



# **Instruction manual**

**Software for SK-L750 Series Dataloggers**

Thank you for purchasing the SK-L750 series dataloggers.

Read this manual before using and keep the manual in safe place for future references.

## ■ Introduction

- "DATALOGGER for Windows" is an application software used for the SK-L750 series Dataloggers.
- This software can be used to monitor the environment with the Datalogger and collect data from the Datalogger for analysis.
- The collected data can also be analyzed using a commercial spreadsheet program.
- In real-time monitoring, graphs and monitors can be displayed. Real-time monitoring has an alarm function that displays an alarm message on the software or sends an alarm email message.
  - \* For email alarm messages, an Internet connection and email address are required.

## ■ Disclaimer

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We shall not be held responsible for any damage resulting either directly or indirectly from using this product.

Furthermore, we shall not be held responsible for any damage to or loss of data arising from mis-operation of the software, disregarding cautions or troubles due to malfunctioning of the PC being used.

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## Before installing the Datalogger for Windows

- Make sure that you have logged on as Administrator. If your computer is managed by a network administrator, consult with him/her before making any modification to the system.
- Do not connect your Datalogger until installation is successfully completed.
- Refer to the manual for SK-L750 Series Datalogger” for before starting the software.

### ● Minimum System Requirements

CPU : 32-bit (more than 2GHz) or 64-bit processor  
OS : Windows10 (64-bit/32-bit)、Windows8.1 (64-bit/32-bit)  
※The latest service pack must be installed

Memory : More than 4GB (32-bit), More than 8GB (64-bit),

Hard disk drive : 4GB or more free space

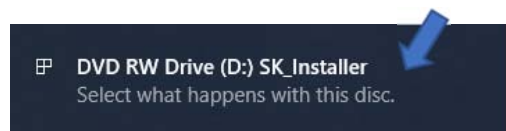
Others : USB port, CD-ROM drive

The Internet connection and email address are required to use Alarm Email sending function,

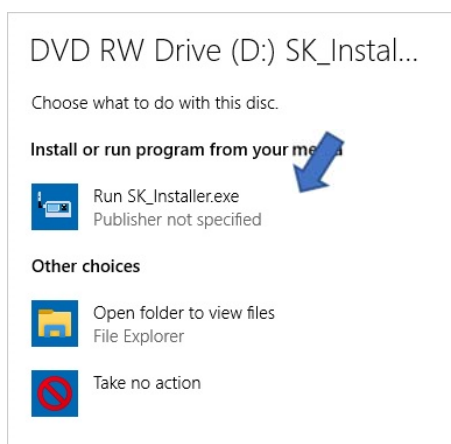
Microsoft .NET Framework 4.72 or more

## Installing the Driver and Software

- ① Turn on the PC on which the software is to be installed.
- ② Insert the CD-ROM that came with the unit into the CD/DVD-ROM drive of the PC.  
On the lower right of the display, the following message appears; click it.

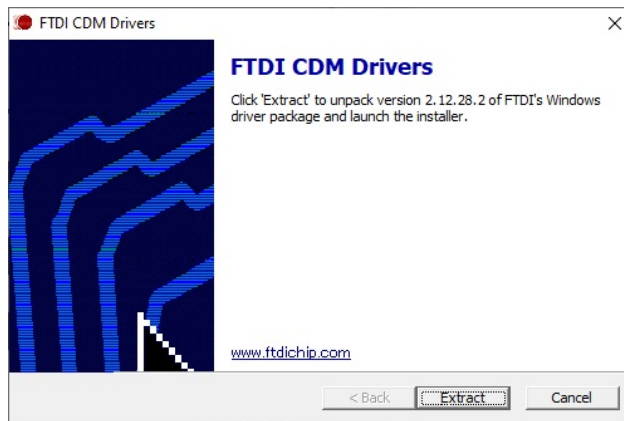


Then, on the upper right, a dialog box appears, asking to choose what to do with this disk. Click. If the installation does not start, double-click “SK\_Installer.exe” on the CD-ROM.



③ Installing the USB driver

Follow the messages that appear on the screen to complete the installation.

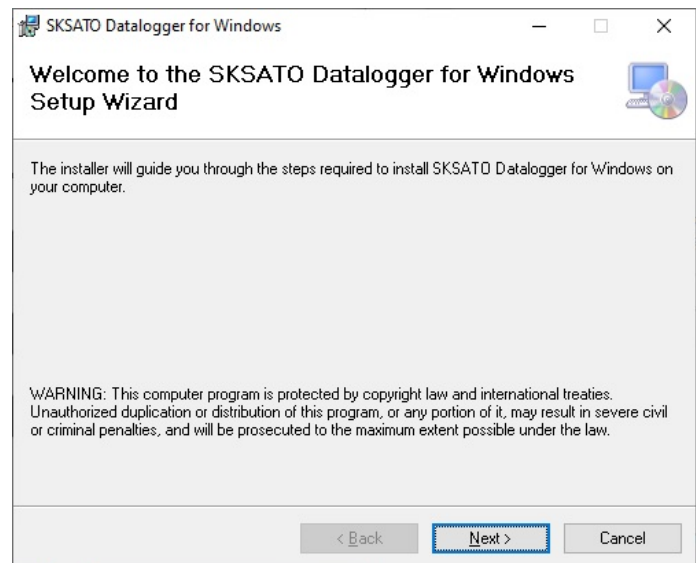
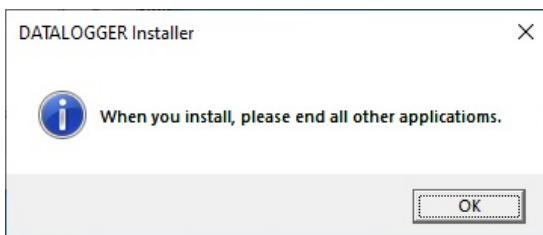


④ Installing the software

Before installing, close any other programs running on the PC; you may be asked to restart the PC afterward.

Follow the messages that appear on the screen to complete the installation.

※When using the software for the first time, do not connect the Datalogger to the USB port at this stage.



※Before installing, check that the bit type of the installer matches your OS bit type (when downloading the installer from our website).

⑤ Installing the device driver

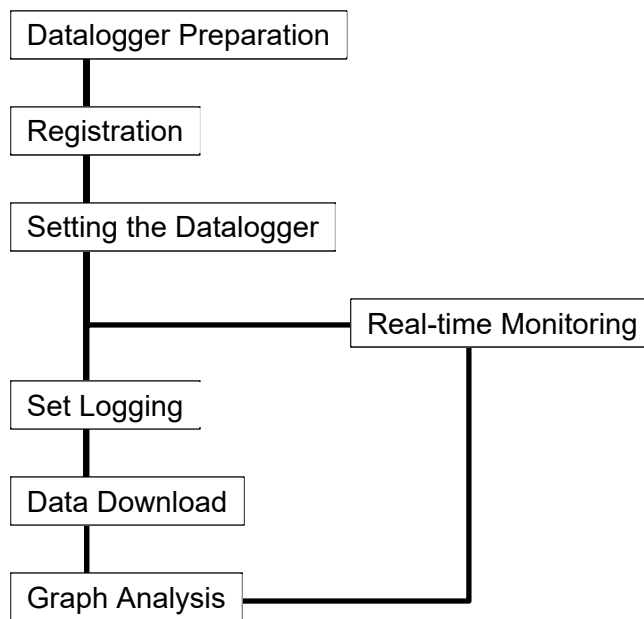
Connect the Datalogger to your PC with the provided USB cable. Installation of the driver will begin automatically.

## Uninstalling the Software

To uninstall the software from the PC, do the following.

- ① Click the “Start” button and select “Control Panel.”
- ② Open “Add or Remove Programs”, “Programs and Features” or “Apps & features”.
- ③ Select “SKSATO DATALOGGER for Windows” and click “Remove” or “Uninstall”.

## Operation Procedures



## Datalogger Preparation

### ①Preparing the power supply

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.

Either batteries or an AC adapter can be used as the power source.

Also, the Datalogger can be powered via the USB port of the PC.

For installing the batteries, refer to the instruction manual of the SK-L750 series Datalogger.

### ②Connecting the sensor

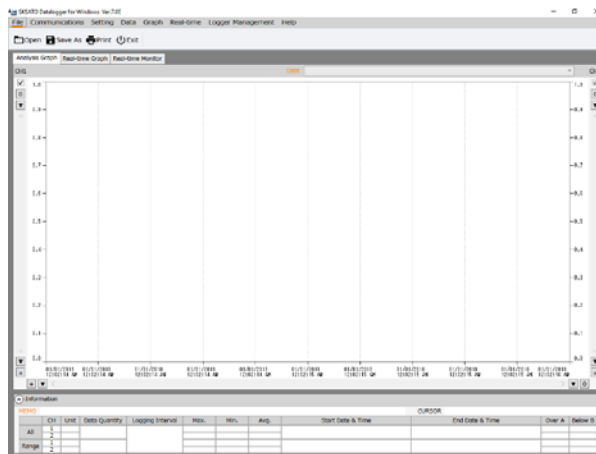
Connect the sensor by following the applicable instruction manual for the sensor.

For handling of the sensor, refer to the instruction manual provided with the sensor.

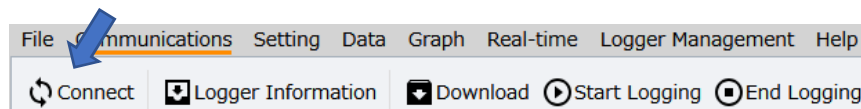
### ③Connecting to the PC

Start up the PC. Connect the Datalogger using the dedicated communication cable to a USB port of the PC.

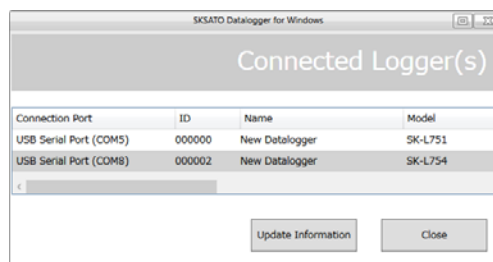
Turn on the Datalogger. Start SKSATO DATALOGGER for Windows.



### ④Click the “Connect” button on the Communications menu.



### ⑤The connected Datalogger is listed in the Connected Datalogger window.



The preparation is now complete.



Set up all the necessary options in the software depending on how the Datalogger will be used.

※If the Datalogger is not displayed in the list, check the following items, and then click “Update Information”.

- Check if the Datalogger is turned on.
- Check if the USB cable connector is securely and fully inserted.  
Also, try to pull out the USB cable and insert it again.
- Check if the communication port is properly specified.
- Connecting or disconnecting the USB cable while the power is on could result in a communication error with the Datalogger.  
Turn off the Datalogger and then turn it again.

If the Datalogger is still not displayed, either the USB driver is not installed or its installation has failed. Check whether it has been installed successfully.

●How to check the port number of the connection

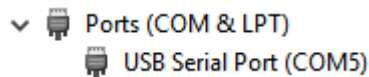
Open Device Manager to check the COM port number by:

**【Windows 8 and 8.1】**

On the desktop, move the cursor to the bottom-right corner until the Charms bar appears.  
Click Settings → Control Panel → Hardware and Sound → Device Manager and Ports (COM & LPT).

**【Windows 10】**

Right-click “Start” and select “Device Manager”, and then open “Ports (COM & LPT)”.



## Setting the Datalogger

### 1) Registration

Register the unit to the software so that the identification, management and setting information of the Datalogger can be retained the next time the software is started.

Register the Datalogger as necessary.

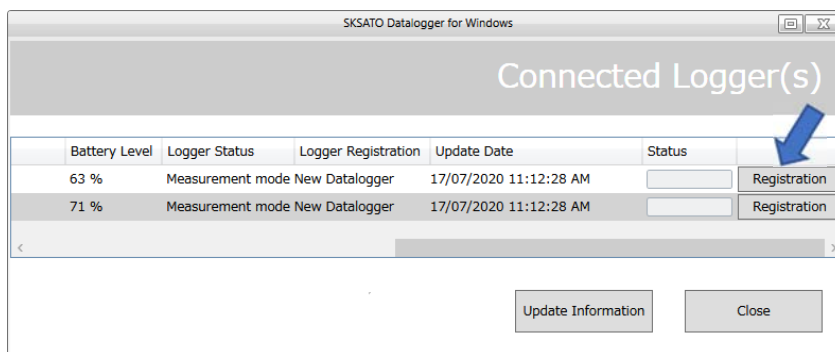
※Note that various settings and data analysis can be performed without registration.

※An unregistered Datalogger is identified as “New Datalogger”.

### Registration Procedure

①Click the “Connect” button on the Communications menu.

②In the Connected Datalogger window, click “Registration”.



③The Datalogger Registration/Entry Information dialog box appears.

Name (Required)

ID number (Required)

You can enter the numbers from 0 to 9 and letters from A to E.

Model

Connection Port

MEMO

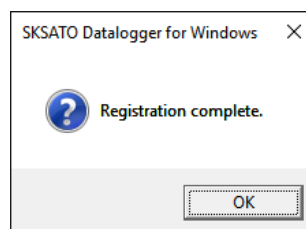
④Enter the registration information on the Datalogger.

#### Registration information

Item	Setting	Description
Name (Required)	Double-byte or single-byte characters	<ul style="list-style-type: none"> <li>▪ It helps to easily identify the Datalogger if the serial number or location of installation is included.</li> <li>▪ Registration cannot be completed if the field is left blank.</li> </ul>
ID number (Required)	Enter six single-byte characters.	<ul style="list-style-type: none"> <li>▪ ID numbers are used to identify Dataloggers.</li> <li>▪ Use numbers from 0 to 9 and letters from A to E.</li> <li>※ The ID number can be changed with <u>ID Number</u> after registration.</li> <li>※ The ID number must be unique.</li> </ul>
Model	–	Displays the model information (unchangeable). SK-L751 (temperature) or SK-L754 (temperature and humidity)
Connection port	–	The number of the COM port to which the Datalogger is connected (unchangeable).
MEMO	Double-byte or single-byte characters	<p>Any information such as the location of installation and description of management can be entered.</p> <p>※ This information does not appear in the MEMO field of the analysis graph screen.</p> <p>To enter details in the MEMO field of the analysis graph screen, use the <u>MEMO</u> tab on the Data menu.</p>

⑤After entering the necessary information, click “Register”.

Upon communicating with the Datalogger, the registration is confirmed. When the registration is successfully completed, the following message appears.

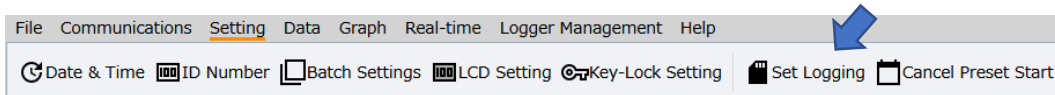


※If registration fails, refer to “3. Datalogger cannot be registered” on page 65.

## When the Measurement Data Is Logged in the Datalogger

The measurement data on temperature and/or humidity can be logged using the specified logging option and interval on the Datalogger.

Click the “Set Logging” button on the Settings menu and specify the logging conditions.

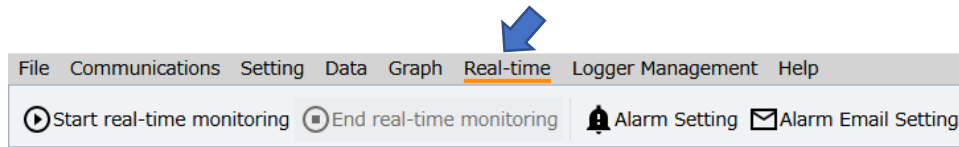


For details, refer to “Set Logging” on page 29.

## When Monitoring Temperature/Humidity in Real Time

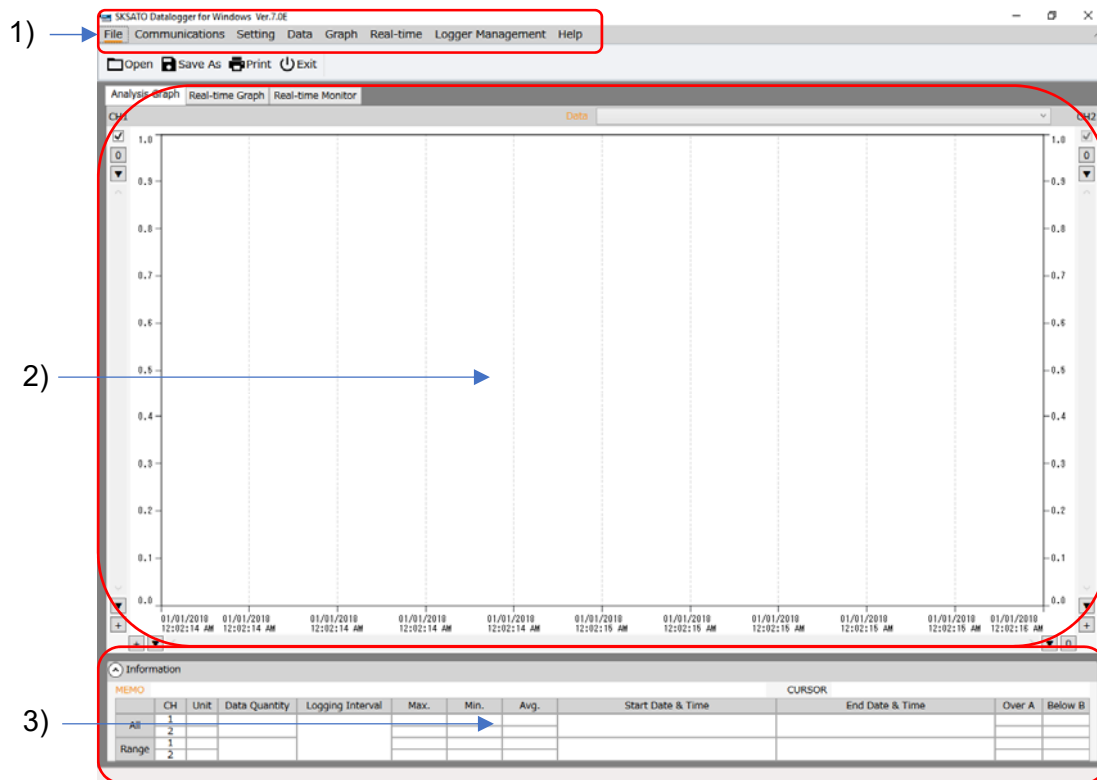
The measured values taken by the Datalogger at the set intervals are displayed on the screen in real time.

If a measured value exceeds the set value when the alarm setting or alarm email setting is set to ON, an alarm is displayed on the screen or an email is sent. Set the various options using the Real-Time menu.

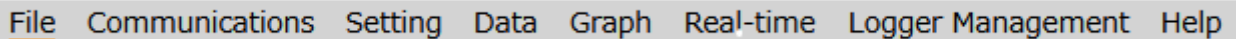


For details, refer to “Real-time” from page 49.

## Explanation of Screen



### 1) Menus



- ① File  
Used to open, save or print the logged data.
- ② Communications  
Used to communicate with the Datalogger to acquire information or download data.
- ③ Setting  
Used to set various items in the Datalogger.
- ④ Data  
Used to display information on the data of the graph being displayed.
- ⑤ Graph  
Used to analyze or customize the graph being displayed.
- ⑥ Real-time  
Used to set various options for real-time communication.
- ⑦ Logger Management  
Used to change the registered Datalogger or delete its registration.
- ⑧ Help  
Used to display the manual or version information of this software.

For details on each setting item, refer to pages 13 to 66.

2) Display section for analysis graph, real-time graph, real-time monitor

The logged data that is downloaded or saved is displayed in analysis graphs. During real-time monitoring, data is acquired at real-time intervals and displayed in real-time graphs. Also, the measured values, the values of maximum, minimum and average, as well as the Heat Stress Index can be viewed on the real-time monitor.

3) Data Information Section in Analysis Graph

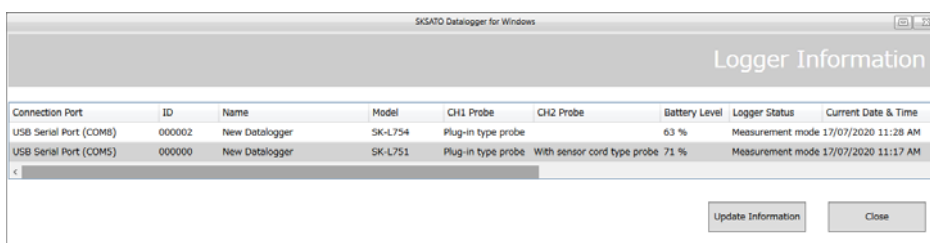
Used to display information on the data of the graph being displayed.

“All” displays information on all data, while “Range” displays information on the data of an enlarged part of a graph.

Click ▼ to display or hide the data information.

**List of Information Items on Each Datalogger**

When making settings, a window with information on Dataloggers such as the one shown below appears.



Item	Description	
Connection Port	COM port number on the PC to which the Datalogger is connected	
ID Number	ID number registered (“000000” is set at the factory) The ID number can be changed with the ID Number tab on the Setting menu after registration.	
Datalogger Name	Registered name (an unregistered unit is displayed as “New Datalogger”) The name can be changed with Change/Delete Logger Registration after registration.	
Model	Model information SK-L751 (Temperature measurement type ) SK-L754 (Temperature and humidity measurement type )	
CH1 Probe	Information on the probe connected to the Datalogger CH1	If a plug-in probe is connected: “Plug-in probe” is displayed. If a with sensor cord probe is connected: “With sensor cord probe” is displayed. If no probe/wrong probe is connected: “Probe is not found” is displayed.
CH2 Probe	Information on the probe connected to the Datalogger CH2	
Battery Level	Battery level in the Datalogger (%) 0 to 100% or “No battery” ※If the batteries are not installed or have run down, “No battery” appears. ※If the battery level is low, immediately replace the batteries.	

Item	Description		
Logger Status	Datalogger operation status Six operation statuses: Measurement mode, Setting mode, Logging, Standby for Preset Start, Copying to SD, Deleting Logged Data		
Preset Date & Time	The preset date and time set on the Datalogger		
CH1 Upper Limit Alarm	Upper limit alarm ON or OFF set on channel 1 of the Datalogger's probe and during the real-time monitoring	Separately do the settings to Datalogger and during the real-time monitoring. On the Alarm Setting, refer to page 33 for the Datalogger and page 54 for during real-time monitoring.	
CH1 Upper Limit Value	Upper limit value set on channel 1 of the Datalogger's probe during the real-time monitoring		
CH1 Lower Limit Alarm	CH1 lower limit alarm ON or OFF set on channel 1 of the Datalogger's probe during the real-time monitoring		
CH1 Lower Limit Value	CH1 lower limit value set on channel 1 of the Datalogger's probe during the real-time monitoring		
CH2 Upper Limit Alarm	CH2 upper limit alarm ON or OFF set on channel 2 of the Datalogger's probe during the real-time monitoring		
CH2 Upper Limit Value	CH2 upper limit value set on channel 2 of the Datalogger's probe during the real-time monitoring		
CH2 Lower Limit Alarm	CH2 lower limit alarm ON or OFF set on channel 2 of the Datalogger's probe during the real-time monitoring		
CH2 Lower Limit Value	CH2 lower limit value set on channel 2 of the Datalogger's probe during the real-time monitoring		
Logging Settings	Logging settings set on the Datalogger There are four logging options: Once, Repeatedly, End at... and By Pages		
Logging Interval	Logging interval set on the Datalogger 14 logging interval options: In seconds (1, 2, 5, 10, 15, 30) and in minutes (1, 2, 5, 10, 15, 30, 60, 90)		
Key-lock	Key-lock setting (ON/OFF)		
Number of data items	Specify the number of data items to be logged. Available to specify between 1 and 16000		
Alarm email	Alarm email setting (ON/OFF) during real-time monitoring		
LCD setting	LCD on the Datalogger setting (ON/OFF)		
Memo	Comment entered at the Logger registration is displayed. The comment in the MEMO field of the analysis graph will not be displayed		

Item	Description																														
Current Date & Time Update Date & Time	The current date and time set on the DataloggerDate and time when data was acquired from the Datalogger																														
Status	<p data-bbox="347 376 1458 499">Displays the result of communications with the Datalogger as “Successful” or “Failed”. The cause of “Failed” status can be displayed by moving the cursor over the status. Possible causes of failure are listed below.</p> <table border="1" data-bbox="347 499 1469 1742"> <thead> <tr> <th data-bbox="347 499 916 544">Cause</th> <th data-bbox="920 499 1469 544">Message displayed</th> </tr> </thead> <tbody> <tr> <td data-bbox="347 544 916 633">Setting is not possible because logging is in progress.</td> <td data-bbox="920 544 1469 633">Logging is in progress.</td> </tr> <tr> <td data-bbox="347 633 916 723">Setting is not possible because the Datalogger is in standby for preset start.</td> <td data-bbox="920 633 1469 723">Datalogger is in standby for preset start.</td> </tr> <tr> <td data-bbox="347 723 916 813">The preset start date &amp; time is set to within 30 seconds of the current time.</td> <td data-bbox="920 723 1469 813">The preset start time must be at least 30 seconds later than the current time.</td> </tr> <tr> <td data-bbox="347 813 916 947">An error is detected in the measured value or sensor, or the wrong type of sensor for the Datalogger model is connected.</td> <td data-bbox="920 813 1469 947">Measurement fault</td> </tr> <tr> <td data-bbox="347 947 916 992">The Datalogger is faulty.</td> <td data-bbox="920 947 1469 992">Datalogger is faulty.</td> </tr> <tr> <td data-bbox="347 992 916 1037">The battery level is low.</td> <td data-bbox="920 992 1469 1037">Battery level is low.</td> </tr> <tr> <td data-bbox="347 1037 916 1126">Setting is not possible because the Datalogger is in measurement mode.</td> <td data-bbox="920 1037 1469 1126">Datalogger is in measurement mode.</td> </tr> <tr> <td data-bbox="347 1126 916 1216">Setting is not possible because the Datalogger is in setting mode.</td> <td data-bbox="920 1126 1469 1216">Datalogger is in setting mode.</td> </tr> <tr> <td data-bbox="347 1216 916 1261">The logged data is stored in the Datalogger.</td> <td data-bbox="920 1216 1469 1261">Datalogger contains logged data.</td> </tr> <tr> <td data-bbox="347 1261 916 1373">The Datalogger name or the file name contains special characters (¥ / : , * ? " &lt; &gt; '  ).</td> <td data-bbox="920 1261 1469 1373">Name contains a special character that cannot be used.</td> </tr> <tr> <td data-bbox="347 1373 916 1462">The alarm setting value is outside the setting range.</td> <td data-bbox="920 1373 1469 1462">Value is out of the setting range.</td> </tr> <tr> <td data-bbox="347 1462 916 1552">The Datalogger is copying the logged data to the microSD card.</td> <td data-bbox="920 1462 1469 1552">Copying to the microSD card.</td> </tr> <tr> <td data-bbox="347 1552 916 1597">The Datalogger is deleting the logged data.</td> <td data-bbox="920 1552 1469 1597">Deleting the logged data.</td> </tr> <tr> <td data-bbox="347 1597 916 1742">           Either of the following errors has occurred:           <ul style="list-style-type: none"> <li data-bbox="368 1641 671 1686">▪ Receive Timeout/error</li> <li data-bbox="368 1686 767 1731">▪ Connection port failed to open</li> </ul> </td> <td data-bbox="920 1597 1469 1742">Cannot communicate with the Datalogger.</td> </tr> </tbody> </table>	Cause	Message displayed	Setting is not possible because logging is in progress.	Logging is in progress.	Setting is not possible because the Datalogger is in standby for preset start.	Datalogger is in standby for preset start.	The preset start date & time is set to within 30 seconds of the current time.	The preset start time must be at least 30 seconds later than the current time.	An error is detected in the measured value or sensor, or the wrong type of sensor for the Datalogger model is connected.	Measurement fault	The Datalogger is faulty.	Datalogger is faulty.	The battery level is low.	Battery level is low.	Setting is not possible because the Datalogger is in measurement mode.	Datalogger is in measurement mode.	Setting is not possible because the Datalogger is in setting mode.	Datalogger is in setting mode.	The logged data is stored in the Datalogger.	Datalogger contains logged data.	The Datalogger name or the file name contains special characters (¥ / : , * ? " < > '  ).	Name contains a special character that cannot be used.	The alarm setting value is outside the setting range.	Value is out of the setting range.	The Datalogger is copying the logged data to the microSD card.	Copying to the microSD card.	The Datalogger is deleting the logged data.	Deleting the logged data.	Either of the following errors has occurred: <ul style="list-style-type: none"> <li data-bbox="368 1641 671 1686">▪ Receive Timeout/error</li> <li data-bbox="368 1686 767 1731">▪ Connection port failed to open</li> </ul>	Cannot communicate with the Datalogger.
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The alarm setting value is outside the setting range.	Value is out of the setting range.																														
The Datalogger is copying the logged data to the microSD card.	Copying to the microSD card.																														
The Datalogger is deleting the logged data.	Deleting the logged data.																														
Either of the following errors has occurred: <ul style="list-style-type: none"> <li data-bbox="368 1641 671 1686">▪ Receive Timeout/error</li> <li data-bbox="368 1686 767 1731">▪ Connection port failed to open</li> </ul>	Cannot communicate with the Datalogger.																														

※The Datalogger name and the ID are stored in the software settings file.

※Depending on the Datalogger status (during logging, in standby for preset start, etc.), the target Datalogger cannot be selected for setting some items.



## Explanation of Functions

※Note : If a setting or communication fails, refer to “Troubleshooting” on page 64.

### 1. Communications

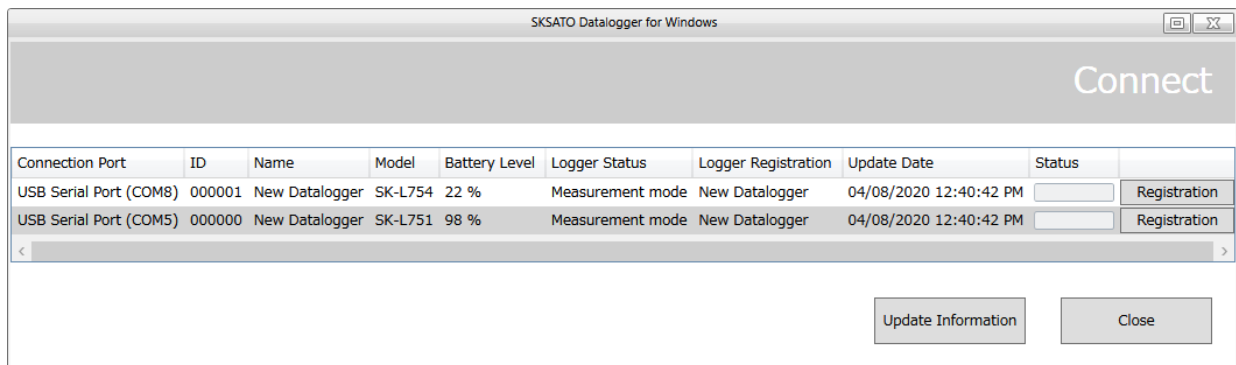
#### 1.1 Connect

Checks the connection between the Datalogger and the PC.

①Click the “Connect” button on the Communications menu.



② The result of the communication is displayed in the Connected Datalogger window.



Connection Port	ID	Name	Model	Battery Level	Logger Status	Logger Registration	Update Date	Status	
USB Serial Port (COM8)	000001	New Datalogger	SK-L754	22 %	Measurement mode	New Datalogger	04/08/2020 12:40:42 PM	<input type="checkbox"/>	Registration
USB Serial Port (COM5)	000000	New Datalogger	SK-L751	98 %	Measurement mode	New Datalogger	04/08/2020 12:40:42 PM	<input type="checkbox"/>	Registration

#### 1.2 Registration

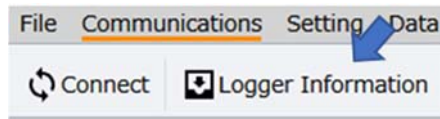
Registers the Datalogger to the software.

For the registration procedure, refer to “Setting the Datalogger” on page 6.

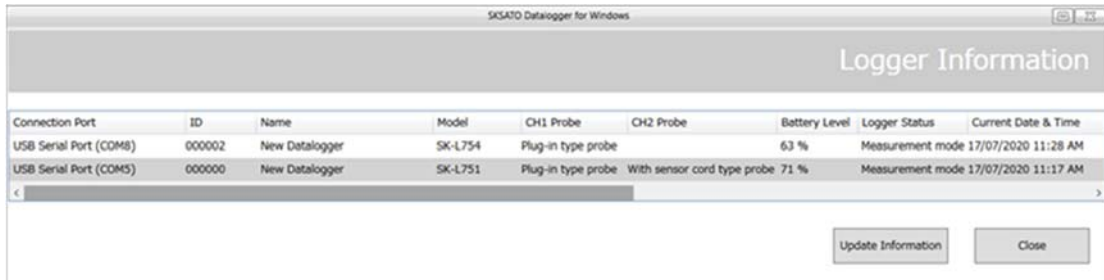
### 1.3 Logger Information

Acquires and displays information on the Datalogger.

① Click the “Logger Information” button on the Communications menu.



② Information on the Datalogger acquired and displayed in the Logger Information window.



### 1.4 Download

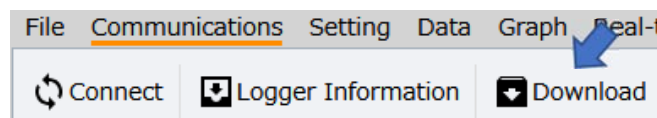
Collects the logged data stored in the Datalogger's memory. Downloading is possible even during logging.

The downloaded data appears on the analysis graph screen.

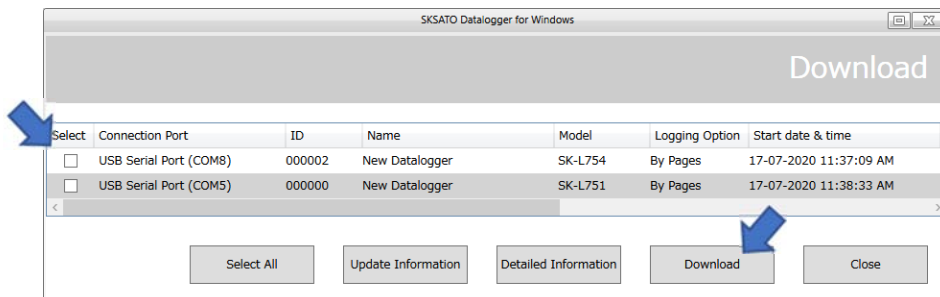
Notes:

- Save the downloaded data as necessary.  
Unsaved data will be deleted when the software exits.
- Data cannot be downloaded during real-time monitoring.  
Close real-time monitoring using the “End” button.

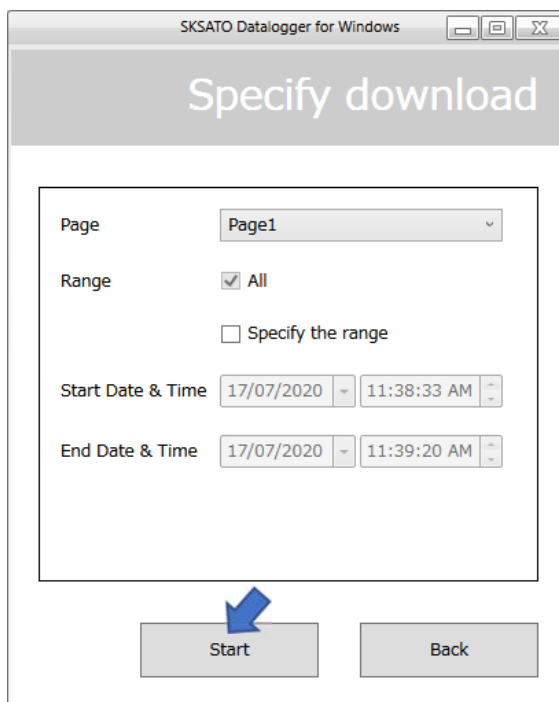
① Click the “Download” button on the Communications menu.



② In the Download window, select the target Datalogger and click “Download”. (Multiple Dataloggers can be selected.)



③ In the Specify Download dialog box, specify the download conditions and click “Start”.



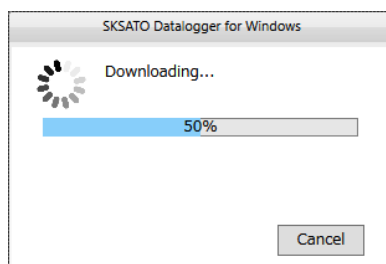
Item	Setting	Description
Page	Specify the page	If the logging option of the Datalogger is set to “By Pages”, specify the page to be downloaded. For other logging options, set to “Not applicable”. - If multiple Dataloggers including one with By Pages are selected, the software downloads only the page 1 data from such By Pages Datalogger. To download data of page 2 onward, select the relevant Datalogger and specify the page to be downloaded in the Specify Download dialog box.
Range	All	All logged data is downloaded.
	Specify the range	Displays the graphs plotted from the range of data, between the specified start date and time and the end date and time. - If multiple Dataloggers are selected, a range cannot be specified; all the stored data in the Datalogger is downloaded.

※After downloading, the range of data specified by clicking “Analyze” in the Data List dialog box can be displayed in the analysis graph.

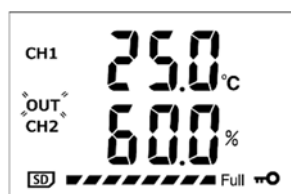
※Since the Datalogger in logging mode keeps logging even after information is obtained, the number of data items may not match the actual number of data items.

※You cannot specify the range if the logging option of “Repeatedly” was used to log data.

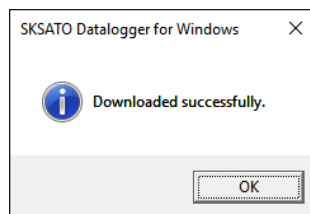
- ④When the “Start” button in the Specify Download dialog box is clicked, the logged data is downloaded while communicating with the Datalogger.
- ※Do not touch the keys on the Datalogger during downloading.
  - ※To cancel downloading while it is in progress, click “Cancel”.



- ※While downloading, the OUT LED flashes and the key-lock indicator lights up. When the downloading ends, the OUT LED and the key-lock indicator go off.



- ⑤When the downloading is successfully completed, a confirmation message appears; click “OK” .



Notes:

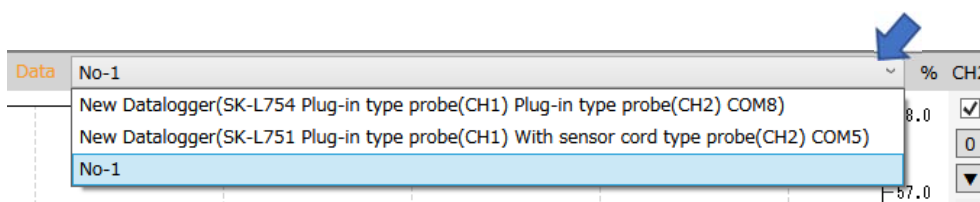
- The download time depends on the size of data; it takes up to about four minutes per Datalogger.
- The software cannot be operated while downloading.
- Do not try to operate the Datalogger or connect/disconnect the USB cable while downloading. Doing so could cause the Datalogger to malfunction.
- Data downloading cannot be performed while the Datalogger is saving (copying) the logged data to the microSD card.

The Datalogger cannot save data to the microSD card during downloading.

- If downloading is performed during logging, the “End conditions” field in the Data Information section is not displayed.

- ※Upon completion of downloading, the downloaded data appears on the analysis graph screen. If multiple logged data was downloaded, only the specified part of the data can be displayed by selecting from the Data dropdown list. Note that the logged data is not saved when it is displayed on the analysis graph screen. Unsaved logged data is deleted when the software exits. To save data, use the “Save” button

on the File or Graph menu, and then confirm that an SK-format file or a CSV-format file is created in the specified location.



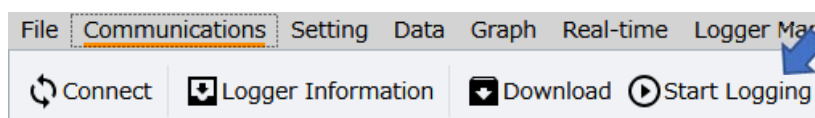
### 1.5 Start Logging

The Datalogger starts logging.

#### Notes:

- If the battery level is low (battery indicator is flashing) or a measurement error (Er, Er2, etc.) is detected, logging cannot be started.
- If the battery level becomes low (battery indicator is flashing) during logging, the Datalogger ends logging to protect the data.
- If the sensor is removed during logging, the Datalogger detects a sensor error and ends logging.
- Once the logging starts, the logged data already stored in the Datalogger is deleted. The deleted data cannot be retrieved. First download all the necessary data and save it.
- The date and time will be set to the current date and time on the PC being used. To prevent time errors, be sure to keep the clock on the PC accurate.

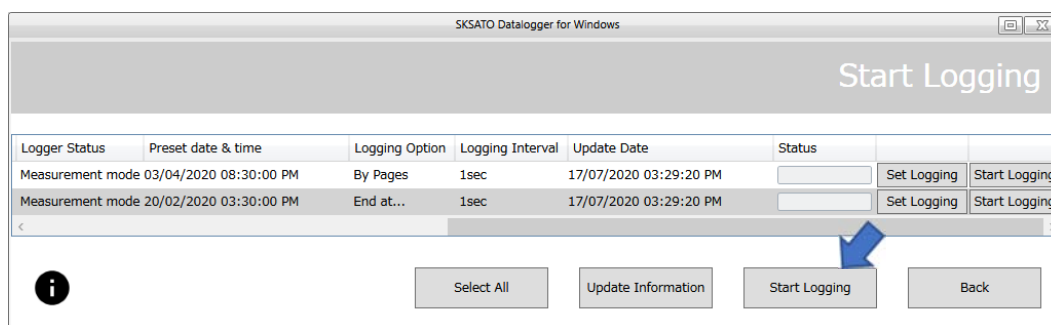
① Click the “Start Logging” button on the Communications menu.



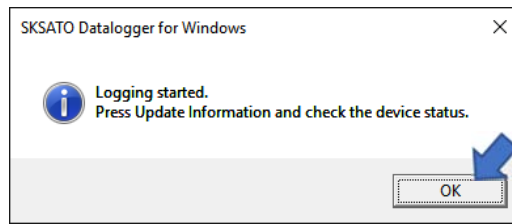
② In the Start Logging window, select the target Datalogger and click “Start Logging”. Logging starts after communicating with the Datalogger.

※ Before starting logging, set the logging conditions (date and time, logging interval, logging options and others), by clicking the “Set Logging” button on the Setting menu or clicking the “Set Logging” button under the “Start Logging” button on the Communications menu.

※ If logging is started without specifying any logging conditions, the Datalogger starts logging with the factory settings.

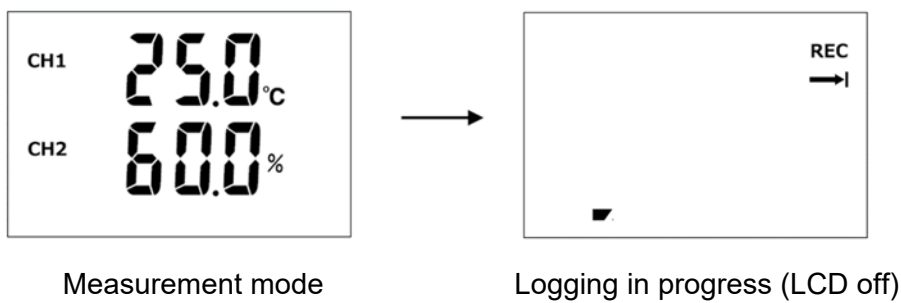


③When the logging is successfully started, a confirmation message appears; click “OK” .



※When the key on the Datalogger is used to start logging

Press and hold the REC key in measurement mode. The REC LED on the LCD lights up to indicate that the logging has started.



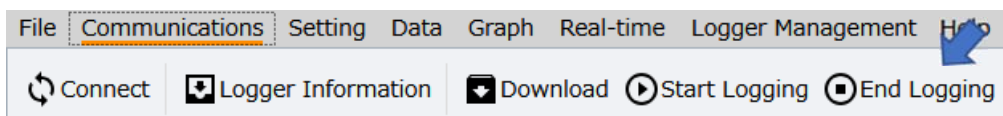
Any logged data still stored in the Datalogger will be automatically deleted (REC and the memory bar are flashing) and logging will start.



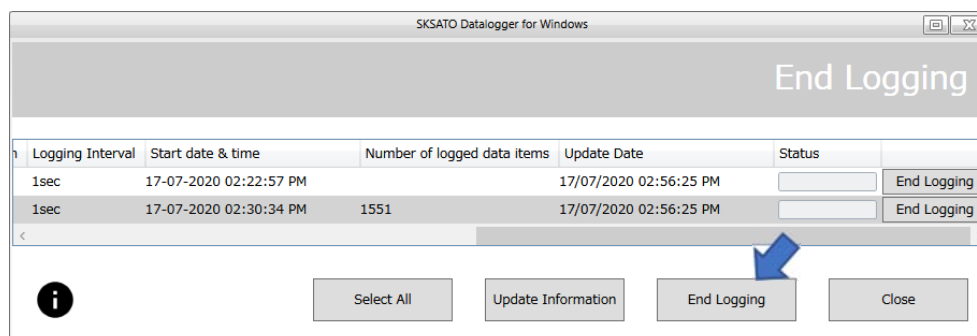
## 1.6 End Logging

The Datalogger ends logging.

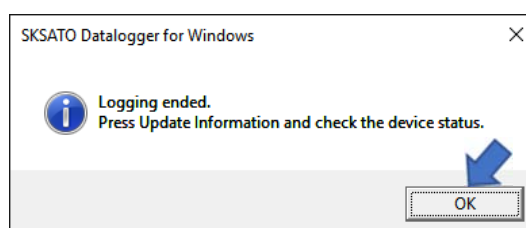
①Click the “End Logging” button on the Communications menu.



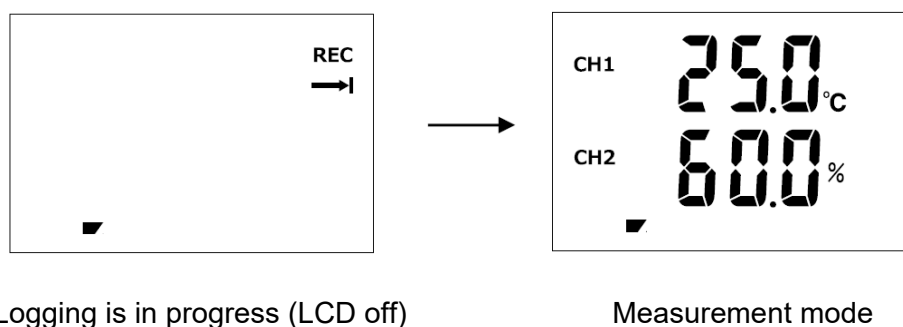
② In the End Logging window, select the target Datalogger and click “End Logging”. Logging ends after communicating with the Datalogger.



③ When the logging is successfully ended, a confirmation message appears; click “OK” .



※ When the key on the Datalogger is used to end the logging  
 Press and hold the REC key while the Datalogger is logging. The REC LED on the LCD goes off to indicate that the logging has ended.



## 2. Setting

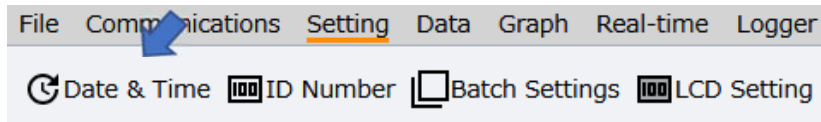
Sets the various options such as the current date and time and ID, on the Datalogger.

In addition to setting item by item, there is the Batch Settings option, where the same conditions are applied to multiple Dataloggers (“Batch Settings” on page 23).

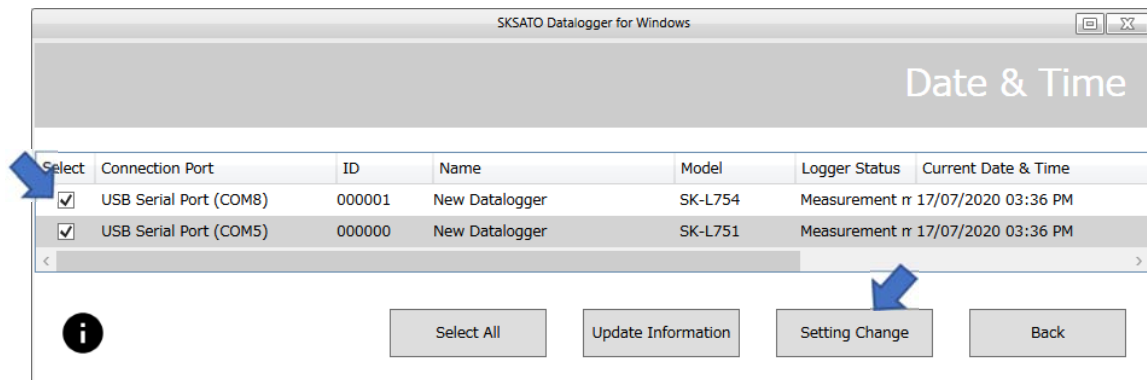
### 2.1 Set Current Date and Time

Sets the current date and time on the Datalogger.

①Click the “Date & Time” button on the Setting menu.



②In the Date & Time window, select the target Datalogger and click “Setting Change”.



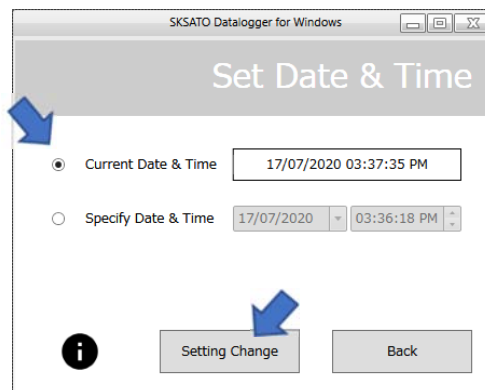
※You cannot select a Datalogger that is logging or in setting mode.

※If the Datalogger is in standby for preset start, the preset start is canceled.

③In the Date & Time Setting dialog box, specify the current date and time, and then click “ Setting Change”.

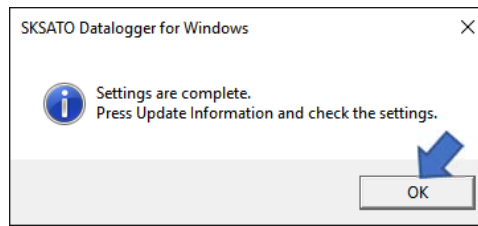
Current Date & Time: The date and time is set to the current date and time on the PC to be used.

Specified Date & Time: Enter a desired date and time.

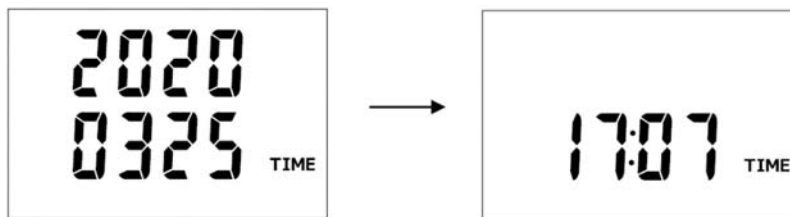




- ④When the setting is successfully completed, a confirmation message appears. Click “OK” to end the setting.



※Once the current date and time are set, they appear on the Datalogger.



## 2.2 ID Number

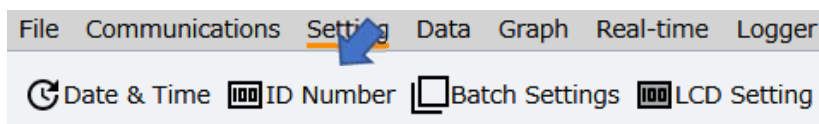
Sets the ID number of the Datalogger.

※The default factory ID number is “000000”.

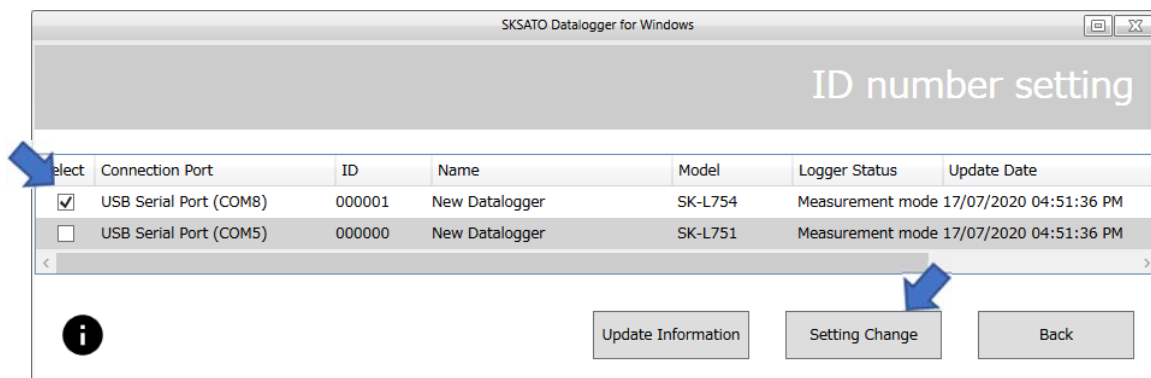
※The ID number cannot be the same as that of any other registered Datalogger.

※If the Datalogger has any logged data stored on it, is in setting mode or is in standby for preset start, the ID number cannot be set. Save or delete the logged data as necessary before setting the ID number, or go to measurement mode to start setting.

- ①Click the “ID Number” button on the Setting menu.

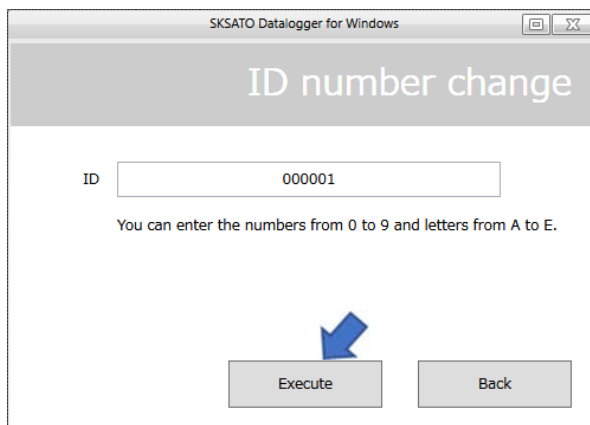


- ②In the ID Number window, select the target Datalogger and click “Setting Change”.

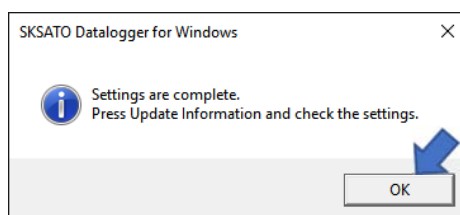


③Enter the ID number and click “Execute”.

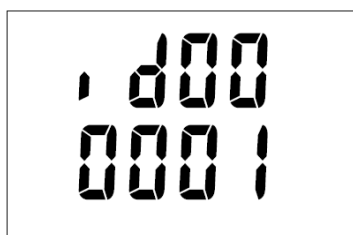
Enter six characters, consisting of single-byte letters (A to E) and numbers (0 to 9).



④When the ID setting is successfully completed, a confirmation message appears. Click “OK” to end the setting.



※Once the ID is set, it appears on the Datalogger.



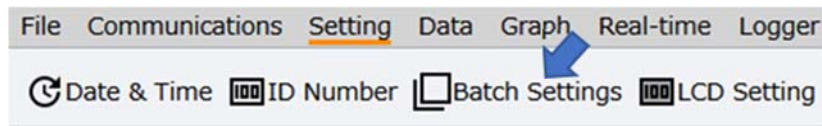
## 2.3 Batch Settings

Sets the alarm, logging option and key-lock.

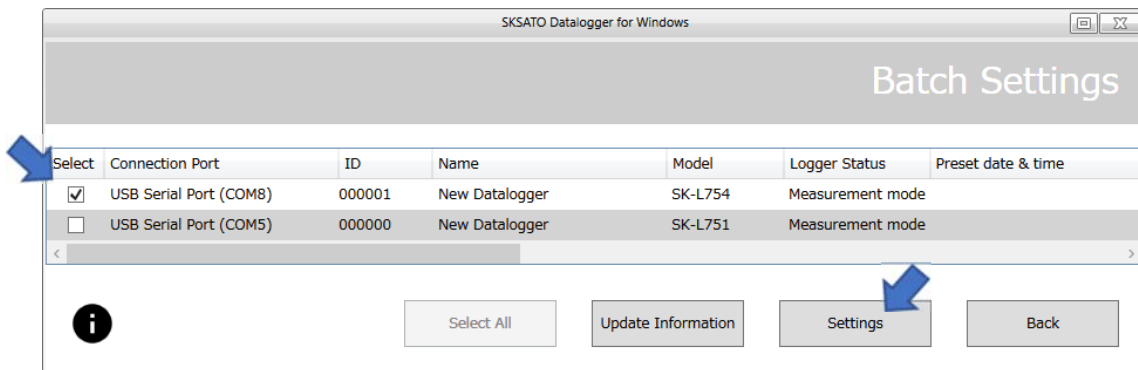
The same settings can be simultaneously applied to multiple Dataloggers of the same model with the same type of sensor(s) connected.

※You cannot select a Datalogger that is in setting mode, logging or in standby for preset start. Batch Settings can be performed only for those Dataloggers that are in measurement mode.

①Click the “Batch Settings” button on the Setting menu.

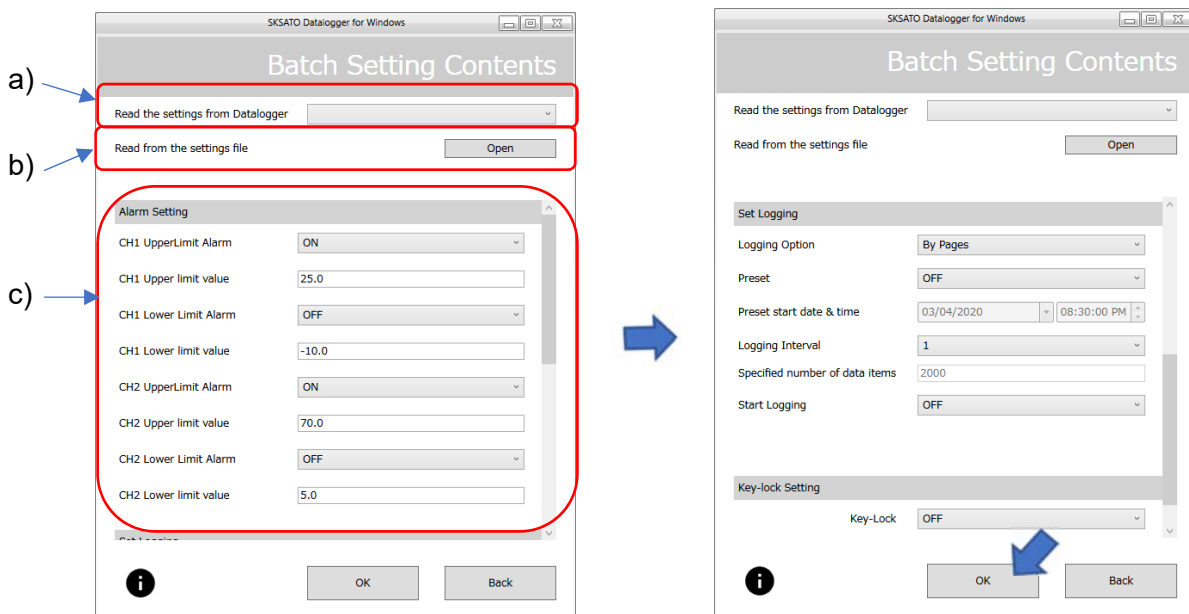


②In the Batch Settings window, select the target Datalogger(s) and click “Settings”.



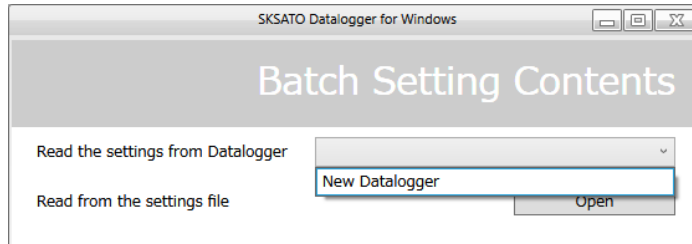
※When multiple Dataloggers can be set in batch, the “Select All” button is enabled.

③In the Detailed Batch Settings dialog box, specify the alarm display settings, logging settings and key-lock setting, and then click “OK” to complete the settings.



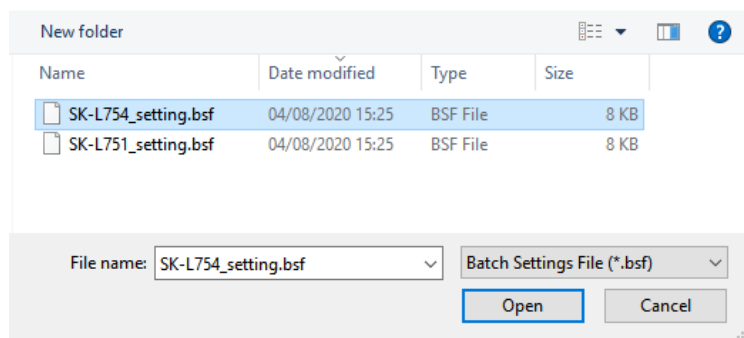
a) Read from the Datalogger

Read the contents of the settings from the Datalogger using Batch Settings to be applied to each item.



b) Read from the settings file

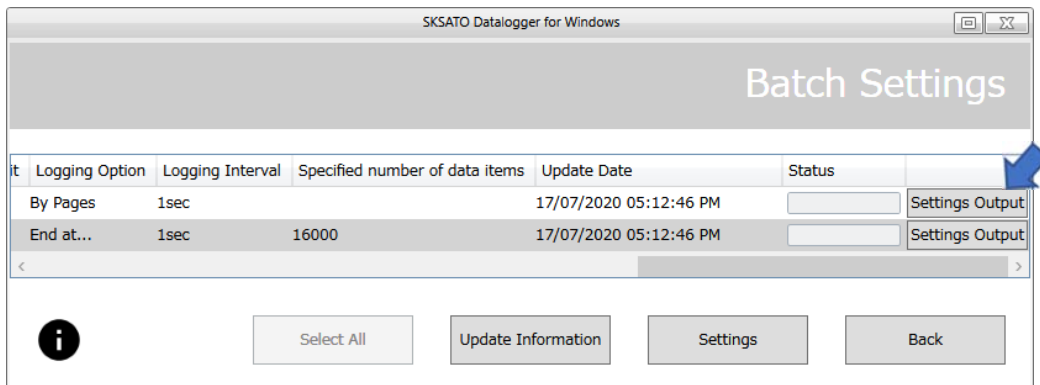
Read the settings file (.bsf) to be applied to each item.



Creating the settings file:

Clicking “Settings Output” located on the right side of the Batch Settings window creates the settings file containing the alarm setting values, logging option and key-lock setting of the selected Datalogger(s). By reading the output settings file, the same settings can be applied to multiple Dataloggers in batch. By creating the settings file, you do not need to perform setting each time.

※If the Datalogger in the settings file is not the same model of Datalogger and with the same type of sensor(s) connected, the settings will fail.



c) Batch Settings items

The table below shows the items you can set in batch.

Item		Setting	Description
Alarm display settings	CH1 upper limit alarm	①ON or OFF ②Setting values (setting range depends on the model)	<ul style="list-style-type: none"> <li>• ALM is lit when the alarm is set to ON.</li> <li>• ALM flashes when the alarm is activated.</li> <li>※Cannot set if the sensor is disconnected.</li> <li>※The setting value for the alarm can be set only from the software. The setting range differs depending on the type of sensor used.</li> </ul> Sensor for SK-L751 SK-L751-1: -10 to 60°C / SK-L751-2: -40 to 80°C Sensor for SK-L754 SK-L754-1: -10 to 60°C/5.0 to 99.9% RH SK-L754-2: -20 to 80°C/5.0 to 99.9% RH
	CH1 lower limit alarm		
	CH2 upper limit alarm		
	CH2 lower limit alarm		
Logging settings	Logging option	Once Repeatedly End at... By Pages	<ul style="list-style-type: none"> <li>• Once Logging ends (stops) once 16000 data items are stored.</li> <li>• Repeatedly When the number of data items exceeds 16000, the existing data is overwritten from the start to continue logging.</li> <li>• End At... Logging ends when the number of readings reaches the end point specified at the start of logging.</li> <li>• By Pages The memory is partitioned into 4 pages, each storing up to 4000 data items.</li> </ul>
	Start Presetting	ON or OFF	Set to ON to enable preset, set to OFF to disable preset. If set to ON, standby for preset start status begins upon clicking the OK button.
	Preset start date & time	Set the time to start logging (year, month, date, hour, and minute).	Set the time to start logging on the Datalogger. Setting the start presetting to ON enables the preset start date & time fields. Move the cursor to the date or time. Enter the date and time or use the [▲]/[▼] to set them.

Item		Setting	Description
	Logging interval	In seconds (1, 2, 5, 10, 15, 30) and in minutes (1, 2, 5, 10, 15, 30, 60, 90)	Choose from 14 logging interval options.
	Specified number of data items	Specify the number of data items to be logged.	When the End at... option is selected, specify the desired number of data items to be logged between 1 and 16000.
	Start logging	ON or OFF	Set to ON to start logging or OFF to not start logging. If set to ON, logging starts upon clicking the OK button.
Key-lock setting		ON or OFF	While in standby for preset start or during logging, set the keys on the Datalogger to ON (lock) or to OFF (release). ※Even while in the key-lock state, the LCD can be switched to ON or OFF during logging, by using the SET key on the Datalogger. ※The key-lock can be set to ON or OFF using the key on the Datalogger.

**Note:**

If the sensor is removed from the Datalogger after the alarm setting, the alarm set on the Datalogger will be automatically turned to OFF and the setting values will be reset.

Perform the alarm setting again if the sensor is removed.

- ※The alarm ON or OFF can be set using the key on the Datalogger (the setting values cannot be set).
- ※The Preset ON or OFF can be set using the key on the Datalogger (date and time setting is not available)

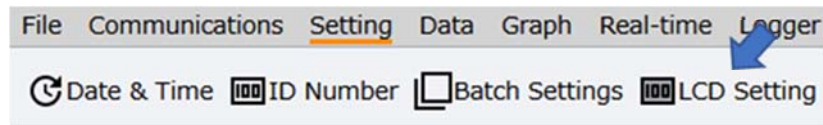
Refer to the instruction manual of "SK-L750 series" on the settings by the key-operation of the Datalogger.

## 2.4 LCD Setting

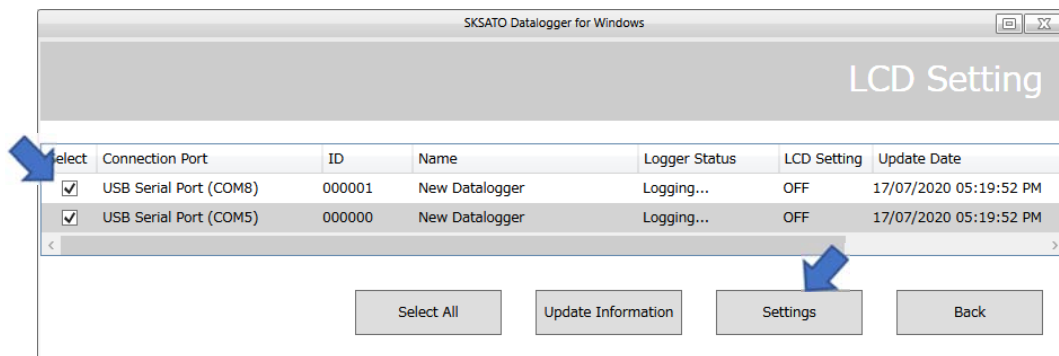
Sets the LCD on the Datalogger while logging or in standby for preset start.

LCD setting is not possible unless the Datalogger is in the above status.

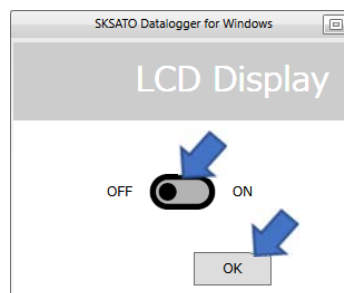
①Click the “LCD Setting” button on the Setting menu.



②In the LCD Setting window, select the target Datalogger(s) and click “Settings”.



③In the LCD dialog box, set to “ON” or “OFF” and click “OK” to complete the setting.



Item	Setting	Description
LCD Setting	ON or OFF	The display condition is specified. ON: The measured values are lit. OFF: The measured values are off. Battery power can be saved if turned to OFF

※ON or OFF can be set using the key on the Datalogger

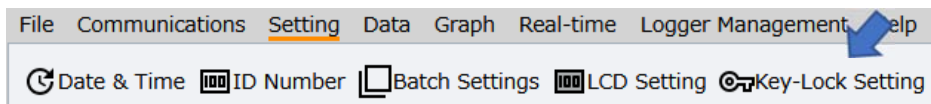
Refer to the instruction manual of “SK-L750 series” on the settings by the key-operation of the Datalogger.

## 2.5 Key-lock Setting

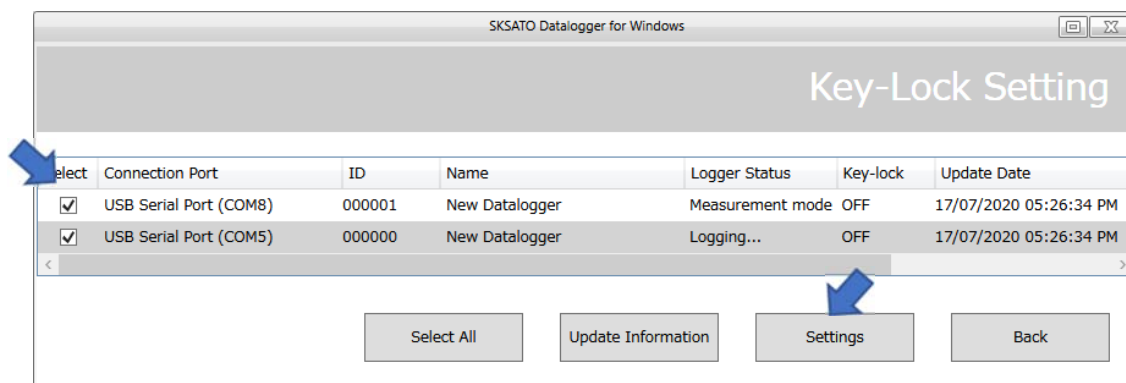
Prevents the Datalogger from stopping logging due to misoperation.

Key-lock setting is possible only when the Datalogger is logging, in standby for preset start, or in measurement mode; it is not available in any other status.

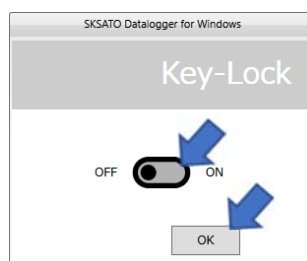
①Click the “Key-lock Setting” button on the Setting menu.



②In the Key-lock Setting window, select the target Datalogger(s) and click “Settings”.



③In the Key-lock dialog box, set to “ON” or “OFF” and click “OK” to complete the setting.



Item	Setting	Description
Key-lock Setting	ON or OFF	While in standby for preset start or during logging- ※Even while in the key-lock state, the LCD can be switched to ON or OFF during logging.

※The key-lock can be set to ON or OFF using the key on the Datalogger

Refer to the instruction manual of “SK-L750 series” on the settings by the key-operation of the Datalogger.

Note:

During logging, the key-lock can be not be set to ON or OFF using the key on the Datalogger.



## 2.6 Set Logging

Sets the logging options and interval to be used when the Datalogger logs the measured values.

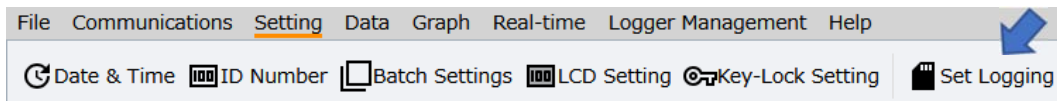
### Notes:

- If the battery level is low (battery indicator is flashing) or a measurement error (Er, Er2, etc.) is detected, logging cannot be started.
- If the battery level becomes low (battery indicator is flashing) during logging, the Datalogger ends logging to protect the data.
- If the sensor is removed during logging, the Datalogger detects a sensor error and ends logging.
- Once the logging starts, the logged data already stored in the Datalogger is deleted. The deleted data cannot be retrieved. First download all the necessary data and save it.
- Time setting uses the time set on the PC. To prevent time errors, be sure to keep the clock on the PC accurate.

### Notes:

- Once the preset for start is set, the logged data stored at the time is deleted. The deleted data cannot be retrieved. First download all the necessary data and save it using the software. The logged data in the Datalogger can be copied to a microSD card.
- Preset start cannot be set in the following cases.  
The Datalogger is logging.  
The battery is low (the USB cable is not connected).  
The sensor for the Datalogger is faulty.

①Click the “Set Logging” button on the Setting menu.

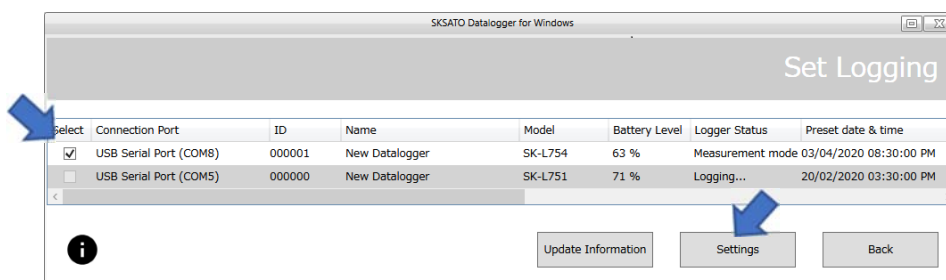


②In the Set Logging window, select the target Datalogger and click “Settings”. Upon communicating with the Datalogger, the Set Logging dialog box appears.

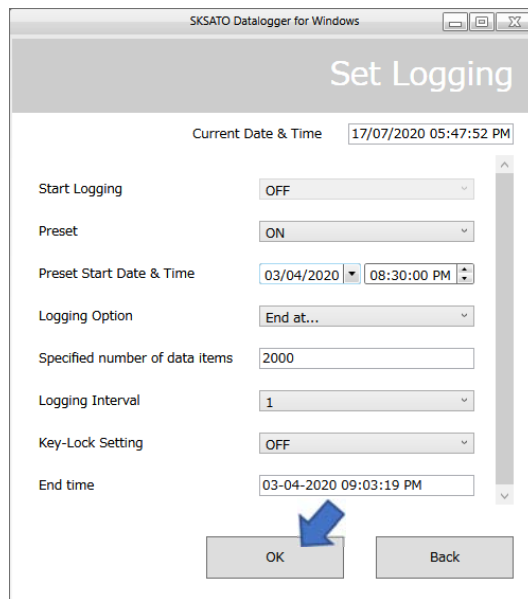
※Multiple Dataloggers cannot be selected in Set Logging.

※The software cannot set a Datalogger that has failed in communicating. The result of communication is displayed in the status column of the list.

After completing the setting, select the Datalogger that has failed to be set and set it again.  
For details on the status, refer to “List of Information Items on Each Datalogger” on page 10.



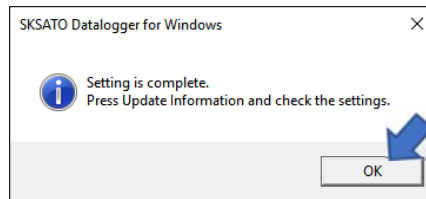
③ In the Set Logging dialog box, specify the setting values and click “OK”.



Item	Setting	Description
Start logging	ON or OFF	Set to ON to start logging, otherwise set to OFF. If set to ON, logging starts upon clicking the OK button.
Preset	ON or OFF	Set to ON to start presetting, otherwise set to OFF. If set to ON, standby for preset start status begins upon clicking the OK button.
Preset Start Date & Time	Set the time to start logging (year, month, date, hour, and minute).	Set the time to start logging on the Datalogger. Setting the start presetting to ON enables the preset start date & time fields. Move the cursor to the date or time. Enter the date and time or use the ▲(Up) or ▼(Down) to set them.
Logging option	Once Repeatedly End Point By Pages	<ul style="list-style-type: none"> <li>• Once Logging ends (stops) once 16000 data items are stored.</li> <li>• Repeatedly When the number of data items exceeds 16000, the existing data is overwritten from the start to continue logging.</li> <li>• End at... Logging ends when the number of readings reaches the end point specified at the start of logging.</li> <li>• By Pages The memory is partitioned into 4 pages, each storing up to 4000 data items.</li> </ul>

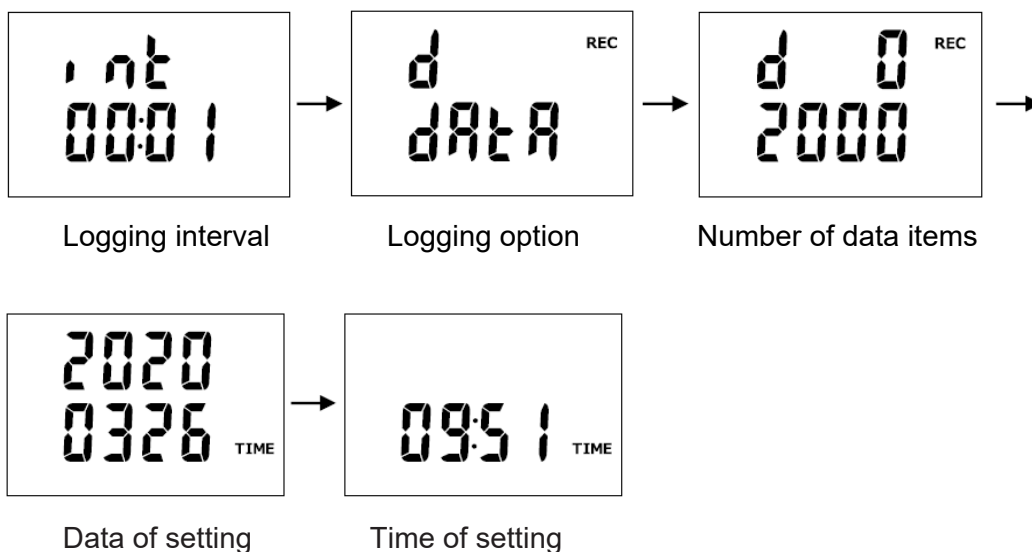
Item	Setting	Description
Specified number of data items	Specify the number of data items to be logged.	Specify the desired number of data items between "1" and "16000".
Logging interval	In seconds (1, 2, 5, 10, 15, 30) and in minutes (1, 2, 5, 10, 15, 30, 60, 90)	Choose from 14 logging interval options.
Key-lock setting	ON or OFF	While in standby for preset start or during logging, set the keys on the Datalogger to ON (lock) or to OFF (release). ※Even while in the key-lock state, the LCD can be switched to ON or OFF during logging, by using the SET key on the Datalogger. ※The key-lock can be set to ON or OFF using the key on the Datalogger.

④When the logging setting is successfully completed, a confirmation message appears. Click "OK" to end the setting.



※Once the logging setting is complete, the logging interval, logging option, number of data items and current date and time are displayed in this order.

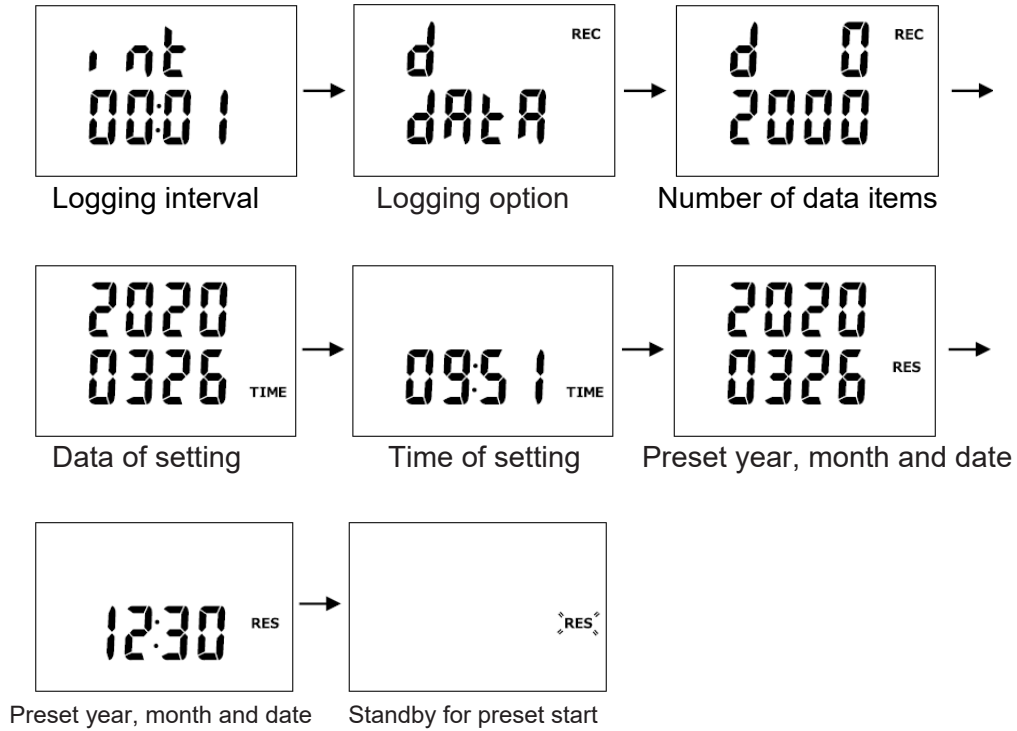
(When the "End at ..." logging option is specified:)



※If “Start Presetting” is set to ON and the “OK” button is clicked, the display on the Datalogger changes in the order shown below. Lastly, the RES indicator starts flashing to indicate that the Datalogger is in standby for preset start.

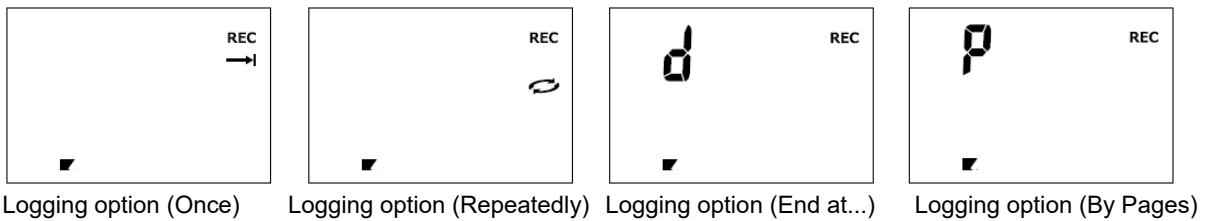
The logging automatically starts at the preset start date and time.

(When the “End at ...” logging option is specified:)



※Logging can be started by operating the key on the Datalogger (pressing and holding the REC key).

One of the following four logging options can be chosen.



※You cannot turn on or off the Datalogger with the power key during logging.

※Logging cannot start while the battery indicator is flashing.

※The time setting is cleared when the batteries are replaced. If this occurs, reset the time using the software to prevent inconsistencies between the data items. For setting the time on the Datalogger, refer to Logger Information on the Communications menu.

※Logging interval and the estimated time for the memory to become full

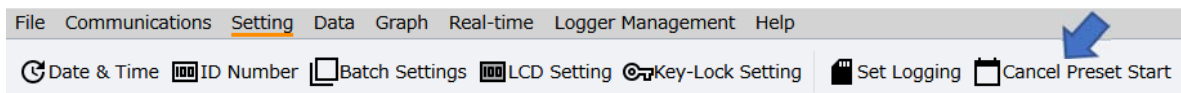
Logging interval	Approximate time required (hour)
1 sec	4.5
2 sec	9
5 sec	22
10 sec	44.4
15 sec	66.6
30 sec	133.3
1 min	266.3
2 min	533.3
5 min	1333
10 min	2666
15 min	4000
30 min	8000
60 min	16000
90 min	24000

## 2.7 Cancel Preset Start

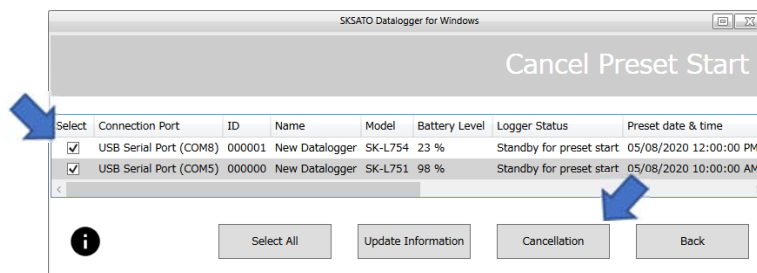
Cancels the standby for preset start status of the Datalogger.

※This command is disabled if the Datalogger is not in standby for preset start.

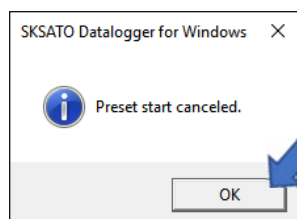
①Click the “Cancel Preset Start” button on the Setting menu.



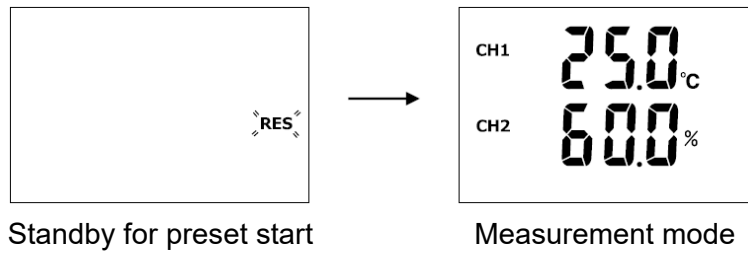
②In the Cancel Preset Start window, select the target Datalogger and click “Cancellation”.



③When the logging setting is successfully completed, a confirmation message appears. Click “OK” to end the setting.



※When the standby for preset start status is canceled, the RES indicator on the Datalogger goes off and the measured values are displayed.

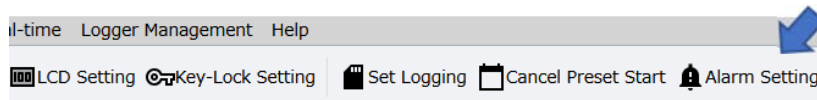


## 2.8 Alarm Setting

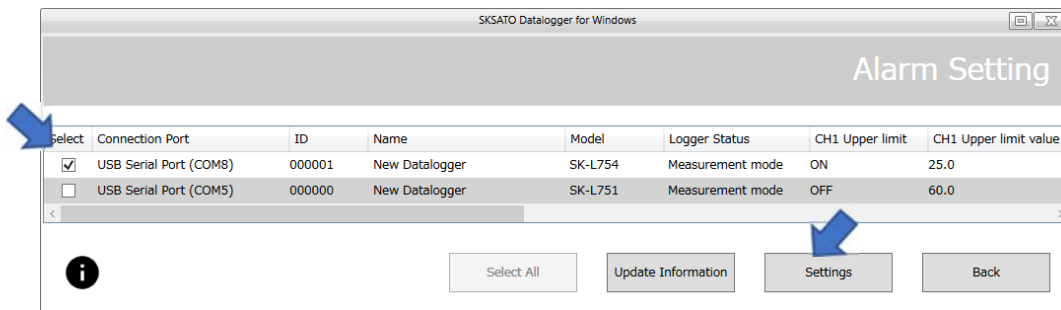
Sets the upper limit value or lower limit value for the alarm. The ALARM LED on the Datalogger lights up when the preset limit value is exceeded.

※Batch setting cannot be made when the Datalogger is in setting mode, logging, or in standby for preset start. Setting is possible only when the Datalogger is in measurement mode.

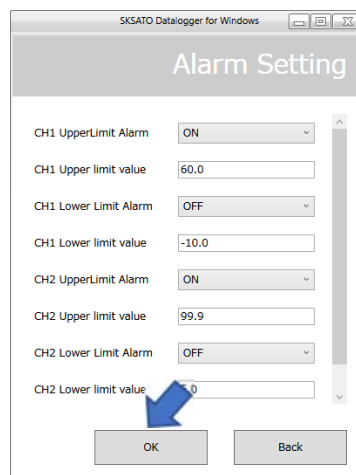
①Click the “Alarm Setting” button on the Setting menu.



②In the Alarm Setting window, select the target Datalogger and click “Settings”.



③In the Alarm Setting dialog box, specify the alarm display settings and click [OK] to complete the settings.



Item	Setting	Description
CH1 upper limit alarm	<ul style="list-style-type: none"> <li>• ON or OFF</li> <li>• Setting value (setting range depends on the model)</li> </ul>	<ul style="list-style-type: none"> <li>• ALM is lit when the alarm is set to ON.</li> <li>• ALM flashes when the alarm is activated.</li> <li>※Cannot set if the probe is disconnected.</li> <li>※The setting value for the alarm can be set only from the software.</li> </ul>
CH1 lower limit alarm		
CH2 upper limit alarm		
CH2 lower limit alarm		

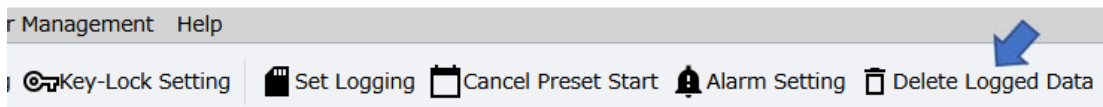
## 2.9 Delete Logged Data

Deletes the logged data stored in the Datalogger's memory.

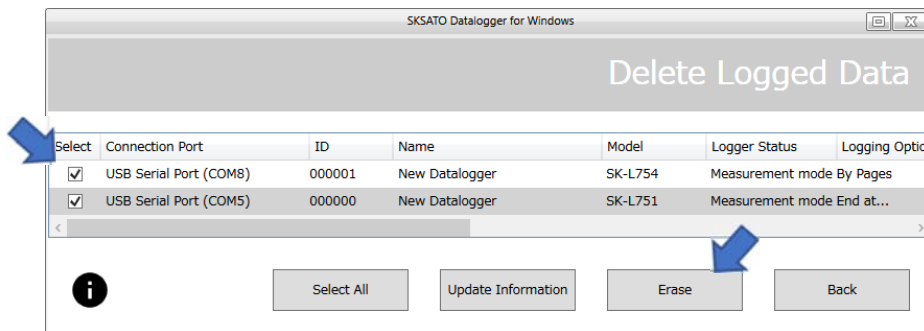
Notes:

- This command is disabled while the Datalogger is logging or there is no logged data in it.
- Note that deleted data cannot be retrieved. First download all the necessary data and save it. The logged data in the Datalogger can be copied to a microSD card.

①Click the "Delete Logged Data" button on the Setting menu.

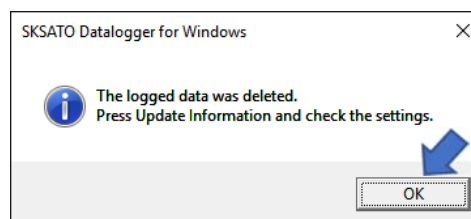


②In the Delete Logged Data window, select the target Datalogger(s) and click "Erase". (Multiple Dataloggers can be selected.)

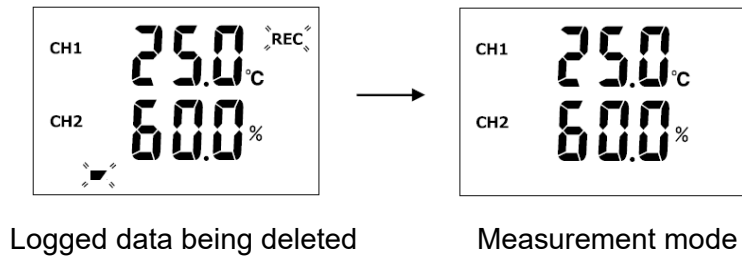


③When the logged data is successfully deleted, a confirmation message appears. Click [OK] to end the setting.

The logged data is deleted from the Datalogger. (The memory bar goes off when the logged data is deleted.)



※The logged data can be deleted by operating the keys on the Datalogger. Press and hold the REC key and the SET key at the same time.  
 The memory bar starts flashing to indicate that deleting has started. The memory bar goes off when the logged data is deleted.



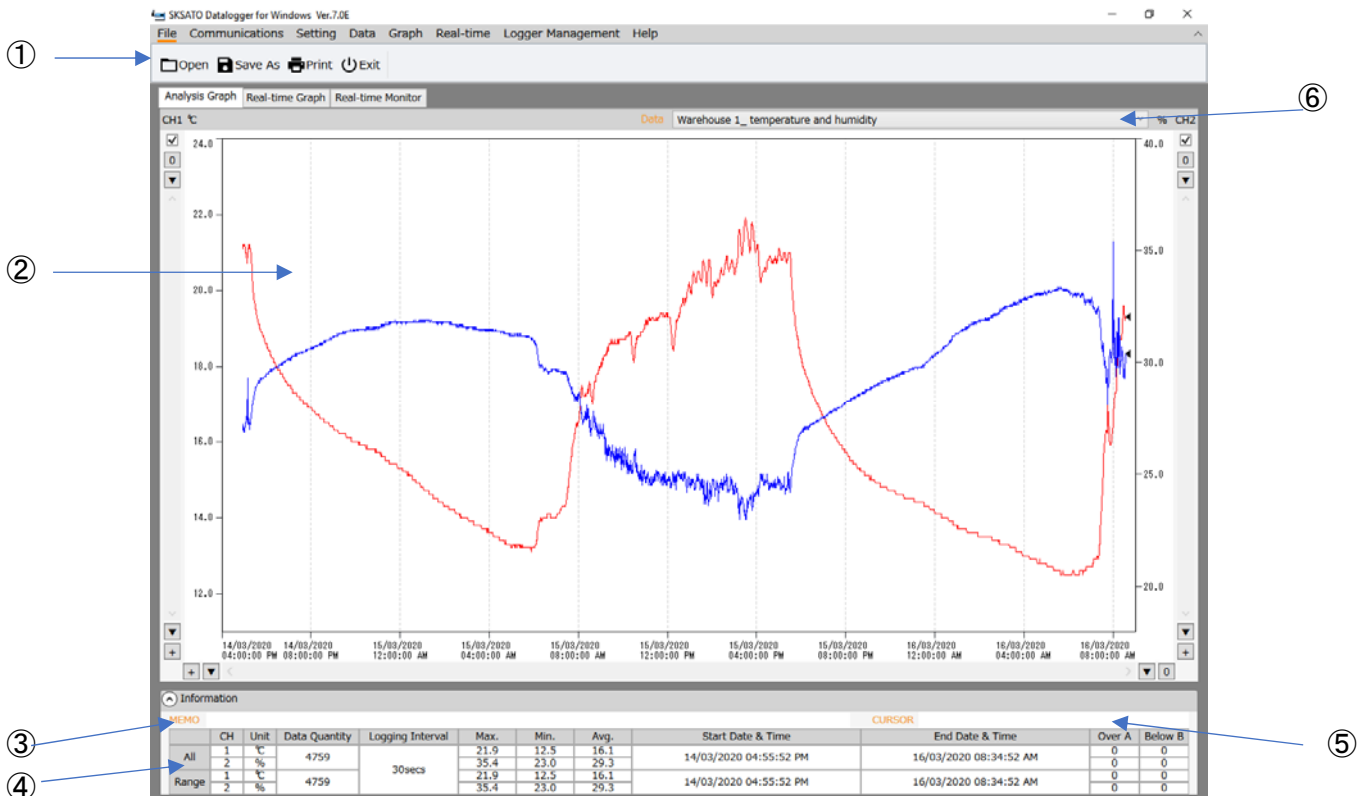
### 3. Graph Analysis

Can be used to check various information on the data downloaded or saved in SK format.

#### 3.1 Analysis Graph Screen

Displays graphs plotted using the data downloaded or saved on the PC in SK format, and used for data analysis.

#### Analysis Graph screen





①Function icon	Used to execute each function.
②Graph display section	Data opened is displayed as a graph.
③MEMO	A comment can be entered if necessary.
④Data information section	Displays information on data of the graph being displayed. Click ▼ to display or hide the data information. “All” displays information on all data, while “Range” displays information on the data of an enlarged part of a graph.
⑤CURSOR	When the function is ON, displays the data of the selected point (date and time, measurement value).
⑥Data	Select the graph to be displayed.

## 3.2 Data

### 3.2.1 Data List

Shows data displayed under the Analysis Graph tab or the Real-time Graph tab.

Click the “Data List” button on the Data menu to display the logged data.

The screenshot shows the 'Data List' window in the SKSATO Datalogger for Windows. The window title is 'SKSATO Datalogger for Windows' and the main title is 'Data List'. The 'Display data' dropdown menu is set to 'Measured Data'. The table below shows 15 rows of data:

No.	Date	Time	°C	%
1	14/03/2020	04:55:52 PM	21.1	27.2
2	14/03/2020	04:56:22 PM	21.1	27.0
3	14/03/2020	04:56:52 PM	21.1	27.2
4	14/03/2020	04:57:22 PM	21.2	27.2
5	14/03/2020	04:57:52 PM	21.1	27.0
6	14/03/2020	04:58:22 PM	21.2	26.9
7	14/03/2020	04:58:52 PM	21.2	27.1
8	14/03/2020	04:59:22 PM	21.2	27.1
9	14/03/2020	04:59:52 PM	21.2	27.0
10	14/03/2020	05:00:22 PM	21.2	26.9
11	14/03/2020	05:00:52 PM	21.2	26.9
12	14/03/2020	05:01:22 PM	21.2	27.0
13	14/03/2020	05:01:52 PM	21.2	27.0
14	14/03/2020	05:02:22 PM	21.2	27.0
15	14/03/2020	05:02:52 PM	21.1	27.1

At the bottom of the window, there are three buttons: 'Print', 'Analysis', and 'Close'. The 'Analysis' button is highlighted with a blue arrow and a circled '2'. A circled '1' points to the 'Data List' button in the menu bar, and a circled '3' points to the 'Print' button.

#### ①Displayed data

Choose from three types of data:

Measured Data: Displays the data used to plot the graph.

Hourly Average Value: Displays hourly average values of the data used to plot the graph.

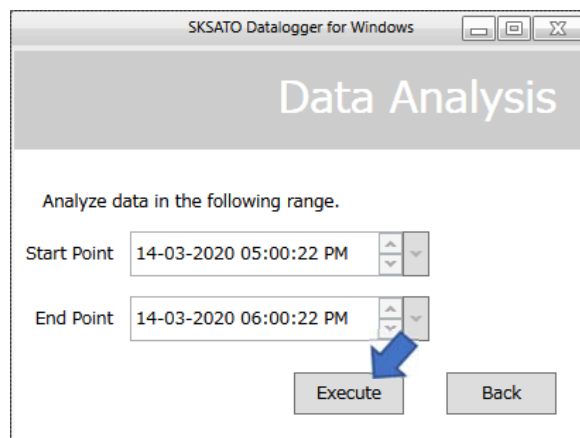
Daily Average Value: Displays daily average values of the data used to plot the graph.

## ② Analysis

Data in the specified range is enlarged to be used for analysis.

Click “Analyze” to display the Data Analysis dialog box, where you can specify the starting date & time and the ending date & time.

Click “Execute” to display the graph plotted using the data of the specified range.



※The information in the enlarged part is displayed in the Range field of the data information section.

※The analysis function is disabled in the following cases:

- When only one data item is available
- When the start point and the end point are the same

## ③ Print

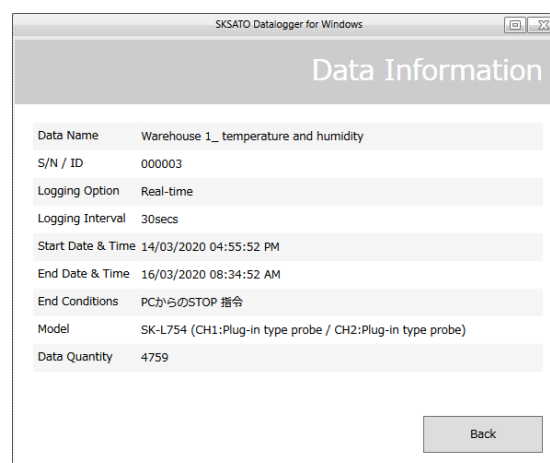
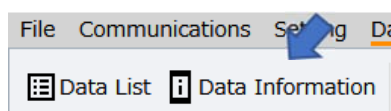
Prints the logged data displayed in a list.

For details, refer to “3. Print” on page 63.

### 3.2.2 Data Information

Displays the logging information for the data displayed under the Analysis Graph or the Real-time Graph tab.

Click the “Data Information” button on the Data menu to display the Data Information dialog box.

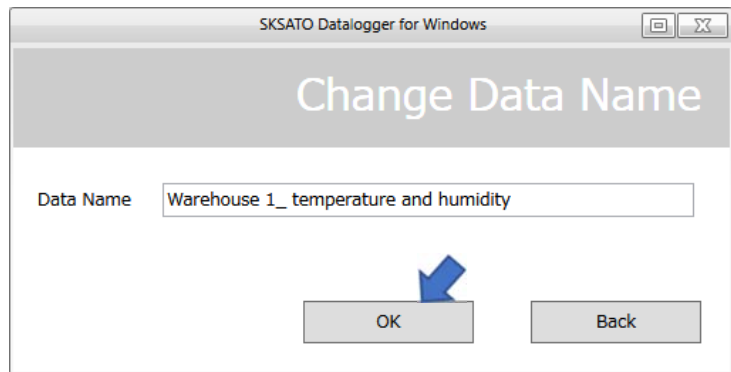
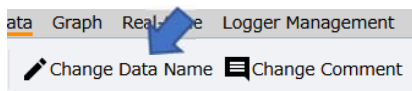


Item	Descriptions
Data name (Datalogger name)	Name of data or model This software can read sk6, sk7, sk8 and trx files. When sk6 file was read, model name is displayed.
SN/ID	Serial number or ID of the Datalogger This software can read sk6, sk7, sk8 and trx files. When sk8 file was read, ID is displayed.
Logging option	Logging method of logged data
Logging interval	Logging interval of logged data
Start date & time	Starting date and time of logged data
End date & time	Ending date and time of logged data
End conditions	Conditions for the logging of logged data ended Not displayed if data download is performed during logging.
Model	Model of Datalogger on which logged data was logged
Number of data items	Number of logged data items

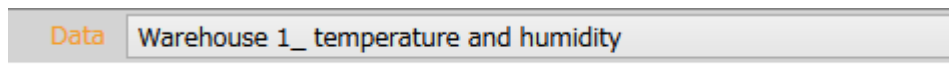
### 3.2.3 Change Data Name

Changes the data name to be displayed in the graph.

- ① Click the “Change Data Name” button on the Data menu to display the Change Data Name dialog box. In the box, enter the new data name and click “OK”.



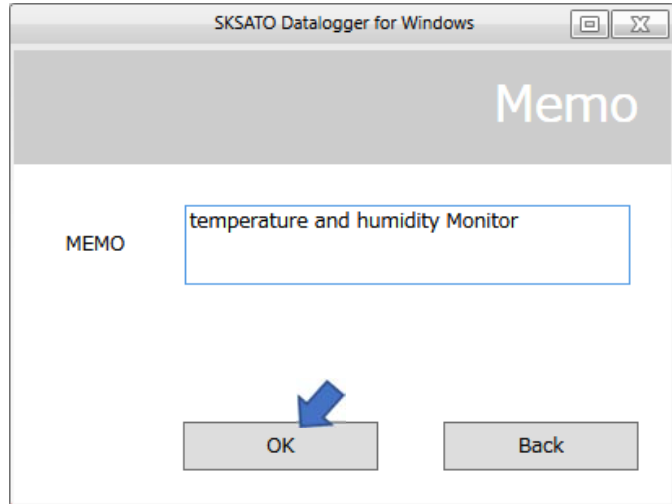
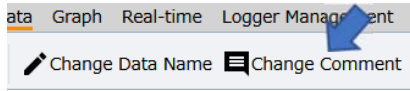
- ② When the name change is successfully completed, the changed data name is displayed as shown in the figure below.



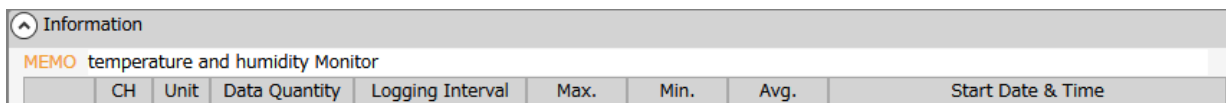
### 3.2.4 Memo

Used to enter a comment such as additional information. This will be useful when the screen is printed and saved.

- ①Click the “Change Comment” button on the Data menu to display the Memo dialog box. In the box, enter a comment as needed such as additional information, and then click “OK”.



- ②When the Memo setting is successfully completed, the newly entered or changed comment is displayed as shown in the figure below.

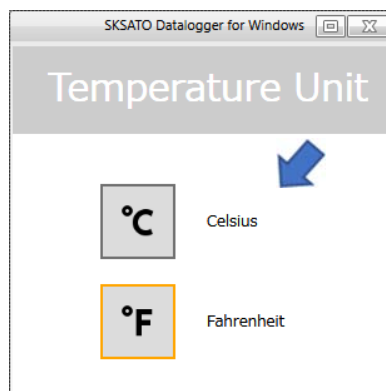


### 3.2.5 Setting the temperature unit

The unit of temperature can be changed between Celsius (°C) and Fahrenheit (°F).

In the “Setting the Temperature Unit” dialog box, click the desired unit to be displayed.

※If the unit is changed when the graph display is set to “Upper & Lower Screens”, the graph display is returned to the “Full Screen” .



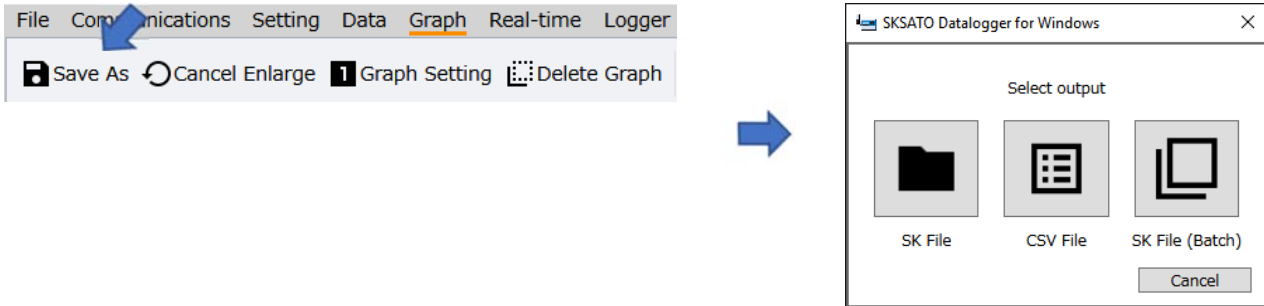
### 3.3 Graph

Displays graphs plotted using the data downloaded or saved on the PC in SK format and used for analysis.

#### 3.3.1 Save

Saves the data displayed in the analysis graph. Available output file formats are: SK, CSV and SK (in batch)

①Click the"Save As" button on the Graph menu to display the dialog box to select the output format.



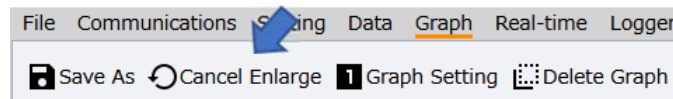
<p>Save in SK format</p>	<p>Saves the data displayed as a graph in the software’s special format.          Data saved in this format can be opened by the software.          A file name will be automatically generated from the name of the Datalogger used to register it.          To change it, enter a desired file name.          You need not enter the extension “.sk8”; it will be added to the file name automatically.          ※If the extension is changed, the software will not be able to read the file.          ※While a graph is being enlarged for analysis, only the enlarged part is saved.          ※When saving, check the free space on the media to be used. If there is not enough space, saving could fail.          ※You cannot save a file if its name includes special characters such as ¥, / and *.          The same applies to the Datalogger name to be registered.</p>
<p>Save in CSV format</p>	<p>Saves the data displayed as a graph in CSV format. Save the file in CSV format if it is going to be analyzed with a commercial spreadsheet program. You need not enter the extension “.csv”; it will be added to the file name automatically.          ※If you save the file in CSV format, the software will no longer be able to read it.          Save the file in SK8 format if the software is going to be used for data analysis again.          ※You cannot save a file if its file name includes special characters such as ¥, / and *.          The same applies to the Datalogger name to be registered.</p>
<p>SK File (Batch)</p>	<p>All logged data opened are saved in batch. Each data file is saved as an individual data file.          A file name will be automatically generated from the Datalogger name. If such file name is identical to an existing one in the file save location, the file will not be overwritten, but be saved as a different file with a character such as “1” added at the end.          ※If a file name includes special characters such as ¥, / and *, the software will generate the file name by omitting the special characters and using the remaining characters.          ※The real-time graphs under the Real-time Graph tab cannot be saved in batch.          Save these graphs by using the [Save] button on the File or Graph menu.</p>

②In the “Select Output Format” dialog, select the desired file format to be output and the location where the file is to be saved.

### 3.3.2 Cancel Enlarge

Cancels enlarging the graph displayed under the Analysis Graph or Real-time Graph tab.

①Click the “Cancel Enlarge” button on the Graph menu. The graph’s enlarge state is canceled and the graph returns to display all the data.



※This command is disabled when a graph is not enlarged.

※In the graph frame, left-click the mouse and drag around the area to be enlarged.

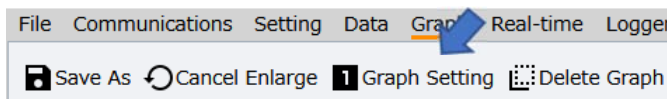
### 3.3.3 Graph Setting

Changes the setting of the graph displayed under the Analysis Graph or Real-time Graph tab.

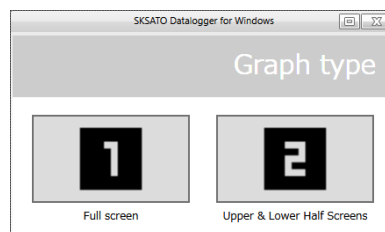
For a temperature and humidity type Datalogger, the temperature data and the humidity data are displayed in CH1 and CH2, respectively.

For a temperature type Datalogger, the temperature data for CH1 and CH2 is displayed separately.

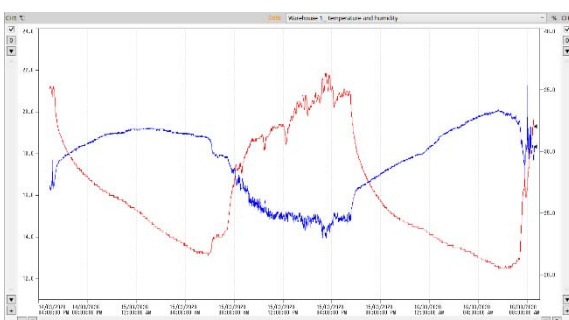
①Click the “Graph Setting” button on the Graph menu.



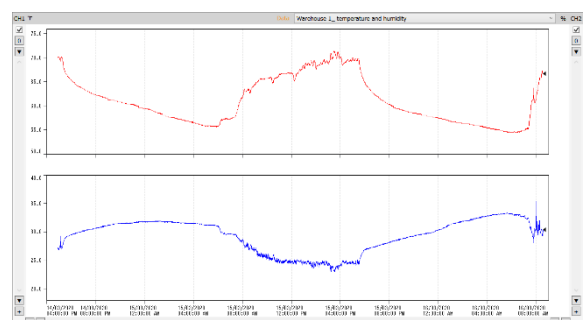
②In the Graph Display Type dialog box, click “Full Screen (1)” or “Upper & Lower Screens (2)”.



③The graph selected in the Graph Display Type dialog box appears.



Full screen



Upper & Lower half screens

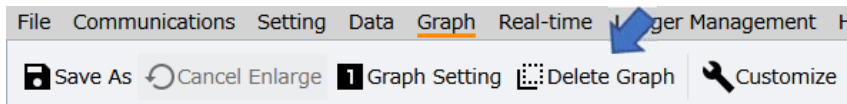
### 3.3.4 Delete Graph

Deletes the graphs displayed under the Analysis Graph tab.

※When an analysis graph is deleted, the data will be deleted. First, be sure to save the data as necessary.

※You cannot delete the graphs displayed under the Real-time Graph tab.

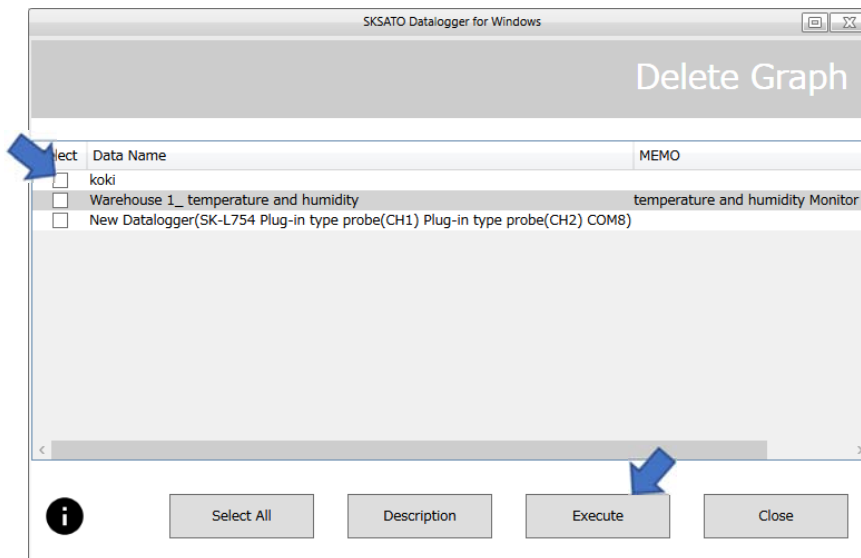
①Click the “Delete Graph” button on the Graph menu.



②In the Delete Graph dialog box, select the data name of the graph to be deleted.

To delete, click “Execute”. The graph will be deleted.

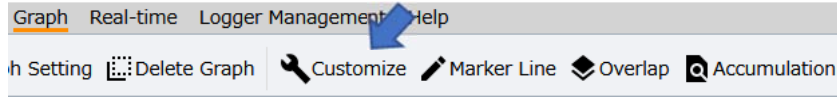
To cancel deleting, click “Close”.



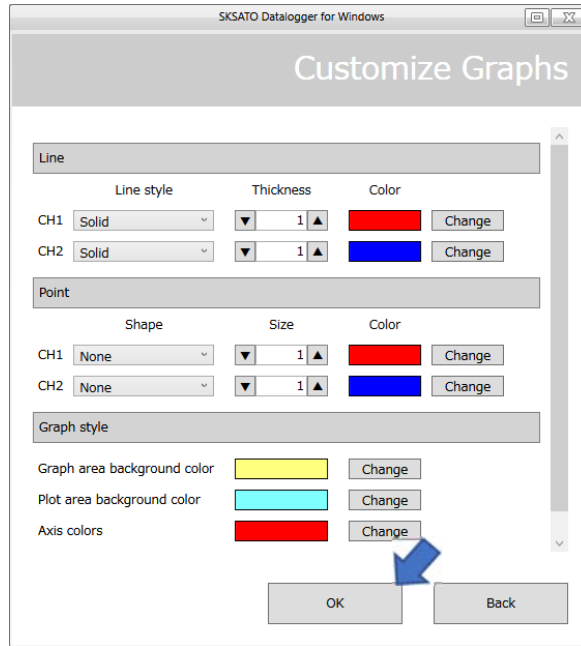
### 3.3.5 Customize

Specify the line type or color of the graph displayed in the analysis graph.

① Click the “Customize” button on the Graph menu.

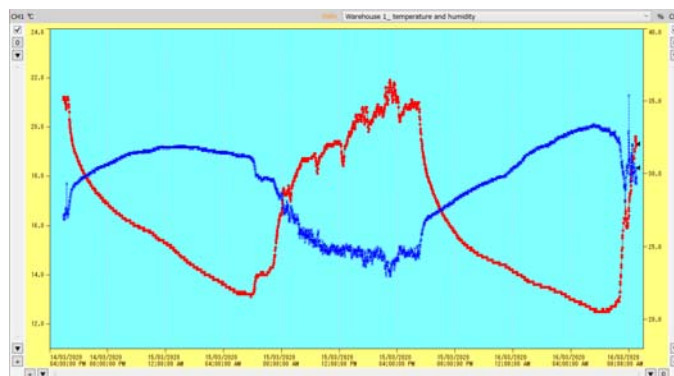


② In the Graph Customize dialog box, specify the desired items, and then click “OK” to complete the setting.



Item	Description
Graph Line	Set the line style (type, thickness and color)
Graph Point	Set the symbol style (shape, size and color)
Graph Style	Set the graph style color. <ul style="list-style-type: none"> <li>• Background color of graph area (graph display section (outside the plot area))</li> <li>• Background color of plot area</li> <li>• Each axis color (graph axes in the graph display section)</li> </ul>

③ The customized graph such as the one shown below appears.

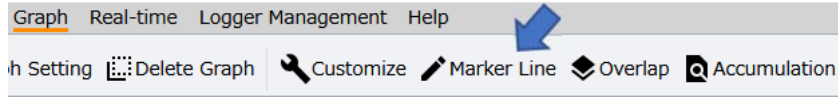




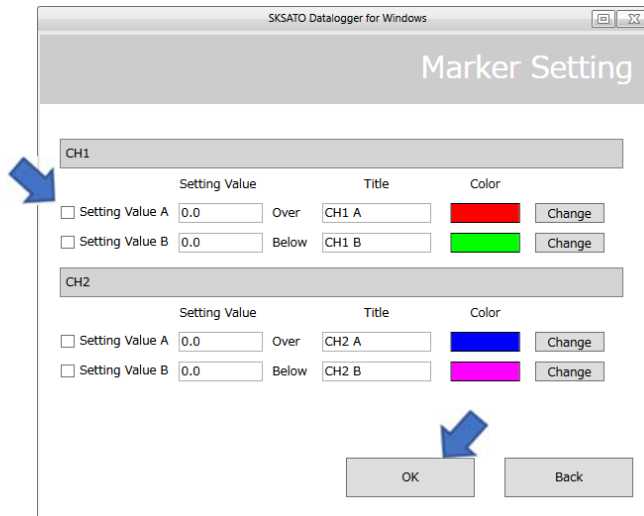
### 3.3.6 Marker Line

Draw the marker lines (horizontal) by specifying the values (“A” and “B”) on the Y-axis in the analysis graph. The number of data items over the value “A” and below the value “B” is counted and displayed in the data information section.

①Click the “Marker Line” button on the Graph menu.

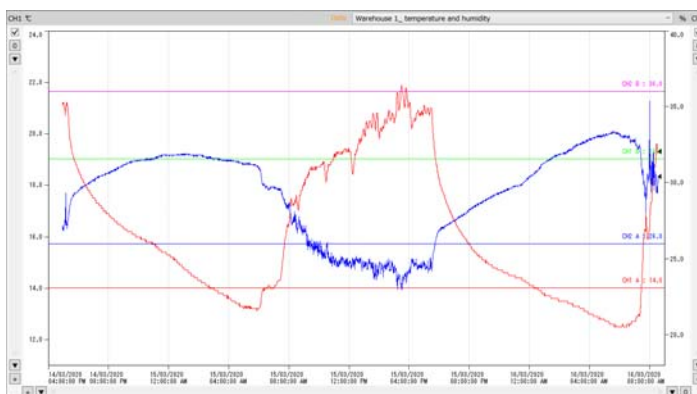


②In the Marker Line Setting dialog box, select the target channel (CH1 or CH2) and enter the setting values, and then click “OK” to complete the setting.



Item	Description
Setting value “A”, Setting value “B”	Select “A” or “B” to set each marker line.
Setting value	Enter the values for “A” and “B”.
Title	Enter the title displayed on the marker line
Color	Select the color of the marker line

③The graph with the marker lines appears and the analysis results are displayed in the data information section

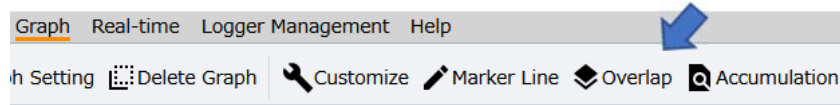


Over A	Below B
3542	3857
3779	4759
3542	3857
3779	4759

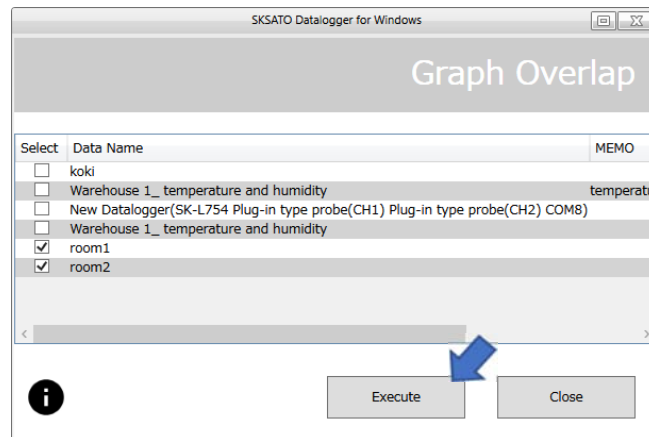
### 3.3.7 Overlap

Displays multiple graphs overlapped.

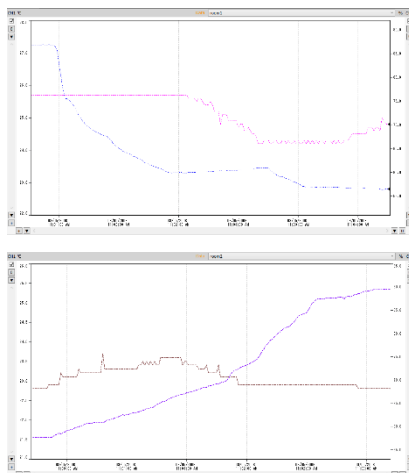
①Click the “Overlap” button on the Graph menu.



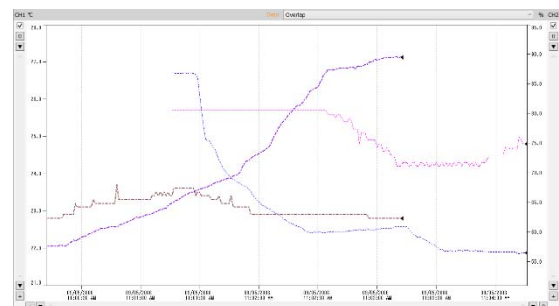
②In the Graph Overlap window, select the target data names and click “Execute”.



③An overlapped graph such as the one shown below appears.



Overlap  
➔



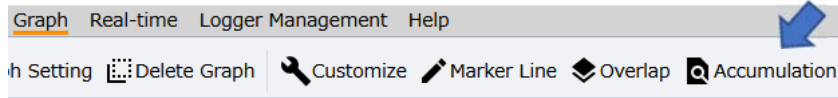
#### ※Precautions and Restrictions:

- For overlapping graphs, data must be from Dataloggers of the same model.
- Up to 10 graphs can be overlapped.  
The performance of the software may deteriorate if there are many data items.
- Overlapping is possible only when multiple data items are available.
- Some of the analysis functions are not available for overlapped graphs.
- If the dates and times of overlapped data are very far apart, it may seem as if nothing is displayed on the graph screen.
- It is not possible to overlap already-overlapped graphs again.

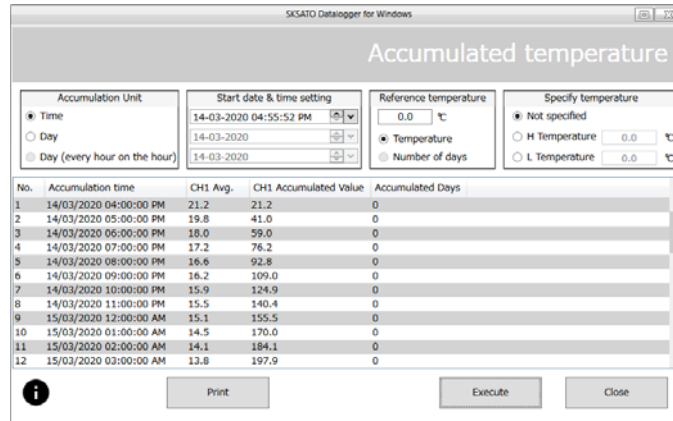
### 3.3.8 Accumulation

Displays the accumulated value calculated from the temperature data.

① Click the “Accumulation” button on the Graph menu.



② In the Temperature Accumulation dialog box, specify the accumulation conditions, and then click “Execute” . The accumulation results appear.



#### Accumulation Unit

Time	The average values per hour are accumulated. The totalized average values per hour (0:00:00 to 00:59:59) divided by the number of data items
Day	The average values per day are accumulated. The totalized average values per day (0:00:00 to 23:59:59) divided by the number of data items
Day (every hour on the hour)	The average values per day are accumulated (data taken every hour on the hour). The totalized hourly data taken from the average temperature values per day (1:00:00 to 24:00:00) divided by 24

※If the amount of logged data is not enough for one day’s amount, “Day” or “Day (every hour on the hour)” cannot be selected.

#### Start Date & Time

Year, Month, day (Hour, Minute, Second)	Set the date and time to start accumulation.
--	--

### Reference temperature

Name	Accumulation method
Temperature	Totalize the differences between the average temperature and the reference temperature. The calculation is: Totalize the values obtained by subtracting the reference temperature value from the average temperature value. If the difference is 0°C or less, 0°C is used for accumulation.
Number of days	Totalize the number of days when the average temperature is greater than the reference temperature. Can be selected only when the accumulation unit is "Day" or "Day (every hour on the hour)". (Temperature setting is possible.)

### Specified temperature

Not specified temperature	Use the reference temperature.
H-Accumulation	Totalizes the values equal to or higher than the H-accumulation temperature value. If the temperature value is below the H-accumulation temperature value, 0.0°C is used for accumulation.
L-Accumulation	Totalizes the values equal to or lower than the L-accumulation temperature value. If the temperature value exceeds the L-accumulation temperature value, 0.0°C is used for accumulation.

※Click Print to start printing the accumulation data.

③Click [Close] to close the Accumulation window.

#### 4. Real-time

Communicates with the Datalogger at the update interval set and displays the graphs plotted from the measured values. Also, the measured values, the values of maximum, minimum and average, the Heat Stress Index and the alarm information can be viewed on the real-time monitor.

##### Notes:

- When multiple Dataloggers are monitored at the same time, they must be the same model.
- Setting is not possible if the Datalogger is logging.
- During real-time monitoring, some of the functions are disabled to ensure stable monitoring.
- Do not turn off the Datalogger during real-time monitoring.
- Before downloading data, the real-time monitoring must be ended.
- When multiple files (data items) are opened at the same time in the software, the response time may be delayed.
- In the real-time graph, since the Y-axis (temperature, humidity) of CH1/CH2 is automatically adjusted, it may result in a horizontal flat line if there are no changes in the measured values in real-time monitoring.

#### 4.1 Real-time Graph Display Screen

Displays graphs plotted from the measured values received during real-time monitoring, in real time. Data analysis is possible after the real-time monitoring is ended.

##### Real-time graph screen

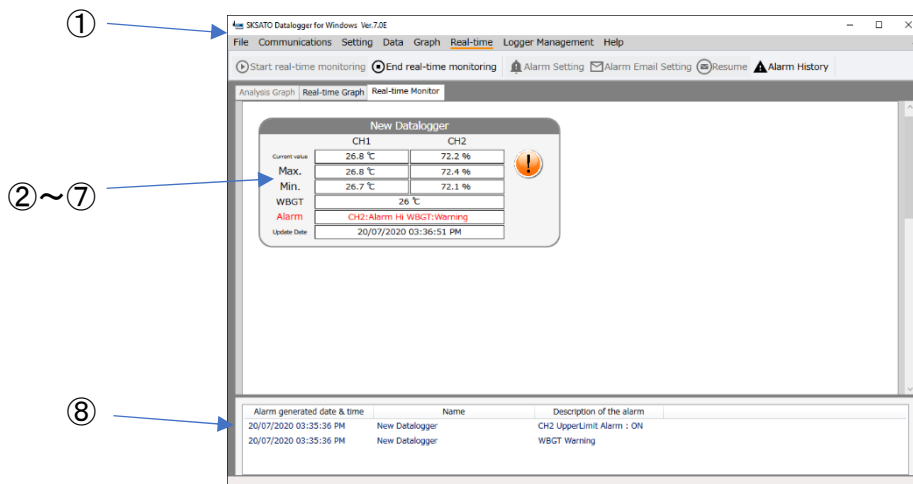


①Function icon	Used to execute each function.
②Graph display section	Data opened is displayed as a graph.
③MEMO	A comment can be entered if necessary.
④Data information section	Displays information on data of the graph being displayed. Click [▼] to display or hide the data information. “All” displays information on all data, while “Range” displays information on the data of an enlarged part of a graph.
⑤CURSOR	Displays the data of the selected point (date and time, measurement value) when the function is ON.
⑥Auto Range	Automatically adjusts the graph range each time measurement is performed. Uncheck the box to manually adjust the range.

#### 4.2 Real-time Monitor Screen

Displays the data (current, maximum and minimum values) from the measured values received during real-time monitoring and the alarm information (upper/lower limit value and alarm history for each sensor), in real time.

##### Real-time monitor screen



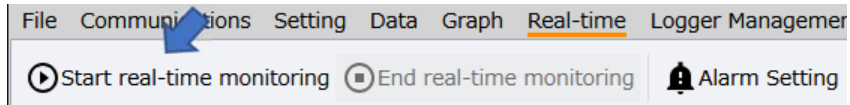
①Function icon	Used to execute each function.
②Current Value	Displays data received in real-time by channel
③Max. Value	Displays the Maximum value of data received by channel
④Min. Value	Displays the Minimum value of data received by channel
⑤Heat Stress Warning (WBGT Index)	Displays in four levels (Caution, Warning, Severe Warning and Danger)
⑥Alarm	Displays the alarm information generated during the real-time monitoring
⑦Update Date & Time	Displays the date & time received the current value
⑧Alarm History	Displays the history of alarm generated during the real-time monitoring

※The display of each monitor can be switched between the monitors by clicking and dropping.

### 4.3 Start

Starts real-time monitoring.

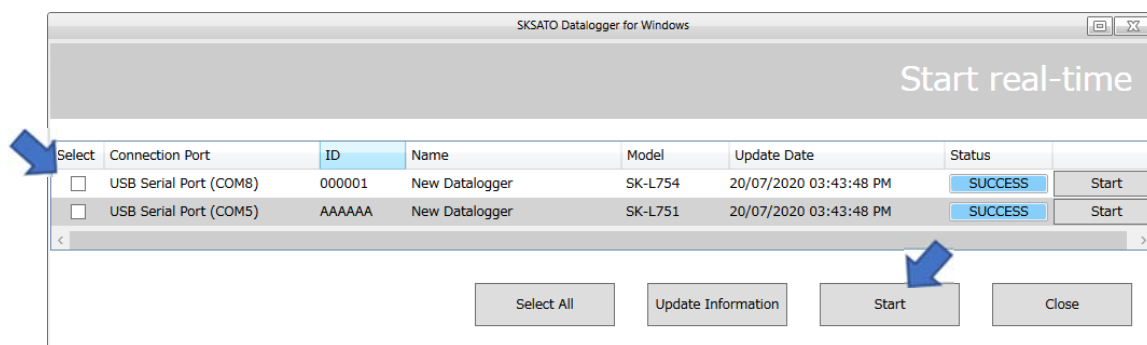
① Click the “ Start real-time monitoring” button on the Real-time menu.



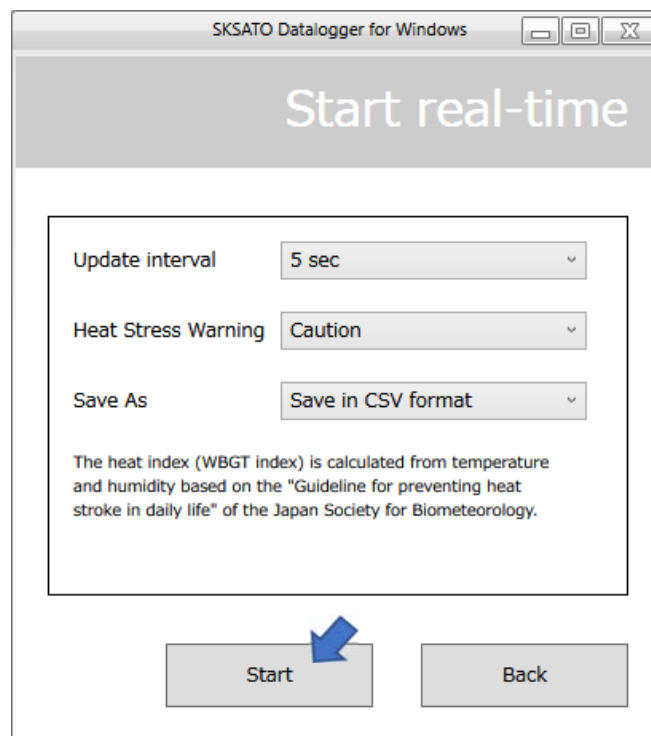
② In the Start window, select the target Datalogger(s) and click “ Start” . (Multiple Dataloggers can be selected.)

※ Select Dataloggers of the same model.

※ Up to 10 Dataloggers can be selected.



③ In the Start dialog box, select each item, and then click “Start”.



Item	Setting	Description
Update interval	In seconds (5, 10, 15, 30) In minutes (1, 2, 5, 10, 15, 30, 60)	Choose from the 11 options
Heat Stress Warning (WBGT)	Caution, Warning, Severe Warning and Danger).	Displays in four levels (Supported only by the SK-L754 Datalogger)
Heat Stress Warning (WBGT)	CSV file sk8 file	Save files in CSV format or in SK8 format ※CSV file: can store up to 1,000,000 data ※sk8 file: can store up to 16,000 data

※Even if the file was not set to be saved in advance, it can be saved by using the “Save As” button on the File or Graph menu, after real-time monitoring is ended.

※Note that the real-time monitoring data collected from multiple Dataloggers is overlapped data when it is saved after the real-time monitoring is ended, and so it cannot be analyzed.

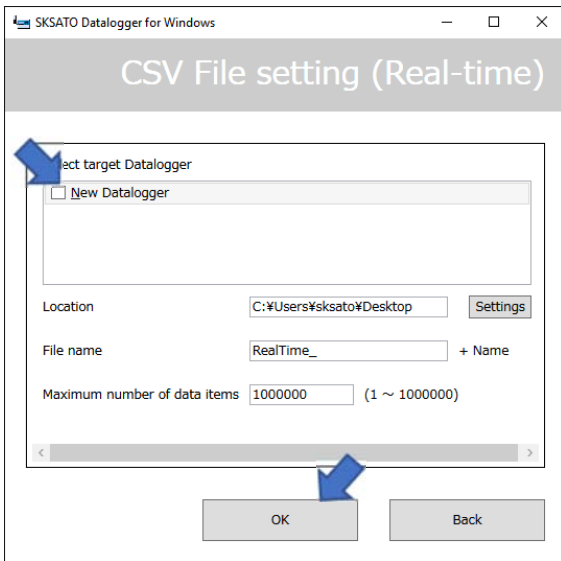
If this software is going to be used for analyzing the data of each Datalogger, select to save the file in SK format at the start of the real-time monitoring.

※The “Heat stress prevention guidelines for daily life” compiled by Japanese Society of Biometeorology

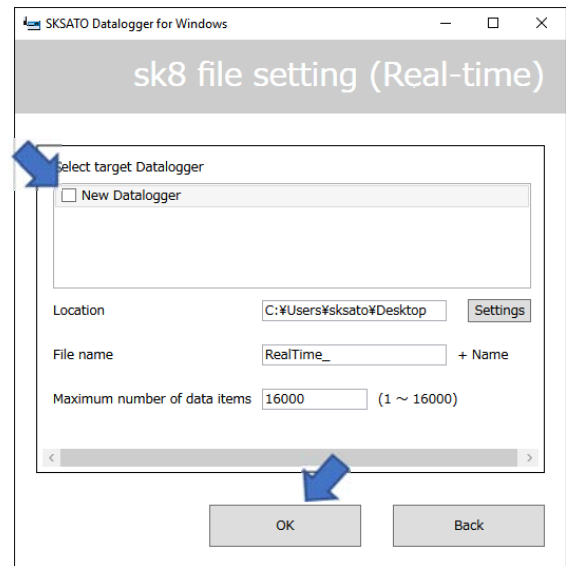
WBGT Index	Risk of occurrence in relation to physical activity	Remarks
Danger (31°C or higher)	Risk during any physical activity	Risk of occurrence is high in the elderly, even in the resting state. Avoid going out and stay in a cool room
Severe warning (28 to 31°C)		Avoid direct sunlight outdoors and watch for any rise in room temperature indoors
Warning (25 to 28°C)	Risk during moderate to vigorous physical activity	Regularly take adequate rest when exercising or doing vigorous work.
Caution (25°C or lower)	Risk during very vigorous physical activity	Basically, low in risk, but high in risk when doing vigorous exercise or heavy labor



- ④When “Save file in CSV format” or “Save file in SK8 format” is selected in the Start dialog box, the dialog box of “CSV File Setting (real-time)” or “SK8 File Setting (real-time)” appears. Specify the necessary setting items and click “OK” to start the real-time monitoring.

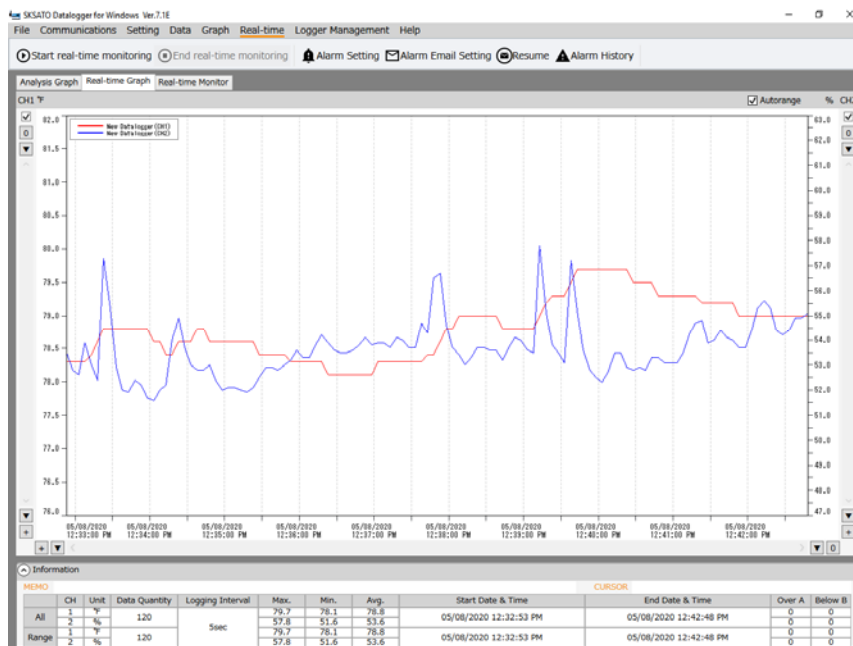


When “Save file in CSV format” is selected



When “Save file in SK8 format” is selected

- ⑤After starting the real-time monitoring, the screen will be automatically switched to the display of measured values acquired from the Datalogger, under the Real-time Graph tab.



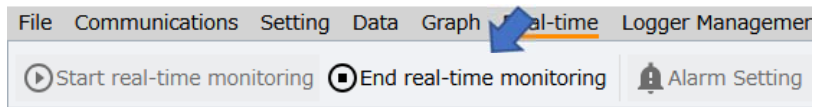
- ⑥Click the Real-time Graph or Real-time Monitor tab and change the display to suit the purpose of the screen.

※To change the Datalogger to be used or the update interval, end the monitoring and perform the setting again.

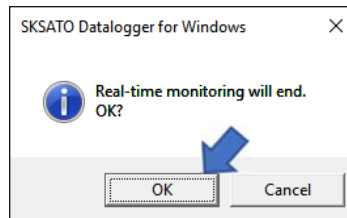
The latest date and time of communications is displayed in the End Date & Time field of the Real-time Graph or the Update Date & Time field of the Real-time Monitor.

#### 4.4 End

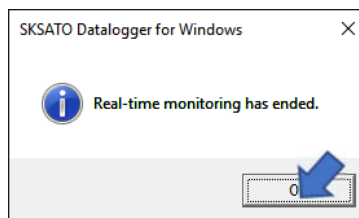
①Click the “End real-time monitoring” button on the Real-time menu.



②A confirmation message appears. Click “OK” to end the real-time monitoring.



③When the ending is successfully completed, a confirmation message appears. Click “OK” to confirm.



④After the real-time monitoring is ended, data analysis can be performed using the Data menu or Graph menu.

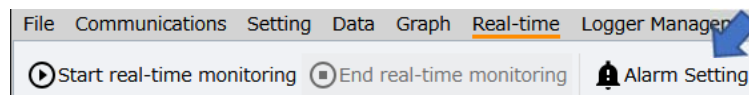
#### 4.5 Alarm Setting

Used to set the alarm options for the real-time monitoring. The alarm history is displayed based on the specified values.

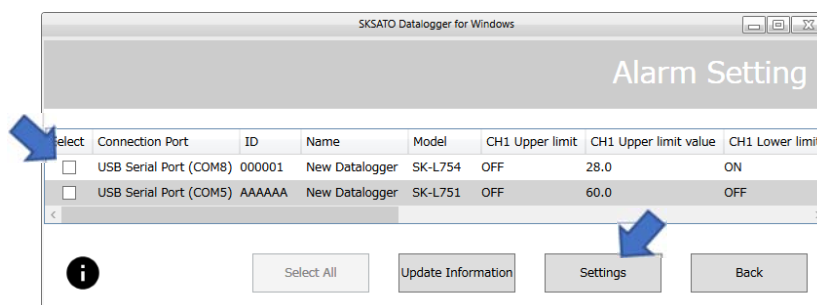
※Unlike the “Alarm Setting” button on the Setting menu, this alarm setting does not affect the alarm setting in the Datalogger.

※If the Datalogger is unregistered, the alarm setting values are reset after the software exits.

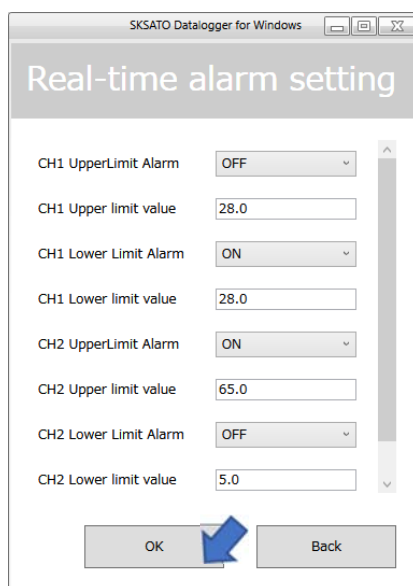
①Click the “Alarm Setting” button on the Real-time menu.



②In the Alarm Setting window, select the target Datalogger and click “Set” .



③ In the Real-time Alarm Setting dialog box, specify the alarm settings, and then click “OK”.



Item	Setting	Description
CH1 upper limit alarm CH1 lower limit alarm CH2 upper limit alarm CH2 lower limit alarm	①ON/OFF setting ②Setting values (Setting range differs depending on the model.)	The alarm history is displayed based on the specified values. ※Unlike the “Alarm Setting” button on the Setting menu, this alarm setting does not affect the alarm setting in the Datalogger. To specify the alarm setting in the Datalogger, refer to “Alarm Setting” on page 33.

#### 4.6 Alarm Email Setting

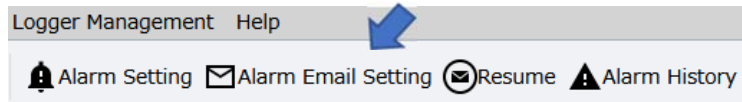
If the measured value exceeds the alarm setting value specified, an alarm email can be sent to a specified recipient.

※Set the Alarm Email before starting the real-time monitoring.

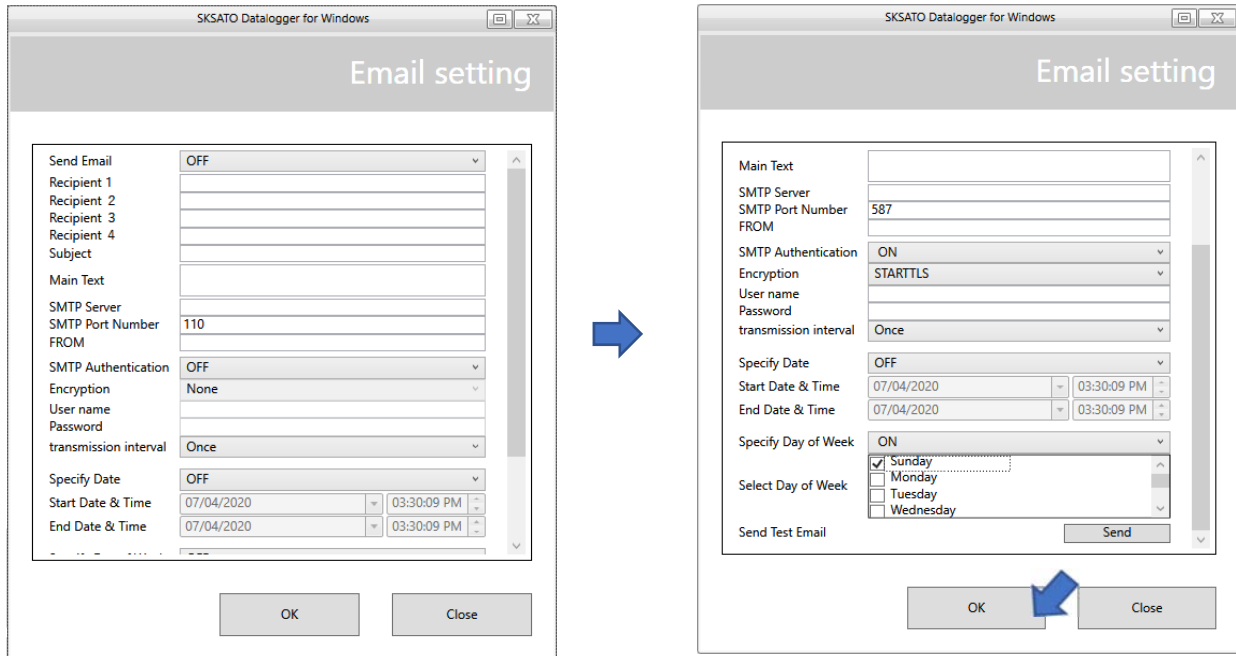
##### Notes:

- For the email sending function, the following conditions must be met.
  - There is Internet access.
  - There is an email service.
  - Antivirus software is not blocking.
- Consult your network administrator regarding email settings.  
If the email setting for the server used by the PC in which the software is installed requires SSL/TLS encryption, email cannot be sent, however STARTTLS method allows you to send emails.  
\* If you are using Gmail, you must enable "Access to insecure apps" in your Google account.  
For the recipient, set the address of an email server such as Gmail or Hotmail.
- This software must be operating to use the alarm email.  
Email cannot be sent if the software is halted because, for example, the PC is in sleep (standby) mode.

①Click the “Alarm Email Setting” button on the Real-time menu.



②Specify the email setting in the Email Setting dialog box, and then click “OK”.



Setting Item	Description
Send	ON or OFF Set to ON for sending alarm email.
Recipient (1 to 4)	Enter the email address of the recipient. Recipient 1 is for “To” and Recipients 2 to 4 are for “CC”.
Subject	Enter the subject (title) of the email to be sent.
Main Text	Enter the main text of the email to be sent.
SMTP Server	Enter the SMTP server.
SMTP Port number	Enter the SMTP port number.
Sender	Enter the email address of the sender.
SMTP Authentication	ON or OFF Account for authentication on the SMTP server
Encryption settings	STARTTLS method or "None" If you do not set the encryption, select "None".
User name	Enter the user name to login to the SMTP server.
Password	Enter the password to login to the SMTP server.
Notification interval	Alarm information is re-sent in email at intervals of:

Setting Item	Description
	<p>“Once”, “10 min”, “30 min”, “60 min”.</p> <p>If “Once” is selected, an alarm email is sent only once, then no email is sent until the “Resume” button is pressed.</p> <p>Email is not sent when no alarm is present.</p>
Date and Time	<p>Set the date and time to send emails.</p> <p>ON: Sends for the period between the start date and time set and the end date and time set.</p> <p>OFF: Sends every day.</p>
Day	<p>Set the day of the week to send emails.</p> <p>ON: Sends for the period between the start day and time set and the end day and time set.</p> <p>OFF: Sends every day of the week.</p> <p>– If both the date &amp; time and the day of the week are set, email is sent only when all the conditions are met.</p>
Send Test	<p>Conducts an email send test.</p> <p>Click “Sent Test” to send a test email.</p>

• Alarm information

The alarm information sent by email is as follows.

Alarm item	Description
Upper Limit Alarm	The upper limit alarm has been activated.
Lower Limit Alarm	The lower limit alarm has been activated.
Heat Stress Warning (WBGT)	<p>When the set heat Stress Index set value is reached.</p> <p>(This function can be selected only by the SK-L754 series Datalogger.)</p>
Sensor Not Found	Activates when the sensor is removed from the Datalogger.

※For specifying the alarm setting in the Datalogger, refer to “Alarm Setting” on page 54.

• Example of email format

```
Name : SK-L754
ID : 000001

<Description of the alarm>
Alarm generated date & time : 05/08/2020 14:16:35 WEGT Danger

Alarm generated date & time : 05/08/2020 14:16:45 WEGT Severe Warning

Alarm generated date & time : 05/08/2020 14:16:50
CH2 UpperLimit Alarm : OFF
WEGT Warning

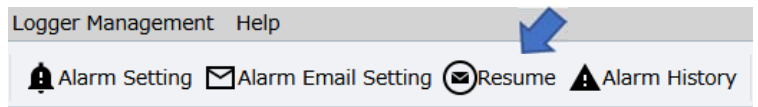
Alarm generated date & time : 05/08/2020 14:17:15 WEGT Alarm release

Alarm generated date & time : 05/08/2020 14:17:20 WEGT Warning
```

※When the notification interval in the Alarm Email Setting is set to “Once”, an alarm email is sent once, based on the alarm information from the Datalogger. After that, no emails are sent even when an alarm occurs.

To re-send the alarm email, click the “Resume” button.

The alarm email will be sent once again.



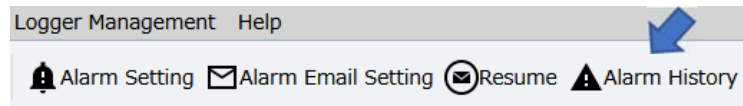
## 4.7 Alarm History

Displays the history of alarms generated during monitoring.

※When the real-time monitoring is started, alarms that have been activated will not be listed in the history.

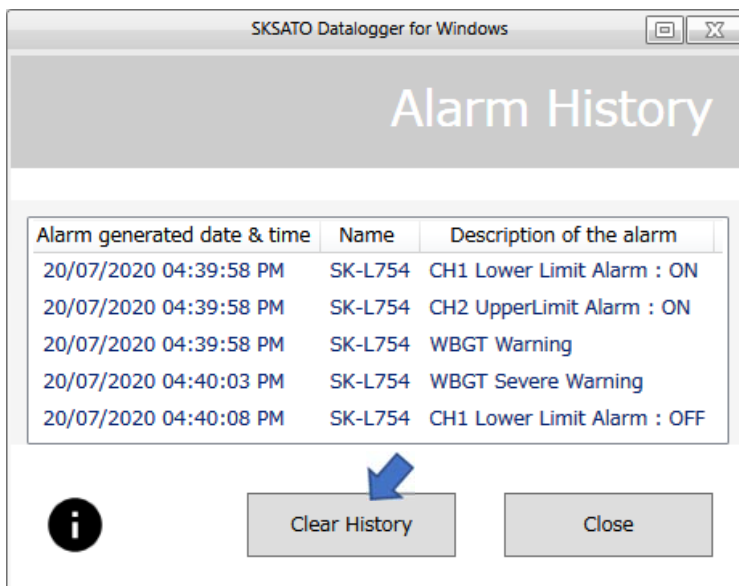
※The alarm history is retained after the real-time monitoring is ended, but it is cleared when the software is exited.

①Click the “Alarm History” button on the Real-time menu.



②The alarm history window appears, including the alarms activated (ON) and the alarms ended (OFF).

To clear the alarm history data, click “Clear History”.



When alarm history exists



When no alarm history exists

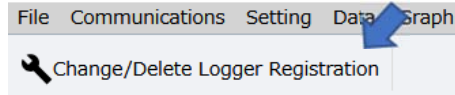
## 5. Logger Management

Used to edit (change the name of the Datalogger or the comment in MEMO) the registration of the Datalogger or delete the registration of a Datalogger that is no longer used.

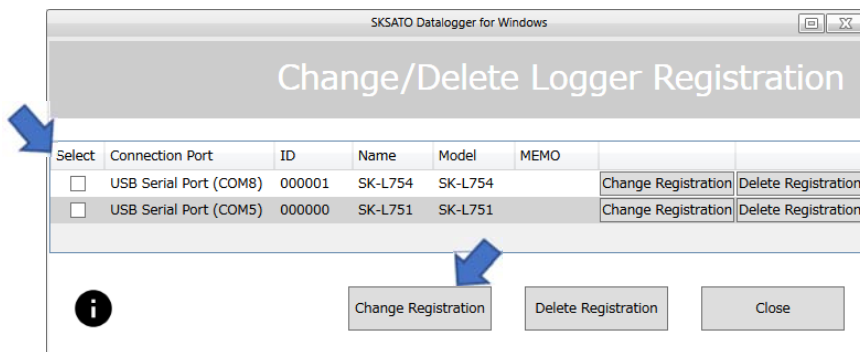
### 5.1 Change/Delete Logger Registration

Change the registered name of the Datalogger or the content of the MEMO field.

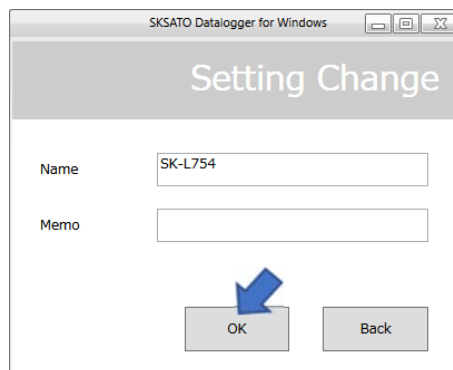
①Click the “Change/Delete Logger Registration” button on the Logger Management menu.



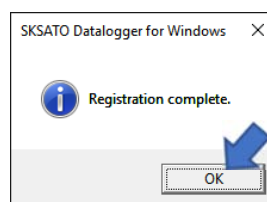
②Select the target Datalogger in the Change/Delete Logger Registration window and click “Change Registration”.



③In the Change Setting dialog box, enter the new name of the Datalogger and/or the comment in the MEMO field, and then click “OK”.



④When the setting is successfully completed, a confirmation message appears. Click “OK” to end the setting.



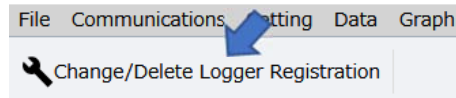


## 5.2 Deleting the Datalogger Registration

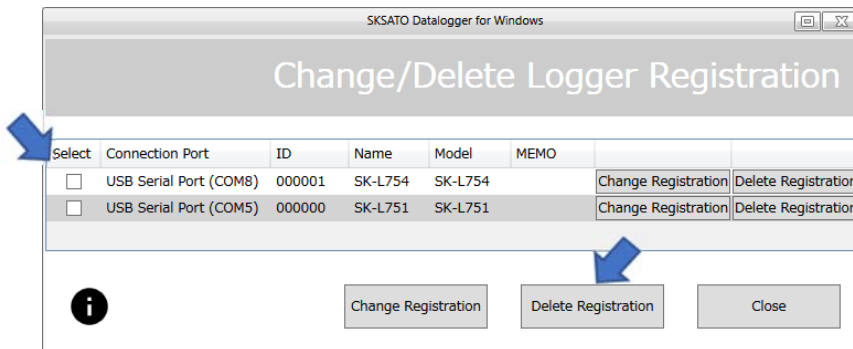
Used to delete the registration of an unused Datalogger in the software.

To use a Datalogger whose registration has been deleted, register it again in the software as necessary.

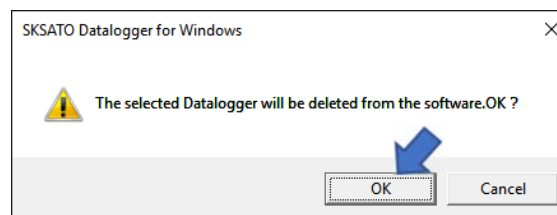
①Click the “Change/Delete Logger Registration” button on the Logger Management menu.



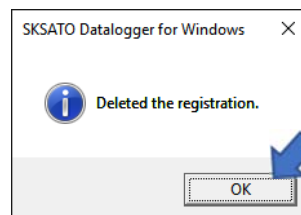
②Select the target Datalogger in the Change/Delete Logger Registration window and click “Delete Registration”.



③A confirmation message appears. Click “OK” to delete the registration information of the Datalogger.



④When the deleting is successfully completed, a confirmation message appears. Click “OK” to end the setting.

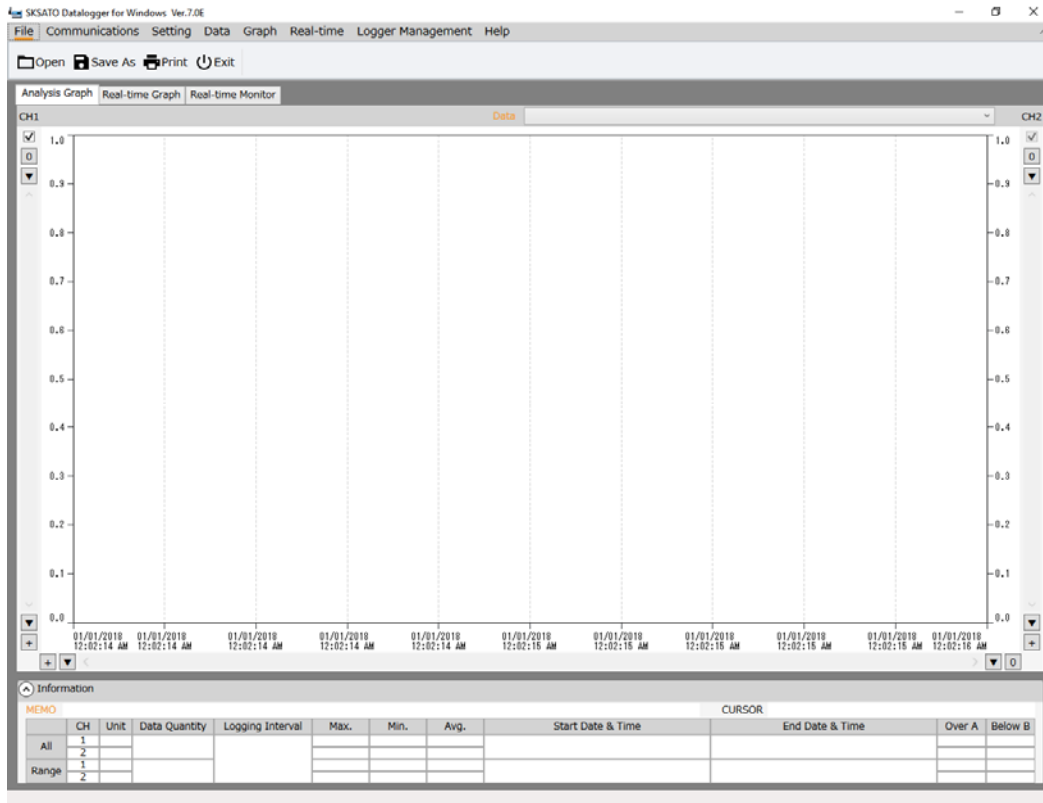


## 6. Help

Used to check the software manual, the version information and the help file.

## File Menu

Used to specify the basic items.



### 1. Open

Used to open saved logged data and display it in a graph.

The file types/extensions you can open are: .sk6, .sk7, .sk8, .trx, .bin.

※Note that the software can only open a data file in .bin format if it was created by an SK-751/ SK-754 Datalogger and saved to a microSD card.

The microSD card to which you saved the data must be removed from the Datalogger, and then open the data file in the software.

We recommend saving the opened data file in SK format.

※The software may become slow if many data files are opened at the same time.

### 2. Save

Used to save data that is opened in the software.

Click “Save As” and select the save option.

For details, refer to [Save] on page 41.

### 3. Print

Used to print a graph or screen.

Clicking the "Print" button opens the printing items to be set.

- Print Graph: Only the graph portion currently displayed on the graph analysis screen is printed.
- Print Data: The logged data is printed.

For a model with no channel 2, the CH2 field is blank.

※When there are a large number of data items, the number of printed pages will also be large.

It takes 116 pages to print the full data (16,000 items) when the paper orientation is set to portrait, and 96 pages when set to landscape.

- Print Screen: Prints the whole screen currently displayed.

A confirmation message appears. Click "OK" to print or "Cancel" to exit.

※When a graph is being enlarged for analysis, only the enlarged part of data is printed.

### 4. Exit

Used to exit the software.

All unsaved logged data is cleared.

※Save any logged data that is to be retained after the software exits.

## Troubleshooting

1. Cannot Communicate with the Datalogger. Fail to [Connect]	
Probable cause	Action
1) The Datalogger is not turned on	Turn on the Datalogger
2) The connection cable (USB cable) is not properly connected.	<ul style="list-style-type: none"> <li>• Fully insert the USB cable connector into the USB port on the Datalogger.</li> <li>• Remove the cable and reinsert it.</li> <li>• Connect the cable to another COM port.</li> <li>• Be sure to use the dedicated cable that came with the Datalogger.</li> </ul>
3) The Datalogger is not recognized by the PC.	Check if the connected Datalogger is recognized by the PC using Device Manager. Refer to page 5 “How to check the port number of the connection”
4) The USB cable was removed or inserted while the Datalogger was turned on.	In this case, the Datalogger may have stopped the USB communication. Turn off the Datalogger and then turn it on again.
If the problem cannot be resolved by the above, do the following: <ul style="list-style-type: none"> <li>• Press the RST (Reset) switch in the battery container, turn on the Datalogger again and check the connection.</li> <li>• If another PC is available, connect the Datalogger to it and check the connection.</li> <li>• If multiple Dataloggers or USB cables are available, connect another Datalogger to the PC or use another cable, and then check the connection.</li> <li>• The dedicated USB cable may be broken; contact us.</li> </ul>	

2. Downloading Failed	
Probable cause	Action
1) To ensure correct downloading, observe the following precautions	<ul style="list-style-type: none"> <li>• Do not activate a screen saver.</li> <li>• Do not activate other software.</li> <li>• Do not use the power saving function for the display or other devices.</li> <li>• Do not use memory-resident software.</li> <li>• Do not use the mouse or keyboard more than required. Using the mouse or keyboard generates exclusive interrupt processing to the CPU of the PC. Communications may become unstable if the mouse or keyboard is used more than necessary during downloading.</li> </ul>
2) The Datalogger is copying the logged data to the microSD card.	Communication with the Datalogger is stopped. Wait until copying is complete.

3. Datalogger cannot be registered.	
Probable cause	Action
1) The connection cable (USB cable) is not connected.	<ul style="list-style-type: none"> <li>• Fully insert the USB cable connector into the USB port on the Datalogger.</li> <li>• Remove the cable and reinsert it.</li> <li>• Connect the cable to another COM port.</li> <li>• Use the dedicated cable that came with the Datalogger. Proper communications is not guaranteed if a USB hub is used for cable extension.</li> </ul>
2) The Datalogger has already been registered.	You cannot register the Datalogger in this case. Change the ID number or perform "Delete Logger Registration", and then register the Datalogger again.
3) Logged data of the previous operation remains in the Datalogger.	Delete Logged Data (Save the logged data if necessary)
If the problem cannot be resolved by the above, reset both Dataloggers having duplicated IDs by pressing the RST (Reset) switch in the battery container of each Datalogger, and then turn them on again.	

4. Some functions cannot be used (selected)	
Probable cause	Action
1) Real-time monitoring is active	End real-time monitoring

5. Real-time Monitoring Data Displays "COM Err"	
Probable cause	Action
1) The Datalogger is not turned on	Press and hold the PWR key to turn on the unit.
2) Communication with the Datalogger is not established	<ul style="list-style-type: none"> <li>• Fully insert the USB cable connector into the USB port on the Datalogger.</li> <li>• Remove the cable and reinsert it.</li> </ul>

6. Other problems	
Probable cause	Action
(1) A message stating that the disk space is insufficient appears.	The hard disk on the PC does not have sufficient free space. Delete files from the PC or save them to another PC to free up disk space.
(2) The Datalogger cannot start logging.	<ul style="list-style-type: none"> <li>①The Datalogger is logging.</li> <li>②The "Start Logging" in "Set Logging" is not set to ON.</li> <li>③The Datalogger has run out of battery power. Immediately replace the batteries.</li> <li>④The Datalogger is not turned on.</li> <li>⑤No probe is connected to the Datalogger (Er2) or the probe is faulty.</li> </ul>
(3) The time stamp on	①The PC's clock is inaccurate.

<p>downloaded data does not match the PC's time.</p>	<p>The software uses the PC's clock to set the time on the Datalogger. If the PC's clock is inaccurate, the time stamp on the data may not match the PC's time.</p> <p>②The clock setting has been reset.</p> <p>The clock setting on the Datalogger is reset, such as when the batteries are replaced. If the logging is started in this state by using the REC key, the clocks will not be synchronized.</p> <p>Start logging using "Set Logging" in the software. The time set on the PC will be set to the Datalogger.</p>
<p>(4) The software is running slow.</p>	<p>①Check the specifications of the PC.</p> <p>②The performance of the software may deteriorate if there are many data items opened at the same time. Minimize the number of opened data.</p>
<p>(5) The downloaded logged data cannot be found on the PC.</p>	<p>The logged data cannot be saved by only downloading. Save the logged data using the "Save" button on the Graph menu.</p>
<p>(6) Printing failed.</p>	<p>Printing may fail due to poor compatibility between the software and printer driver. The printer driver being used may need to be updated. Update the printer driver to the latest version.</p> <p>For details on obtaining the printer driver, contact the manufacturer of your printer. Note that printing is not possible if the printer is not set in the software.</p>

### Our Website

Please visit our website to refer to the updated information on our products

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