

# OPERATION MANUAL

## TEMPERATURE / HUMIDITY DATA LOGGER



88128



8829

8828



8815

8835



8824p

8818p

Model:	■ 88128	■ 8828	■ 8829	
	■ 8813	■ 8814	■ 8815	
	■ 8833	■ 8834	■ 8835	
	■ 88335	■ 88345	■ 88355	
	■ 88393	■ 88394	■ 88395	
	■ 88193	■ 88195	■ 88375	■ 88378
	■ 88396	■ 88397	■ 88398	
	■ 9801	■ 8808	■ 8809	



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# INTRODUCTION

Thank you for purchasing this datalogger! This unit has been developed to meet your maximum satisfaction with its user-friendly design. Please review the entire manual for a complete overview of the operation of this new datalogger. You may review the manual from Autoplay Menu, double click "**Run software, Manual (PDF)**" and peruse every procedure and function step by step. The logger is very easy-to-use.

The software is used to readout & analysis the stored data. The data could be displayed as graph with real-time clock. The tabular data can be viewed or exported to a spreadsheet for various analysis.

One interface can be used with multiple loggers. Our datalogger and interface are designed as a cost saving unit.

Before operating the datalogger, please read the manual throughly. Please check FAQ listed in page 50 for troubleshooting.

## **IDEAL FOR APPLICATION:**

Monitoring Ambient condition in Greenhouses, Warehouses, Food transport, Aircraft cabins, refrigerate truck, containers, railway ....Art galleries and Museum, incubation process, Hatcheries, HVAC field (Heat, Ventilation, Air Conditioning), collecting data for QC.....etc.

## **MATERIAL SUPPLIED**

Check for damaged or missing parts in your data logger before starting. The datalogger set should contain:

### Datalogger without interface

1. Operation manual
2. Datalogger
3. Plain box or color box
4. Battery: CR2 /ER3(3.6V lithium) or CR2032 (3.0 V button cell)  
or AA (1.5V alkaline)
5. External humidity probe ( 88375)
6. K Type probe ( 88378)
7. Optional accessory: External temperature probe

### Datalogger with interface

Item 1 to item 7 is the same as above.

8. Software CD
9. Interface:  
RS232 type cradle/ USB type cradle/ RS232 type cable/  
USB type cable/Printer
10. Optional Accessory:  
RS232 to USB converter

### Optional item for 8808/8809/9801 printer

1. 9V adaptor
2. 33% and 75% calibration bottle for 8808/8809

# CONNECTION-LOGGER / INTERFACE / PC

We offer more than 20 different loggers and 4 interfaces for customers to choose. Please see below combination summary.

## Logger:

88128, 8828/29, 8813/14/15,  
8833/34/35, 88335/345/355.

## RS232 Interface:

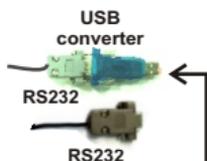
8818P(white)/8828P(blue)  
/8829P(burgundy)

## RS232 to USB converter:

P/N:VW3USB11A



INTERFACE 8818P



USB  
converter

RS232

RS232

## Logger:

88128, 8828/29, 8813/14/15,  
8833/34/35, 88335/345/355.

## USB Interface:

8824P(white)



INTERFACE 8824P



USB 1.0

## Logger:

88193/195, 88393/394/395,  
88375/378, 88396/397/398

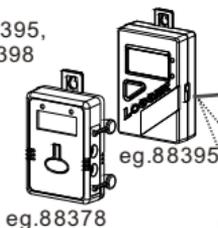
## RS232 cable:

P/N:VZRS232N1

## RS232 to USB

converter:

P/N:VW3USB11A



eg.88378

eg.88395



USB  
converter

RS232

RS232

USB

## Logger:

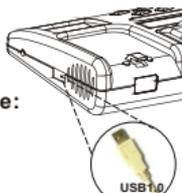
All loggers.

## Programming Printer:

P/N:9801

## Printer to PC via USB cable:

P/N:VW36800A



USB 1.0



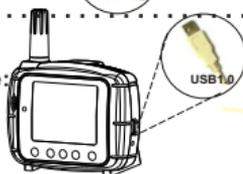
USB 1.0

## Logger:

8808/8809

## Logger to PC via USB cable:

P/N:VW36800A



USB 1.0



USB 1.0



TRLog  
software

## FEATURES

- Up to 4K (8813/14/193) or 8K (8815,8833/34, 88335/345/195) or 16K (88128, 8828/29,8835, 88355,88393/394/395, 88375/378, 8808/09, 88396/397/398) sample reading with real-time.
- LCD display of data ( 8828/29, 8814/15, 8834/35, 88345/355, 88195 88394/395, 88375/378, 8808, 88397/398) or big LED display (8809).
- Programmable sample interval from 1 sec to 12 hours.
- Temperature unit: °C / °F selectable.
- User-defined High / Low limit alarm.
- Built-in real-time clock.
- Up to 5 different start modes (Please check page 17)
- Programming with RS-232 or USB interface.
- Data retained when battery is low or has been removed.
- IP65 or waterproof housing design.
- Hanger at the rear upper for hanging on the wall to prevent losing or falling down .
- One Interface can be used with several loggers to save cost.
- All data could be downloaded and saved in text format and can be easily transformed into Microsoft® Office applications.
- Software provides :Retrieve file, Save file, Logger setting, Comport setting, Group file, Print graph, Data table list, Statistic .....etc.
- Selecting non-sleep mode or sleep mode to display or not display current temperature and humidity (For LCD models)
- External temperature probe socket included in multiple models enables to measure second channel temperature.
- Additional start/stop key to power on/off the LCD display and start/stop the logging. (8813/14/15, 8833/34/35, 88335/345/355, 88193/195, 393/394/395, 88375/378, 8808/09 )

## FRONT VIEW

**REC** - Stands for RECORD

**Models without LCD : 88128, 8813, 8833, 88335, 88193, 88393, 88396**

"REC" yellow LED is flashing while logging the temperature records. Yellow LED will stop flashing after complete recorded or battery is out of power. Yellow LED flashes per sample rate setting.

**Models with LCD : 8828/29/14/15/34/35/345/355/195/394/395/375/378/08/09/397/398**

Both yellow LED and "REC" text indicator will be activated on the screen per every set sample interval.

**ALM** - Stands for ALARM

"ALM" is flashing while the recorded value is higher than HI limit or less than LO limit. Except 8808/09, the logger alarm is designed as not audible. The alarm is mainly for warning users that the measurement used to go over the limit.

**Models without LCD : 88128, 8813, 8833, 88335, 88193, 88393, 88396**

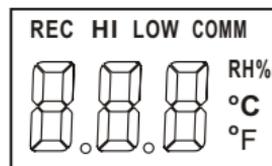
"ALM" red LED flashes per sample rate setting.

**Models with LCD : 8828/29/14/15/34/35/345/355/195/394/395/375/378/08/09/397/398**

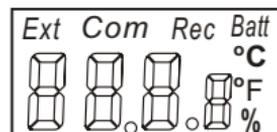
Both red LED and "ALM" text indicator (except 8808/09) will be activated on the screen per every set sample interval.

# LCD DISPLAY

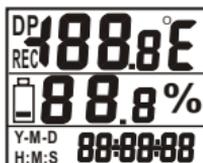
**Model: 8828/29/14/15**



**Model: 88194/195/394/395/397/398**



**Model: 8808**



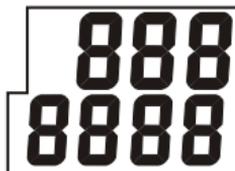
**Model: 8834/35/345/355**



**Model: 88375/88378**



**Model: 8809 (LED)**



**REC** - "REC" is displayed during the logging process.

When logger stops logging and in monitoring mode (in Non-sleep mode), "REC" will not appear on LCD.

**HI** - "HI" or "ALARM" are displayed and alarm LED is flashing if the logged data is ever higher than High limit.

**LOW** - "LOW" or "LO" or "ALARM" are displayed while the logged data is ever lower than Low limit.

**RH%** - "RH%" or "%" display Relative Humidity %.

**°C** - Temperature displays reading in Celsius

**°F** - Temperature displays reading in Fahrenheit

**COMM** - When the logger is communicating with computer, "COMM" or "COM" are shown at the top of the LCD.

**EX** - External probe temperature. When the external probe is plugged, the air temp./ external probe temperature and RH% (for 8835/88355/88395/88398) will appear in turns.

**BAT** - **BAT** or  $\pm$  or "Lo" will appear when the battery power is too low for operation.

# BATTERY REPLACEMENT

The dataloggers are designed with a waterproof housing and allow the user to replace battery when it has expired. You will see "Lo" or "BAT" or Battery icon appeared on the display when battery is weak.

## IMPORTANT:

For 88128/8828/8829: When the power is low, completely turn off logger through computer and then replace battery.  
 For other loggers: When the power is low, press START/STOP(REC/STOP)key to turn off the LCD and then replace battery.

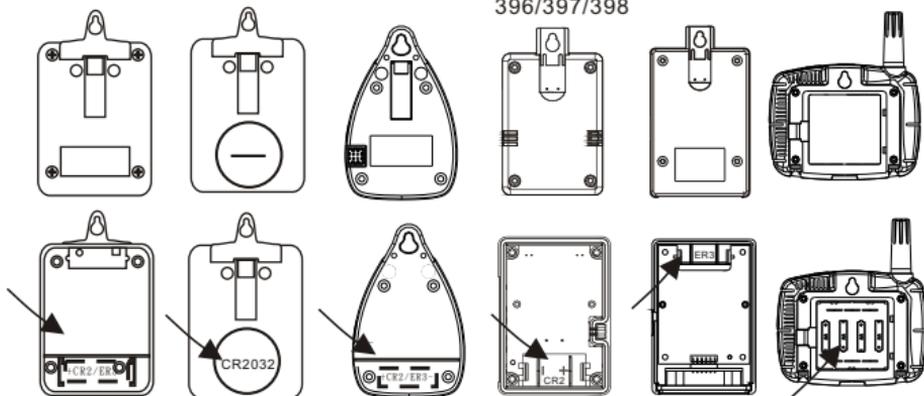
Follow the steps to remove and replace battery:

1. Unscrew the datalogger from the rear side .
2. Do not remove o-ring and make sure the o-ring is in its place (groove).
3. Remove the expired battery.
4. Insert a new battery CR3/ ER2 or CR2032 or AA battery, make sure the battery is inserted with correct polarity.
5. Re-screw the rear cover with screwdriver .



(eg:8828)

<u>Model:</u> 88128/8828 /8829	<u>Model:</u> 8813/14/15	<u>Model:</u> 8833/34/35 335/345/355	<u>Model:</u> 88193/195/ 393/394/395/ 396/397/398	<u>Model:</u> 88375/378	<u>Model:</u> 8808/09
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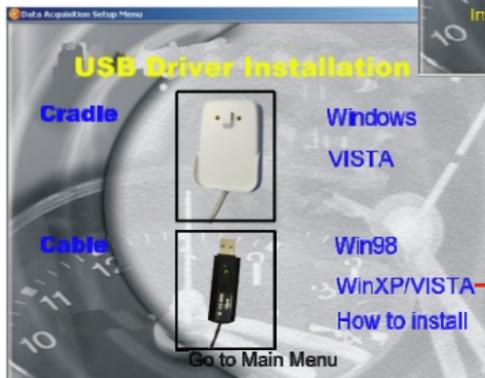
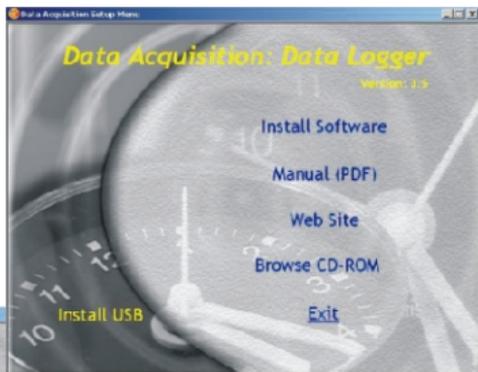


# SOFTWARE INSTALLATION

Microsoft<sup>®</sup> Office is a registered trademark of Microsoft Corporation.

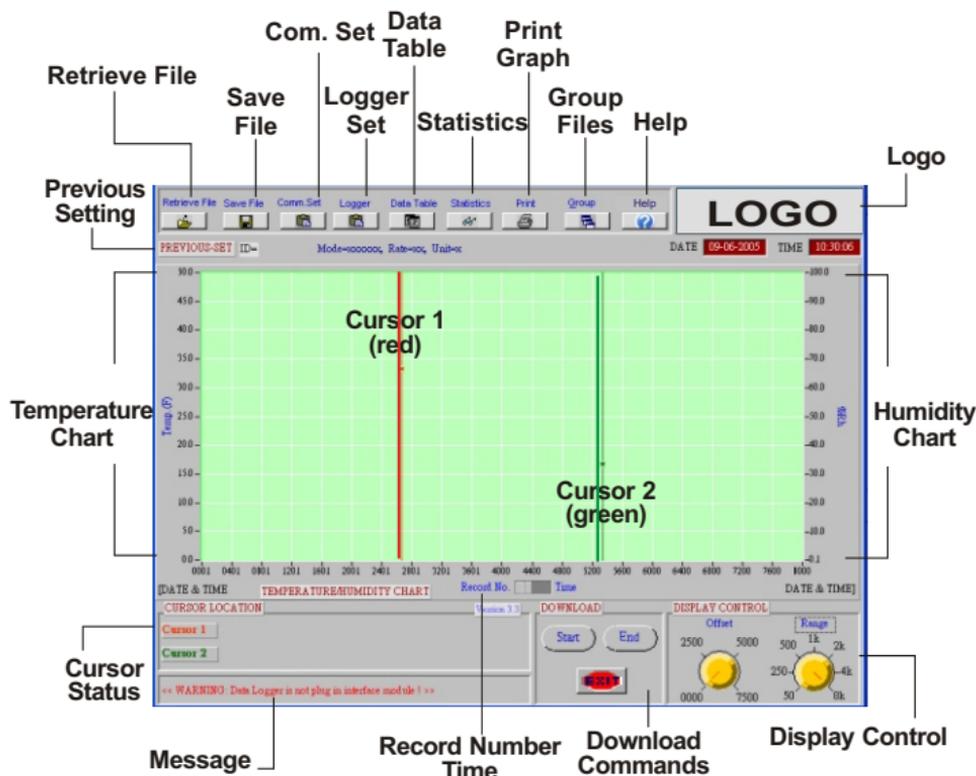
## Installation procedure :

1. Connect the logger to PC via RS232/USB cradle or RS232/USB cable. Please see page 3
2. Connect the interface cable to COM1...COM8 of computer.
3. Insert the CD-ROM to the computer for starting software set up:
  - a). **Install Software** To install the program.
  - b). **Manual (PDF)** Open the PDF format manual.
  - c). **Web Site.** Visit our web site in your browser.
  - d). **Brow CD-ROM** Browse the CD-Rom using Windows.
  - e). **Exit** Exit the software.
4. To use USB interface or cable, be sure to install the corresponding USB driver before software installation.



# MAIN SCREEN

The data logger program is easy to operate from its main screen.



## Diagram A: Main Screen

### Keyboard Actions for Cursor

Make sure you have selected a cursor, when you click the red vertical line, it turns bold red line, the same for green line. You will see the numbers at the left lower part (cursor status) changed while pressing arrow left or down arrow key for last record or pressing right or up arrow key for next record.

Left arrow key	To the previous point on the current plot.
Right arrow key	To the next point on the current plot.
<Shift>-left arrow key	Back 10 points on the current plot.
<Shift>-right arrow key	Forward 10 points on the current plot.
<Home>	To the first Visible point on the current plot.
<End>	To the last visible point on the current plot.

### **Drag a cursor to move it.**

The cursor tracks the mouse until you release the mouse button, and then the cursor snaps to the nearest data point.

### **Actions by Offset Knob**

You can operate on graph from the "Offset Knob" after pressed "Offset Knob" in the following ways :

Press the up ▲ or down ▼ arrow key to increase or decrease one record number (or corresponding to date ) in the graph .

### **Zooming and Panning on Graphs**

To start zooming in on a point, press the <Ctrl> key and click on the left mouse button over the point; you can release the <Ctrl> key after you press the mouse button. The resolution in the viewport is increases dynamically until you release the mouse.

To zoom out, click on the right mouse button, and then press the <Ctrl> key as you do to zoom in.

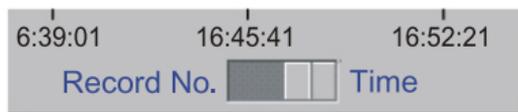
To pan, press the <Ctrl-Shift> keys and click on the left mouse button over a point on the viewport. Then drag the mouse to another point.

The graph viewport scrolls so that the original point now appears under the new mouse cursor location. You can drag the mouse anywhere on the screen, even beyond the viewport.

To restore the viewport to its original state after zooming or panning . Press and hold the left mouse to drag the yellow line from " Offset knob " and "Range knob" .

### **Data record number or Time display selection**

Press the switch button and select between Record number and Time ( xx : xx : xx ) the hour, minute, second. The record number and time will display in turn while pressing the switch button .



### **Warning message**

The left bottom corner will show a warning message. For example, if you download the data but not yet save it, the message will be:

<< WARNING : Data is not store !>>

<< WARNING: Data is not store ! >>

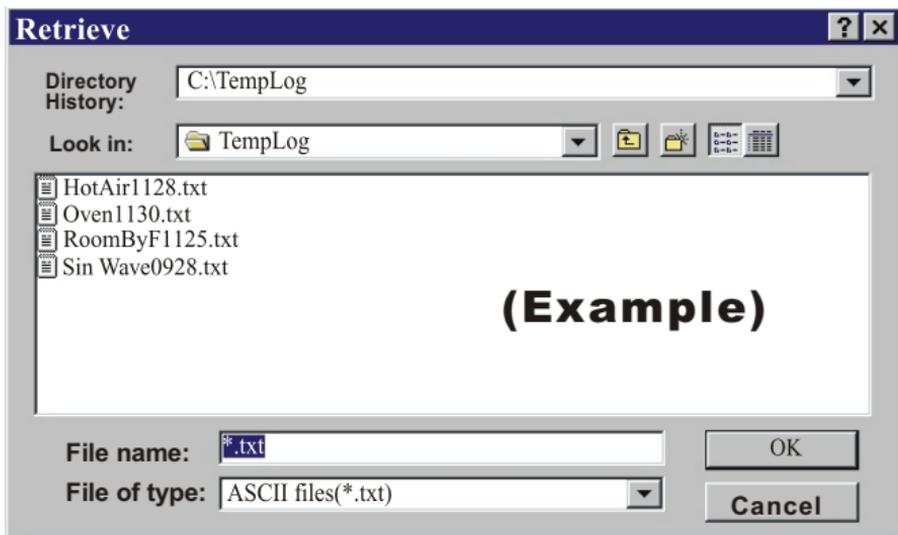
### **Display Control**

After your downloading or retrieving a record , you will see the number on the knobs of "Offset" and "Range" be changed. The control range depended on each logger

<b>Model</b>	<b>Offset</b>	<b>Range</b>
8813/8814/88193	0000, 1000, 2000, 3000	50, 250, 500, 1K,2K, 4K
8815/8833/34 88335/345/195	0000, 2500, 5000, 7500	50, 250, 500, 1K,2K, 4K, 8K
88128/28/29/ 35/355/393/394/ 395/375/375/08/ 09/396/397/398	0000, 5000,10000,15000	50, 250, 500, 1K,2K, 4K, 8K, 12K, 16K

## RETRIEVE FILE

Click on icon to retrieve and to load a data file into this program.  
(See **Diagram B.**) This program is designed to log up 16,000 sample readings.



### **Diagram B: Retrieve File**

#### **Note:**

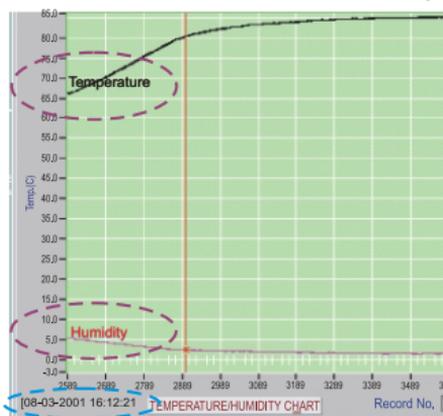
Above file names are the examples to help you understanding what screen will be. **Don't be alarmed if you couldn't see these files shows on your software .**

Open data file "**RoomByF1125.txt** " for test file. See **Diagram C** for an example of data in file :

To aid in reading a graph, a grid can be drawn on the graph and a dialogue box display at the left bottom corner shows the appearance of this grid.(CONTROL LOCATION-Cursor 1 and Cursor 2).

To download or retrieve a model with more than 1 parameter, you will find more than one parameter name & curve indicated on the start point of curves . (See Dia.B-1 )  
 Otherwise, you will only see only one curve if measure one parameter only.

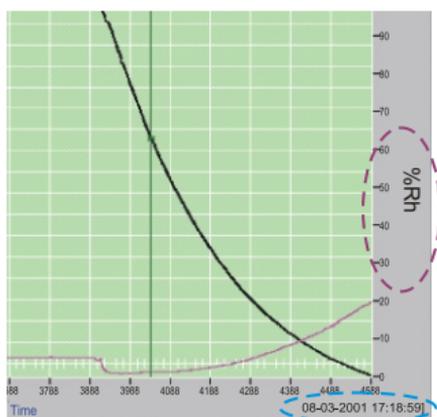
➡ **Diagram B-1:**  
**Retrieve File**



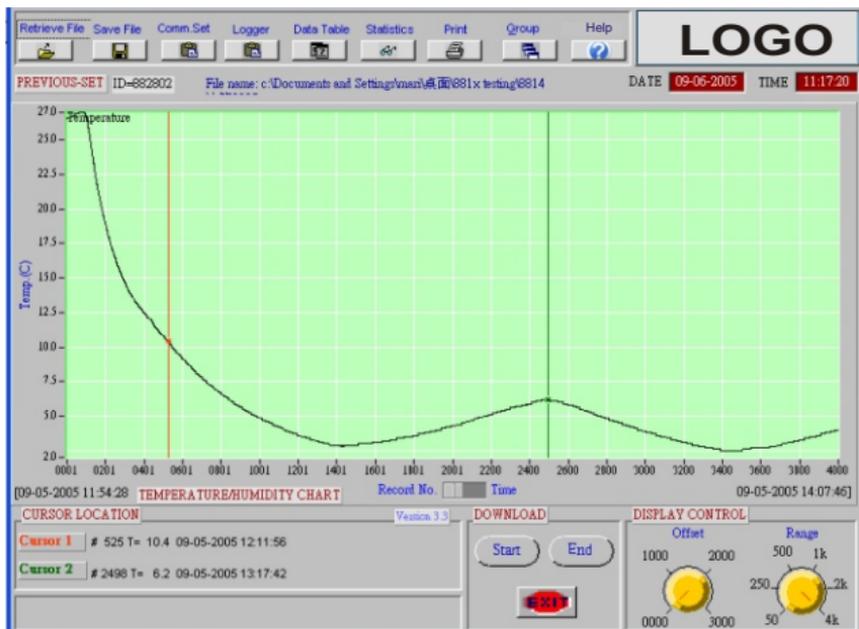
For models which don't measure relative humidity, you will not see RH% on the right side of the screen .(See Dia.B-2 ). However, if you plug external temperature probe on some models, you will see two temperature curves.

Meantime, you will see the date and time of the first point at the left corner, and see the last point date and time at the right corner . (See Dia. B-1 and Dia.B-2 in blue )

➡ **Diagram B-2:**  
**Retrieve File**



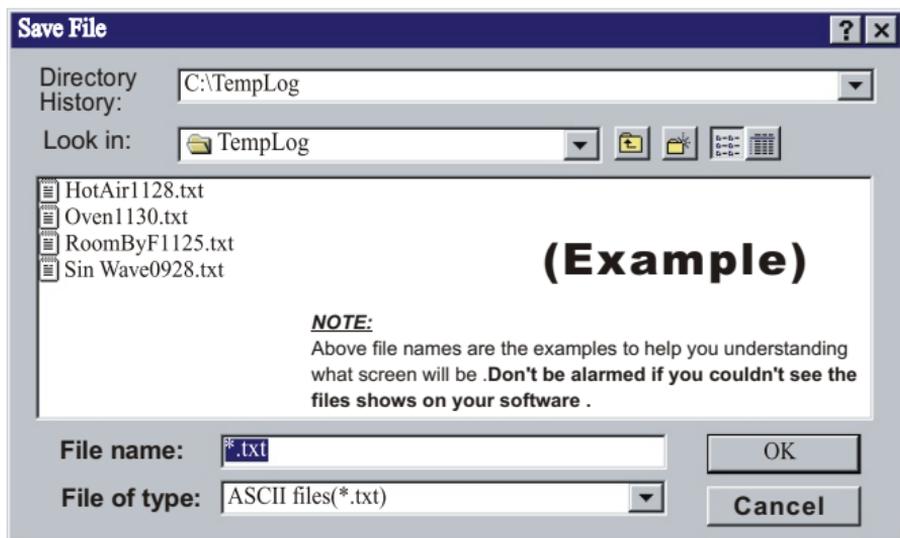
## Diagram C: Main Screen with Sample Data



**(Example:8814)**

### SAVE FILE

Selecting icon, select folder and name to save the data. The windows " **Save File** " dialog box allows you to specify the file forma, the file name and where you want the file to be saved to .



## COM PORT. SETUP

Select icon for "**Com. Port Setting**". (See [Diagram D](#)). Set correct COM port, Baud rate, Data bits, Parity and Stop bits.

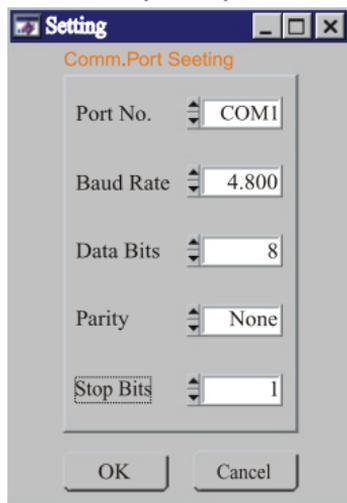
Usually, it's **COM1** for most notebook and desktop computers.

Select up to **COM 8** for special systems. Select **OK** to accept setting changes, **Cancel** to abort and to exit Setting menu.

**Note:**

- \*The baud rate for existing all models is 9600.
- \*Data bits always is 8
- \*Parity is None
- \*Stop bits is 1

  
**Diagram D:**  
**COM Port Setup**



# LOGGER SETTING

Pressing icon to perform Next Logger Setting. (Diagram E.)

## Diagram E: Logger Setting

The screenshot shows the 'Next Logger Setting' menu with the following fields and options:

- Sample Points:** 16000
- Sample Rate (HH:MM:SS):** 0 : 0 : 1 (highlighted with a red dashed circle)
- Start Mode:** Schedule
- Start Date:** 08-04-2006
- Start Time:** 11:38:43
- Unit:** °C
- Alarm Setting:**
  - Channel: T1
  - High Alarm: 85.0
  - Low Alarm: 15.0

Buttons: Ok, Cancel

**Logger's Clock Setting:**

- Logger Date: 08-04-2006
- Logger Time: 11:39:01

Buttons: Ok, Cancel

**Sleep Mode Setting:**

- Non-Sleep:  Sleep:

Buttons: Ok

**Logger's ID Setting:**

- Identifier: 88378\_1

Buttons: Ok, Cancel

**Calibration Setting:**

- Calibration:

Buttons: EXIT

## SAMPLE POINTS SETTING

Select sample point 1,000 / 2,000 / 4,000/ 8,000 or 12,000 / 16,000  
By scrolling up or down and then click **OK** to save the selection.  
(See Dia-E )

For example ,select **1,000 sample data**, the logger will stop collecting data and power off for saving battery when 1000 data collected completely .

Recording inactivated when selected data is full and yellow LED light will not blink to confirm the operation is stopped.

## **LOGGER'S CLOCK SETTING**

Enter your Logger's clock setting allows real-time setting for this data logger unit. See Diagram E.   ↑

## **SAMPLE RATE**

Select the sampling time ranges from 1 second to 12 hours (12:00:00). Scroll up or down for increasing or decreasing time. The defaults sample rate of the datalogger is 1 second.

## **START MODES**

### **▲ Schedule -**

Set up **Start Date/Start** Time desired to start logging. The logger will start when the setting time clock reaches the time you entered. Make sure the logger date and time are the time you are now .

### **▲ Magnetic -**

Link with your computer to setup the Magnetic start mode, select **Magnetic**, make sure the logger date and time are correct. Press "OK", enter desired ID, press "OK" to confirm the Magnetic start setting.

To start with magnetic, use a strong magnet pass over the rear side of the logger. Now LED should start to flash. Flashing time is depend on the sampling interval of each logger.

### **▲ Immediate -**

While pressing "OK" button , the logger starts recording immediately.

### **▲ Repeat -**

When set the mode as "Repeat", the meter will start immediately. After downloading the records, the meter will continue recording based on previous setting. So, there is no need to set the datalogger again if your sampling criteria is the same as last time.

### ▲ Key Start -

To select the mode as "Key Start" and press OK.

When you want to start recording, press start button on the meter for over 3 seconds until the "REC" LED flash or "REC" display on LCD.

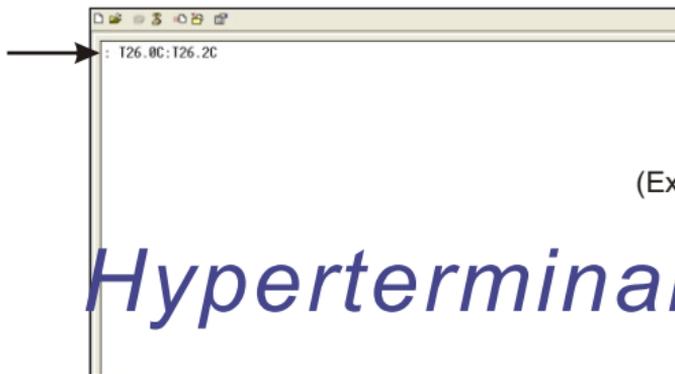
While long press the button again, the meter will stop recording.

**Above start & stop action is valid for one time only.** If you want to re-start the meter after stopping the logging, please use software to set the mode as Key Start and then press start button again.

### ▲ On-line -

When set the mode as "On-line" and press "OK" button, the logger will start recording immediately and export data to computer synchronously. So, when choose this mode, please connecting your datalogger to PC before starting logging in order to avoid missing any logging data.

When choosing this function, please be suggested to use Hyperterminal in WINDOWS to view the data. In Hyperterminal, please input the COM port number, the baud rate is 9600, the data bits is 8, Parity is None and Stop bits is 1. After setting above parameters, the real time value will be displayed on Hyperterminal.



(Example: 88378)

Below diagram F is the chart of start mode for each logger

	Immediate	Magnetic	Schedule	On-line	Key Start	Repeat
88128/8828 /8829	●	●	●			
8813/8814 /8815	●		●		●	
8833/8834 /8835	●		●	●	●	●
88335/345/ 355	●		●	●	●	●
88193/195	●		●		●	
88393/394/ 395	●		●	●	●	●
88375/378	●		●	●	●	●
8808/8809	●		●		●	●
88396/397/398	●	●	●	●		●

**Diagram F**

## **ALARM SETTING**

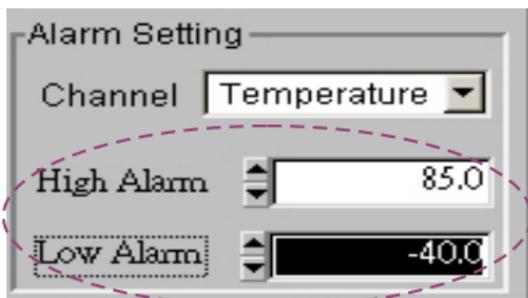
Setting up the **High Alarm** and the **Low Alarm** enables to activate the red LED of the Data Logger. (See Dia. F-1)

- Select the channel you need: Air temp./external temp./ Air RH% /Others..
- User simply select desired High value or Low value by scrolling up for increasing or scrolling down for decreasing .  
If the alarm value is never set after purchasing, the default will be:
  - High Alarm temperature defaults at 85°C.
  - Low Alarm temperature defaults at -40°C.
  - High Alarm Relative Humidity defaults at 100%.
  - Low Alarm Relative Humidity defaults at 0%.

If the logger used to be set a alarm value before, then, the default will be the same as your last setting. You could choose to change it or not.

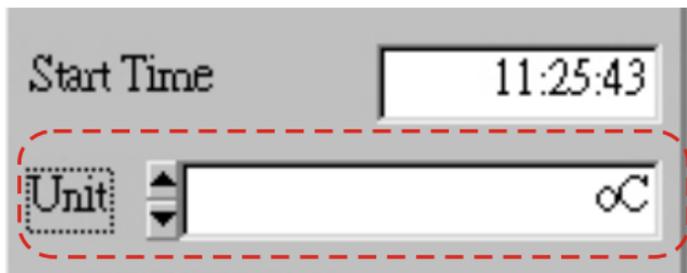
If a temperature or RH% is higher than HI setting or less than LO setting, ALM LED will flash until you change the alarm setting.

➡ **Diagram F-1:**  
**Alarm Setting**



## **UNIT SETTING**

Data logger is available in "°C" and "°F" (See [Diagram G](#)).

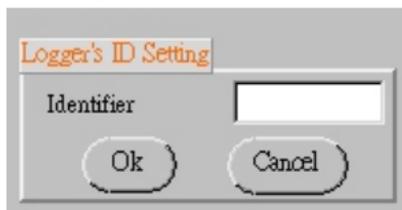


⤴ **Diagram G: Unit setting**

## **LOGGER ID SETTING**

Logger's ID Setting enables user to give unique ID names to each data logger (up to 8-digits), simplifying data tracking.

**Please be sure NOT to leave the ID setting blank.**

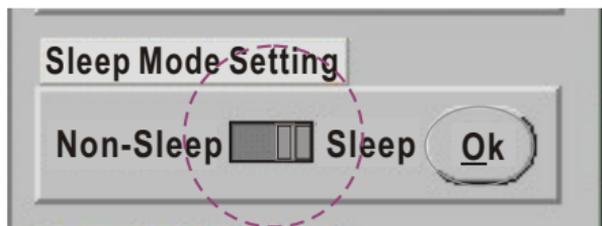


## SLEEP MODE SETTING

When the logger stop logging, all LCD equipped models could be used to display real time values. If you need this function, you need to select **NON-SLEEP** and press **OK**, then the logger will always display current Temperature / Relative Humidity even after completing recording. Please be noted that this setting will consume more battery power than SLEEP mode. (The software default is **Sleep** mode)

If you want to save battery and don't want to monitor the environment condition after stopping logging, press the slide switch to the right for **SLEEP** then click **OK** .

In models with start/stop key, you could press start/stop key momentarily to turn on/off the LCD any time.

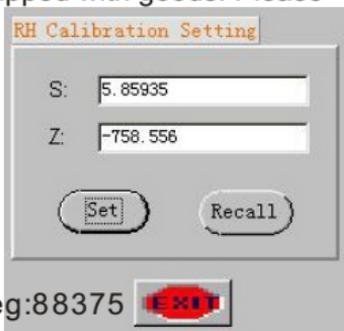


**Diagram G-1:**  
**Sleep Mode**  
**setting**

## CALIBRATION SETTING

For few models, the external probe calibration data need to be keyed into logger through computer before start recording. The calibration data will be printed in a small note and shipped with goods. Please keep the calibration note well.

Model	Need Calibration ?
88335/ 88345/ 88355	Need external temp. probe calibration
88375	Need external RH probe calibration



eg:88375

## DATA TABLE

Pressing icon to view detailed data table which includes 1000 sample readings. Temperature data shows the cursor 1, If you are logging model 8829 (Temp. & Relative Humidity), RH% reading shows next to the temperature reading.

If logging model 8835, RH% and external temp. reading show next to the temperature reading.

Print out the data table to either a printer or a fax /internet application depending on your available facilities. The print out points range is selectable. (See Diagram H )

Temperature/Humidity/Data(By Cursor 1)

No.	Date	Time	Temp(C)	Humidity(%)
123	6-29-2001	8:28:20	9.3	29.7
124	6-29-2001	8:28:21	9.3	29.7
125	6-29-2001	8:28:22	9.3	29.7
126	6-29-2001	8:28:23	9.3	29.7
		8:28:24	9.3	29.7
150	6-29-2001		9.3	29.8
151	6-29-2001	8:28:52	9.3	29.8
152	6-29-2001	8:28:53	9.3	29.8
153	6-29-2001	8:28:54	9.3	29.8
154	6-29-2001	8:28:55	9.3	29.8
155	6-29-2001	8:28:58	9.3	29.8
156	6-29-2001	8:28:56	9.3	29.7
157	6-29-2001	8:28:57	9.3	29.7
<b>(Example)</b>			0.0	

Diagram H:

### ***Data table pop-Up Menu***

Clicking the right mouse button anywhere over the table, you will activate a menu which contains **Goto** and **Find**.

**Goto** You can specify a target cell to go to, using its row and column indices. Key in which row and column you want to go, then press "OK", the cursor will go to the destination.

**Find** To search all numeric and text in the entire table or in a selection range, for a text string. After the initial search, you can press <F3> to find the next occurrence of the same text string.



From Find menu dialogue, you may enter the value or number or letters you try to find in the "Find What " block. Select from the following :

1. Case Sensitive
2. While Cell
3. Search Vertically
4. Select Cell Only
5. Wrap

Click any of above , and press "**Find Next** " button to find, press again to find the next , press "**Find Prev.**" to find the previous found point, or exit by pressing "**Cancel**" key .

The screenshot shows a dialog box titled "Data-Analysis" with a "GO" button in the top right corner. The dialog contains the following controls:

- A "Channel" dropdown menu set to "Temperature".
- An "Alarm Color" selection area with a red color swatch.
- A "Condition" dropdown menu set to "AND".
- Two checked checkboxes with associated value ranges:
  - Value  $\geq$  85.0
  - Value  $\leq$  10.0
- A checked checkbox for "Error".

To remark the specified data, select the channel, condition and range first, then press "GO" to mark the qualified reading. The color of marked text could be selected.

1. Channel: You could choose temp. or RH% or external temp.
2. Condition : AND /OR
3. Value>= to specify the range
4. Value<= to specify the range
5. Error: If selecting this, all the Error code appeared in data table will be marked and counted.
6. Alarm Color: Press to change the color of marked reading

After selection, press "GO" to run the program. The qualified reading will be selected and marked with the color you choose.



*Alarm Counter and Usage*

Usage(Records)  Counter(Times)

Usage(Records): The software could help to count how many records is within the range you set.

Counter (Times): Help to count how many runs the data out of the select range and then come back again.

# STATISTICS

Depress icon to view histograms of data based on "**Whole Range**" and on different "**Cursor Range**" basis. See ([Diagram I](#))

**Whole Range** - Covers all sample readings which have been logged.

**Cursor Range** - Covers all sample readings between two cursors.

**Channel**- select the parameter which you want to check. (Diagram I-1)

1. First of all, you could select the parameter which you want to check. For example, if there are three parameters (temp./RH%/external temp.) you should first choose the parameter which you want to see.
2. As shown in the middle top of **Diagram I-1**, by changing the cursor position on the graph, you will find an example for the statistic screen of temperature records. Samples located at the temperature of 25.8°C is 28 samples, or 33 samples at the temperature of 25.5°C between two cursors' range as shown in the middle bottom).
3. If you set all sample readings into 100 divisions, you will find the histogram of whole range changed as well.(Diagram I-2)
4. **Diagram I-2** is another example of setting the cursor range; it has been set into 100 division as well.
5. If you compare **Diagram I, I-1,I-2**, you will notice that to change the setting will also change the related figures.



6. The right part of Diagram I indicates **Maximum, Minimum, Mean and Standard Deviation (Std.Dev)** values of whole range (Upper part ) and between 2 cursors' range (Lower part).

Maximum	85.1
Minmium	41.4
Mean	72.0
Std.Dev	11.6

**Maximum** : The greatest value of whole logged records or the greatest value between two selected cursors

**Minimum** : The smallest value of whole logged records or the smallest value between two selected cursors

**Mean** : Average value of the whole logged records or average value between two selected cursors

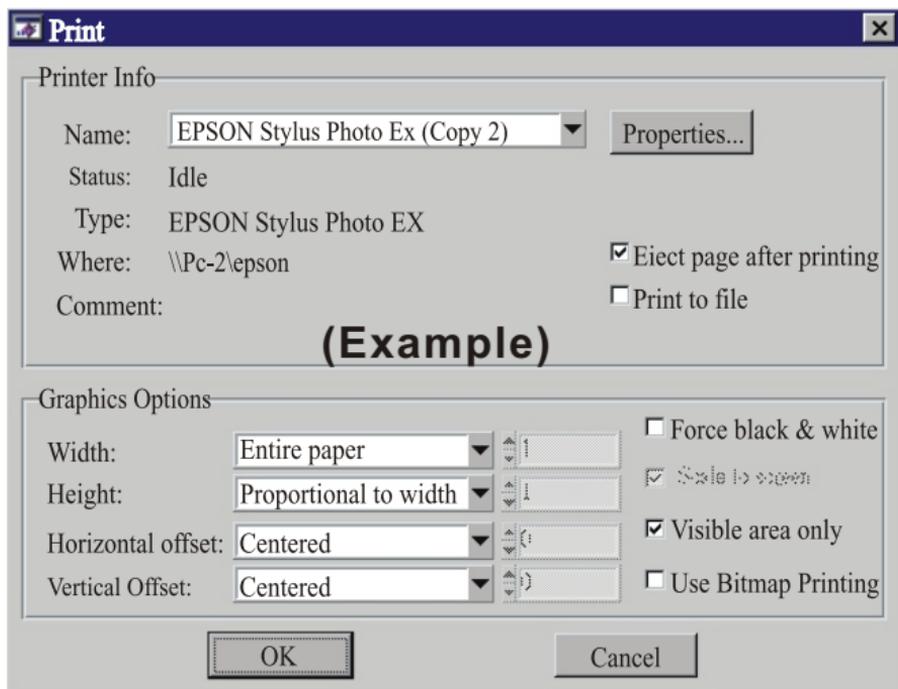
**Std. Dev.** : This is a very useful feature to see more reliable deviation while recording. Calculate each deviation between each value and Mean value, then get an average figure from totalism deviation.

## PRINT GRAPH

Depress icon to print the graph out to either a printer or a fax/internet program depending on your available facilities. See **diagram J**.

Selecting "**Print**" button on the menu bar, Windows "**Print**" dialog box allows you to change the pre-set format ,then print the contents of the currently active window .

### **Diagram J**



**Print**

Printer Info

Name: EPSON Stylus Photo Ex (Copy 2) Properties...

Status: Idle

Type: EPSON Stylus Photo EX

Where: \\Pc-2\epson  Eject page after printing

Comment:  Print to file

**(Example)**

Graphics Options

Width: Entire paper  Force black & white

Height: Proportional to width  Scale to screen

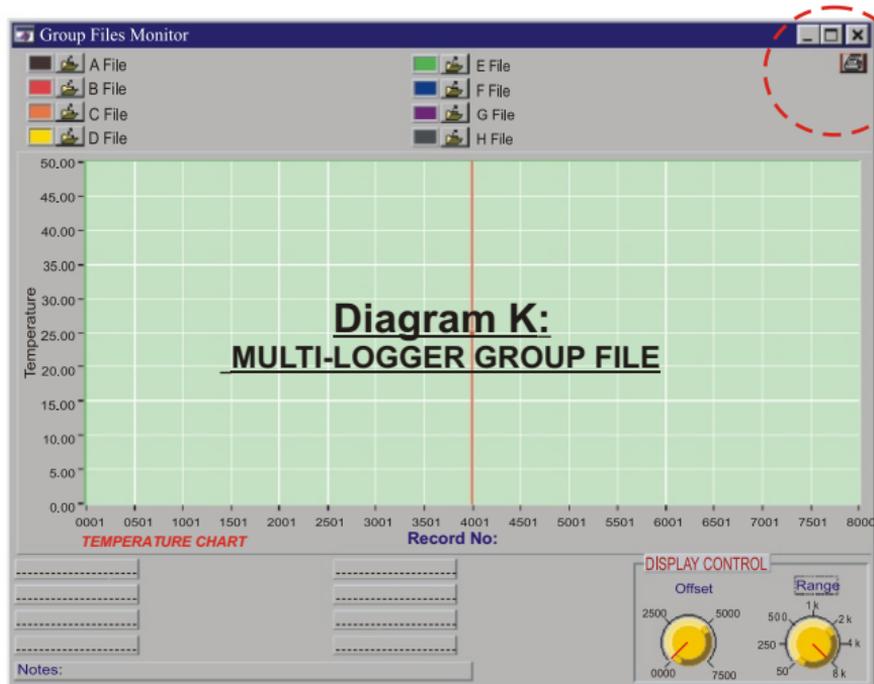
Horizontal offset: Centered  Visible area only

Vertical Offset: Centered  Use Bitmap Printing

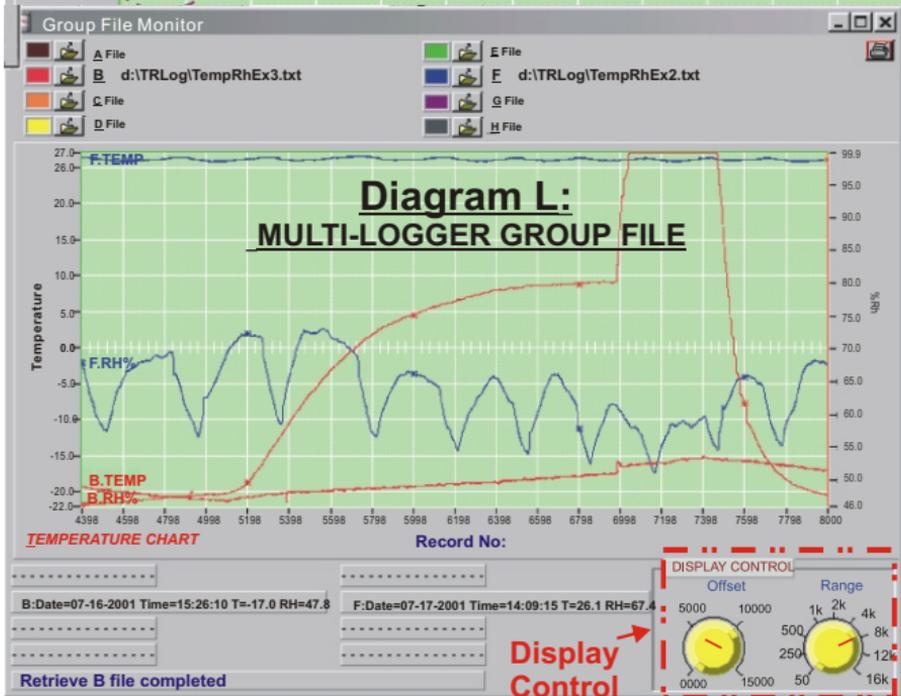
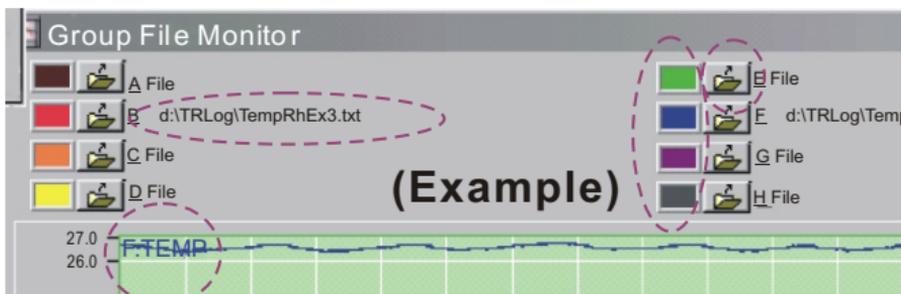
OK Cancel

# GROUP FILES

Click on its icon to view "**Multi-Logger Monitor**", which is designed to view and to compare different data files. **Diagram K** is the screen before you clicking the icon. You may select the file you want to receive and change the color of curve by clicking the color block. You can print the screen datas by clicking the printer icon at the right top corner.



Click  to select the file you want to compare with other files, click color icon box to select the color you want, After file retrieved completely, the start point of the file curve will be indicated with a Capital initial ( A, B, C, D, E, F, G, H ) and Temperature or Humidity, the file name follow the capital shown on below screen .



To compare with different data files:

**Diagram K** displays main screen before retrieving any file.

**Diagram L** is what you see after loading the example files.

Indicates different data files loaded and shown in different colors of histogram. You can always change the offset and range setting desired by moving the indicator on the yellow button. Please see Diagram L , refer to the introduction **DISPLAY CONTROL**.

## HELP

Press to review the manual if you have question when operating the software.

## OTHERS

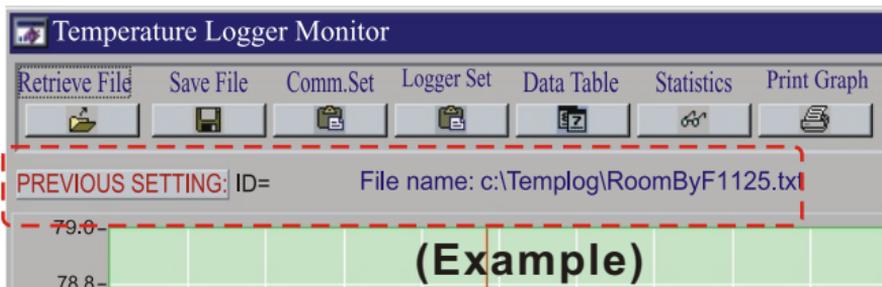
### **CURSORS STATUS**

The Cursor Status indicates exact figures of **Cursor 1** and **Cursor 2**. (See Diagram N)

### **PREVIOUS SETTING:**

Previous setting records are listed in this column for reference. ( Please refer to **Diagram M**. )

#### **Diagram M**

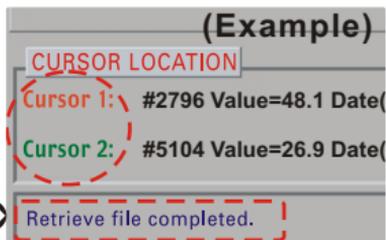


When you want to download the next logger, please press "Previous setting" to replace the last logger.

### **MESSAGE**

It is blank if there is no file retrieved. After retrieving file, the message will be changed to "**Retrieve file completed.**" (See Diagram N)

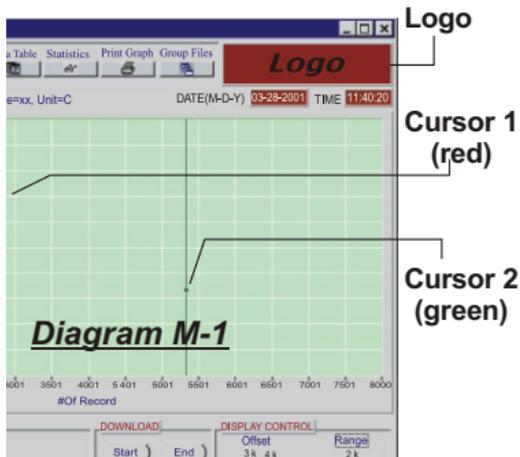
#### **Diagram N**



## **BLANK LOGO**

This area is designed to insert customers' own logo. The logo is a default image and can't be changed by users. (Please refer to **Diagram M-1**).

If private logo is needed, a clear logo artwork has to be sent to the manufacturer for setting up purpose.



## **DOWNLOAD COMMANDS**

**Start** - To start downloading data to the program.(See below diagram)

**Stop** - To manually stop downloading data to the program; which means if you don't want to download complete sample readings, you can stop it at any time you want.

**Exit** - To exit Download Commands.



## DISPLAY CONTROL

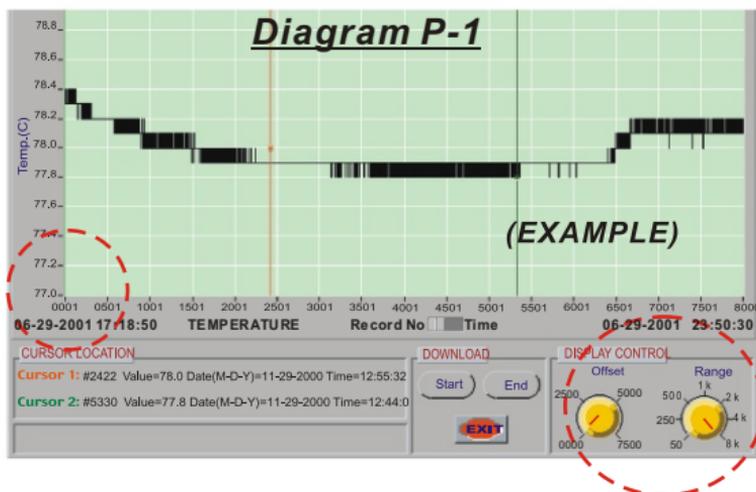
**Offset** - To set up from which sample reading you would like to start. There are different ranges for selection. The range is decided by the logger you use.



Diagram O

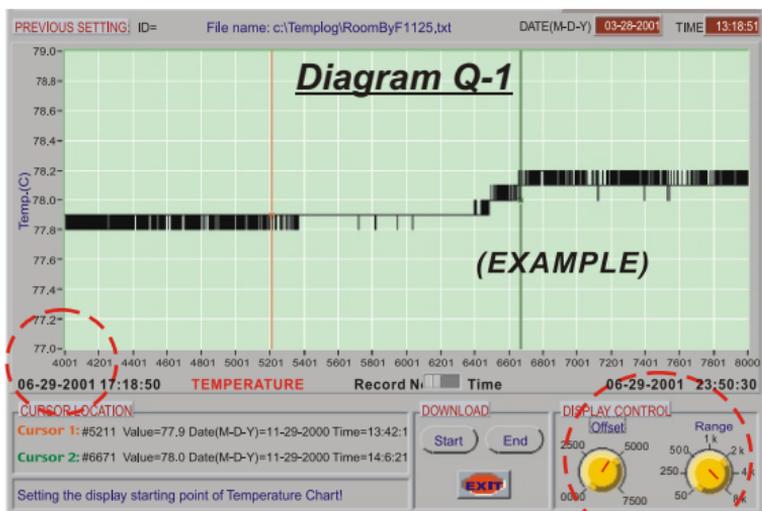
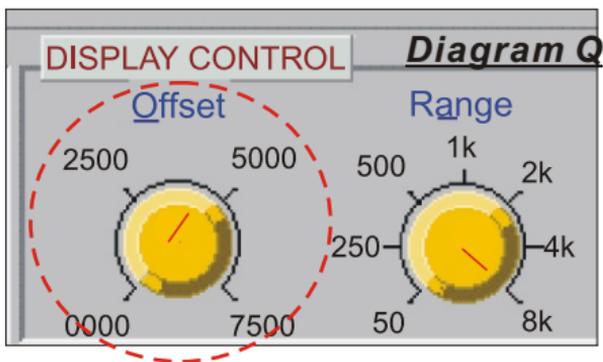
### Example 1:

Set Offset by clicking and dragging the **red indicator** to " 0000 " and **Range** unchanged at " 8K ", then, you will see the **Diagram P-1**. The screen shows the number **0001** as starting point of the total 8,000 records.

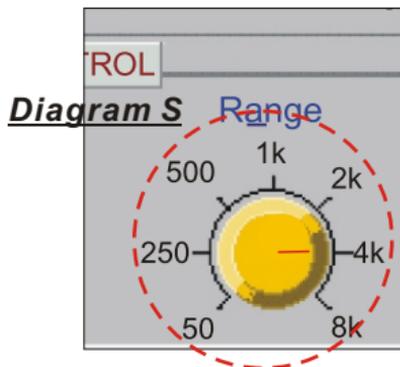
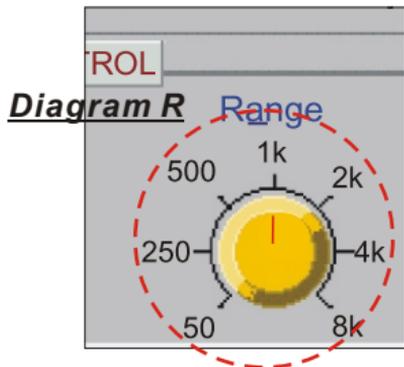


## Example 2:

Set Offset by clicking and dragging the **red indicator** to **"4000"** and Range unchanged at **"8K"**, then, you will see the **DiagramQ**. The screen shows the number **4000** as starting point of the total 8,000 records. (See diagram Q-1)

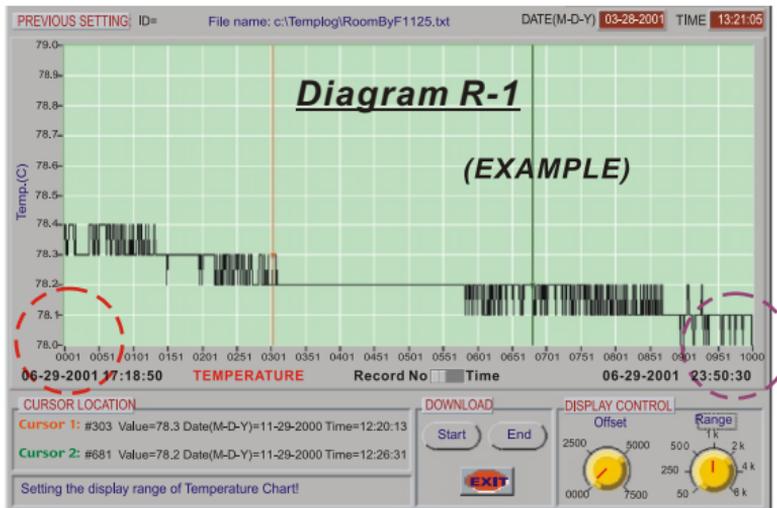


**Range** - To set up the range of sample reading you would like to display in the chart. There are different range for selection based on the logger.



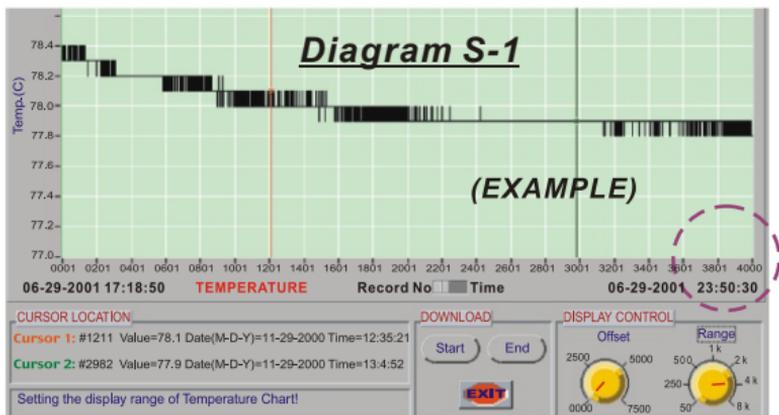
**Example1:**

Set Range by clicking & dragging the red indicator as **Diagram R** to "1K". **Diagram R-1** shows the data record from 0001 to 1000.



## Example 2 :

Set Range to "4K" as **Diagram S**. Then **Diagram S-1** shows the data record from **0001** to **4000**.

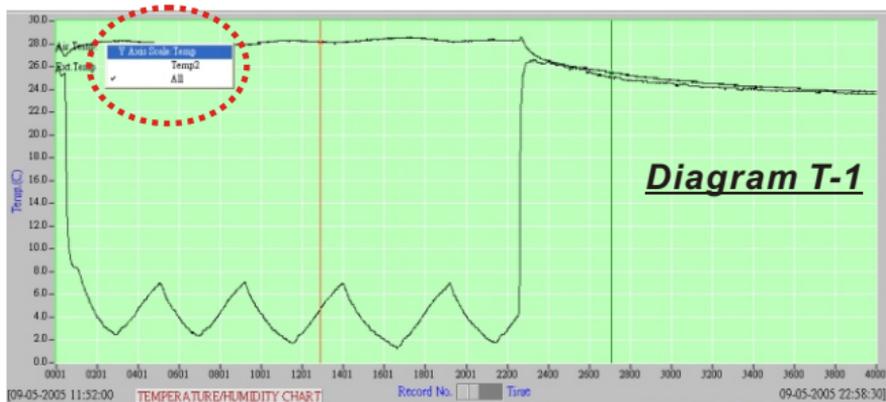


## ◆ Available value of "offset" and "range"

Logger	Offset	Range
4K Memory capacity	0000, 1000, 2000, 3000	50, 250, 500, 1K,2K, 4K
8K Memory capacity	0000, 2500, 5000, 7500	50, 250, 500, 1K,2K, 4K, 8K
6K Memory capacity	0000, 5000, 10000, 15000	50, 250, 500, 1K,2K, 4K, 8K, 12K, 16K

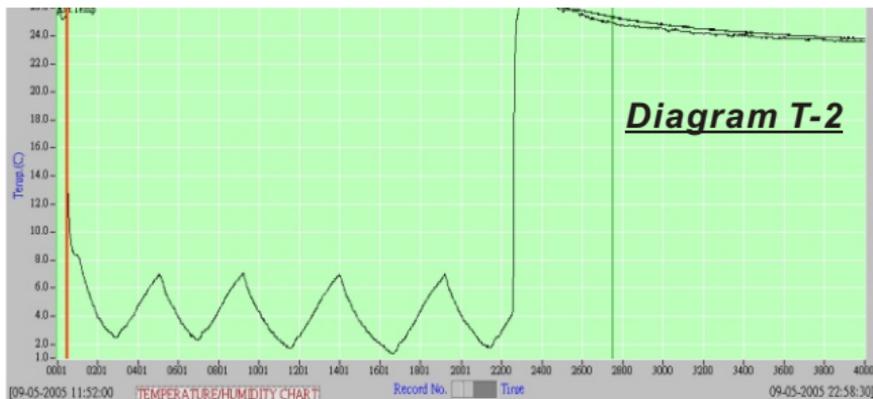
## CHANGE THE Y SCALE

When there are more than one temp. curve display on the monitor, user could press right key of mouse anywhere on the monitor to active Y scale selection function. ( See Diagram T-1). There are "Temp " "Temp2" and "all" three functions for selection.



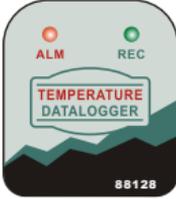
Temp=air temp, Temp2=external temp, All= Temp.&Temp2.  
Above is the display of "All", Y scale will be decided by two temp.  
For example, if the highest/lowest temp. of temp&temp2 are 30.1 and 10.5, then the Y scale will be 31 to 10.

While select temp2, if the highest/lowest value of temp2 is 20.1 and 10.5, then the Y scale will be 21 to 10.



## GENERAL SPECIFICATION

### TEMPERATURE DATALOGGER

SPECIFICATIONS	<b>8818 (Phased out)</b>	<b>88128</b>
TEMP. RANGE	-40~85°C	
	-40~185°F	
SHAPE	<b>OVAL</b>  <b>(Phased out)</b>	<b>SQUARE</b> 
POWER BAT.	ER3 lithium battery x1	
ACCURACY	Temp.± 0.6°C(-20~50°C) ±1.2°C(-40~20°C,51~85°C)	
SAMPLE DATA	Up to 8000	up to 16000
SAMPLE POINTS	1K/2K/4K/8K	1K/2K/4K/8K/12K/16K
HOUSING	<b>WATERPROOF</b>	
DIMENSIONS(mm)	124(L)x92(W)x37(T)(Interface)	
	108(L)x66(W)x22(T)	80(L)x55(W)x22(T)
	124(L)x92(W)x50(T)(Complete set)	
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)	
RESOLUTION	0.1°C (0.1°F) for range -40°C~-50°C 0.2°C for range 50~70°C 0.3°C for range 70~85°C	0.1°C (0.1°F)
CABLE LENGTH	150 cm with DB9 connector	

## TEMPERATURE / RELATIVE HUMIDITY DATALOGGER WITH LCD DISPLAY

SPECIFICATIONS	8828	8829
TEMP. RANGE	-40~85°C	
	-40~185°F	
HUMIDITY RANGE	N/A	0~100% RH
FRONT PANEL		
POWER BAT.	ER3 lithium battery x1	
ACCURACY	Temp. $\pm 0.6^{\circ}\text{C}$ (-20~50°C) $\pm 1.2^{\circ}\text{C}$ (-40~20°C, 51~85°C) Humidity: $\pm 3\%$ RH (25°C, 10~90%), $\pm 5\%$ at others	
BAT LOW DISPLAY	"Lo" DISPLAY	
SAMPLE DATA	Up to 16000	
SAMPLE POINTS	1K/2K/4K/8K/12K/16K	
LCD DISPLAY	SIZE:12 x 25.5 mm	
HOUSING	WATERPROOF	WATER RESISTANT
DIMENSIONS(mm)	124(L)x92(W)x37(T)(Interface)	
	80(L)x55(W)x22(T)	
	124(L)x92(W)x50(T)(Complete set)	
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)	
RESOLUTION	0.1°C (0.1°F)	
CABLE LENGTH	150 cm with DB9 connector	

## TEMPERATURE DATALOGGER

SPECIFICATIONS	8813	8814	8815
TEMP. RANGE		-30~70°C	
		-22~158°F	
HUMIDITY RANGE	N/A		
FRONT PANEL			
POWER BAT.	CR2032 x1		
ACCURACY	Temp.± 0.6°C(-20~50°C) ±1.2°C(-30~-20°C,51~70°C)		
BAT LOW DISPLAY	NO DISPLAY	"Lo" DISPLAY	
SAMPLE DATA	Up to 4000	Up to 4000	Up to 8000
SAMPLE POINTS	1K/2K/4K/8K		
LCD DISPLAY	SIZE:12 x 25.5 mm		
HOUSING	WATERPROOF	WATERPROOF	
DIMENSIONS(mm)	85(L)x61(W)x20.2(T)(USB type Interface)		
	85(L)x61(W)x20.2(T)		
	124(L)x92(W)x50(T)(Complete set)		
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)		
RESOLUTION	0.1°C (0.1°F)		
CABLE LENGTH	150 cm with DB9 connector		

## TEMPERATURE / RELATIVE HUMIDITY DATALOGGER WITH PROBE

SPECIFICATIONS	8833	8834	8835
TEMP. RANGE	Internal: -40~85°C (-40~185°F)		
PROBE TEMP. RANGE	External: -40~100°C (-40~212°F)		
HUMIDITY RANGE	N/A	0~100% RH	
FRONT PANEL			
POWER BAT.	ER3 lithium battery x1		
ACCURACY	Temp. $\pm 0.6^{\circ}\text{C}$ (-20~50°C) $\pm 1.2^{\circ}\text{C}$ (-40~-20°C, 51~85°C) Humidity: $\pm 3\%$ RH (25°C, 10~90%), $\pm 5\%$ at others.		
BAT LOW DISPLAY	NO DISPLAY	"Lo" DISPLAY	
SAMPLE DATA	Up to 8000	Up to 8000	Up to 16000
SAMPLE POINTS	1K/2K/4K/8K/12K/16K		
LCD DISPLAY	SIZE: 12 x 25.5 mm		
HOUSING	WATERPROOF	WATERPROOF	
DIMENSIONS(mm)	85(L)x61(W)x20.2(T)(Interface)		
	80(L)x55(W)x22(T)		
	124(L)x92(W)x50(T)(Complete set)		
LED SIGNAL	Red (HI, LO Alarm) / Yellow (Record)		
RESOLUTION	0.1°C (0.1°F)		
CABLE LENGTH	150 cm with DB9 connector		

## TEMPERATURE / RELATIVE HUMIDITY DATALOGGER WITH HIGH TEMP. PROBE

SPECIFICATIONS	88335	88345	88355
TEMP. RANGE	Internal: -40~85°C (-40~185°F)		
PROBE TEMP. RANGE	External: 10~150°C (50~302°F)		
HUMIDITY RANGE	N/A		0~100% RH
FRONT PANEL			
POWER BAT.	ER3 lithium battery x1		
ACCURACY	Temp. ± 0.6°C (-20~50°C), ± 1.2°C (-40~-20°C, 51~85°C) External Temp. ± 0.8°C (10-50C), ± 1.6°C (50 - 100C), ± 3.0°C (100 - 150 C) Humidity: ± 3%RH(25°C, 10~90%), ± 5% at others.		
BAT LOW DISPLAY	NO DISPLAY	"Lo" DISPLAY	
SAMPLE DATA	Up to 8000	Up to 8000	Up to 16000
SAMPLE POINTS	1K/2K/4K/8K/12K/16K		
LCD DISPLAY	SIZE: 12 x 25.5 mm		
HOUSING	WATERPROOF		WATERPROOF
DIMENSIONS(mm)	85(L)x61(W)x20.2(T)(Interface)		
	80(L)x55(W)x22(T)		
	124(L)x92(W)x50(T)(Complete set)		
LED SIGNAL	Red (HI, LO Alarm) / Yellow (Record)		
RESOLUTION	0.1°C (0.1°F)		
CABLE LENGTH	150 cm with DB9 connector		

## TEMPERATURE DATALOGGER VIA RS232 CABLE TO PC

SPECIFICATIONS	88193	88195
TEMP. RANGE	Internal: -30~70°C (-22~158°F)	
PROBE TEMP. RANGE	N/A	
HUMIDITY RANGE	N/A	
FRONT PANEL		
POWER BAT.	CR2 lithium battery x1	
ACCURACY	Temp. $\pm 0.6^{\circ}\text{C}$ (-20~50°C) , $\pm 1.2^{\circ}\text{C}$ (others range)	
BAT LOW DISPLAY	N/A	"Batt" DISPLAY
SAMPLE DATA	4000	8000
SAMPLE POINTS	1K/2K/4K	1K/2K/4K/8K
LCD DISPLAY	SIZE: 13 x 33 mm	
HOUSING	IP65	
DIMENSIONS(mm)	75.5(L)x53(W)x23.5(T)	
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)	
RESOLUTION	0.1°C (0.1°F)	
CABLE LENGTH	120 cm with DB9 connector	

## TEMPERATURE /RELATIVE HUMIDITY DATALOGGER, VIA RS232 CABLE TO PC

SPECIFICATIONS	88393	88394	88395
TEMP. RANGE	Internal: -40~85°C (-40~185°F)		
PROBE TEMP. RANGE	-40~100°C		
HUMIDITY RANGE	0~100 RH%		
FRONT PANEL			
POWER BAT.	CR2 lithium battery x1		
ACCURACY	Temp: $\pm 0.6^{\circ}\text{C}$ (-20~50°C), $\pm 1.2^{\circ}\text{C}$ (others range) Humidity: $\pm 3\%$ RH (25°C, 10~90%), $\pm 5\%$ at others		
BAT LOW DISPLAY	N/A	"Batt" DISPLAY	
SAMPLE DATA	16000	16000	15999
SAMPLE POINTS	1K/2K/4K/8K		1K/2K/4K/8K/12K/16K
LCD DISPLAY	SIZE: 13 x 33 mm		
HOUSING	IP65		IP54
DIMENSIONS(mm)	75.5(L)x53(W)x23.5(T)		
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)		
RESOLUTION	0.1°C (0.1°F)		
CABLE LENGTH	120 cm with DB9 connector		

## MULTIPLE FUNCTION DATALOGGER VIA RS232 CABLE TO PC

SPECIFICATIONS	88372	88373	88375	88378
Measurement Range	-30~ +30 psi	1999us/cm 0~80°C	-20~70°C 0~100%RH	-200~1370°C
SHAPE				
POWER BAT.	ER3 lithium battery x1			
ACCURACY	+/-0.3% of FS at 25°C	±1%FS± 1 dgt	Temp.:± 0.6°C(0~50C), ±1.2 °C at others RH% ±3%(25°C,10~90%) ±5% at others	+/- 0.3% rdg +/-0.7° C
BAT LOW DISPLAY	"Battery icon" DISPLAY			
SAMPLE DATA	Up to 16000			
SAMPLE Rate	1sec to 12 hours			
LCD DISPLAY	SIZE: 40mmx20mm			
HOUSING	N/A			
DIMENSIONS(mm)	90(L)x60(W)x26(T)			
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)			
RESOLUTION	0.02PSI	0.05% FS	0.1°C /F,0.1%	0.1°C/F

## TEMPERATURE/ HUMIDITY BIG MONITOR DATALOGGER VIA USB CABLE TO PC

SPECIFICATIONS	8808	8809
TEMP. RANGE	Internal: -20~70°C (-4~158°F)	
PROBE TEMP. RANGE	N/A	
HUMIDITY RANGE	0~100%	
FRONT PANEL		
POWER BAT.	AA battery x4 OR 9V adaptor	
ACCURACY	Temp. $\pm 0.6^{\circ}\text{C}$ (-20~50°C), $\pm 1.2^{\circ}\text{C}$ (others range) Humidity: $\pm 3\%$ RH (25°C, 10~90%), $\pm 5\%$ at others	
BAT LOW DISPLAY	Bat. icon DISPLAY	N/A
SAMPLE DATA	16000	16000
SAMPLE POINTS	1K/2K/4K/8K/16K	1K/2K/4K/8K/16K
LCD DISPLAY	SIZE: 50.9 x 65.5 mm	
HOUSING	N/A	
DIMENSIONS(mm)	120(L)x93(W)x42(T)	
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)	
RESOLUTION	0.1°C (0.1°F)	
CABLE LENGTH	120 cm with USB connector	

## TEMPERATURE /RELATIVE HUMIDITY DATALOGGER, VIA RS232 CABLE TO PC

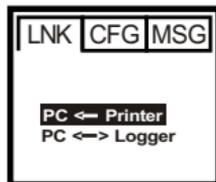
SPECIFICATIONS	88396	88397	88398
TEMP. RANGE	Internal: -40~85°C (-40~185°F)		
PROBE TEMP. RANGE	-40~100°C		
HUMIDITY RANGE	0~100 RH%		
FRONT PANEL			
POWER BAT.	CR2 lithium battery x1		
ACCURACY	Temp: $\pm 0.6^{\circ}\text{C}$ (-20~50°C), $\pm 1.2^{\circ}\text{C}$ (others range) Humidity: $\pm 3\%$ RH (25°C, 10~90%), $\pm 5\%$ at others		
BAT LOW DISPLAY	N/A	"Batt" DISPLAY	
SAMPLE DATA	16000	16000	15999
SAMPLE POINTS	1K/2K/4K/8K		1K/2K/4K/8K/12K/16K
LCD DISPLAY	SIZE: 13 x 33 mm		
HOUSING	IP65		IP54
DIMENSIONS(mm)	75.5(L)x53(W)x23.5(T)		
LED SIGNAL	Red (HI,LO Alarm) /Yellow(Record)		
RESOLUTION	0.1°C (0.1°F)		
CABLE LENGTH	120 cm with DB9 connector		

## 9801PRINTER

The 9801 printer is upgraded with PC connection function and 4 storage capacity. The connection port of 9801 to PC is USB.

Select the function of 9801 to "LNK" in order to connect with PC. 9801 could store 4 loggers' data and connect to PC to download the data. Besides, 9801 could also be treated as standard interface to upload the command from PC to logger or to download the data from logger to PC.

Two PC Communication function included in "LNK". LCD displays:

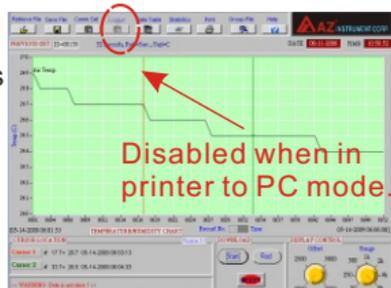
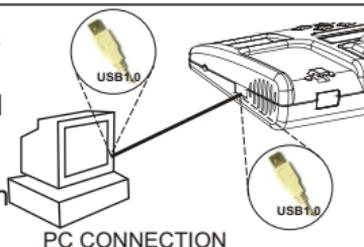


Use Up/Down to select the needed function then press "Enter" to confirm and enter.

While selecting **PC <- Printer**, user only could download the stored data to PC. This is an one way communication. Under Printer to PC, "Logger Setting" is disabled. After downloading the stored data to software, user could use this software to review and analyse the stored data.

While selecting **PC <-> Logger**, user could use the printer as a regular interface to set&download the logger through PC. This is a two way communication so the printer works like 8818P, 8828P, 8829P, 8824P interface. Under this function, "Logger Setting" will not be disabled.

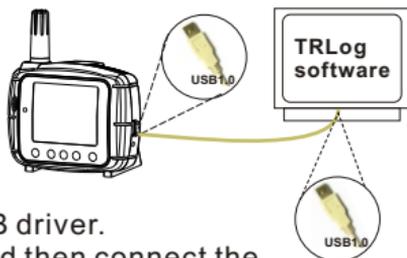
**Note:** The calibration of 88335~88355 and 88375 could only be set by software instead of 9801 printer.



## BIG MONITOR DATALOGGER (For 8808/8809)

8808 & 8809 datalogger could be programmed from PC.

Please follow up below steps:



1. While you install the software, please be sure to install the USB driver.
2. Plug the USB cable to logger and then connect the cable to PC.
3. Select the correct COM port number in software.
4. Select the baud rate as 9600, data bits is 8, parity is none and stop bits is 1.
5. Programming the logger from "Logger" menu. The programmed parameters are:  
Sample Points:1000/2000/4000/8000/12000/16000  
Sample Rate:00:00:01 to 12:00:00  
Start Mode: Repeat/Key Start/Immediately/Schedule  
Start Date:YY/MM/DD  
Start Time:HH/MM/SS  
(Above two are for "schedule" mode only)  
Unit: Disabled in software. Only manually change is acceptable.  
Alarm Setting: Temp. Low/High, RH% Low/High  
Logger's Clock: YY/MM/DD & HH/MM/SS  
Sleep Mode: Disabled in 8808/8809  
Logger's ID: Disabled in 8808/8809  
Calibration Setting: Disable in 8808/8809
6. If the start mode is "Key Start", when the meter is on, long press "START/STOP" key to start logging.
7. When the logging process is finished, you could download the memories to computer for data analysis, records statistic, reviewing the curve change, saving the memories as \*.txt file or printing out .....etc. Please press download key on the software main screen to transmit the data from meter to PC.

## F.A.Q.(Frequently Ask Question)

**FAQ: If I can't download and the display won't active, what should I do ?**

**Ans:** Make sure you have selected correct baud rate. Select 9600 baud rate for all the models (except 8818). This is to ensure you could download quicker by selecting correct baud rate value.

**FAQ: If the logger is programmed as Magnetic but could not start , how should I do ?**

**Ans:** If you set up Magnet start function(for 88128/8829/8829), when a magnet passes over the middle of rear side, the logger should be activated and the REC should flash. If not, changing with a new and stronger magnetism and try it again.

**FAQ: If I want to stop logging before completing all sample points, how should I do ?**

**Ans:** 1. Downloading by PC to stop logging.

Note: The download operation before completing all sample points won't work for the logger sample rate to be set as "1" second.

2. For models with start/stop key, press "start/stop" key for over 1 second could also turn off the logger any time.

**Note: If you don't want to stop the logger before memory is full, DON NOT press start/stop key more than 1 second.**

**FAQ: In "Group" function, if I want to retrieve another file to replace current file shown on the graph, how should I do ?**

**Ans:** Select the file you don't want and then retrieve the desired file you want to review.

**FAQ: How to know which parameter is over the alarm limit?**

**Ans:** For models which measure over one parameter, all parameters will display in turns. If parameter RH% is over the limit, the RH% value will display on LCD with ALM show up.

**FAQ: Why won't data table be updated when removing the cursor ?**

Ans: It is when you remove the cursor between the ranges (1000 sample from cursor 1). For example: If you set number 50 record as cursor 1, the table data shows from 50 to 1049. If you remove cursor 1 within the range, the data won't be updated, unless remove the cursor 1 outside the range, i.e. less than 50 or more than 1049 .

**FAQ: Can I set both alarm value for temperature & RH% on 8829 and other datalogger with could measure more than one parameter?**

Ans: Except 8829, all multiple parameters loggers could be set more than one alarm value. While in 8829, could not set alarm of temperature and RH at the same time.

The "channel" column will be disabled in 8829. Please choose the parameter you want to have alarm from "Unit" column and then set the value.

**FAQ: If I want to download next logger, how to update the last graph without turning off or exiting current screen ?**

Ans.: You may have two choices to download the next logger :

- a) Click "PREVIOUS SETTING" to replace the last logger data with a new one.
- b) Close the program and reopen again.

Note : Click "Retrieve File" will not activate with a new logger data unless you follow up above instruction.

**FAQ: How to calibrate the RH% of datalogger ?**

Ans: The humidity sensor accuracy could not be calibrated by user due to the special tooling is needed. Please contact the store where you bought the meter. The sensor re-calibration is proceed in factory only.

**FAQ: After downloading, is the records kept in the logger? How to clear the record ?**

**Ans:** The records will be kept in logger until next new recording.  
The way to clear the record is to start a new logging run..

**FAQ: Why the logger could not start logging from the time preset?**

**Ans:** The problem come from the wrong logger time clock. Please program the logger clock again. Under logger setting menu, be sure to press "OK" of the time setting column to make the logger time clock the same as your computer. In fact, it is strongly suggest to press "OK" of each column even you change nothing.

**FAQ: Meaning of the error code?**

Error Code	Description	How to correct?
----	Probe is disconnected	Plug the probe
E01	Probe is disconnected	Plug the probe
E02	Value under the lower limit	Remove logger from existing environment
E03	Value over the upper limit	Remove logger from existing environment
E04	Value fail because of the relative original data error. e.g. when Ta error happened, RH will be E04.	Solve the relative original data error first
E11	RH calibration error	Need re-calibration.
E14	Temperature calibration error	Need re-calibration.
E32	Read/Write EEPROM error	Need repair.
E33	Hardware error	Need repair.

**FAQ: What should I do when " Communication failed" appears during the logger setting?**

**Ans:** The "Communication failed" icon will appear when one of the followings happens:

1. The logger has poor connection with cable or cradle.
2. Cable or cradle has poor connection with computer
3. Cable, cradle or logger electronic part is fail.

To quick solve 1 & 2, make sure all your connection are in good condition. To solve 3, restart the computer.

If the "Communication Fail" icon keep appearing, please contact your local store.

## **WARRANTY**

The meter is warranted to be free from defects in material and workmanship for a period of two years from the date of purchase.

This warranty covers normal operation and does not cover batteries, misuse, abuse, alteration, tampering, neglect, mproper maintenance, or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs.

## **RETURN AUTHORIZATION**

Authorization must be obtained from the supplier before returning items for any reason.

When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss .

**Accuracy, the Zenith of  
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Hygrometer/Psychrometer

Thermometer

Anemometer

Sound Level Meter

Air Flow meter

Infrared Thermometer

K type Thermometer

K.J.T. type Thermometer

K.J.T.R.S.E. type Thermometer

pH Meter

Conductivity Meter

T.D.S. Meter

D.O. Meter

Saccharimeter

Manometer

Tacho Meter

Lux / Light Meter

Moisture Meter

Data logger

Temp./RH transmitter

Wireless Transmitter .....

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