

OPERATION MANUAL

TEMPERATURE / HUMIDITY DATA LOGGER



Model:	■ 88128	■ 8828	■ 8829
	■ 8813	■ 8814	■ 8815
	■ 8833	■ 8834	■ 8835
	■ 88335	■ 88345	■ 88355
	■ 88393	■ 88394	■ 88395
	■ 88193	■ 88195	■ 6800
	■ 9801	■ 88378	■ 88375



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INTRODUCTION

Thank you for purchasing this Temperature Data Logger! This unit has been developed to meet your maximum satisfaction with its user-friendly design. Review the entire manual for a complete overview of the operation of this new data logger.

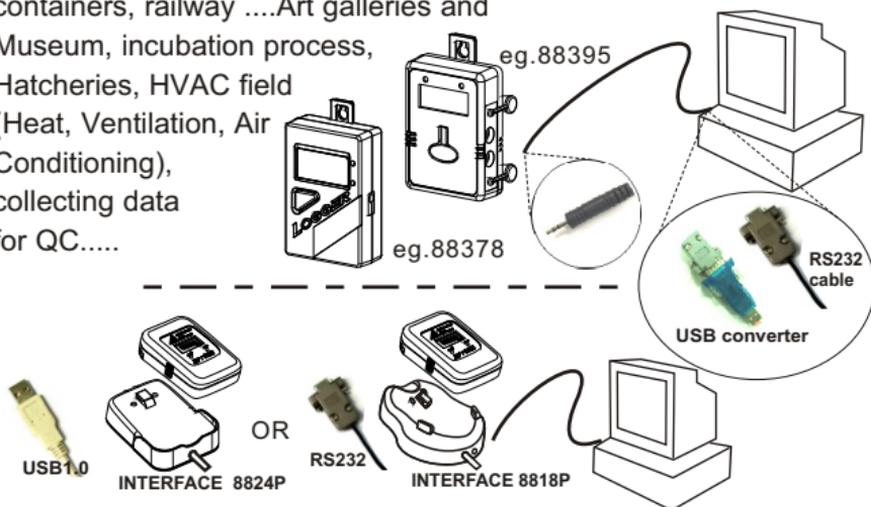
You may review the manual from Autoplay Menu, double click **"Run software, Manual (PDF)"** and peruse every procedure and function step by step. The logger is very easy-to-use.

The software is used to readout the stored data and see as a graph, showing the history 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, designed as a saving cost unit.

IDEAL FOR APPLICATION:

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



Before starting the logger setting ,please read throughly the whole operation manual, there are some FAQ listed in some pages for troubleshooting reference.

MATERIAL SUPPLIED

Check for damaged or missing parts in your data logger before starting:

The Data Logger Set should contain:

1. Operation manual
2. Either one of the following :

Model: 88128, 8828/29, 8813/14/15, 8833/34/35, 88335/345/355
88193/195, 88393/394/395, 88375/378

The Data Loggers, supplied with one CR2 /ER3(3.6V lithium battery) or CR2032 (3.0 V button cell)

Model: 8818P(White) , 8828P(Dark blue), 8829P (Burgundy)

The RS232 Interface with cable & software.

Model: 8824P(White)

The USB Interface with cable & software.

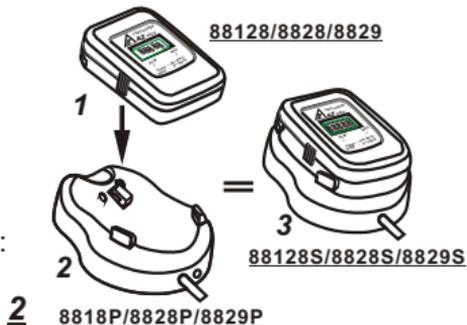
Model: RS232N1(black cable)

The RS232 cable for 88193/195, 88393/394/395, 88375/378

Model: 88128S, 8828S, 8829S, 8813S, 8814S, 8815S, 8833S,
8834S, 8835S, 88335S, 88345S, 88355S

The complete set includes data logger with battery, interface and software.

Example:



FEATURES

- Up to 4K (8813/14) or 8K (8815,8833/34, 88335/345) or 16K (88128, 8828/29,8835, 88355, 88193/195/393/394/395, 88375/378) sample reading with real-time clock memory.
- LCD display of data (8828/29, 8814/15, 8834/35, 88345/355, 88195 88394/395, 88375/378).
- 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 see summary in 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.
- Easy to use Software provides :Retrieve file, Save file, Logger setting, Comport setting, Group file, Print graph, Data table list, Statistic
- Sleep mode and Non-Sleep mode to be selectable to display current Temperature and Humidity (LCD models)
- External temperature probe socket included 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) **3**

FRONT VIEW

REC - Stands for RECORD

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

"REC" is flashing while logging the temperature records. Yellow LED will stop flashing after complete recorded or battery is out of power. REC yellow light flash per sample rate setting. For 88128, if the interval is over 5 second, the LED flash every 5 seconds.

Models with LCD : 8828/29/14/15/34/35/345/355/195/394/395/375/378

Both yellow LED light and "REC" indicator will active and display on the screen per every set sample interval. For 8828/8829, if the interval is over 5 second, the LED flash every 5 seconds

ALM - Stands for ALARM

"ALM" is flashing while recorded value is higher than set HI or less than LO setting, the logger alarm designed as not audible, but only for reminding or warning the user to do necessary action.

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

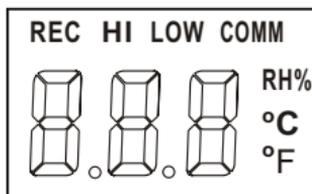
"ALM" "ALM" LED will stop flashing after downloading to a PC or battery is out of power. "RED" light flash per sample rate setting. For 88128, if the interval is over 5 second, the LED flash every 5 seconds.

Models with LCD : 8828/29/14/15/34/35/345/355/195/394/395/375/378

Both red LED light and "ALM" indicator will active and display on the screen per every set sample interval. For 8828/8829, if the interval is over 5 second, the LED flash every 5 seconds

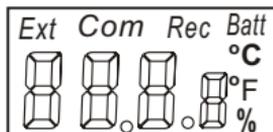
LCD DISPLAY

Model: 8828, 8829, 8814, 8815 **Model: 8834/35/345/355**



Model: 88194/195/394/395

Model: 88375/88378



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

When stop logging and only 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 measurement is higher than set High value in the logger unit .

LOW - "LOW" or "LO" or "ALARM" are displayed while measurement is lower than set Low value in the logger unit.

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

°C - Temperature displays reading in Celsius

°F - Temperature displays reading in Fahrenheit

COMM - When communicating with computer , "COMM" or "COM" are shown at the top of the screen.

EX - External probe temperature. In models with external probe, the air temp. and external probe temperature (and RH%, for 8835/88355/88395) will appear in turns.

BAT - **BAT** or $\boxed{+-}$ or "Lo" will appear when the battery power is to low too operate.

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.

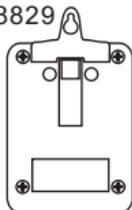


(eg:8828)

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, make sure the battery is inserted with correct polarity.
5. Re-screw the rear cover with screwdriver .

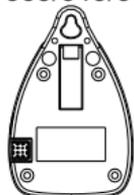
Model:
88128/8828
/8829



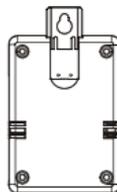
Model:
8813/14/15



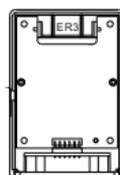
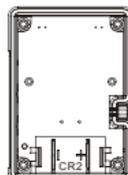
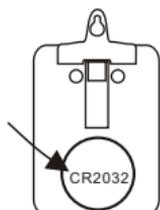
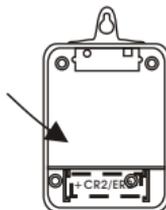
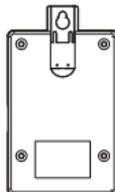
Model:
8833/34/35
335/345/355



Model:
88193/195/393
/394/395



Model:
88375/378

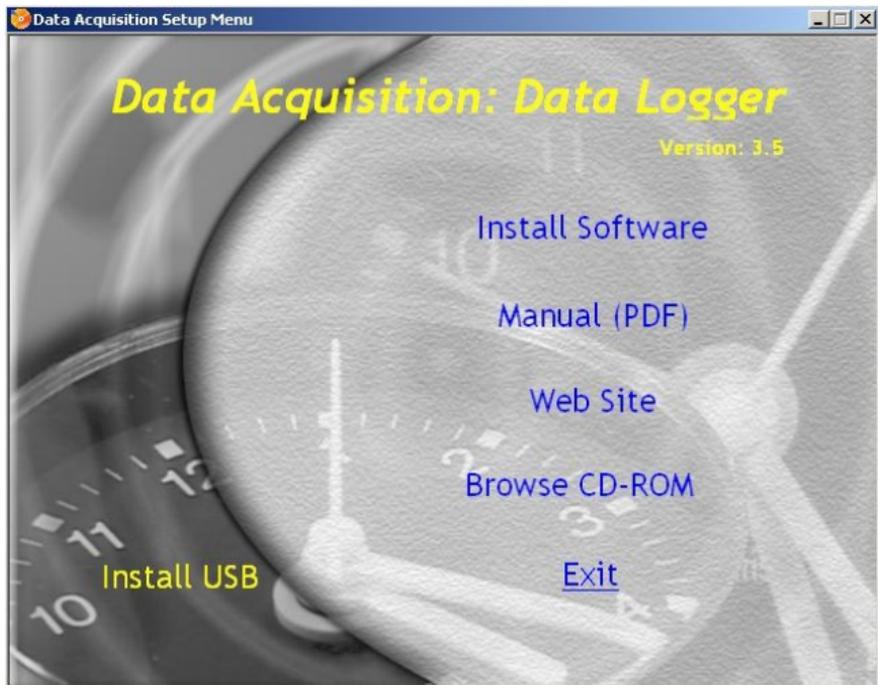


SOFTWARE INSTALLATION

Microsoft® Office is a registered trademark of Microsoft Corporation.

Installation procedure :

1. Slide the logger unit onto the RS232 or USB interface.
2. Connect the socket of the interface 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 website in your browser.
 - d) **.Brow CD-ROM.** Browse the CD-Rom using Windows.
 - E) **.Exit.** Exit the software.



MAIN SCREEN

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

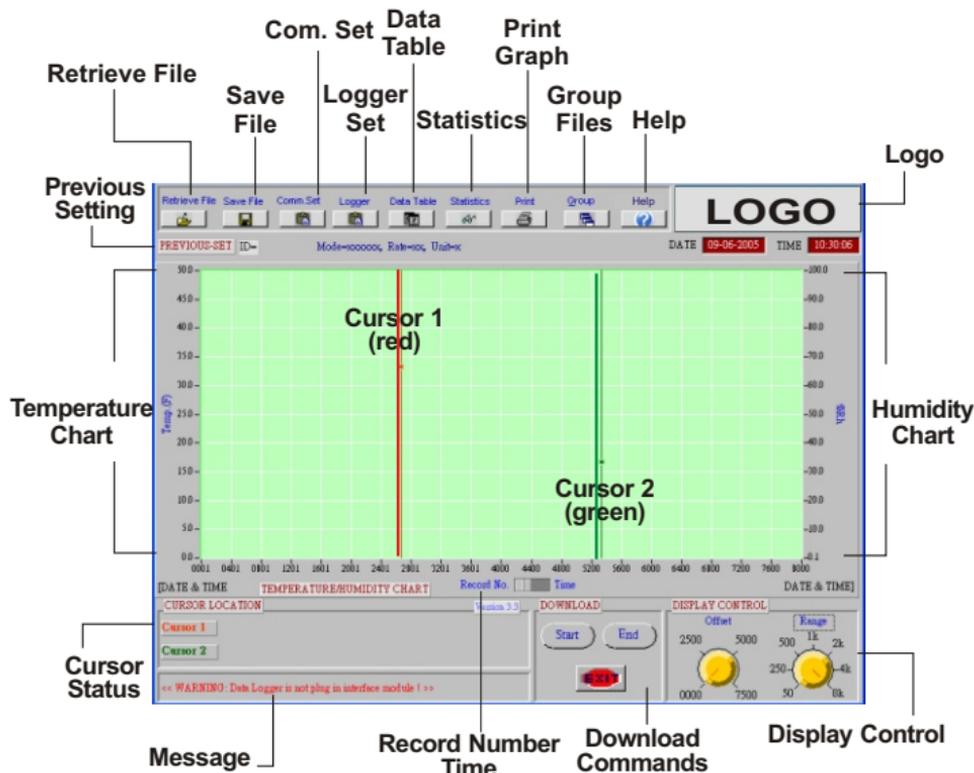


Diagram A: Main Screen

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.

FAQ: Why can't I see the movement by pressing above keys ?

Ans : First of all, click the mouse on the monitor and make sure the bottom right corner "Display Control - Offset " figures are not in black.

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.

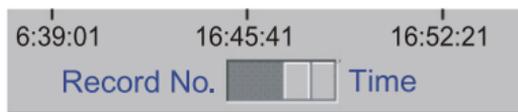
To pan, press the <Ctrl-Shift> keys and click on the left mouse button over a point on the viewport. Then drag the mouse to another point.

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 : The 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

Model	Offset	Range
8813/8814	0000, 1000, 2000, 3000	50, 250, 500, 1K,2K, 4K
8815/8833/34 88335/345	0000, 2500, 5000, 7500	50, 250, 500, 1K,2K, 4K, 8K
88128/28/29 35/355/193/195 393/394/395/375 /375	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.

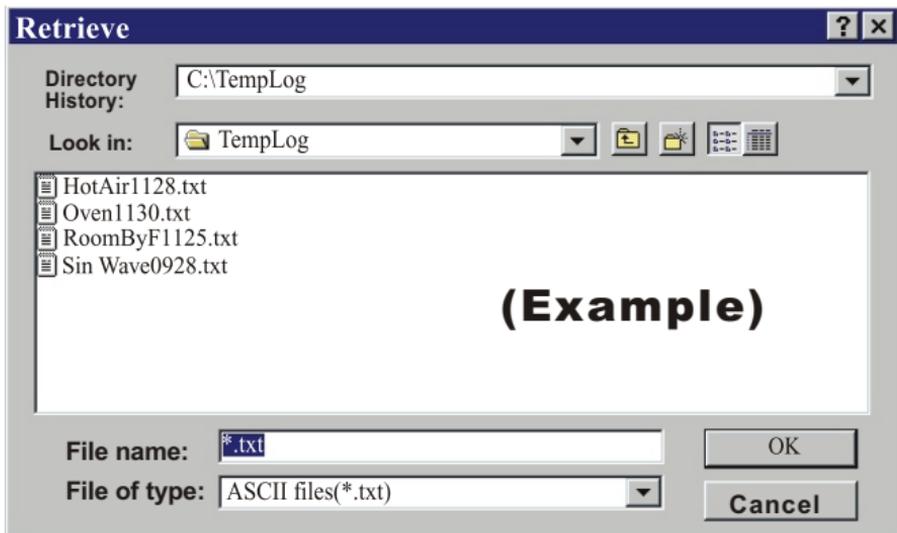


Diagram B: Retrieve File

NOTE:

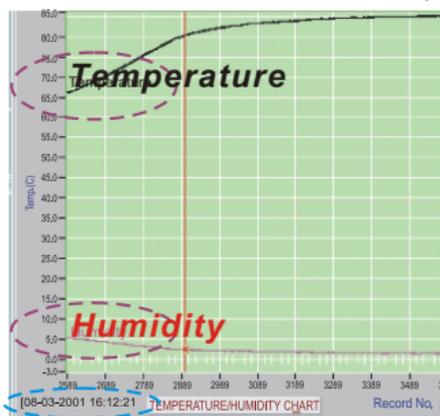
Above file names are the examples to help you understanding what screen will be. **Don't be alarmed if you couldn't see the files shows on your software .**

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 parameters, 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 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 different temperature curve.

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

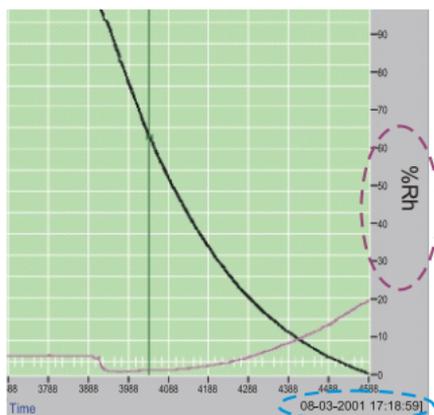
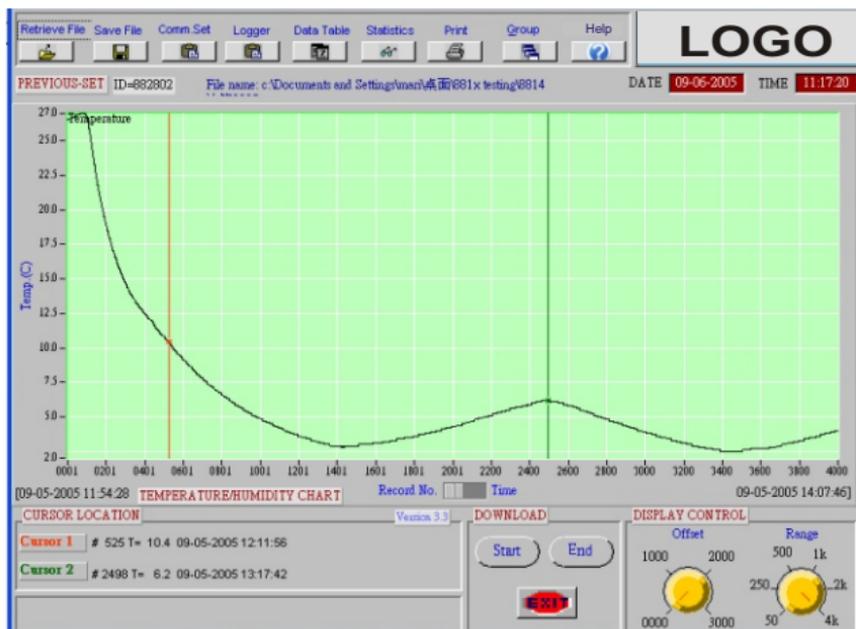


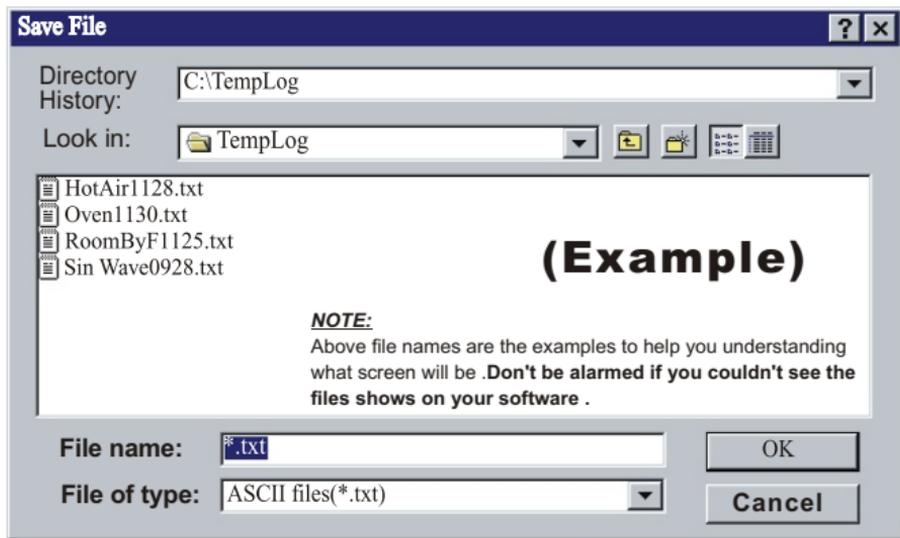
Diagram C: Main Screen with Sample Data



(Example:8814)

SAVE FILE

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

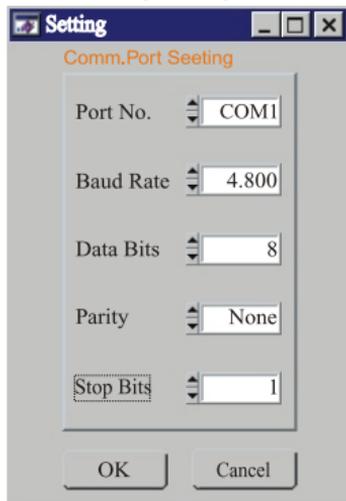
Always remember to select 9600 baud rate for all models.

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 displays the 'Next Logger Setting' dialog box with the following fields and controls:

- Sample Points:** A numeric input field set to 16000.
- Sample Rate (HH:MM:SS):** Three spinners set to 0, 0, and 1 respectively. These three spinners are circled in red.
- Start Mode:** A dropdown menu set to 'Schedule'.
- Start Date:** A date input field set to 08-04-2006.
- Start Time:** A time input field set to 11:38:43.
- Unit:** A dropdown menu set to '°C'.
- Alarm Setting:** A sub-dialog with a 'Channel' dropdown set to 'T1', 'High Alarm' set to 85.0, and 'Low Alarm' set to 15.0.
- Buttons:** 'Ok' and 'Cancel' buttons are present at the bottom of the main dialog and the alarm setting sub-dialog.

Other settings visible in the background include:

- Logger's Clock Setting:** 'Logger Date' (08-04-2006) and 'Logger Time' (11:39:01) with 'Ok' and 'Cancel' buttons.
- Sleep Mode Setting:** 'Non-Sleep' and 'Sleep' radio buttons, with 'Sleep' selected and an 'Ok' button.
- Logger's ID Setting:** 'Identifier' (88378_1) with 'Ok' and 'Cancel' buttons.
- Calibration Setting:** A 'Calibration' button and a 'Setting' button.
- EXIT:** A red button with the word 'EXIT' in white.

SAMPLE POINTS SETTING -

Select sample point 1,000 / 2,000 / 4,000/ 8,000 or 12,000 / 16,000

LOGGER'S CLOCK SETTING

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

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 operation is stopped .

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 3 seconds could also turn off the logger any time.

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 datalogger defaults sample rate is 1 second.

START MODES : (Diagram E):

▲ **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 the time you are now , press "**OK**" , enter desired ID , press "**OK**" to confirm the Magnetic start setting. To start with magnetic, use a strong magnetism one pass over the middle of the bottom, now LED is flashing .Flashing times is depend on the time interval of every sample logging.

▲ Immediate -

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

▲ Repeat -

When set the mode as "Repeat" and press "OK", the meter will start immediately. After downloading the records, the meter will keep on recording the data based on previous setting. No need to set the datalogger again if your sampling criteria is the same as last time.

▲ Key Start -

To set the mode as "Key Start" and press OK. To start recoring, 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 want to re-start the meter after stopping the meter, please use software to set the mode as Key Start and press 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.

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

	Immediate	Magnetic	Schedule	On-line	Key Start	Repeat
88128/8828 /8829	●	●	●			
8813/8814 /8815	●		●		●	
8833/8834 /8835	●		●	●	●	●
88335/345/ 355	●		●	●	●	●
88193/194/ 195	●		●		●	
88393/394/ 395	●		●	●	●	●
88372/373/ 375/376/378	●		●	●	●	●

ALARM SETTING

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

-Select the channel you need: Air temp./external temp./ Air RH%/Others..

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

User simply select desired High value or Low value by scrolling up for increasing or scrolling down for decreasing .

➔ **Diagram F-1:**
Alarm Setting

Alarm Setting

Channel

High Alarm

Low Alarm

If a temperature or RH% is higher than HI setting or less than LO setting, ALM LED will flash until you download to a PC.

NOTE:

While in 8829, could not set alarm of temperature and RH at the same. The "channel" column will be disable in 8829. Please choose the parameter you want to have alarm from "Unit" column and then set the value as Diagram F-1

UNIT SETTING

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

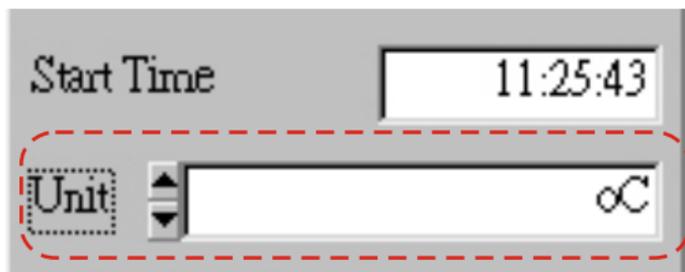
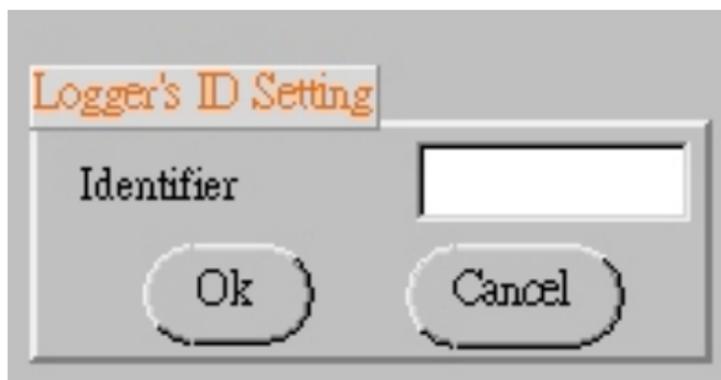


Diagram G: Unit setting

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 included models could be used to monitor the current temp. or RH condition. If you need this function, You may select **NON-SLEEP** and press **OK** , then the logger will always display current Temperature / Relative Humidity after completing recording. Please be noted that this setting will consume the battery power. (The software default in **Sleep** mode)

If you want to save battery and no need to monitor the environment condition after stop 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 shortly to turn on/off the LCD any time.

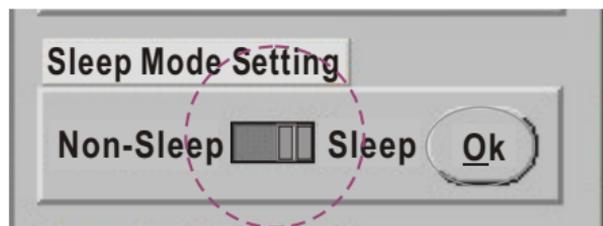
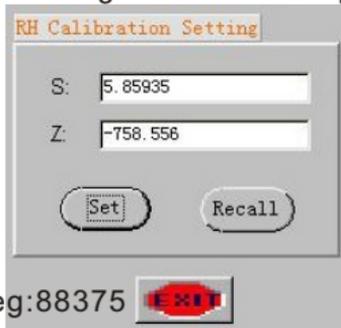


Diagram G-1:
Sleep Mode
setting

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 enclosed with goods. Please keep the note well.

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



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)

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 , now 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 .

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

(Example) 0.0

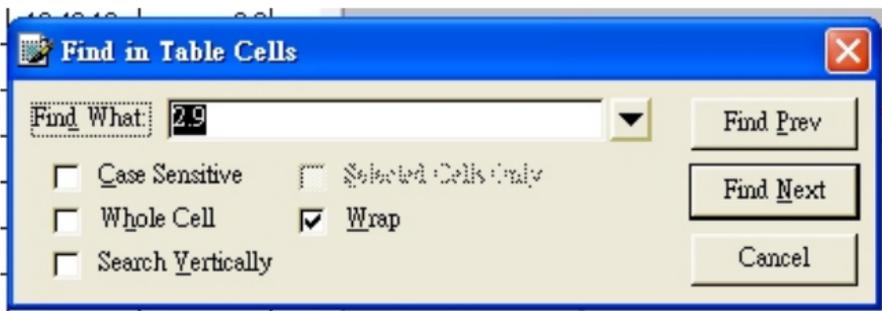
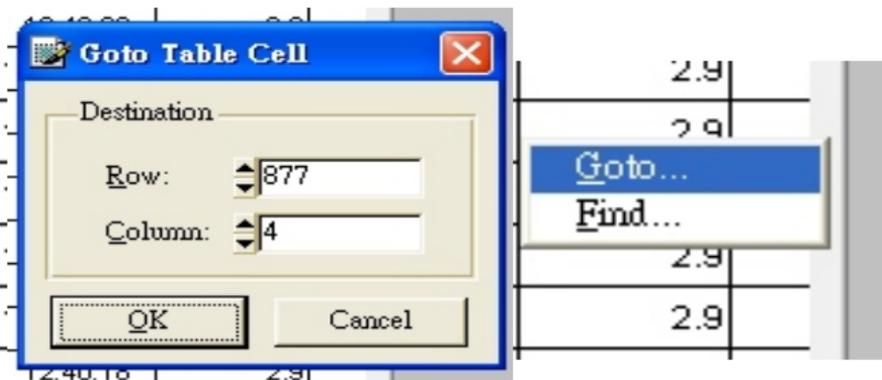
EXIT

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 several controls for setting search criteria:

- A "Channel" dropdown menu is set to "Temperature".
- An "Alarm Color" field shows a red color swatch.
- A "Condition" dropdown menu is set to "AND".
- There are two checked checkboxes with associated value ranges:
 - Value \geq 85.0
 - Value \leq 10.0
- A third checked checkbox is labeled "Error".

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

1. Channel: temperature/RH%/external temperature
2. Condition : AND /OR
3. Value \geq certain reading
4. Value \leq certain reading
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 remarked reading

After selection, press "GO" to run the program. The qualified reading will be selected and indicated 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

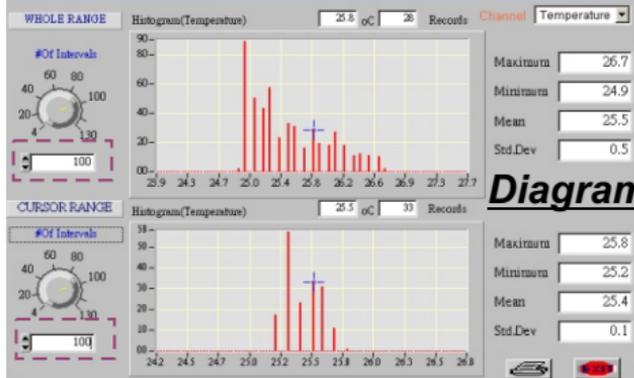
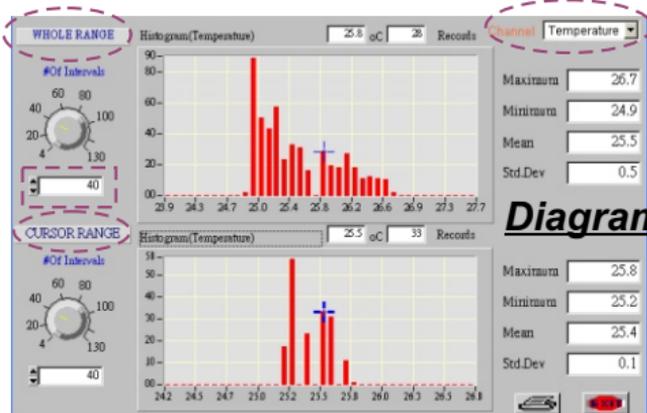
Depress icon to view histograms of data based on "**Whole Range**" and on different "**Cursor Range**" basis. See ([Diagram I](#))

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

Cursor Range - Covers all sample readings between two cursors.

Channel- select the parameters you want to check. (Diagram I-1)

1. First of all, you could select the parameters you want to check. For example, if there are three parameters (temp./RH%/external temp.) you could change the parameters 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 the differences of changing setting have also changed the related figures.



6. The right part of Diagram I indicates **Maximum, Minimum, Mean and Standard Deviation (Std.Dev)** values from the temperature 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 least value from the logged records or the least value between two selected cursors

Mean : Average value from the logged records or average value between two selected cursors

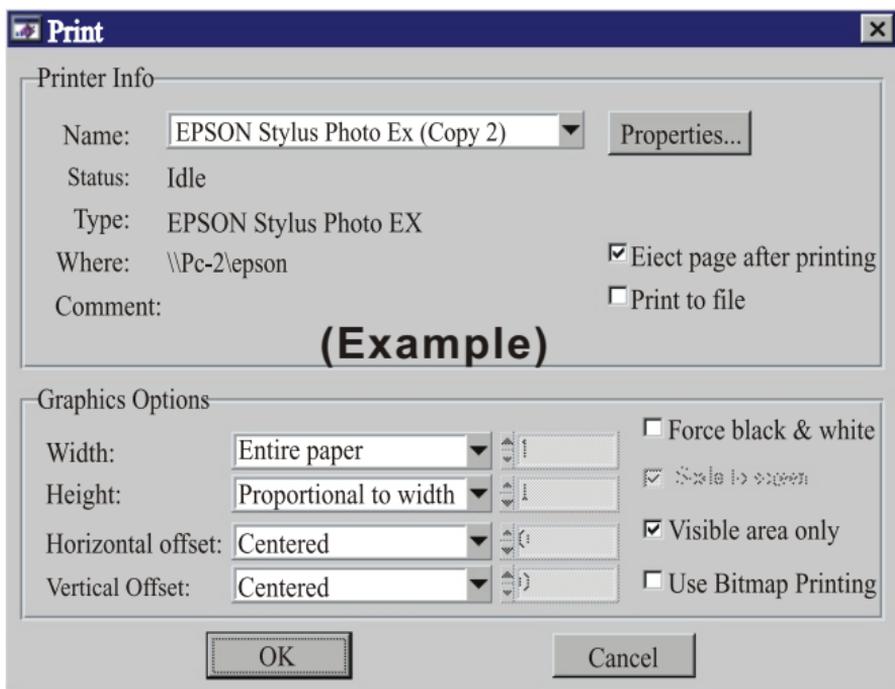
Std. Dev. : This is a very useful feature to see more reliable deviation while recording . Calculate each deviation between each value and Mean value, then get an average figure from totalism deviation.

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 paper

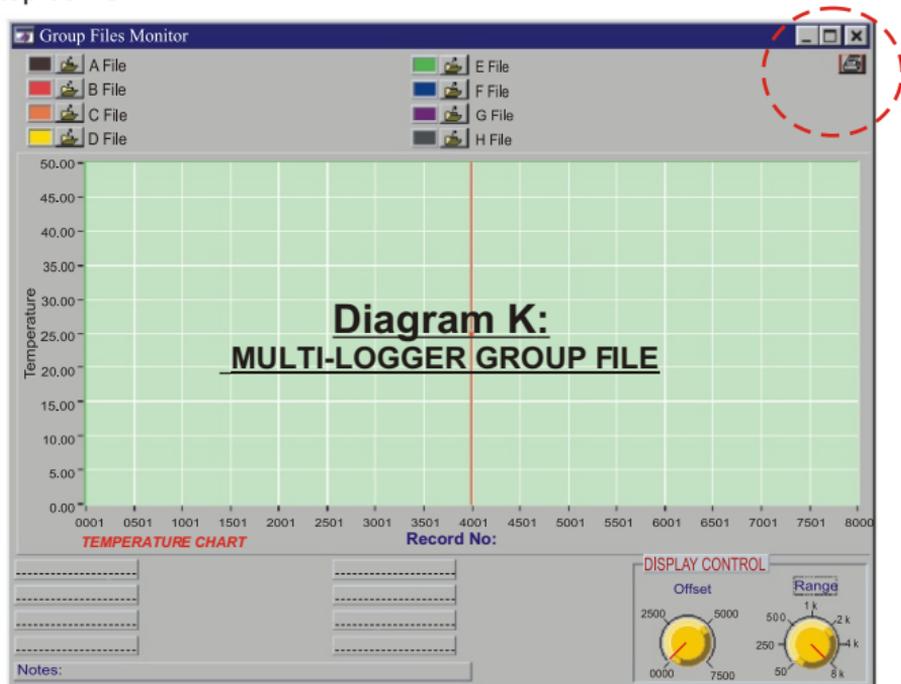
Horizontal offset: Centered Visible area only

Vertical Offset: Centered Use Bitmap Printing

OK Cancel

GROUP FILES

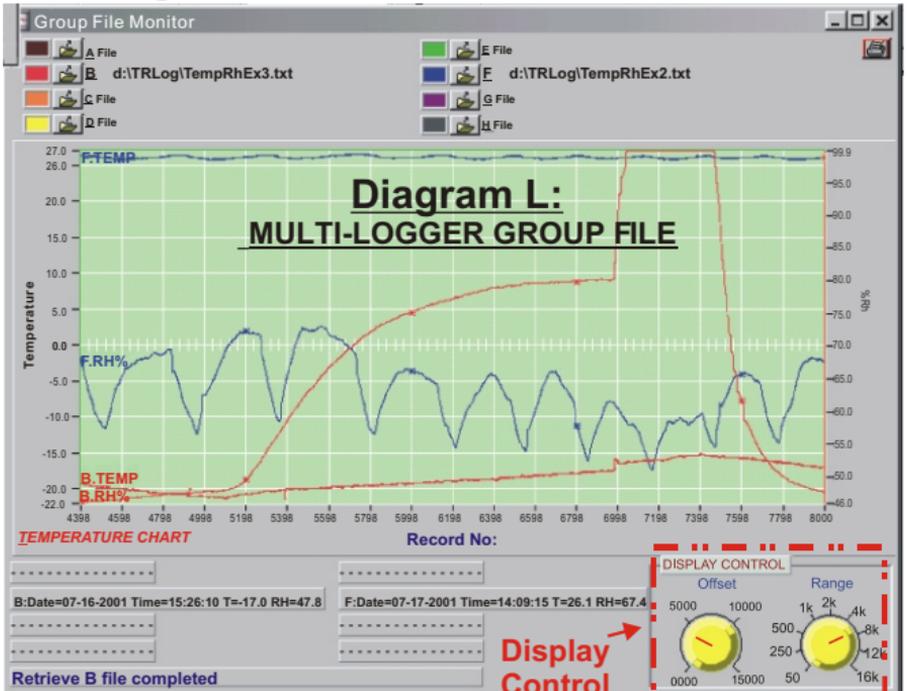
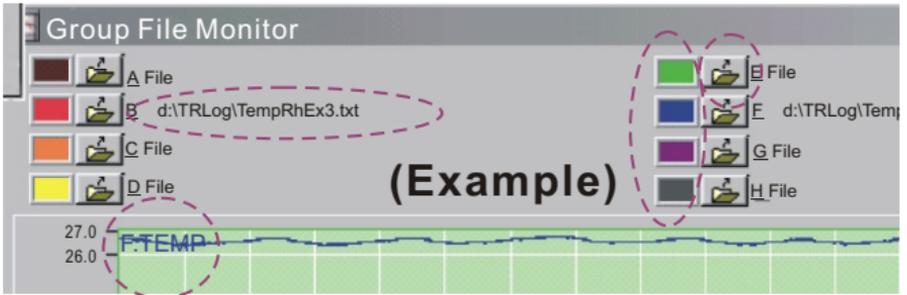
Click on its icon to view "**Multi-Logger Monitor**", which is designed to view and to compare different data files. **Diagram K** is the screen before you clicking the icon. You may select and change the color of curve to refer to the file you retrieve by clicking the color block. You can print the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



FAQ: *If I want to retrieve another file to replace current file shown on the graph , how should I ?*

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

Click  to select the file you want to compare or view with other files , click color icon box to select the color you want , After file retrieved completed , the start point of the file curve indicate 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

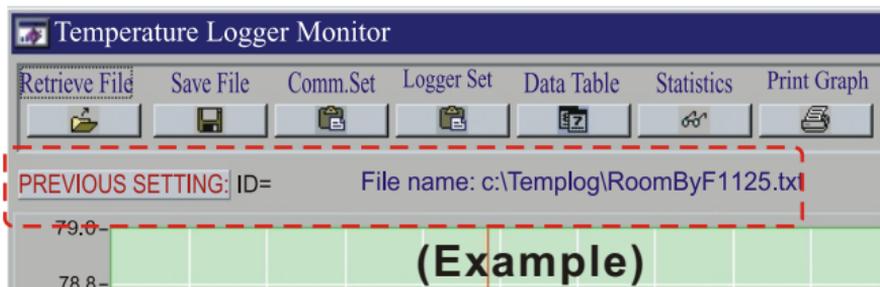
CURSOR STATUS

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



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

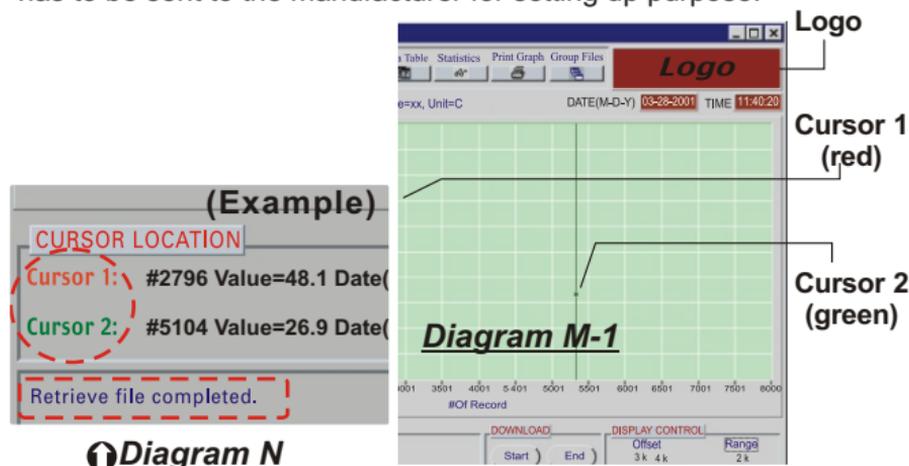
Ans.: You may have two choices to down load the next logger :

- 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.

BLANK LOGO

This area is designed to insert customers' own logo. The logo will be set as default image and can't be changed by the 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.



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)

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 always stop it at any time you want.

Exit - To exit Download Commands.



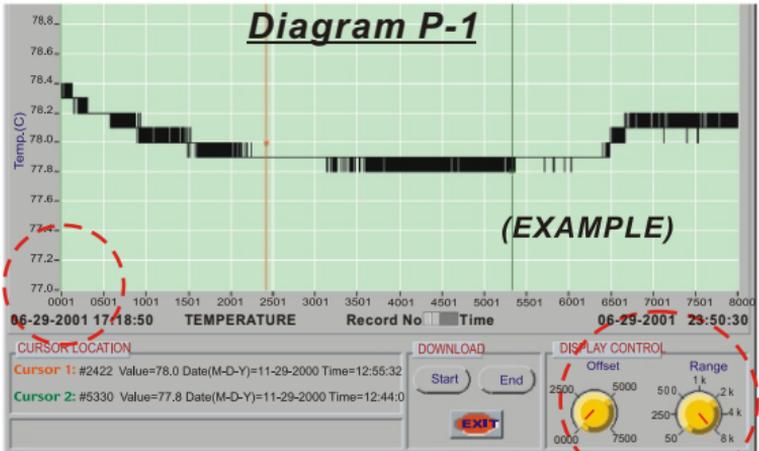
DISPLAY CONTROL

Offset - To set up from which sample Reading you would like to start. There are different ranges for selection based on the logger you use.



Diagram O

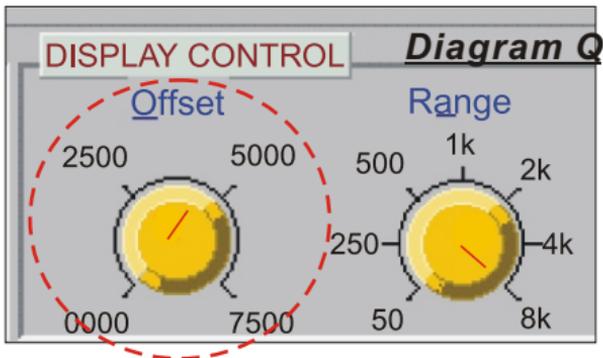
For example : Set Offset by clicking and dragging the red indicator to " 0000 ", Range unchanged at " 8K ", you will see the **Diagram P-1** The screen shows the number **0001** as starting point of the total 8,000 records.

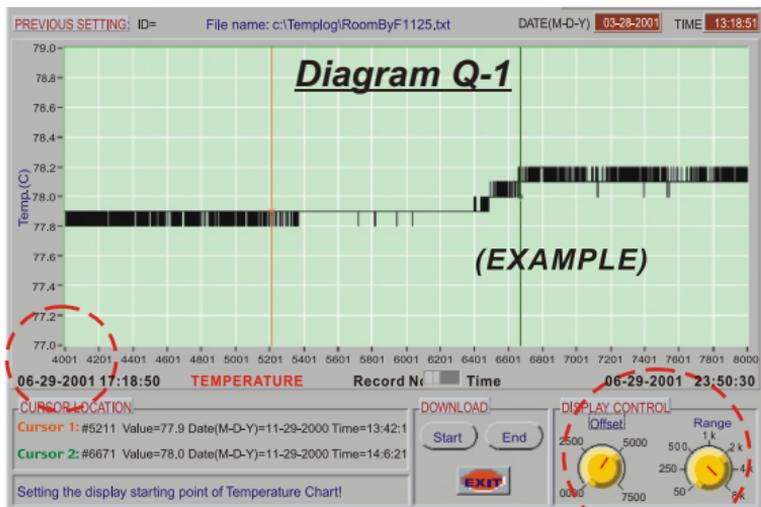


Another example :

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

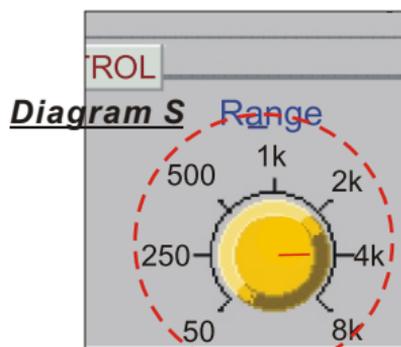
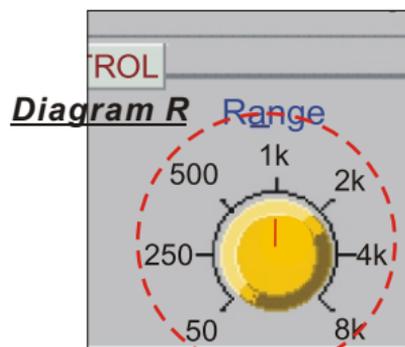
Actually there are **4,000** records per the offset you selected but not a total 8,000 records (**Range** set on **8K**).





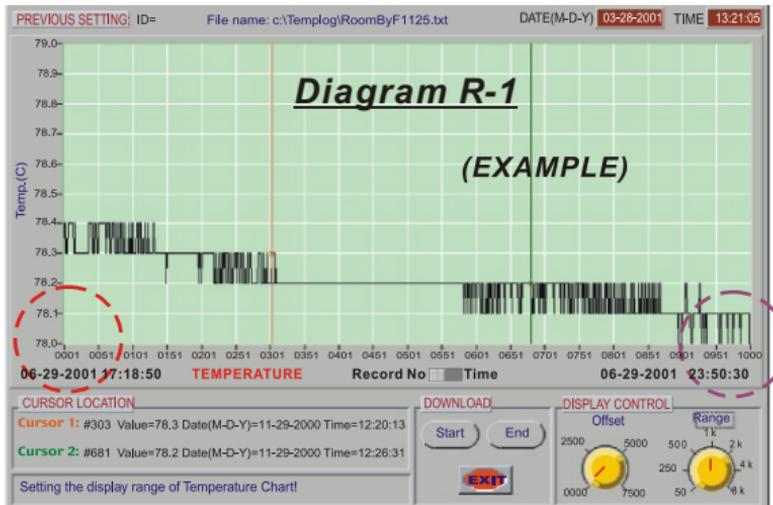
Display Control (For X-Axis records)

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



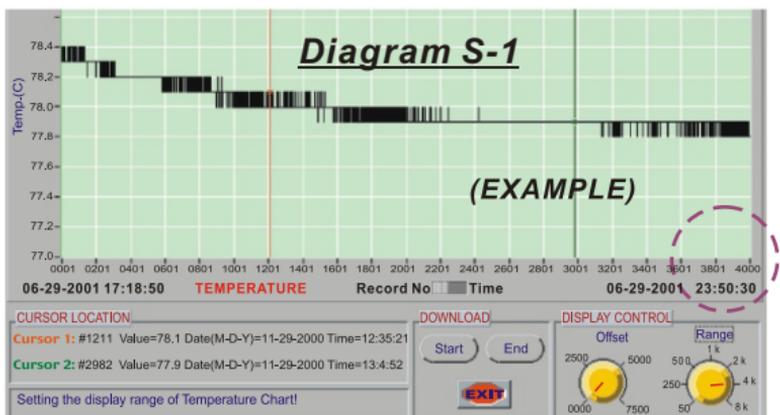
For example:

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



Another example :

Set Range to "4K" as Diagram S, then Diagram S-1 is shown the data record from 0001 to 4001.

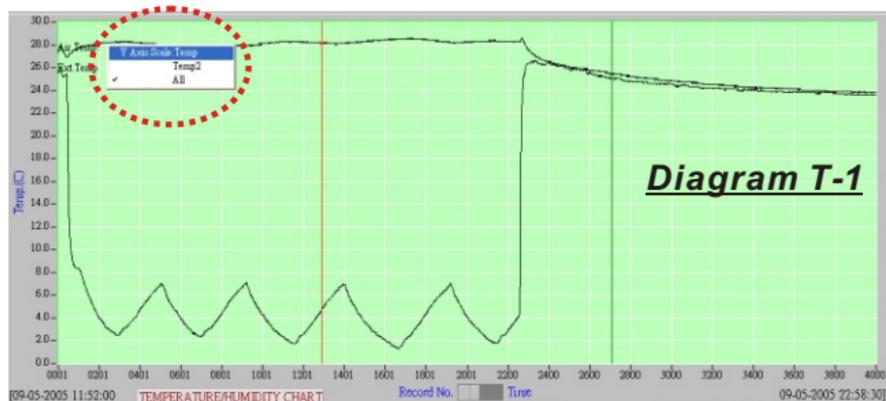


◆ Available value of "offset" and "range"

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

CHANGE THE Y SCALE

When there are more than one 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.



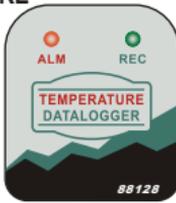
Temp=air temp, Temp2=external temp, All= Temp.&Temp2.
Above is the display of "All", Y scale will be decided by two temp.
For example, if the highest/lowest temp. Of temp&temp2 are 30.1 and 10.5, then the Y scale will be 31 to 10.

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.

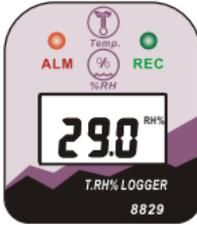


GENERAL SPECIFICATION

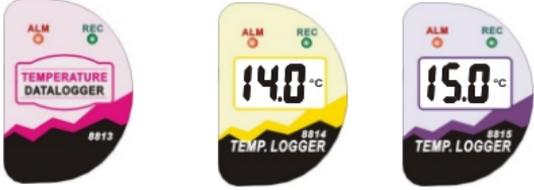
TEMPERATURE DATALOGGER

SPECIFICATIONS	8818 (Phased out)	88128
TEMP. RANGE	-40~85°C	
	-40~185°F	
SHAPE	OVAL  (Phased out)	SQUARE 
POWER BAT.	ER3 or CR2 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	WATERPROOF	
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)(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 or CR2 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	
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)(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	
		-22~188°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)(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:-20~120°C (-4~248°F)		
HUMIDITY RANGE	N/A	0~100% RH	
FRONT PANEL			
POWER BAT.	ER3 or CR2 lithium battery x1		
ACCURACY	Temp.± 0.6°C(-20~50°C) ±1.2°C(-40~-20°C,51~85°C) Humidity: ±3%RH		
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 or CR2 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(-00-50C), ±1.6 C(50 - 100C),±3.0 C(100 - 150 C) Humidity: +3%RH		
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: -40~70°C (-40~158°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(L)x55(W)x23(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

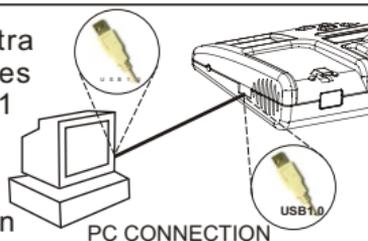
SPECIFICATIONS	88393	88394	88395
TEMP. RANGE	Internal:-40~70°C (-40~158°F)		
PROBE TEMP. RANGE	-40~100°C		
HUMIDITY RANGE	0~100 RH%		
FRONT PANEL			
POWER BAT.	CR2 lithium battery x1		
ACCURACY	Temp.± 0.6°C(-20~50°C) , ±1.2°C(others range) Humidity: ± %RH(25°C, 10~90%), ±5% at others		
BAT LOW DISPLAY	N/A	"Batt" DISPLAY	
SAMPLE DATA	8000	8000	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(L)x55(W)x23(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℃	-20~70℃ 0~100%RH	-200~1370℃
SHAPE				
POWER BAT.	ER3 lithium battery x1			
ACCURACY	+/-0.3% of FS at 25°C	+1%FS± 1 dgt	Temp:± 0.6℃(0~50C), +1.2℃ at others RH% ±3%(25℃,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℃ /F,0.1%	0.1℃ /F

9801PRINTER (For 88128/28/29/13/14/15/33/34/35/334/345/355)

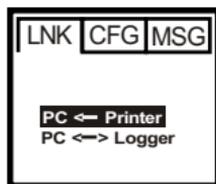
The 9801 printer is upgraded with extra PC connection function and 4 storage capacity. The connection port of 9801 to PC is USB.



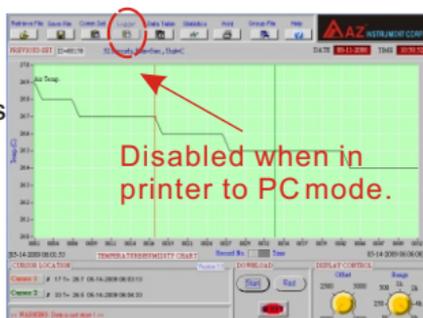
Select the function of 9801 to "LNK" in order to connect with PC. 9801 could store 4 loggers' data and connect to PC to download the data. Besides, 9801 could also be treated as standard interface to upload the command from PC to logger or to download the data from logger to PC.



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



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 analysis the stored data.

While selecting **PC ↔ Logger**, user could use the printer as a regular interface to set the logger through PC and download the logger data directly to PC. This is a two way communication as 8818P, 8828P, 8829P, 8824P interface. Under this function, "Logger Setting" will not be disabled. Besides, the calibration of 88335~88355 and 88375 could only be set by software instead of 9801 printer.

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 not flashing , how should I do ?*

Ans: If you were set up Magnet start function (for 88128/8829/8829) , when a magnet passes over the middle of rear side , the logger is not flashing, change with a new and stronger magnetism and try it again. Make sure the flashing interval is the same as programmed sampling time . If you were set 5 minutes as sample rate , the LED will just flash every 5 minutes .

WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one 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 .

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pH Meter

Conductivity Meter

T.D.S. Meter

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Saccharimeter

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Tacho Meter

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Moisture Meter

Data logger

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