



Instruction manual

SK-L750 Series Dataloggers

No. 8800-00 Model SK-L751
(Temperature Measurement)

No. 8870-00 Model SK-L754
(Temperature/Humidity Measurement)

SATO KEIRYOKI MFG. CO., LTD.

Introduction

Thank you for purchasing the SK-L750 Series Dataloggers.

These products are designed to measure temperature or temperature/humidity.

Do not use it for other purposes.

- Read this manual thoroughly before using. Keep the manual in a safe place for future references whenever necessary.



WARNING

The SK-L750 Series Dataloggers are not explosion-proof. Never use it in an atmosphere containing flammable gases.



Beware of explosion!

Should you have any questions, please consult with us or the shop where the unit was purchased.



Safety Precautions

To use the Datalogger safely, follow the precautions below.

- Never disassemble or modify the unit. Doing so may cause a malfunction.
- The unit is precision device. Never drop the unit or knock it over.
- Do not use the unit in a place exposed to direct sunlight or near a heat source. Doing so affects the measurement accuracy, and could result in a deformation or malfunction of the unit.
- Model SK-L754 Datalogger is not waterproof. Never let it get wet.
- Do not use the unit in a place subject to condensation, rain, drop of water

and vapor.

- Model SK-L751 Datalogger is waterproof. However, when AC adaptor is connected, it becomes not waterproof. Use batteries if it is used in a place splashing water.
- Install the datalogger with care not to drop.
- If this unit is used in an environment where electrical noise is generated, the display may become unstable or the measurement error may increase.
- Never use the unit in an environment other than standard atmosphere (air composition).
- Measuring temperature or humidity outside the measurable range may result in unit and/or probe malfunctions.
- When you use an AC adaptor other than the optional one which we provide, be sure to use the one with the same rating and specifications as our adaptor.
- If the unit is not to be used for a long period of time, remove the batteries. Otherwise, the batteries may leak, resulting in malfunctions.
- Do not dispose of used batteries in a fire.
- Keep the battery out of the reach of children. If the battery has been swallowed accidentally, consult a doctor immediately.
- For environmental conservation purposes, dispose of the used battery in compliance with local rules and regulations.
- Do not wash or wipe this unit with alcohol, thinner, or other organic solvents. If the unit becomes dirty, wipe it with a tightly-wrung gauze or the like that has been dipped in warm water with neutral detergent.

For repair or calibration, contact us or the shop from which the unit was purchased.

Disclaimer

We, Sato Keiryoki Mfg. Co., Ltd., check for general operation performance of the program, however we do not guarantee for those under all possible situations.

We do not take any responsibilities on any damages caused directly or indirectly by this program.

- * The operation of our software has been checked by a combination of the Japanese edition OS and the device sold in Japan. We shall not guarantee nor support the problems that occurred during the usage of device and/or OS of overseas model (edition).

Remarks

Microsoft and Windows are trademarks of Microsoft Corporation.

All other company names, system names and products mentioned in this manual are their respective trademarks or registered trademarks.

Overview

The SK-L750 Series Dataloggers are the devices that log and store data of temperature and/or humidity. By using the dedicated software, you can monitor the environment and analysis the collected data on a computer.

Features

- **Storage of up to 16,000 data items**

Up to 16,000 data items can be logged in the datalogger and the logged data can be copied to microSD card.

- **Retaining data**

The logged data can be retained even if batteries run out.

- **Waterproof structure**

Model SK-L751 Temperature measurement type Datalogger conforms to "Protection level IP65 in JIS C 0920".

- **Four logging options**

Available for selection of the setting that best suits your needs

- **Interchangeability of probes**

The probes are interchangeably used with the main unit.

What's in the Box?

Check the box contents.

If you find any item missing, please contact us or the store where you purchased this product.

- | | |
|---|---|
| <input type="checkbox"/> Datalogger | 1 |
| <input type="checkbox"/> AA size alkaline battery | 2 |
| <input type="checkbox"/> Software program CD-ROM | 1 |
| <input type="checkbox"/> USB cable | 1 |
| <input type="checkbox"/> Instruction Manual | 1 |

* MicroSD card is not attached.

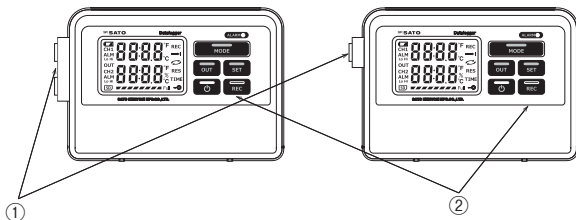
* Probe is an option and not included in the box.

1. Names of Section

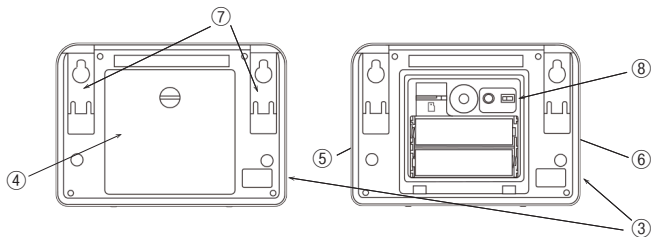
Front view

Model SK-L751

Model SK-L754



Rear view



- ① Probe connector
- ② Key operation section
- ③ Port for AC adapter/USB cable
- ④ Battery cover
- ⑤ MicroSD card slot
- ⑥ Reset switch

* Resets power (used at malfunctioning)

⑦ Wall-mount hooks

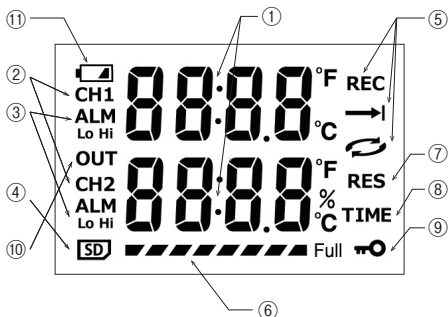
Pull out these to hang the unit on the wall

⑧ Measurement unit switch

Switch the temperature unit °C or °F (1:°F, 2: °C)

This switch is not usable during measurement. Set when the power is off and the unit switched will be reflected at the next startup

LCD Display



① Measurement display

Measured values and set values are indicated

② CH1 CH2

Measurement channel is indicated.

③ ALM

Lights up during an alarm is set.





The [ALM] flashes while the alarm is activated, and [Hi] or [Lo] flashes when the measured value exceeds or falls the alarm set value

④

Lights up when a microSD card is inserted.

⑤ REC

Lights up during logging.

 lights up when the logging option is "Once".  lights up when the logging option is "Repeatedly". For other logging options,  is displayed for "End at ..." and  is displayed for "By Pages" in the measurement display section.

⑥ Data memory bar graph

The number of lit segments increases as the number of logged data items increases.

When the number reaches 16000, the [Full] lights up.

⑦ **RES**

Flashes while in standby for preset start.

⑧ **TIME**

Lights up when the date and time is displayed.

⑨ 

Lights up when the key-lock is operating.

⑩ **OUT**

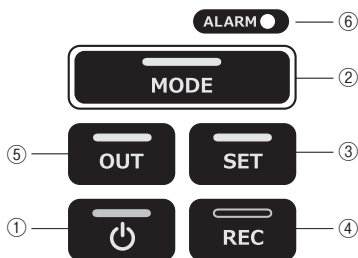
Lights up when the unit is communicating with the PC.


⑪ 

Flashes if the battery level falls below the specified level.

Note: Logging will continue for some time after the flashing starts, but it will automatically stop after a while.

Key operation section

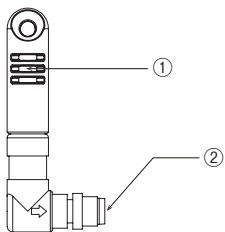


- ① Power key 
Press this key for at least one second to turn on or off the unit.
Upon powered on, all the indicators on the LCD will light up to indicate that the unit has entered measurement mode.
- ② MODE key
Used to move to setting mode or move to the next setting item in setting mode.
- ③ SET key
Used to set the key-lock while, for example, in measurement mode, or to display the readings in measurement mode.
- ④ REC key
Used to start or end logging.
- ⑤ OUT key
Used to check the measured value while in standby for preset start or to copy the logged data to a microSD card.
- ⑥ ALARM light
Lights up if the measured value exceeds/falls short of the alarm setting value.

Standard probes

Model SK-L751-1 Temperature probe

SK-L754-1 Temp/Hum. probe

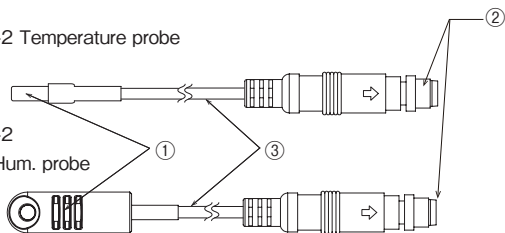


- | | |
|---|----------------|
| ① | Sensor section |
| ② | Connector |
| ③ | Sensor cord |

Model SK-L751-2 Temperature probe

Model SK-L754-2

Temp/Hum. probe



2. Preparation

① Installing the batteries

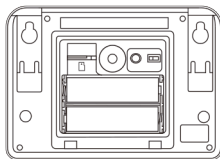
When using the unit for the first time or when the low battery indicator is flashing, install batteries or replace the batteries with new ones as described below.

Note that you can use the AC adapter (option) connected to a USB port. When the AC adapter is connected to the unit with the batteries installed, the power will be supplied from the AC adapter under normal conditions, and will switch to using the batteries as a backup in case of a problem such as a power failure.

● When you use batteries

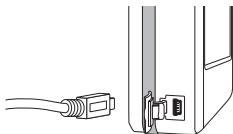
Use a flat-bladed screwdriver or a coin to turn counterclockwise the screw on the battery lid at the back of the unit, and then remove the battery lid. Install the batteries with the correct polarity (+ and -). When reinstalling the battery lid, follow the removal procedure in reverse order.

Note: Be sure to install new batteries.



● When you use USB or an AC adapter

Open the USB cap and connect the provided USB cable to the USB port.





Cautions

- Replacement batteries must be new and of the same type. Mixed use of different types or new and old batteries may cause an explosion or leakage.
- Do not dispose of used batteries in a fire. Doing so could cause the batteries to explode, resulting in injuries or burns.
- Keep the batteries out of the reach of children. If a child accidentally swallows a battery, contact a doctor immediately.
- For environmental protection, dispose of used batteries in compliance with local rules and regulations.
- Model SK-L751 (temperature measurement type) is waterproof. Make sure to firmly attach the battery lid putting the rubber packing in the groove and secure the screw. Otherwise, the device is not guaranteed to be waterproof and results in malfunction.
- When Model SK-L751 is used with AC adapters, the waterproof performance cannot be maintained because the port cap is opened. Use it with battery operation at the site where water splashes.

② Connecting the probe

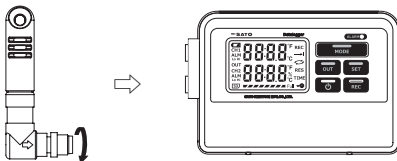
While observing the correct orientation, insert the probe straight into the connector on the unit, then firmly tighten the probe nut to securely connect the probe. If it is not tightened enough, the waterproofness may be reduced.

Note: Do not twist or bend the sensing portion. Doing so may cause the unit to malfunction.

When Model SK-L751 (temperature type) is used with the plug-in type probe Model SK-L751-1, connect the probe to CH1. If connected to CH2, another probe cannot be connected to CH1 due to the shape

of the plug-in type probe.

If a probe is connected only to CH2, logging cannot be started. Be sure to connect the probe to CH1 first.



③ Connecting to the PC

Connect the unit to the computer using the provided USB cable. The settings should be done through the dedicated software. For details, refer to the software instruction manual.

④ Installing the datalogger

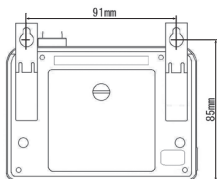
Notes:

- When hanging the unit on a wall, install screws on the wall or pole, pull out the wall-mount hooks from the back of the unit and use them to hang the unit on the wall or pole.
- Upon completion of installation, slightly move the unit from side to side to check that it will not fall. Do not pull the unit mounted on the wall unnecessarily. Doing so may cause the mounting hooks to come off.

Installing the unit on the wall

Use M3 screws or the like and install the unit by referring to the figure below.

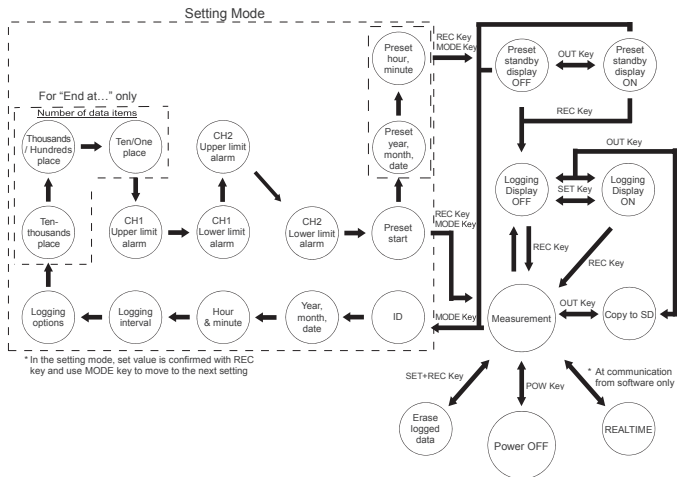
- Be sure to securely install the unit to prevent it from falling.



3. Functions

Performance

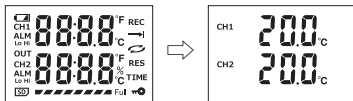
The following operations are performed with each key although each setting is done with dedicated software.



① Measurement mode

Measures the ambient air and displays the results on the LCD.

Connect the probes and press the power key for at least one second so that all indicators light up and the measured values are displayed.



② Setting mode

Used to set various functions.

To enter this mode, press the [MODE] key while in measurement mode or in standby for preset start.

- You can set some functions by using the keys on the unit: the alarm (ON/OFF), logging interval, logging option and preset start (ON/OFF). Use the dedicated software to make detailed settings.
- If no key is operated for one minute, the unit returns to measurement mode with the setting values at which the REC key was last pressed.

Note: Any change in the setting value can be confirmed by pressing the REC key. After making a change, if the MODE key is pressed instead of the REC key to move to another setting, the change will not be updated.

- Default Settings

The default settings are as follows. Set each setting with the dedicated software according to your usage.

Item	Setting
ID	000000
Year/Month/Date	2018.1.1
Time	0:00
Logging interval	1 minute
Logging option	Once
CH1 Upper alarm	OFF
CH1 Lower alarm	OFF
CH2 Upper alarm	OFF
CH2 Lower alarm	OFF
Preset start	OFF
Key-lock	OFF

- ID display

Displays the ID number set in the unit.



The factory default is "id000000".

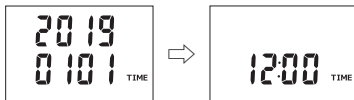
Use the dedicated software to set the ID.

The six digits after "id" are used for the ID. ID numbers are limited to certain characters.

For details, refer to the software.

- Display of year, month, date, hour and minute

Displays the year, month, date, hour and minute set in the unit.



Before starting the unit for the first time, set the current date and time using the dedicated software.

- Display of logging interval

The logging interval set in the unit is displayed.



Available logging intervals: in seconds (1, 2, 5, 10, 15, 30) and in minutes (1, 2, 5, 10, 15, 30, 60, 90).

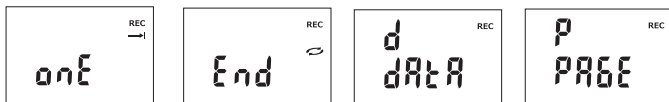
You can set the intervals by operating the key on the unit.

Every time the [SET] key is pressed, the display toggles among the logging intervals.

Press the [REC] key when the desired interval is displayed to confirm it.

- Display of logging option

The logging option set in the unit is displayed.



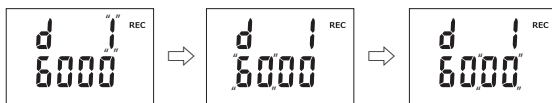
For each logging option, refer to “Logging Option”

- You can set the interval by operating the key on the unit.

Every time the [SET] key is pressed, the display toggles among the logging options.

Press the [REC] key when the desired logging option is displayed to confirm it.

If “End at ...” is selected, specify the number of data items to log.



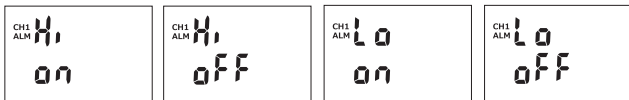
The upper segment is for setting the ten-thousands digit and the lower segment is for the thousands or lower digits.

Use the [SET] key to change the value, and press the [REC] key to confirm it and move to the next digit setting.

- Pressing and holding the [SET] key for at least two seconds quickly changes the value.

● Alarm setting display

The alarm setting (ON/OFF) set in the unit is displayed.



(The figures above show the example of the alarm setting display for channel 1)

When the alarm is set to ON, the [ALM] indicator in the LCD lights up while in measurement mode.

- It only indicates ON or OFF; the alarm setting value is not displayed.

The alarm setting values can be specified by using the dedicated software.

The [SET] key on the unit can be used only to set to ON or OFF.

● Display of the preset start setting

The preset start can be set to ON or OFF using the keys on the unit.



Use the dedicated software to specify the preset start date and time.

Press the [SET] key to set the preset start to ON, and then press the [REC] to confirm it.

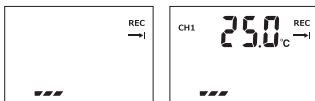
- The setting fails if the preset start date and time is prior to the current date and time.

The preset start date and time will be displayed by:



③ Logging mode

Logs the measured values in the unit based on the logging option set.

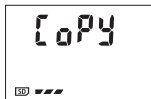


Pressing the [SET] key during logging causes the unit to log while displaying the current values measured.

Note: If the unit displays the measured values while logging, the battery runs out faster.

④ Copying to SD mode

Copies the logged data to a microSD card.



To start copying, press and hold the [OUT] key for at least two seconds.

When the copying is complete, the unit returns to its previous status.

- If copying is performed during logging, the unit copies the data up to when the key is pressed.

⑤ Standby for preset start mode

After the preset start setting is complete and until logging is started, the unit enters and remains in this mode.

If the [OUT] key is pressed while in standby mode, the current measurement value is displayed. To return to the previous mode, press the [OUT] key again.

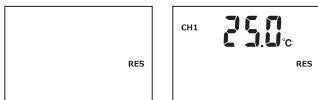
- If the [MODE] key is pressed while in standby for preset start, the unit enters setting mode. After entering setting mode, preset start is automatically set to OFF.

To set to ON again, do it in setting mode, or set the preset start to ON using the dedicated software.

Notes:

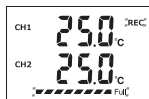
If the preset start is set to ON, the logged data in the unit is automatically deleted. Save any necessary data before setting the preset start to ON.

If any abnormality, such as low battery or disconnection of the probe, is detected while in standby for preset start, the unit automatically ends logging after logging once at the preset start time. Before setting the preset start, make sure that the probe and batteries are in good condition.



⑥ Deleting logged data mode

To delete the logged data, press and hold the [REC] key for at least two seconds while pressing and holding the [SET] key.

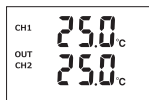


Upon completion of deletion, the unit returns to the previous mode.

⑦ Real-time mode

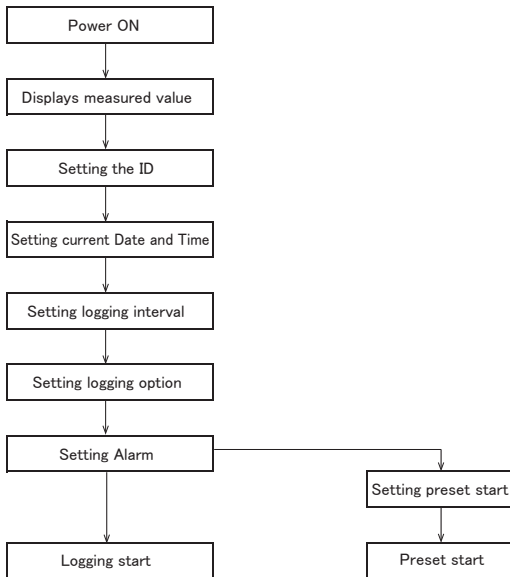
In this mode, the measured values are transmitted to the connected PC in real time.

Operation is possible only when the dedicated software is used.



4. Operation procedure

Operation procedure of the datalogger is as follows. Perform each setting and operation with the dedicated software.



The table below shows the operations performed by the datalogger and the software.

	Datalogger	Software
Turning datalogger ON or OFF	Yes	No
Setting the ID	No	Yes
Year, Month and Date	No	Yes
Time	No	Yes
Logging interval	Yes	Yes
Logging option	Yes	Yes
Alarm ON or OFF	Yes	Yes
Alarm setting value	No	Yes
Preset start ON or OFF	Yes	Yes
Preset Date and Time	No	Yes
Real-time	No	Yes
Key-lock	Yes	Yes
Erasing collected data	Yes	Yes
Copying to SD	Yes	No

5. Logging option

The datalogger has four logging options.
Select the desired logging option as necessary.

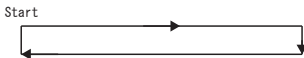
- Once

The unit keeps logging until the memory becomes full.
The unit stops logging when the number of logged data reaches 16000.



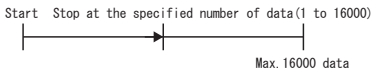
- Repeatedly

The unit overwrites the existing data from the start once the memory becomes full.



- End at ...

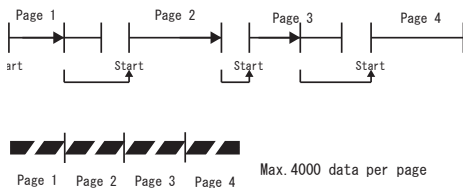
The number of data items to be logged can be specified in advance.
The number of data to be logged is between 1 and 16000.



- By Page

The memory on the unit is partitioned into four blocks (pages). The unit can log data from multiple sites in sequence.

Each page can contain up to 4000 data items.



● Number of lit segments and number of logged data items



When the number of logged data reaches 16000, the "Full" indicator lights up on the right of the memory bar.

Notes:

While there is logged data remaining in the unit, press and hold the [REC] key for at least two seconds to delete the logged data and restart logging.

Be sure to download the necessary data or save it to a microSD card.

To stop logging, press and hold the [REC] key for at least two seconds. The [REC] indicator turns off to indicate that the logging is ended.

6. Alarm operation

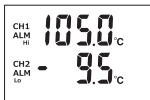
If the measured value exceeds the alarm setting value (Hi) or falls short of the alarm setting value (Lo), the [ALM] and [Hi] or [Lo] (depending on the setting) indicators will flash and the ALARM light will light up.

If the measured value falls back within the range of the setting values, the [Hi] or [Lo] indicator and the ALARM light go off.

- To turn off the activated alarm, press the MODE key while pressing and holding the SET key.

Notes:

- The alarm does not activate if the unit is not measuring, that is, when the unit is in standby for preset start or when the unit is in setting mode.
- If the connected probe comes off from the unit, the alarm setting is canceled (OFF) and the setting value returns to the default value.



7. Key-lock function

Prevents mis-operation while in logging or in standby for preset start.

When in measurement mode or in standby for preset start, press and hold the [SET] key for at least two seconds to enable the key-lock function. When the key-lock is enabled, the key-lock indicator will be lit on the display section and the operation of keys other than the [SET] key is disabled.

To unlock the keys, press and hold the [SET] key for at least two seconds.

8. AC Adapter

When you use an AC adapter other than our option, select the one with the specifications below.

<Secondary output>	Voltage:	5VDC
	Current:	1A
	Plug:	USB Mini-B

9. Error Message

The error codes below will be shown on the display section.

Error code	Causes	Remedy
Hi	Measured value is higher than display range.	Bring the value within the measuring range.
Lo	Measured value is lower than display range.	
Er	Measured value exceeds higher or lower than display range and also exceeds the Hi or Lo value. Or probe is failure.	Bring the value within the measuring range. If the problem still persists, probe may be failure. Contact us or the dealer.
Er0	An abnormal signal (noise) is input at turning the power ON.	Restart by pressing the RESET switch in the battery compartment. If the problem still persists, probe may be failure. Contact us or the dealer.
Er1	A sensor signal is not read when probe is connected.	Turn the power off once and turn the power on. If the problem still persists, probe may be failure. Contact us or the dealer.
Er2	Probe is not connected. Or probe is failure.	This error code is displayed when power is turned on without connecting the probe. Connect the probe first and turn the power ON. If Er2 is still displayed although the probe is connected, probe may be failure. Contact us or the dealer.
Er3	Tried to copy logged data to microSD card but no data existed. Or microSD card is not inserted.	Check that there are logged data with data memory bar graph. Or check that microSD card is inserted.
Er4	Incorrect probe is connected.	To SK-L751 (Temperature measurement type), connect the temperature probe. To SK-L754 (Temp/Humidity measurement type), connect the Temp/Humidity probe.
Er5	Preset is ON with the date and time prior to the current date and time.	Change the preset date and time with the dedicated software.
Er6	Tried to change the logging option when there was data left in the unit.	After erasing logged data, change the logging option.

8. Specifications

Model	SK-L751 Temperature measurement type	SK-L754 Temperature/humidity measurement type
Cat. No.	8800-00	8870-00
Measuring channel	2 channels for temperature	1 channel each for temperature & humidity
Measuring range	Depends on the probe connected	
Resolution	0.1°C	0.1°C / 0.1%rh
Display Accuracy	±0.2°C (0 to 40°C) ±0.3°C (other range)	Temp: ±0.2°C (0 to 40°C) ±0.3°C (other range) Humi: ±0.2%rh (0 to 40°C) ±0.3%rh (other range)
Display sampling	Approx. 1 second	
Display	Temperature/Humidity Alarm (ALM), logging option, status display (REC /RES), memory indicator (in bars), SD memory, low battery indicator, key-lock mark, error codes, setting value at each setting	
Memory capacity	16,000 data items for each channel	
Logging interval	14 options: in seconds (1, 2, 5, 10, 15, 30), in minutes (1, 2, 5, 10, 15, 30, 60, 90)	
External memory	MicroSD/SDHC up to 32 GB	
Operating ambient	-10.0 to 60.0°C, lower than 85%rh (no condensing)	
Storage ambient	-10.0 to 60.0°C, lower than 85%rh (no condensing)	
Power requirements	Two alkaline AA batteries or AC adapter	
Battery life at 23°C	<ul style="list-style-type: none"> • In measurement mode: approx. 500 hours • In logging mode: 16000 data items can be logged with any logging interval. (when LCD is off) 	
Dimensions	114(W)x 80(H)x 35(D)mm (exclusive of protrusions)	
Weights (approx.)	232g (inclusive of batteries)	227g (inclusive of batteries)
Waterproofness	IP65 (when w/-sensor-cord-type probe connected)	-----
Accessories	CD-ROM: Data analysis software and real-time software, USB cable, 2 alkaline AA batteries, English manual	

Remarks

- * Use a commercial memory that has been formatted.
SK-L750 Series Dataloggers support only FAT32 format. NTFS format cannot be used.
We have checked the operation with microSD cards below.
 - BUFFALO: 16GB/32GB RMSD-Y016U1A/RMSD-Y032U1A
 - ELECOM: 16GB/32GB MF-RUMSD16GL/MF-RUMSD32GL
 - SanDisk: 16GB/32GB SDSAQUL-16G-J35A/SDSAQUL-32G-J35A

- * The batteries attached are for monitoring purpose and the battery life may be shorter than standard.

- * The specifications and appearance subject to change with or without notice for improvement purpose.

- * For the specifications of the probe, refer to the manual attached with each probe.

WARRANTY POLICY

Our products are warranted to be free from defects in materials and workmanship for a period of one year from date of delivery. If repair or adjustment is necessary and has not been the result of abuse or misuse within the one-year-period, please return the units on - Freight Prepaid - basis and correction of the defect will be made without charges. We alone will determine if the product problem is due to deviations or customer misuse.

Out-of-warranty products will be repaired on charge basis.

Warranty during transportation

The warranty during transportation only applies to the products that we arrange the shipment. The case that the products had been purchased in domestic and were sent to overseas by the purchaser is out of warranty.

Return of items

Authorization must be obtained from us before returning items for any reason. When applying for authorization, please include data regarding the reasons the items are to be returned.

SATO KEIRYOKI MFG. CO., LTD.

3-4, Kanda-kajicho, Chiyoda-ku, Tokyo 101-0045 JAPAN

TEL: +81 3-3254-8117 FAX: 3-3254-8123

URL: <http://www.sksato.co.jp/english/>

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