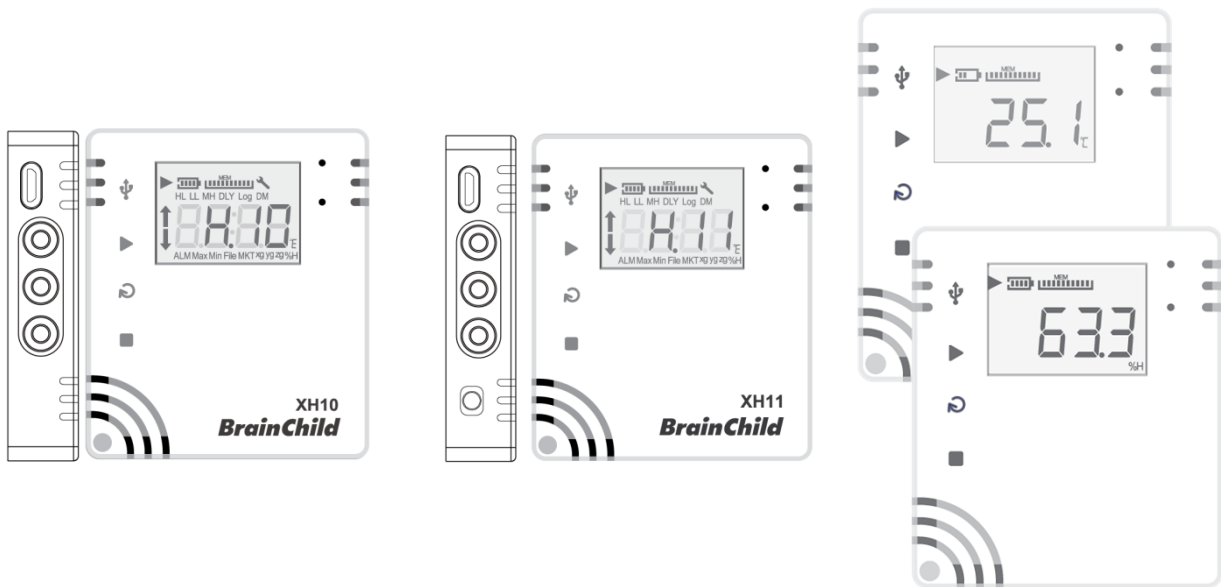


BrainChild

XHLogger Series XH10/ XH11 Data Logger User Manual



UMEXH101E EN v5.0 (2025-01)
XH logger Firmware Version: 1.5.0
Data Logger Viewer Version: 1.3.0.26

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Safety

Users should read this document through before use it and refer to it whenever necessary. Pay attention to the safety instructions and warning notices to prevent from injuries or damaging to the equipment.

Follow the instructions and specification limit to operate it to avoid any dangers.

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Warning Symbol

The Symbol calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury or damage to or destruction of part or all of the product and system. Do not proceed beyond a warning symbol until the indicated conditions are fully understood and met.

Disposal

Users are responsible for the proper disposal of the waste generated during their work. Improper waste disposal may severely endanger the public health and/or the environment. Dispose the battery in accordance with local regulations.

Precaution for Humidity and Temperature Sensors

Storage and Handling Instructions:

- Protection against ESD is mandatory.
- Do not use polyethylene antistatic bags.
- Do not apply board wash.
- Do not apply spray to unprotected sensor.
- Be careful exposing the sensor to VOC.
- Prevent sensor from exposure to cleaning agents.
- Cover the sensing element during coating.

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Revision History

Version	Description	Date
UMXH101A	Initial released	2020/Nov.
UMXH101B	Traditional Chinese version	2022/Sep.
	Added firmware update procedure	
	Added file mode and revise memory management section	
	Content correction and function update	
UMEXH101C	Changed the Version naming rules:UMEXH101- Product Spec Product Overview Product Ordering Code Battery replacement	2023/Jul.
v4.2 EN UMEXH101D	Appearance and Dimension Battery Replacement Getting Started Product FAQ	2023/Nov
v4.3 EN	Precaution for sensor	2023/Nov
v5.0 EN Version E, v5.0.09 UMEXH1X1E	Revised XH10/ XH11 FAQ, Battery replacement, Key definition, key operation, DLV/ parameter, LED definition	2024/Nov
v5.0.10 (E)	Cover, FAQ sec7, sec1.4/1.5/1.6 intro, sec2.1, product-name elimination, 2.3.8 configuration	2024/Dec
v5.0.11 (E)	FAQ sec7.2: Q5	2025/Jan

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1 Introduction

Thank you for choosing the XHLogger for your data logging needs. Data Logger XH series is an ideal solution for measuring and logging the temperature and humidity of an environment at the specified intervals. The logger not only provides temperature and humidity measurement on user's demand but also has several different recording methods, analysis data and report output function, No programming skills are required to use the UI of XH series and users can easily initiate data collection.

All data can be captured and stored in an easy-to-read format. Our goal is to bring you to an accurate, low-cost, easy-to-use data logger that can be easily integrated into your work environment. In order to better understand your needs and provide you with better service. We welcome and appreciate your feedback.

There are models for this series as follows:

- **XH10 :**

XH10 Data Logger is the internal sensor for both temperature and humidity, suitable for warehouse, greenhouse and any places where need to monitor the temperature/ humidity.

- **XH11 :**

XH11 Data Logger is the external sensor for both temperature and humidity, suitable for delivering boxes, refrigerators, and containers in which you need to observe the temperature/ humidity readings, however, it's not allowed to open the containers frequently.

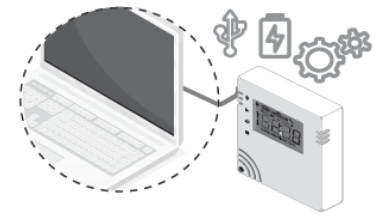
1.1 Features

The XHLogger series has the following unique features:

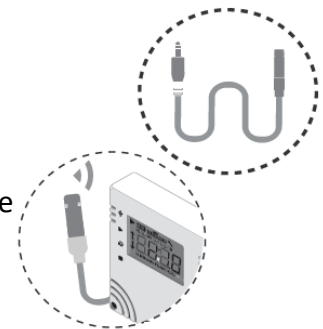
- ❖ One click start/stop, pre-set start/stop
- ❖ USB interface
- ❖ Logging of temperature & humidity statistics
- ❖ MKT temperature logging
- ❖ Offer Celsius & Fahrenheit temperature measurement
- ❖ LCD display, real-time temperature & device status shown
- ❖ Temperature and humidity audit trail
- ❖ User configurable sampling interval
- ❖ Records Mean Kinetic Temperature (MKT) tracking
- ❖ Dual-mode power supply, USB/ Battery-powered
- ❖ Direct export PDF reports
- ❖ Use the interface to start collecting data immediately without any programming skills
- ❖ Waterproof and dustproof housing

◆ XH10 Features:

- ❖ Temperature & Humidity logging and statistic
- ❖ Internal sensor for both temperature and humidity
- ❖ USB interface
- ❖ Set parameters & download PDF report via USB data transfer cable
- ❖ User friendly PC software (Data Logger Viewer)
- ❖ USB/ ER14250 battery power supply, 1-year+ long life battery
- ❖ IP65 rated housing

**◆ XH11 Features:**

- ❖ Temperature & humidity logging and statistic
- ❖ External sensor for both temperature and humidity
- ❖ USB interface
- ❖ Set parameters & download PDF report via USB data transfer cable
- ❖ User friendly PC software (Data Logger Viewer)
- ❖ USB/ ER14250 battery power supply, 1-year+ long life battery
- ❖ IP63 rated housing



◆ MKT Temperature

Mean kinetic temperature (MKT) is a simplified way of expressing the overall effect of temperature fluctuations during storage or transit of perishable goods. The MKT is widely used in the pharmaceutical industry.

The mean kinetic temperature can be expressed as:

$$T_K = \left(\frac{\frac{\Delta H}{R}}{-\ln \left(\frac{t_1 e^{\frac{-\Delta H}{RT_1}} + t_2 e^{\frac{-\Delta H}{RT_2}} + \dots + t_n e^{\frac{-\Delta H}{RT_n}}}{t_1 + t_2 + \dots + t_n} \right)} \right)$$

T_K =Mean Kinetic Temperature,

ΔH =Activation Energy (in kJ mol^{-1})

R =Gas Constant (in $\text{J mol}^{-1} \text{K}^{-1}$)

T_1, T_2, T_n =Temperature at each of the sample points

t_1, t_2, t_n =time intervals at each of the sample points

When the temperature readings are taken at the same interval (i.e., $t_1, t_2 \dots t_n$), the above equation is reduced to:

$$T_K = \left(\frac{\frac{\Delta H}{R}}{-\ln \left(\frac{e^{\frac{-\Delta H}{RT_1}} + e^{\frac{-\Delta H}{RT_2}} + \dots + e^{\frac{-\Delta H}{RT_n}}}{n} \right)} \right)$$

Where,

n = Number of temperature sample points.

1.2 Package

Upon receipt of the shipment, remove the data logger from the carton and inspect the unit for shipping damage. If any damage is found, contact your local representative immediately. Note the model number and serial number for future reference when corresponding with our service center. The serial number (S/N) is labelled on the box and the housing of the data logger.

The package contents are as below.

XH10

- ❖ Data Logger x 1 (battery already installed in the data logger)
 - ER14250 Lithium battery
(Disposable long-lasting, 1/2AA 3.6V, 1-year+ life)
- ❖ Mounting Plate and Fixed Sticker x 1
- ❖ Screws and Anchors x 2
- ❖ Quick User Guide x 1

XH11

- ❖ Data Logger x 1 (battery already installed in the data logger)
 - ER14250 Lithium battery
(Disposable long-lasting, 1/2AA 3.6V, 1-year+ life)
- ❖ Mounting Plate and Fixed Sticker x 1
- ❖ Screws and Anchors x 2
- ❖ External Sensor Probe x1 (Sensor length 1 or 2 M)
- ❖ Quick User Guide x 1

1.3 XHLogger Specifications

1.3.1 XH10/XH11 Specifications

XH10/ XH11 Data Logger

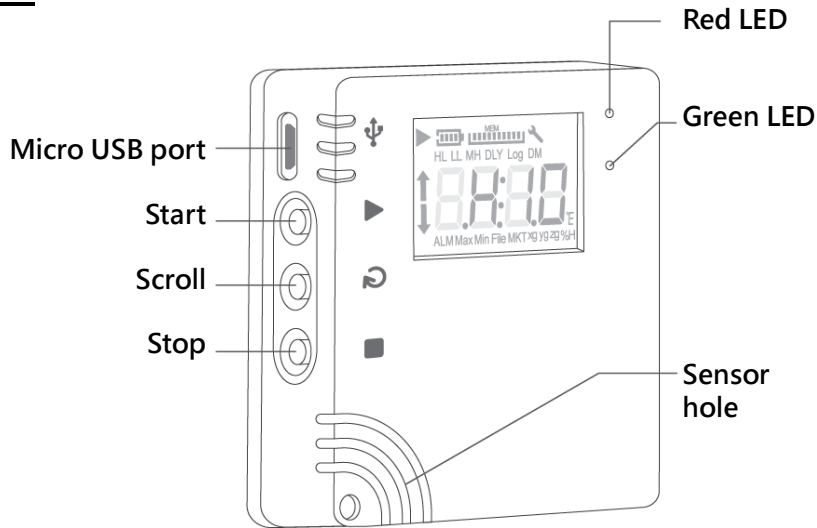
Specification	Description						
Power Supply	Dual-mode: USB powered / Disposable ER14250 battery USB/ Battery: 1-year+ life @10 min. interval						
Interface	micro-USB/ USB						
Software	Data Logger Viewer (DLV), working with Windows 7 Service Pack 1 and the above						
USB Voltage (@500mA)	<table border="1"> <thead> <tr> <th>Minimum</th> <th>Typical</th> <th>Maximum</th> </tr> </thead> <tbody> <tr> <td>4.5 VDC</td> <td>5 VDC</td> <td>5.5 VDC</td> </tr> </tbody> </table>	Minimum	Typical	Maximum	4.5 VDC	5 VDC	5.5 VDC
Minimum	Typical	Maximum					
4.5 VDC	5 VDC	5.5 VDC					
Sensor Type	XH10: Internal sensor probe for temperature and humidity XH11: External sensor probe for temperature and humidity						
Sensor Response Time	Temperature > 2 secs Humidity 8 secs						
Logging Interval	User configurable from 1 sec to 24 hrs						
Resolution	Temperature display resolution: 0.1 °C/ 0.1°F/ 0.1%						
Operating Range	Temperature range: -10°C (14°F) ~60°C (122°F) Humidity range: 10% RH~90%RH						
LCD Operating Range	-20°C (-4°F) ~60°C (122°F)						
Accuracy	Temperature: 0°C ~ 50°C (±0.3°C), Others ±0.5°C Humidity: 20%~80%@25°C(±3%RH), Others ±5%RH						
Time Accuracy	±1 hour per year						
Alarm Configuration	High High, High, Low, Low Low						
Calibration	Calibration is completed by the original manufacturer. Users can find the Offset function in the DLV software						
Internal Memory	Maximum can divide to 100 files (press start and stop as one file), one file can contain maximum 79,872 logs, keeping 200,192 logs in total						
Pre-program	User Programmable						
Start Option	Push button, Immediate, At time, DLV software controlled						
Auto Overwritten	Not supported						
Start Delay	Supported, 1 min to 23 hr and 59 min						
Stop Option	Push button; At Time						
Default File Format	PDF						
Data Export	PDF, Excel						
Security	Password Protected						
Housing	PC540 PC+ABS						

Specification	Description
IP Rating	XH10: IP65 XH11: IP63
Dimension (XH Case)	65.1 x 70 x 23.25mm
Weight	XH10: 82.1g (Battery Included) XH11: 130 g (Battery and 1M external sensor included)
XH Warranty	12 months, battery not included
Battery Type	ER14250, 3.6V/ 1200mA, disposable lithium battery
Battery Life	1 year-life @ 10 min. log interval, 1 year-life from the battery original factory
Accuracy Certificate	Optional
Safety Certificate	CE, RoHS

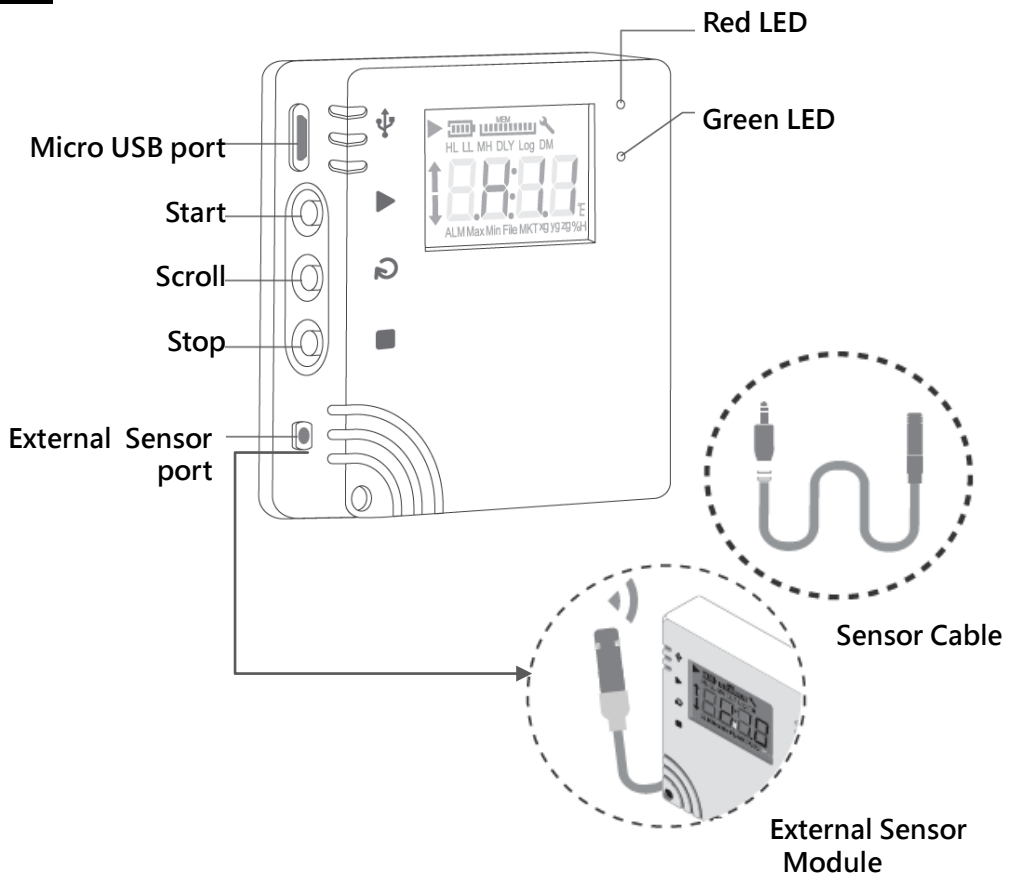
1.4 Product Overview

There are three keys: **START**, **SCROLL**, and **STOP** on the device and two LEDs on the upper right-hand corner. The top one is **RED** and **GREEN** is on the bottom. The below figures are listed the overview of the XH10/XH11 data logger.

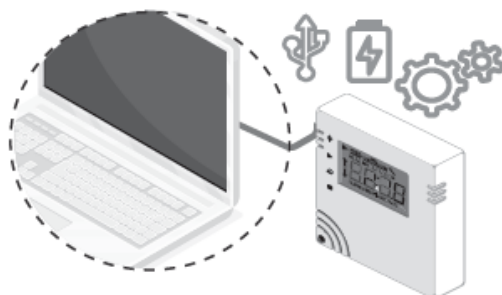
XH10 Appearance



XH11 Appearance

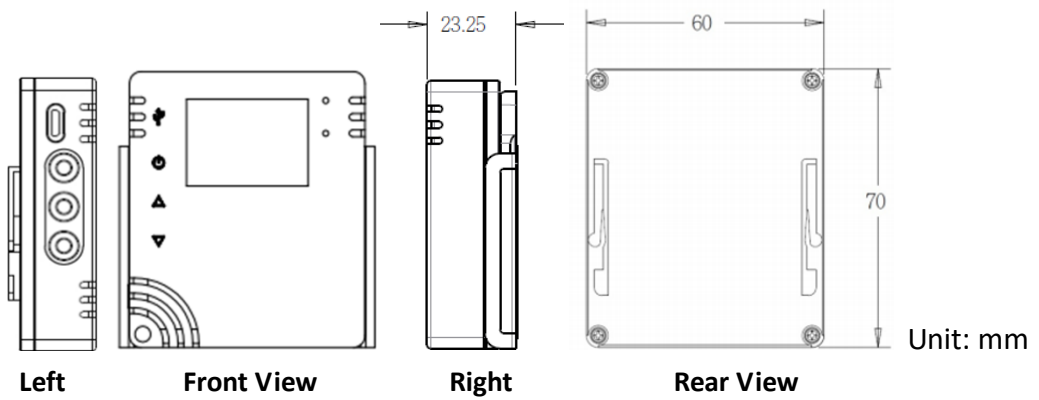


XH10/XH11 Operation with DLV software for PC via USB cable

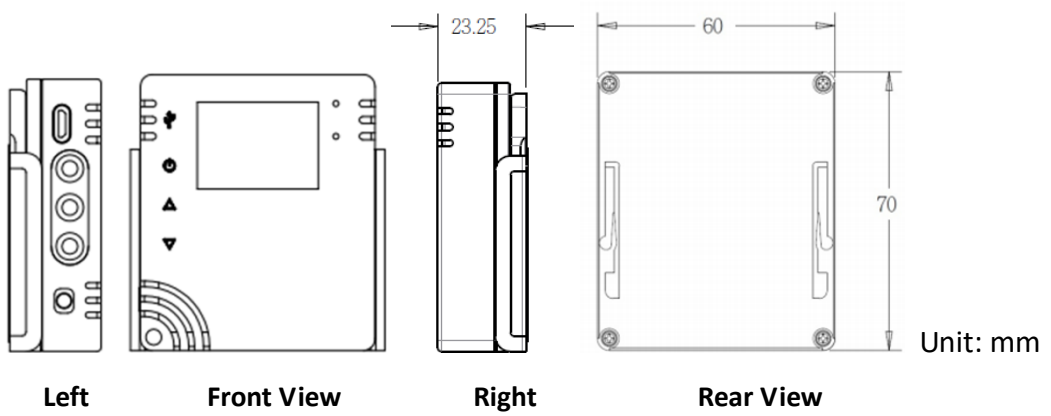


1.5 Appearance and Dimension

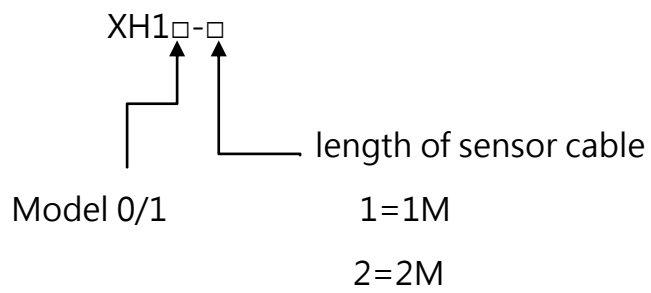
XH10



XH11

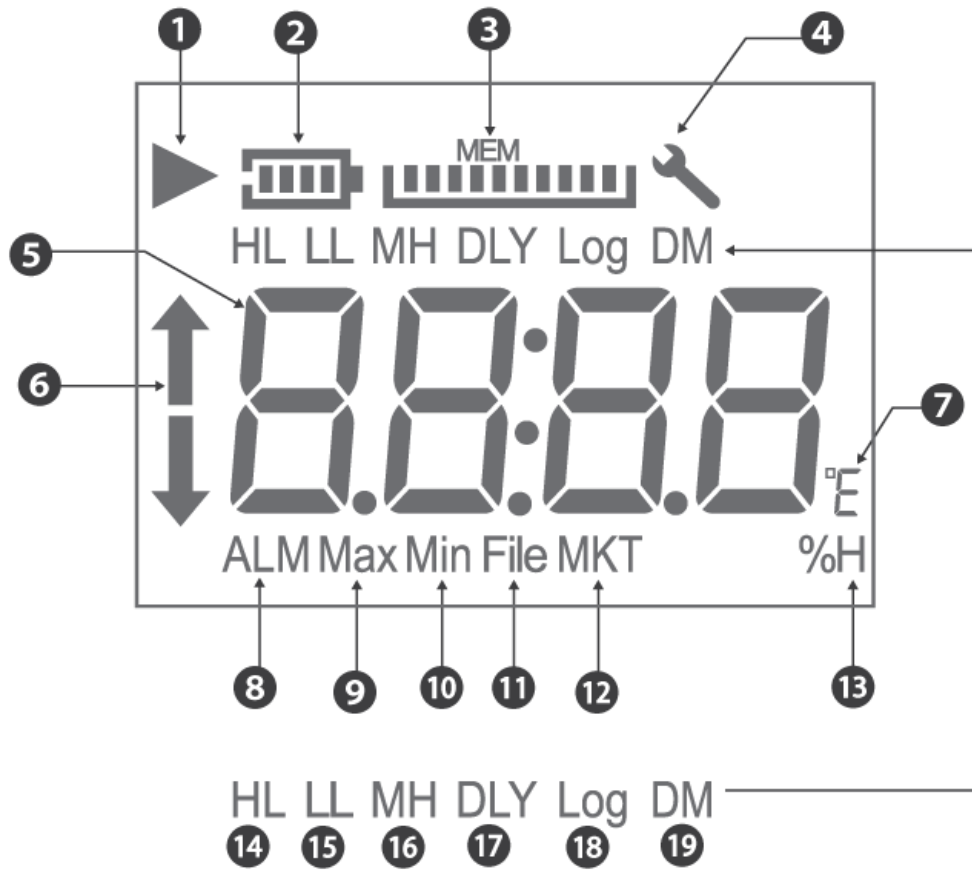


1.6 Ordering Code








- A. Internal sensor module: XH10-0 (No Sensor cable)
- B. External sensor module: XH11-1 (Sensor length 1M)
 XH11-2 (Sensor length 2M)

1.7 LCD Display





Icon/ Symbol:

- (1) Recording icon: The symbol  indicates that the unit is recording. When the logging is complete, it disappears
Flashing icon: Flashing  indicates a delayed start or the recording function will start when the timer matches the configuration settings.
- (2) Battery icon: Battery capacity displays as a scale in proportion
- (3) MEM: Remaining memory capacity displayed in proportion
- (4) The wrench  indicates errors occurred, disappears when confirms no error occurred
- (5) Real-time temperature or humidity info
- (6) ALM bar: When temperature/humidity value reaching the alarm triggering condition,
HL  (High Limit) or LL  (Low Limit)
- (7) Temperature unit °C/ °F
- (8) ALM: When temperature/humidity value reaching the alarm triggering condition
- (9) Max: Maximum temperature or humidity value
- (10) Min: Minimum temperature or humidity value
- (11) MKT: Mean Kinetic Temperature calculation
- (12) File: Total number of files
- (13) %H: Relative Humidity %
- (14) HL: High Limit
- (15) LL: Low Limit
- (16) MH: month/ hour
- (17) DLY: Delay Time
- (18) Log: Log interval
- (19) DM: date/ minute

*Please refer to the chapter, Operation > Configuration & Data Analysis.

Abbreviations:

The LCD display is for read only operation. The display will show model number as well as firmware version for up to 2 seconds respectively after a reset operation. The XH logger firmware release version will be a three-digit formatted numerical display as "A.B.C". The below are the abbreviations of the symbols on the LCD display.

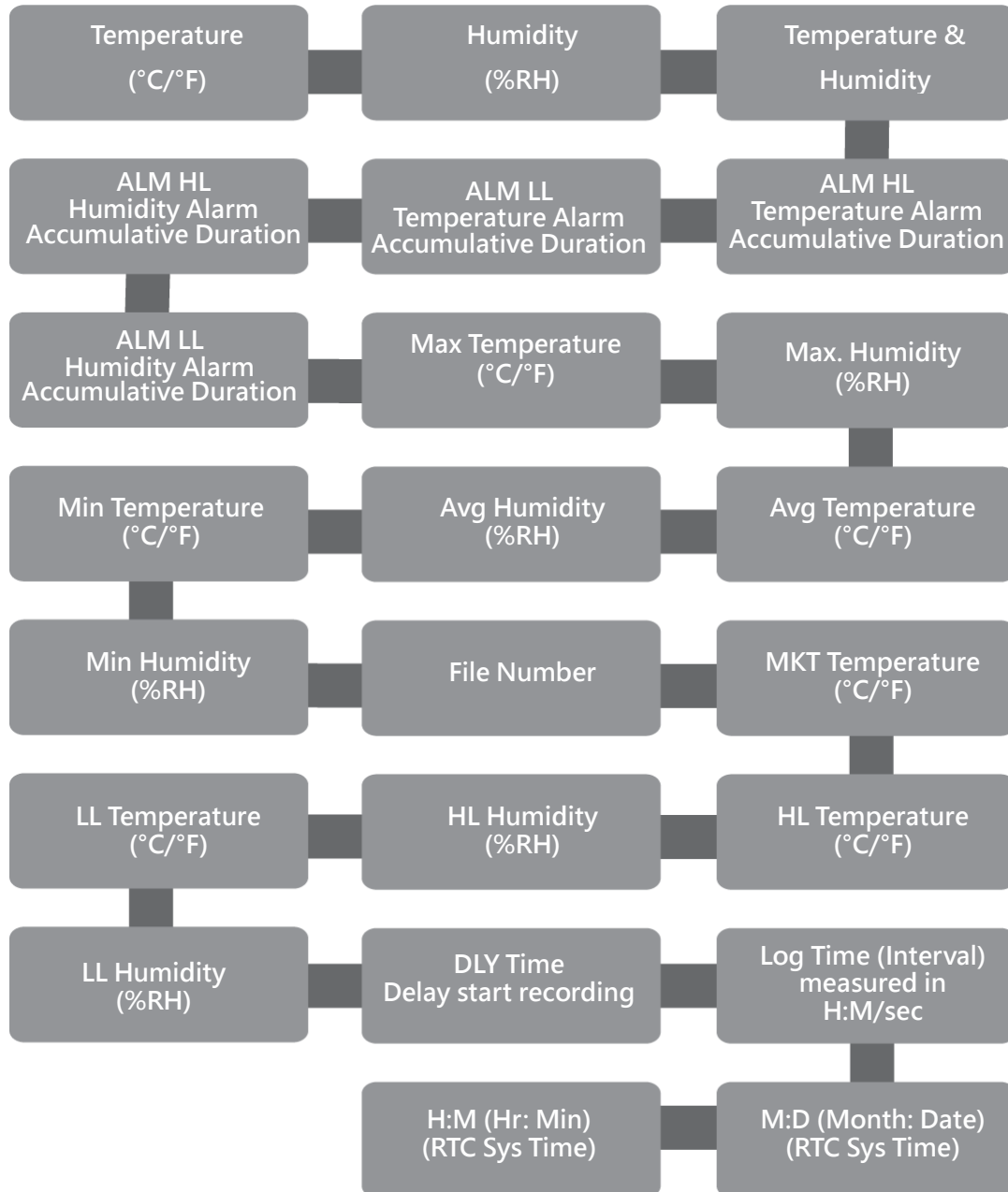
- (1) HL: High Alarm Limit set by PC software.
- (2) LL: Low Alarm Limit set by PC software.
- (3) M D: Month and Date
- (4) H M: Hour and Minutes
- (5) DLY: Delay timer before start logging, if any. Shown in H:M setup from PC.
- (6) Log: means logging interval measured in "H:M". If the logging interval is than or equal to 1 minute, then "H:M" will be shown. If the logging interval is less than 1 minute, then "H:M" won't be seen and it displays total seconds instead.
- (7) ALM: Indicate the accumulative alarm duration. It will be displayed in HH:MM (99:59) format. If the duration is more than 99:59, HH: HH will be shown instead. A user can use PC software to know further alarm duration accuracy in seconds or alarm information when HH: HH is reached.
- (8) : this means there is an alarm over HL.
- (9) : this means there is an alarm below LL.
- (10) MAX and MIN show the current logging highest and lowest values on this device; it covers both temperature and humidity.
- (11) File: specifies the file number of the current file stored in the flash memory. The total log space available in the system is 200,192 logs, which can be used for up to 100 log files. The size of each file (up to 79,872 records) depends on the user's record.
- (12) MKT is the mean kinetic temperature via an MKT formula.
- (13) %H the display unit for humidity.
- (14) °E can be set to °C or °F via PC software.

1.8 Scrolling Sequence

The LCD display will cycle thru the following value from item 1 to item 23. The user can set the scrolling display or the most used item as the “Home” display via PC software. Once the user has not touch LCD function for eight seconds, the display will jump to the “Home” display.

The parameters of items 8, 9, 12, and 23 are set by PC. The rest of the items are dynamically generated by the device.

- (1) Temperature (°C or °F)
- (2) Humidity (%RH)
- (3) Temperature & Humidity
- (4) ALM HL Temperature time (99:59, HH:MM format)
- (5) ALM LL Temperature time (99:59, HH:MM format)
- (6) ALM HL Humidity time (99:59, HH:MM format)
- (7) ALM LL Humidity time (99:59, HH:MM format)
- (8) MAX Temperature (°C or °F)
- (9) MAX Humidity (%RH)
- (10) MAXMIN Avg. Temperature (°C or °F)
- (11) MAXMIN Avg. Humidity (%RH)
- (12) MIN Temperature (°C or °F)
- (13) MIN Humidity (%RH)
- (14) File Number
- (15) MKT Temperature (°C or °F)
- (16) HL Temperature (°C or °F)
- (17) HL Humidity (%RH)
- (18) LL Temperature (°C or °F)
- (19) LL Humidity (%RH)
- (20) DLY time (Delay start recording time)
- (21) Log Time (Logging Interval) measured in H:M or seconds
- (22) M:D (Month: Date for real-time clock)
- (23) H:M (Hour: Minute for real-time clock)



1.9 LCD MEM Display

It shows memory consuming percentage on the current file with respect to the maximum available capacity of a logging file (i.e., 200192 readings limitation). Each bar in the MEM icon represents 10% (20019 records) of the maximum capacity of a file. For example, if there are only 4 bars on the MEM display, it means the total memory consumption of the current file is approximately 60%. When the memory is full and cannot continue to record, the user can clear all memory data through the Data Logger Viewer software.

1.10 Memory Management

XH10/XH11:

The total memory of the system is 200,192 records, which can be used for up to 100 file records. The size of each file (up to 79,872 records) depends on the user's record. The management of memory space for XH10/11 is as follows.

- ❖ File mode: single mode
- ❖ Record up to 79,872 records in a single file and stop recording

Once 100 files are used up for logging, the system will automatically stop recording. Before stop logging, the system will issue an alarm when the available files are less than 5. Please download and back up the file records from the Data Logger Viewer software, and then execute the file deletion.

When the total number of records reaches 200,192, the system will automatically stop recording. (Before stop logging, the system will issue an alarm when the available memory space is less than 5%), the recording cannot be started because the memory is full. Please download and back up the file records from the Data Logger Viewer software, and then execute the file clearing.

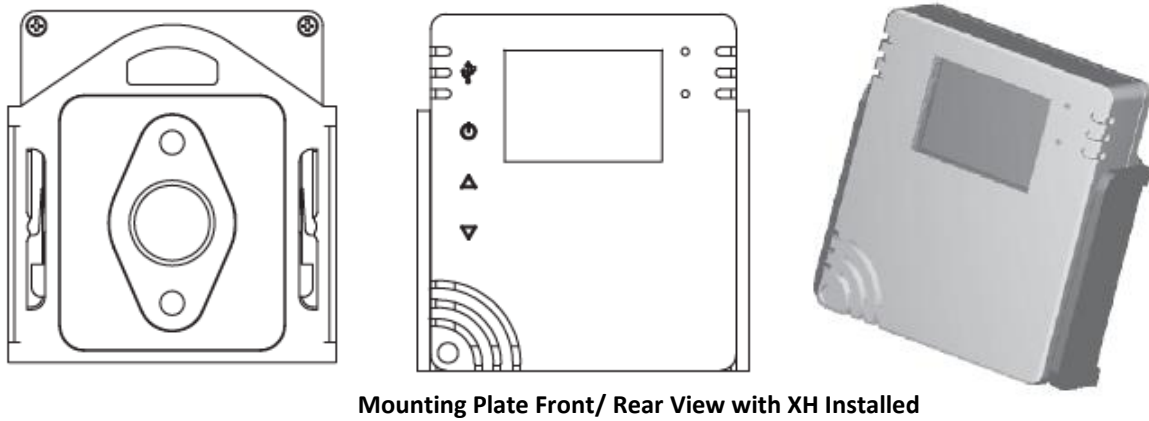
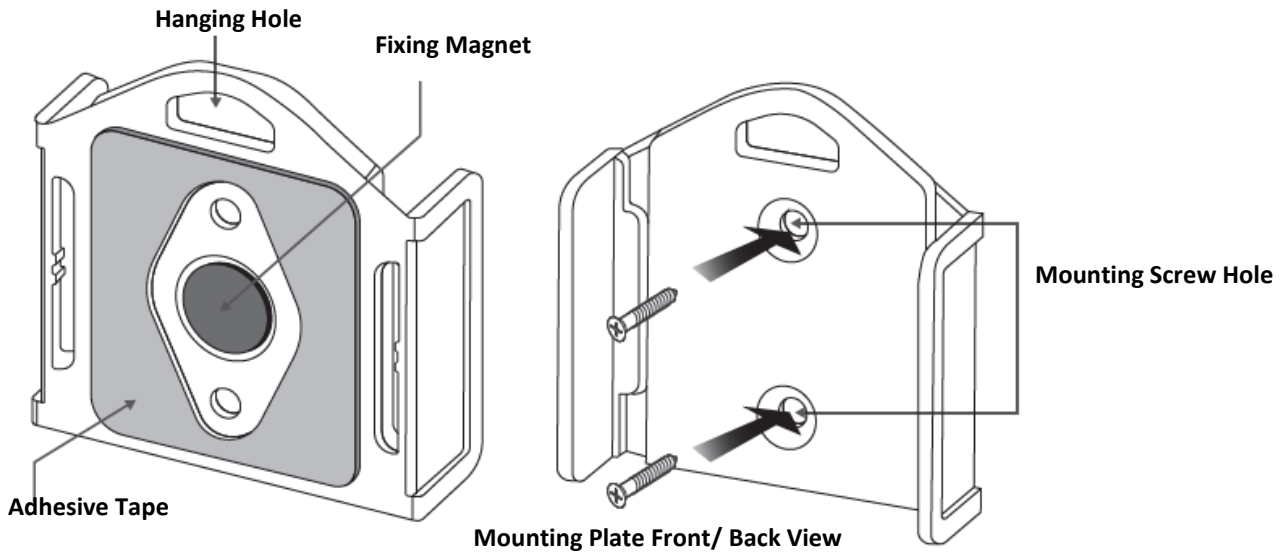
1.11 Memory Clear

- (1) Before the user updates the configuration to the device through the Data Logger Viewer software, if the memory space is insufficient for logging, the system will prompt the user that all the existing file data will be deleted in the device before prompting to start recording.
- (2) The clear data function from Data Logger Viewer software can clear all files and records.

1.12 Installation of Mounting Plate

The mounting plate can be mounted by one of the below options.

- ❖ Hang it on a screw with the hanging hole
- ❖ Screw it by using the mounting screws
- ❖ Fix it with any metal base by using the magnetic base on the mounting plate
- ❖ Fix it by peeling the adhesive sticker on the mounting plate



2 XH10/XH11 Data Logger Viewer (DLV) Operation

2.1 Getting Started

- ❖ Unpack the data logger and insert the battery, then install it where you want it to operate. The user can use the magnets, double-sided tape or screws of the wall mounting plate to secure the data logger.
- ❖ Use one micro-USB to USB cable to connect both ends to the device and computer.

2.2 Configuration & Data Analysis

Download the Data Logger Viewer software from the manufacturer’s website. The PC Software can be used for configuration of the data logger, viewing and analysing of historical data.

2.2.1 System Requirements

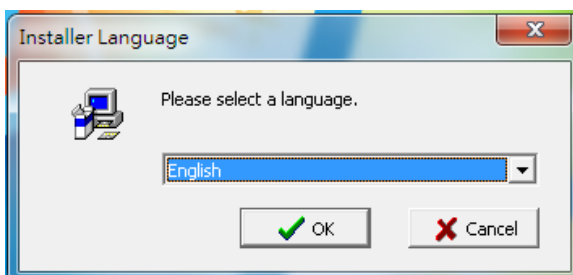
Item	Minimum Requirements for XH10/11
System	IBM PC compatible computer
Operating System	Windows 10 or above Windows 7 Service Pack 1 or above using USB-cable
Memory	1 GB
Hard Disk	50 GB Free Space on the hard disk
Communication Ports	Micro USB Port

2.2.2 Installation

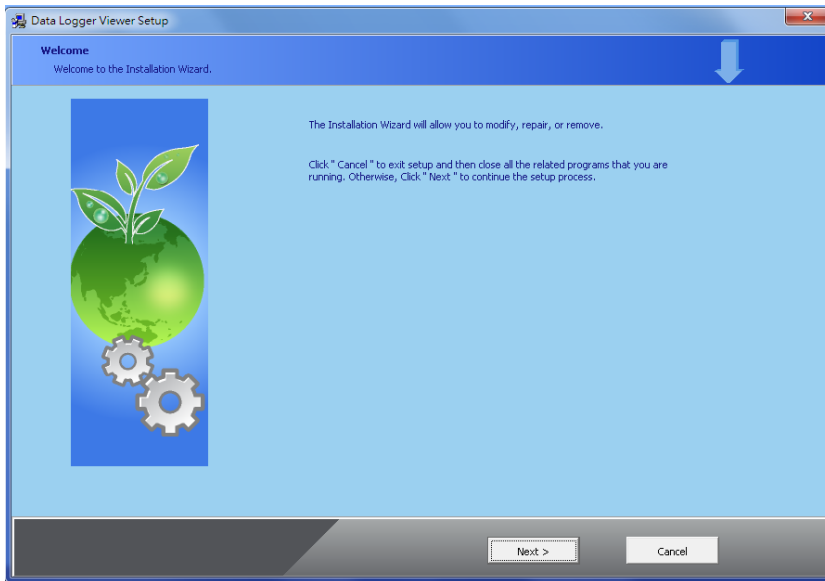
1. Download the Data Logger Viewer software form the manufacturer’s website.
<https://www.brainchildtw.com/webls-zh-tw/download/download273.html>
2. Double click " Setup" wizard



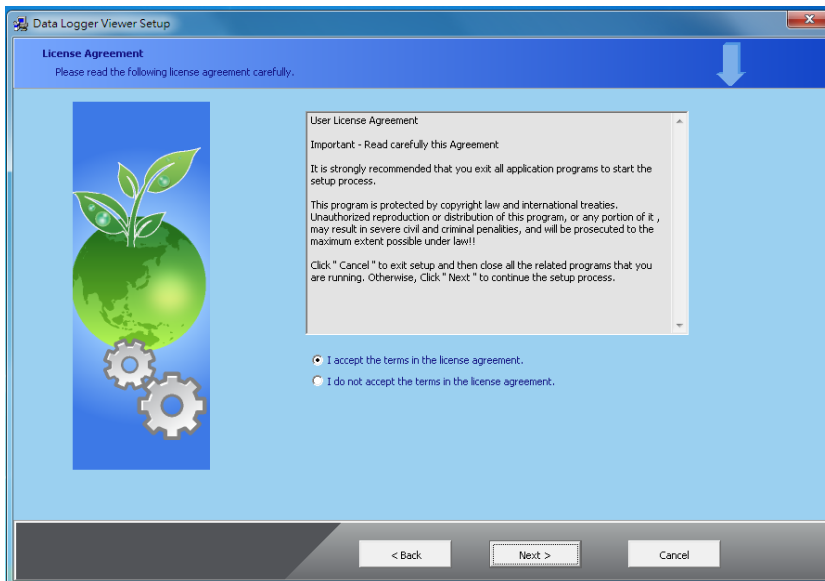
3. Select the language for installation, " English" then click "OK"



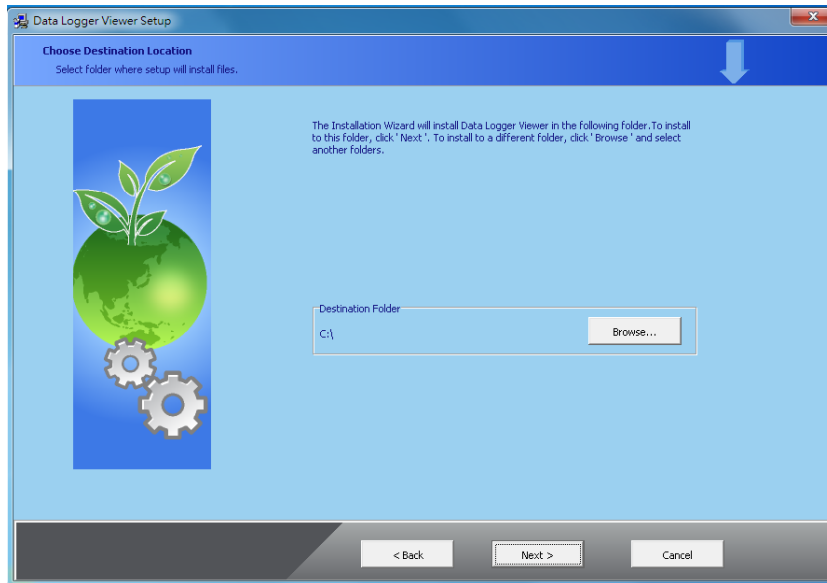
- 4. Click "Install".
- 5. Click "Next".



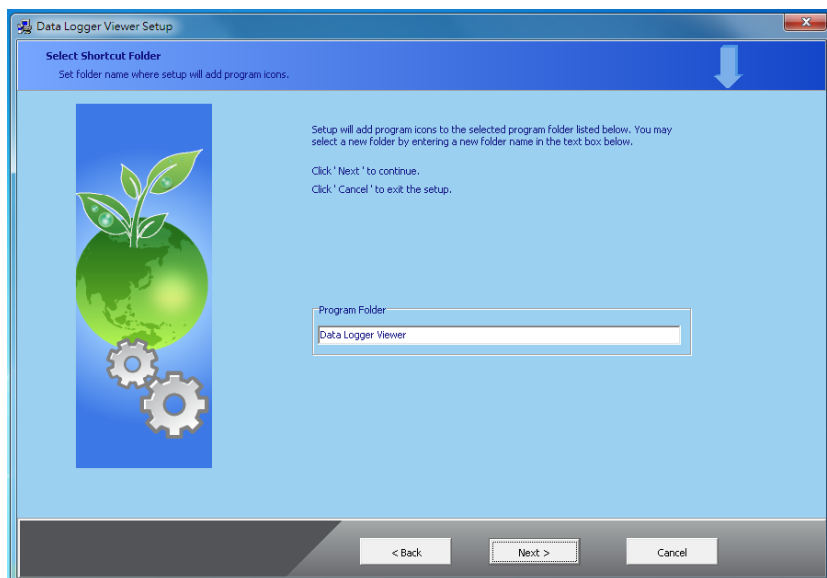
- 6. Select accept and click "Next"



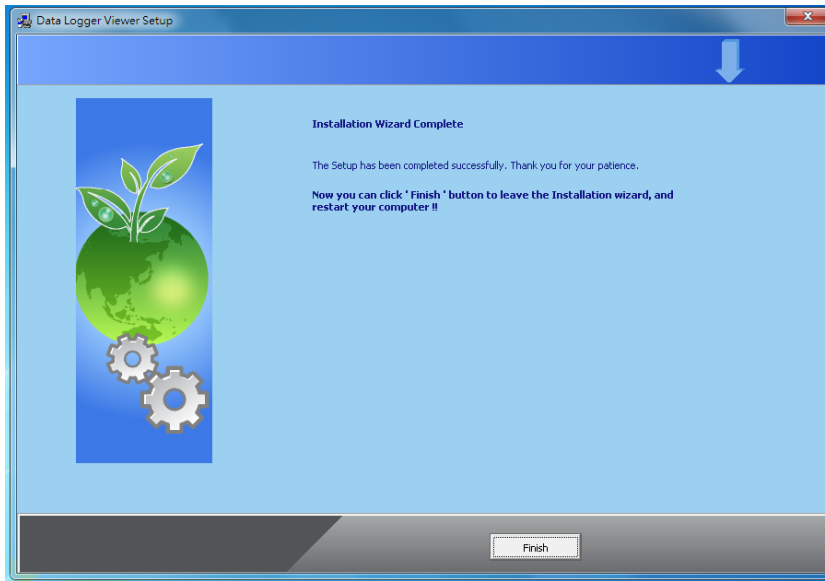
- 7. Browse to the location you want to install and click "Next"



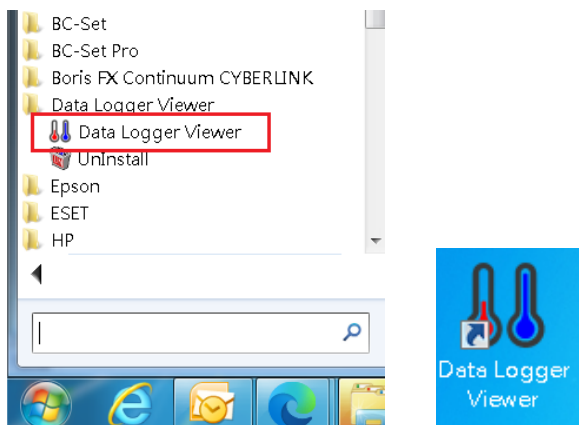
8. Click "Next"



9. Click "Finish"




10. After installation is successful, the shortcut for Data Logger viewer software will be created on the desktop. Or search the program from the start menu.



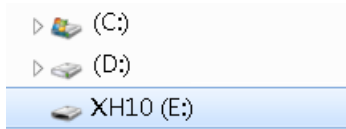
2.2.3 Data Logger Configuration Settings

Execute Application Program

1. Ensure the battery is properly installed.
2. Insert the data logger into an available USB port on your PC.
3. Double click on the Data Logger Viewer icon  on Windows™ desktop to download the XH logger configuration and data to the software for viewing historical data, data analysis, graphic display, configuration settings and other functions.

2.3 Data Logger Analysis

1. Insert the data logger into an available USB port on your PC. Double click on the Data Logger Viewer icon




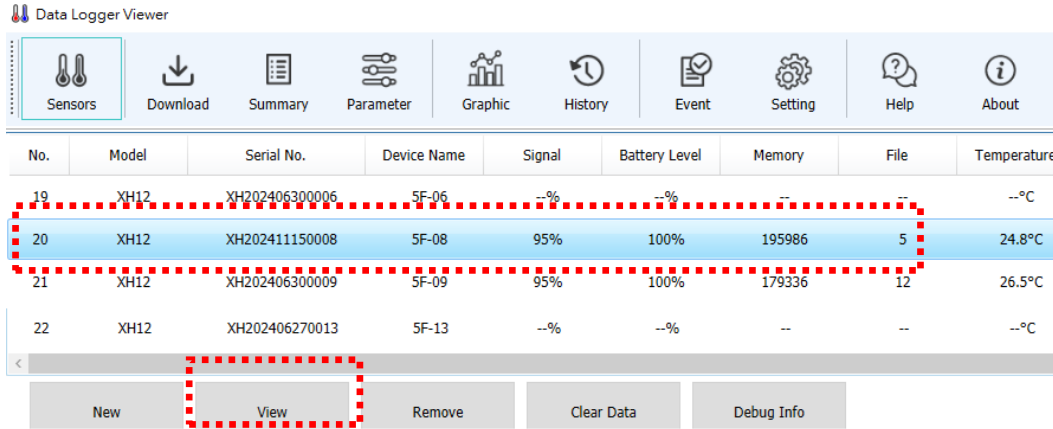
2. After opening the program, the software will add devices, provide download and analysis of recorded data, view previously saved data in graphical format, and check the current status of the attached data logger (including serial number).

The screenshot shows the 'Data Logger Viewer' application window. It features a menu bar with icons for Sensors, Download, Summary, Parameter, Graphic, History, Event, Setting, Help, About, and Exit. Below the menu is a table listing 12 devices. The table columns are: No., Model, Serial No., Device Name, Signal, Battery Level, Memory, File, Temperature, Humidity, Device status, and Connection status. The 12th device (No. 12) is highlighted in grey, indicating it is selected. Below the table are buttons for 'New', 'View', 'Remove', 'Clear Data', and 'Debug Info'.

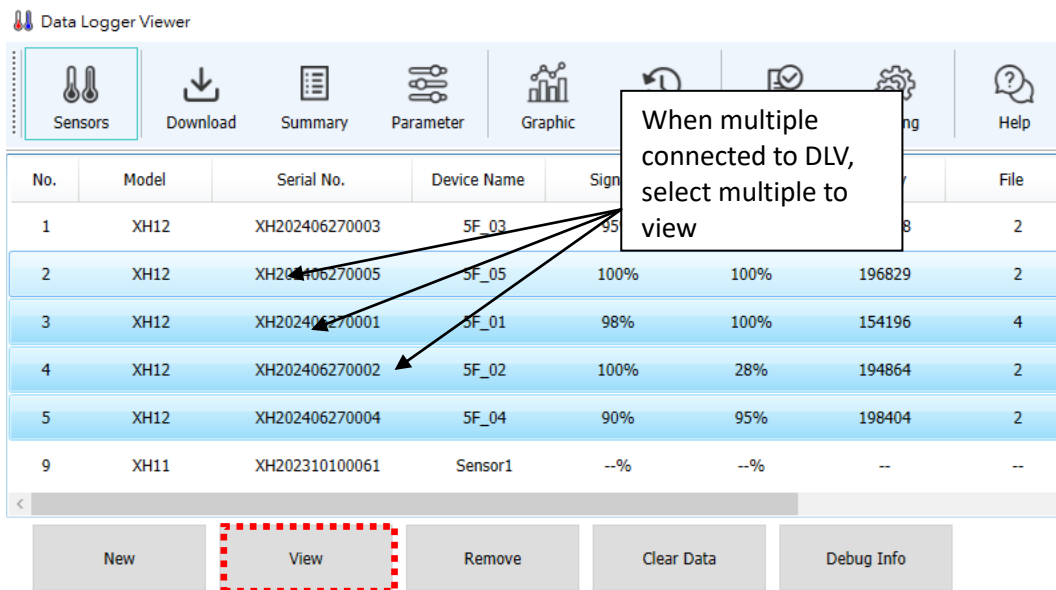
No.	Model	Serial No.	Device Name	Signal	Battery Level	Memory	File	Temperature	Humidity	Device status	Connection status
1	XH11	XH202401040008	8F:	--%	--%	--	--	--°C	--%RH	--	Disconnected
2	XH10	XH202205310158	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
3	XH12	XH202404291207	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
4	XH12	XH202404301202	WiFi@No02	--%	--%	--	--	--°C	--%RH	--	Disconnected
5	XH12	XH202404281208	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
6	XH12	XH202404300837	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
7	XH12	XH202405141207	Sensor1	100%	100%	40448	2	27.3°C	60.9%RH	Normal	Connected (WiFi)
8	XH13	XH202401251303	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
9	XH12	XH202401240012	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
10	XH12	XH202405141208	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
11	XH12	XH202401250012	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
12	XH12	XH202405141202	1202	100%	100%	199105	3	29.5°C	61.3%RH	Normal	Connected (WiFi)

2.3.1 Sensors

1. Click the sensors icon  to display the device list and related connection information. Double click the device or click "view" to enter the summary.




2. Select the device and click on "Remove", the device information of the sensor will be deleted.
3. Select the device and click on "Clear", all files and records in XH logger will be cleared.

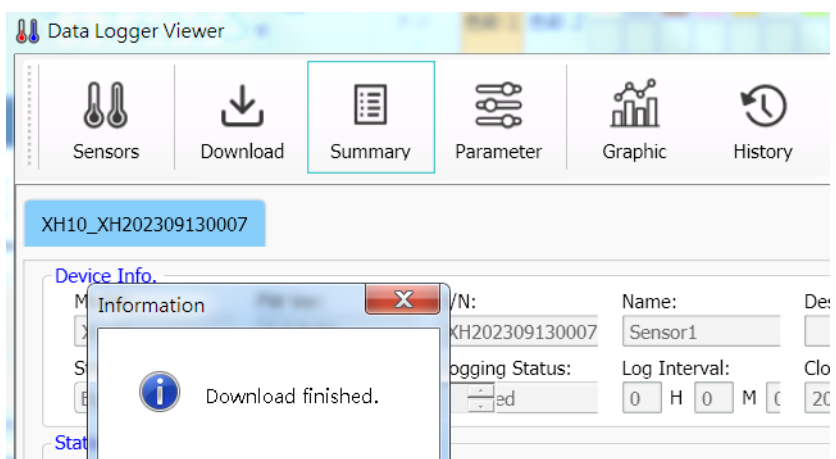
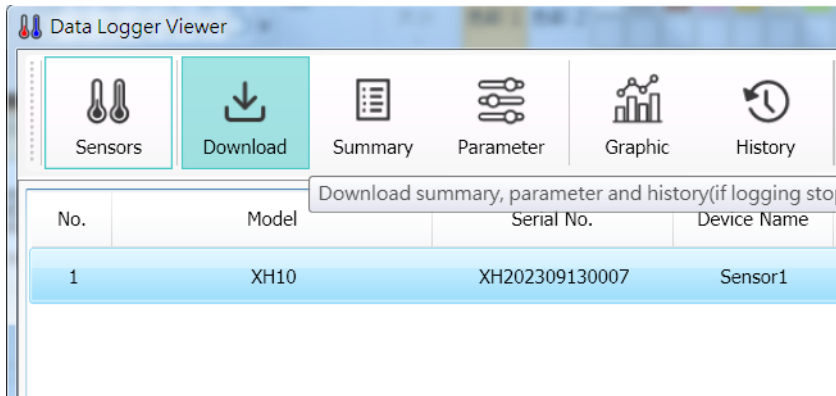


Notice!

When there are multiple XH loggers connected to Data Logger Viewer, press and hold the key "Ctrl" and click on the device you want to configure or view the data, then click on "View" tab on the bottom.

2.3.2 Download

1. Select the device and click on the  icon to download the data from data logger to PC. The software will prompt the user for the confirmation to download. The user can choose Yes to download the data and No to cancel the operation. Once the data downloaded from data logger, the software informs the user with successful message.



2.3.3 Summary



Here users can view device statistics, configuration information such as temperature, humidity and alarms. The fields from top to bottom are

1. Device Info includes Model, Firmware Version, S/N, Name, Description, Start Mode, Start Delay, Logging Status, Log Interval, Clock and Time Zone.
2. Statistic Info includes Total memory, Current logs, Start time, End time, Elapsed time, MKT, Stop mode Temperature and Humidity Maximum value, Minimum value, Average value and First alarm.
3. Alarm Info includes information about alarms.
4. On the right side, Stop Logging is used to stop the current recording mode of the XH logger, and Load can be used to reload the configuration.

Data Logger Viewer

Sensors Download **Summary** Parameter Graphic History Event Setting Help About

XH12_XH202408090010 Target

Device Info.

Model: XH12 FW Ver: 1.3.0.41 S/N: XH202408090010 Name: SF-10

Start Mode: Immediate Logging Status: Logging Log Interval: 0 H 1 M

Statistic Info.

Total Memory: 79872 Current Logs: 3936 Start Time: 2024-08-09 15:52:13 End Time: 2024-08-12 09:27:00

MKT(°F): 84.9 Stop Mode: N/A

Temperature(°F) Maximum: 87.8 Minimum: 78.9 Average: 84.7 First Alarm: N/A

Humidity(%) Maximum: 69.5 Minimum: 51.3 Average: 66.5 First Alarm: 2024-08-10 02:50:00

Alarm Info.

Sensor	Type	SP	Duration	Times	Status
Temp.	HHL	N/A	N/A	N/A	N/A
Temp.	HL	N/A	N/A	N/A	N/A
Temp.	LL	N/A	N/A	N/A	N/A
Temp.	LLL	N/A	N/A	N/A	N/A
Humi.	HHL	N/A	N/A	N/A	N/A
Humi.	HL	65.0	N/A	7	Alarm
Humi.	LL	N/A	N/A	N/A	N/A
Humi.	LLL	N/A	N/A	N/A	N/A

Selected All

Stop Logging

Load

2.3.4 Parameter



The device parameters can be configured in the parameter tab. Users can set the parameters of the device not only data logging, alarms and also save the input or output data with other configuration information.

*** Note:

Notice! The device parameters can be configured in the parameter tab. Users can set the parameters of the device not only data logging, alarms and also save the input or output data with other configuration information.

XH10/11:

The screenshot shows the 'Data Logger Viewer' software interface. The 'Parameter' tab is selected, displaying configuration options for device 'XH11_XH202406300011'. The interface is divided into several sections: 'Device Info' (S/N, Name, PDF Language, Sensor, Time Zone, Desc., Password, Temperature Unit, Offset), 'Data Logging' (Start Mode, Start Delay, Start Time, Stop Mode, Estimated recording time, Log Interval), and 'Alarm' (Temperature and Humidity thresholds). On the right side, there are buttons for 'Default', 'Save', 'Copy', and 'Paste'. At the bottom, there are 'Export' and 'Import' buttons. Red boxes in the original image highlight these specific buttons.

- Copy/ Paste Tab– Support shortcut for fast copying parameters, and pasting to the XH logger connected with Data Logger Viewers. Select all to paste all parameters of several XH loggers.
- Export/ Import Tab– Export all settings and import/paste settings to other XH logger
- Reset to Default: Click on the factory value on the right to restore the factory default parameter value and save the parameter.

The fields from top to bottom are

1. Device content - S/N, Time zone (UTC), Battery life, Battery level (%), Name, Desc., PDF language, Password (download data or PDF use), Sensor, Temperature unit (Celsius or Fahrenheit), Offset (Temp.) and Offset (Humi.).
2. Data Logging - Start Mode (Immediate, Button, Specified Time), Start Delay (00:00), Start-time, Stop mode (None, Button, Specified time), End time, Estimated recording time (D/H/M), Recording interval (H/M/S), Log-able time, File mode (Single), Circular logging (No).

Recording interval (H/M/S) or (H/M):

XH10/11:

Estimated recording time:	Log Interval:
0 ▾ D 8 ▾ H 0 ▾ M	8 ▾ H 0 ▾ M 0 ▾ S

3. Alarm temperature and humidity set point and delay time. In the lower bottom, Export and Import icons can back up the existing parameters or read the parameters of the past backup.
4. Tool Tab
 - Default: Click on the factory value on the right to restore the factory default parameter value and save the parameter.
 - Copy/ Paste Tab– Support shortcut for fast copying parameters, and pasting to the XH logger connected with Data Logger Viewers. Select all to paste all parameters of several XH loggers.
 - Export/ Import Tab– Export all settings and import/paste settings to other XH logger

2.3.5 Graphic



Users can view temperature and humidity records at different times here.

"Trend" Graphic displays recorded data

"Values" displays all recorded data, including date, time, temperature, humidity

"Summary" includes the configuration of the logging file and alarm log etc.

	Date/Time	°F	%RH
1	2024-08-08 17:09:50	80.3	56.5
2	2024-08-08 17:59:50	80.8	62.7
3	2024-08-08 18:49:50	81.9	62.4
4	2024-08-08 19:39:50	82.6	62.2
5	2024-08-08 20:29:50	82.8	62.2
6	2024-08-08 21:19:50	83.2	62.2
7	2024-08-08 22:09:50	83.4	62.3
8	2024-08-08 22:59:50	83.5	62.3
9	2024-08-08 23:49:50	83.7	62.6
10	2024-08-09 00:39:50	84.0	63.5
11	2024-08-09 01:29:50	83.9	63.7
12	2024-08-09 02:19:50	84.3	63.9
13	2024-08-09 03:09:50	84.4	64.2

Trend area:

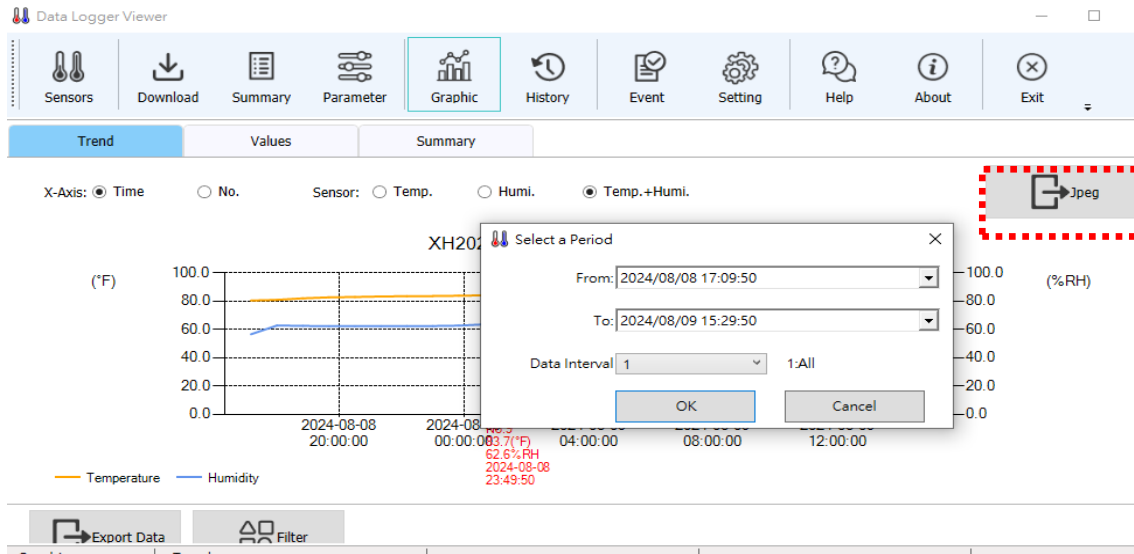
"X-axis" expands graph by timeline or item"

"Sensor" displays temperature, humidity or temperature and humidity

Lower area:

"Export data" to export file data in PDF or Excel format to a computer

"Filter" to view the temperature and humidity data of a specific period and set the data interval 1~100 points to expand the graph"



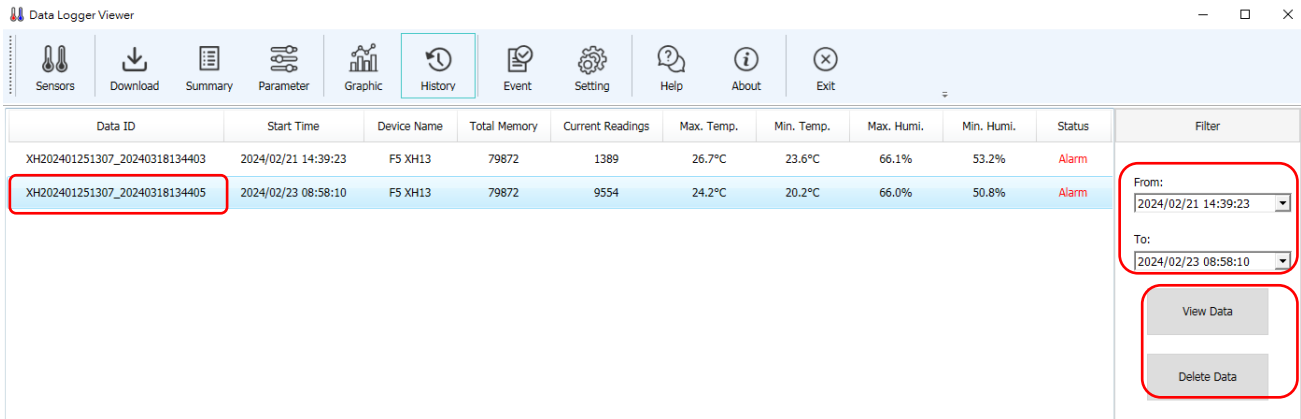
Click "Jpeg" on the upper right corner to export trend.



Click "Jpeg" on the upper right corner to export trend.

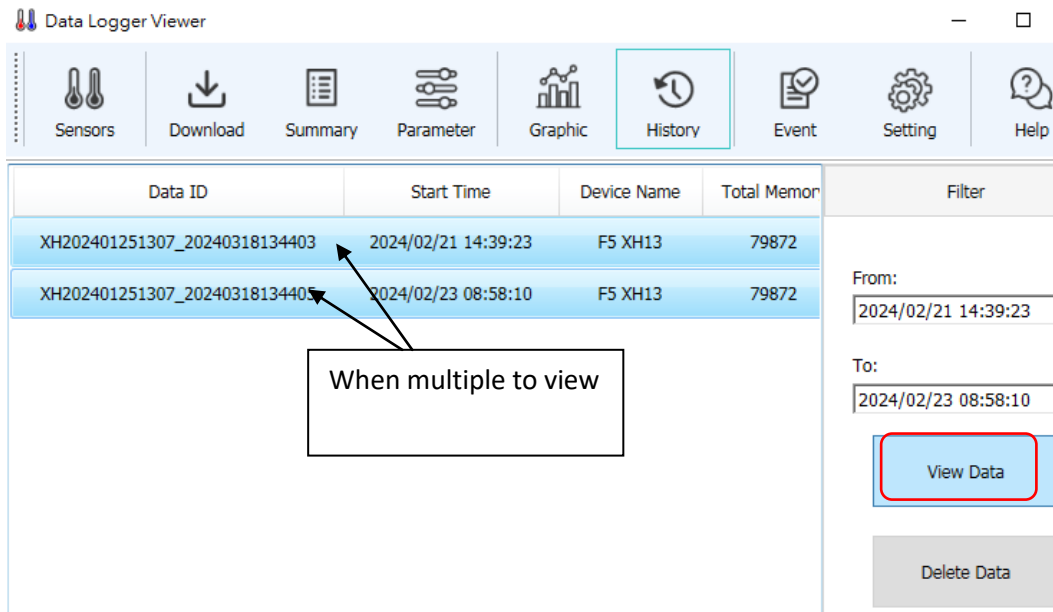
2.3.6 History

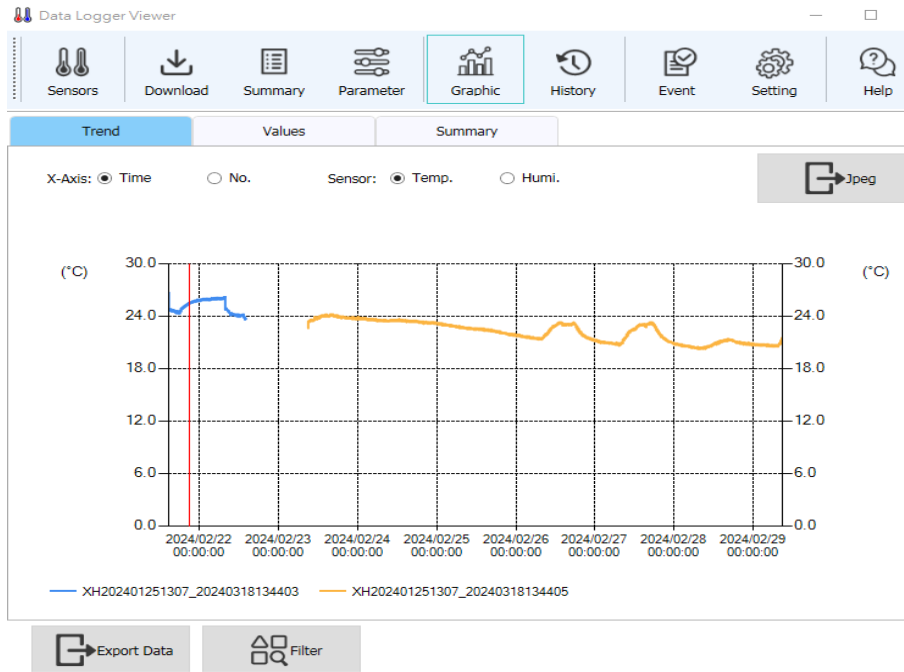
Click on the data you want to view in the file list, then click View Data or double-click the Data ID field to view the historical data. If you click on Delete Data, it will go to the chart to browse the historical data, and if you click Delete Data, the file will be deleted. Select the data file to be viewed and select the <From> and <To> period of the data on the right side and click view data to view the data.



Multiple Data View

Up to 10 sets maximum, select multiple data to compare by pressing Ctrl + ID name row.





2.3.7 Event



Click on Event to view a log of event, such as login and logout times. The historical events can be filtered using the <From> and <To> period, Operation type and User selection on the right side.

Date/Time	User	Operate/Event
2024-08-12 09:41:16	System	Device connected
2024-08-12 09:41:05	System	Device connected
2024-08-12 09:41:04	System	Device connected
2024-08-12 09:41:04	System	Device connected
2024-08-12 09:41:03	System	Device connected
2024-08-12 09:40:53	System	Device disconnected
2024-08-12 09:40:53	System	Device disconnected
2024-08-12 09:40:52	System	Device disconnected
2024-08-12 09:40:52	System	Device disconnected

Filter

From: 2024/08/09 14:46:07

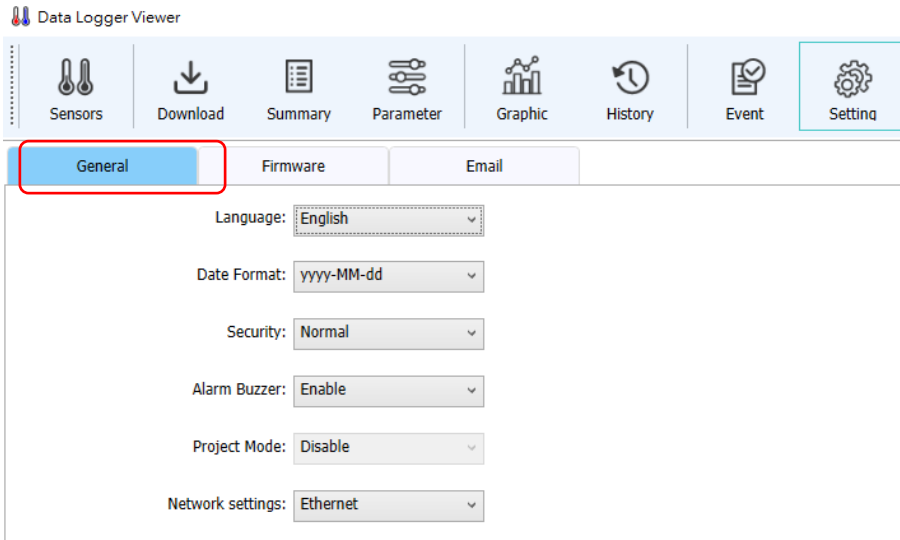
To: 2024/08/12 09:41:16

Operate Type:

- All
- Login
- Logout
- Default Parameter
- Change Parameter
- Save Parameter
- Paste Parameter
- Export Parameter
- Import Parameter

2.3.8 System Configuration

1. Click the icon Setting on the top. The General tab allows the user to configure the system language, date format, security mode and the alarm buzzer.
2. The date format can be selected from yyyy/MM/dd, yy/MM/dd, dd/MM/yyyy, dd/MM/yy, yyyy-MM-dd, yy-MM-dd, dd-MM-yyyy, dd-MM-yy.

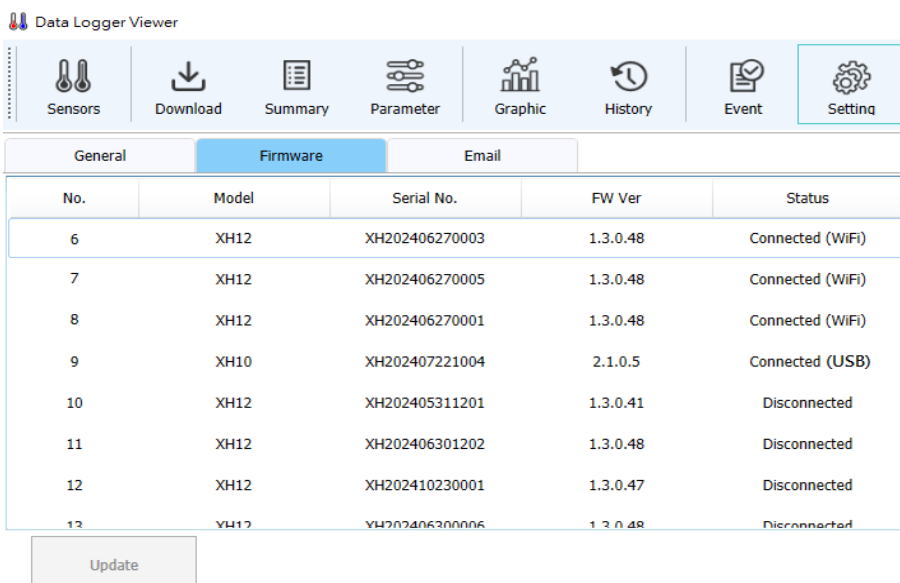


2.3.8.1 Firmware Update

In the device list, you can browse the firmware version number of the device, select the device and click Update to update the firmware.

Please download the latest firmware from the website of the original manufacturer.

USB connected update for XH10/XH11



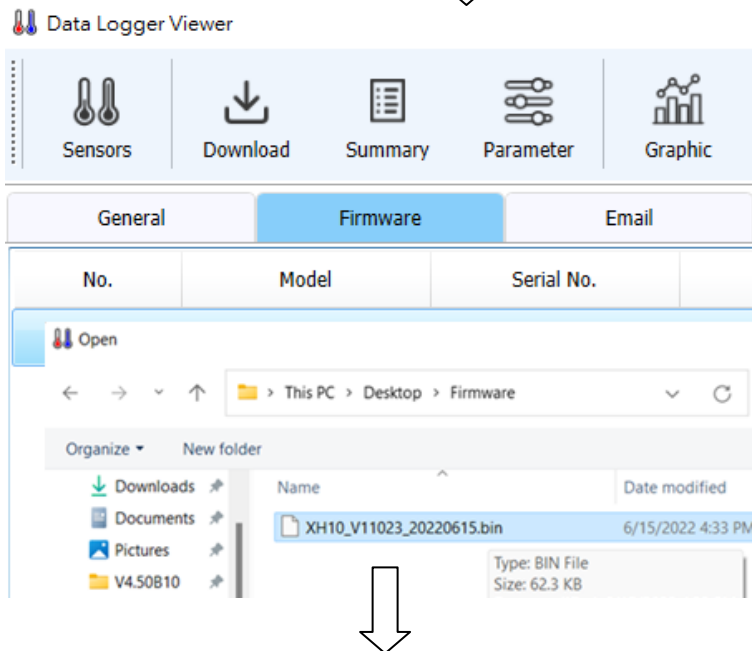
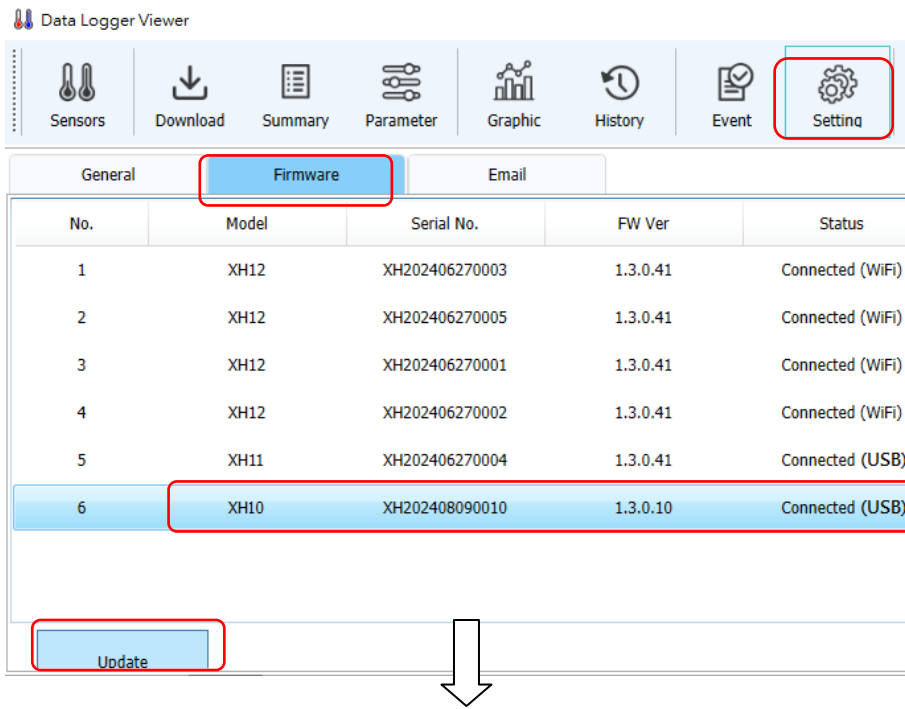
Update XH10/XH11 (USB connected)

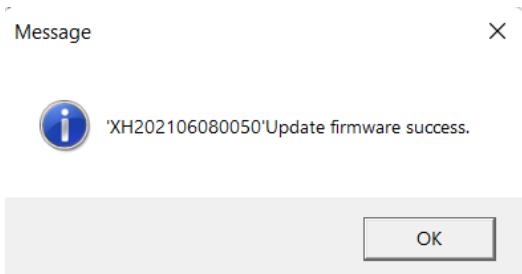
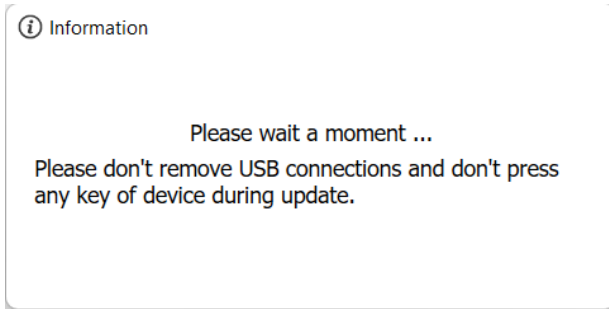
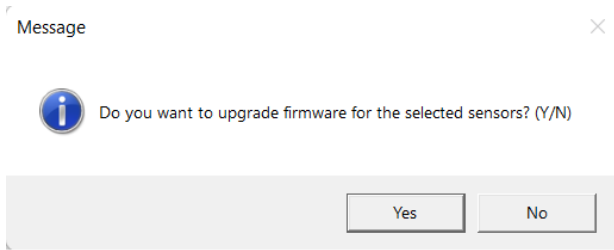
Firmware Update procedure as follows:

- Connect and link with Data Logger Viewer software via micro USB port.
- Connect and link with Data Logger Viewer (DLV) software.
- Open DLV ->"Setting"-> "Firmware" -> Click the device (USB Connected) to be updated ->Click the Update button ->Select the firmware file *.bin -> "Yes" -> "Ok" -> complete the firmware update.

*** ⚠Note:

Notice! Do not disconnect the device or press any button until the firmware update is complete.






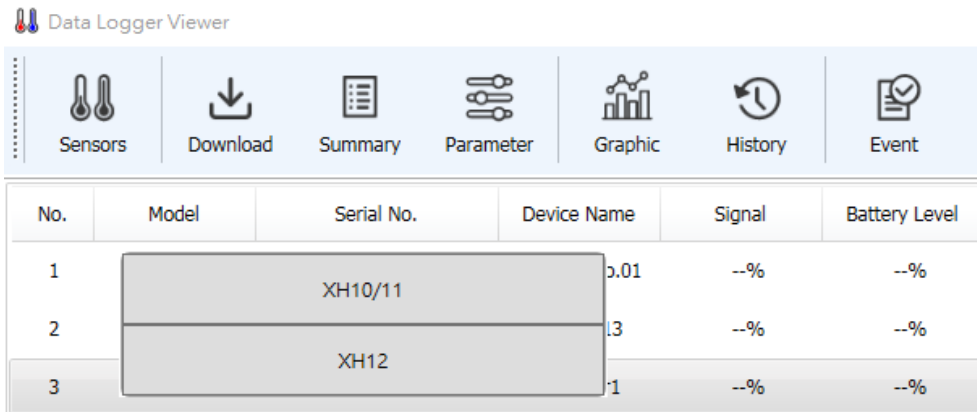
Data Logger Viewer

Sensors Download Summary Parameter Graphic History Event Setting

General		Firmware	Email	
No.	Model	Serial No.	FW Ver	Status
1	XH12	XH202406270003	1.3.0.41	Connected (WiFi)
2	XH12	XH202406270005	1.3.0.41	Connected (WiFi)
3	XH12	XH202406270001	1.3.0.41	Connected (WiFi)
4	XH12	XH202406270002	1.3.0.41	Connected (WiFi)
5	XH11	XH202406270004	1.3.0.41	Connected (USB)
6	XH10	XH202408090010	1.3.0.41	Connected (USB)

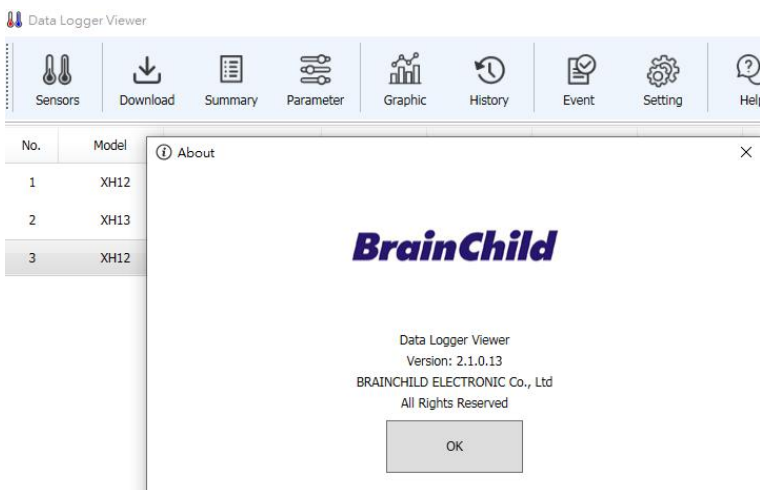
2.3.9 Help

The  icon will open a PDF file of the Data Logger User Manual and it will appear for the user to browse.




2.3.10 About

The  icon will display the software version.



2.3.11 Exit

The  will close the application.

3 Operation Mode and Keypads

3.1 XH10/XH11 Operation

3.1.1 XH10/XH11 Operation of Keypads

Action	XH10/11 three keypads
Start ▶ – Long press more than 3 sec	Start recording
SCROLL/MENU ↻ – Short press	Toggle screen/ menu views
Stop ■ – Long press more than 3 sec	Stop recording after logging
	Sleeping mode before logging
Any key ▶ / ↻ / ■ – Short press	Wakeup from sleep mode
All keys ▶ + ↻ + ■ – Press & hold	Restart the device. Press and hold 3 keypads simultaneously while connecting USB cable

3.1.2 XH10/XH11 Operation Mode

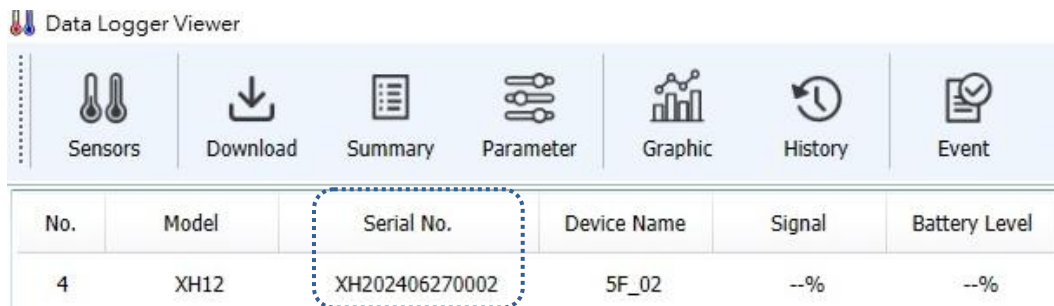
Start Recording	XH10/11 Description
Immediate (PC)	Immediate recording after configuration when setting activation from DLV
Button (XH10/11)	Long Press START ▶ key for more than 3 sec when setting the XH through DLV
	The button mode also working with <Start Delay>, long press START ▶ key for more than 3 sec. When reaching the start delay time, it will automatically start recording
Specific Time (PC)	Start recording when reaching the specific time, when setting the XH through DLV
Stop Recording	XH10/11 Description
None	Stop by DLV software
Button	Long press STOP ■ key for more than 3 sec at logging mode, or stop by DLV software
Specific Time	When reaching the stop time, it will automatically stop recording or stop by DLV software

3.2 Operation Modes

There are 3 types of operation modes available for XHLogger series. They are listed as below.

❖ USB mode (XH10/XH11)

Once the data logger plugs to a laptop/PC the USB mode will starts via USB-micorUSB data transmission cable. This operation is mainly for a device to work with PC software. The USB mode could be coexisting with Logging as well as Monitoring mode. At this mode, the laptop/PC will generate a hard drive to show the device has been plugged into it. In the meantime, a PDF file will be generated from a few seconds to a few minutes based on the size of the records on the device. For example, it will take about 5 minutes to generate a PDF file that has 79872 records. The file name will follow the format of “XH+SeriesNumber_Date Code”. The PDF files generated by XH logger can be read or downloaded through the file manager of the computer and only the last PDF file is kept. Once removed, the PDF file cannot be regenerated. Please download the complete data through the Data Logger Viewer (DLV).



❖ Logging mode

At logging mode, the green LED will be flashing every 4 seconds.

Start recording:

1. Immediate: After setting the XH logger through PC software in USB mode and unplugging the USB, it will start logging mode.
2. Button: Once the user press the ► START key for more than three seconds at monitoring mode, the logging mode starts on and the LCD ► will be flashing. The flashing logging icon indicates the device is waiting to be started to log, while ► remaining on display means recording is in process and entering the logging mode. The measuring value is saved periodically in the flash memory at logging mode according to the preset logging
3. Specified time: Set the specified time through the Data Logger viewer software first and then unplug the USB. The LCD logging icon will be flashing. Until the specified time is reached, it will automatically start the logging mode.

Stop recording:

1. None: After logging mode has started, logging mode can only be stopped from the Data Logger Viewer software. After logging mode has started, logging mode can only be stopped from the Data Logger Viewer software for XH10/11.
2. Button: Once the user press ■ STOP key for more than 3 seconds at logging mode. It will stop recording, enter the monitoring mode and ► will disappear.
3. Specified time: After logging mode starts, when the specified stop time is reached, it will automatically stop recording and ► will disappear. The logging mode can only be stopped from the Data Logger Viewer software for XH10/11.
4. Recording Delay Timer DLY: Recording Delay means that the time to start recording will be delayed by the DLY setting, and the flashing ► indicates that the unit is waiting to start recording.

❖ Monitoring mode

Once the user presses the ■ STOP key for more than 3 seconds while the device is at logging mode, the monitoring mode starts, stops recording and ► will disappear. Red LED will be flashing every 4 seconds and the LCD screen will still show the current measuring value of temperature and humidity, but it won't be saved in flash memory, with a sampling rate at 10 seconds.

If a device's LCD is not at the home screen, i.e., (at alarm screen ALM), the screen will stay up to 8 seconds, and then changes itself to the home screen to show the current measurements.

The LED screen can be set displayed info from the Data Logger Viewer software for XH10/11.

❖ Shutdown mode

The shutdown mode can only be entered via a device is at monitoring mode. Once the user press ■ STOP key for more than three seconds while the device is in Monitoring mode, the device enters the shutdown mode. This will turn off LCD, LED, and all circuits except real-time clock (RTC) function at the device. If the device is operating under this mode, the battery life can exceed years. Since this is the most power-saving mode for the device, only the RTC circuit is running and all other features will be shut down. After replacing the battery and restarting the power supply, the device must be connected to the computer. After the Data Logger Viewer updates the date and time, the user can use the logging function for XH10/11. The user can press any key to bring the device back to monitoring mode. If the unit does not respond, perform a system restart.

❖ System restart

If somehow, a device can't respond to a user, the user can press <START>, <SCROLL> and <STOP> three keys for more than 1 second simultaneously and then release, the system will restart. If you start it too fast and the restart fails, the screen will stop updating and you need to restart the system again.

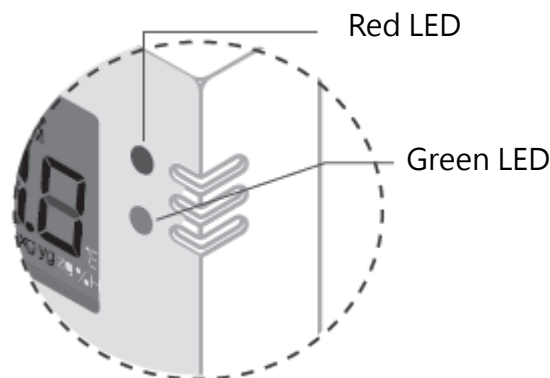
4 LED Display

Flashing red LED indicates one of the following cases:



- (1) The device is working at the monitoring mode.
- (2) Either a High/ Low Limit (HL, LL) exceeded, it will trigger an alarm.
- (3) When there is no battery bar icon at the LCD display, it indicates that the battery level is extremely low. Please follow the chapter, Battery, to replace new batteries carefully.
- (4) The usage of entire device memory has reached 95% of its total capability.
- (5) There is an error on the device.

4.1 XH10/11 LED Signal Lights

- ❖ Power Up: Flashing Red/ Green LED, indicating devices startup successfully
- ❖ Logging/ Monitoring Mode: Flashing Green LED, indicating working in recording monitoring mode
- ❖ Error Mode: Flashing Red LED, indicating errors occurred, alarms triggered
- ❖ Interruption mode: Red LED blinking 3 times & off continuously, when the connection is interrupted




5 Error Code

LCD display will flash the current measured value and error code alternately at an every two-second interval. If there is an error  symbol will appear on LCD screen. If there is no error, the  will not appear on the LCD display

5.1 XH10/XH11 Error Code

XH10/11 Data Logger





Error Code	Reason
Er06	XH10: Sensor failure, please contact local dealers or the original manufacturer. For XH11, firstly check whether the external sensor connected correctly firmly
Er07	Device time-stamp not available, device timer abnormal. Please connect to the DLV to synchronise the time. Reset the time zones. Go to DLV, Parameter > Time Zones (3)
Er08	The total files exceed 100 and the memory is full. Please clear all file data
Er09	Start recording without setting parameters, logging interval error, setting/configuration error. Please reset log interval. Go to DLV, Parameter > Data Logging (4)

** An error icon  will appear when any error occurred/ red led flashing


6 Battery

6.1 XH10/XH11 Battery

6.1.1 XH10/XH11 Power Supply

The XHLogger has two types of power supply, USB powered and battery powered. When battery powered being used, the battery life cycle varies depending on how it is used, maximum up to 1+ year battery life. When USB-power used, the battery will not consume power during operation. When the battery power shown   low, please replace a new one sooner. If the battery is completely drained   (failed to wake it up by pressing any button on the device), it is recommended to plug to USB port of PC during the process of the battery replacement and also linked with Data Logger Viewer software during replacement.

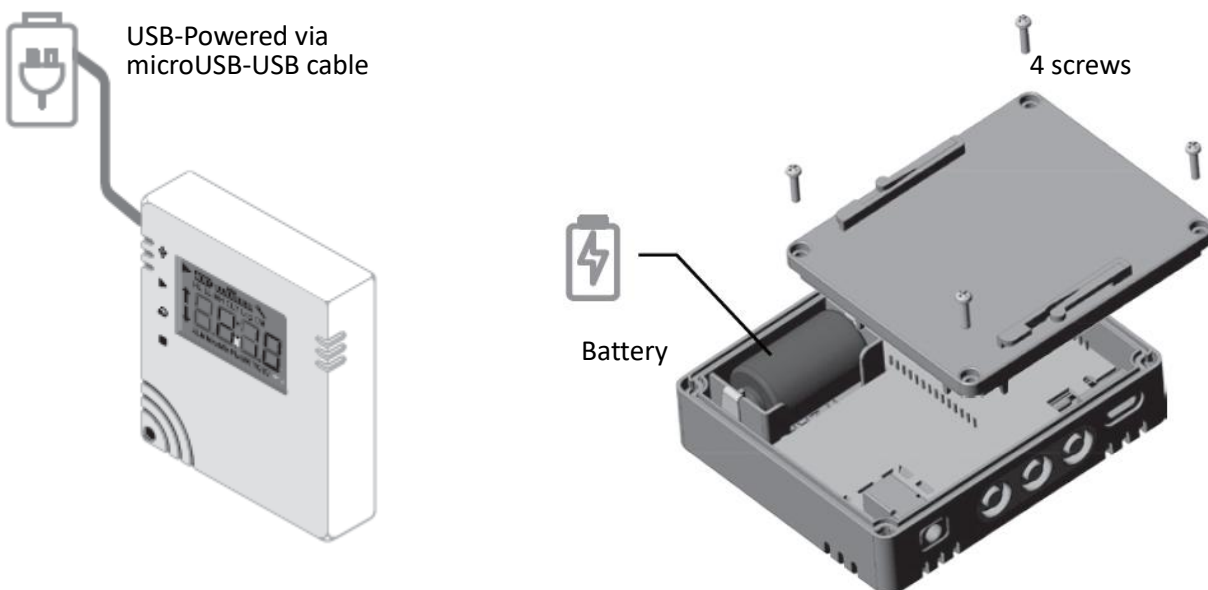
After new battery replacement, press 3 keys <Start><Scroll> and <Stop> more than 1 sec simultaneously and release. For device version older than V1.1.0.33, after battery replacement, should long press and hold the 3 keys more than 5 sec to reboot the system to avoid auto locking.

***  Note: Please plug to USB power during the battery replacement and replace one brand new replacement battery only.

6.1.2 XH10/XH11 Battery Replacement

How to Check the Battery

- * If your XH10 or XH11 is out of power, you can check if the battery is loose or broken. Place the device on a table with the back facing up. Remove the 4 screws on the back and remove the back cover. Check if the battery is fixed. If the battery is broken/ expired and needs to be replaced, you can buy a replacement. Remove the back panel of the battery and replace it.

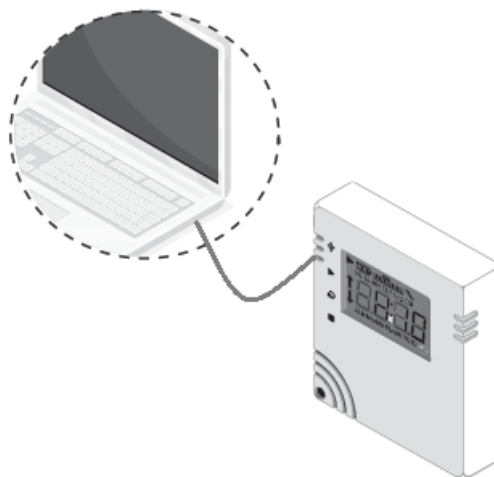


Battery Replacement Notification

- * For reason of data protection and system correctness, it is necessary to keep the device power supply continuously, especially during battery replacement, the XHLogger should plug with the USB power supply. Replace only a brand new battery to prevent data loss in case of insufficient power supply.
 - 1) Plug with the USB power
 - i When the battery power shown low, please replace a new one sooner. It should plug to USB power.
 - ii If the battery is completely drained (failed to wake it up by pressing any button on the device), it should plug to USB port of PC during the process of the battery replacement and also linked with Data Logger Viewer software during replacement.
 - 2) It should replace a brand new battery to keep the device power supply continuously after battery replacement to prevent data loss.

***** ⚠ Note:**

- 1) If the XH logger couldn't wake up by pressing any button, should plug with the USB with the Data logger Viewer software during the battery replacement.
- 2) If the XH logger couldn't wake up and it didn't plug the USB during the battery replacement, after user changed the battery, the XH logger will booting but it will shut down. In this situation, user can press the <Start>, <Scroll> and <Stop> keys at the same time and connect the XH logger to the Data Logger Viewer software to synchronize the RTC.



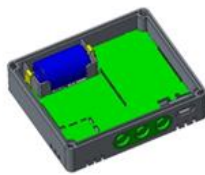
How to replace X10/11 disposable lithium batteries

If the battery is not inserted well or replacement needed then insert the battery provided, following the instructions below.

- ① Loosen and remove 4 screws



- ② Open and remove the back panel



- ③ Replace the disposable lithium battery
(ER14250 1/2AA 3.6V)









- ④ Install the back cover and tighten the screws

Be aware of the direction when covering the back panel, and be aware of the waterproof rubber ring, if it is properly located. Tighten the screws on the back panel but not excessively, the locking torque: 1Kg-cm (not more than 1.5Kg-cm)



The battery power meter might shown low level after battery replacement, due to the power-saving circuit design, the status on LED will be refreshed and updated later when just finished replaced the battery.

6.2 XHLogger Battery Level and Percentage

Battery Level 0~4	Level & Percentage
	4 scales: Power 100%
	3 scales: Power 80%
	2 scales: Power 60%
	1 scale: Power 40%
	0 scale no blinking: Power < 20%
	0 scale + blinking: Power < 20%

7 Product FAQ

** ⚠ If you have any other tech problems, please contact our FAE and provide the serial number on the sticker from the back of the device.

7.1 XHLogger General Questions

Q1: When the XHLogger turns on, starting recording mode, “ER09” is displayed on the screen.

A1: When Error code <ER09> shown on the startup screen, it refers to the parameter setting not been completed yet. Please connect with Data Logger Viewer and go to the parameter page checking whether the interval has been set to 0. Reset the interval to start running normally.

Q2: When the XHLogger, XH10/11, connects to USB-port, the device is failed to appear on the screen of Data Logger Viewer.

A2: Once the data logger connects to a laptop/PC via USB cable, check whether a new data folder pops up on the screen or not. If not shown, please confirm if the USB cable used for data transfer. Replace one

Q3: Will the XHLogger, XH10/11, stop recording after connecting to USB port?

A3: No, however, the parameter of DVL cannot be modified at recording mode. Data can be modified only after recording stopped.

Q4: Why did the XHLogger, XH10/11, fail to generate PDF files after correctly connected to PC via micro USB port?

A4: Please check whether the XH Logger has already set in recording mode.

Q5: Can the XH11 external sensor cable be replaced?

A5: Yes, the external sensor cable can be replaced, sharing usage with the same module.

Q6: Can the XHLogger, XH11, external sensor cable be immersed in liquid?

A6: No, the XHLogger external sensor cable is designed for measuring the ambient temperature/humidity, cannot measure the liquid temperature. If soaking in liquid causes to malfunction, the wire must be replaced.

A7: How to operate the reboot button?

A7: Short press & hold press three keys  +  +  simultaneously for XH10/11.

Q8: How to change the DLV language interface for XH10/11?

A8: To change the DLV language, click on the device name and go to <Setting> on the top menu. On the <General > tab, change <Language> field and Exit the program. Launch the DLV again, the new language interface will start.

Q9: How to upgrade the firmware of the XHLogger?

A9: For XH10/11, please connect and link with Data Logger Viewer software via micro USB port.

Connect and link with Data Logger Viewer (DLV) software.

XH10/11 Firmware Update procedure as follows:

Please firstly download the latest firmware from the original manufacturer official website.

Use one USB data transfer cable, USB-A/Male to micro-USB/Male, to connect XHLogger and PC.

Connect the XH logger device to the DLV on PC. Open DLV ->"Setting"-> "Firmware" -> Click the device (USB Connected) to be updated ->Click the Update button ->Select the firmware file *.bin -> "Yes" -> "Ok" -> complete the firmware update.

7.2 XH10/XH11 FAQ

Q1: What should I do, when press these three keys at the once, the screen stopping and freezing.

A1: When needed to restart the XH Logger, long press and hold the 3 keys simultaneously to restart immediately. Before the device version older than V1.1.0.33, long press and hold the 3 keys simultaneously to reboot. However, if short press the 3 keys and release it, the screen will freeze and no response even if connecting to the Data Logger Viewer software. In this case, reboot it again by correct operation. Long press the 3 keys at the same time and hold until the system rebooting. Version newer than V1.1.0.33, the problem no longer occur when press the 3 keys at the same time, the system immediately rebooting.

Q2: After the new battery changed, what cause the screen/ LED turning on, then immediately shutting down and failed to reboot again?

A2: If completely no power, the internal power applied to RTC (Real Time Clock) is completely drained, unable to wake up by pressing any key. For reasons of data protection and system time correctness, the system will be forced to lock automatically, meaning turning on but shutting down immediately. Highly recommended, before the battery changed, it should plug to the USB and also with Data Logger Viewer software to synchronize the RTC which the system will automatically calibrate the time. After new battery replacement, pressing 3 keys **<Start>** **<Scroll>** and **<Stop>** more than 1 second simultaneously and release to reboot the system without locking problems occurred again.

Q3: Why my XHLogger failed to power up after replacing a new battery

A3: For reason of data protection and system correctness, during battery replacement, the XHLogger should plug with the USB power supply. Replace only a brand new battery to prevent data loss in case of insufficient power supply.

Q4: How to upgrade the firmware of the XH10/11?

A4: Please connect and link with Data Logger Viewer software via micro USB port.

Connect and link with Data Logger Viewer (DLV) software.

Open DLV ->"Setting"-> "Firmware" -> Click the device (USB Connected) to be updated ->Click the Update button ->Select the firmware file *.bin -> "Yes" -> "Ok" -> complete the firmware update.

Q5: How to solve the abnormal power consumption of XH?

A5: For external sensor model, when poor contact occurred between the external sensor and the device, try to unplug/plug the external sensor from the connector or rotating/retightening the sensor.

8 Announcements

Batteries

Users are responsible for the proper disposal of the waste generated during their work. Improper waste disposal may severely endanger public health and/or the environment. Dispose the battery in accordance with local regulations.

- ❖ Most of our data loggers contain a lithium battery. Do not cut the battery open, incinerate, or recharge.
- ❖ Do not heat lithium batteries unless the battery is specifically rated for higher temperatures.
- ❖ Improper use of batteries may cause destruction of the batteries, injuries due to current surges, fire or leakage of chemicals.
- ❖ Do not short circuit the batteries or it may cause explosion due to current surges.
- ❖ Do not use any damaged batteries.
- ❖ Battery ER14250 must be used for replacement. Rechargeable type battery can't be used. Usage of rechargeable type battery may damage the device.

Disposal

Users are responsible for the proper disposal of the waste generated during their work. Improper waste disposal may severely endanger public health and/or the environment. Dispose the battery in accordance with local regulations.

Storage

Humidity measuring elements in data loggers can become contaminated by exposure to various compounds. These products should not be near volatile chemicals such as solvents and other organic compounds. Do not place the product near material or compound that emits a strong odor.

FCC Warning

Federal Communication Commission Statement

This device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- ❖ This device may not cause harmful interference.
- ❖ This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by doing one or more of the following measures:

- ❖ Reorient or relocate the receiving antenna.
- ❖ Increase the separation between the equipment and receiver.
- ❖ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ❖ Consult the dealer or an experienced radio technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

*The specifications and features in this manual are subject to possible change without prior notice.

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For assistance contact tech Support:

service@brainchild.com.tw; 886-2-2786-1299