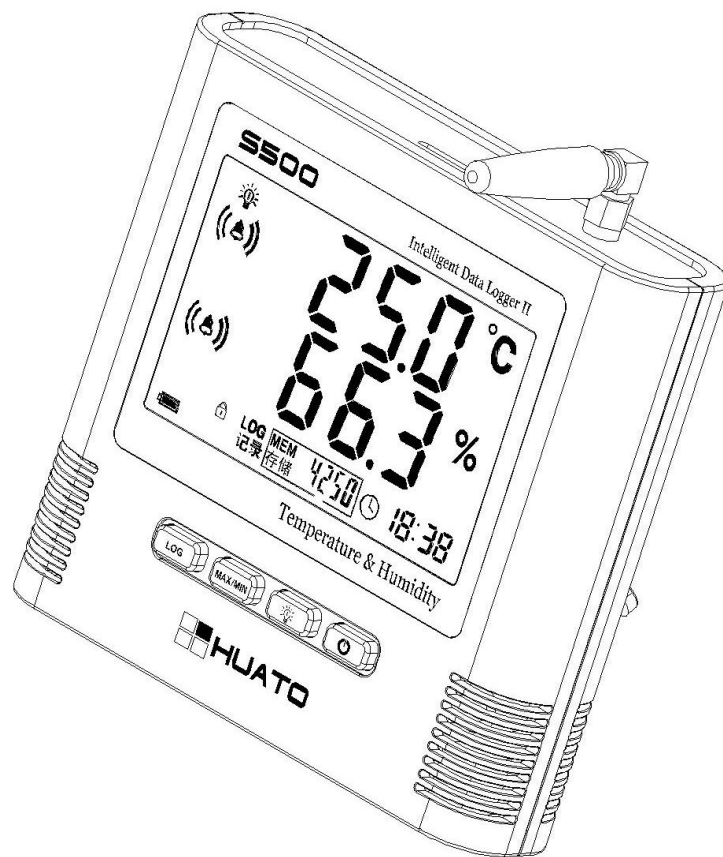




Operation Manual for GSM Temperature & Humidity Data Logger S500 Series



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Chapter 1. Introductions

S500 series GSM temperature/humidity data logger is the new generation data logger of HUATO Company, which has been added with the GSM alarm message function based on the original S500 series. Users can dial the data logger through any mobile phone to get the temperature and humidity values, In addition, the data logger will send alarm messages to authorized users automatically if temperature/humidity exceeds setting limits

1.1 Features:

- Elegant appearance; easy to operate; reliable results; desktop and wall mount.
- High accuracy (0.2~0.5℃/2~5%RH) with large capacity(65000).
- Large LCD display, showing temperature and humidity simultaneously.
- Internal audible and visual alarm systems.
- Remote alarm system sending alarm messages to mobile device if setting limits are exceeded.
- Data acquisition function via mobile phone, allowing real time data acquisition anytime at anywhere.

1.2 Technical Specifications:

Model	Accuracy	Measuring range	Sensor type	Capacity
S500-TH-GSM	±0.5℃/±5%RH	-20~70℃ 0~100%RH	Temperature + humidity, internal	65000
S500-EX-GSM	±0.5℃/±3%RH	-40~85℃ 0~100%RH	Temperature + humidity, external sensor with 3 meters	65000
S520-TH-GSM	±0.3℃/±3%RH	-20~70℃ 0~100%RH	Temperature + humidity, internal	65000
S520-EX-GSM	±0.3℃/±3%RH	-40~85℃ 0~100%RH	Temperature + humidity, external sensor with 3 meters	65000
S580-TH-GSM	±0.2℃/±2%RH	-20~70℃ 0~100%RH	Temperature + humidity, internal	65000
S580-EX-GSM	±0.2℃/±2%RH	-40~85℃ 0~100%RH	Temperature + humidity, external sensor with 3 meters	65000
S500-ET-GSM	±0.5℃	-40~85℃	Single humidity external sensor with 3 meters	65000
S500-DT-GSM	±0.5℃	-40~85℃	Dual humidity external sensor with 3 meters	65000
S520-ET-GSM	±0.3℃	-40~85℃	Single humidity external sensor with 3 meters	65000
S520-DT-GSM	±0.3℃	-40~85℃	Dual humidity external sensor with 3 meters	65000

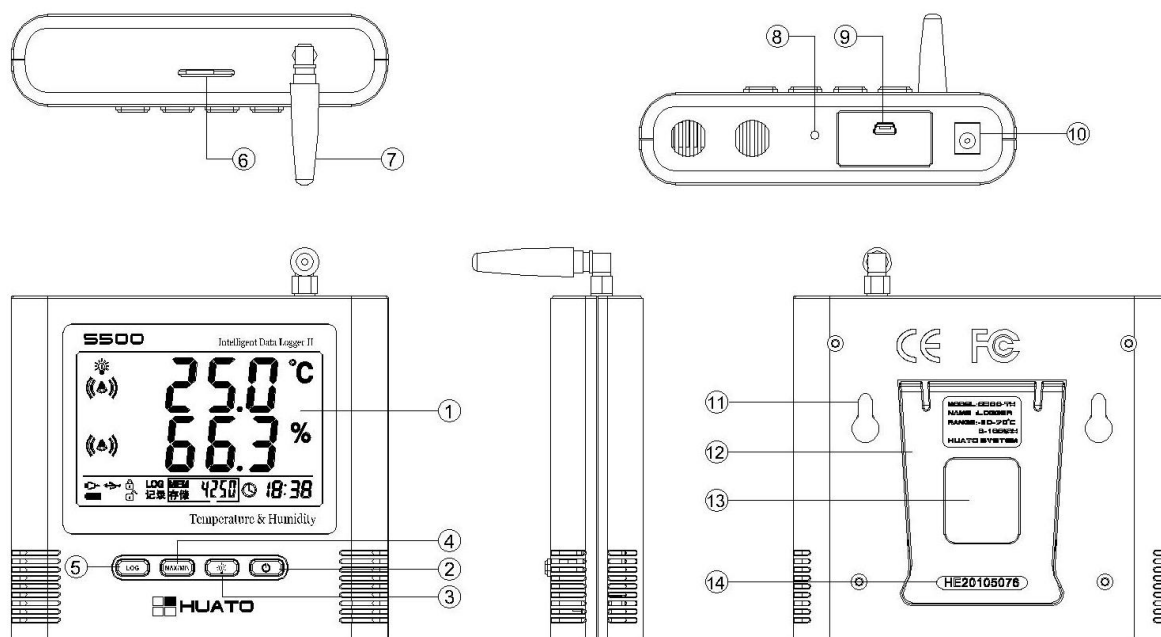
1.3 Applications

S500 temperature/humidity data logger has been widely applied in agricultural, food, medical and electrical industries, environment protection and laboratory research.

1.4 Notice:

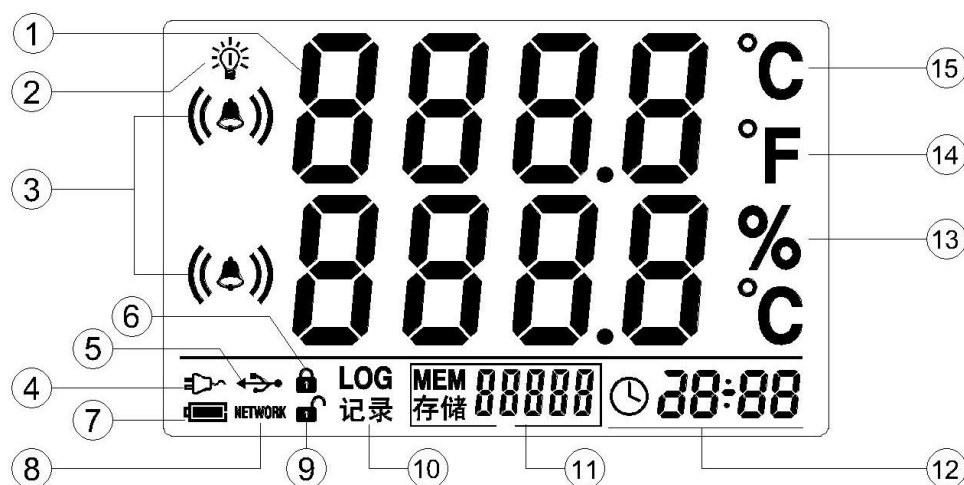
1. Only GSM 850/900/1800/1900MHz network SIM card is available (such as China mobile and China Unicom), CDMA network is invalid.
2. Ensure that the SIM card has certain amount of money for the text message fee.
3. The data logger must be supported by External Adapter—DC 9V.
4. Turn on the alarm function in ToAnalyzaer to activate the alarm message system, otherwise it won't send message successfully.

1.5 Product structure:

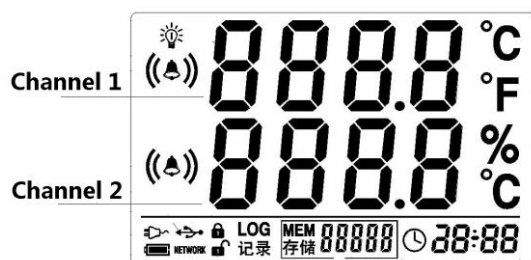


- | | |
|---------------------------|--|
| ① LCD display | ⑧ Reset button |
| ② ON/OFF | ⑨ USB port |
| ③ Backlight | ⑩ DC 9V port |
| ④ MAX/MIN checking button | ⑪ Hanger (used for fixing on the wall) |
| ⑤ LOG | ⑫ Holder (used for desktop) |
| ⑥ SIM card slot | ⑬ Battery cover (screw to replace the battery) |
| ⑦ Wireless antenna | ⑭ Serial Number |

1.6 LCD display instructions:



- 1 Temperature and humidity values display.
- 2 Symbol for backlight.
- 3 Symbol for alarm, it will alarm when temperature and humidity setting limits being exceeded.
- 4 This symbol shows that data logger is being supported by external power—DC 9V.
- 5 This symbol shows that data logger is connected with PC and you can download all the recording data.
- 6 This symbol shows that all buttons are locked.
- 7 Battery indication
- 8 This symbol shows that SIM card being inseted well.
- 9 This symbol shows that buttons are unlocked
- 10 This symbol shows that data logger is being the recording status.
- 11 Display area for recording numbers
- 12 Display area for year/month/date/time; The Time and Date display will automatically alter every 10 seconds
- 13 Relatively Humidity units
- 14 Fahrenheit temperature units
- 15 Celsius temperature units



Type	TH	EX	ET	DT
CH1:Channel 1	Temperature	Temperature	Temperature	Temperature
CH2:Channel 2	Humidity	Humidity	None	Temperature

1.7 Instructions for buttons:

LOG

Log function button, turn on/off the log function.

MAX/MIN

Maximum and Minimum button.

Press the MAX/MIN button to view the recorded Max/Min values with the time they were recorded.



Backlight on/off button.

If no button is pressed the backlight will not automatically close.



On/Off button

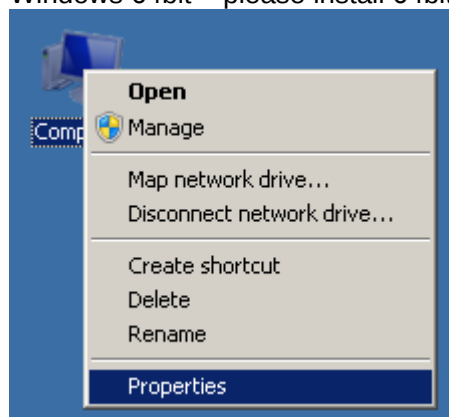
Press **MAX/MIN** and  simultaneously can lock and unlock data logger.

Chapter 2. Instructions for Software Operation

2.1 Install USB Driver

Windows 32bit – please install 32bit driver

Windows 64bit – please install 64bit driver



System

Model:	ThinkPad
Rating:	 Windows Experience Index
Processor:	Intel(R) Core(TM) i5 CPU M 520 @ 2.40GHz 2.40 GHz
Installed memory (RAM):	4.00 GB (2.99 GB usable)
System type:	32-bit Operating System
Pen and Touch:	No Pen or Touch Input is available for this Display

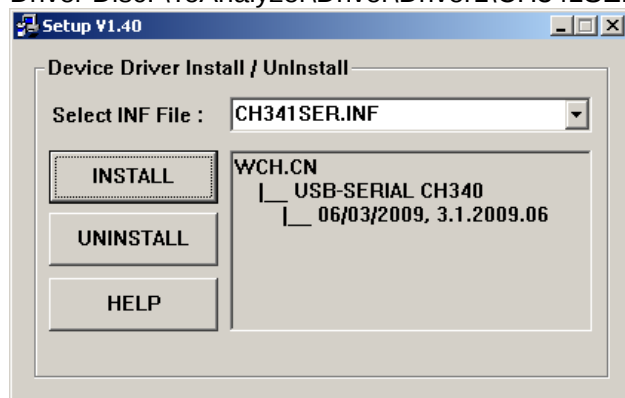
If the driver disc had not 64-bit driver, please contact us by E-mail.

Steps:

- (1) Insert the CD to CDROM, and then find the directory of driver.
- (2) Run Setup.exe program, and then click INSTALL button, the program will copy necessary driver files to your system.

Driver file Location

Driver Disc: \ToAnalyzer\Driver\Driver1\CH341SER\CH341SER.EXE



If the language is Chinese. 安装 = Install; 卸载 = Uninstall; 帮助 = Help

2.2 Installing ToAnalyzer Software

If your CD disc has an auto-run install file

Steps:

- (1) Insert the CD to CDROM, and then find Setup.exe in root directory.
- (2) Run Setup.exe program, and then click INSTALL button, the program will copy necessary driver files to your system.

Else your CD disc has not an auto-run install file

Steps:

- (1) Copy these files to any folder. [Recommend D:\]

CD disc:\ ToAnalyzer\ ToAnalyzer.exe

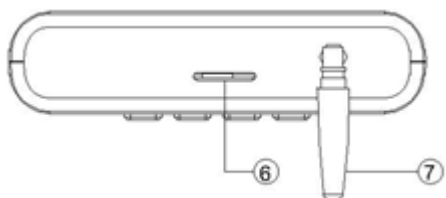
CD disc:\ ToAnalyzer\ Logfiles [folder]

- (2) Run ToAnalyzer.exe

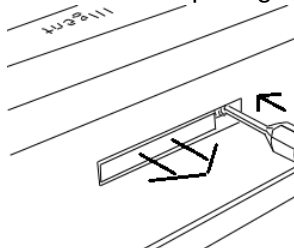
2.3 Install GSM S500 Series Data Logger

Steps:

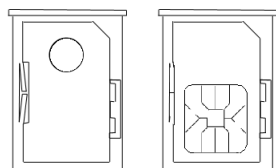
(1) Install SIM card



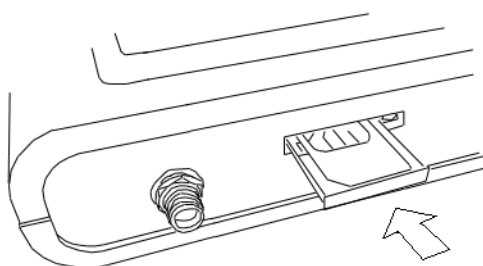
Poke button & pulling out ⑥ SIM card slot



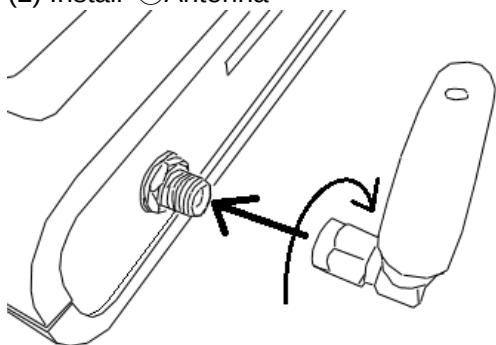
Put SIM card into ⑥



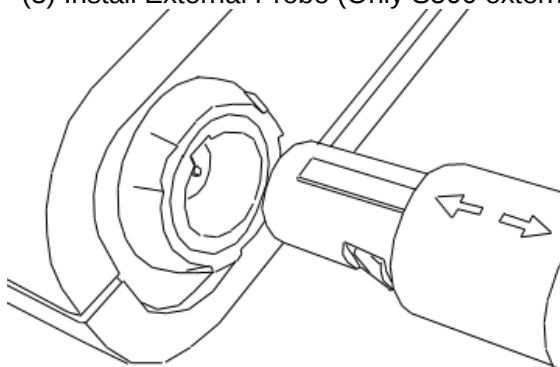
Insert ⑥



(2) Install ⑦Antenna

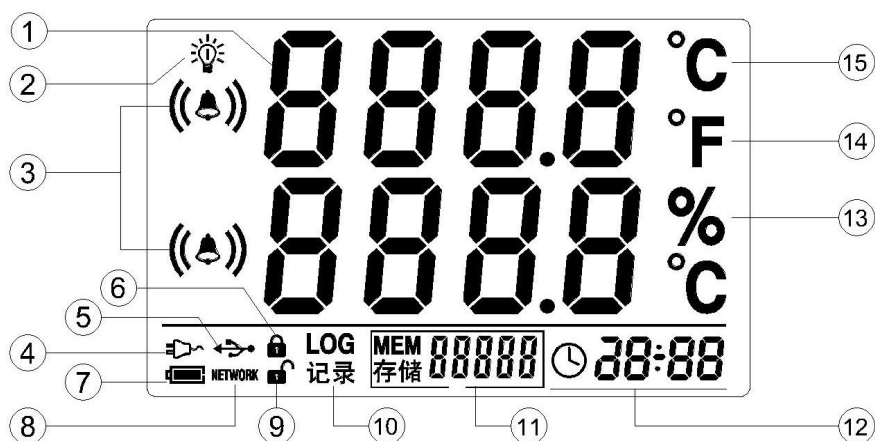


(3) Install External Probe (Only S500 external series EX/ET/DT)



(4) Install Battery

(5) Support Direct-Current Power Supply



(6) After external power supply, wait several minutes, ⑧ **NETWORK** will light.

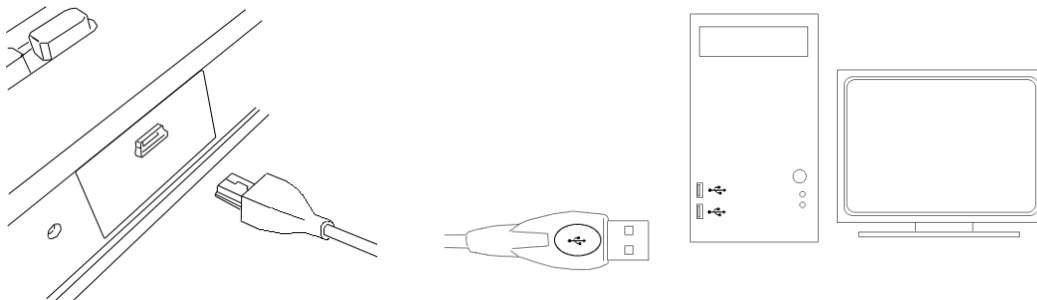
If want to Install / Uninstall SIM card, please FIRSTLY turn the power off.

2.4 Operation manual for ToAnalyzer V5.3

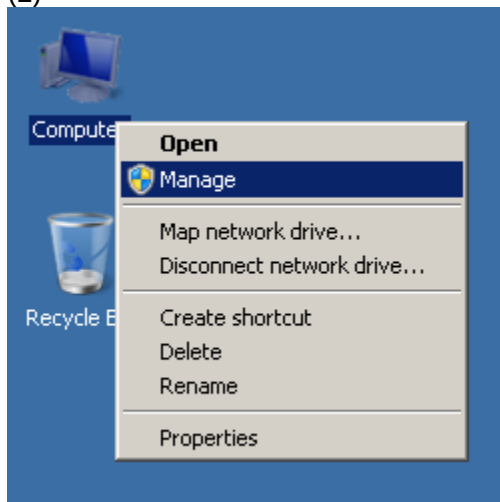
2.4.1 Connection

(1) Connecting GSM S500 Series Data Logger & Computer by USB Cable.

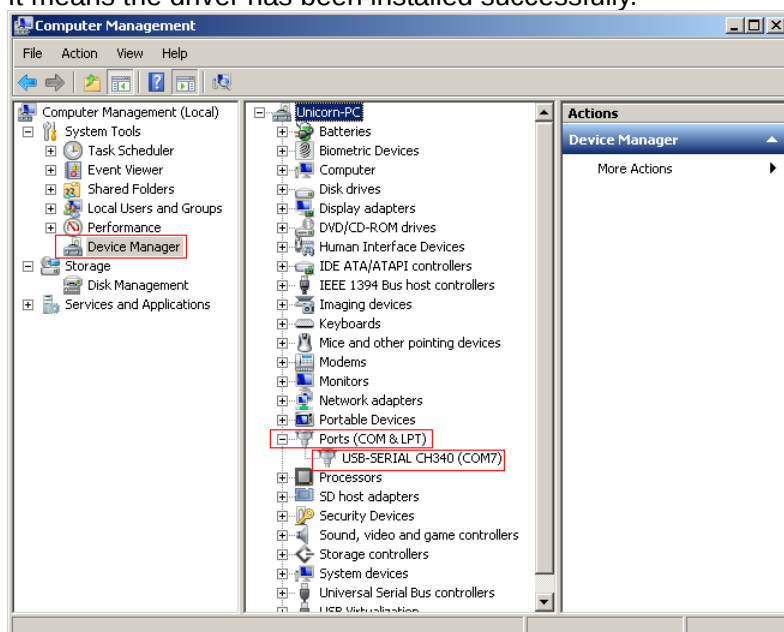
The logo ⑤ of screen will light.



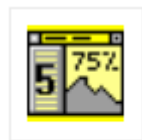
(2)



(3) Device Manager → Ports (COM & LPT) → USB-SERIAL CH340/341 (COM x)
It means the driver has been installed successfully.



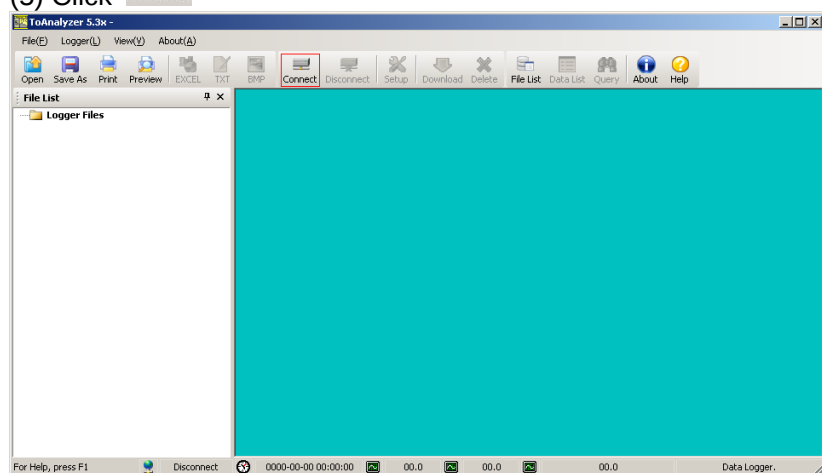
(4) Running ToAnalyzer V5.3x software



ToAnalyzer.e
Xe

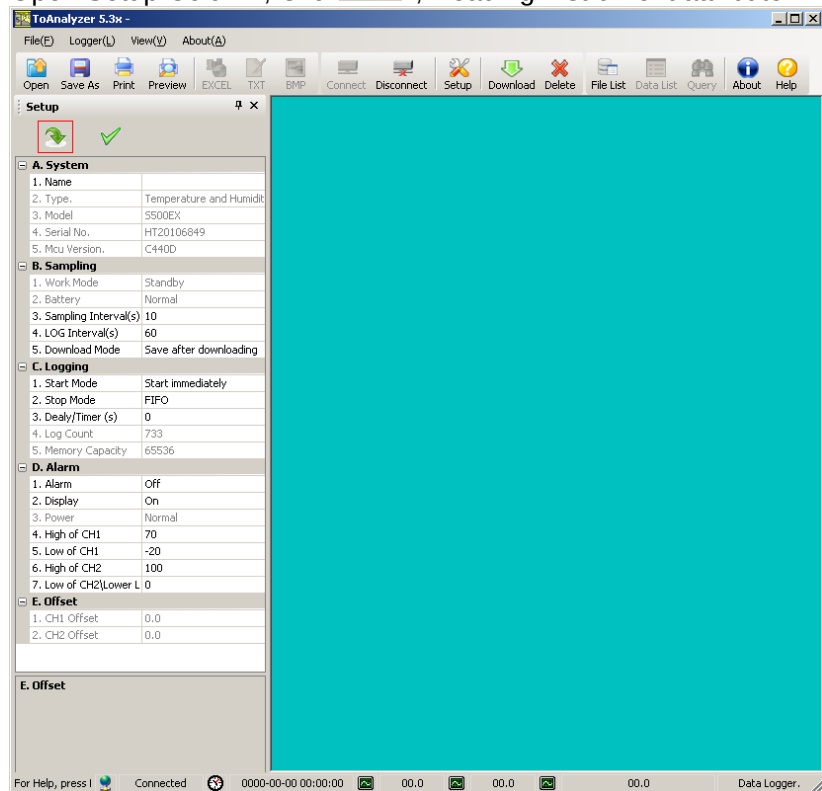


(5) Click



2.4.2 Instrument attribute

Open Setup Column, Click , Reading Instrument attribute.



A. System

A1.Name: User can input English letters and Numbers

A2.Type

A3.Model:S500TH/EX/ET/DT

A4.Serial Number

A5.Mcu Version

B. Sampling

B1.Work Mode: Standby / Record

When ToAnalyzer connect the logger, it will close Logging.
After disconnecting the logger and computer, don't

forget opening the LOG function by  button.¹

B2.Battery: Normal/Low power

B3.Sampling Interval: The sampling interval of the logger. It must be no more than 240. Its unit is second.

B4.LOG Interval: The recording interval of the logger. Its unit is second. The default value is 600. Min/Max value is 2/43200.

B5.Download Mode: Save after downloading / Delete after downloading

Click  Download. The data in the logger's memory will be stay / auto-delete, after download.

C. Logging

C1.Start Mode: Start immediately / Delay / Timer

After press the LOG, the logger will start record Start immediately / delay / timer. The delay time is **C3**.

C2.Stop Mode: FIFO (First In, First Out)/ Stop when full

When recording memory is full, the logger will delete the earliest data / stop record new data

C3.Dealy/Timer(s): User could input a number. The logger will delay the start time of recording.

C4.Log Count: The number of the logger has recorded.

C5.Memory Capacity: The total recording capacity of the logger.

D. Alarm

D1.Alarm: Alarm Switch. Control audible, visual and SMS alarm.

D2.Display: LCD Screen Switch.

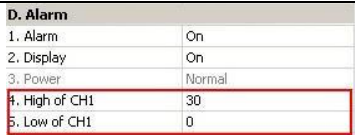
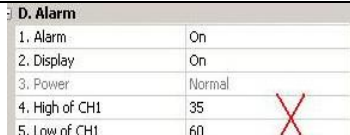
D3.Power: DC power is Normal or None. If no DC power, the alarm function will be auto-closed.

D4.High of CH1: Higher limit of Channel 1.

D5.Low of CH1: Lower limit of Channel 1.

D6.High of CH2: Higher limit of Channel 2.

D7.Low of CH2: Lower limit of Channel 2.

Correct	Incorrect
	

E.Offset

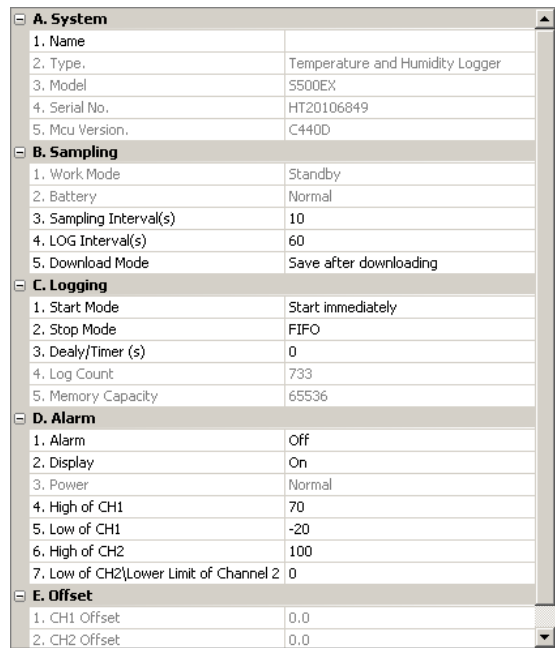
E1.CH1 Offset: Channel 1 offset

1 Steps:

(1) Press  and  simultaneously unlock button,  will light.

(2) Press  to open recording function. LOG will light.

(3) Press  and  simultaneously again lock data logger's button.

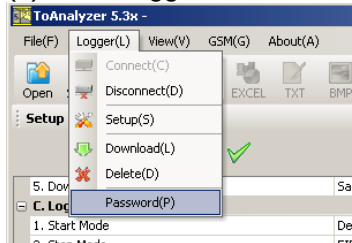


A. System	
1. Name	
2. Type	Temperature and Humidity Logger
3. Model	S500EX
4. Serial No.	HT20106849
5. Mcu Version	C440D
B. Sampling	
1. Work Mode	Standby
2. Battery	Normal
3. Sampling Interval(s)	10
4. LOG Interval(s)	60
5. Download Mode	Save after downloading
C. Logging	
1. Start Mode	Start immediately
2. Stop Mode	FIFO
3. Dealy/Timer (s)	0
4. Log Count	733
5. Memory Capacity	65536
D. Alarm	
1. Alarm	Off
2. Display	On
3. Power	Normal
4. High of CH1	70
5. Low of CH1	-20
6. High of CH2	100
7. Low of CH2\Lower Limit of Channel 2	0
E. Offset	
1. CH1 Offset	0.0
2. CH2 Offset	0.0

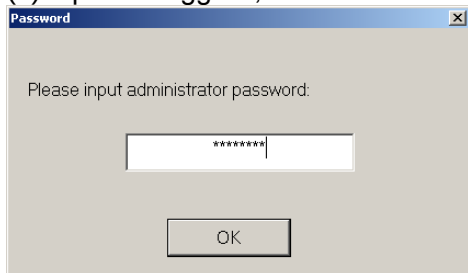
E2.CH2 Offset: Channel 2 offset

Set Offset Steps:

(1) Click Logger → Password



(2) Input "thlogger", Click OK



(3) Click



Reading Instrument attribute again.

The offset is available.

E. Offset	
1. CH1 Offset	0.0
2. CH2 Offset	0.0

(4) Input a number

For example:

Input 10

E. Offset	
1. CH1 Offset	10.0
2. CH2 Offset	10.0

The data in the screen will be reduced 10.

22.8°C → 12.8°C

40.5%RH → 30.5%RH

Input -10

E. Offset	
1. CH1 Offset	-10.0
2. CH2 Offset	-10.0

The data in the screen will be increased 10.

22.8°C → 32.8°C

40.5%RH → 50.5%RH

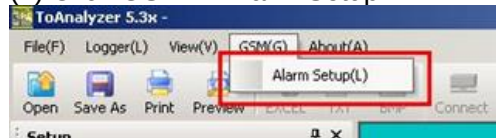
After change the properties of the logger, don't forget to synchronize to the logger. (Click the button "Synchronize" )

Click  to disconnect logger and computer.

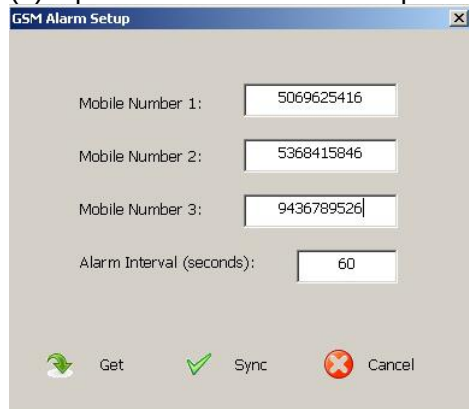
2.4.3 Set the SMS Alarm

Steps:

(1) Click GSM → Alarm Setup

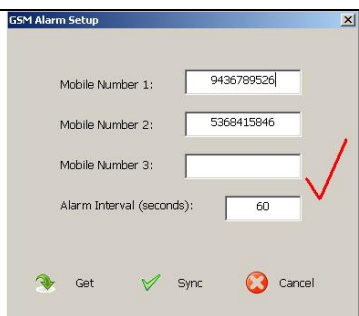
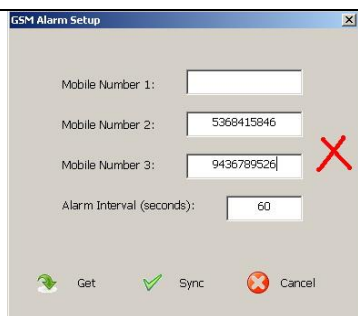
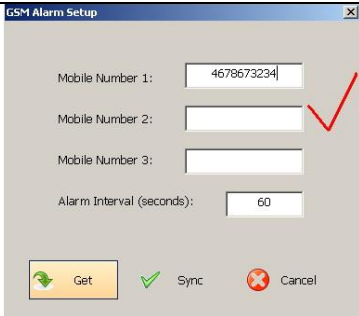
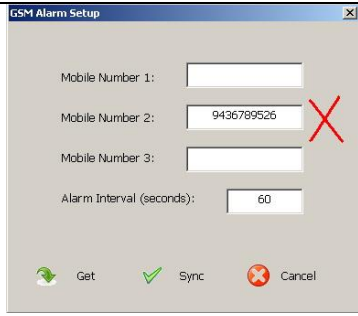
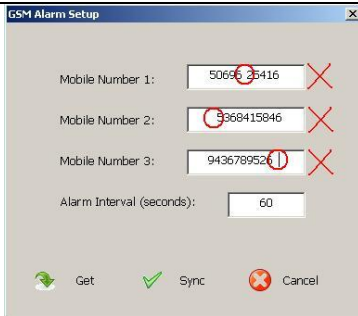


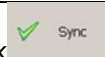
(2) Input the administrator's cellphone number to the Text box and set the Alarm Interval



Don't empty the front text box

Don't input "space" or "sign" into the Cellphone Number

Correct	Incorrect
	
	
	

(3). Click , Save changes

SMS Alarm Example

User-defined High/Low Value Limit are exceeded, the Logger will send SMS to USER'S Mobile phone.
The GSM alarm message example is:

HT20106849:TEMP(32.3 C)
exceeds limits:(30,0)

HT20106849:HUMI(90.5
%RH) exceeds limits:(70,0).

HT20106849:TEMP(32.5 C)
exceeds limits:(30,0)

HT20106849:HUMI(90.9
%RH) exceeds limits:(70,0).

HT20106849:TEMP(32.4 C)
exceeds limits:(30,0)

HT20106849:HUMI(91.2
%RH) exceeds limits:(70,0).

After sending 3 SMS alarm, the logger will stop sending alarm message

HT20106849:exceeds
limit.SMS won't be sent
until TEMP recovery.

HT20106849:exceeds
limit.SMS won't be sent
until HUMI recovery.

When the Temperature or humidity returns to normal range, device will send the SMS to user's mobile phone again. Example as follows:

HT20106849:Good news!
The temperature is OK
now.

HT20106849:Good news!
The humidity is OK now.

User can keep track of Real-time temperature and humidity

User can call the device anytime if he needs to know the current temperature and humidity; device will send SMS (temperature and humidity data) to user's mobile phone.

HT20106849:TEMP(22.6 C)
is normal.
Humi(10.3 %RH) is normal.

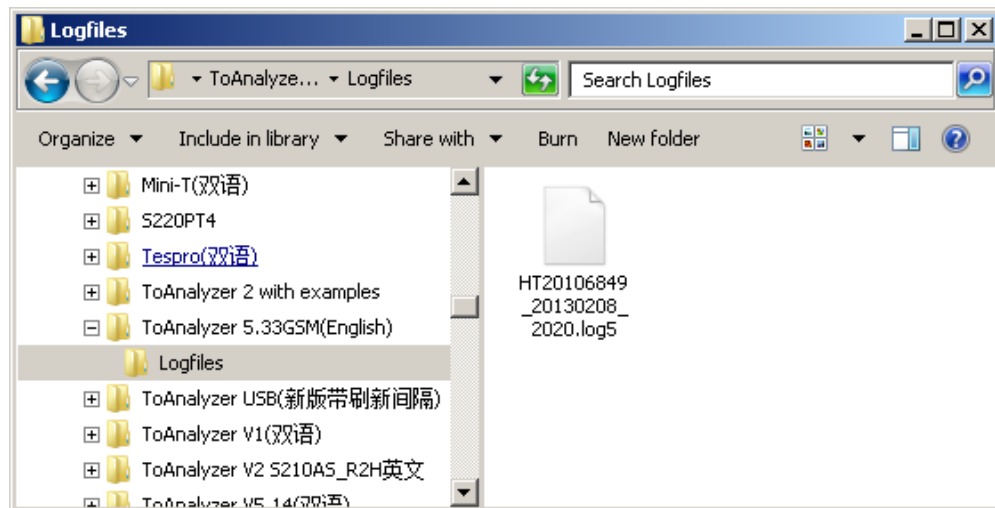
2.4.4 Download data from logger



(1) Click **Download** button, the software will download data from the logger, and save all the logs into a log file in the OS.

The downloaded data is saved in the Software folder / Logfiles folder

The file name is serial number + date + time



(2) Delete data from logger



Click **Delete**, the software will delete data from the logger's memory. The delete operation cannot be recovered.

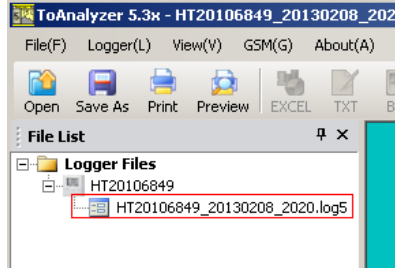


(3) Click **Disconnect** to disconnect logger and computer.

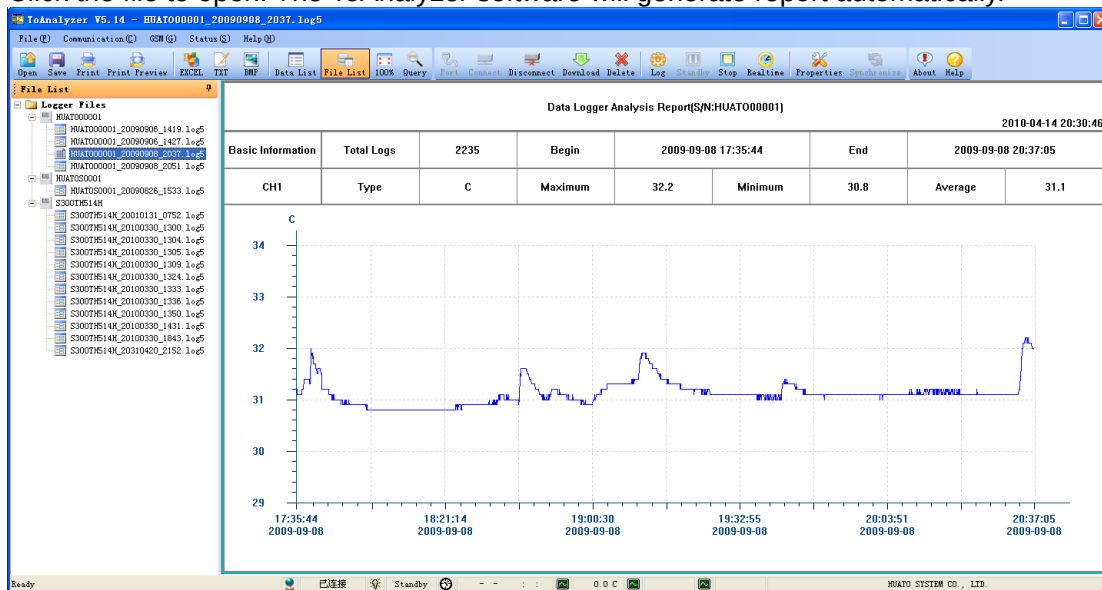
2.5 Log Analysis

(1) Opening history data

Click  , we can see the history data files



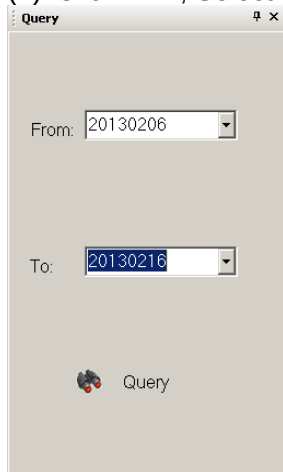
Click the file to open. The ToAnalyzer software will generate report automatically.



Drag can magnify the graph by left mouse button.

Click right button can shrink the graph by right mouse button.

(2) Click , Select a particular time period



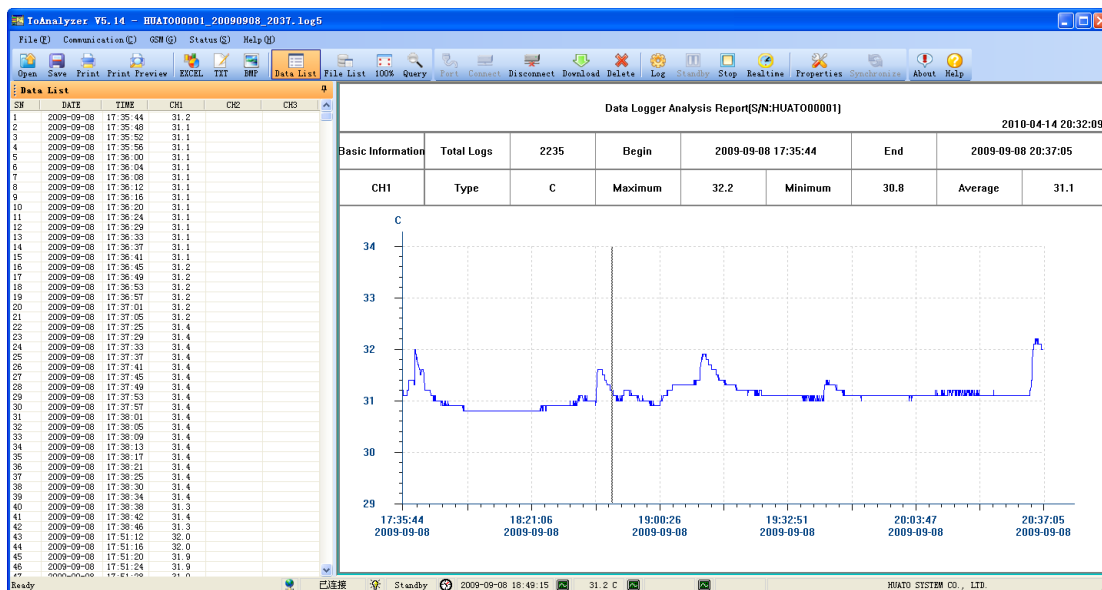
Query

From: 20130206

To: 20130216

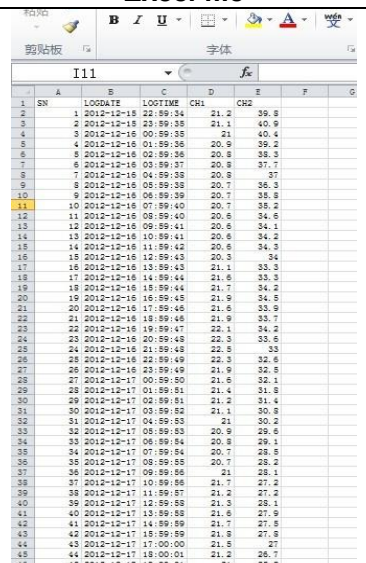
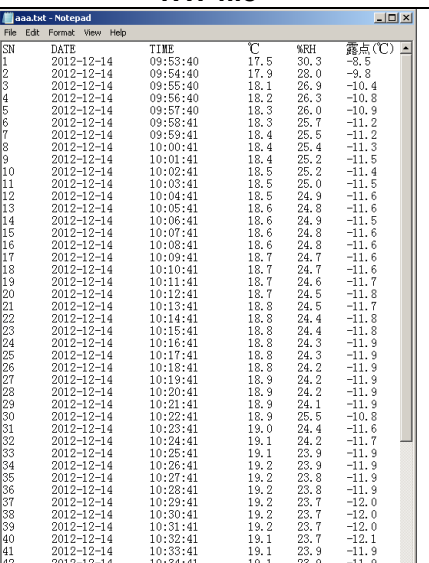
Query

Click  , the all the detailed of the logs will be listed on left side:



(3) Save detailed data to EXCEL or TEXT file

Click **EXCEL** **TXT** **BMP**, the detailed of the logs will be saved to the file as the operator named.

Excel file						TXT file					
											
SN	DATE	TIME	CH1	CH2	CH3	SN	DATE	TIME	TEMP	HRH	露点 (°C)
1	2009-09-08	17:35:44	31.2			1	2012-12-14	09:53:40	17.5	30.3	-8.5
2	2009-09-08	17:35:48	31.1			2	2012-12-14	09:54:40	17.9	28.0	-9.8
3	2009-09-08	17:35:52	31.1			3	2012-12-14	09:55:40	18.1	26.9	-10.4
4	2009-09-08	17:36:00	31.1			4	2012-12-14	09:56:40	18.2	26.3	-10.8
5	2009-09-08	17:36:04	31.1			5	2012-12-14	09:57:40	18.3	26.0	-10.9
6	2009-09-08	17:36:08	31.1			6	2012-12-14	09:58:41	18.3	25.7	-11.2
7	2009-09-08	17:36:12	31.1			7	2012-12-14	09:59:41	18.4	25.5	-11.2
8	2009-09-08	17:36:16	31.1			8	2012-12-14	10:00:41	18.4	25.4	-11.3
9	2009-09-08	17:36:20	31.1			9	2012-12-14	10:01:41	18.4	25.2	-11.5
10	2009-09-08	17:36:24	31.1			10	2012-12-14	10:02:41	18.5	25.2	-11.4
11	2009-09-08	17:36:28	31.1			11	2012-12-14	10:03:41	18.5	25.0	-11.5
12	2009-09-08	17:36:32	31.1			12	2012-12-14	10:04:41	18.5	24.9	-11.6
13	2009-09-08	17:36:36	31.1			13	2012-12-14	10:05:41	18.6	24.8	-11.6
14	2009-09-08	17:36:40	31.1			14	2012-12-14	10:06:41	18.6	24.9	-11.5
15	2009-09-08	17:36:44	31.1			15	2012-12-14	10:07:41	18.6	24.8	-11.6
16	2009-09-08	17:36:48	31.2			16	2012-12-14	10:08:41	18.6	24.8	-11.6
17	2009-09-08	17:36:52	31.2			17	2012-12-14	10:09:41	18.7	24.7	-11.6
18	2009-09-08	17:36:56	31.2			18	2012-12-14	10:10:41	18.7	24.7	-11.6
19	2009-09-08	17:37:00	31.2			19	2012-12-14	10:11:41	18.7	24.6	-11.7
20	2009-09-08	17:37:04	31.2			20	2012-12-14	10:12:41	18.7	24.5	-11.8
21	2009-09-08	17:37:08	31.4			21	2012-12-14	10:13:41	18.8	24.5	-11.7
22	2009-09-08	17:37:12	31.4			22	2012-12-14	10:14:41	18.8	24.4	-11.8
23	2009-09-08	17:37:16	31.4			23	2012-12-14	10:15:41	18.8	24.4	-11.8
24	2009-09-08	17:37:20	31.4			24	2012-12-14	10:16:41	18.8	24.3	-11.9
25	2009-09-08	17:37:24	31.4			25	2012-12-14	10:17:41	18.8	24.3	-11.9
26	2009-09-08	17:37:28	31.4			26	2012-12-14	10:18:41	18.8	24.2	-11.9
27	2009-09-08	17:37:32	31.4			27	2012-12-14	10:19:41	18.9	24.2	-11.9
28	2009-09-08	17:37:36	31.4			28	2012-12-14	10:20:41	18.9	24.2	-11.9
29	2009-09-08	17:37:40	31.4			29	2012-12-14	10:21:41	18.9	24.1	-11.9
30	2009-09-08	17:37:44	31.4			30	2012-12-14	10:22:41	18.9	23.9	-11.9
31	2009-09-08	17:37:48	31.4			31	2012-12-14	10:23:41	19.0	24.4	-11.6
32	2009-09-08	17:37:52	31.4			32	2012-12-14	10:24:41	19.1	24.2	-11.7
33	2009-09-08	17:37:56	31.4			33	2012-12-14	10:25:41	19.1	23.9	-11.9
34	2009-09-08	17:38:00	31.4			34	2012-12-14	10:26:41	19.2	23.9	-11.9
35	2009-09-08	17:38:04	31.4			35	2012-12-14	10:27:41	19.2	23.8	-11.9
36	2009-09-08	17:38:08	31.4			36	2012-12-14	10:28:41	19.2	23.8	-11.9
37	2009-09-08	17:38:12	31.4			37	2012-12-14	10:29:41	19.2	23.7	-12.0
38	2009-09-08	17:38:16	31.4			38	2012-12-14	10:30:41	19.2	23.7	-12.0
39	2009-09-08	17:38:20	31.4			39	2012-12-14	10:31:41	19.2	23.7	-12.0
40	2009-09-08	17:38:24	31.4			40	2012-12-14	10:32:41	19.1	23.7	-12.1
41	2009-09-08	17:38:28	31.4			41	2012-12-14	10:33:41	19.1	23.9	-11.9
42	2009-09-08	17:38:32	31.4			42	2012-12-14	10:34:41	19.1	23.9	-11.9

(4) Print

Click **Print** **Preview**

The Analysis diagram can be printed directed with ToAnalyzer software.

LCD Screen ⑧ **NETWORK** no-light

Maybe

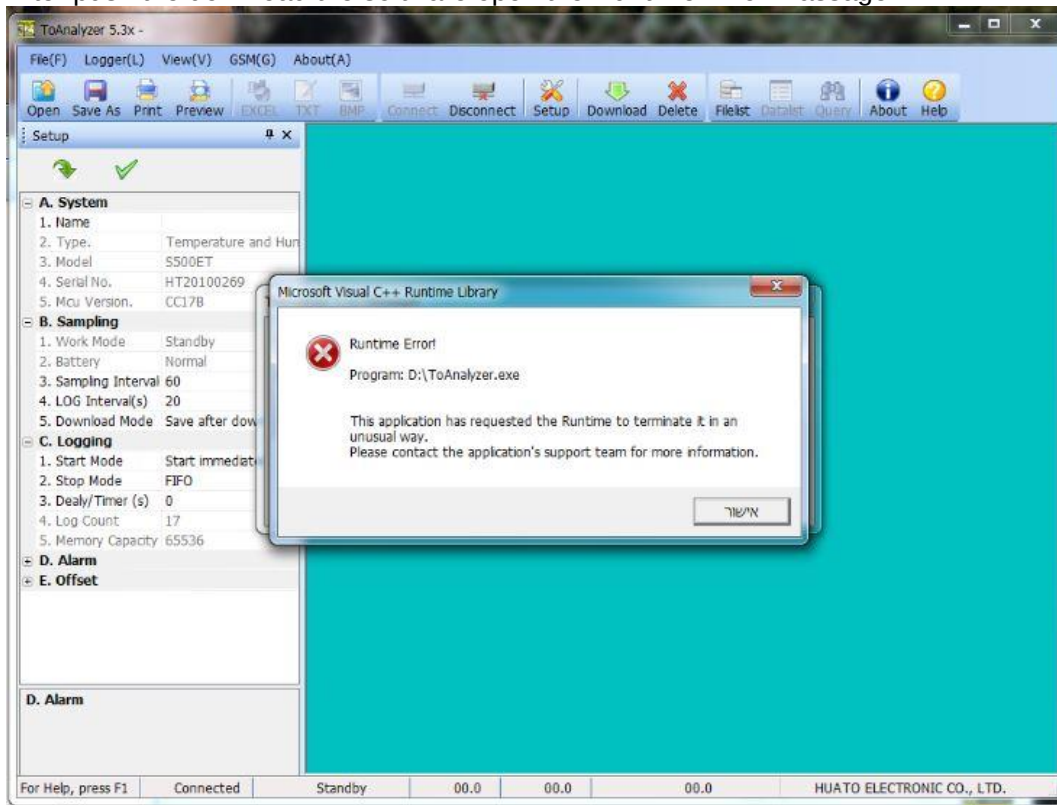
1. No DC power
2. No SIM card – P7
3. SIM card didn't supply GSM network – P2, 1.4
4. No GSM Signal
5. When installing SIM card, the logger has powered. -- Press reset button

No SMS Alarm

Maybe

1. Alarm switch off – P11, D1
2. GSM Setting – P13

After push the download the software open the Runtime Error message.



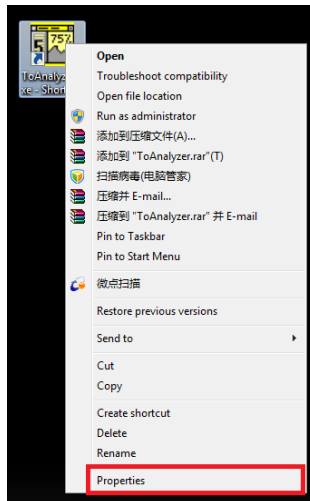
Cause description: Software cannot build the archive file.

Maybe

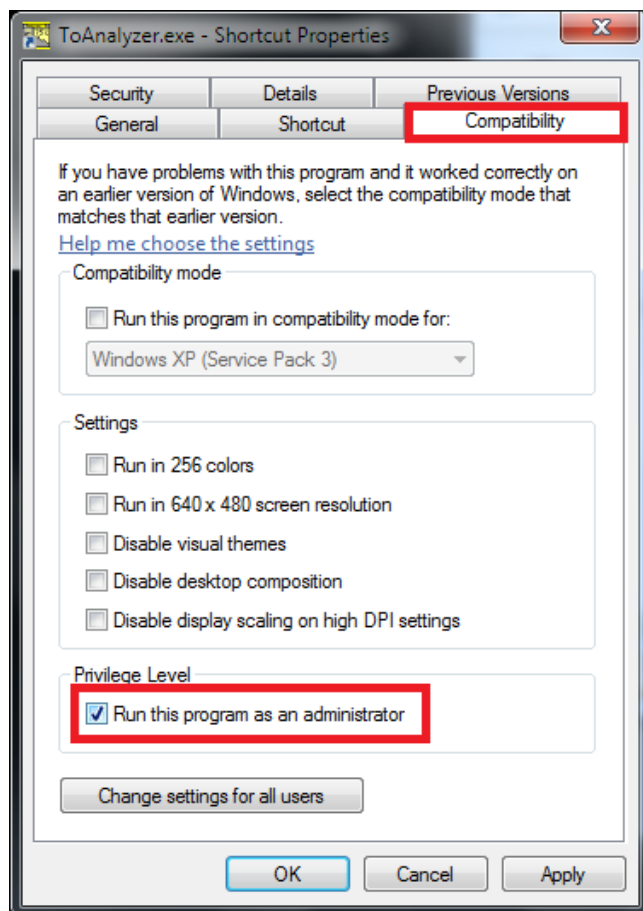
1. ToAnalyzer need Administrator rights.

Step:

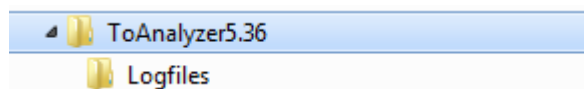
1.1



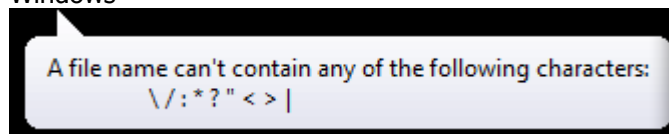
1.2



2. Windows 7 forbid build file in C:>\ , Please install the software in the other local disk.
3. The archive file folder was deleted. ToAnalyzer cannot find the file path.
The archive file folder named Logfiles in the software folder.
Please build the folder.



4. The logger's name include Special symbols [P12.A1]
Because the logger's name is part of the archive file name.
Windows



The logger's name cannot include these symbols.