Smart Logger Help Document

Version 1.2

Contents

1 Introduction

LD 9100 series Temperature and Humidity Data Logger has internal high-precision sensors for temperature or temperature and humidity measurements. The device stores maximum 65000 measuring data automatically with selectable intervals from 1s to 24h. It is equipped with intelligent data analysis and management software for data download, graph checking and analysis, etc.

2 Quick Start Guide

Thanks for using the products from our company, before you start using the product, please read the instruction manual carefully. Quick Start Guide let you know the features and usage of the product in a short time, and help you to apply the data logger to the occasions that you desire to measure and record temperature and humidity data.

1） Open the battery cover at the backside of the housing, install a CR2450 battery. If the battery is already installed, please check and ensure the capacity is enough for completing your task.

2）Install Smart Logger software and USB driver. Please refer to Part 4 (Installing Software) for detail.

3）Remove the USB cover.

4）Plug the data logger into your PC USB port, the PC will detect the data logger and install the hardware automatically.

5）Double click the Smart Logger shortcut icon on the PC desktop to launch the software.

6）Follow below steps to set up and start the data logger:

-Select the appropriate start mode

-Name your data logger

-Select sampling points and sampling rate

-Select REC and ALM LED flash cycle period

-Select temperature unit

-Input the temperature and humidity alarm Hi & Lo value limited.

-Click Setup button.

7）Unplug the data logger from PC, and place it to the location you desire to measure and record the temperature and humidity data.

8）Start the data logging according to the start mode you selected. Please refer to corresponding parts for detail.

3 LED Indications

LED Status	Functions
ALM：Off REC：Off	Data Logger does not work or the LEDs are set to Disable on software.
REC：Green	REC LED flash according to the cycle set on software. Data logger is working and recording data.
ALM：Red	Humidity exceeds alarm limitation. ALM LED flash according to the cycle set on software. Single flash for Lo alarm, double flash for Hi alarm.
ALM：Yellow	Temperature exceeds alarm limitation. ALM LED flash according to the cycle set on software. Single flash for Lo alarm, double flash for Hi alarm.
ALM：Red & Yellow flash in turn	Both temperature and humidity exceed alarm limitation. ALM LED flash in turn according to the cycle set on software. Single flash for Low alarm, double flash for High alarm.
REC：Double flash	Memory full.

Note:

1）To save power and extend the using time of data logger , please select the REC LED flash cycle as 20 or 30 seconds, or even disable it.

2）To save power, ALM LED can be disabled in software.

3）When the battery power is not sufficient, ALM and REC lights will be disabled automatically. And the data logger will stop recording, but the data will be saved, low battery icon will be displayed on the LCD.

4 Button Functions

Button Definitions	Function Descriptions
TEMP/RH Button: Press for 3 seconds	Power on if the data logger is off. Start recording if you select start mode “By Button”.
TEMP/RH Button: Single press	Switching display realtime value between Temperature & Humidity.
MAX/MIN Button: Single press	Switching display value among MAX/MIN temperature and humidity
MAX/MIN Button: Press for long period	Switching display value among Hi/Lo temperature and humidity alarm
TEMP/RH Button + MAX/MIN Button: Press both buttons for 3 seconds	Power off the data logger

Note: The data logger defaulted set to mode “Only Real-time Monitoring”.

5 Installing Software

Install Smart Logger software

1）Smart Logger software support Windows XP、Windows 2000、Windows 2003、Windows 7, 8, 10 for 32 bit and 64 bit operation systems. Require at least 50M of hard disk space and 512M of RAM.

2）Insert the CD into your computer CD-ROM.

3）The installation will run automatically. If not, please go to the CD-ROM directory, and double click the installation file "setup.exe" to install it to the specified directory.

4) Follow the instructions on the dialog box, select the installation directory.

5) Select to create a shortcut.

6) Select to install the driver and start Smart logger application immediately.

7) Installation completed, a Smart Logger shortcut icon will be generated on the desktop.

Installing USB driver

1）Plug the data logger into the USB port on the computer.

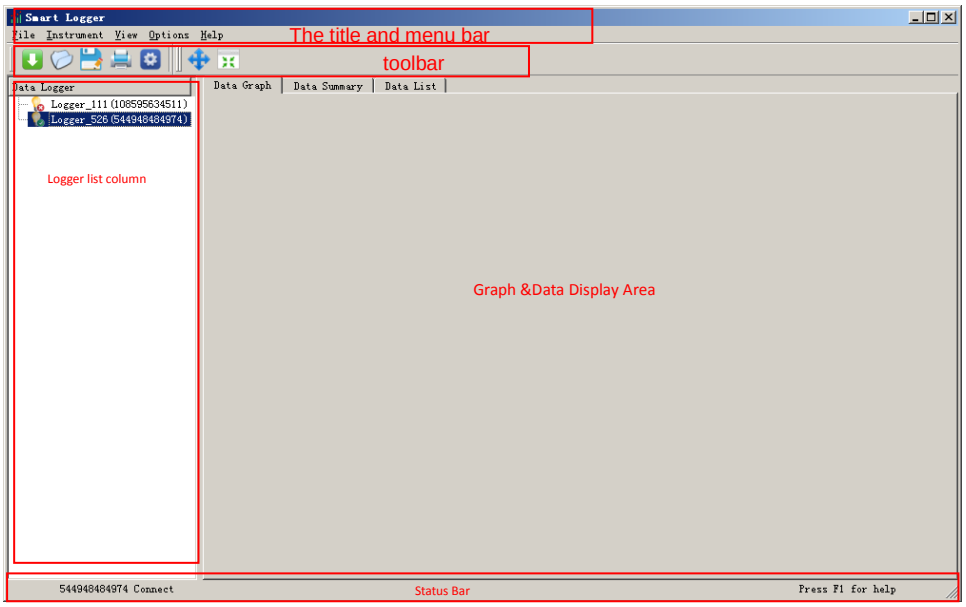
2）System alerts you that a new hardware is detected.

3）Insert the CD into the CD drive.

4）Get into the USB Driver directory, and double-click the driver installation package.

5）Windows operating system will copy the USB driver to your computer.

6 Software Interface and Menu Introduction



Menu bar: From left to right, they are the main menu of "File", "Instrument", "View", "Options" & "Help." There are drop-down menu below the main menu, all detail functions will be introduced in the following sections.

Toolbar: The toolbar provides quick operation, from left to right, they are the "Download Data", "Open File", "Save File", "Print", "Settings", "Zoom" and "Recover" command.

Data logger list column: Lists the data loggers and files which have been added to the system in tree way.

Data display area: including the "data graph", "data summary" and "Data List" three functional options.

Status Bar: Indicates the selected data logger connection status and help information.

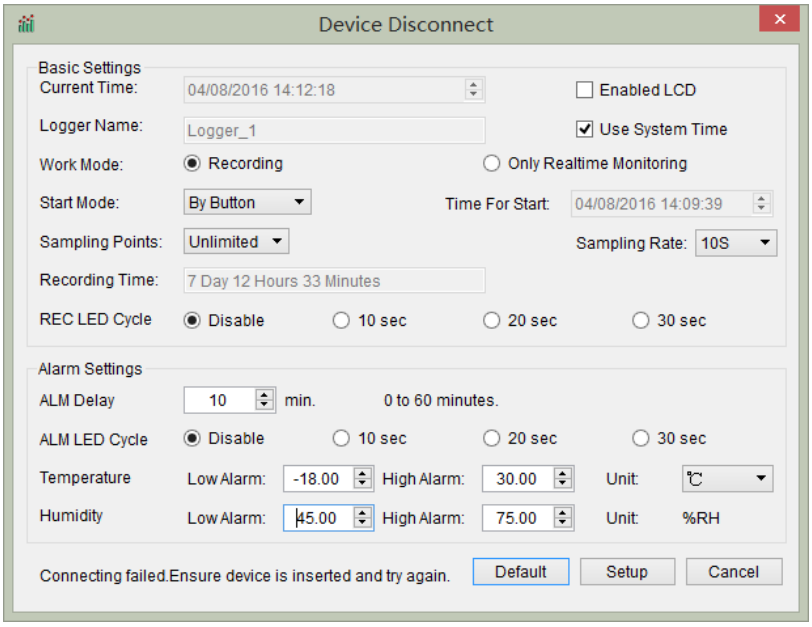
Functions of drop-down menu:

No.	Menu	Functions
1	File- > Open	Open the rec file
2	File- > Save as	Save the current opened file as txt, pdf or csv formats.
3	File- >Export to Excel	Export the current opened file to Excel file format.
4	File- > Close	Close the current opened file.
5	File- > Print	Print the current opened graph or data list.
6	File- > Recent File	List of the recent opened files.
7	File- > Exit	Exit the program.
8	Instrument- > Download	Download the data from data logger.
9	Instrument- > Device Settings	Setting the Data logger.
10	Instrument- > Device Management -> Add device	Adding new data loggers to system.
11	Instrument- > Device Management -> Remove device	Remove data loggers from system.
12	View- > Toolbar- > Common	Common tools button.
13	View- > Toolbar- >Plot Ctrls	Graphical Control Toolbar button.
14	View- >Statusbar	Show/Hide the Status bar

15	View- >Zoom	Zoom the graphic.
16	View- >Recovery	Recovery the graphic into the initial status.
17	View- >Background->White	Set the background on graph area into White
18	View- > Background->Black	Set the background on graph area into Black.
19	View- >Grid->X-axle	Show/Hide the grid of X axis on graph area
20	View- >Grid->Y-axle	Show/Hide the grid of Y axis on graph area
21	Options->Comm Port Setup	Communication port settings
22	Options->System Settings	System optional settings
23	Options->Engineers Settings	Engineers Setting, for data logger calibration
24	Options-> Real Time Monitoring	Turn on the Realtime monitor screen.
25	Help-> Help Topics	Pop-up help topics.
26	Help->About	View software copyright information.
27	Help -> Website	Pop-up official web site.

7 Data logger settings

Click the  icon on the toolbar, or click menu command of "Instrument" - "Device Settings" to enter the device setting interface. Settings dialog box shown as below, description of each field will be listed directly:

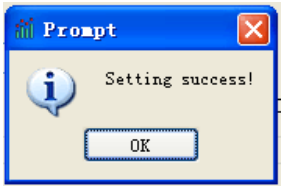


Label	Explanation
Current Time	Data logger allows users to set the date and time. It's defaulted to use the system date and time.
Enabled LCD	If tick it, the LCD display will be always ON. If not, the LCD will be OFF in about 10 seconds without buttons operation (to save battery power). Press any of the buttons to turn the LCD ON again.
Use System Time	If tick it, the data logger will use the system date and time. If not, user can set the date and time.
Logger Name	It allows users to name the data logger, easy to remember and manage.

Work Mode	If “Only Real-time Monitoring” mode is selected, the data logger will only display the real-time temperature and humidity readings, but will not record data. When “Recording” is selected, the data logger will start logging data according to the mode that the user set.
Sampling Points	Set the total number of the sampling data points. Once reach the set number, the data logger will stop recording automatically.
Sampling Rate	Set the sampling rate of data logger.
Recording Time	The software will calculate the record period automatically according to the sampling rate you select.
Start Mode	Set the logging start mode on data logger. There are three modes selectable: By Button, After Setup and Timing Start. When set to "By Button" mode, working started by pressing the TEMP/%RH button on data logger for 3 seconds.
Time for Start	Input the time for start recording when you select “Timing Start” as the start mode.
REC LED Cycle	Select the REC LED flash cycle. The longer time you select the longer battery life you will get.
ALM Delay	Set the delay time for alarm. The ALM LED will only flash on condition that the alarm limitation is exceeded and reach the delay time you set.
ALM LED	Select the ALM LED flash cycle. To save power, please select longer time or even disable it.
Temperature	Input/adjust the High & Low temperature limits for the alarm line.
Unit	Select unit ℃ or ℉for temperature.
Humidity	Input/adjust the High & Low humidity limits for the alarm line.

Click “Setup” button to save the settings.

If setup processed successfully, following dialog box will pop up.



If not, following dialog box will pop up. Please try again.

Click “Default” button to return to the factory default settings.

Click “Cancel” button to stop setting.

Warning:

1）When executing the "Setup", the data stored in the data logger will be permanently removed. To ensure the data is not lost, please download and save the data first. Click "Cancel" button and you can

download the necessary data accordingly.

2）The data logger will stop working if battery power is not sufficient. Please always make sure the remaining battery power is enough for completing your recording tasks. If in doubt, we recommend that you replace with a new battery before recording data.

8 Download data to PC

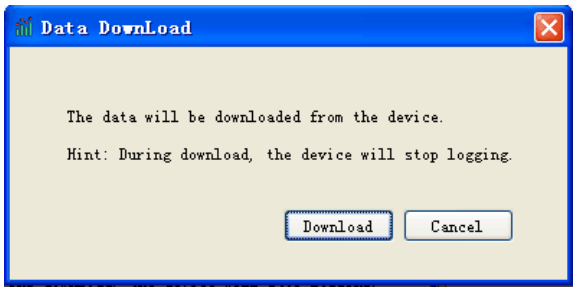
In order to read the data on data logger and transfer the data to PC, you need to:

1） Plug the data logger into USB port on PC

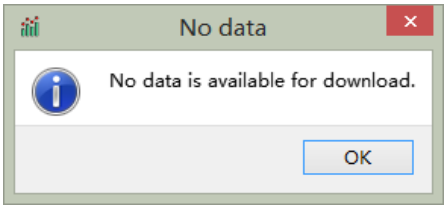
2） Open the Smart Logger software if it's not running.

3） Click the icon on toolbar or select "Instrument"-"Download" menu command.

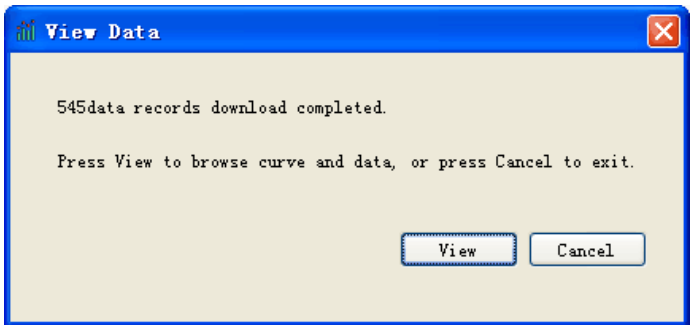
4）The following dialog box appears, click the "Download" button to start downloading data from the data logger.



Following warning dialog box will appear if there is no data recorded in the data logger.



Following dialog box will appear if data download successfully.

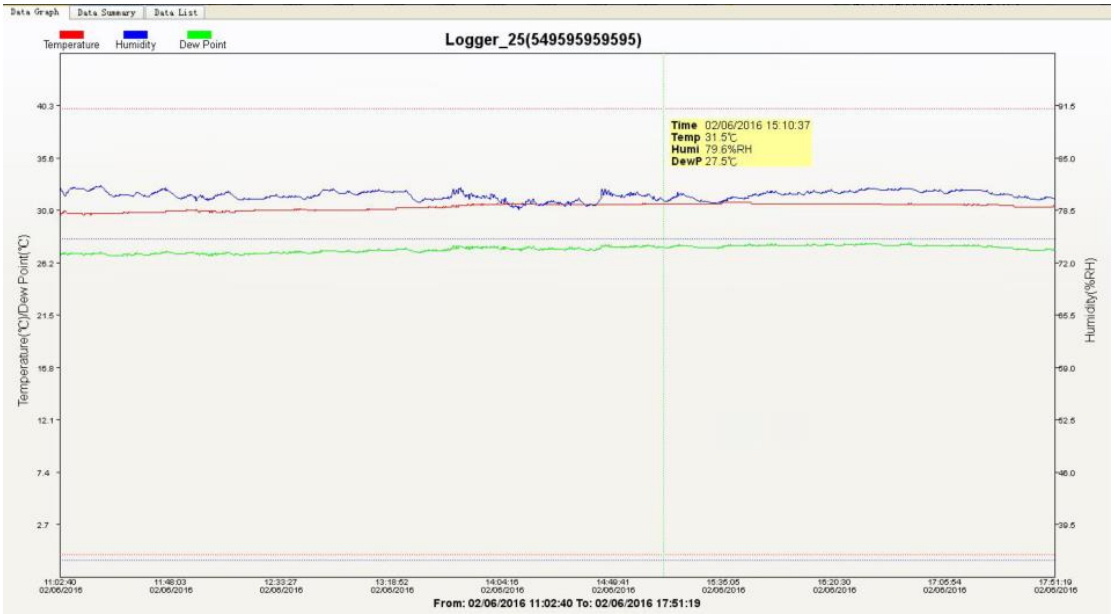


Click "View" to show the data graph (refer to next section for details).

Click "Cancel" to return to the main interface, the data downloaded at this time will be saved as *.rec file named with date and time automatically.

9 Data Graphic

Data graphic shows a set of curves, the date/time indicated by X-axis, while temperature, humidity, and dew point temperature indicated by Y axis.



In above figure, the curve color of temperature, humidity and dew point temperature can be customized; you can set through "Options->System->Settings" dialog box. By default, the temperature value is indicated by red solid line, the humidity is indicated by blue solid line, and the dew point temperature is displayed by green solid line. The dotted lines indicate the temperature and humidity High & Low limited alarm lines.

By default, the cursor function is turned on; user can view temperature, humidity and due point temperature values of any recorded time point. You can disable the cursor function in "Options-System Settings" by un-ticking the "Show Tip" in dialog box.

Curve display window can be customized by "Background", "Grid ","Zoom" and “Recover” in "View" menu. Following options are available:

1）Select the background displayed in White or Black

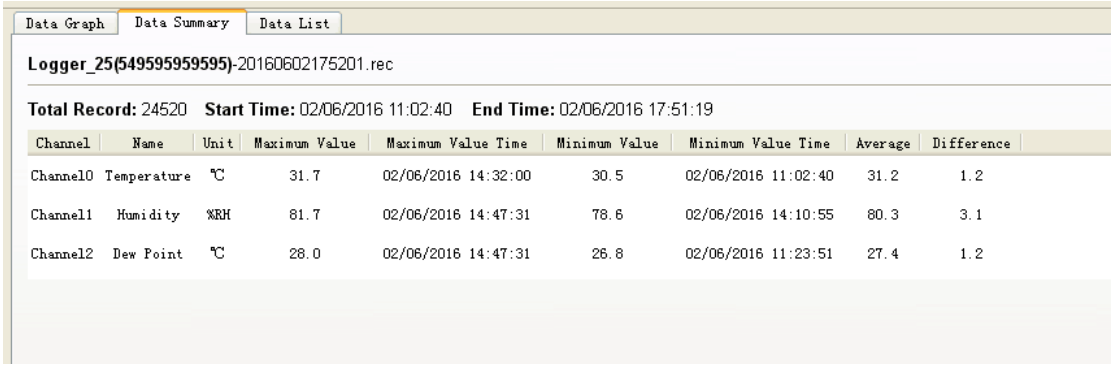
2）Hide/Show the grid of X/Y axis

3）Zoom the graph by mouse wheel. After zoom in, you can check the curve by pressing the left button of the mouse and drag the curve to left or right.

4）Press “Recover” button to return the curve to initial status.

10 Data Summary

"Data Summary" page provides statistical functions, including the record numbers, start/end time, maximum, minimum, average, and the difference between maximum and minimum values.



Channel	Name	Unit	Maximum Value	Maximum Value Time	Minimum Value	Minimum Value Time	Average	Difference
Channel0	Temperature	℃	31.7	02/06/2016 14:32:00	30.5	02/06/2016 11:02:40	31.2	1.2
Channel1	Humidity	%RH	81.7	02/06/2016 14:47:31	78.6	02/06/2016 14:10:55	80.3	3.1
Channel2	Dew Point	℃	28.0	02/06/2016 14:47:31	26.8	02/06/2016 11:23:51	27.4	1.2

11 Data List

"Data List" page lists the downloaded data in a table. User can select a time range for data query, and export the data to CSV and EXCEL format documents by button commands.