

# Coldlink-iot

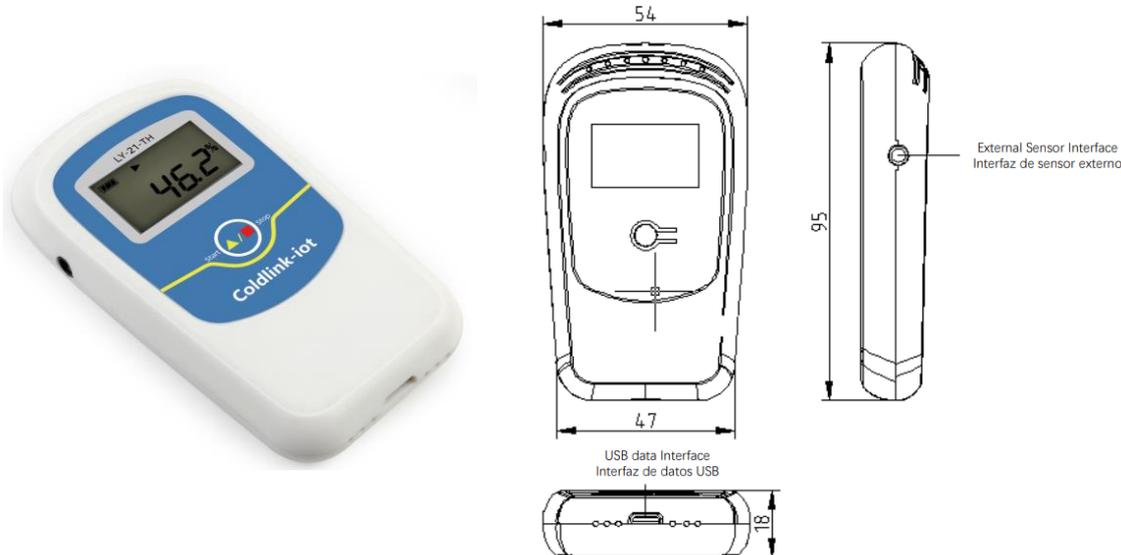
## Temperature and Humidity Data Logger LY-21-TH Product Manual



For more information, please visit: [www.coldlink-iot.com](http://www.coldlink-iot.com)

## 1.Product Overview

This data logger is mainly used for temperature and humidity recording during storage and transportation of foodstuff, medicine, chemicals and other products, especially widely used in all kinds of warehousing, logistics and cold chain, such as refrigerated containers, refrigerated trucks, refrigerated package, cold storage, laboratory, ect.



**Figure 1:**Physical map

**Figure2:**Dimensional Drawings

## 2.Specification

Product size:95mm(length)×54mm (width) ×18mm (height)

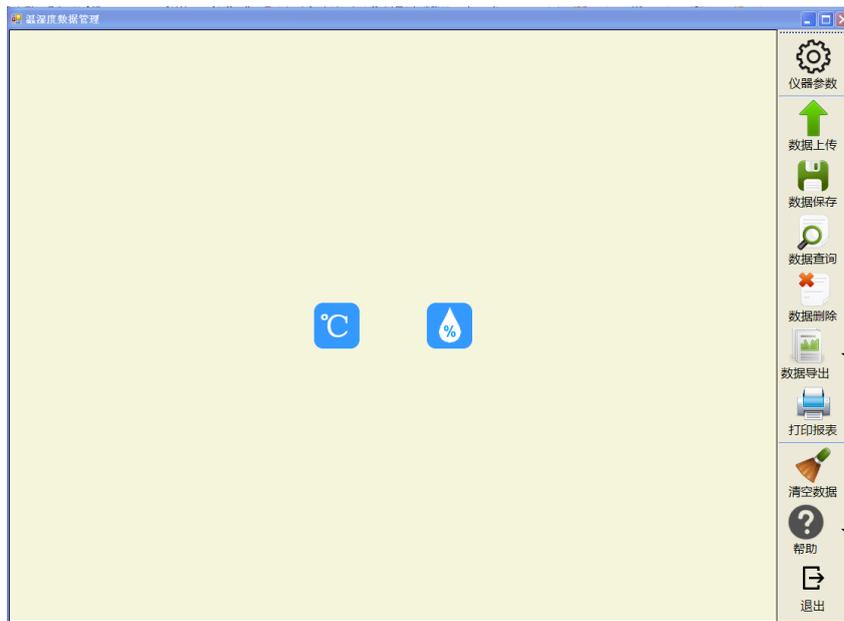
## 3.Technical parameters:

- 1.Temperature measuring range:  $-20^{\circ}\text{C}\sim+60^{\circ}\text{C}$ (External probe,  $-40\sim80^{\circ}\text{C}$ )
- 2.Temperature accuracy:  $\pm 0.5^{\circ}\text{C}$ ( $25^{\circ}\text{C}$ )
- 3.Temperature unit: $^{\circ}\text{C}$  (Celsius) or  $^{\circ}\text{F}$  (Fahrenheit)
- 4.Humidity measuring range: $0\sim 99.9\%\text{RH}$  Humidity accuracy:  $\pm 3\%\text{RH}$
- 5.Resolution: Temperature:  $0.1^{\circ}\text{C}$ ; Humidity:  $0.1\%\text{RH}$
- 6.Sensitivity attenuation values:Temperature: $<0.1^{\circ}\text{C}/\text{year}$ ;Humidity: $<1\%\text{RH}$
- 7.Record Points: 32000 points (Max)
- 8.Record interval:10s~18 hour adjustable
- 9.Supply voltage:USB interface 5VDC

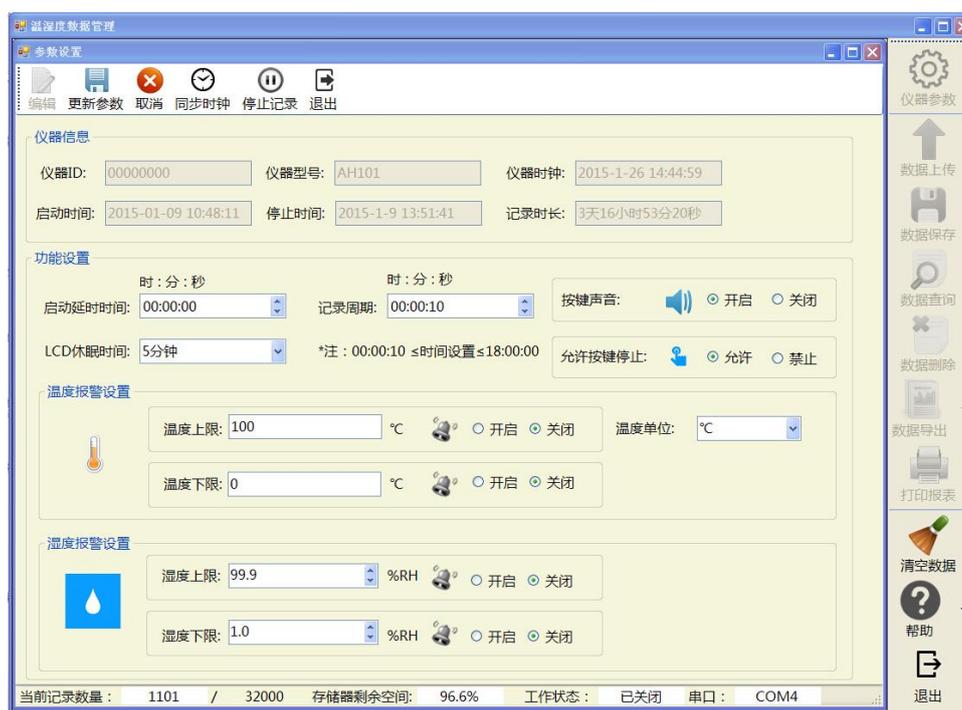
10. Power supply: Built-in lithium battery (Rechargeable)
11. Battery life: in normal circumstances, if the recording interval is 15 minutes, battery can be used 1 year;
12. Ambient environmental temperature:  $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$ ; in the low temperature environment, LCD displays slowly, while it has not an impact on the normal measuring or recording. Once the temperature recovers, it could display normally.

#### 4. Logger configuration instructions:

1. Install LY-21-TH temperature and humidity data logger data management software. Connect LY-21-TH with computer via USB, and install USB driver according to be the Installation Tips.
2. Open the temperature and humidity data management software, display interface as shown in Figure 1, and then click on the "Instrument Parameters", the recorder is connected with the PC, information before automatically upload settings, shown in Figure 2.



**Figure 1:** LY-21-TH Temperature and humidity data management software



**Figure2:**LY-21-TH recorder parameter information

3.Click on edit, then you can modify the relevant parameters, parameter modification is completed, click "parameter update" will update all parameters and eliminate the original record data.

4.Press and hold the button of data logger for above 3s, the symbol "▶" will light, indicating that the current start recording; in the software can also set the delay start recording function, press and hold the key logger 3s, the symbol "▶" will blink , said the current delay recording function is turned on, when the delay time is reached, the recording instruments will automatically start recording, the symbol "▶" will remain lit.

**NOTE:** If you have to stop the current meter (symbol "■" is lit), and the current meter data is not 0, you can no longer open the record, the data must be cleared by software in order to open the record again.

5.Exit from LY-21-TH temperature and humidity data logger data management software.

## 5. Date access:

Connected to the computer via USB cable software can view the complete data record.

Operation connectivity software are as follows:

1. Open temperature and humidity data logger data management software, connect the data logger with computer via USB cable, after successfully connection, the icon USB will light.
2. Click data upload, the data will be uploaded logger software, shown in Figure 3.
3. After data uploading, you could check data table, curve graph and report, and export them in format of EXCEL/PDF. Click on data retention, save the data put into the computer database.

**Note:** The recording instrument parameters are set via the computer, detailed parameters, please see the help manual software. Download historical data recording instrument operation does not remove its internal instrument data. And does not affect the function of the normal recording. Only click on Empty, or download parameter data logger will clear the internal data.



**Figure3:**LY-21-TH historical data logger

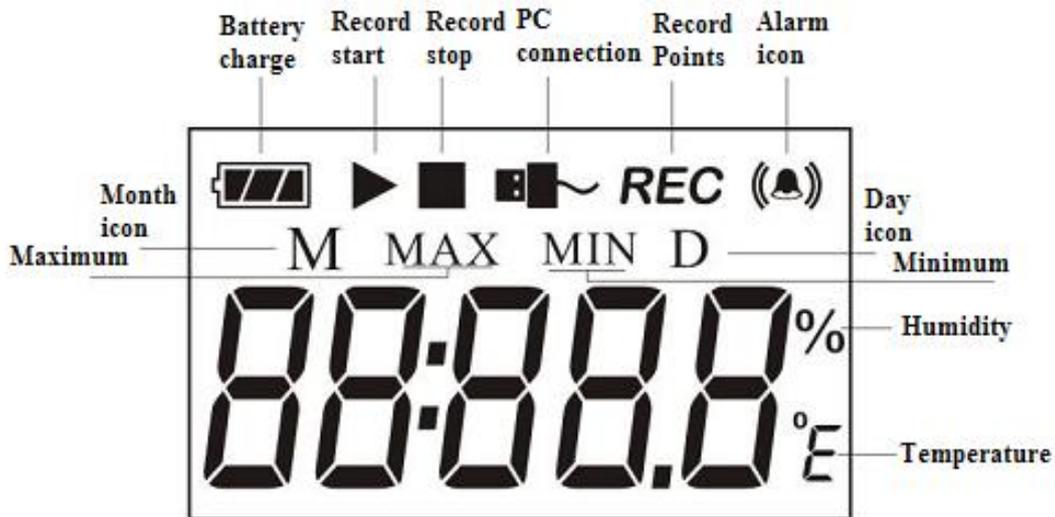
## 6. Function description

LY-21-TH data logger display interfaces includes: temperature status display, humidity status display, record capacity display, time display, data display, max temperature display, min temperature display, max humidity display, min humidity display.

The parameters recorded on the meter can be set by software, the display factory default 20S shows that when the function key is pressed, the display shows the 20S time; when recording instruments cumulative no key operation within 20S, the display will automatically turn off only

when you press the button again will show again, when access to USB data cable, the display will always show and automatically charge the battery to the instrument.

Recording instruments introduced each function icon, shown in Figure 4:



**Figure 4:** Logger function display icons

### (1)Function keys Description:

The recorder is only a function key, the function keys are divided into short press, long press two functions:

**1)Short press functions:** switching back to the menu display.

**2)Long press function:**to start or stop recording.

### (2)Start or stop recording function

When the recording does not start, and the current record meter data is not 0, press the function key 3S, can open the record, the recorder starts recording data; If you stop the current record, the same long press function key 3S can stop the current record (Note: Manually stop in the software can be set to prohibit stopping, the meter can not be stopped by the function keys).

**Note:** If the current data is not 0, you can not open the record.

Record icon implication description:

If the symbol ► light: indicate the data logger is the status of recording;

If the symbol ► flashes: indicates the data logger is in the status of start time delay.

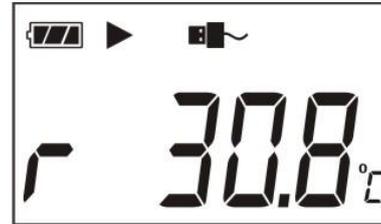
If the symbol ■ lights: indicate the data has stopped recording.

### (3)Each display interface presentation

**Menu 1:Temperature Status display interface as shown in Figure 5:**



**Figure 5:**The current internal temperature display



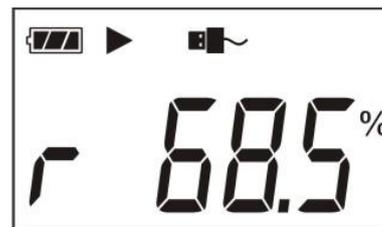
**Figure 6:**The current external temperature display

After short press the button,it enters to the temperature status display interface from the display turn-off status.The temperature displayed in the LCD screen is the current environment temperature.Which Figure 6, the display indicates the current temperature of the external real-time temperature value.

**Menu 2:Humidity Status display interface as shown in Figure 7:**

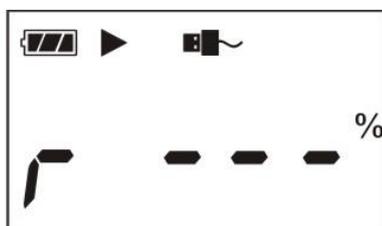


**Figure 7:**The current internal humidity display

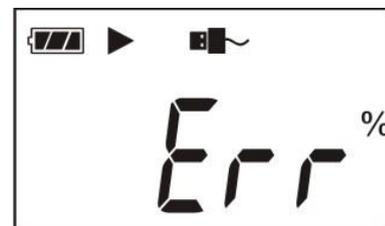


**Figure 8:**The current external humidity display

After short press the button,it enters to the humidity status display interface from the display turn-off status.The humidity displayed in the LCD screen is the current environment humidity.Figure 8,before adding a humidity sensor humidity r represents the external value, when the external temperature sensor is a single, the current interface is shown in Figure 9; sensor error, the display shown in Figure 10:

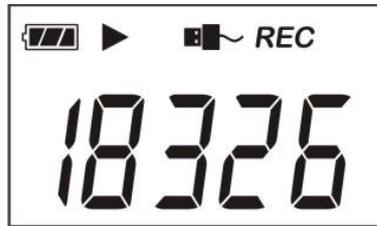


**Figure 9:**The current single-temperature sensors and humidity display



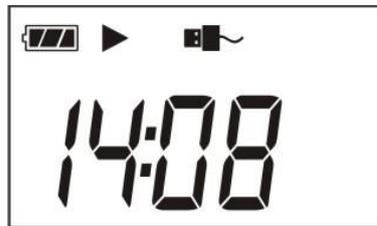
**Figure 10:**The current error display

**Menu 3:**Record capacity display interface as shown in Figure 11:



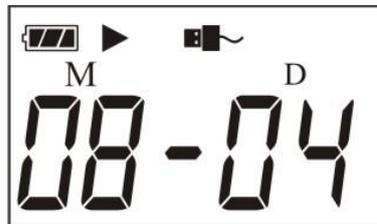
**Figure 11:** Recording capacity display

**Menu 4:**Display data for the hours and minutes, a 24-hour time format, shown in Figure 12:



**Figure 12:** Logger current time display

**Menu 5:**Date display interface as shown in Figure 13:



**Figure 13:** The current date is displayed logger

In date display interface,it displays the month and date of the data logger .

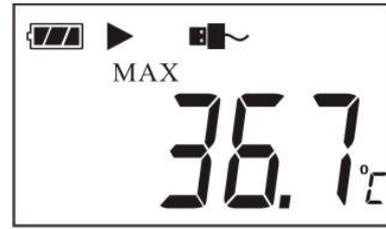
Note:the data below the symbol “M”indicates month,and the data below the symbol”D”indicates date.

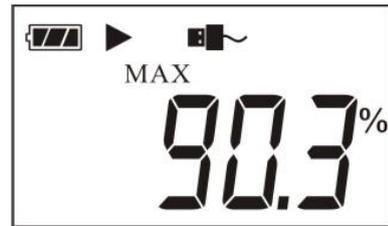
**Menu 6,7,8,9:**

Press the function key to switch, turn the display:

Menu 6(Temperature minimum,figure 14),Menu 7(Temperature maximum,figure 15),

Menu 8(Humidity minimum,figure16),Menu 9(Humidity maximum,figure 17)


**Figure 14:** Minimum temperature recorder

**Figure 15:** Maximum temperature recorder

**Figure 16:** Minimum humidity recorder

**Figure 17:** Maximum humidity recorder

Note: When the Clear History or start recording when Kai branch, will remove the current maximum and minimum values. The current record is displayed during the maximum or minimum temperature and humidity values in the recording state, in the stopped state indicates that the current meter display during a minimum or maximum temperature and humidity values.

## 7.Operation instruction

### 1.Starting recording

After setting parameters in data management software, the function of recording has not been started yet, at this time, press the button for more than three seconds in the status display interface, the symbol ► lights, and the recording has started.

**Note:**After finishing parameters setting in temperature and humidity data logger management software, it will clear up the recorded historical data. Please read and save data before parameter setting.

### 2.Stop recording

①The data logger will automatically stop recording when the recording capacity is full. In the status display interface,the symbo"■"lights, it means recording stops.

②If permit stopping by pressing button is set, press the button for more than three seconds, in the status display interface, the symbol"■"lights, it means recording stops.

③It could stop recording though setting in data management software.In the status display

interface, the symbol "■" lights, it means recording stops.

\*After the data logger stops recording, it could not be started again by press the button. It could only be started by setting the parameters or clear history data in data management software.

### 3. Alarm status instruction

Temperature and humidity data management software through the "Instrument Parameters" to set upper and lower limits of temperature and humidity alarms and upper and lower limit switches. When the "(🔔)" icon lit, indicates the current temperature and humidity alarm switch is turned on.

If the current temperature and humidity alarm value exceeds the upper limit of its alarm, and the corresponding alarm switch is on, the LCD display interface under the symbol "(🔔)" will start flashing, indicating that one or more of temperature and humidity exceeds the upper limit range ; If the software is set up buzzer alarm, the first condition is reached, the instrument will sound alarm 3, when the return to normal conditions, temperature and humidity exceeds its upper and lower alarm value, then again sound the alarm buzzer 3.

### 4. Record interval

The record interval could be set in data management software. After setting, it will save the data in the data logger according to the set record interval.

In the data management software, when setting the recording interval, the software will automatically calculate the record length of time, enabling customers to use.

### 5. Empty record data

Data management software by  to clear the recorded data recording instruments.



### 6. Inner clock and calendar

Clock can be adjusted via software when recording instruments associated with computer instrumentation time more than five minutes, the software will automatically remind updated instrument time.

## 7. Battery level indication

The battery level could be displayed in LCD screen.

Power display	Battery level indication	level
	Three grid	70% ~ 100%
	Two grid	40% ~ 70%
	One grid	10% ~ 40%
	Space	<10%

Note: If the battery is in a very low level (<10%), please replace the battery timely.

When the battery is low, the display will stop flashing battery "", while the buzzer will alert once every so often, then please charge.

**Low battery meter will automatically shut down when recording or cause data errors, deviations and other phenomena, please charge.**

## 8. Parameter setting items in data management software:

Note: It is the factory default setting in the brackets.

Record interval(15min), start delay time(0);

Button stop(disabled), Record switch(stop);

Keys and alarm sounds(Allow), Temperature unit(°C);

Upper temperature limit(70°C); Limit alarm switch(stop);

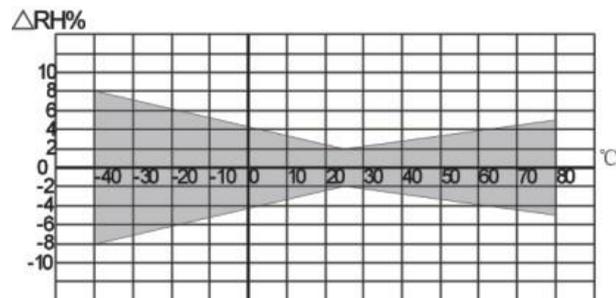
Lower temperature limit(-20); Limit alarm switch (stop);

Upper humidity limit(99%RH); Limit alarm switch (stop);

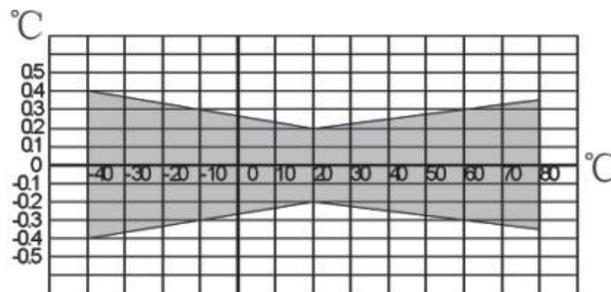
Lower humidity limit(0%RH); Limit alarm switch (stop);

Date and Time(The current system clock)

## 8. Temperature & Humidity Measurement Error Curve



Error maps vary with temperature and humidity



Temperature with humidity error maps

Note:

To ensure the accuracy and stability of the product, do not install the product under the following environments:

- Ⓢ near heat, cold, or direct sunlight.
- Ⓢ long period of steam, mist, curtain or condensing environments.

## 9. License Agreement

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It is not be allowed to apply this product to safety equipment or emergency stop devices, as well as to any other product that can result in personal injury, unless there are special purpose or authorized use. Before installation, handling, use or maintenance of the product, please consult the data sheet and application notes. Failure to comply with this recommendation may result in death and serious injury, and company will not undertake any compensation for that. Besides, any claims, including a variety of costs, compensation costs, attorneys' fees and so on to the company managers, employees affiliated agents and distributors will be exempted.

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- Undertake the fee that that be costed to mail the product to the company.
- It does not exceed the shelf life.

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