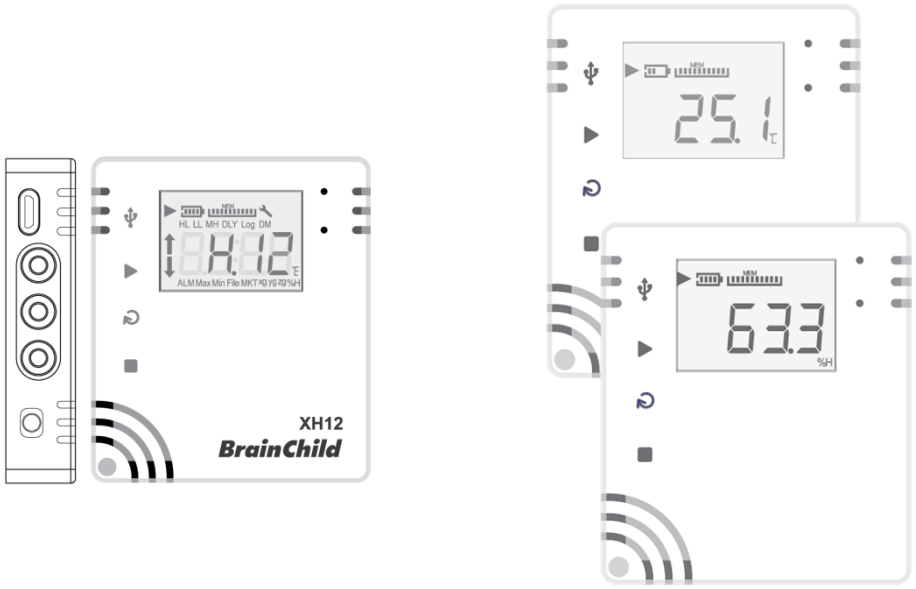
XHLogger Series
XH12
Data Logger
User Manual



UMEXH121E v5.1 (Feb 2025)
XH logger Firmware Version: 1.3.0.48
Data Logger Viewer Version: 2.1.0.13

Terms & Policy

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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.

Copyright

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
EN v 4.2 Ref: UMEXH101D	Appearance and Dimension Battery Replacement Getting Started Product FAQ	2023/Nov
EN v4.3	Precaution for sensor	2023/Nov
EN v5.0 Version E, EN v5.0.09 UMEXH121E	Add XH12 All Revise FAQ, Battery replacement, Key definition, key operation, DLV/ parameter, LED definition Wi-Fi pairing	2024/Nov
EN v5.0.11 EN v5.1 EN v5.1.01	FAQ, product-name del, firmware update Email option, battery power consumption/ maintenance tips , System Configuration	2025/Feb

Table of Contents

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.

- **Wi-Fi XH12**：

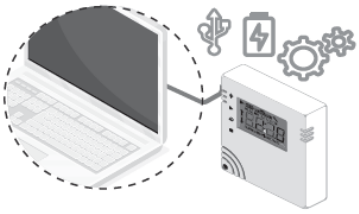
The XH12 Wi-Fi wireless data logger, equipped with an external sensor for tracking temperature and humidity, is specially designed to collect wirelessly data for specific short range within wireless connection, configuration, monitoring, setting parameter and exporting reporting via Wi-Fi. Applications for the industries include but not limited to, logistics, electronic component warehouse, vaccine preservation/delivery, intelligence warehousing, food factory, biotechnology, medical equipment, etc, where you control and monitor your business environmental changes and data-based quality assurance.

1.1 Features

The XHLogger series has the following unique features:

- One click start/stop, preset start/stop
- USB interface
- Logging of temperature & humidity statistics
- MKT temperature logging
- Offer Celsius & Fahrenheit temperature measurement
- LCD display shows real-time temperature & device unit status
- Temperature & Humidity Audit Trial
- User configurable sampling interval
- Record Mean Kinetic Temperature (MKT) tracking
- Store & record up to 79,872 logs for each file maximum
- Dual-mode power supply, USB/ Battery powered
- Direct export of PDF reports
- Use the interface to start collecting data immediately without any programming skills
- Waterproof and dustproof housing

◆ **XH12 Features:**



- Wi-Fi Data Logger, wireless XHLogger
- Temperature & humidity logging and statistics
- External temperature and humidity sensor
- Wi-Fi connectivity to multiple devices
- Wireless configuration, monitoring; set parameters & download report via Wi-Fi
- Remote start/stop scheduling via DLV
- Automatic data resume
- USB interface
- Set parameters & download PDF report via USB data transfer cable
- User friendly PC software (Data Logger Viewer)
- USB-powered/ USB battery charging
- 1500mAh rechargeable battery power supply
- 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:

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

T_K=Mean Kinetic Temperature,

$\triangle H$=Activation Energy (in kJ mol^{-1})

R=Gas Constant (in J mol^{-1} 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 … t_n), the above equation is reduced to:

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

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.

XH12

- Wi-Fi Data Logger x 1 (battery already installed in the data logger)
  - 3.7V/ 1500mA Li-ion (Rechargeable Li Battery)
- 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 XH12 Specifications

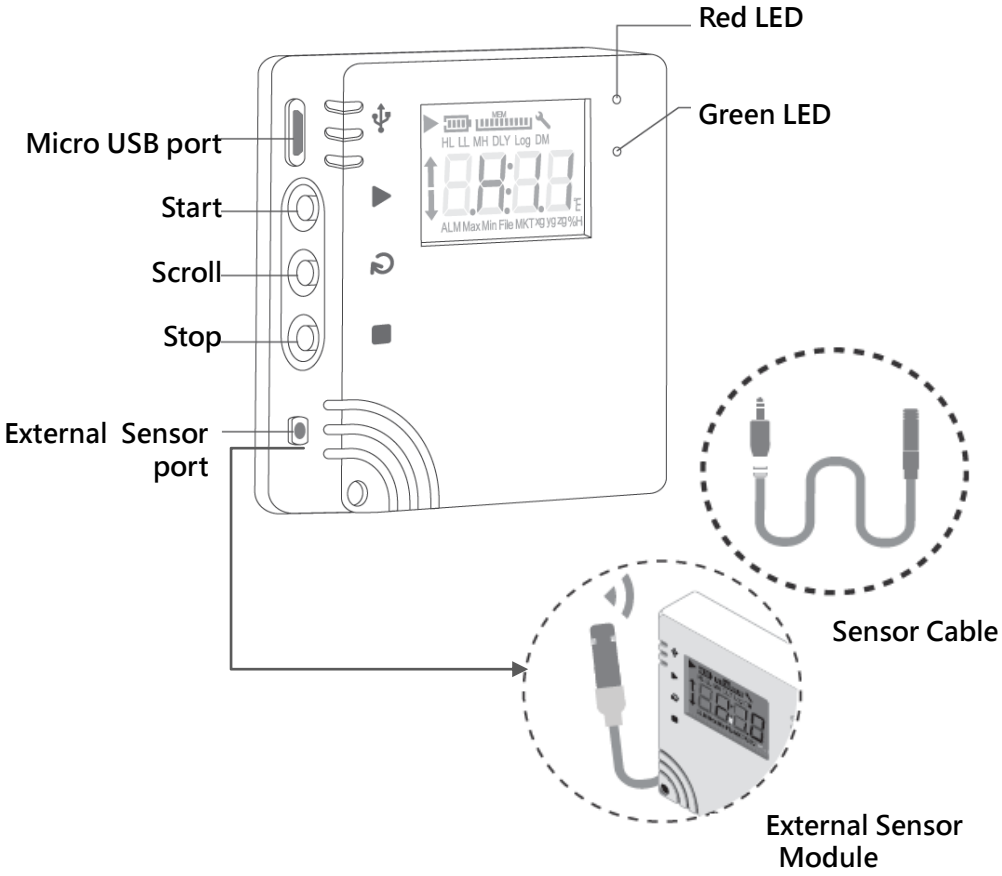
XH12 Wi-Fi Data Logger			
Items	**Spec Description**		
Power Supply	**Dual-mode: USB powered / Rechargeable Li-ion battery** USB/ Battery: @10 min. interval		
Interface	micro-USB/ USB		
Communication Protocol	**Wi-Fi 2.4G/ HTTP/ TCP/ UDP Broadcast**		
Software	**Data Logger Viewer (DLV),** working with Windows 10 and the above		
USB Voltage (@500mA)	Minimum 4.5 VDC	Typical 5 VDC	Maximum 5.5 VDC
Sensor Type	External sensor probe for temperature and humidity		
Sensor Response Time	Temperature > 2 sec Humidity: 8 sec		
Logging Interval	User configurable from 1 sec to 24 hrs		
Resolution	Temperature display resolution: 0.1 °C/ 0.1°F/ 0.1%		
⚠ **XH Operating Range**	Optimal operating temperature: 0°C(32°F)~40°C(104°F) *Also refer to the battery optimal operating range Operating temperature: -10°C(14°F)~45°C(113°F) Operating humidity: 45%RH~85%RH		
⚠ **XH Storage Range**	Optimal operating temperature: 5°C(41°F)~20°C(68°F) Storage temperature: -10°C (14°F) ~60°C (122°F) Storage humidity: 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	Sync with computer time		
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 maximum79,872 logs, keeping 200,192 logs in total		
Pre-program	User Programmable		
Start Option	Push button, Immediate, At time, DLV software controlled		
Auto Overwritten	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 Lock	Password Protected
Housing	PC540 PC+ABS
IP Rating	IP63
Dimensions, XH Case	65.1 x 70 x 23.25mm
Weight	130 g (Battery and 1M external sensor included)
XH Warranty	12 months, battery not included
Battery Type	3.7V/ 1500mA Li-ion, rechargeable Li battery
Total Charging Time	Battery charging time: when using charging power source DC4.25V/1A (≥1A), from 0 to 100% fully charged around 4 hours
Temperature	Temperature range during battery charging: 10°C (50°F) ~45°C (113°F)
Charging Cycle	Battery charging cycle: 2 to 3 months maximum with fully charged and normal usage
Battery Life	1 year-life @ 10 min. log interval, 1 year-life from the battery original factory 3-month lasting after battery full charged with normal usage
⚠ **Battery Charging**	Range: 10°C(50°F)~40°C(104°F)
⚠ **Battery Operating Range**	Optimal operating: 15°C(59°F)~35°C(95°F); <50%RH Operating: -20°C(-4°F)~60°C(140°F); 45%RH~85%RH
⚠ **Battery Storage Range**	Optimal storage: 5°C(41°F)~20°C(68°F); <50%RH Storage < 6 month-life: -20°C(-4°F)~35°C(95°F); 45%RH~85%RH
Battery Warranty	The battery warranty length is limited as consumable item. Keep the battery to operate, to store, to charge, to discharge in the specific temperature and humidity. Keep the battery to about 50% SOC when not in use and recharge again within 6 month after received
Accuracy Certificate	Optional
Safety	CE, RoHS, FCC (Class B)

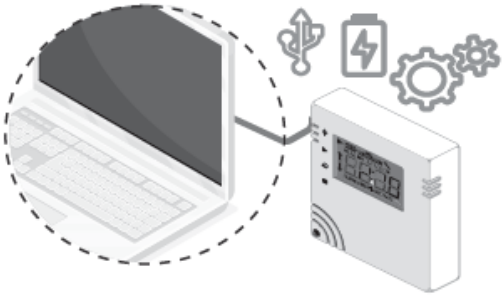
1.4 Product Overview

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 XH12 data logger.

XH12 Appearance



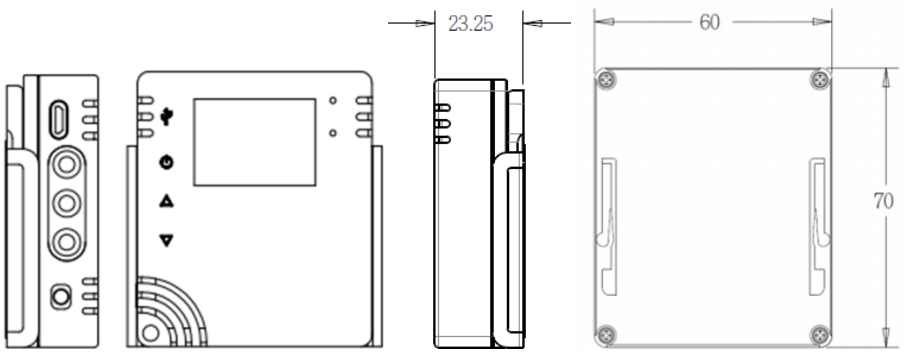
XH12 Operation with DLV software for PC via USB cable



XH12 Wireless Operation with DLV software via PC pairing

1.5 Appearance and Dimension

XH12



Unit: mm

Left **Front View** **Right** **Rear View**

1.6 Ordering Code

XH1□-□

length of sensor cable

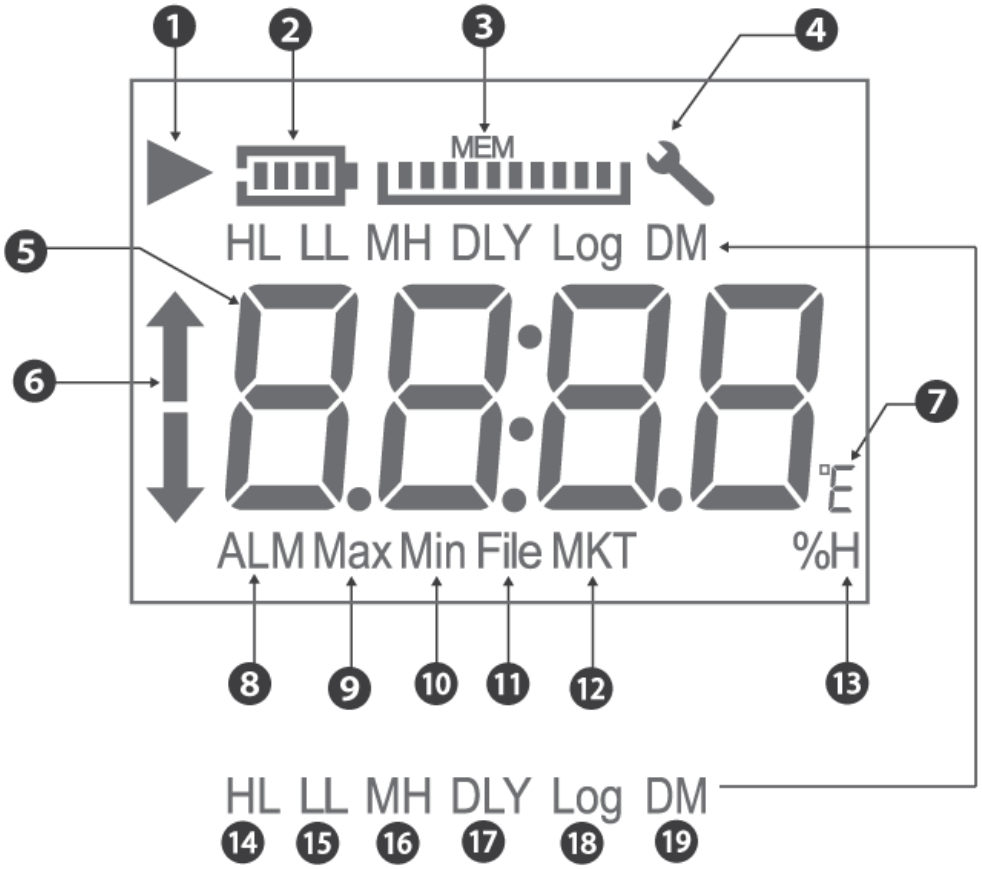
1=1M

2=2M

External sensor module:

- XH12-1 (Sensor length 1M)
- XH12-2 (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 trigging condition, HL ⬆ (High Limit) or LL ⬇ (Low Limit)

(7) Temperature unit °C/ °F

(8) ALM: When temperature/humidity value reaching the alarm trigging 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.
: this means there is an alarm below LL.

(9) MAX and MIN show the current logging highest and lowest values on this device; it covers both temperature and humidity.

(10) 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.

(11) MKT is the mean kinetic temperature via an MKT formula.

(12) %H the display unit for humidity.

(13) °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)

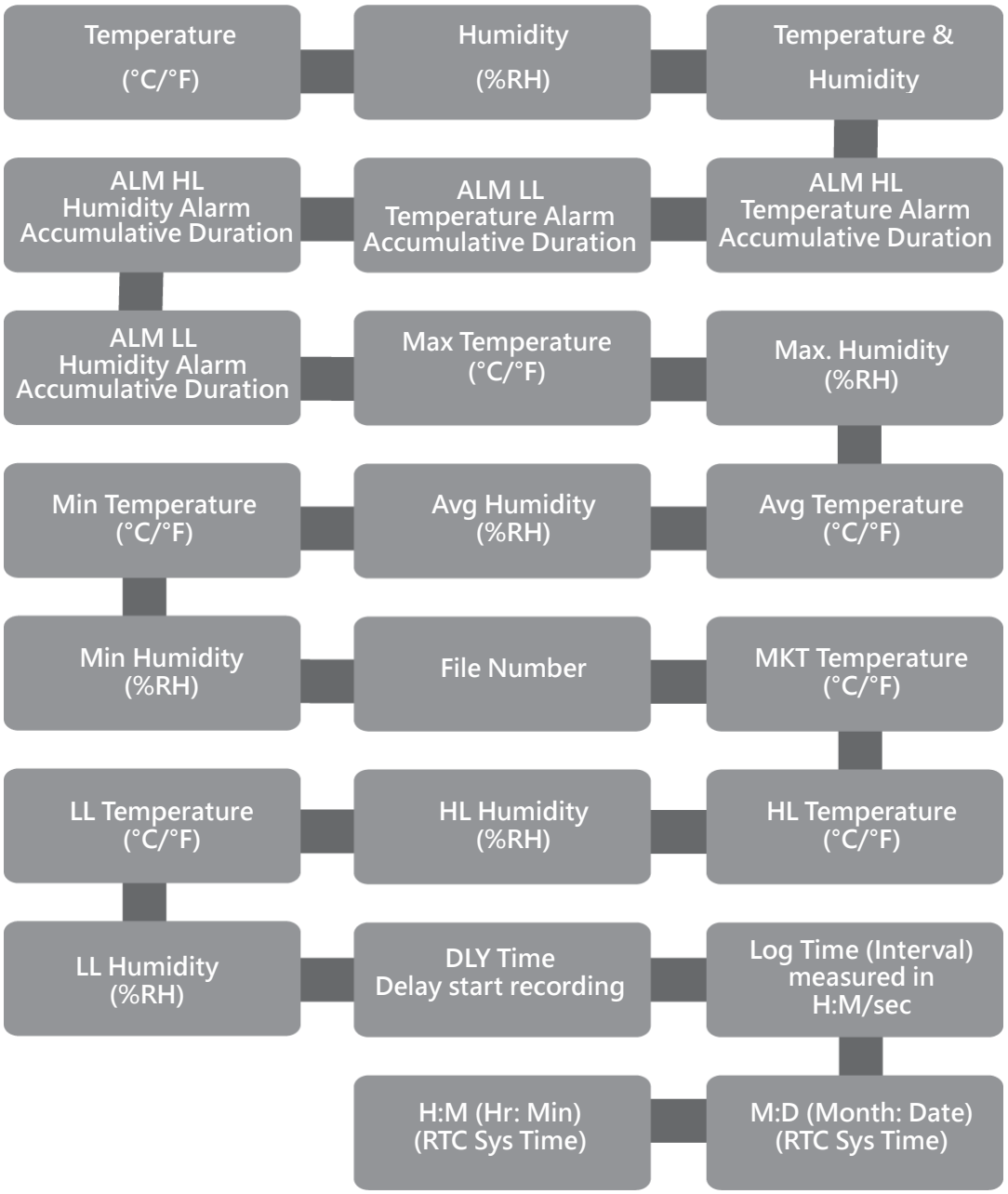
(19) LL Humidity (%RH)

(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)


Temperature (°C/°F)
Humidity (%RH)
Temperature & Humidity
ALM HL Humidity Alarm Accumulative Duration
ALM LL Temperature Alarm Accumulative Duration
ALM HL Temperature Alarm Accumulative Duration
ALM LL Humidity Alarm Accumulative Duration
Max Temperature (°C/°F)
Max. Humidity (%RH)
Min Temperature (°C/°F)
Avg Humidity (%RH)
Avg Temperature (°C/°F)
Min Humidity (%RH)
File Number
MKT Temperature (°C/°F)
LL Temperature (°C/°F)
HL Humidity (%RH)
HL Temperature (°C/°F)
LL Humidity (%RH)
DLY Time Delay start recording
Log Time (Interval) measured in H:M/sec
H:M (Hr: Min) (RTC Sys Time)
M:D (Month: Date) (RTC Sys Time)

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

XH12:

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 XH12 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

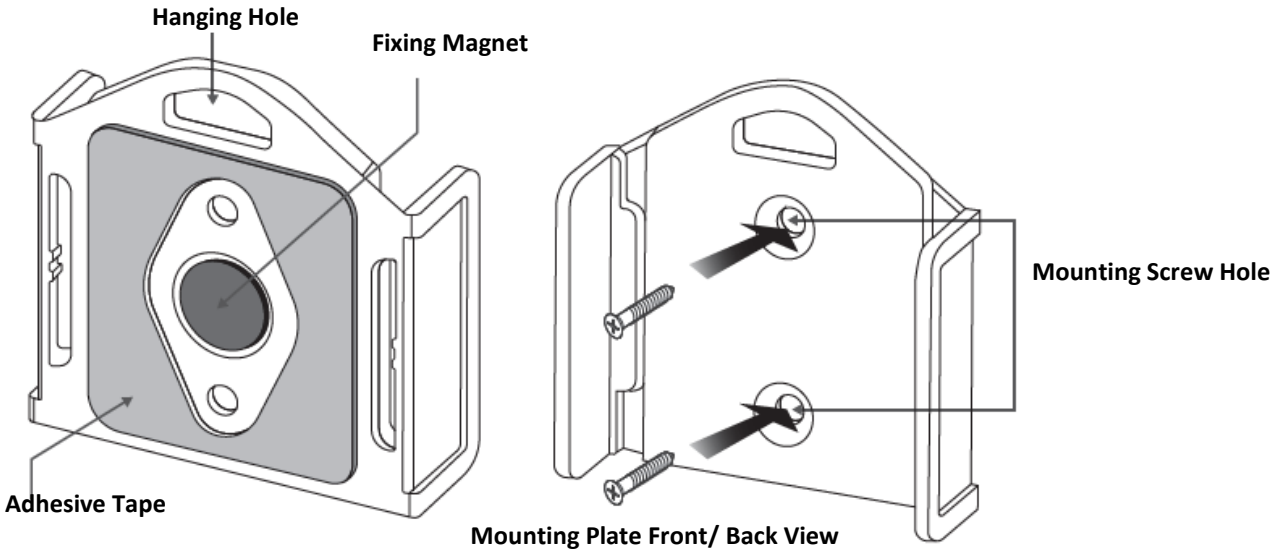
(1) Before the user updates the configuration to the device through the Data Logger Viewer software, if the memory space is insufficient for logging, the system will prompt the user that all the existing file data will be deleted in the device before prompting to start recording.

(2) The clear data function from Data Logger Viewer software can clear all files and records.

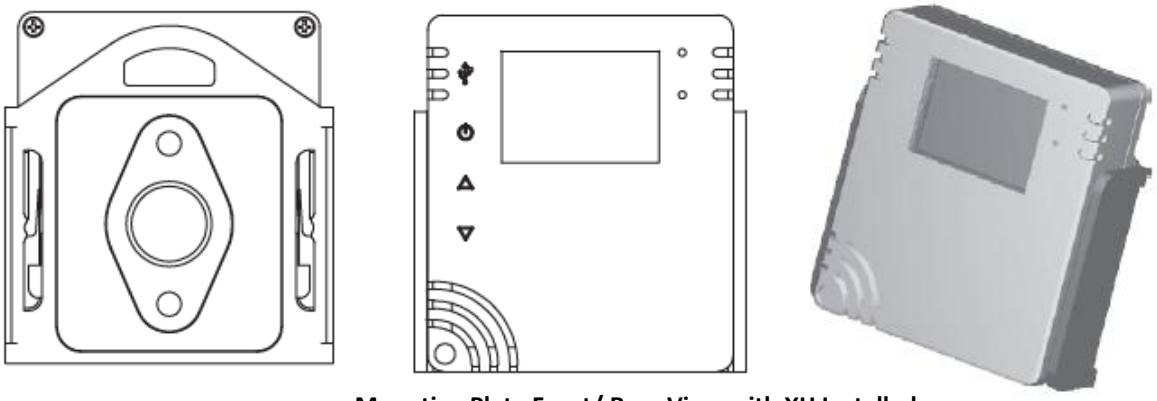
1.12 Installation of Mounting Plate

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



Mounting Plate Front/ Back View



Mounting Plate Front/ Rear View with XH Installed

2 XH12 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.

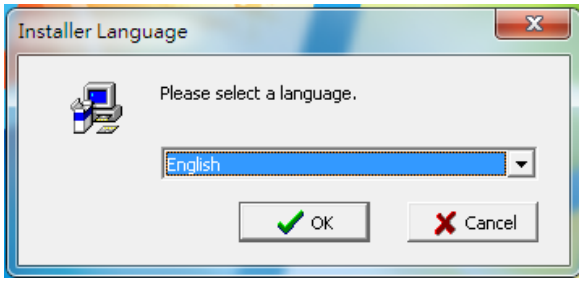
2.2.1 System Requirements

Item	Minimum Requirements for X12
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

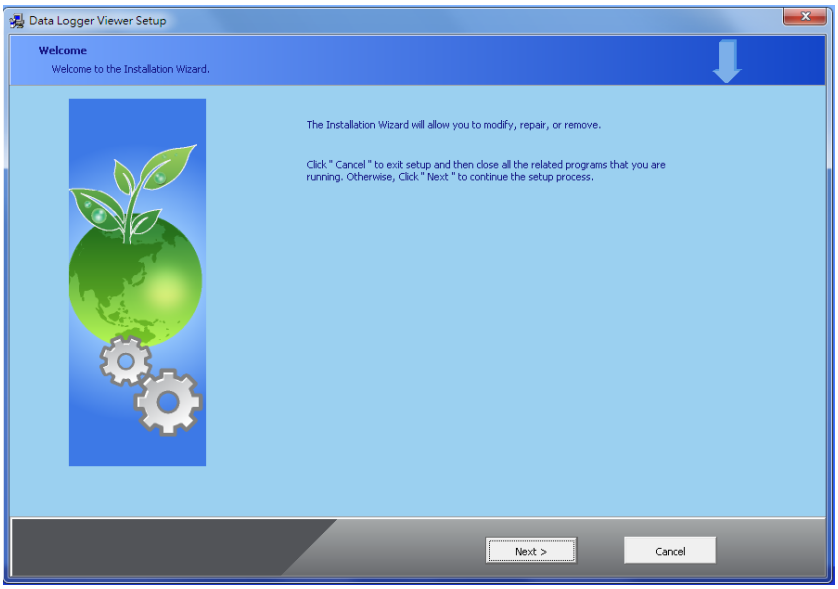
2.2.2 Installation

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

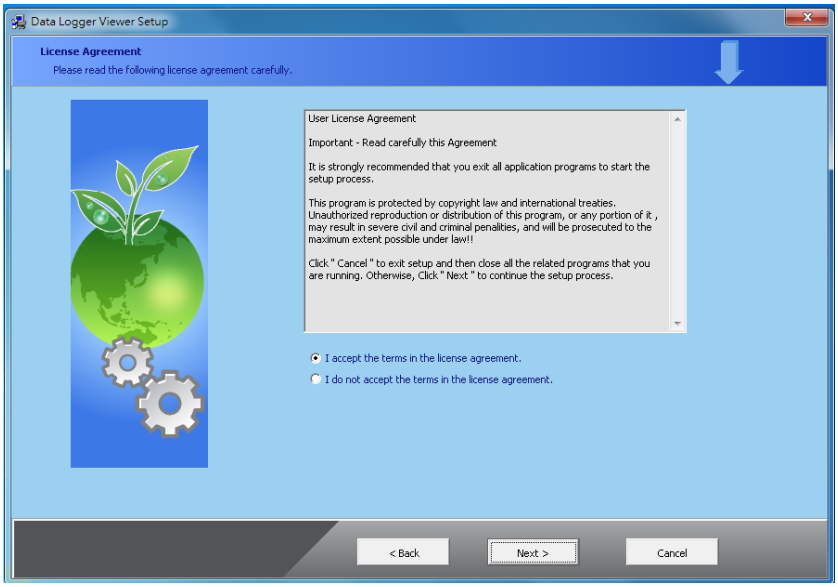
3. Select the language for installation, " English" then click "OK"



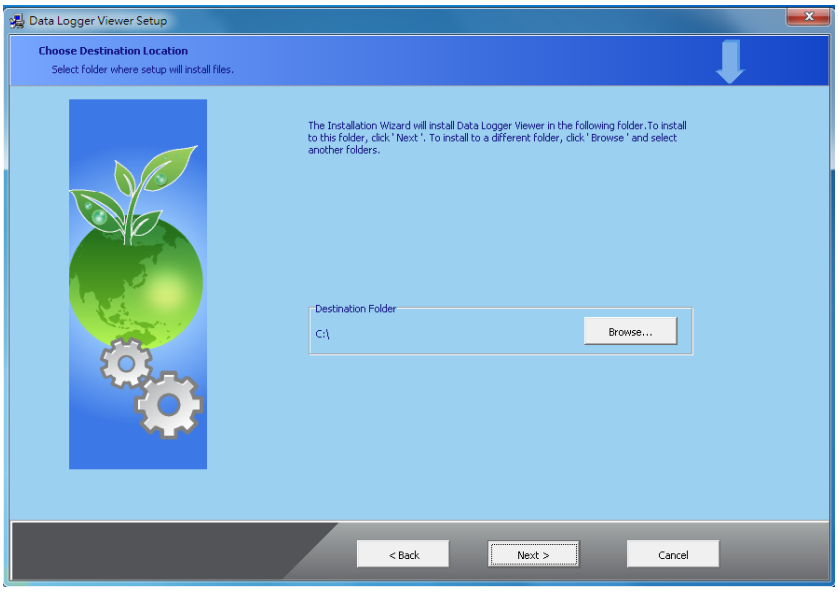
4. Click "Install".
5. Click "Next".



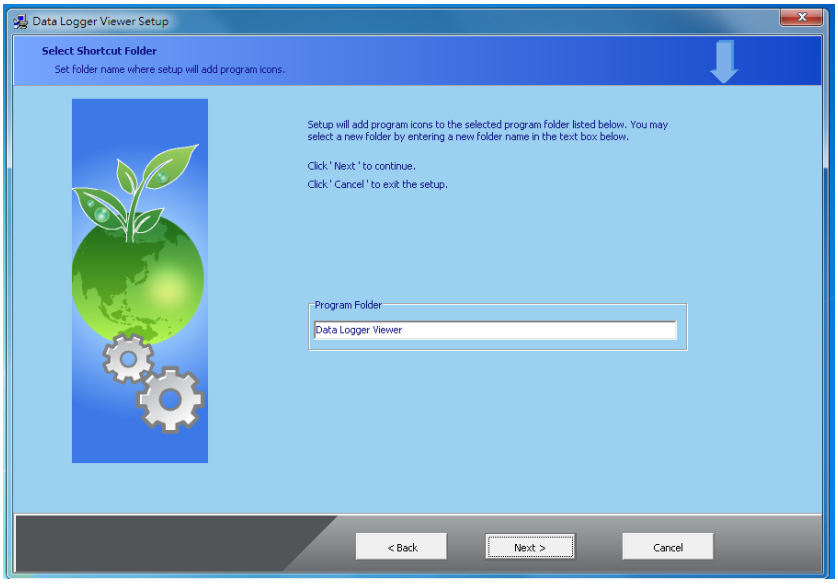
6. Select accept and click "Next"



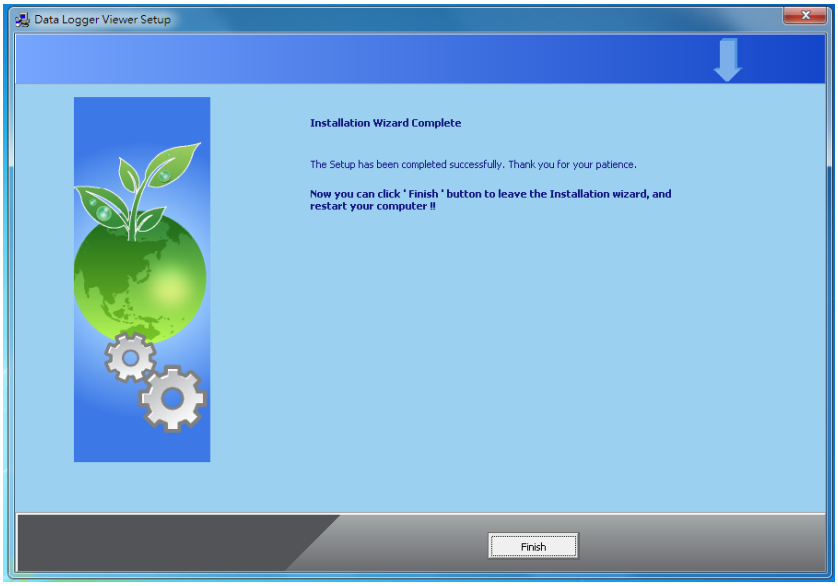
7. Browse to the location you want to install and click "Next"



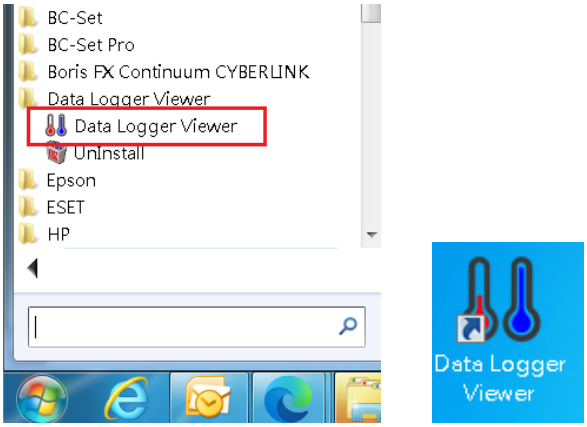
8. Click "Next"



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.



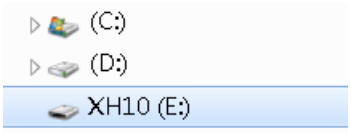
2.2.3 Data Logger Configuration Settings

Execute Application Program

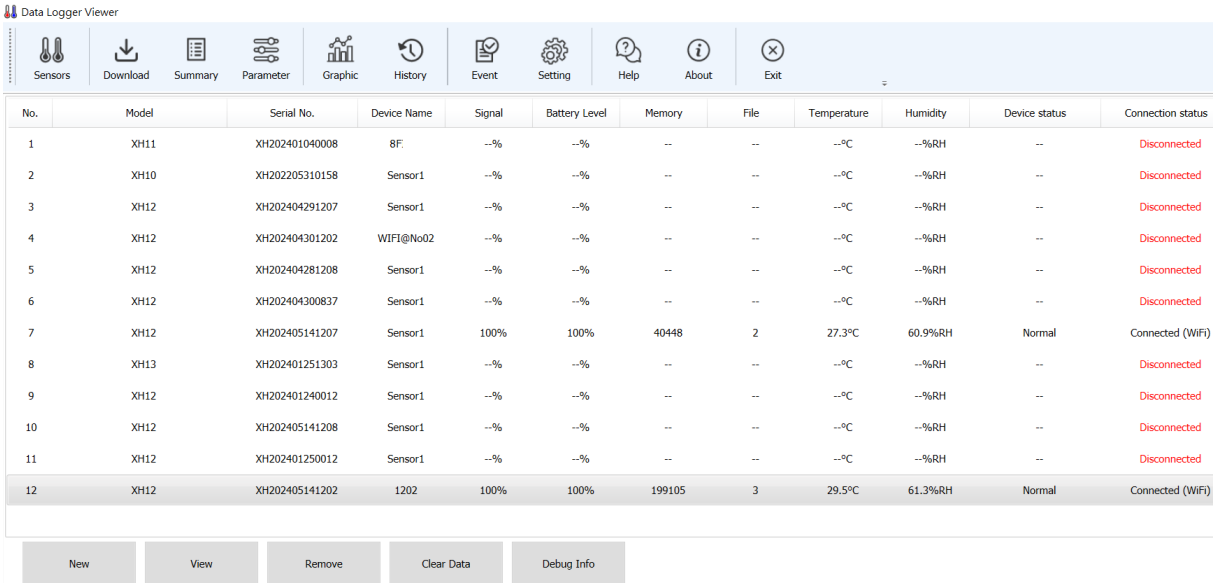
1. Ensure the battery is properly installed.
2. Insert the data logger into an available USB port on your PC.
3. Double click on the Data Logger Viewer icon on Windows™ desktop to download the XH logger configuration and data to the software for viewing historical data, data analysis, graphic display,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



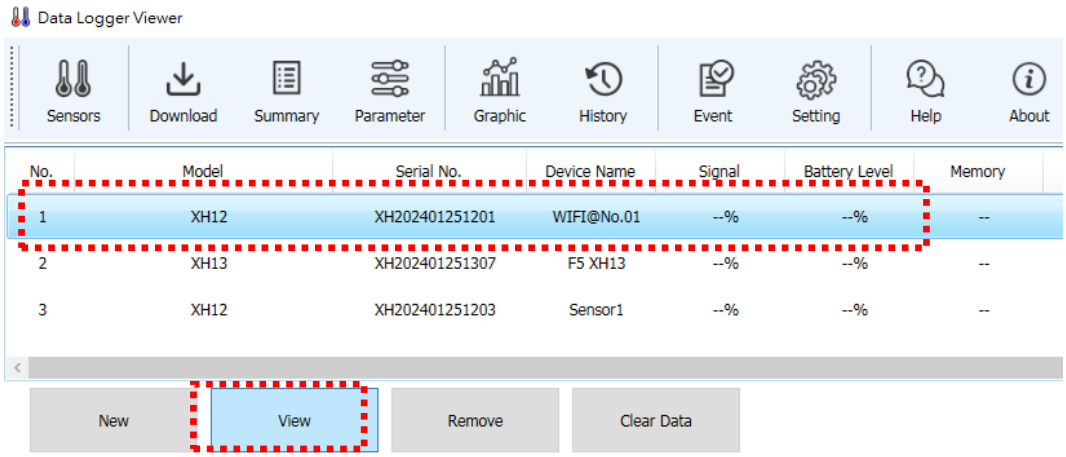
2. After opening the program, the software will add devices, provide download and analysis of recorded data, view previously saved data in graphical format, and check the current status of the attached data logger (including serial number).



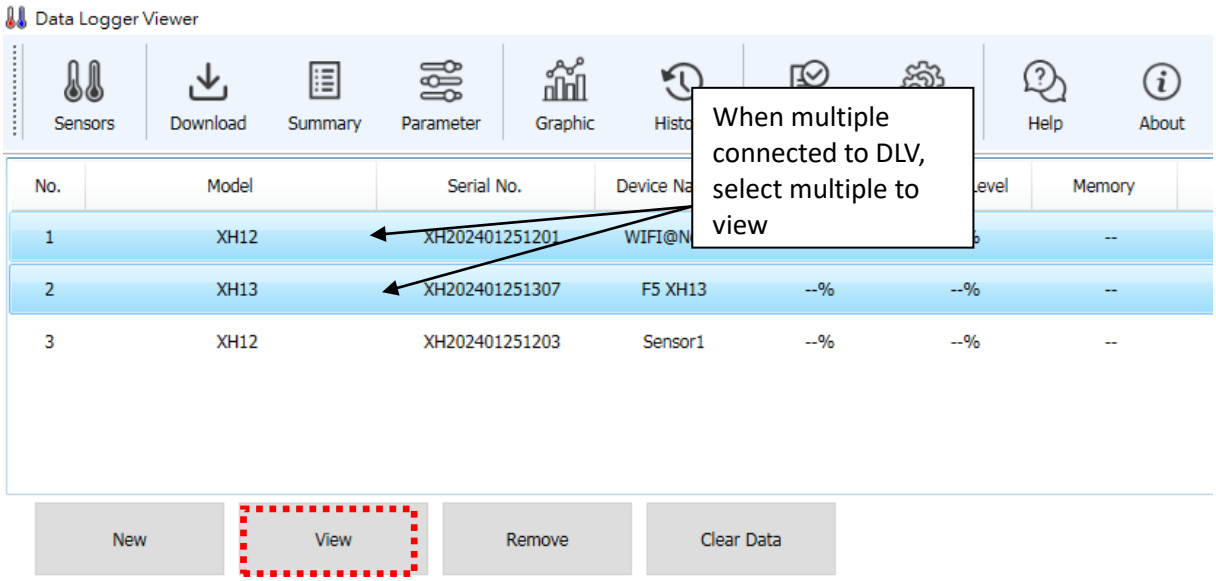
No.	Model	Serial No.	Device Name	Signal	Battery Level	Memory	File	Temperature	Humidity	Device status	Connection status
1	XH11	XH202401040008	8F	--%	--%	--	--	--°C	--%RH	--	Disconnected
2	XH10	XH202205310158	Sensor1	--%	--%	--	--	--°C	--%RH	--	Disconnected
3	XH12	XH202404291207	Sensor1	--%	--%	--	--	--°C	--%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.

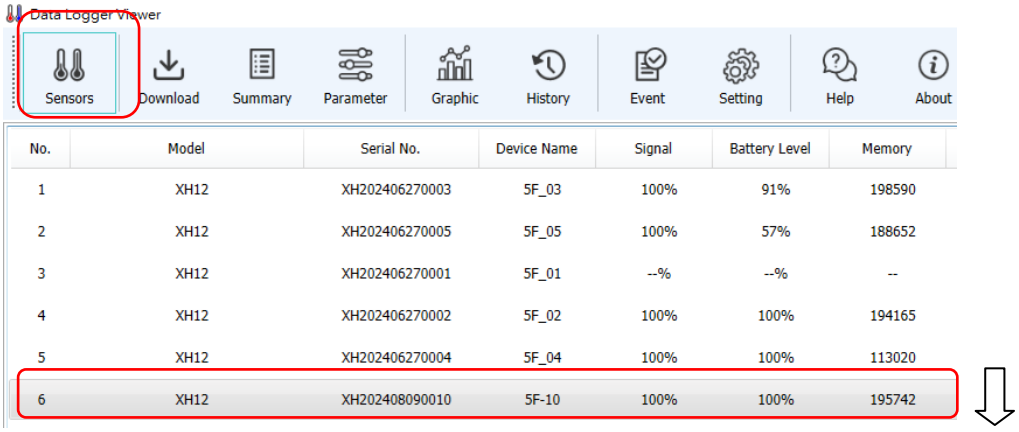


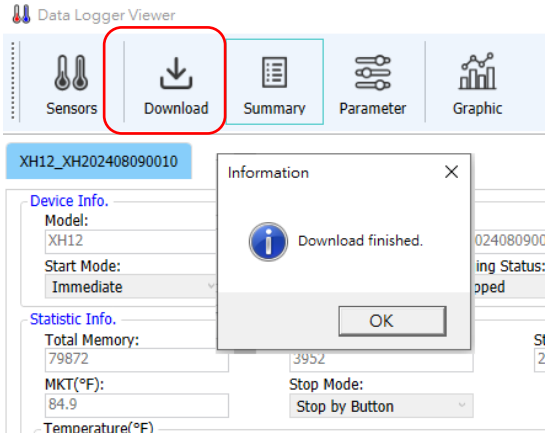
Notice!

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.

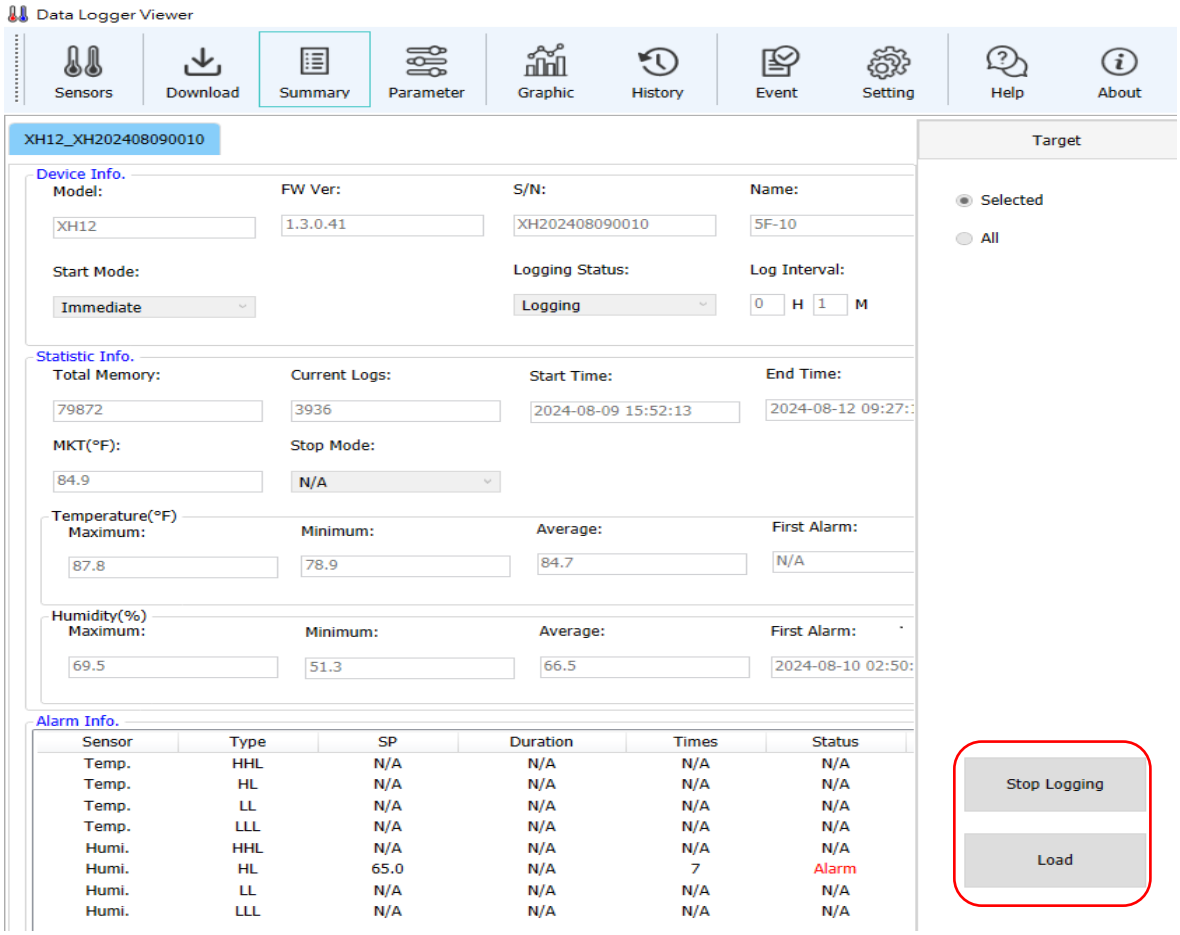




2.3.3 Summary

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.

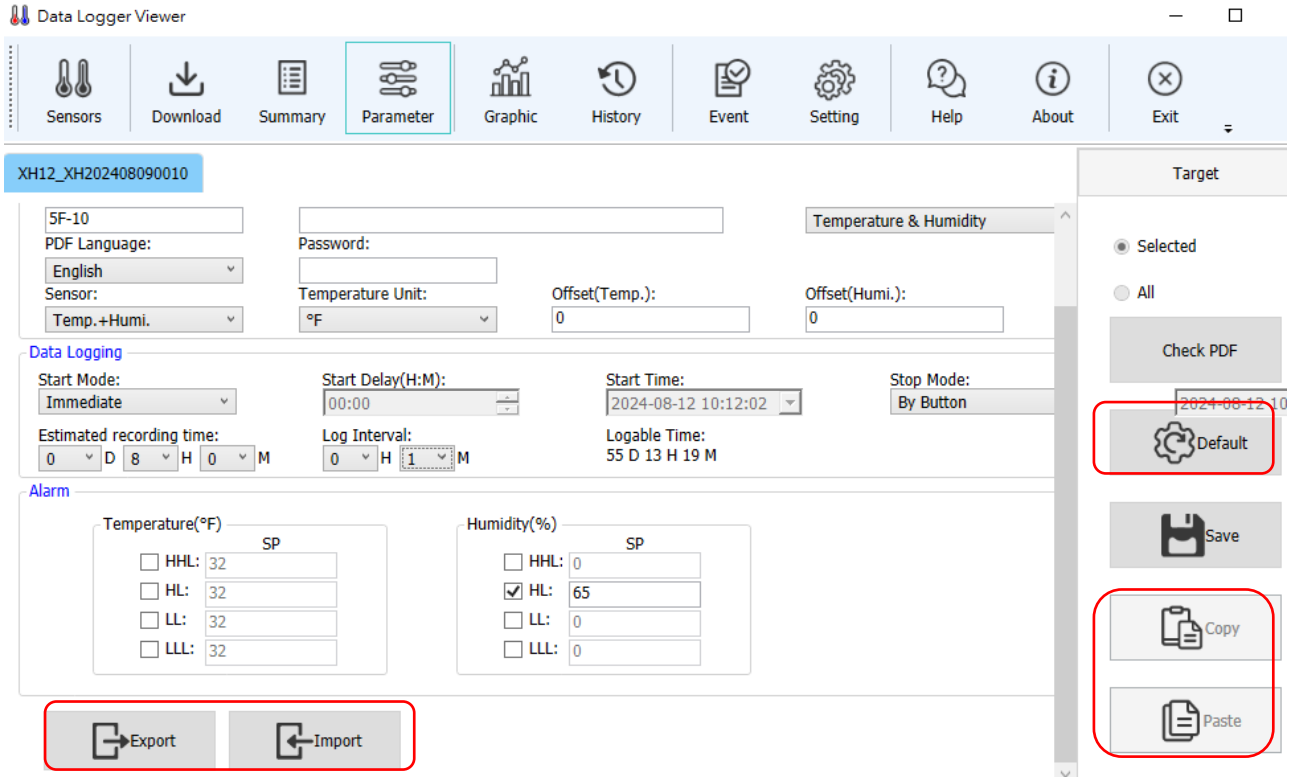


2.3.4 Parameter

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.

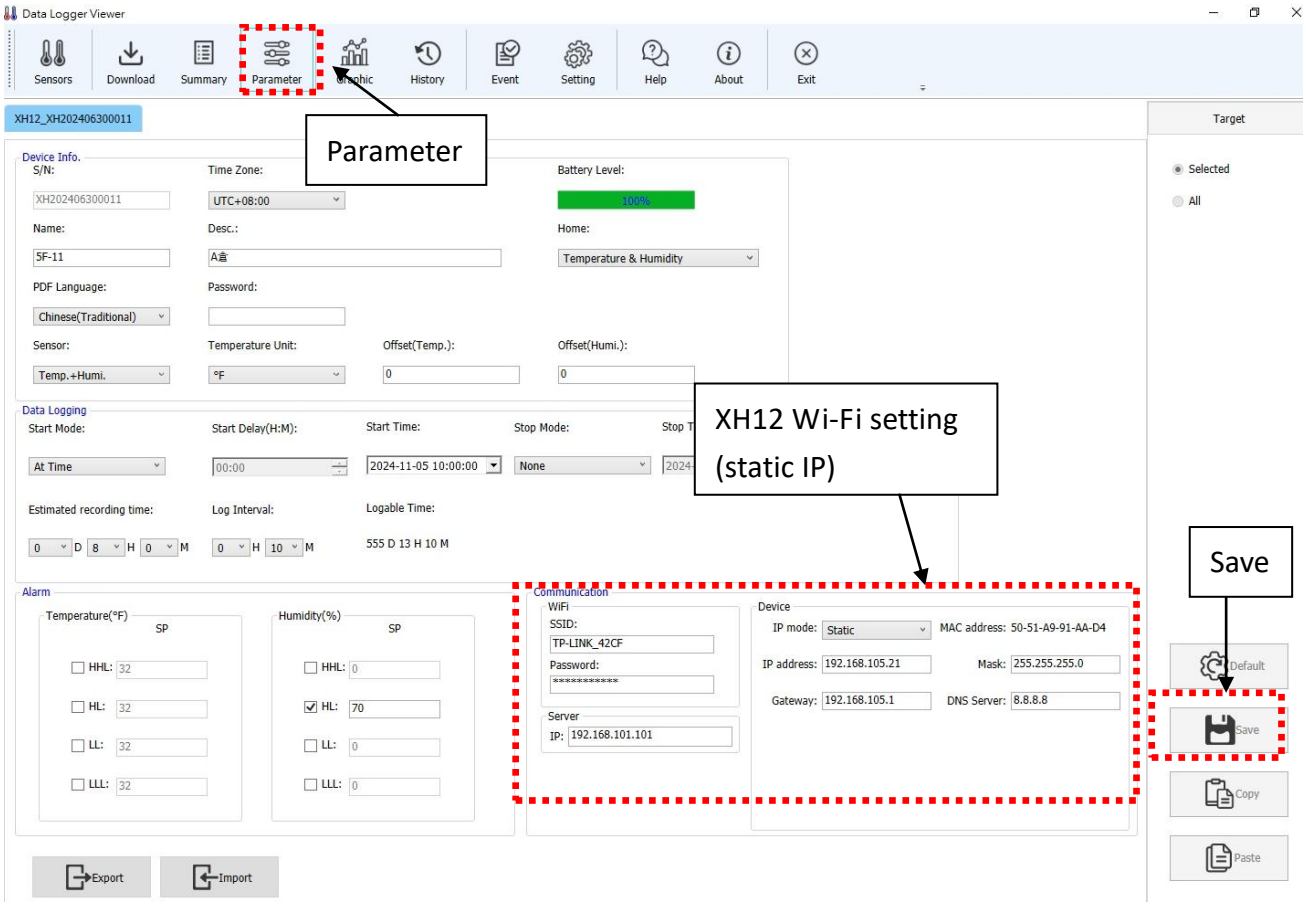
*** ⚠ Note:

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.



- 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.

XH12:



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).

   XH12:

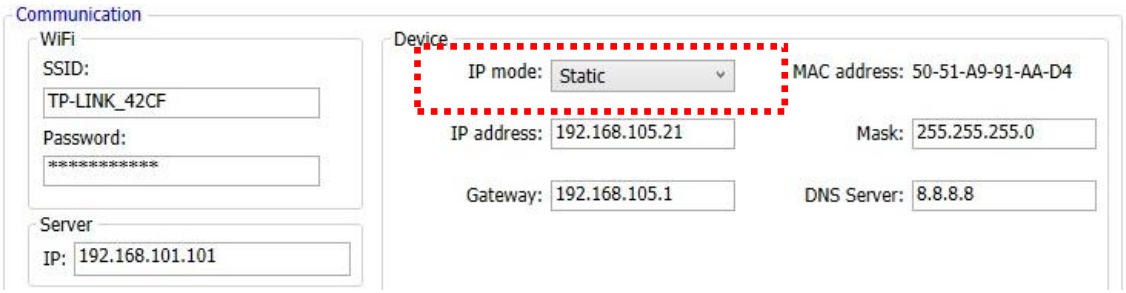
3. Alarm temperature and humidity set point and delay time. In the lower bottom, Export and Import icons can back up the existing parameters or read the parameters of the past backup.

4. Communication (XH12 Quick Pairing Interface)

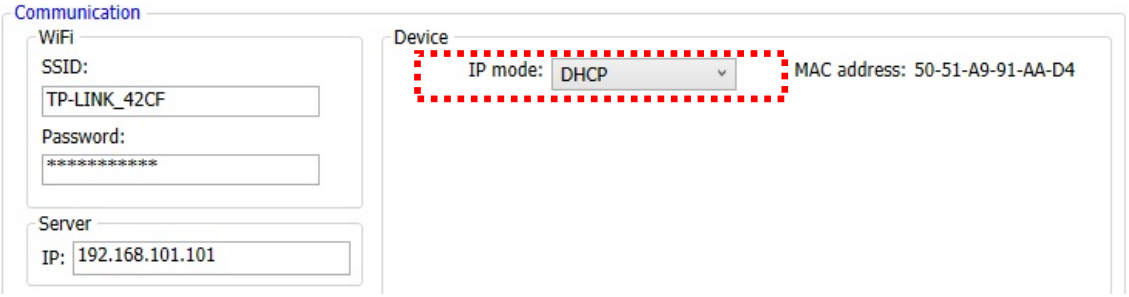
❖ **XH12 Communication Interface**

Keypads Operation

- Wi-Fi:
  - ➢ SSID/ Password: Enter the wireless name and password
- Server:
  - ➢ IP: Enter the IP address of the server connected to your PC/ notebook. Check the IP address on the right-bottom corner
- Device: Select to use dynamic or static IP
  - ➢ Static IP: Enter IP device of your device and gateway, mask, and DNS server address



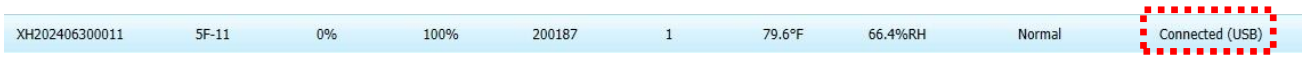
➢ DHCP IP:



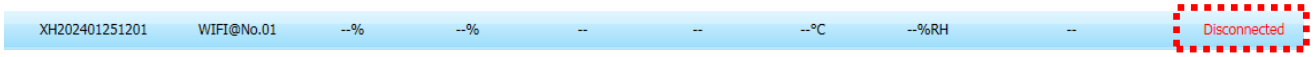
❖ XH12 Quick Pairing

Keypads Operation

- Take one XH12 which is new to the system (If this XH device used before, already paired wireless before, press the third button, STOP ■ key, more than 3 seconds for 5 times, thus clear the previous Wi-Fi setting)
- Connect PC and the XH12 via USB data transmission cable
- Connect and link with Data Logger Viewer (DLV) software on PC
- Open the DLV software on your PC. Go to <Sensors> on the top menu. Select this XH12 (USB connected) on the list.



- Go to **Sensors > Parameter > Communication**. Select one XH and press the row of XH name, entering <Parameter> by press the tab on the top. Find the <Communication> settings.
  - ➢ When using static IP, fill in ID/password and IP (also find the IP on the bottom of the right-corner of DLV), and click <Save>.
  - ➢ When using DHCP dynamic mode, fill in ID/password and IP (also find the IP on the bottom of the corner of DLV), and click <Save>.
- Unplug the USB cable between PC and the XH12



- Short press the first keypad, Start ▶, until “Conn” appeared & connected and then release
- Waiting for “Con2” appeared on the LCD.
- Go to <Sensors> list-page, the connected Wi-Fi already discovered on the page.

- The fast pairing wirelessly successfully.

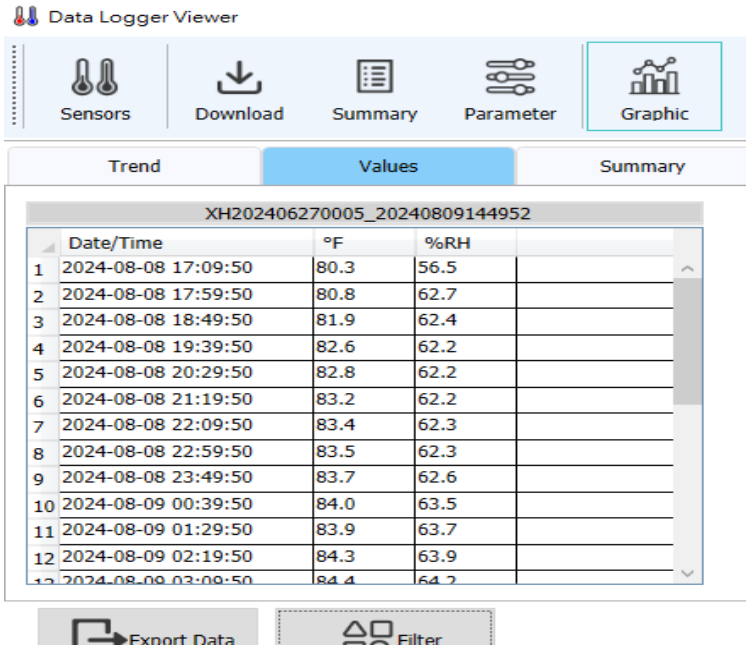
2.3.5 Graphic

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

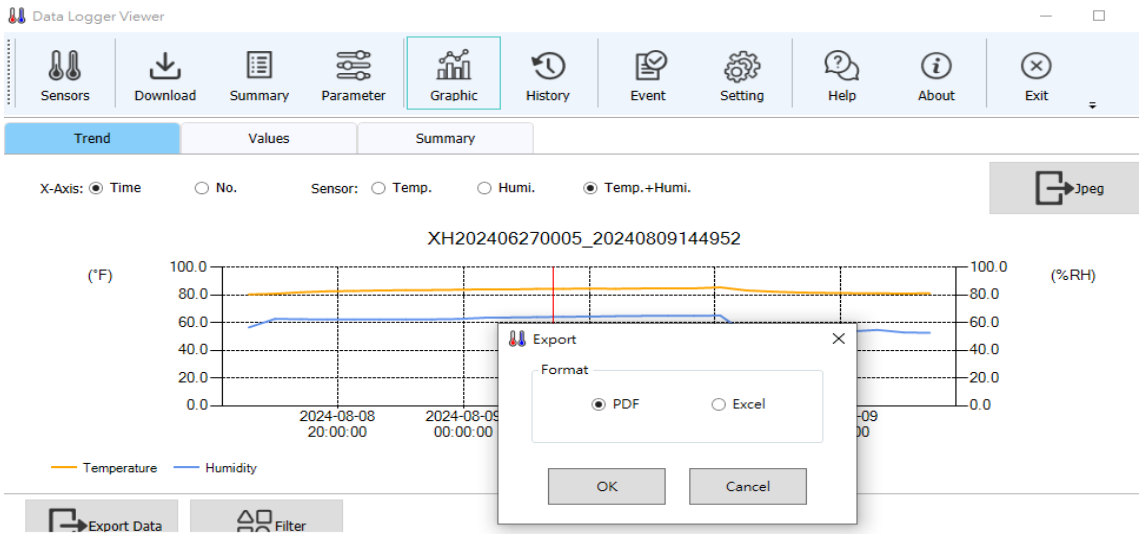
Trend area:

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

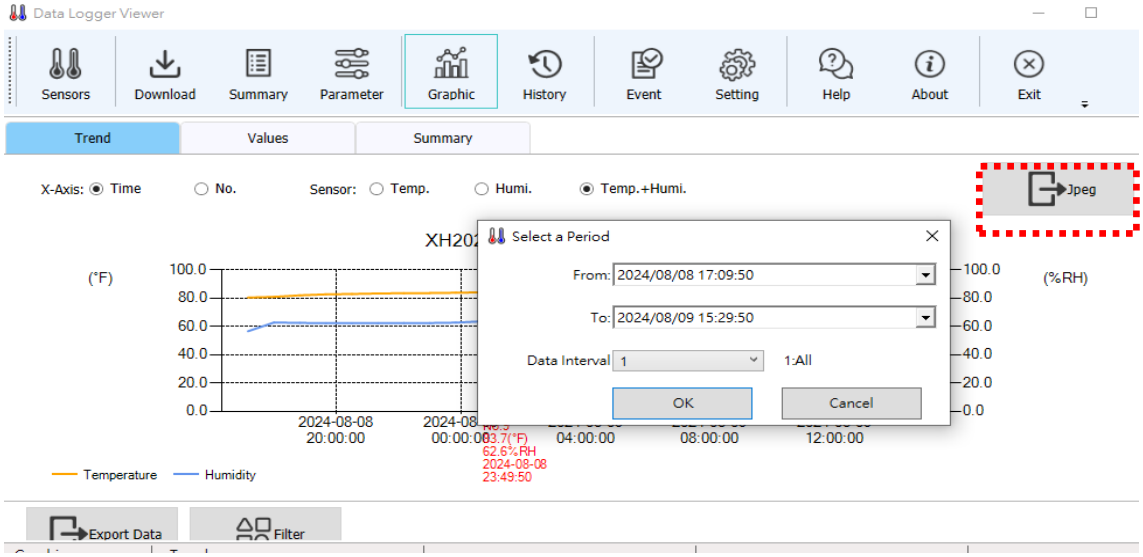
"Sensor" displays temperature, humidity or temperature and humidity

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"

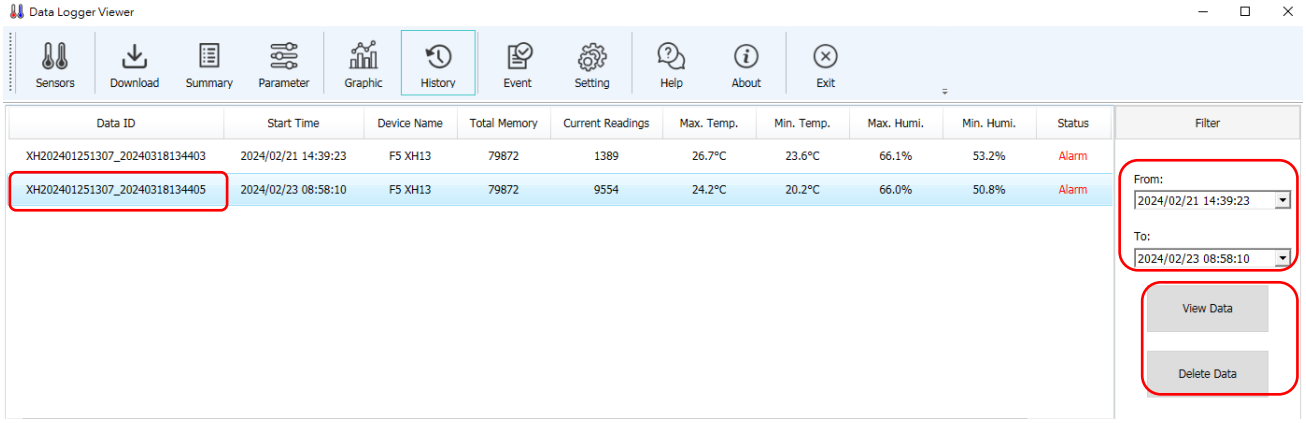


Click "Jpeg" on the upper right corner to export trend.

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

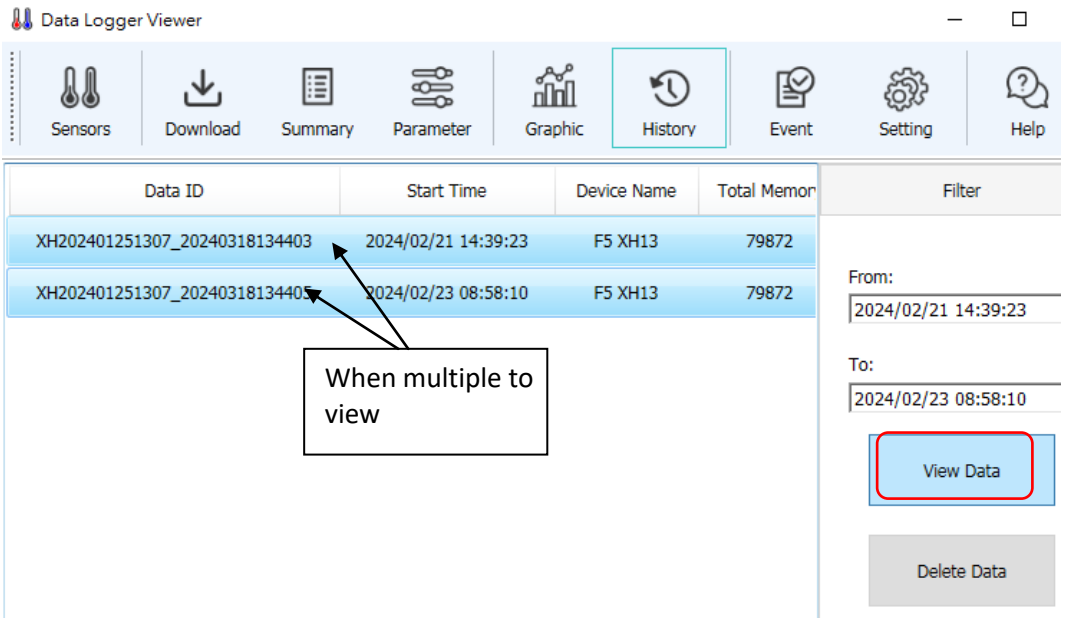
2.3.6 History

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.



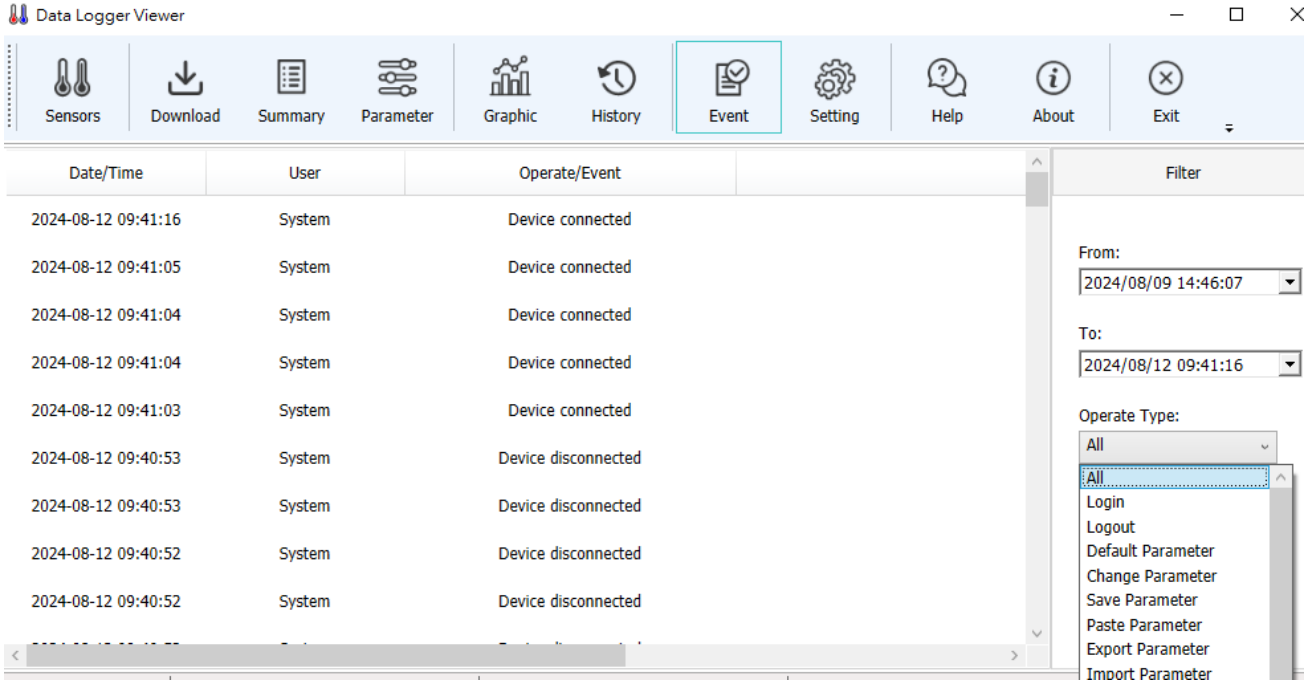
Multiple Data View

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



2.3.7 Event

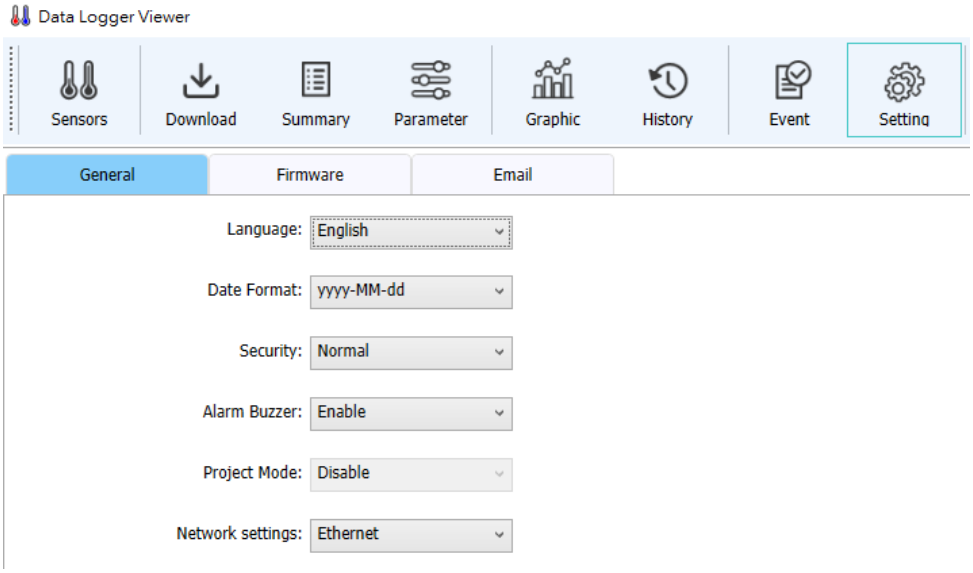
Click on Event to view a log of event, such as login and logout times. The historical events can be filtered using the <From> and <To> period, Operation type and User selection on the right side.



2.3.8 System Configuration

2.3.8.1 General Settings

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.



2.3.8.2 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.

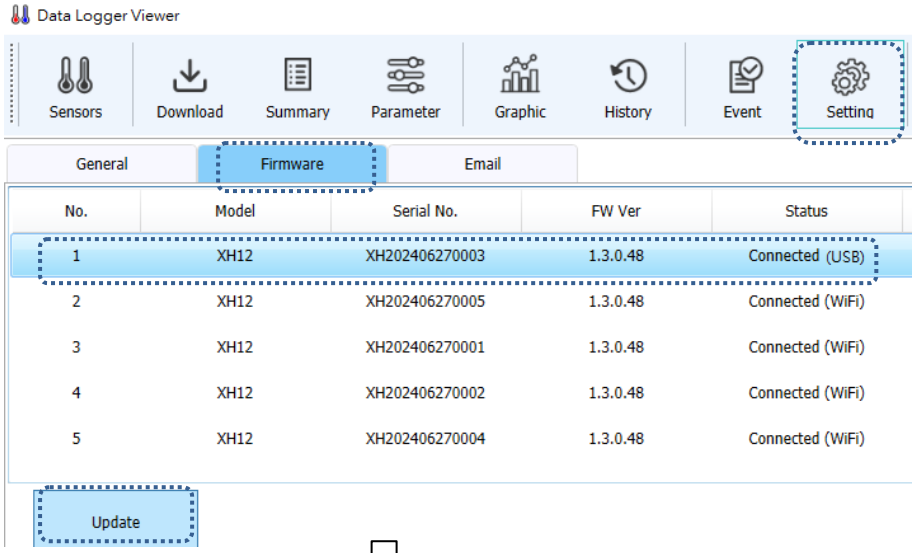
Please download the latest firmware from the website of the original manufacturer.

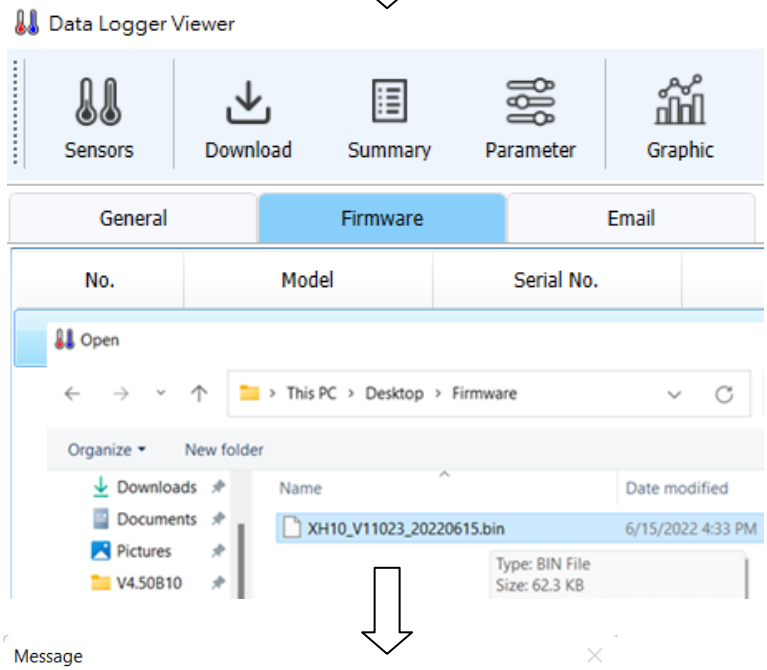
Firmware Update procedure as follows:

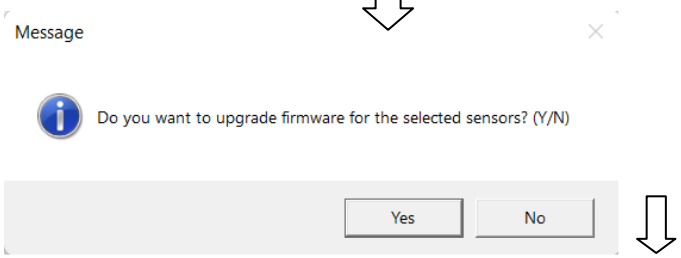
- Connect and link with Data Logger Viewer software via micro USB port.
- Connect and link with Data Logger Viewer (DLV) software.
- Open DLV ->”Setting”-> ”Firmware” -> Click the device (USB Connected) to be updated ->Click the Update button ->Select the firmware file *.bin -> ”Yes” -> ”Ok” -> complete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

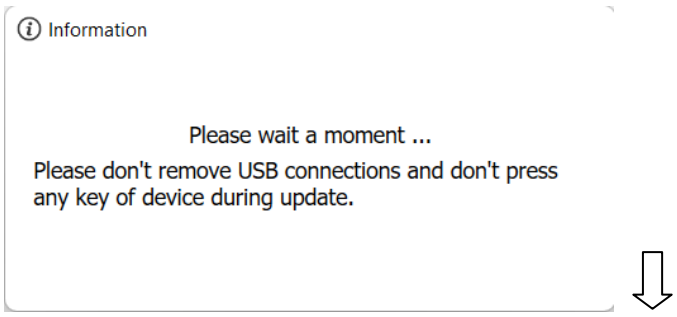
  *** ⚠Note:

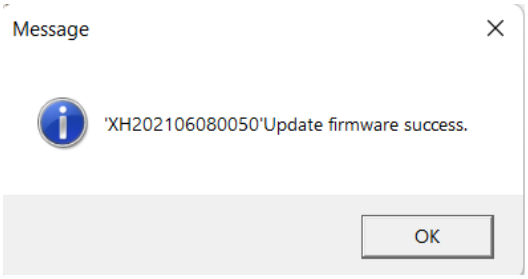
  Notice! Do not disconnect the device or press any button until the firmware update is complete.


Data Logger Viewer
Sensors
Download
Summary
Parameter
Graphic
History
Event
Setting
General
Firmware
Email
No.
Model
Serial No.
FW Ver
Status
1 XH12 XH202406270003 1.3.0.48 Connected (USB)
2 XH12 XH202406270005 1.3.0.48 Connected (WiFi)
3 XH12 XH202406270001 1.3.0.48 Connected (WiFi)
4 XH12 XH202406270002 1.3.0.48 Connected (WiFi)
5 XH12 XH202406270004 1.3.0.48 Connected (WiFi)
Update


Data Logger Viewer
Sensors
Download
Summary
Parameter
Graphic
General
Firmware
Email
No.
Model
Serial No.
Open
This PC › Desktop › Firmware
Organize
New folder
Downloads
Documents
Pictures
V4.50B10
Name
Date modified
XH10_V11023_20220615.bin
6/15/2022 4:33 PM
Type: BIN File
Size: 62.3 KB


Message
Do you want to upgrade firmware for the selected sensors? (Y/N)
Yes
No

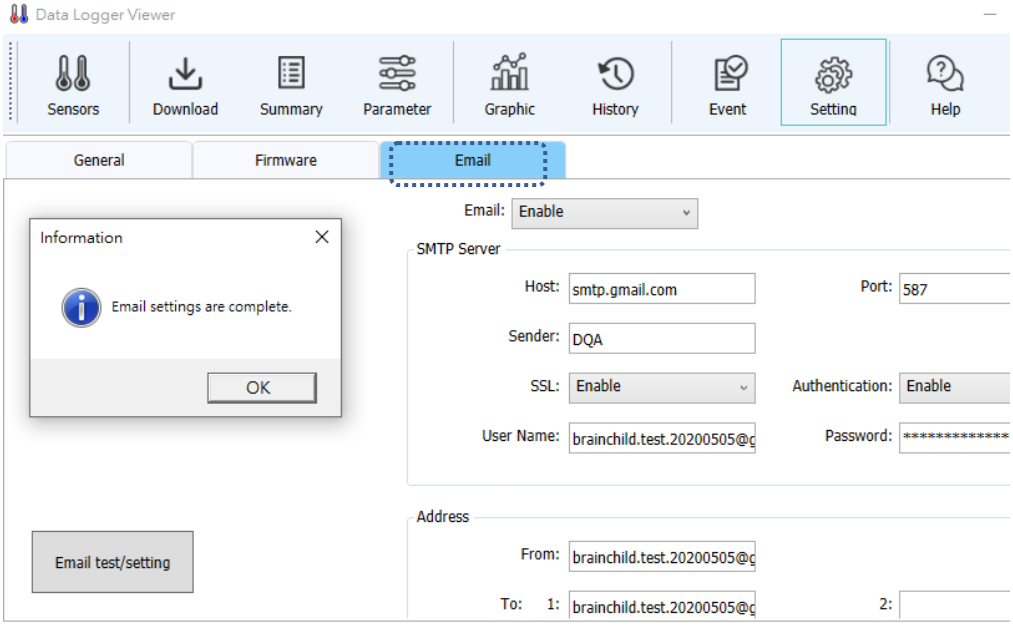

Information
Please wait a moment ...
Please don't remove USB connections and don't press any key of device during update.



Notice: Wireless firmware update & older firmware update, please check the section for more details, XH12 wireless pairing & operation -> Update XH12 (Wi-Fi connected)

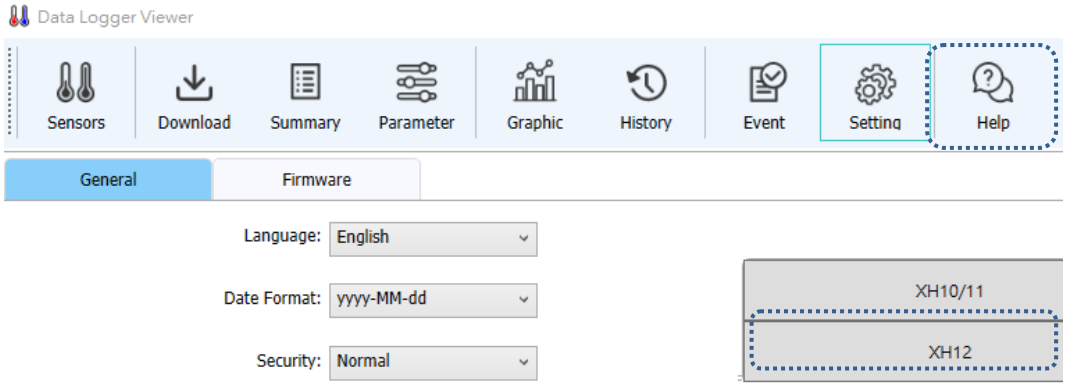
2.3.8.3 General Settings

Enable to set email notification to multiple emails notification



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 XH12 Wireless Pairing & Operation

3.1 DLV Software Activation

XH12 Pairing Video

❖ **Data Configuration/ Analysis**

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

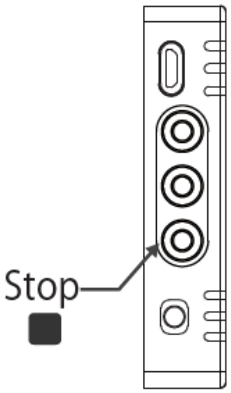
*** ⚠Note:

*Recording has been locked by default factory settings, please reset time zone firstly & time interval.

- Unpack your data logger package. Use one USB to micro-USB cable to attach XH12 and your PC via a USB data transmission cable.
- Download DLV, the Data Logger Viewer software, from the manufacturer's website. (https://www.brainchildtw.com/product-Data-Logger-Viewer-DLV.html)
- Download and install DLV software, referring to the section, Data Logger Viewer (DLV) Operation >> Installation
- After when the device connected to DLV, double clicking DLV icon to open the software, please make sure the all device working properly, XH12, DLV and your Wi-Fi connection

3.2 Wi-Fi Connection with XH12 on DLV

3.2.1 Wireless Pairing

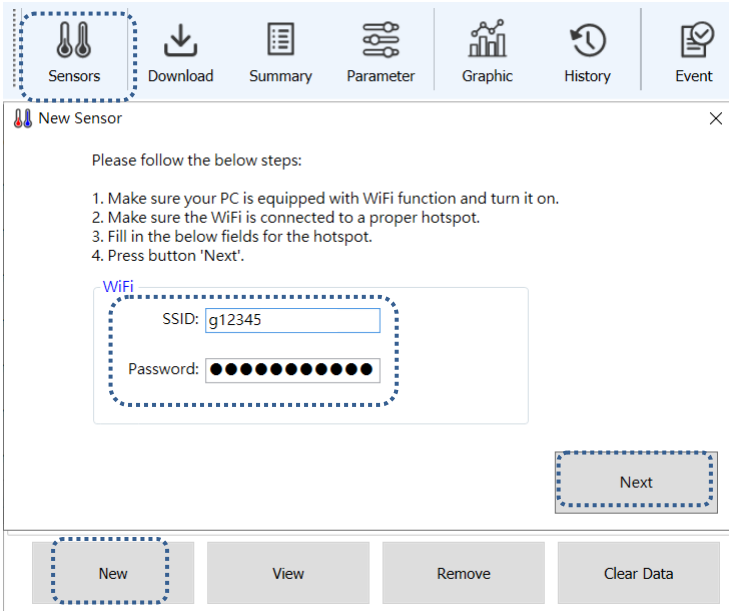


❖ **XH12 & Wi-Fi Pairing**

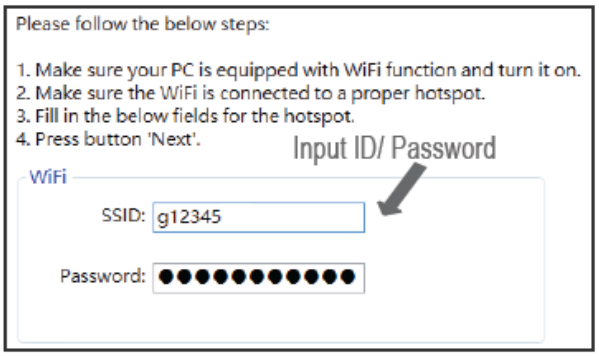
Keypads Operation

- Take one XH12 which is new to the system (If this XH device used before, already paired wireless before, press the third button, STOP ■ key, more than 3 seconds for 5 times, thus clear the previous Wi-Fi setting)
- Unplug the USB cable between PC and the XH12
- Go to **Sensors > New > SSID/PWD > Next > rEG > Finish**

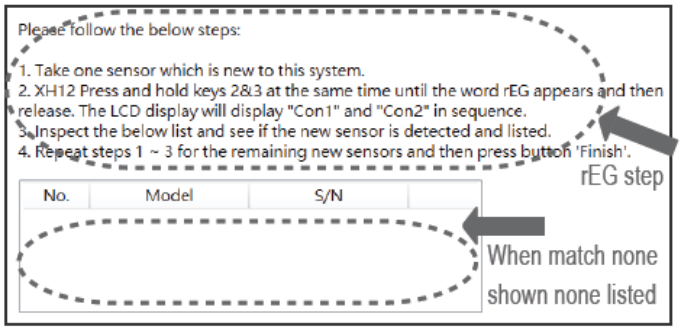
Open the DLV software on your PC. Go to <Sensors> on the top menu. Select one sensor on the list. Click on the bottom tab <New> to add one device with Wi-Fi connection.

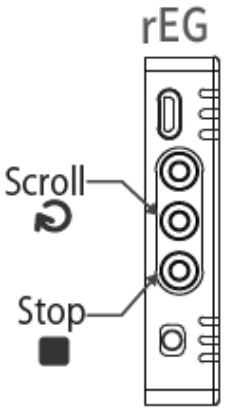


➢ Input ID/ password of connected Wi-Fi of your PC. Click <Next>

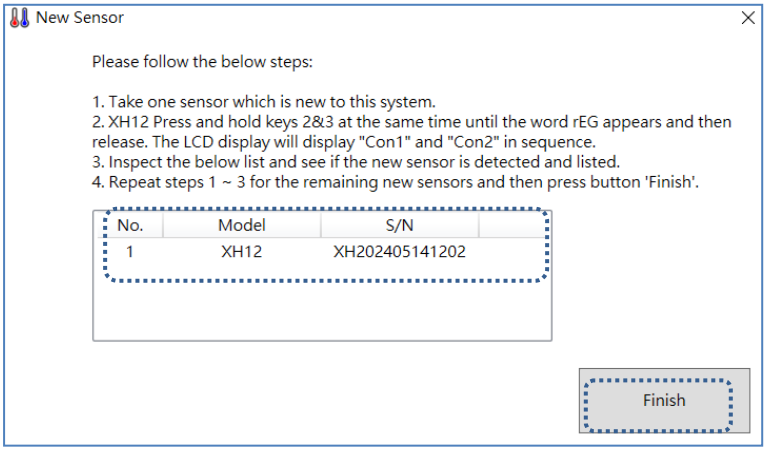


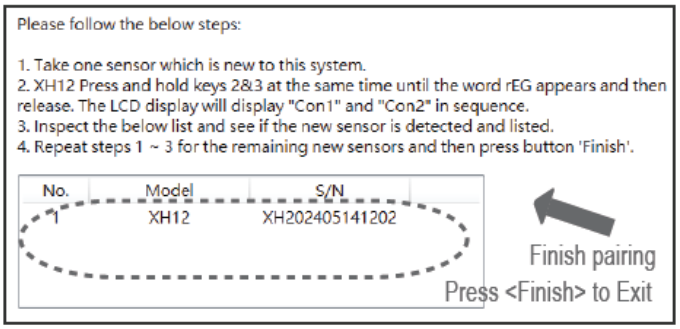
➢ Press and hold sync the 2&3 keys, Scroll + Stop ■, for 3 seconds. rEG registration steps will appear. Release until rEG shown on the screen and then Con1 and Con2 will appear.



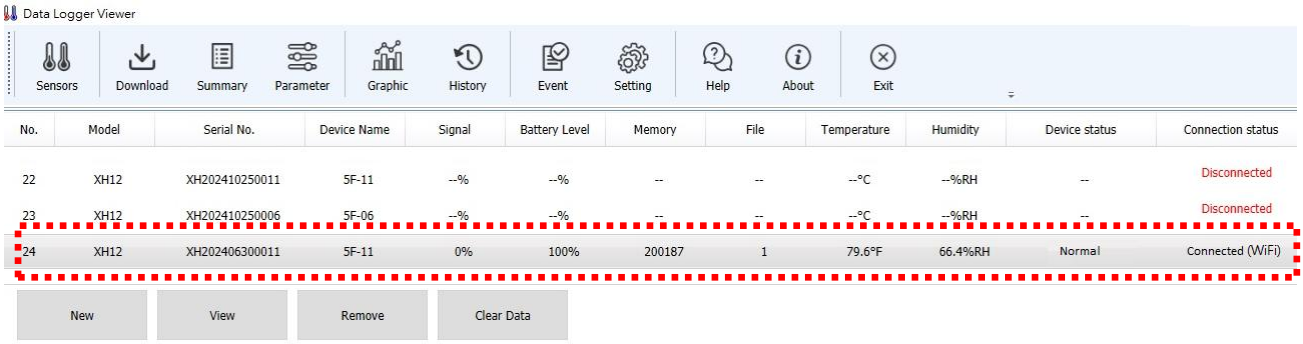


➢ Wi-Fi setting screen appeared on DLV, follow the sequence steps to complete wireless pairing.





➢ Press <Finish> after pairing successfully. Go to <Sensors> list-page, the connected Wi-Fi already discovered on the page.

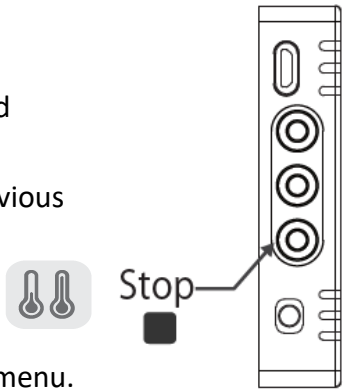


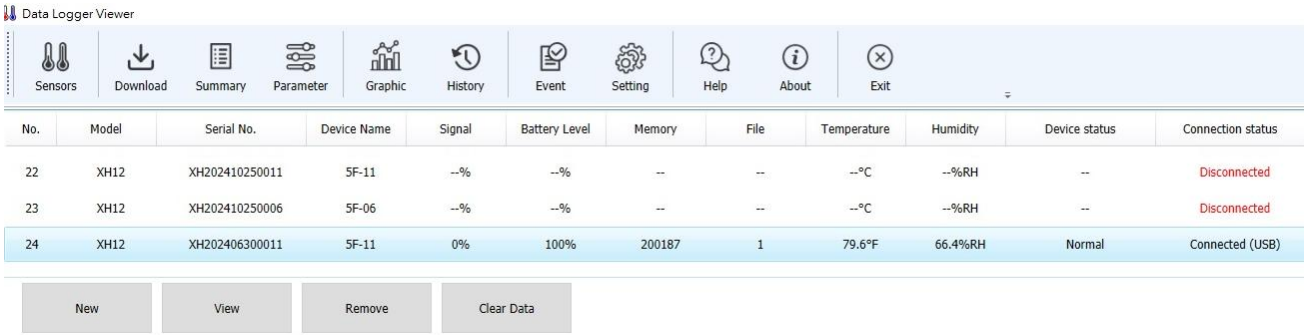
3.2.2 USB+WiFi Quickly Pairing

❖ **XH12 & Wi-Fi Pairing**

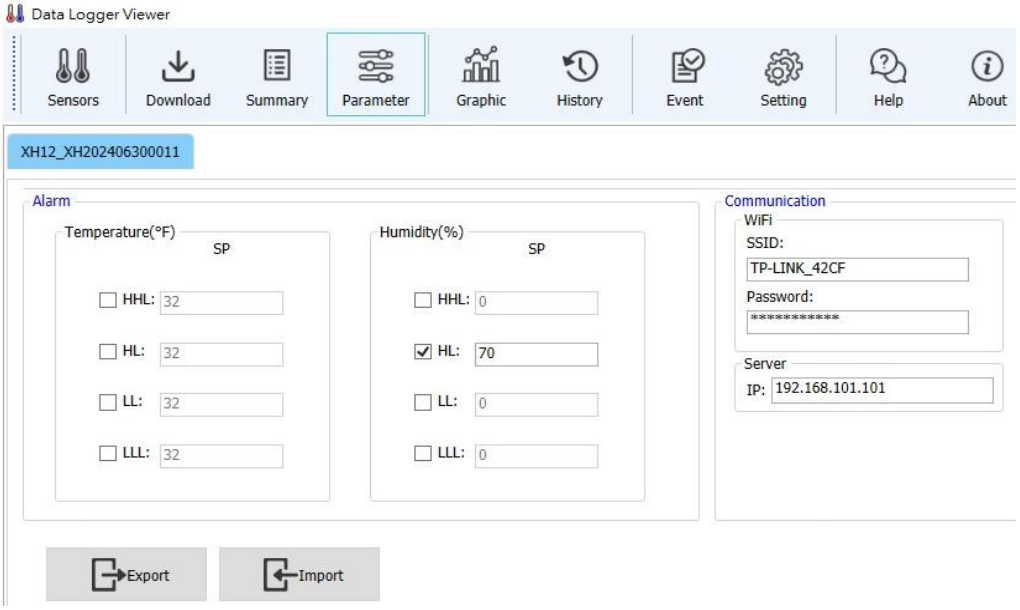
Keypads Operation

- Take one XH12 which is new to the system (If this XH device used before, already paired wireless before, press the third button, STOP ■ key, more than 3 seconds for 5 times, thus clear the previous Wi-Fi setting)
- Connect PC and the XH12 via USB data transmission cable
- Connect and link with Data Logger Viewer (DLV) software on PC
- Open the DLV software on your PC. Go to <Sensors> on the top menu. Select this XH12 (USB connected) on the list.

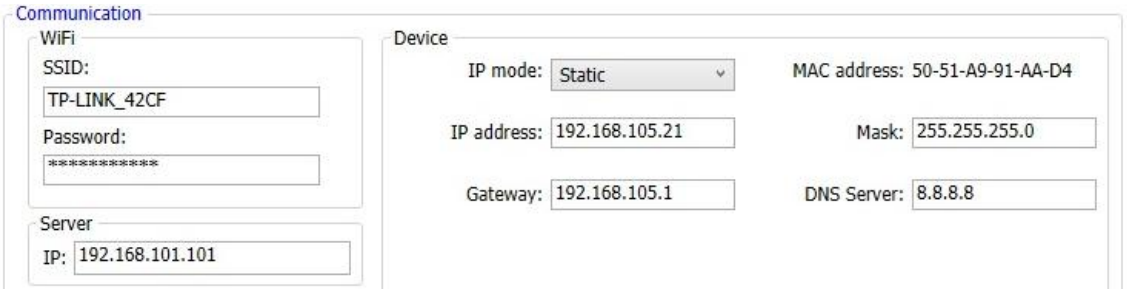




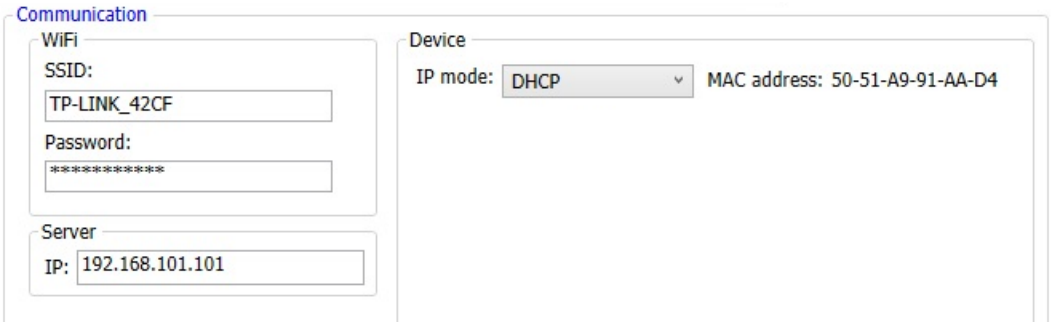
- Go to **Sensors > Parameter > Communication**. Select one XH and press the row of XH name, entering <Parameter> by press the tab on the top. Find the <Communication> settings.



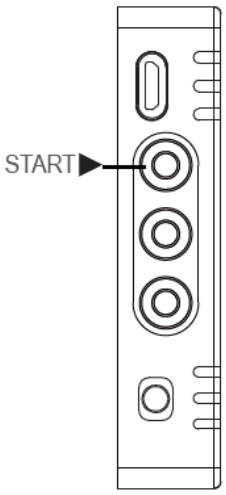
➢ When using static IP, fill in ID/password and IP (also find the IP on the bottom of the right-corner of DLV), and click <Save>.

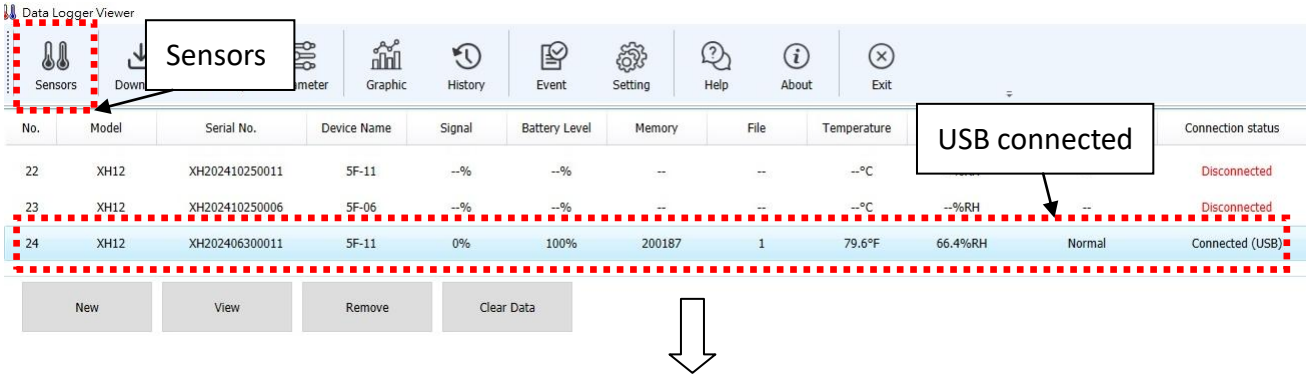


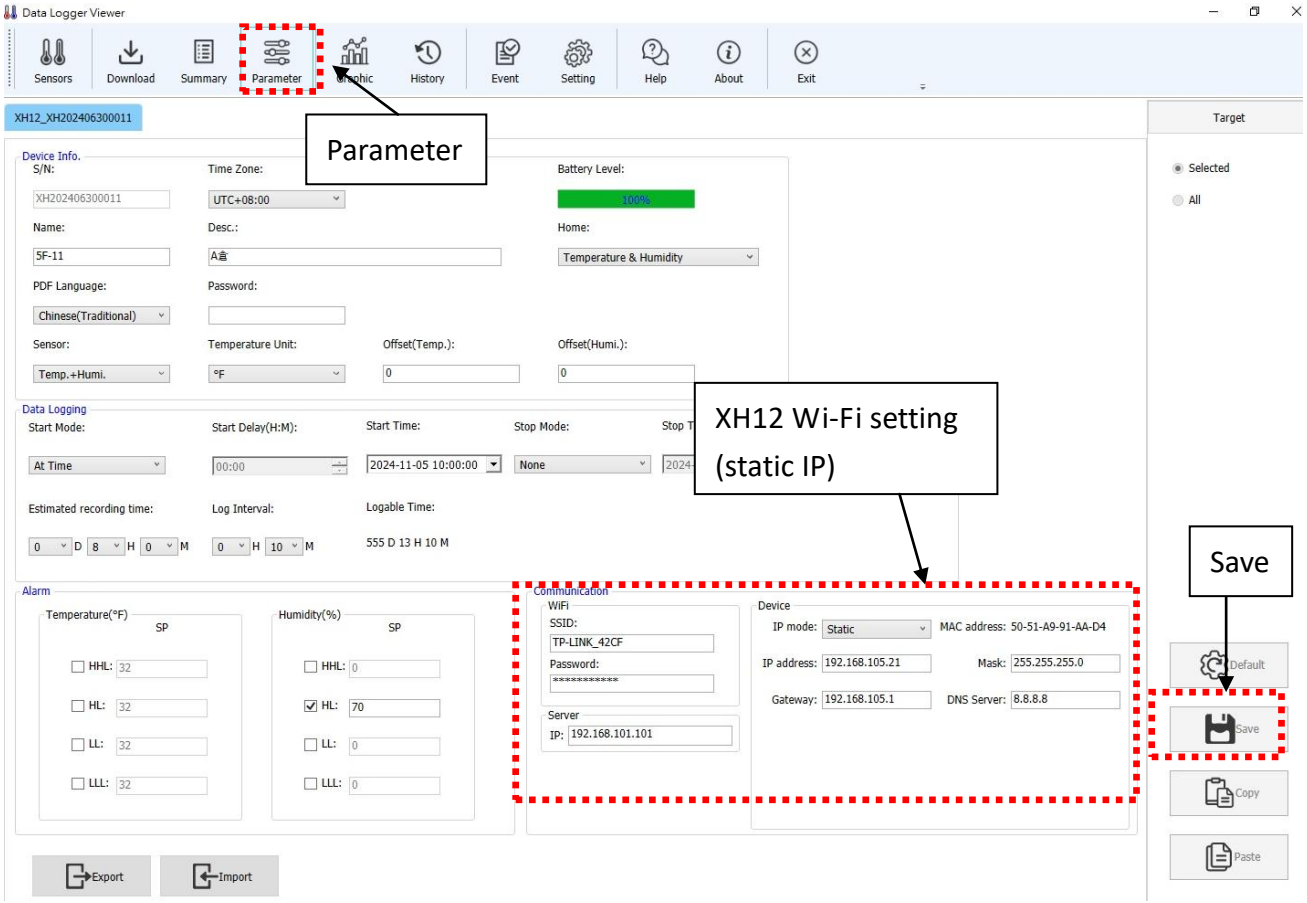
➢ When using DHCP dynamic mode, fill in ID/password and IP (also find the IP on the bottom of the corner of DLV), and click <Save>.

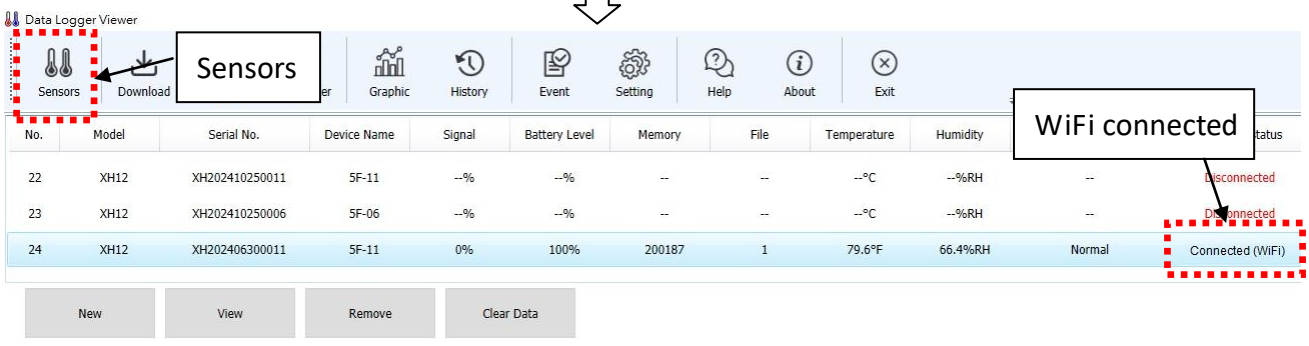


- Unplug the USB cable between PC and the XH12
- Short press the first keypad, Start ▶, until “Conn” appeared & connected and then release
- Waiting for “Con2” appeared on the LCD.
- Go to <Sensors> list-page, the connected Wi-Fi already discovered on the page.
- The fast pairing wirelessly successfully.




Data Logger Viewer
Sensors
Graphic
History
Event
Setting
Help
About
Exit
No.
Model
Serial No.
Device Name
Signal
Battery Level
Memory
File
Temperature
Connection status
22 XH12 XH202410250011 5F-11 --% --% -- -- --°C Disconnected
23 XH12 XH202410250006 5F-06 --% --% -- -- --°C --%RH -- Disconnected
24 XH12 XH202406300011 5F-11 0% 100% 200187 1 79.6°F 66.4%RH Normal Connected (USB)
USB connected
New
View
Remove
Clear Data


Data Logger Viewer
Sensors
Download
Summary
Parameter
Graphic
History
Event
Setting
Help
About
Exit
Parameter
XH12_XH202406300011
Target
Selected
All
Device Info.
S/N:
Time Zone:
Battery Level:
XH202406300011
UTC+08:00
100%
Name:
Desc.:
Home:
5F-11
A倉
Temperature & Humidity
PDF Language:
Password:
Chinese(Traditional)
Sensor:
Temperature Unit:
Offset(Temp.):
Offset(Humi.):
Temp.+Humi.
°F
0
0
Data Logging
Start Mode:
Start Delay(H:M):
Start Time:
Stop Mode:
At Time
00:00
2024-11-05 10:00:00
None
Estimated recording time:
Log Interval:
Logable Time:
0 D 8 H 0 M
0 H 10 M
555 D 13 H 10 M
XH12 Wi-Fi setting
(static IP)
Alarm
Temperature(°F)
Humidity(%)
SP
HHL: 32
HL: 32
LL: 32
LLL: 32
HHL: 0
HL: 70
LL: 0
LLL: 0
Communication
WiFi
SSID:
TP-LINK_42CF
Password:
Server
IP: 192.168.101.101
Device
IP mode: Static
MAC address: 50-51-A9-91-AA-D4
IP address: 192.168.105.21
Mask: 255.255.255.0
Gateway: 192.168.105.1
DNS Server: 8.8.8.8
Save
Default
Save
Copy
Paste
Export
Import


Data Logger Viewer
Sensors
Download
Graphic
History
Event
Setting
Help
About
Exit
No.
Model
Serial No.
Device Name
Signal
Battery Level
Memory
File
Temperature
Humidity
22 XH12 XH202410250011 5F-11 --% --% -- -- --°C --%RH -- Disconnected
23 XH12 XH202410250006 5F-06 --% --% -- -- --°C --%RH -- Disconnected
24 XH12 XH202406300011 5F-11 0% 100% 200187 1 79.6°F 66.4%RH Normal Connected (WiFi)
WiFi connected
New
View
Remove
Clear Data

3.3 Activate Data Configuration & Analysis

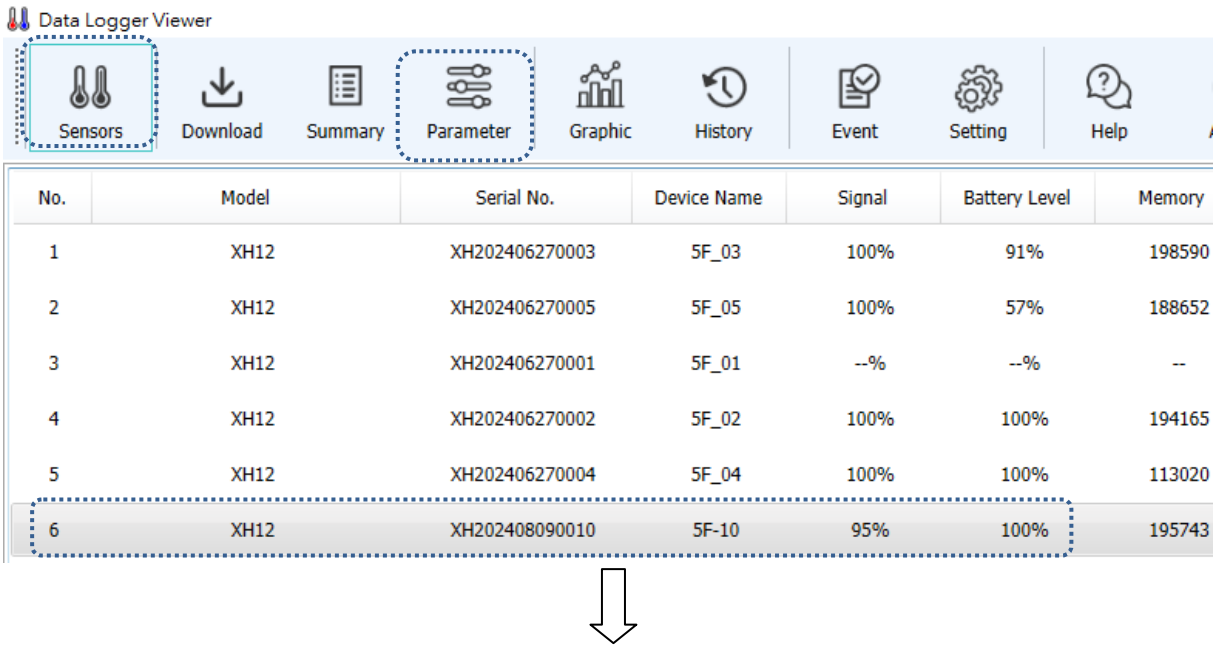
3.3.1 Reset Time Zone/ Log Interval

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

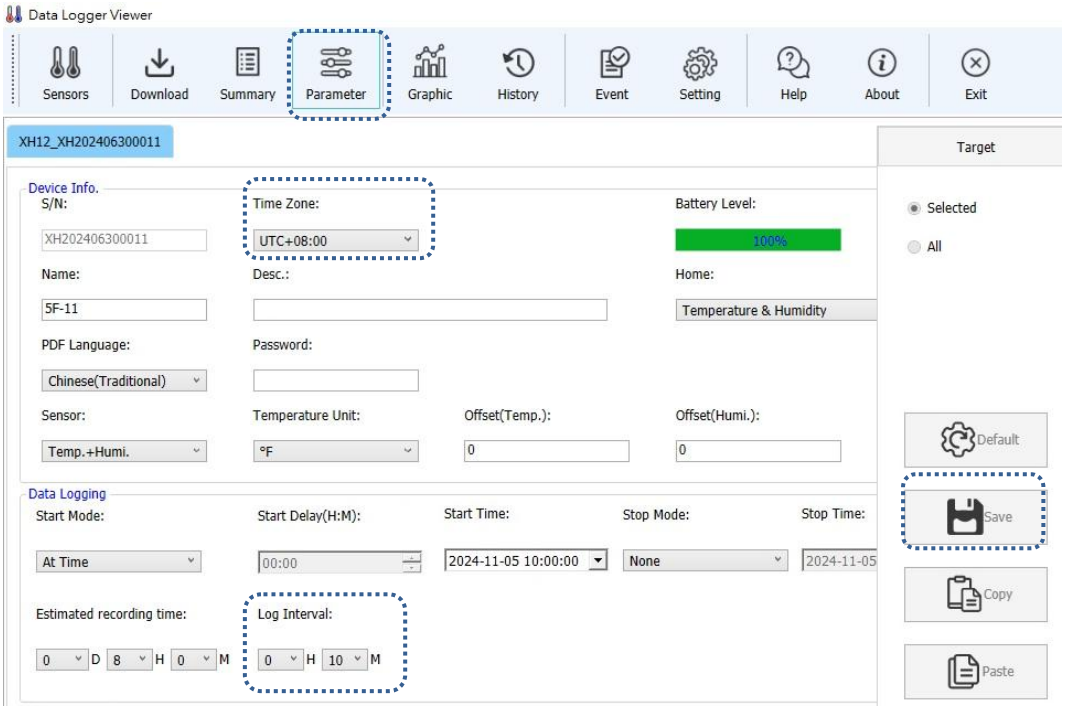
- Connect the XHLogger to PC, micro-USB plug of the USB cable into the PC USB port.
  *Use only USB data file transfer cables to collect data for analysis
- The Sensor list will renew newly discovered devices, click <View> of new items
- **Sensors > Parameter > Time Zone & Log Interval**
  - Go to <Parameter> set your local time zone
  - Set <Log Interval>, the number must not be zero
  - Press <Save> after all settings applied

*** ⚠Note:

Notice! Recording has been locked by default factory settings, please reset the time zone firstly & time interval.



No.	Model	Serial No.	Device Name	Signal	Battery Level	Memory
1	XH12	XH202406270003	5F_03	100%	91%	198590
2	XH12	XH202406270005	5F_05	100%	57%	188652
3	XH12	XH202406270001	5F_01	--%	--%	--
4	XH12	XH202406270002	5F_02	100%	100%	194165
5	XH12	XH202406270004	5F_04	100%	100%	113020
6	XH12	XH202408090010	5F-10	95%	100%	195743



3.3.2 Update XH12 Latest Firmware

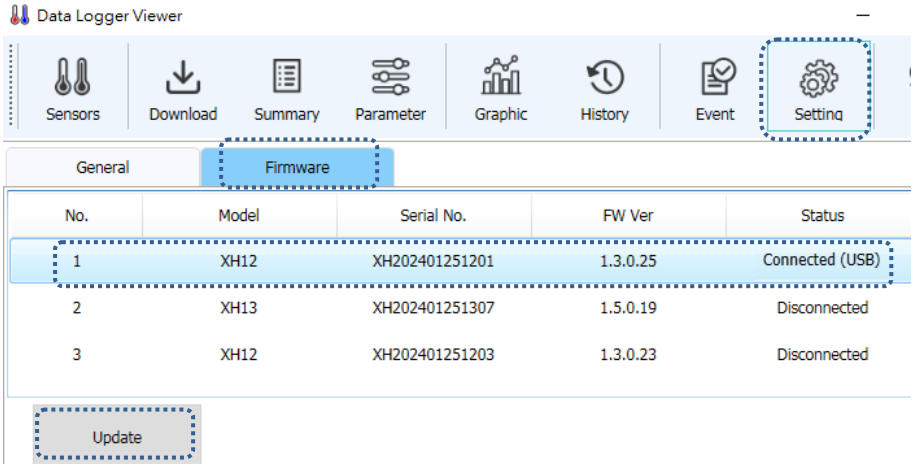
Update XH12 (USB connected)

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. 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.



Update XH12 (Wi-Fi connected)

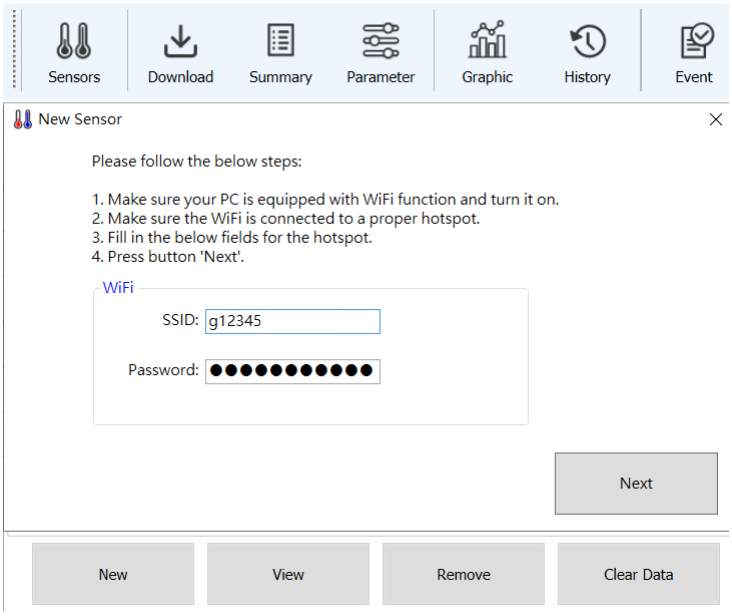
Wirelessly connect and link with DLV (Data Logger Viewer) software through WiFi and unplug the USB transfer cable. Before upgrade,

- Download the latest firmware from the original manufacturer official website and save it to your PC
- Finish registration and pairing with the XH12 for upgrade and DLV on the PC

Register & Pairing

➢ Register & Pairing one XH12 with DLV, skipping the step if XH12 already registered and finished pairing

Take one XH12, which is new to the system, open DLV on the PC ->"Sensors"-> "New" -> SSID/PWD ->"Next" -> Long press 2&3 keys of the XH12 until rEG appeared. Press <Finish> after pairing successfully. Go to DLV -> "Sensor", this XH12 listed as connected WiFi, the pairing being completed.



Wirelessly update the XH12 Firmware procedure as follows:

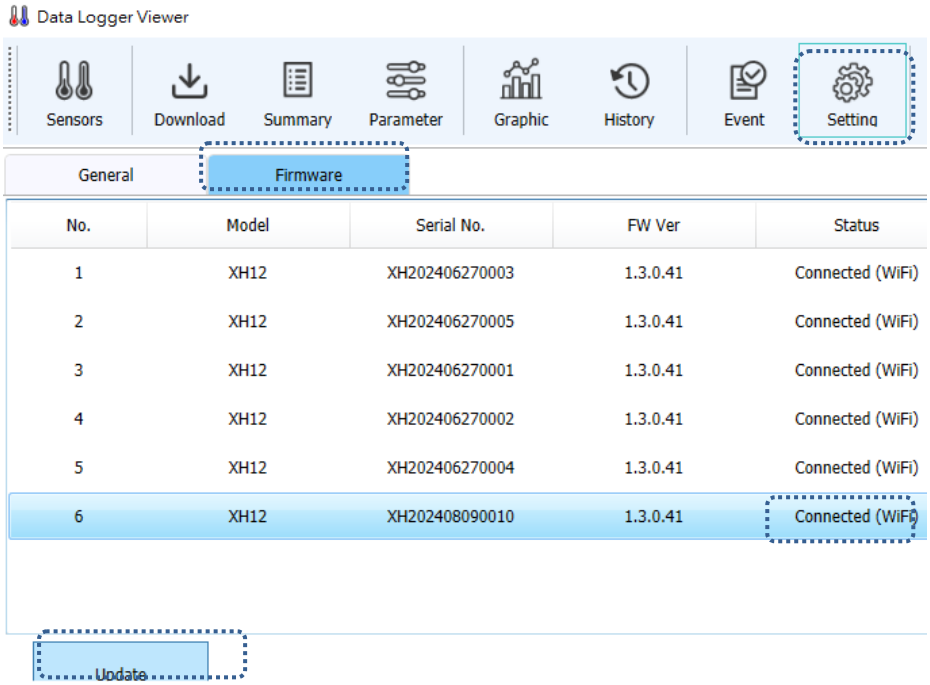
➢ Wirelessly connect and link with DLV (Data Logger Viewer) software through WiFi and unplug the USB transfer cable.

➢ Connect the XH logger device to the DLV on PC. Open DLV ->"Setting"-> "Firmware" ->

Click the device (WiFi Connected) to be updated ->Click the Update button -> Select the firmware file *.bin -> "Yes" -> "Ok". Follow steps to complete the firmware update and do not disconnect during update.

*** ⚠ Note:

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



Update older XH12 (v1.3.0.41 or order, W-iFi Connected)

Firmware & DLV update procedure as follows for XH12 version v1.3.0.41 or older:

*** ⚠ Note:

Notice! If the XH12 firmware version is v1.3.0.41 or order, before upgrading the DLV version and XH12 firmware, the required steps should be taken as follows:

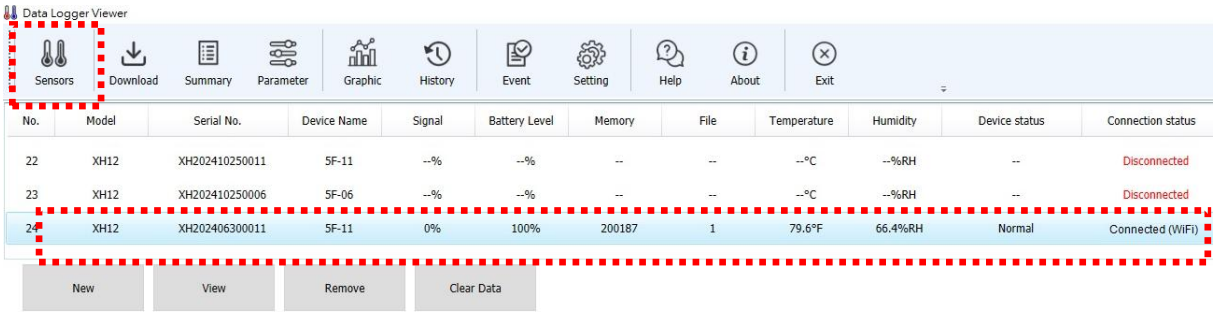
- Must have a *.bin file and a *.tar file. Use these 2 files to upgrade XH12 Firmware to the version, v1.3.0.48. (20241114105638_XH12_1.3.0.48.tar) (XH12_1.3.0.48.bin)
- Must have the DLV latest software zip file such as (v2.1.0.13-Mix.zip)

**For compatibility issue, firstly update the XH12 Firmware to v1.3.0.48 and then update DLV software on your PC to the version v2.1.0.13

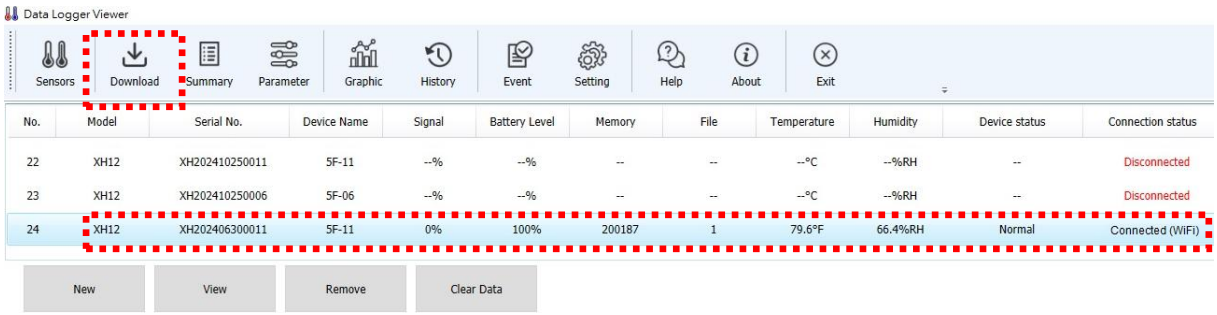
*** ⚠ Note:

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

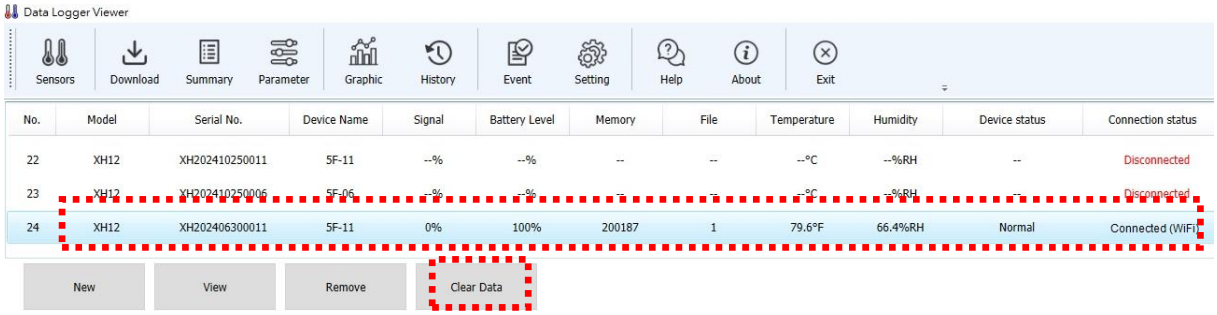
➢ Unplug the USB transfer cable between the PC and the device XH12 to make sure that the device wirelessly connects and links with Data Logger Viewer (DLV) software via WiFi correctly



- Plug the USB transfer cable between PC and the device. Connect and link with DLV software on PC to download DLV data backup. Go to DLV ->"Sensors"-> Click this XH12 line -> "Download". (C:\Data Logger Viewer\DataLogger.db)

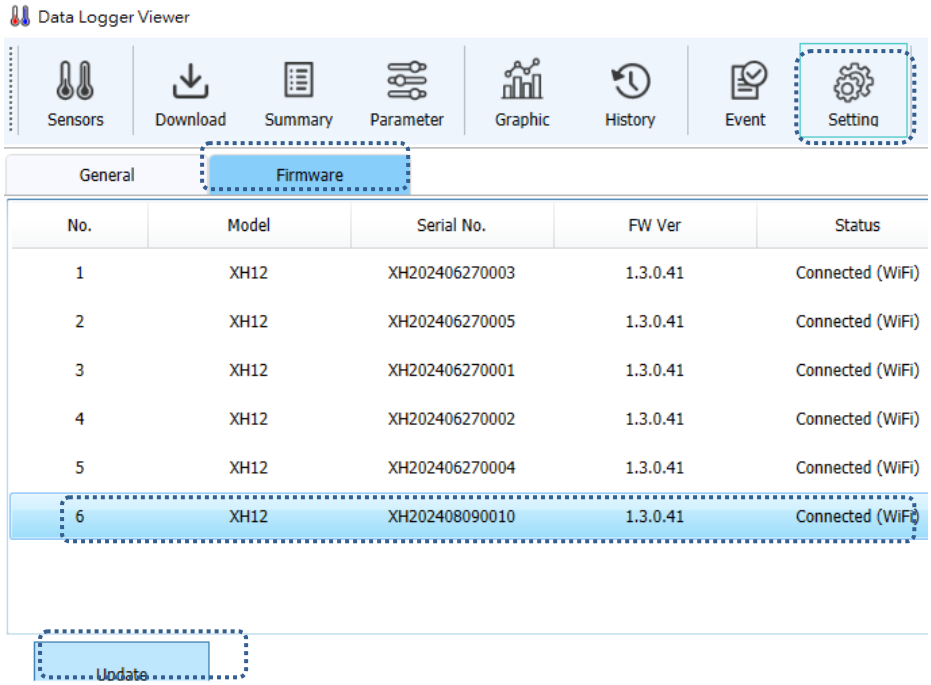


- Select this XH12 for data clearance. Go to DLV -> "Sensors" -> Click this XH12 line -> "Clear Data". Unplug the USB cable after data clearing.



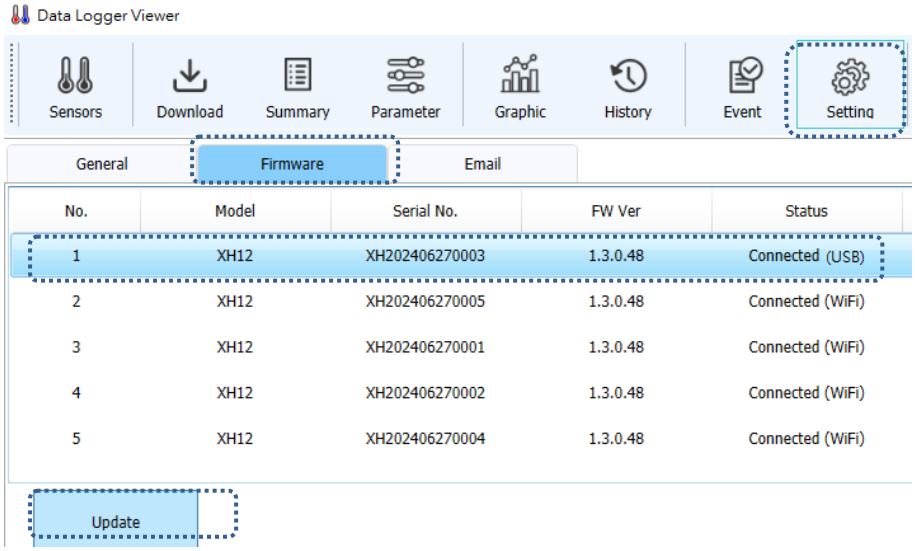
- Confirm again wirelessly linkage with DLV via WiFi correctly
- <u>Use the *.tar file</u>

  Go to DLV ->"Setting"-> "Firmware" -> Click this XH12 line (WiFi connected status, firmware version v1.3.0.41 or older) -> Click the Update button -> Select the firmware file *.tar (20241114105638_XH12_1.3.0.48.tar) -> "Yes" -> "Ok". "UPGR" will appear on the LCD screen until XH12 screen returned to normal.



➢ Use the *.bin file

Connect and link with the DLV on PC via USB cable. Go to DLV ->”Setting”-> ”Firmware” -> Click this XH12 line (USB connected) -> Click the Update button -> Select the firmware file *.bin (XH12_1.3.0.48.bin) -> ”Yes” -> ”Ok”. “UPGR” will appear on the LCD screen until XH12 screen returned to normal.



➢ Unzip and install the file to upgrade the DLV software version to v2.1.0.13 (Get and open v2.1.0.13-Mix.zip)

➢ Delete the database file *.db under the installation directory (C:\Data Logger Viewer\DataLogger.db)

➢ Restart the DLV software again and make sure WiFi connection correctly

4 Operation Mode and Keypads

4.1 XH12 Operation

4.1.1 XH12 Operation of Keypads

Action	XH12 three keypads
Start ▶ – Short press	Reconnection
Start ▶ – Long press more than 3 sec	Start recording
SCROLL/MENU ↻ – Short press	Toggle screen/ menu views
SCROLL ↻ + STOP ■ – Long press	Activation registration/ pairing
Stop ■ – Press & hold for 5 times continuously	Reset Wi-Fi setting and clear old Wi-Fi pairing
Stop ■ – Long press more than 3 sec	Stop recording after logging
	Sleeping mode before logging
Any key ▶ / ↻ / ■ – Short press	Wakeup from sleep mode
Restart button: Press a white button on the board from the back panel	Restart the device; please refer to the chapter, XH12 Restart button

4.1.2 XH12 Operation Mode

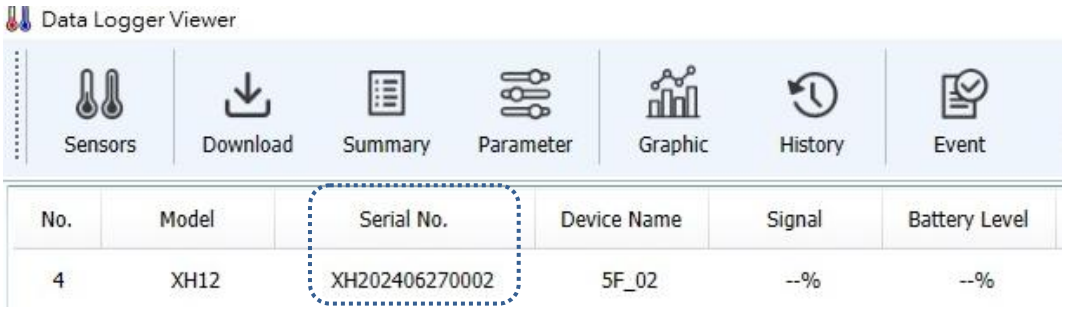
Start Recording	XH12 Description
Immediate (PC)	Immediate recording after configuration when setting activation from DLV
Button (XH12)	Long Press START ▶ key for more than 3 sec when setting the XH through DLV
	The button mode also working with <Start Delay>, long press START ▶ key for more than 3 sec. 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	**XH12 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

4.2 Operaion Modes

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

❖ **USB mode (XH12)**

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 XH12.
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 XH12.
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 XH12.

❖ **Shutdown mode**

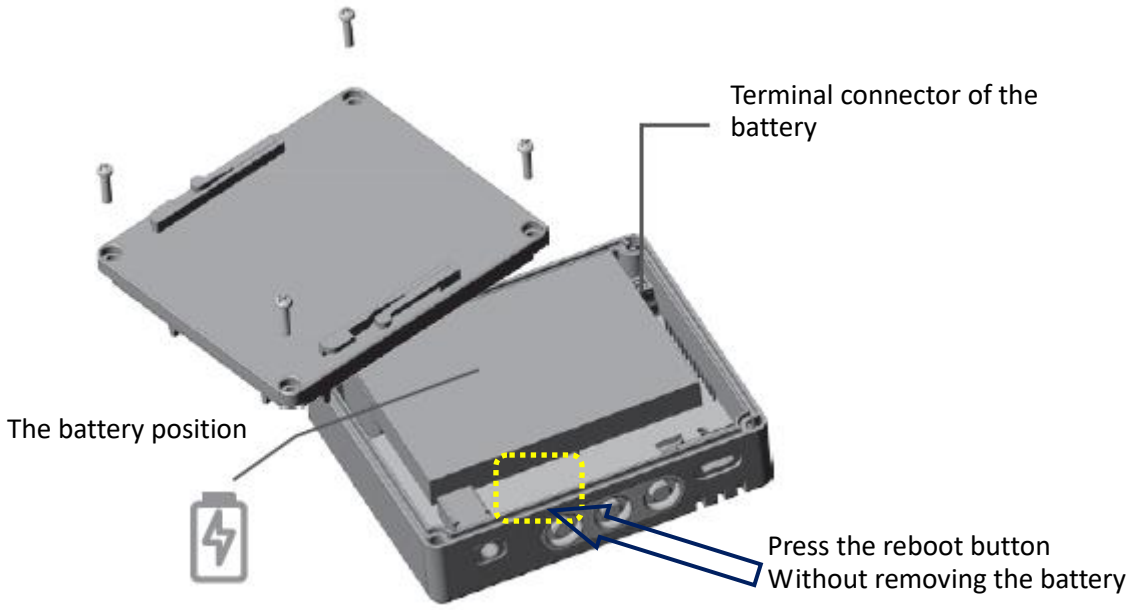
The shutdown mode can only be entered via a device is at monitoring mode. Once the user press ■ STOP key for more than three seconds while the device is in Monitoring mode, the device enters the shutdown mode. This will turn off LCD, LED, and all circuits except real-time clock (RTC) function at the 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 XH12. The user can press any key to bring the device back to monitoring mode. If the unit does not respond, perform a system restart.

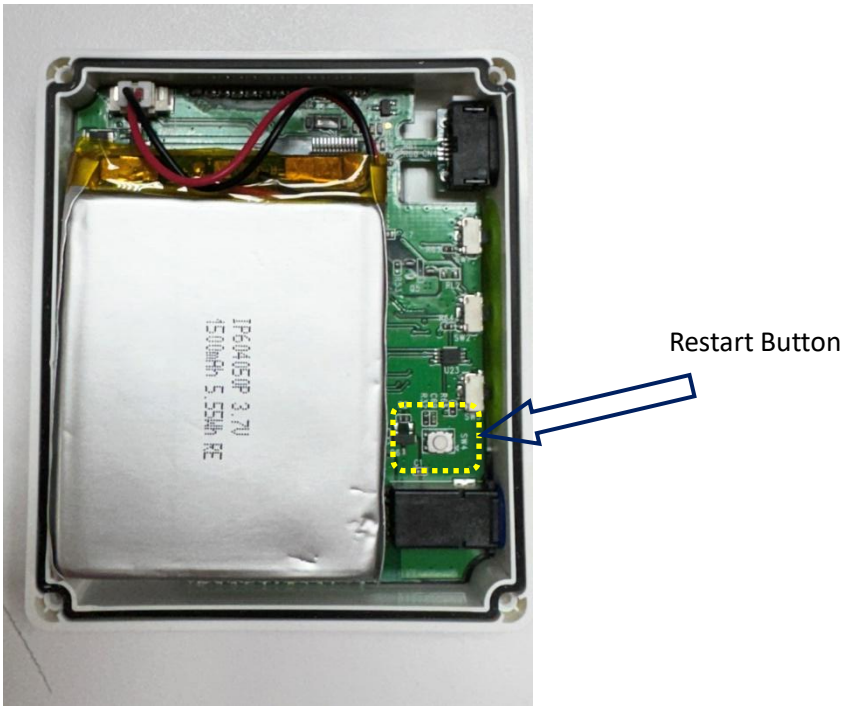
❖ **System restart**

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.

When XH12 failed to respond, for the second way to restart the device, you need to reboot the system by disassembling the hardware. On the lower right side of the board, there is a white button for rebooting the system immediately. You need to remove the back cover and press the white button on the main board. Please refer to the section, XH12 Restart button.

4.3 XH12 Reboot Button





5 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.

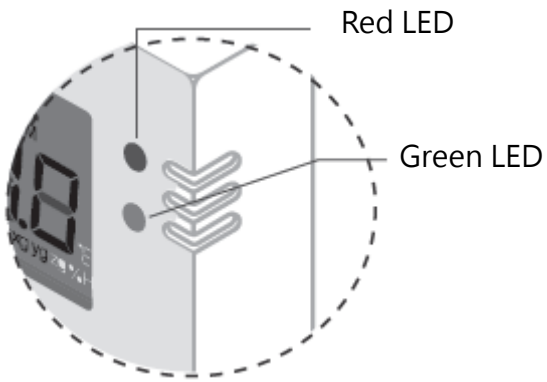
(3) When there is no battery bar icon at the LCD display, it indicates that the battery level is extremely low. Please follow the chapter, Battery, to replace new batteries carefully.

(4) The usage of entire device memory has reached 95% of its total capability.

(5) There is an error on the device.

5.1 XH 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



6 Error Code

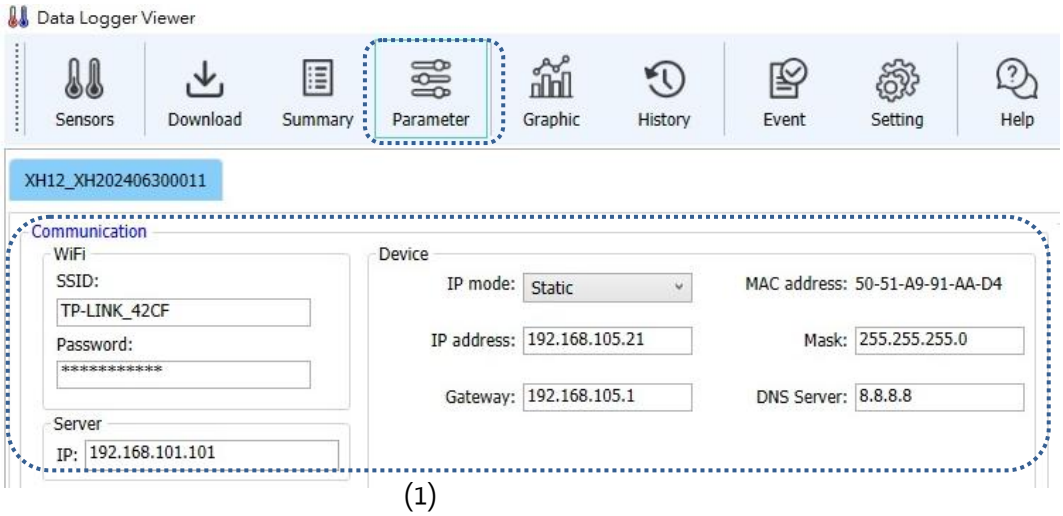
LCD display will flash the current measured value and error code alternately at an every two-second interval. If there is an error symbol will appear on LCD screen. If there is no error, the will not appear on the LCD display

6.1 XH12 Error Code

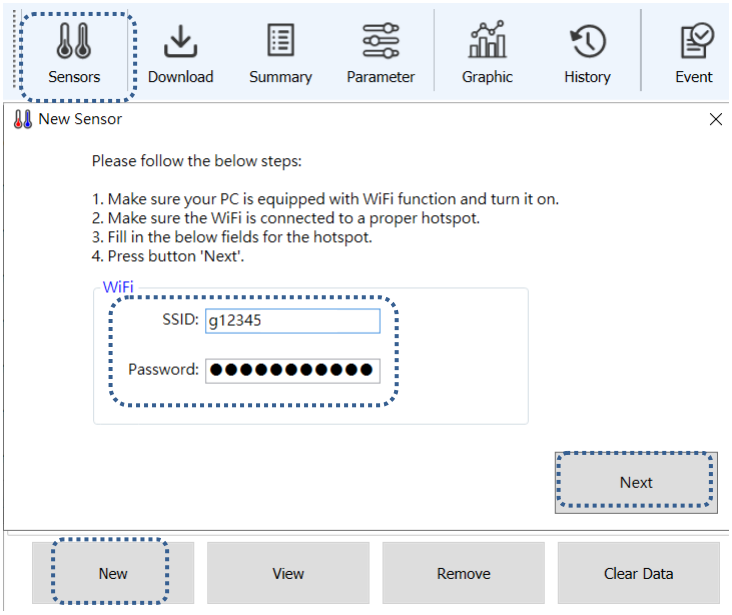
XH12 Data Logger

Error Code	Reason
Er01	Wi-Fi module abnormal disconnection, failed to start, please restart or reset
Er02	DLV registration failure, please registration and pairing again. Go to DLV, Parameter > Communication; or Sensors > New (1) (2)
Er03	Login failed, please check whether ID/Password is correct, Wi-Fi signal as stable
Er04	Failed to connect to DLV, please check if Wi-Fi disconnected or DLV turned off (2)
Er05	Wireless AP failed to connect, please check if the router is working properly.
Er06	Sensor failure, please contact local dealers or the original manufacturer 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)

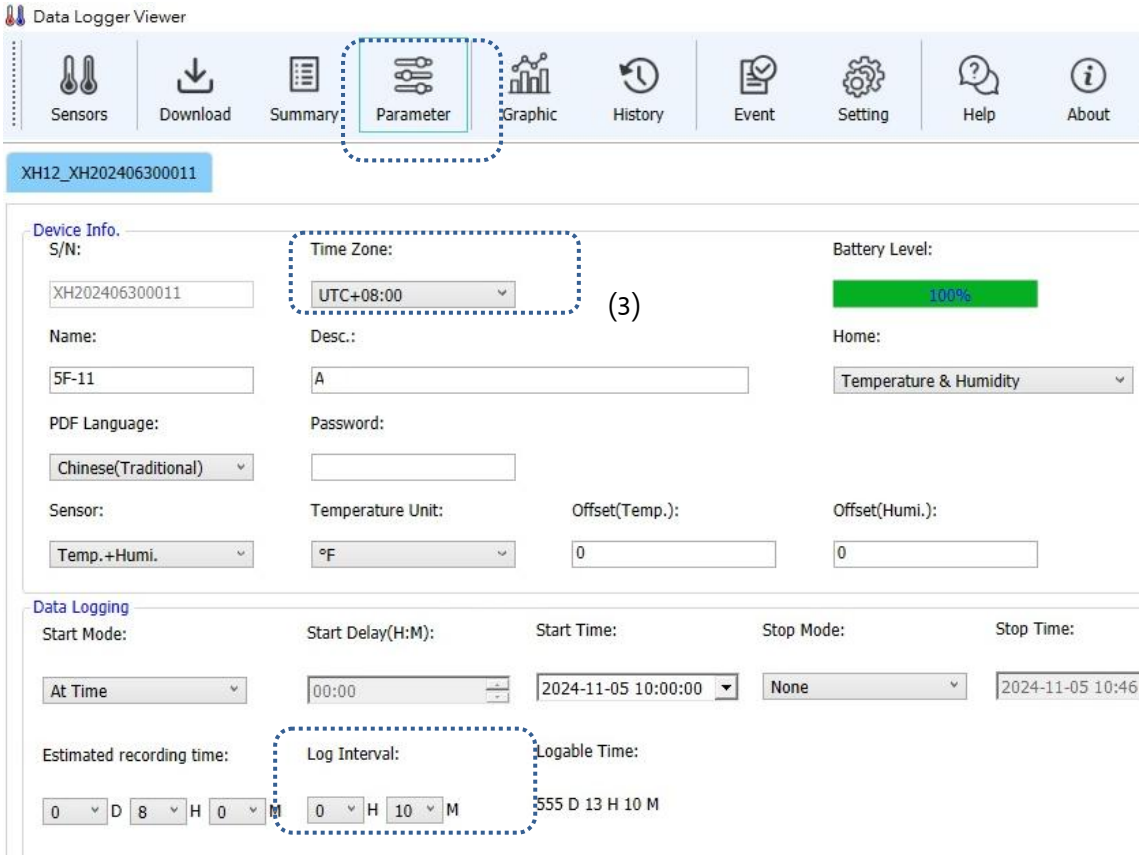
** An error icon will appear when any error occurred/ red led flashing


Data Logger Viewer
Sensors
Download
Summary
Parameter
Graphic
History
Event
Setting
Help
XH12_XH202406300011
Communication
WiFi
SSID:
TP-LINK_42CF
Password:
****
Server
IP: 192.168.101.101
Device
IP mode: Static
MAC address: 50-51-A9-91-AA-D4
IP address: 192.168.105.21
Mask: 255.255.255.0
Gateway: 192.168.105.1
DNS Server: 8.8.8.8

(1)


Sensors
Download
Summary
Parameter
Graphic
History
Event
New Sensor
Please follow the below steps:
1. Make sure your PC is equipped with WiFi function and turn it on.
2. Make sure the WiFi is connected to a proper hotspot.
3. Fill in the below fields for the hotspot.
4. Press button 'Next'.
WiFi
SSID: g12345
Password: ●●●●●●●●●●●
Next
New
View
Remove
Clear Data

(2)


Data Logger Viewer
Sensors
Download
Summary
Parameter
Graphic
History
Event
Setting
Help
About
XH12_XH202406300011
Device Info.
S/N:
XH202406300011
Time Zone:
UTC+08:00
(3)
Battery Level:
100%
Name:
5F-11
Desc.:
A
Home:
Temperature & Humidity
PDF Language:
Chinese(Traditional)
Password:
Sensor:
Temp.+Humi.
Temperature Unit:
°F
Offset(Temp.):
0
Offset(Humi.):
0
Data Logging
Start Mode:
At Time
Start Delay(H:M):
00:00
Start Time:
2024-11-05 10:00:00
Stop Mode:
None
Stop Time:
2024-11-05 10:46
Estimated recording time:
0 D 8 H 0 M
Log Interval:
0 H 10 M
Logable Time:
555 D 13 H 10 M

(4)

7 Battery

7.1 XH12 Power Supply

The wireless XHLogger has two types of power supply, USB powered with charging and battery powered. The XH12 uses a rechargeable battery; when charging, connecting USB port to power supply DC4.25V/1A. (≧1A). When battery powered being used, being reused depending on usage, the battery life cycle and charging cycle varies. When USB-power used, the battery will not consume power during operation.

When the battery power shown  low, please recharge the battery sooner. If the battery is completely drained  (failed to wake it up by pressing any button on the device), it is recommended to recharge or replace to new one and backup data, when the device completely no power, or less than 20%. If completely no power after charging, the internal power applied to RTC (Real Time Clock) is completely drained, unable to wake up by pressing any key. Please replace one new battery.

7.2 XH12 Battery Replacement

* If the power is low or completely no power after charging, please check the installation or the terminal port, if it is properly located, whether the battery broken or life-expiration. If the battery is not inserted well or replacement needed then insert the battery provided, following the instructions below. Or, contact your local dealer for original manufacturer replacement.

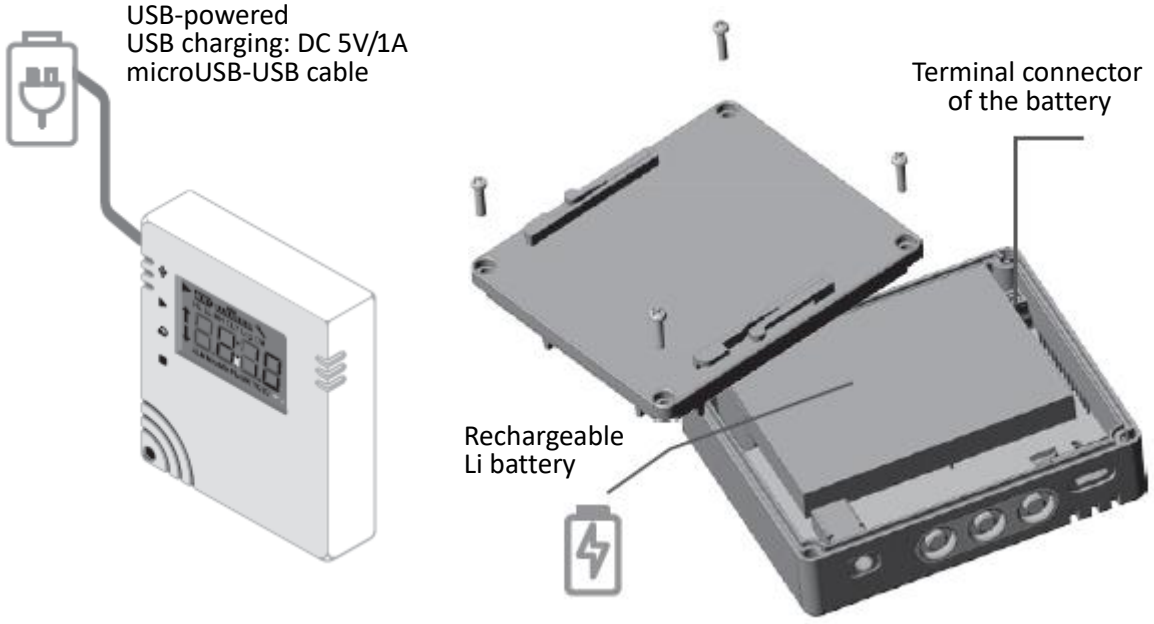
① Loosen and remove 4 screws

② Open and remove the back panel. Disassemble the terminal cable from the port and take out the old battery

③ Replace a brand new rechargeable Li-ion battery. Connect the terminal cable to the port and place the battery firmly to the position.

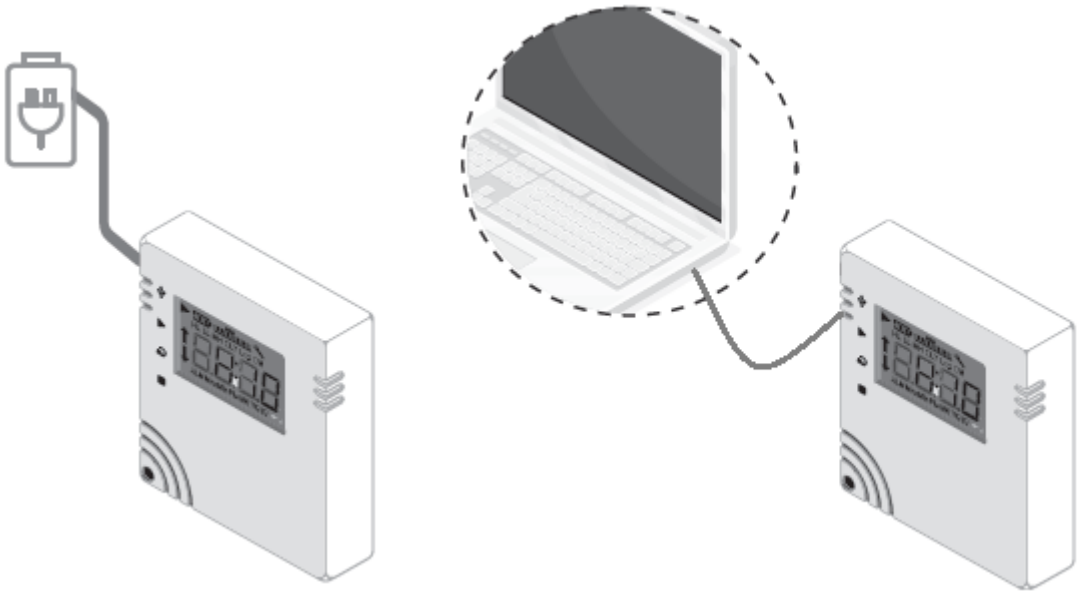
④ Install the back cover and tighten the screws

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)



7.3 XH12 Battery Charge

* ⚠ The XH12 use a rechargeable battery; when receiving the brand new product, before usage for the first time, please charge the new device to full level via USB port. Use one micro USB-USB cable, connecting USB port to power supply DC4.25V/1A. (≧1A) When the device completely no power, less than 20%, the totally charging time to fully charged takes around 4 hours to finish with connecting to DC4.25V/1A charging adapter. For normal usage, recharge the device every 2 to 3 months.



7.4 XHLogger Battery Level and Percentage

Battery Level 0~4	XH 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%

7.5 Maintenance Tips for Lithium

⚠ Notice:

The XH12 use a rechargeable battery; when receiving the brand new product, before usage for the first time, please charge the new device to full level (100%SOC), power supply DC4.25V/1A (≧1A), totally charging time to 100%SOC around 3.5 hours (standard value).

* Battery Optimal Operating Range: 15°C~35°C (59-95°F)
  Battery Operating Range: -10°C(14°F)~45°C(113°F) ; 45%RH~85%RH
  Battery Storage Range: 10nge: St (50-104°F)
  Battery Optimal Storage Range: 5°C~20°C (41-68°F); 45%RH~85%RH

* Lithium-Ion Battery Maintenance Tips: (IP604050P)
  - To maximize service life, optimal operate batteries for most lithium batteries between 15°C to 35°C, (59-95°F) suitable allowance temperature between 0°C to 40°C. (32-104°F) Avoid high temperature and high humidity. To maximize service life, optimal store batteries around 20°C±5°C (68°F). Keep batteries in cool, comfortable stable environments, 15°C (59°F), suitable allowance temperature between 5°C to 20°C. (41-68°F)
  - Operate and store batteries in suitable temperature and humidity. For lithium-ion self discharging, high temperature or high humidity can shorten battery life. If temperatures are too cold, it can result in a loss of capacity due to the chemical reactions inside the battery slowing down due to the low temperature. If cell temperatures get too high, venting may occur, resulting in battery failure or even a cell fire. When the humidity too high, may cause a short in its circuit; when the humidity too low, dew in the air may cause the terminals to rust.

- Avoid charging the battery under high temperature and high humidity.
- Avoid operating the product while charging
- Do not put or charge the battery near high temperature conditions
- Stop using the battery immediately if has physical deformation, liquid leakage, strong foul odor, swelling, abnormal high temperature, etc.
- Do not charge the battery with a current or voltage higher than the 4.25V
- Prepare to replace the battery when its running time decreases or charging time increases significantly
- Before a long-term storage, charge the battery to about 50% SOC each six months. Store the battery at temperatures between 5~20°C (41~68°F)

8 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.

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. Do not set all interval as 0. Reset the interval to start running normally.

Q2: When the XHLogger 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 with data transmission function.

Q3: Will the XHLogger 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 fail to generate PDF files after correctly connected to PC via USB cable?

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

Q5: Can the external sensor cable be replaced?

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

Q6: Can the XHLogger 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.

Q7: How to operate the reboot button?

A7: For XH12, remove the 4 screws and the back cover. Press the white reboot button on the board. Please refer to the section, XH12 reboot button.

Q8: How to change the DLV language interface?

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: After successfully paring DLV with XH12, do I need to keep DLV software opening to stay connection?

A9: For normal usage, the XH12 will keep connection with DLV, also sending data back to DLV continuously. When the XH12 cannot find DLV, it will try to search DLV and the LED screen will display Er04, which will make battery draining fast. Even power saving mechanisms exist, it is recommended to keep the connection between DLV and XH12 all the time.

Q10: During pairing processing, cannot find any XH12 device on the list?

A10: Press the STOP button 5 times, and wait until “rSt” displayed on LED to clear paring setting on this device. Manually operate the pairing procedure again. Enter and make sure paring networking SSID and password correct. Before pairing again, check Wi-Fi and networking environment, whether the signal too weak on the location. Also avoid turning phone hotspot to replacing Wi-Fi, which cause networking connection unstable. Please note that it is required to run program under windows 10 OS or above.

Q11: Will the connection between DLV and XH12 failed after when the DHCP assigns a new IP address?

A11: Under normal network circumstances, DLV and XH12 use the same domain for connection. When IP address on the computer changed, DLV will still search and update the link automatically.

Q12: When the error code, Er05, is shown on XH12 LED?

A12: Er05 occurs when XH12 cannot connect to the paired Wi-Fi, so please check the network device firstly and then restart the DLV software and confirm that IP domain of DLV is the same as setting before.

Q13: How to reconnect pairing a XH12 with DLV software pairing again wirelessly?

A13: The device has been paired successfully before, yet if the device unexpected disconnection problems occur, the user can try to pair again to establish the connection between XH12 and DLV. Press the STOP button 5 times, and wait until “rSt” displayed on LED to clear paring setting on this device. Manually operate the pairing procedure again.

Q14: The DLV is activated and finished pairing but my XH12 cannot work correctly?

A14: The first step to activate DLV is to click on the device line; go to <Parameter> firstly to reset <Log Interval>, <Time Zone>. Set Log Interval not all zero (H/M/S) and reset current Time Zone (even the same with the default). Reset; save and Exit.

Q15: How to upgrade the firmware of the XH12 wirelessly?

A15: Wirelessly connect and link with DLV (Data Logger Viewer) software through WiFi and unplug the USB transfer cable. Download the latest firmware from the original manufacturer official website.

Register & Pairing

- Register & Pairing one XH12 with DLV, skipping the step if XH12 already registered and finished pairing

  Take one XH12, which is new to the system, open DLV on the PC ->"Sensors"-> "New" -> SSID/PWD ->"Next" -> Long press 2&3 keys of the XH12 until rEG appeared. Press <Finish> after pairing successfully. Go to DLV -> "Sensor", this XH12 listed as connected WiFi, the pairing being completed.

Wirelessly update the XH12 Firmware procedure as follows:

- Wirelessly connect and link with DLV (Data Logger Viewer) software through WiFi and unplug the USB transfer cable.
- Connect the XH logger device to the DLV on PC. Open DLV ->"Setting"-> "Firmware" -> Click the device (WiFi Connected) to be updated ->Click the Update button -> Select the firmware file *.bin -> "Yes" -> "Ok". Follow steps to complete the firmware update and do not disconnect during update.

*** ⚠Note:

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

Q16: How to upgrade XH firmware and DLV correctly when the firmware version is 1.3.0.41 or older?

A16: Note: Specially guide for XH12 version 1.3.0.41 or older, older XH12 update should follows below procedure:

⚠Note:

If the XH12 firmware version is v1.3.0.41 or order, before upgrading the DLV version and XH12 firmware, required steps should be taken as follows:

- Must have a *.bin file and a *.tar file. Use these 2 files to upgrade XH12 Firmware to the version, v1.3.0.48. (20241114105638_XH12_1.3.0.48.tar) (XH12_1.3.0.48.bin)
- Must have the DLV latest software zip file such as (v2.1.0.13-Mix.zip)

**For compatibility issue, firstly update the XH12 Firmware to v1.3.0.48 and then update DLV software on your PC to the version v2.1.0.13

1) Unplug the USB transfer cable between the PC and the device XH12 to make sure that the device wirelessly connects and links with Data Logger Viewer (DLV) software via WiFi correctly
2) Plug the USB transfer cable between PC and the device. Connect and link with DLV software on PC to download DLV data backup. Go to DLV ->"Sensors"-> Click this XH12 line

-> ”Download”. (C:\Data Logger Viewer\DataLogger.db)

3) Select this XH12 for data clearance. Go to DLV -> ”Sensors” -> Click this XH12 line -> ”Clear Data”. Unplug the USB cable after data clearing.
4) Confirm again wirelessly linkage with DLV via WiFi correctly
5) Use the *.tar file
   Go to DLV ->”Setting”-> ”Firmware” -> Click this XH12 line (WiFi connected status, firmware version v1.3.0.41 or older) -> Click the Update button -> Select the firmware file *.tar (20241114105638_XH12_1.3.0.48.tar) -> ”Yes” -> ”Ok”. “UPGR” will appear on the LCD screen until XH12 screen returned to normal.
6) Use the *.bin file
   Connect and link with the DLV on PC via USB cable. Go to DLV ->”Setting”-> ”Firmware” -> Click this XH12 line (USB connected) -> Click the Update button -> Select the firmware file *.bin (XH12_1.3.0.48.bin) -> ”Yes” -> ”Ok”. “UPGR” will appear on the LCD screen until XH12 screen returned to normal.
7) Unzip and install the file to upgrade the DLV software version to v2.1.0.13 (Get and open v2.1.0.13-Mix.zip)
8) Delete the database file *.db under the installation directory (C:\Data Logger Viewer\DataLogger.db)
9) Restart the DLV software again and make sure WiFi connection correctly

Q17: How to solve the problem about the abnormal power consumption of XH?

A17: For external sensor model, when poor contact occurred between the external sensor and the device, to improve the problem, try to unplug/re-plug the external sensor stick or rotate the sensor

9 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.

For assistance contact tech Support:
service@brainchild.com.tw; 886-2-2786-1299