setting]-[SD Card] Data Import Logger Data Data Logger Organize Data SD Card SD Card 🕗 Hel Save logger setting data to an SD memory card Please connect a SD memory card Please click the [Next] button. Drive List Select E:() Updating Drive Acquire and display a list of the removable disks connected to the computer. Returns to the main screen. Click. Next 🚮 Home 2011-02-04 01:29:26 LR5000 Utility [Setting]-[SD Card] Data Impo Data SD Card Logger Data Collecto Logger View Organize Data Optic 🕗 Help SD Card Edit settings of logger. Please click the [Back] button, when you rect Logger settings saved SD Card. Check. 5 5 Click. CH1 CH1 cor Model Model comment Model commer 🗆 🗙 🗹 sample2 CH Delete button V 🛃 🗙 🛃 × CH LR5001 sample4 CH 4 Add to SD Card × 🛃 3 Add button Edit button * This button is not displayed if there are 16 settings. Add to PC Add the selected settings to the computer. Returns to the Saves up to 16 settin Select the check boxes of the setting data in the list of settings main screen. saved to the SD memory card, and then click this button. SD card should not be Returns to the previous screen. Back 🔥 Home 2011-02-04 01:40:30 You can also edit the logger settings in a list. See: About the Edit, Delete, and Add buttons (p.75), How to edit logger settings (p.76)

7.4 Automatically Importing (Saving) Recorded Data to a Computer, and Graph Display

You can use the LR5000 Utility Program installed on the computer to import (save) recorded data from the collector to the computer. (Installation procedure: "7.1" (p.65)) Required Items: Collector, USB cable, Computer



Recorded data is automatically saved when imported to a computer. The save destination and file name are specified as a basic setting on the Options screen.

7.4 Automatically Importing (Saving) Recorded Data to a Computer, and Graph Display

Viewer Screen

The viewer screen appears as follows.



Menu	Item	Contents		
	Open	Opens a file containing recorded data.		
	Recently opened recording files	Opens recently used files.		
	Save recording file as	Currently displayed recording data is saved as a new file.		
File	Print graph	Prints data in graphic format. (p.113)		
	Paste to Microsoft Excel [®]	Pastes displayed data into Microsoft Excel [®] .		
	Export CSV file	exports displayed data as a CSV file.		
	Exit	Closes the program.		
	Scaling	Applies scaling to data on one channel. (p.105)		
	Power Calculation	Performs approximate electric power calculation. (p.106)		
	Energy Cost	Performs approximate energy cost calculation. (p.107)		
Process	Operating Rate	Performs approximate operating rate calculation. (p.108)		
Data	Integration	Performs data integration. (p.109)		
	Dew Point	Performs dew-point temperature calculation. (p.110)		
	Two-Data-Item Arithmetic	Performs approximate two-data-item arithmetic cal- culation. (p.111)		
	OVER Data Revision	Converts data outside of the upper and lower thresh- old settings to specified values, and saves as new data. (p.112)		
	Help	Displays the help file.		
Help	Version	Displays LR5000 Utility Program version informa- tion.		

Menu Bar Items

7.4 Automatically Importing (Saving) Recorded Data to a Computer, and Graph Display

Main Graph Features

The main graph features are shown below.



Detailed settings are available in the [Graph Settings] dialog box. (p.89)

[Graph Settings] dialog box

Graph details can be set as follows. Click each tab to access various settings.

[Common] tab	1	Automatically sets the time axis and Y- axis to the optimum scale.
Graph Settings	2	Select to display the grid.
1 Automatic setting	3	Changes the graph background color.
2 I Display grid 3 Graph background color I 4 Copy graph to clipboard	4	Copies the graph to the clipboard. The graph can then be pasted into Microsoft Word etc.

oraph S	ettings
Commo	on Time axis Yaxis
Aut	omatic setting for time axis
Exp	pand between A and B
3 ^{-Tin}	ne axis scale
Ĭ	▲ 30 minutes ▼ ▼
4 Spe	ecify display scope
	01/07/2011 06:40:42
	- 01/07/2011 15:00:40
	Execute
5 Spe	ecify AB cursor location
	A 01/07/2011 06:40:42
	B 01/07/2011 06:40:42
	Evenute
	Execute
<mark>6</mark> -Мс	ove to graph display location
	 Move to assignment time
	01/07/2011 06:40:42
	C Move to Cursor A
	C Move to Cursor B Execute

[Time axis] tab

- 1 Automatically sets the time axis to the optimum scale.
- 2 Zooms the display to show only the time span between A/B cursors.
- **3** Changes the time base scale.
- 4 Specifies the displayed time span on the time axis. Click [Execute] to apply the settings.
- 5 Specifies cursor positions. Click [Execute] to apply the settings.
- 6 Specifies the graph start position (time). Click [Execute] to apply the settings.

7.4 Automatically Importing (Saving) Recorded Data to a Computer, and Graph Display

[Y axis] tab

Graph Settings
Common Time axis Yaxis
Automatic setting for all Y axis
2 Number of axia
displays
Axis comment
5 Display item
13 14 15 16
6 Yaxis scale
Automatic setting for Y axis
Specify display scope - Execute
9 Yaxis grid
Fine Rough Standard
10 Display integrated graph
1 Display upper and lower limits
Display boundary lines of limits
Maximum Execute
Shade to display area outside scope
C Draw lines to indicate limits

- Automatically sets all Y-axes to the optimum scale.
- 2 When the Y-axis is different for each item, set the number of axes to a value other than one. The axes can be set to the number of displayed items (up to 16).
- 3 Displays all axes.
- 4 A comment can be entered for each axis.
- **5** Select the item assigned to each axis.
- 6 Sets the Y-axis scale for each axis.
- 7 Automatically sets the currently selected Y-axis to the optimum scale.
- 8 Specifies the display span on the Y-axis. Click [Execute] to apply the settings.
- 9 Sets the Y-axis grid spacing.
- 10 Display the items selected in [Display item] on an integrated graph.
- 11 Upper and lower thresholds can be displayed as solid lines on the graph, or outof-range areas can be filled with a solid color.

[Statistical Information and Item Settings] dialog box

The following items appear on the [Statistical information] tab.

- Item no.
- Serial no.
- Channel no.
- · Channel comments
- Property (Type of measurement value)
- Measured values at A/B cursors
- Statistical data
- Units

[9	itati	stical i	nfo	ormatio	n] tab		S m b	elect to calc iinimum, ave etween A/B c	ulate a rage, a cursors.	ind display r and integratio Integration v	naxim on val alues	um, ues are
Stati	istical In	formation a	nd It	Times a	t A/B cur	sors	d	isplayed only	for inte	grable items.		
	Cur	sor A 01/0	7/201	1 07:44:12	Cursor B	01/07/2011	09:55:18	Statistical ca	lculation be	tween A-B cursors		
	Item	Serial no	CH	CH comment	Property	Cursor A	Cursor B	Maximur	n	Minimur	1	-
	1	100618237	1	Temperature	Instant value	19.3	22.9	01/07/11 10:30:36	23.7	01/07/11 06:49:18	19.2	
	2	100618237	2	Humidity	Instant value	31.8	45.2	01/07/11 14:58:58	56.1	01/07/11 08:06:04	29.2	
	istical inf	ormation Ite	m sett	ings								

The following items appear on the [Item settings] tab.

- · Display on/off
- Graph line colors and thickness
- Bar graph display on/off

[Item so	əttin	gs] I	tał	b			
itatistical Infor	mation	and Item	n Sett	tings			
Display On/Off	Color	Thickne	ess	ltem	Measurement item	Bar graph	
V		1	-	1	Temperature		
		1	-	2	Humidity		
Statistical inform	ation	am aattin				<u> </u>	

7.4 Automatically Importing (Saving) Recorded Data to a Computer, and Graph Display

Main Table Features

The main table features are shown below.

Shows the it ment, CH c units, and av integration v.	tem no., se omment, proverage, maxi alues of all d play Print Table	rial no., me operty, mea mum, mini ata.	odel com- asurement mum, and Image: Comparison of the set
Item no			<u>.</u>
Serial no	100618237	100618237	
Model comment	LR5001	LR5001	
CH comment	Temperature	Humidity	
Property	Instant value	Instant value	
Unit	°C	%	
Average	21.9	41.2	Daubla aliak a maximum ar minimum numari
Maximum	23.7	56.1	Double click a maximum or minimum numeri-
Minimum	19.2	29.2	< cal value to jump to the relevant cell (or to the
Integration	32/9/3.2	61/488.4	first if there are multiple relevant cells).
01/07/11 06:40:44	19.3	32.9	
01/07/11 06:40:46	19.3	32.9	
01/07/11 06:40:48	19.3	32.9	
01/07/11 06:40:50	19.3	32.9	
01/07/11 06:40:52	19.3	32.9	
01/07/11 06:40:54	19.3	32.9	
01/07/11 06:40:56	19.3	32.9	
01/07/11 06:40:58	19.3	32.9	
01/07/11 06:41:00	19.3	32.9	
01/07/11 06:41:02	19.3	32.9	
01/07/11 06:41:04	19.3	32.9	
01/07/11 06:41:06	19.3	32.9	
01/07/11 06:41:08	19.3	32.9	· · · · · · · · · · · · · · · · · · ·
Time of Recording	Recorde Blue ind	d Values cates minir	num values, and red indicates maximum values.

Convenient Table Functions

Use the following operations to scroll the table and copy data to the clipboard.

Item	Contents
Press Ctrl and Home keys simultane- ously	Moves to the upper left corner of the table.
Press Ctrl and End keys simultane- ously	Moves to the lower right corner of the table.
Home key	Scrolls to display the left edge of the table.
End key	Scrolls to the right edge of the table.
Press Ctrl and C keys simultaneously	Copies the value of the currently selected cell to the clip- board.

Selecting Items for Display

Click the [Display Item] button in the viewer to display the [Select Items for Display] screen.

00000 0	11 1			
Open)isplay Print Item	2	Click the	[OK] button.
		-]		
elect Items for Display				
Select Items Sort Ite	ems			
Select measurement iter	ms for table/graph display and d	isplay range		
Select count 2 / 2		[Table and graph (Max.16 it	ems) are displayed.]	Searching down conditions for items on display
Item Model	Serial no Model comment	CH CH comment	Unit Property	Search down by model name
✓ 1 LR5001	100618237 LR5001	1 Temperature	°C Instant val	Display All
2 LR5001	100618237 LR5001	2 Humidity	% Instant val	
				Search down by serial no
Check				Display Ali
				Search down by model comment
				Display only item with the following labels
				Search down by CH comment
				Display only item with the following labels
			· · · · · · · · · · · · · · · · · · ·	Search down by property
		2 Click		Disalay All

Menu Bar Items

Menu	Items	Contents
	Check selection range	Add and clear selection of multiple items (display in blue) selected with the mouse.
	Select all selections	When there are 600 item in the above list, click to select or clear all items.
Select Items	Select all instant values Select all maximum values Select all minimum values Select all average values	Select all items (up to 600) of the same property.
	Sort by model name	Sort by model name, serial no., or model comment.
Sort Items	Sort by model comment	Move blue mouse-selected items up or down.
	Move selected item up Alt+Up Move selected item down Alt+Dowr Restore original order	Restore original order.

7.5 Manually Importing (Saving) Recorded Data to a Computer, and Graph Display

You can manually import recorded data to a computer, and display it in a graph.



7.5 Manually Importing (Saving) Recorded Data to a Computer, and Graph Display

LR5000 Utility [Data Import]-[Data Collector] Setting Data Import Data Import	
Set the collection method. Three methods are available.	Method 1 (Save the data to individual r cording files) Edit the save destination (basic setting Note: The Options screen settings (p.120) are refreshed.
A setting of a (poton screen) Save Folder C:\Uses \\Hos\\Documents\LR5000 The folder of each logger is made. (Model + Settal no (Deabled) • (Deabled) • (Deabled) • (Deabled) • (Deabled)	
Specify file nameing method before importing (Deabled) (Deabled) (Save Day (Example 20100411) Save Folder C-Users hisk/Decuments/LR5000 The information in a logger is used for information Vin other than a (Save Day).	Method 2 (Save the data to individual re- cording files) Specify the file naming method and sav destination folder.*
Save the selected data to one recording file. Save File C:\Users\hick\Documents\UR5000\data	recorded da la la good da la develo de la develo devevelo develo develo develo develo develo develo develo develo deve
Display graph automatically after importing data	Back Start Importing
* When data from the same collector already ex is in progress), or saved to a different item (i	xists, newly recorded data is added (if recording
The Save Method screen will appear when th porting] checkbox on the optional screen is s	If recording is stopped). The [Always specify folder and file before im- selected.
The Save Method screen will appear when the porting] checkbox on the optional screen is a See: "Changing the Saving Method for In How is automatic importing perf On the Options screen, enable [Auto logger is connected to a computer] How is the graph automatically Select [Display graph automatically (When not selected, the file list is savi	If recording is stopped). The [Always specify folder and file before im- selected. mported Data" (p.120) formed? pmatically import and store data when the [. (p.120) displayed after importing data? r after importing data]. ed and displayed when importing is finished

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Chapter 7 Using the LR5000 Utility Program

7.5 Manually Importing (Saving) Recorded Data to a Computer, and Graph Display

D 105000 16/24 (Data Second) (Data Callester)	
Setting Logger Data Logger Data	ate import Logger Date Date Date Date Date Date Date Date
The record data has been acquired and it has been saved at the Show recorded data. Please select the logger in the lat of devices, and click it. Save	Click the button to display the graph. (If there are more than 16 items to display, the display item selection screen appears. Select the items to be displayed in the graph. (p.93)
C:\Uber}\block\Documerts\LF5000\20110121 C:\Uber}\block\Documerts\LF5000\20110127	The Data Collector Settings screen
Change Data Collector settings When a Data Collector settings is changed,	Returns to the main sc
please click a [Charge Settings] button.	Displays the Data Import screen (p.94).

7.6 Importing Recorded Data from SD Memory Card to Computer and Displaying Graph

You can use the LR5000 Utility Program installed on the computer to import (save) recorded data from the collector to the computer. (Installation procedure: "7.1" (p.65) Required Items: SD memory card, SD memory card reader, Computer



Saving Settings Data to SD Memory Card



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7.6 Importing Recorded Data from SD Memory Card to Computer and Displaying Graph

Select the click the ISt	heck boxes of the data you want to import to the computer, and art import button (or [Next] button*).
* If [Always enabled (p.	specify folder and file before importing] on the Options screet 1200.
If you click th	e [Start Importing] button, data importing starts (p.96)
If you click the	e [Next] button, the Collection Method Selection screen appears. (p.9
LR5000 Utility [Data Import]-[S	SD Card)
Logger Data	, SD Card User mont Data Data Data Lagger Lagger Caledor SD Card May Data Data Caledor Heb
Import recorded data from the SD m Please connect the SD memory can Please connect a one SD memory of	emory carls a connected computer. et, and click the (Next) button. card.
When you want to import data from select the Ilmost from Specified For	n a specific folder, Joke Johan's how and then specify the folder
mport from Specified Folder	
Import folder	Ref
	at to import data from a apositia
folder, select the	e [Import data from a specific
er] check box, a	and then specify the folder
	Returns to main scree
	Returns to main scree 3 Click Mex Mex More 20114243001249
	Returns to main scree 3 Click Meet @ Home 2011-02:03 00:12:49
LISSOD Utility [Data Import]-[S Seting	Carel
LR5000 Utility (Data Import)-[53 Setting Setting Lagger Data Setting Data	Card Data Import Card Data Import Data Data Import Data Import Data Dat
ER3000 Utility (Data Import)-(3 Setting Data Collocation Pease select the data in the lat of data	Card
LR5000 Utility [Data Import]-[5] Seting Data Logger Data Data Data Data Data Data Data	Card Dear
LESSOD Utility (Data Import)-[55 Seting) Seting Logger Import - Construction Please select the data in the lat of da Data list Import Model Model LESSON i semple2	Card
	Cerel Conserver Serial no CH Hold The seper Collected data Topoconcol CH Hold The seper Topoconcol CH Hold Collected data Topoconcol CH Hold The seper Topoconcol CH Hold Collected The seper Topoconcol CH Hold Topoconcol CHo
Plate let LR5000 Utility/[Data Import]-(S) Setting Data Content of data Data let Model LR5001 sample2 VI LR5001 LR5001	Cerery Carery Carer
LIS000 Utility (Data Import)-[5] Setting Logger Logger Logger Logger LR5001 LIS001 LR5001 sample2 LR5001 sample2	Card Card Imain scree D Card Imain scree Imain scree Imain scree Ima
LISSON Utility (Data Import) - [5] Seting Seting Logger Logger Logger Lisson	In the first specify the folder. Returns to fmain scree 3 Click Image: Street s
LR3000 Utility (Data Import) [5] Settro Settro Cata Cata	Celected data Collected data Collected data Collected data Collected data Collected bata Collected
LR5000 Utility [Data Import]-[3] Seting Ling Logger Logger Logger Logger LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001 LR5001	Returns to f main scree 3 Click

We data from the same logger already exists, newly recorded data is added (if recording is in progress), or saved in a different channel file (if recording is stopped).	We have the selected data to one recording file. When data from the same logger already exists, newly recorded data is added (if recording is in progress), or saved in a different channel file (if recording is stopped). How is the graph automatically after importing data. (When not selected, the file list is saved and displayed when importing is finished.	LR5000 Utility [Data Import]-[SD Card]	
Attemps of a good model source to the source of the sou	Average of a grant notioned Average of a grant notioned Wedge - Sear Date In the date of a logic in notion Wedge - Sear Date Search of a notioned in recording of the common of the logic in notion of the logic in the logi	Setting 5 Set the collection Three methods are a w Use [Baic Setting] on the Option screen.	Method 1 (Save to separate recording files) Edit the save destination (basic setting). Note: The Options screen settings (p.120) are refreshed.
The referencion is a larger as used for referencing them is [Seve Day] Seve the selected data to one recording file. Windus from the same logger already exists, newly recorded data is added (if recording is in progress), or saved in a different channel file (if recording is stopped). When data from the same logger already exists, newly recorded data is added (if recording is stopped). How is the graph automatically displayed after importing data? Select [Display graph automatically after importing data]. (When not selected, the file list is saved and displayed when importing is finished.	The reference in a larger is used for reference on the larger is reference on the larger is used for reference on the larger is reference on the larger is used for reference on the larger is reference on the larger is used for reference on the larger is used for reference on the larger is refere	A setting of a jopton screen] Save Folder C-VLSex Vikok/DocumentA/L The folder of each togger is made. (dsabled) * (dsabled) (dsabled) * (dsabled) (dsabled) * (dsabled) (bsample 2010A11) Save Folder (C-VLSexVikok/Documenta)	Instant Instant Image: State Data Image: State Data Image: State Data Image: State Dat
Deploy greek automatically after importing data Method 3 Save the selected data to one recording file. Image: Click Cli	Deploy graph automatically after importing data Provide graph automatically after importing data]. When not selected, the file list is saved and displayed when importing is finished.	The information in a logger is used for information Save the selected data to one recording file. Save File [C:\Users \hole\Documents\LR5]	Other than a [Save Day] OESTINATION TOIGER." When data from the same logger already words, newly recorded data is appended to if if recording has not been stopped. The same data is new ten if recording has not been stopped. D00/data Part
How is the graph automatically displayed after importing data? Select [Display graph automatically after importing data]. (When not selected, the file list is saved and displayed when importing is finished	How is the graph automatically displayed after importing data? Select [Display graph automatically after importing data]. (When not selected, the file list is saved and displayed when importing is finished	Method 3 Save the selected data t When data from the same lo data is added (if recording is channel file (if recording is	to one recording file. 6 Click Import the data. (p.96) gger already exists, newly recorded s in progress), or saved in a different stopped).
Display graph automatically after importing data	Display graph automatically after importing data	How is the graph a	utomatically displayed after importing data?
		(When not selected, th	ne file list is saved and displayed when importing is finished
		When not selected, th	ne file list is saved and displayed when importing is finished atically after importing data

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Chapter 7 Using the LR5000 Utility Program

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7.6 Importing Recorded Data from SD Memory Card to Computer and Displaying Graph

LR5000 Utility [Data Import]-[SD Card]	Data largest			- • -
Logger Data Collector SD Card	Logger Data Import	ta ctor SD Card	View Data	Organize Data Option 😥 Help
The record data has been acquired and it has been saved Show recorded data Please select the logger in the lat of devices, and o	d at the file. ick the [Display Graph] or [Disp Saved file	Click the but (If there are i display item the items to l	ton to displa more than 1 selection s be displaye	ay the graph. 6 items to display, the creen appears. Select d in the graph. (p.93)
C:\Users\hicki\Documents\LR5000\20110127 C:\Users\hicki\Documents\LR5000\20110128			Display Graph	
			Display Graph	Click the button to display the table.
	Displays the screen (p.11	e data reorga 4).	anization	
Change SD card settings			-v)	Returns to the main s
vinen a 50 card settings is changed, please click a [Change Settings] button.			Organize Data	Back 🖄 Home
	icplays the initi	al scroop of t	ho Data Im	port scroop (p.08)

7.7 Displaying a Graph of Saved Recording Data

Use the LR5000 Utility Program to display saved recording data as a graph.

	- 🖌 I	f the Utility Progra	am is not running on t
Show Main Screen	• •	computer, click th	ne icon in the task t
View Data	(notification area)	, and click [View Data
		,	•
Click	٦	he Data View scre	en appears.
H	-	The [View latest (tatal tab shows a list of
Version Infomation	l.	orders with data say	ved on the computer
Click	-	- 33	· · · · · · · · · · · · · · · · · · ·
	9		
9:19 PM	~ ~	select the logger	from the list.
1/23/2011			
	1	nformation about th	ne latest data appears.
	3	lick the [Display	Graphl button
If the LR5000 Utility Program is run-	J		oraphi button.
ning, click [View Data] in the main			
screen.		he viewer opens to	o display the graph (p.8
	(If there are more th	an 16 items to display,
	ť	he items to be disp	laved in the graph (n 93
Data			ayed in the graph (p.st
-			
LISS000 Utility [View Data] Settors Data larged			
LR5000 Utility [View Data] Setra Data Setra Data Setra	Data 💽	Informati	ion about the
ERSODD Utility [View Data] Setting Setting Collector SD Ced Logger	Data Collector	Deced	ion about the
LR5000 Uhility [View Data] Setting Cale Content of the Stand	Data Collector	Informati	ion about the we ta
LR5000 Utility [View Data] Setting Data Setting Data Control Data Setting Data Control Data Setting Data Setting	Deta Jallector	Informati	ion about the ta
LR5000 Utility [View Data] Setting Setting Gala Galactar Galactar Galactar Setting Galactar Setting Galactar Setting Galactar Setting Galactar Setting Galactar Setting Galactar Galactar Setting Galactar	Data Jaliector	n dout the latest dat	ion about the ta
Uses Data Data Sating Control Data Impot Subger Control SD Card Impot Impot Vervilatet data Search Folders SD Card Impot Impot Impot Search Folders Search Folders Statt the logger from the lat, drow infomation about the latest recorded data. Model Search and on Model comment Verview Sature Logger Sature and no Model comment Model comment	Data Collector	D Card Informati latest da on about the latest data	ion about the we
LEScool Utility [View Deta] Data Data Data Setting	Data Jollector	D Card Informati latest da on about the latest data servi fueld: Documents ULR5000	ion about the wet
LR5000 Ubility [View Data] Seting Data Data Seting Sold Data Sold Data Sold Data Verw latest data Seach Foldera Sold Data Sold Data<	Data Sollector	Informati latest da m about the latest data ena vhick/Documents/LR5000 0125	ion about the we ta
LR5000 Ubility [View Data] Settry Settry Class Class Settry Class Settre Settre logger Setter Seter the logger from the lat, and cick. [Daplay Graph] or [Daplay Table] button. Seter the logger from the lat, and cick. [Daplay Graph] or [Daplay Table] button. Seter the logger from the lat, and cick. In a set of the later recorded data. Model Setai no Model Comment UBS011 function Lapontum Logg. 10000001 setmed=2 LBS011 function Lapontum Logg. 10000001 setmed=2 LBS011 function LBS011 fu	Data Jolector	D Card I Informati latest da on about the latest data sere Vholk/Documents/LR5000 0125 of recorded data	ion about the we ta
LR000 Unity (View Data) Setry Data Setry Collector Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Table) button. Set the loger from the list, and cick (Daplay Graph) or (Daplay Graph) or (Daplay Graph) or (D	Data Salector	D Card I Informati latest dat on about the latest data seen Yhoch Documents' LR5000 0125 n of recorded data t R5011	ion about the to ta
LR5000 Utility [View Data] Setting User Index Data Setting Settin	Data Jalector	D Card I Informati latest dat on about the latest dats serv hold: Documents' LF5000 0125 n of recorded dats 1 cod I LF5011 are Tempentum Lonow	ion about the ta
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Other Data Viewing Screen Functions

		Rec start	date 2011-0	1-25 2011-01-25
- Filter displayed data Show all data Filter by model Filter by Senal no Filter by Model Comment Filter by Model C	5001 Humidty Logger v 500001 v ple2	fresh List	Disp	olay Graph
Filter displayed dat You can filter which log desired filtering criteria Note: You can enter up el Comment].	a ggers appear in the list. , and click the <mark>[Refresh</mark> to 20 characters for [Fi	Specify the List] button. Iter by Mod-	Displa Opens table of data.	y Table the viewer to display the viewer to display the viewer to display the viewer to display the viewer the viewer to display the
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7.8 Processing Recorded Data

Recorded data saved on the computer can be processed by scaling, electric power calculation, energy cost calculation, operating rate calculation, integration, dewpoint temperature calculation, two-item arithmetic calculation, and out-of-range data revision. The LR5000 Utility Program performs the calculations.





[Process Data] Items

Items	Contents	See
Scaling	Performs scaling on the data of one channel.	(p.105)
Power Calculation	Performs approximate electric power calculation.	(p.106)
Energy Cost	Performs approximate energy cost calculation.	(p.107)
Operating Rate	Performs approximate operating rate calculation.	(p.108)
Integration	Integrates displayed data.	(p.109)
Dew Point	Performs dew-point temperature calculation.	(p.110)
Two-Data-Item Arithmetic	Performs approximate two-data-item arithmetic calculation.	(p.111)
OVER Data Revision	Converts data outside of the upper and lower threshold set- tings to specified values, and saves as new data items.	(p.112)

Scaling

The following scaling calculation is applied to measured values. Scaled Result = Raw data (measured value) \times A + B \times SI prefix (multiplier) Scaled results are saved as a new item in the recording file.

⊇ Scaling	
The following scaling calculation is applied to measured values. Socied Reut- Rev and a measured value) - A = 1° a great (multiplier) Scaled results are saved as a new item in the recording like Tem and range settings	Item and range settings
Item for calculation LR5001 - Temperature	Belect the item to be scaled, and the time sp
A6 (dependence) velocation are 2011-01/01/2011-01/01/ A6 (dependence) velocation are 2011-01/01/2011-01/01/ A6 (dependence) velocation are 2011-01/01/2011-01/01/2011-01/01/ Rev data Scaled Result 2015 C > 01/01/2011-01/01/2011-01/01/2011-01/01/2011-01/01/2011-00-00-00-00-00-00-00-00-00-00-00-00-	A/B (slope/offset) values Clicking this tab changes the setting options. Make set- tings on either tab. (The settings are ap- plied to the other tab.)

1. Select the items, time span, and the following options.

Setting Item	Setting Description
Specify by example*	Enter two known conversion points (up to ten digits each).
Specify by A/B*	Enter the scaling coefficients (A and B, up to ten digits each).
Scaled units	 Select the [SI Prefix]. ([p]=1E-12, [n]=1E-9, [µ]=1E-6, [m]=1E-3, blank =1E0, [k]=1E3, [M]=1E6, [G]=1E9, [T]=1E12) Enter a character string to identify the scaled units. (Up to five characters, except /, :, *, ?, ", <, >, and .)
* Set either one.	

2. Confirm settings.

Setting	Confirm that scaling is performed properly.Enter any numerical value as raw
confirmation	data, and click the [Calculate] button to display the scaled result.

3. Click the [Execute] button.

(The scaled results are saved.) Note: Click the [Finish] button to close the [Scaling] dialog box.

Calculating Electric Power

Approximate electric power is calculated using current measurement data from a clamp logger.

Calculation results are saved as a new item in the recording file.

- NOTE
- Electric power calculations are only approximate, so results do not always equal the true electric power value. Use a wattmeter if accurate power measurements are required.
- There is no way to confirm that a specified data item is really a current value. Calculation occurs regardless of data type.

Power Calculation			
Approximate electric po Calculation results are	wer is calculated using current measurement data. saved as a new item in the recording file.		
1 Item and range setting	8		Item and range settings
Current1	Test machine - Current1	+	Specify two measured current values
Current2	Test machine - Current 1	1	and the time span for calculation.
calculation	2011-01-07	<u>י</u>	
Calculation formula Electric Power Type	1P2W		Calculation formula
	Current1 * Voltage1 * PowerFactor		[Electric Power Type]
2 Settings of voltage, po Voltage1 Voltz 100 100	werfactor, and unit nge2 Registered settings Setting 1		Choose [1P2W], [1P3W] or [3P3W] to select the appropriate calculation formula.
Power factor Unit	• Register Delete		
	3 Execute Finish		

- 1. Select the items, time span, and calculation formula to be used.
- 2. Specify the voltage, power factor, and units.
 - •To save the settings, click the [Register] button.
 - •To apply a registered setting, double click it ("Setting1" in the above screenshot).
 - •To delete a setting, click it then click the [Delete] button.
- 3. Click the [Execute] button.
 - (Calculation results are saved.) Note: Click the **[Finish]** button to close the **[Power Calculation]** dialog box.

Calculating Energy Cost

Approximate energy cost is calculated using current measurement data from a clamp logger.



- Energy cost calculations are only approximate, so results do not always equal the true energy cost.
- There is no way to confirm that a specified data item is really an electric power value. Calculation occurs regardless of data type.

Energy Cost Approximate energy cost is calculated using current measurement data.	
Item and range settings Time space for Calculation 201010-07 Time space of the recording file 20110-107 Time space of the recording file 20110-107 Settings Energy cost 20 Calculation result Bestings MVA Energy cost Cost column MVA Energy cost Cost column Finish	Item and range settings Specify the measured current value and the tim span for calculation. The time span can also be specified by setting the A/B cursors (p.88) on a graph and selectin [Calculate between A/B cursors].

- 1. Select the item and time span.
- 2. Specify the cost per kWh, voltage, and power factor.
- Click the [Calculate] button. (Electric power consumption and energy cost values are calculated and displayed.) Note: Click the [Finish] button to close the [Energy Cost] dialog box.

Calculating Operating Rate

The approximate operating rate of the measured value is calculated.

The total amount of time during which data exceeds the **[Upper threshold]** is considered operating time, and the operating rate is calculated as the ratio of the operating time to the total calculation time span.

Example: The time during which a device consumes 20 A or more is considered the operating time.



The sum of the times depicted by \swarrow is the operating time. (In the above diagram, operating time is 1.5 hours.)

Operating time (1.5 h) / calculation time span (2.5 h) * 100 = 60% operating rate

The approximate operation The total amount of time and the operating rate is	ting rate of the measured value is calculated. e during which data exceeds the [Upper Threshold] is considered operating to s calculated as the ratio of the operating time to the total calculation time spa	me. 1.	
Item and range setting	Tast machina . Current 1	~	Item and range settings
Time span for calculation	Calculate between AIB cursors Calculate between AIB cursors Select all so	n	Select the item for operating rate calculation, and the time span.
2 Settings Upper threshold	respond the recording file 2011-01-07 - 2011-01-07		The time span can also be specified by setting the A/B cursors (p.88) on a graph and selecting [Calculate between A/B cursors].
Calculation result operating time	5.7h operating 68.1 % Calculate		
	Finis		

- 1. Select the item and time span.
- 2. Set the upper threshold.
- 3. Click the [Calculate] button.

(Operating hours and operating rate values are calculated and displayed.) Note: Click the [Finish] button to close the [Operating Rate] dialog box.

Integration

Measurement data can be integrated over a specified time span. Integration results are saved as a new item in the recording file.

Measurement data can be integrated over a specified time span Integration results are saved as a new item in the recording file.	
tem and range settings tem for calculation Test machine - Current Time span for calculation Test machine - Current Time span of the recording file 2011-01-07 • Select all span	Item and range settings Select the item to be integrated, and the time span.
2 Execute Finish	

- 1. Select the item and time span.
- Click the [Execute] button. (Integration results are saved.) Note: Click the [Finish] button to close the [Integration] dialog box.

Calculating Dew-Point Temperature

Dew-point temperature is calculated from the temperature and humidity measurement data from the logger.

Calculation results are saved as a new item in the recording file.

- NOTE
- There is no way to confirm that a specified data item is really a temperature or humidity value. Dew-point calculation occurs regardless of data type.
 - Only the specified temperature and humidity data measured during the specified recording time span is applied to calculations and saved.
 - The valid range for calculation input measurement data is -100 to 100 degrees, and 0 to 100% humidity. Values outside of these ranges are replaced with the maximum or minimum value within the valid range.

Dew Point Dew point Emperature is calculated from the temperature and humidity measurement. Calculation results are saved as a new item in the recording file.	
tem and range settings Temperature Humidity [LF5001 - Temperature Humidity [LF5001 - Humidity] Time span for calculation Time span of the recording life 2011-01-07 2 Execute Finish	Item and range settings Specify the temperature and humidity values, and the time span for calculation.

- 1. Select the items and time span.
- Click the [Execute] button. (Calculation results are saved.) Note: Click the [Finish] button to close the [Dew Point] dialog box.

Two-Data-Item Arithmetic Calculations

Simple arithmetic operations (+, -, *, and /) can be applied to two data items. Calculation results are saved as a new item in the recording file.



Only the values of data items measured during the specified recording time span are applied to calculations and saved.

imple arithmetic operations (+, -, *, and /) can be applied to two data items.		
arcuauon results are saveu as a new nem in une recording line.		Item and range settings
Item and range settings Item 1 [LR5001 - Temperature Item2 [LR5011 - Temperature		Select the items for calculation, and the time span.
Time span for 2010-09-22 Calculation Calculation Ca	all span	
Settings of operator Item2		
3 Execute	Finish	

- 1. Select the items and time span.
- 2. Select the calculation operator.
- Click the [Execute] button. (Calculation results are saved.) Note: Click the [Finish] button to close the [Two-Data-Item Arithmetic] dialog box.

Converting Over-Threshold Data Values

Data values larger than the upper threshold and smaller than the lower threshold can be converted to specified values.

Converted results are saved as new data items in the recording file.

Over-threahold data values can be converted to specified values. Converter results are saved as new data items in the recording file.	
Item and range settings	Item and range settings
Item for calculation [LR5001 - Humidity Time span for calculation [2011-01-07] • 2011-01-07] • Select all span Time span of the recording file 2011-01-07 - 2011-01-07	Select the items for conversion, and the time span.
Upper threshold [30] x > Conversion [100] x Lover threshold [10] x > Conversion [10] x	
3_Execute	

- 1. Select the items and time span.
- 2. Set the upper and lower threshold values, and their corresponding conversion values.
- Click the [Execute] button. (Conversion results are saved.) Note: Click the [Finish] button to close the [OVER Data Revision] dialog box.

7.9 Printing Recorded Data

Saved recording data can be printed as a graph. Graphs displayed in the LR5000 Utility Program can be printed on A3, A4, or B4-size paper. With the desired graph displayed, click the [Print] button.

See: Graph Display Methods: "7.4" (p.85), "7.5" (p.94), and "7.7" (p.101)



7.10 Organizing Data

The LR5000 Utility Program can reorganize (copy, delete, move, combine, and extract) imported data.



Copying and Moving Data

The selected logger recording files can be copied or moved to any folder.





The management format of the PC utility program (LR5000 Utility) will be retained even using this function to copy or move data to the SD memory card. This is different from the format when retrieving to the SD card on the LR5092 (p.41).

Data moved or copied to the SD card via the PC utility program will not be recognized on the LR5092.

Deleting Data

Select and delete logger recording files as follows.

Example: Deleting files in the C:\Users\hioki\Documents\LR5000 folder.

LISSOU Utility (Organize Data) Setting Logar Data Solardian Performance Performance Performance Performance Detained Performance Detained Performance Detained Deta	- T K
Fit to delete Recently opend folder Revertly opend folder Pelloge Pelloge Pelloge Decktop Decktop Decktop Decktop Decktop Select the folder. Test file court: Test file court:	Home
How can the data in the collector memory be deleted? See: "Clearing Data from Collector Memory" (p.49) How can the data in the SD memory card be deleted? See: "Clearing Data from SD Memory Card" (p.51)	

Combining Data

Separate logger recording files can be combined into one set of recording data.

Example: Combining 20110117 and other files in C:\Users\hioki\Documents\LR5000, and then saving the combined data in the C:\Users\hioki/Desktop folder.

Pre 2 Select the di	rive.	Operation Type	se mbing Data Execute
Recetty open folder C.Users Wrok/Documenta LR50 C.0 PerLogs Program Res Destop Contacts Destop	ist 20110113 20110125	Save Destination C:\Users\hioki\	File Ref Deektop/RecData1hp2 5 Click to specify the desti- nation and file name for the combined data file.
Select the folder.	(Up to 10 ca selected.)	an be	
	Clear all selections		ຝ Home

Extracting Data

Data in a logger recording file can be extracted to a specified time span and saved with a different file name.



7.11 Options Settings (LR5000 Utility Program)

These settings determine the saving method for imported logger data, device connection monitoring, and logger setting display functions.



Select the [Automatically import and store data when the logger is connected to a computer] checkbox and then clear and the [Always specify folder and file before importing] check box to display the Data Import screen (p.94).

Changing the Saving Method for Imported Data

The saving method for imported logger data can be changed as follows.

How can the save destination fol	der be changed?
Click the [Import Method] tab. Data decorr Data	 SD Card Year Organize Cotion Hele ecify the save destination folder. A knowledge in the barrier importing A knowledge in folder and the barrier importing If the in red selected, a folder mare and a file name are determined 3 If you select the check box, select the folder name.
When data from the same logger already sotts, newly recorded data is appended to 2 if recording has not been stopped. When data from the same logger already sotts, newly recorded table is appended to 2 if recording has since been stopped. When can the file naming method I (ESD00 Utility (Option) Settina Data Import	
Loger Loger Collector Coll	Set Autor Import and Auto Graph Display functions, if desired. See: P.85, P.94 Automatically most and store data when the logger is control to a comparing House specify folder and file before imposing If the in not seekcide, a folder name and a file name are determined accounting to [Back-Stimps].
How to statch a file new is sportfield. (disabled) • (disabled) • (filesabled) • (Files Stat Date • (example 20100410) A (Save Day) at the date imported to the PC. The information in a logger is used for information other than a (Save Day). When data from the same logger already exatts, newly recorded	File names can be specified as a comb nation of up to three of these componer (model name, model comment, serial no., reco ing start day, recording start date and time, a save day)
data is appended to it if recording has not been stopped, or saved as a new ten if recording has since been stopped.	Save 🖾 Home

Changing the Connection Monitoring Method, and Logger Settings Displays

Change the device connection monitoring settings and the functions on the logger settings displays as follows.

How can the device connection	n monitoring setting be changed?
Click the [Details] tab.	centor 2.00
Connection Monitoring Method	Task tray (notification area) icon (p.94)
The COMMUNICATION UTITLY stats adomatically if the COMMUNICATION BASE 3912(3911.3913) a connected with Montor USB pot Montor COM pot Montor COM pot	When cleared, the Communication Utility program has to be started manually.
When [Monitor COM port] is selected, specify the COM port o monitor.	
	📓 Save
	2011-01-24 23:52:09
How can the function setting changed?	2011-01-24 22 52 08 gs of the logger's settings displays b Coldeor So Care So Care Openant Content C
How can the function setting changed? Setting	2011-01-22 25 209 gs of the logger's settings displays b Defa SD Cwd We Operator Option @ Heb Defa SD Cwd We Operator Option @ Heb Version 200
How can the function setting changed?	2011-01-24 25 25 05 gs of the logger's settings displays b Data S S0 Ceed Wey Opportor Coston @ Heb Ueston 200 S] and
How can the function setting changed?	2011-01-22 25 209 gs of the logger's settings displays b

7

Specifications

Chapter 8

8.1 Main Unit General Specifications

Basic Specifications

Functions	 Collect measurement data of supported loggers, and make settings Transfer collection data to a computer Serve as an intermediary for communication between a logger and computer (USB)
Compatible loggers	LR5001 Humidity Logger, LR5011 Temperature Logger, LR5031 Instrumenta- tion Logger, LR5041 Voltage Logger (50 mV), LR5042 Voltage Logger (5 V), LR5043 Voltage Logger (50 V), LR5051 Clamp Logger
Memory capacity	60,000 data × 16 channels (instantaneous values), or 15,000 data × 16 channels (statistical values)
Clock function	Auto calendar, auto leap year determination, 24-hour clock Accuracy ±50 ppm (approx. ±4.3 sec./day) (25°C (77°F) reference value)
Operating tempera- ture and humidity	Temperature: 0°C to 40°C (32°F to 104°F) Humidity: 80%RH or less (non-condensating)
Storage tempera- ture and humidity	Temperature: -10 to 50°C (14°F to 122°F) Humidity: 80%RH or less (non-condensating)
Operating environment	Indoors, pollution degree 2, up to 2000 m ASL
Power supply	 3 VDC (1.5 V×2) LR6 alkaline batteries Stored (collected) data retained when both batteries replaced Clock function backup available (clock function maintained for approx. 10 years [reference value] by built-in lithium battery) Power on/off by long press of power switch (power turns off if no operation is performed for one minute when running on batteries) Powered by USB bus power when USB connection
Maximum rated power	1 VA
Continuous operating time	 Approx. 12 hours, Data collection: Approx. 500 times When logger recording stopped and data collection destination is collector memory Possible usage time and the number of collections using new alkaline batteries (LR6 standard supplied batteries) when "Turning on power → Collecting data (60,000 × 2 channels) → Displaying data → Turning off power" is considered to be one time (reference value 25°C (77°F))
Dimensions	Approx. 91W × 141H × 31D mm (3.58"W × 5.55"H × 1.22"D) (Excluding protrusions)
Mass	Approx. 215 g (7.6 oz.) (not including batteries and SD memory card)
Applicable Standards	• Safety : EN61010 • EMC : EN61326

Product	warranty 2 voors	
period	5 years	

Display

Display text	Japanese/English (Factory default setting: Japanese for Japan, English for overseas)
Display	Dot-matrix STN LCD (128 × 64 dots)
Dot pitch	0.48W mm × 0.48H mm (0.02"W × 0.02"H)
Backlight	LED (Backlight turns off when no operation for 30 seconds)
LCD lifespan	MTBF: Approx 50,000 hours (25°C (77°F), 60% RH or less)

External interface

USB standard	USB 2.0 compliant, Full Speed supported
Connector	Mini B series receptacle
Connectable device	Computer
Functions	 Exchange setting items and data with a computer using the supplied LR5000 Utility Program. Setting Items: Clock, logger settings (saved to collector and SD memory card), and logger settings of a connected logger Data: Recorded data saved to collector and SD memory card, and recorded data of connected logger Data can only be transferred from the collector to the computer Powered by USB bus power when connected to computer
Communication speed	250,000bps

External storage

Slot	SD Card Physical Layer System Specification, Version 2.00 compliant 1 slot
Card types	SD memory card and SDHC supported
Card capacity	Up to 32 GB supported
Data formats	FAT and FAT32 supported
Stored data	Logger setting conditions (binary files) Measurement data (binary files)

Logger communication

Communication method	Half-duplex start/stop synchronous infrared serial communication
Communication speed	115,200bps

	Connect a logger and collector, and exchange logger settings and recorded data with the collector.
Functions	 Recorded data can only be transferred from the logger to the collector When the logger is performing recording, the recorded data up to the current point in time is transferred

Functions 8.2

Basic Specifications

Data Collection

Collected data	Recorded data
Collected data save destinations	Collector memory and SD memory card When either the collector memory or SD memory card already contains collected data (from a logger with same serial number), the save destination is fixed to the one with the saved data, and the save destination cannot be selected. (If both contain data, the save destination becomes the SD memory card.)
One-touch collec- tion function	 Place the logger and collector, and then press the Collect button to start data collection. Collect uncollected data of logger. One-touch collection destination can be specified for a new logger[*] (collector memory or SD memory card)
Data display	Data is shown in a graph (waveform) after data collection.

* Logger with new serial number for which there is no collected data in both the collector and SD memory card.

Logger Settings

Measurement condition settings	 Logger settings settable (The setting items differ depending on the logger.) Setting Items: Recording interval, recording start method, recording stop method, recording mode, scaling, alarm, power saving, clock, range, preheat, filter, comment (only sending and receiving is possible, comment input and editing with the collector is not possible)
Number of settings storable	 Collector: 1 condition SD memory card: Limited by remaining space of card, maximum of 16 conditions
Settings acquisition	Settings can be read from a logger

Logger Operations

Control a connected logger.

Control items	Start recording, stop recording
Logger status display	Display measurement conditions and measurement status (measurement in progress, amount of memory used)

8.2 Functions

Data Operations

Display and clear collected data.

Display items	 Collected data list (collector memory): Displays models, serial numbers, and comments Collected data list (SD memory card): Displays file names Maximum value, minimum value, and average value display Graph (waveform) display Numerical value display
Clear data	Clear individual files or all data

File SD Memory Card Operations

List display	Displays a list of saved files
Clear data	Clear individual files or all data
Transfer collector data	Save all/select and save specific collected data in collector, and save setting conditions
Display data	Display data of selected file (switch to data operations)
Initialize card	Initialize an SD memory card

Miscellaneous

Collector Settings (Environment Settings)

Clock setting	Set the built-in clock
Language selection	Set the display language
Status display	 Display the usage status of built-in memory Set whether or not to show the initial display when power turned on
Self checks	Inspection items: Firmware, LCD, buttons, and SD memory card

Battery Status Indicator

Supplied Accessories

Instruction manual1	
Operation manual1	
LR6 alkaline battery2	
USB cable (1 m)1	
LR5000 Utility Program (CD)1	

Supplied LR5000 Utility Program Specifications

Supplied medium	CD1
Operating environment	 Personal computer meeting the following specifications CPU: 1 GHz or faster processor clock RAM: 1 GB or more (32-bit), 2 GB or more (64-bit) Operating system: Windows 7 or Windows 10 Library: .NET Framework 4.5.2 or later Interface: USB (or COM port for models 3910, 3911, or 9612) Monitor resolution: 1024 x 768 or higher Hard disk: At least 30 MB free space (Additional space is required for storing recorded data.)
Model communication support	 All LR5000-series loggers Note: Communication with models LR5031 and LR5051 is supported by PC Utility version 2.00 and later. (The COMMUNICATION UTILITY program supports the following models' settings and data import functions. A computer COM port and 9612 RS-232C cable are required when using the model 3910 or 3911 Communication Base.) All "Data Logger" models 363x to 364x Communication Base models 3910, 3911, and 3912
Communication connec- tions	 Communication with LR5000-series loggers: Computer, USB cable, LR5091 Communication Adapter, and LR5000-series logger Computer, USB cable, LR5092-20 Data Collector, and LR5000-series logger Communication with the LR5092-20 Data Collector: Computer, USB cable, and LR5092-20 Data Collector
Setting functions	 Export/import settings by communication with the LR5000 series Settings exported from each LR5000 are stored on the computer (the following functions are supported by the supplied PC Utility version 2.00, or later) Export/import settings by communication using the LR5092-20 Data Collector Import and save logger settings using the LR5092-20 Data Collector via communication or SD memory card Settings exported to the LR5092-20 Data Collector are stored on the computer
Auto-start function	A small resident program (icon in the task tray/notification area) detects when a logger or the Data Collector is connected to the computer, and automatically starts the LR5000 Utility Program.

 Displays up to 16 channels in a graph Displays up to 16 Y-axes Displays one time base axis Set line colors for each channel, and display/hide lines and bar graphs for each channel Auto setting of time base and vertical axis Display/hide Y-axis grid lines, and set grid display density Select display background color Copy graph images to the clipboard A/B cursor functions Displays statistical data (maximum, minimum, and average) Browse recorded data in tabular format Displays statistical data (maximum, minimum, and average) Export functions Export all recorded data displayed in a table in CSV format Paste to Excel® all recorded data between A/B cursors in CSV format Paste to Excel® all recorded data between A/B cursors Import functions Prints graphs and statistical data Supports A3, A4, and B4 paper sizes Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calculation 	Data import functions	 Communicates with the LR5000-series loggers, and imports recorded data Combines recorded data Incorporates new data when an LR5000-series logger holds data not previously imported (the following functions are supported by the supplied PC Utility version 2.00, or later) Communicates with the LR5092-20 Data Collector, and imports recorded data saved in the Data Collector Imports data saved to an SD memory card in the LR5092-20 Data Collector
 Browse recorded data in tabular format Displays functions Displays up to 600 channels Displays statistical data (maximum, minimum, and average) Export all recorded data displayed in a table in CSV format Paste to Excel[®] all recorded data displayed in a data table Export all recorded data between A/B cursors in CSV format Paste to Excel[®] all recorded data between A/B cursors Import functions Import text files from the 3169 Clamp-On Power HiTester Note: Only electric energy data recorded at one-second or longer interva can be imported Printing functions Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calculation 	Graph display functions	 Displays up to 16 channels in a graph Displays up to 16 Y-axes Displays one time base axis Set line colors for each channel, and display/hide lines and bar graphs for each channel Auto setting of time base and vertical axis Display/hide Y-axis grid lines, and set grid display density Select display background color Copy graph images to the clipboard A/B cursor functions Displays statistical data (maximum, minimum, and average)
Export functions• Export all recorded data displayed in a table in CSV format • Paste to Excel® all recorded data displayed in a data table • Export all recorded data between A/B cursors in CSV format • Paste to Excel® all recorded data between A/B cursorsImport functionsImport text files from the 3169 Clamp-On Power HiTester Note: Only electric energy data recorded at one-second or longer interva can be importedPrinting functions• Prints graphs and statistical data • Supports A3, A4, and B4 paper sizesData operatingfunc- Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calculation	Data list display functions	 Browse recorded data in tabular format Displays up to 600 channels Displays statistical data (maximum, minimum, and average)
Import functions Import text files from the 3169 Clamp-On Power HiTester Import functions Note: Only electric energy data recorded at one-second or longer interval can be imported Printing functions • Prints graphs and statistical data Data processing func- Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calculation	Export functions	 Export all recorded data displayed in a table in CSV format Paste to Excel[®] all recorded data displayed in a data table Export all recorded data between A/B cursors in CSV format Paste to Excel[®] all recorded data between A/B cursors
Printing functions • Prints graphs and statistical data • Supports A3, A4, and B4 paper sizes Data processing func- Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calculation	Import functions	Import text files from the 3169 Clamp-On Power HiTester Note: Only electric energy data recorded at one-second or longer interval can be imported
Data processing func- Scaling (y=a×x+b), electric power calculation, energy cost calculation operating rate calculation, integration, dew-point temperature calcula-	Printing functions	 Prints graphs and statistical data Supports A3, A4, and B4 paper sizes
tion, arithmetic calculations, out-of-range data revision	Data processing func- tions	Scaling (y=a×x+b), electric power calculation, energy cost calculation, operating rate calculation, integration, dew-point temperature calculation, arithmetic calculations, out-of-range data revision
Copy and delete data saved on the computer File management func- (the following functions are supported by the supplied PC Utility version 2.00, or later) Delete data saved to an SD memory card in the LR5092-20 Data Collector Help function Displays beloful operating instructions	File management func- tions	 Copy and delete data saved on the computer (the following functions are supported by the supplied PC Utility version 2.00, or later) Delete data saved to an SD memory card in the LR5092-20 Data Collector

Maintenance and Service

Chapter 9

Requesting Repairs

Use the original packing materials when transporting the instrument, if possible. Pack the instrument so that it will not sustain damage during shipping, and include a description of existing damage. We do not take any responsibility for damage incurred during shipping.

When the logger will not be used for long time

CAUTION To avoid corrosion and damage to this instrument from battery leakage. remove the batteries from the instrument if it is to be stored for a long time (1 week).

Lifespan of Backup Battery

The instrument contains a built-in backup lithium battery, which offers a service life of about ten years. If the date and time deviate substantially when the instrument is switched on, it is the time to replace that battery. Contact your dealer or Hioki representative

9.1 Cleaning

To clean the instrument, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline, as they can deform and discolor the case.



Wipe the LCD gently with a soft, dry cloth.

9.2 Troubleshooting

If damage is suspected, check the "Before requesting repairs" section before contacting your dealer or Hioki representative.

Before requesting repairs

Symptom	Symptom Check Item or Cause Remedies and References	
No indications appear on the display when the POWER button is pressed.	 Are batteries installed? Did you press and hold the POWER button? The power protection element may be damaged. 	 Check that batteries are installed properly. Press and hold the POWER button for 1 second. Contact the place of purchase or your nearest Hioki sales office because replacement and repairs cannot be performed by customers.
The power does not turn off when the POWER button is pressed.	 Is the collector connected to a computer with a USB cable? Did you press and hold the POWER button? 	 The power will not turn off if the collector is connected to a computer with a USB cable. The power will be turned off when the USB cable is removed. Press and hold the POWER button for 1 second.
The power turned on even though the POWER button was not pressed.	 Is the POWER button in a pressed state? Is the collector connected to a computer with a USB cable? 	 Check the POWER button. When the collector is connected to a computer with a USB cable, the power turns on even if the POWER button is not pressed.
Button operation is not possible.	Is one of the buttons in a pressed state?	Check the operation buttons.
Cannot collect data from a logger.	 Are the collector and logger placed correctly in position? Is the communication IR port dirty or scratched? 	 Place them correctly in position. Clean the IR port. If there is significant damage, the collector needs to be repaired. Contact the place of purchase or your nearest Hioki sales office.
Cannot save to an SD memory card.	 Is the SD memory card inserted properly? Has the SD memory card been initialized? Is the write protect tab (LOCK) of the SD memory card in the unlock position? Is there not much space left? 	 See: "2.2 Inserting an SD Card (When Necessary)" (p.17) See: "5.5 Initializing SD Memory Card" (p.54) Check the amount of remaining space.

Symptom	Check Item or Cause	Remedies and References
Cannot install the LR5000 Utility Pro- gram.	 Is the computer on which you are trying to install the LR5000 Utility Program compatible with the system requirements of the LR5000 Utility Pro- gram? 	Check the system requirements of the LR5000 Utility Program and then install it on a computer that is compatible with the sys- tem requirements. See: "LR5000 Utility Program Operating Requirements" (p.65)
Cannot install the LR5000 Utility Pro- gram.	Is the installation method incorrect?	 Refer to the installation procedure, and then try again. Pay particular attention to the following: Log in to the Administrator account or another account with administrator privileges. Before installing, be sure to close any applications running on the computer. If the installation screen does not appear, run X:\English\Setup.exe. See: "Installation Procedure" (p.66)
The batteries are depleted too quickly.	 Are the batteries supplied with the logger still being used? Are manganese batteries being used? 	Use new LR6 alkaline battery.
The collector is con- nected to a computer with the USB cable but it is not recog- nized by the LR5000 Utility Program.	When using the collector via USB, the maximum current con- sumption is 200 mA. When using a computer or USB hub that is unable to supply at least 200 mA of current or when a number of USB devices are connected to the USB hub and the total current consumption exceeds the current that can be supplied by the hub, the power of the collector may not turn on or the collector may not be rec- ognized from the computer.	 Use a computer or USB hub that is capable of supplying at least 200 mA of current. Disconnect any USB devices that are not being used from the USB hub.
	The installation of the device driver to the LR5092 failed.	For Window XP, the driver may be required to be installed to each LR5092. Open Windows Device Manager and re-in- stall the driver.
When you are unsure of the cause.	-	Try initializing the collector. The settings will be restored to their initial state at the time of shipment from the fac- tory. If this does not solve the problem, contact the place of purchase or your nearest Hioki sales office.
The [Failed to read lata partially.] mes- tage appears. The instrument can display up to 84000 data sets per mea- surement parameter.		The LR5000 viewer places a limit on the number of data sets displayed on graphs and tables. Change the duration to be displayed. Change from [All Data] to [1day].

9.3 Error Display

The display appears as follows when an error occurs on the logger.

When attempting to collect recorded data:

Error Displays	Meaning / Remedies		
Connect the logger	This appears when a logger is not connected to the collector. (Press the F3 button to return to the top display.)		
	Connect a logger to (The display for sel	o the collector, and then press the F1 button. ecting the collection destination appears.(p.35))	
Data from last time includes v (Rest of message) Do you want to collect the uncollected data?	The recorded data from last time remains because measurem was started/stopped again without the recorded data being of lected after starting/stopping measurement last time. (Press the F3 button [Cancel] to return to the top display.) To collect the recorded data for this time only, press the F2 but [No]. The data from last time will be retained.		
	Press the F1 buttor	[Yes] to show the next display.	
	Check Coll ⓑ()) →I.Collect 2.Do Not collect 3.Discard I Exec [Cance]]		
	(Press the F3 button [Cancel] to return to the top display.)		
	Select one of the items, and then press the F2 button [Exec].		
	Collect Data	The data from last time is also collected together with the data from this time. (The display for selecting the collection destination appears.)	
	Do Not Collect	The data from last time is not collected. It will be re- tained. Only the data from this time is collected. (The dis- play for selecting the collection destination ap- pears.)	
	Discard	The data from last time is discarded, and the data from this time is collected. (The display for selecting the collection destination appears.)	
Insert an SD card.	This appears when an SD memory card is not inserted in the col- lector. (Press the F3 button to return to the top display.)		
	Insert an SD memory card in the collector, and then press the F1 button. (The display for selecting the collection destination appears. (p.35))		

Error Displays Meaning / Remedies		Meaning / Remedies
No memory space. Select the v (Rest of message) process method.	 This appears when there is insufficient space in the collector memory. (Press the F3 button [Cancel] to return to the top display.) Press the F1 button to select the process method. One of the following displays appears. When new logger When logger for which previous collection history exists 	
	Memory Full →1. Memory clean 2. Coll. to SD 3. Cancel to co Exec (Press the F3 buttor	Image: Solution of the second state of the second stat
	Select one of the items, and then press the F2 button [Exe	
	Memory clear	The data is cleared from the collector memory. (The Clear Data display appears. (p.49) Select the data to clear, and then clear it. Perform data collection again after clearing the data.)
	Coll. to SD	Changes the collection destination to the SD memory card. (The display for confirming the start of collection appears. (p.35))
	Move to SD	The data in the collector memory that was collect- ed last time is moved to the SD memory card. (The Move Collector Data display appears. (p.42) Perform data collection again after moving the data.)
	Cancel to coll.	The top display reappears.
Out of space in the SD card. ▼ (Rest of message)	of space he SD card. ▼ (Press the F3 button [Cancel] to return to the top display.)	
Replace the card. Replace the SD memory card with one that has suffice and then press the F1 button. The display for confirming collection appears.		emory card with one that has sufficient space, ¹ button. The display for confirming the start of

When performing a self check:

Error Displays	Meaning/ Remedies
Insert an SD card.	This appears when an SD memory card is not inserted in the col- lector. (Press the F1 button to return to the previous display.)
	Insert an SD memory card in the collector, and then press the F3 button. (The self check process is continued.(p.60))

On LR5000 Utility Program screen:

Error Displays	Meaning/ Remedies
OF	This means that a measurement value is out of the measurement
UF	range.

9.4 Disposing of the Logger

When disposing of this instrument, remove the lithium battery and dispose of battery and instrument in accordance with local regulations.

- WARNING To avoid electric shock, turn off the power switch and disconnect the USB cable before removing the lithium battery.
 - Battery may explode if mistreated. Do not short-circuit, recharge, disassemble or dispose of in fire.
 - · Keep batteries away from children to prevent accidental swallowing.

How to Remove the Lithium Battery

Required Items: One Phillips screwdriver and one pair of wire cutters



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Warranty Certificate

ΗΙΟΚΙ

Model	Serial number	Warranty period Three (3) years 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 (three [3] years from the date of purchase). If the date of purchase is unknown, the warranty period is defined as three (3) years from the date (month and year) of manufacture (as indicated by the first four digits of the serial number in YYMM format).
- 2. If the product came with an AC adapter, the adapter is warrantied for one (1) year from the date of purchase.
- 3. The accuracy of measured values and other data generated by the product is guaranteed as described in the product specifications.
- 4. 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.
- 5. 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 labeling 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
- 6. 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
- 7. 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)
- 8. 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





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Edited and published by HIOKI E.E. CORPORATION

1906 EN Printed in Japan

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