

*UTH*

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# UTH

System Manual

Ver 1.00  
SEBINE Technology, Inc

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**\* WARNING \***

- Use only 3.6V Lithium battery.(more than 2400mAh)
- Be careful with battery orientation.(See 2. Device Summary)
- Never operate the Device with each different battery.

**\* CAUTION \***

RISK OF EXPLOSION IF BATTERY IS REPLACED  
BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING  
TO THE INSTRUCTIONS

# UTH

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## 1. Summary

### 1.1 Product Introduction

UTH is a sensor to detect temperature and humidity wirelessly by using ISM 433MHz frequency bandwidth. UTH transmits the temperature and humidity data at each user set-up period. Users can configure their own setting for UTH via serial communication program.

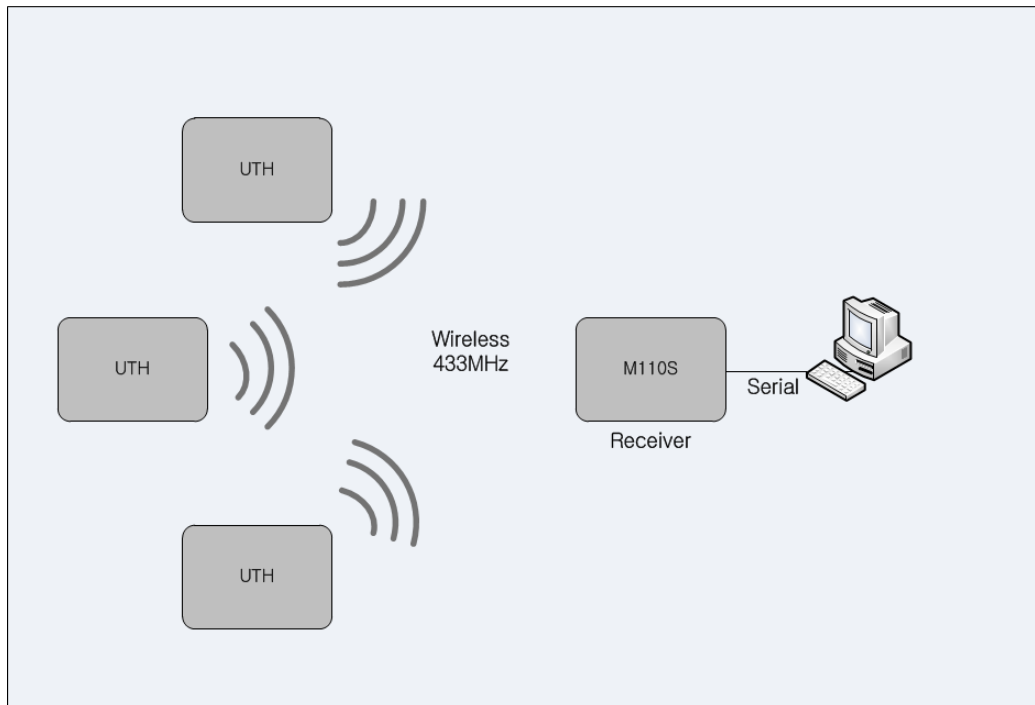


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## 1.1.1 Product Application Examples



Product Application Examples

## 1.1.2 Product Application Area

- Department Store, Public Office, Gymnasium
- Museum, School, Manufacturing Factory
- Office Building, Movie Theater, Shipbuilding/Marine

## 1.1.3 Product Package

UTH main body, USB cable, User manual, Utility CD

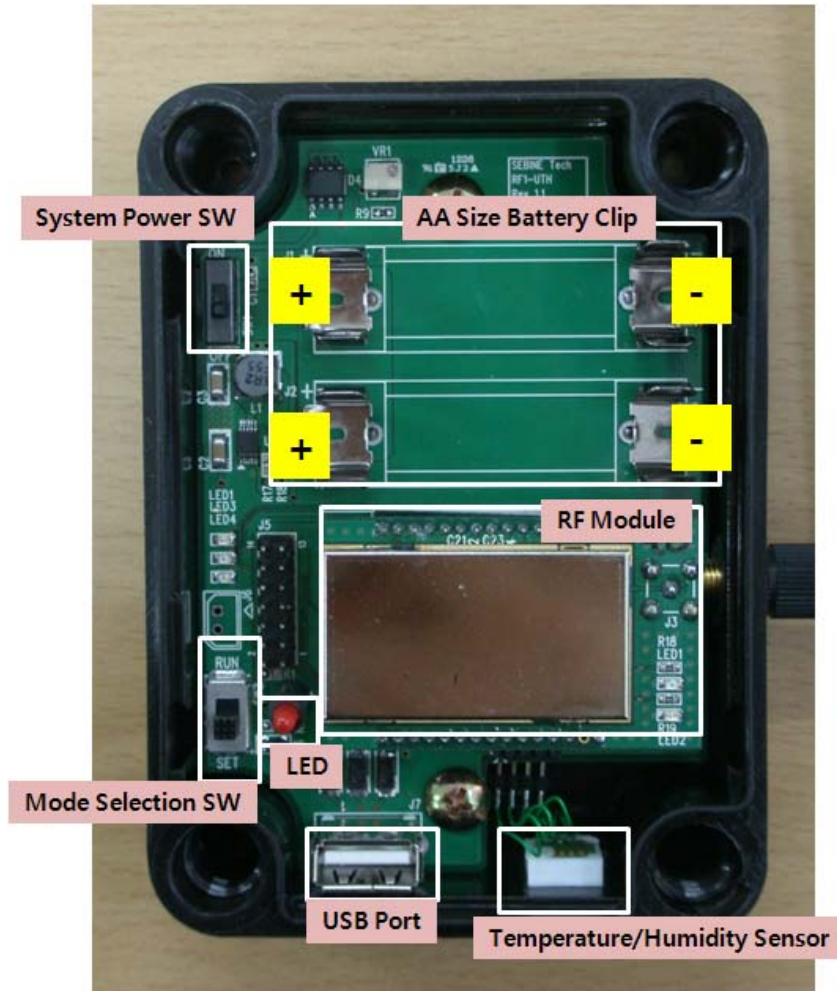
# UTH

## 1.2 Specification

Item	Specification	
Name	UTH	
Dimension	110mm(L)×80mm(W)×33mm(H)	
Housing	ABS	
Weight	300g (w/o Battery, Antenna)	
Power Supply	AA size 3.6Volt LITHIUM BATTERY 1EA or 2EA	
Current Consumption	Tx 190mA, Rx 20mA (@3.6Vdc)	
Operation Temperature	-20°C ~ +50°C	
RF Features	<ul style="list-style-type: none"><li>- Frequency : 433.050MHz ~ 434.790MHz</li><li>- Channel Spacing : 25KHz</li><li>- Transmitter Power : 10mW</li><li>- Receiver Sensitivity : -116 ~ -120dBm(-116dBm typ.)</li><li>- Modulation : FSK</li><li>- Bandwidth : &lt; 14KHz</li></ul>	
RF Performance	<ul style="list-style-type: none"><li>- Expected Line-Of-Sight Range : Up To 1.5km with <math>\lambda/4</math> Dipole Antenna</li><li>- RF Data Rate : 4.8K Baud, 7.2K Baud</li></ul>	
I/O Interface	USB Connector	
Antenna Interface	<ul style="list-style-type: none"><li>- SMA(Female)</li><li>- Impedance 50<math>\Omega</math></li></ul>	
Sensor	Temperature /Humidity	<ul style="list-style-type: none"><li>- SHT15(SENSIRION)</li><li>- Accuracy Humidity : <math>\pm 2.0</math>      Temperature : <math>\pm 0.3</math> @°C</li></ul>

UTH Specification

## 2. Device Summary



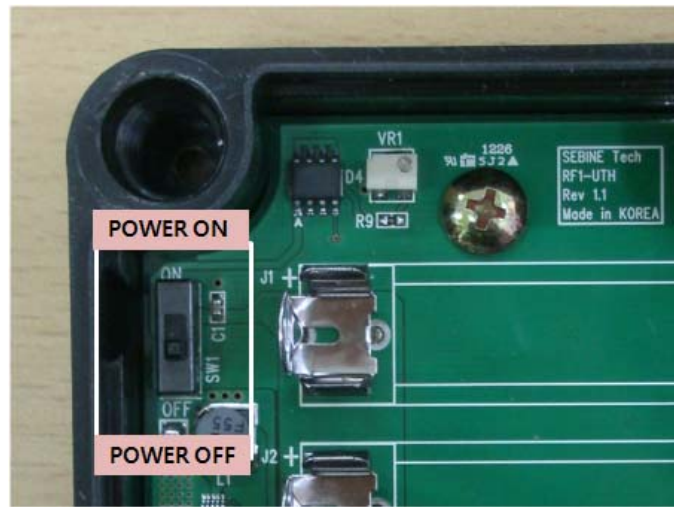
UTH Inside

### 2.1 Power Supply

UTH operates using on or two AA size 3.6Volt LITHIUM BATTERIES. Be careful with battery orientation.

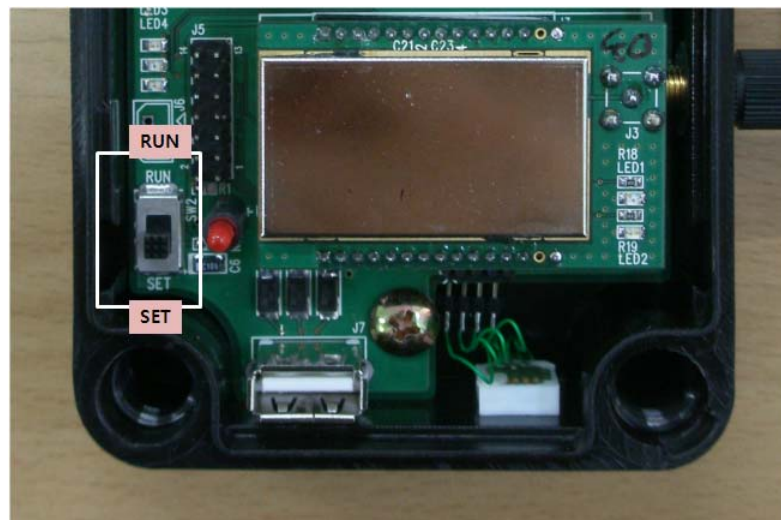
#### 2.1.1.How to replace the battery

Step 1. "OFF" the System Power SW, "SET" the Mode Selection SW. And then after removing the old battery and carefully insert a new battery in the battery direction.



UTH setting - System Power SW

Step 2. After inserting the battery, Set "RUN" the Mode Selection SW.  
Step 3. When set to the "ON" the System Power SW battery replacement it is complete.



UTH setting - Mode Selection SW

## 2.2 USB communication connection

To use UTH, proper setting is necessary for wireless environment to be installed. For setting, connect PC and UTH using USB cable provided in the package. For detailed settings after USB communication connection, see section 3.2.



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## 3. Device Setup

### 3.1 UTH setting

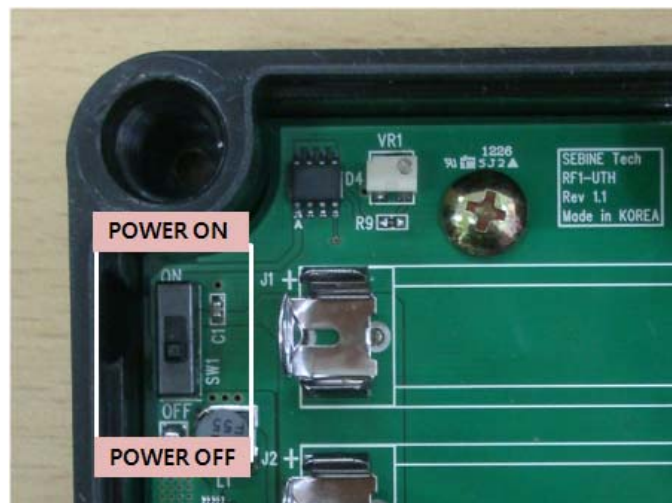
To use UTH, set RF channel, RF Power, Transmission interval, Device ID.

#### 3.1.1 Connection between UTH and PC

To set the wireless communication environment for UTH, connect PC with UTH using the USB cable provided at product purchase. The connection sequence is shown below.

**(NOTE) Before connection, install USB driver of UTH.[See Appendix 1. USB driver installation]**

Step 1. With batter inserted at UTH, set System Power SW OFF.

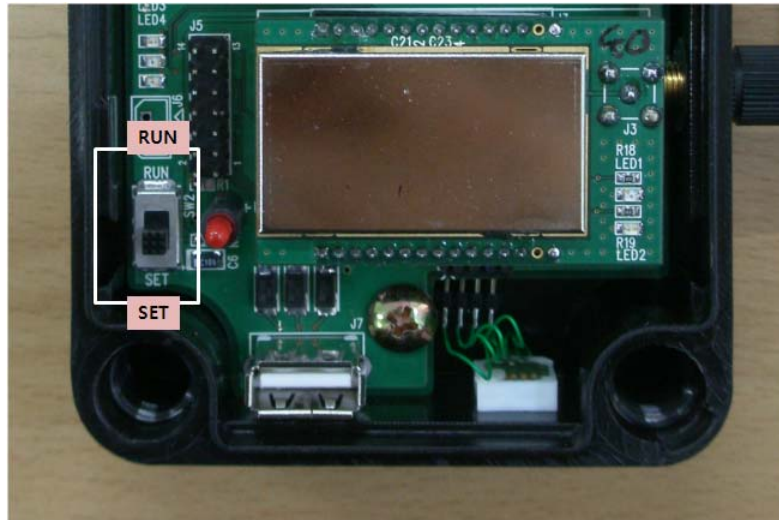


UTH setting - System Power SW

Step 2. Connect one port of USB cable to PC, and the other port to UTH.

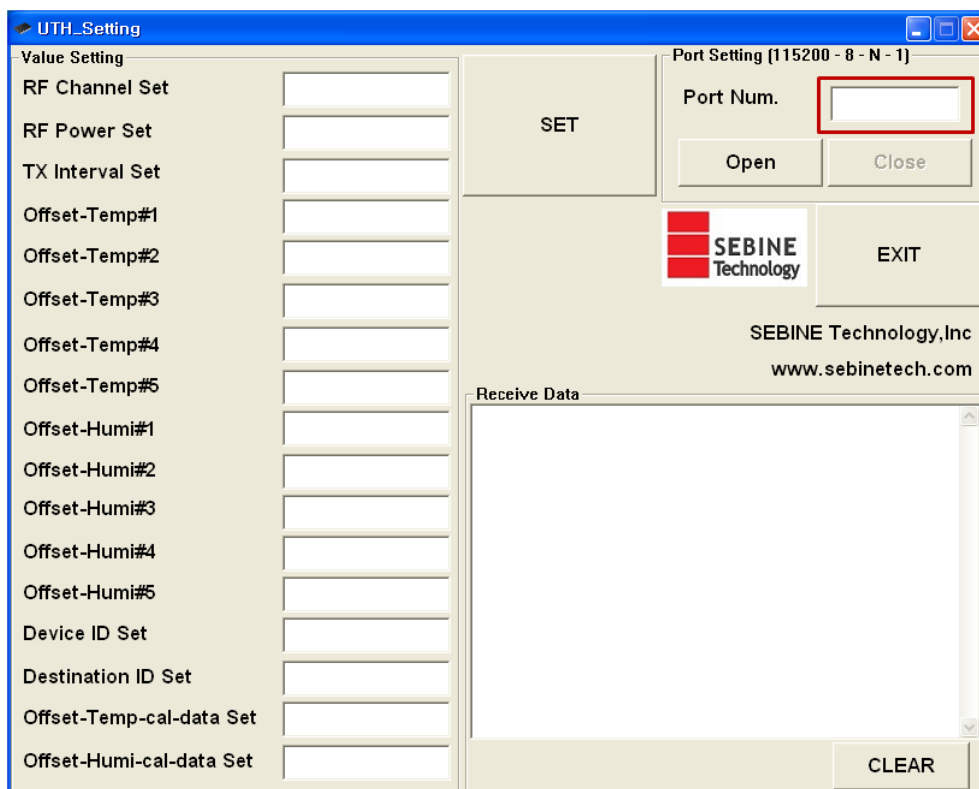
Step 3. Mode Selection SW to SET side.

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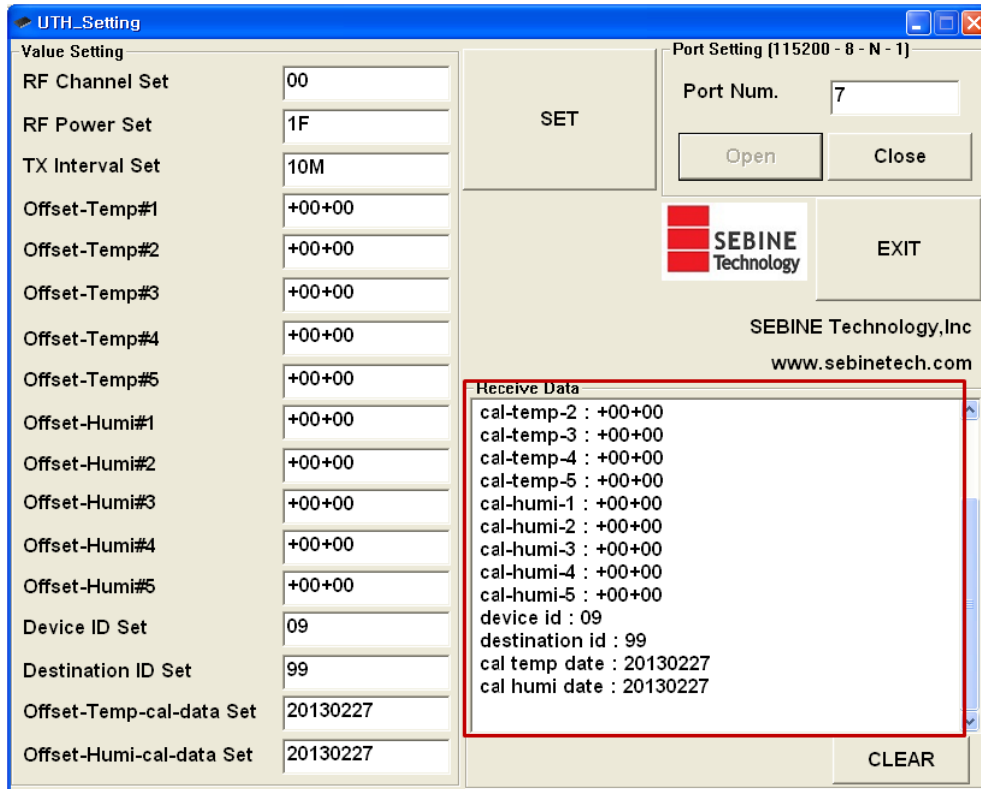
UTH setting - Mode Selection SW

- Step 4. Execute the serial communication program(UTH\_Setting.exe).
- Write the "COM Port Num." connected by the UTH on the port number, press the "Open" button.



UTH\_Setting.exe program

Step 5. Set the System Power SW of UTH ON. When correctly connected, data are shown on serial communication program shown below.



Data output via serial communication program

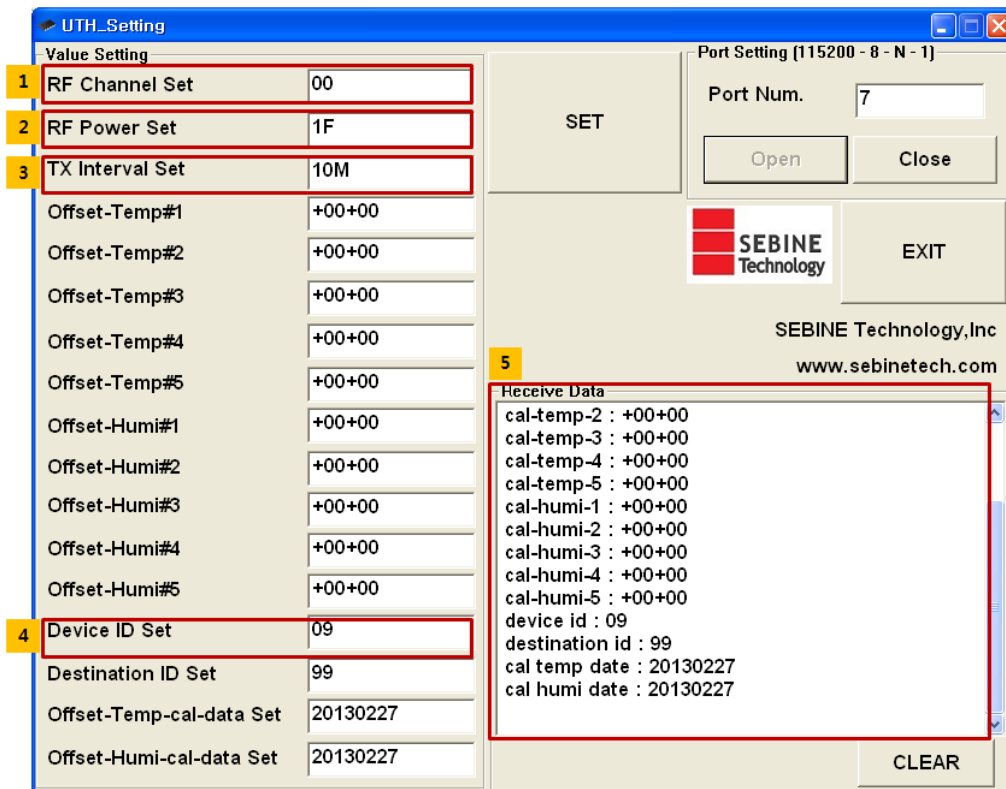
# UTH

## 3.1.2 Wireless communication environment setting of UTH

There are four settings are needed to use the UTH.

1. RF Channel Set
2. RF Power Set
3. Transmission Interval Set
4. Device ID Set

Step 1. Input the set point depends on the setting item into the setting program.



UTH setting

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\* Usable frequencies table

Ch.	Freq.(Mhz)	Ch.	Freq.(Mhz)	Ch.	Freq.(Mhz)	Ch.	Freq.(Mhz)
01	433.0625	13	433.5125	25	433.9625	37	434.4125
02	433.0875	14	433.5375	26	433.9875	38	434.4375
03	433.1125	15	433.5625	27	434.0125	39	434.4625
04	433.1375	16	433.5875	28	434.0375	3A	434.4875
05	433.1625	17	433.6125	29	434.0625	3B	434.5125
06	433.1875	18	433.6375	2A	434.0875	3C	434.5375
07	433.2125	19	433.6625	2B	434.1125	3D	434.5625
08	433.2375	1A	433.6875	2C	434.1375	3E	434.5875
09	433.2625	1B	433.7125	2D	434.1625	3F	434.6125
0A	433.2875	1C	433.7375	2E	434.1875	40	434.6375
0B	433.3125	1D	433.7625	2F	434.2125	41	434.6625
0C	433.3375	1E	433.7875	30	434.2375	42	434.6875
0D	433.3625	1F	433.8125	31	434.2625	43	434.7125
0E	433.3875	20	433.8375	32	434.2875	44	434.7375
0F	433.4125	21	433.8625	33	434.3125	45	434.7625
10	433.4375	22	433.8875	34	434.3375		
11	433.4625	23	433.9125	35	434.3625		
12	433.4875	24	433.9375	36	434.3875		

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\* Usable RF transmitter power  
00~17

\* Usable RF data transmission Interval  
30S ~ 99H  
S : sec  
M : min  
H : hour

\* Usable Device ID  
01~99

Step 2. After input

1. Press the SET button on the setting program.
2. Complete the UTH set-up.

### 3.1.3 Disconnection between UTH and PC

When all settings are done, a message "Please Reboot!!" appears. Serial communication program is terminated. When necessary, device manager removes the device.

Step 1. Shut down the serial communication program.

Step 2. Set the System Power SW of UTH off.

Step 3. Remove the port to UTH at device management and remove USB cable from WTH.

Step 4. Set the Mode Selection SW to RUN.

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## 4. Device Operation

### 4.1 UTH data format(hex value)

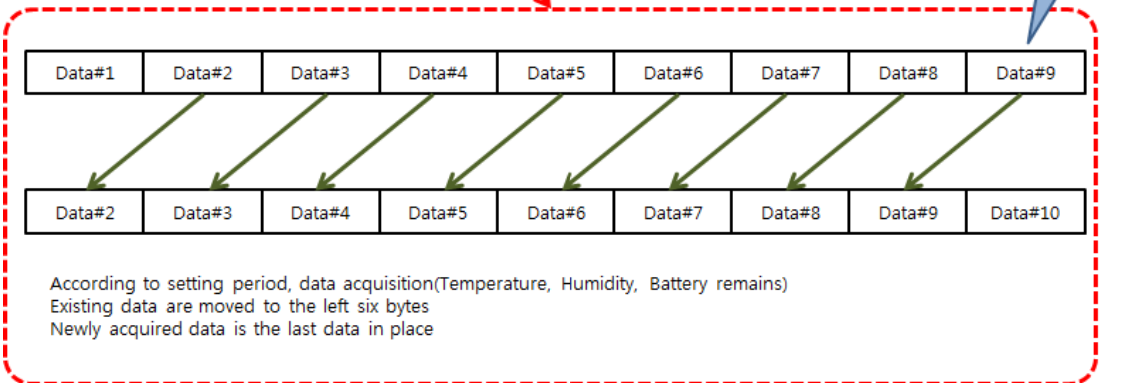
ID	Temperature2byte	Humidity2byte	Battery2byte.....	TX Count	End of data
01	12 35	13 46	40 95	00	AA

ID : 1Byte

6 Bytes(Temperature, Humidity, Battery) of data are repeated 9 : 54Byte

TX Count : 1byte(After the data Tx increases by 1)

End of data : 1byte



### 4.2 UTH operating start

To operate of UTH, Transmit wireless the data using the M100S which alarms the starting the acquiring data.

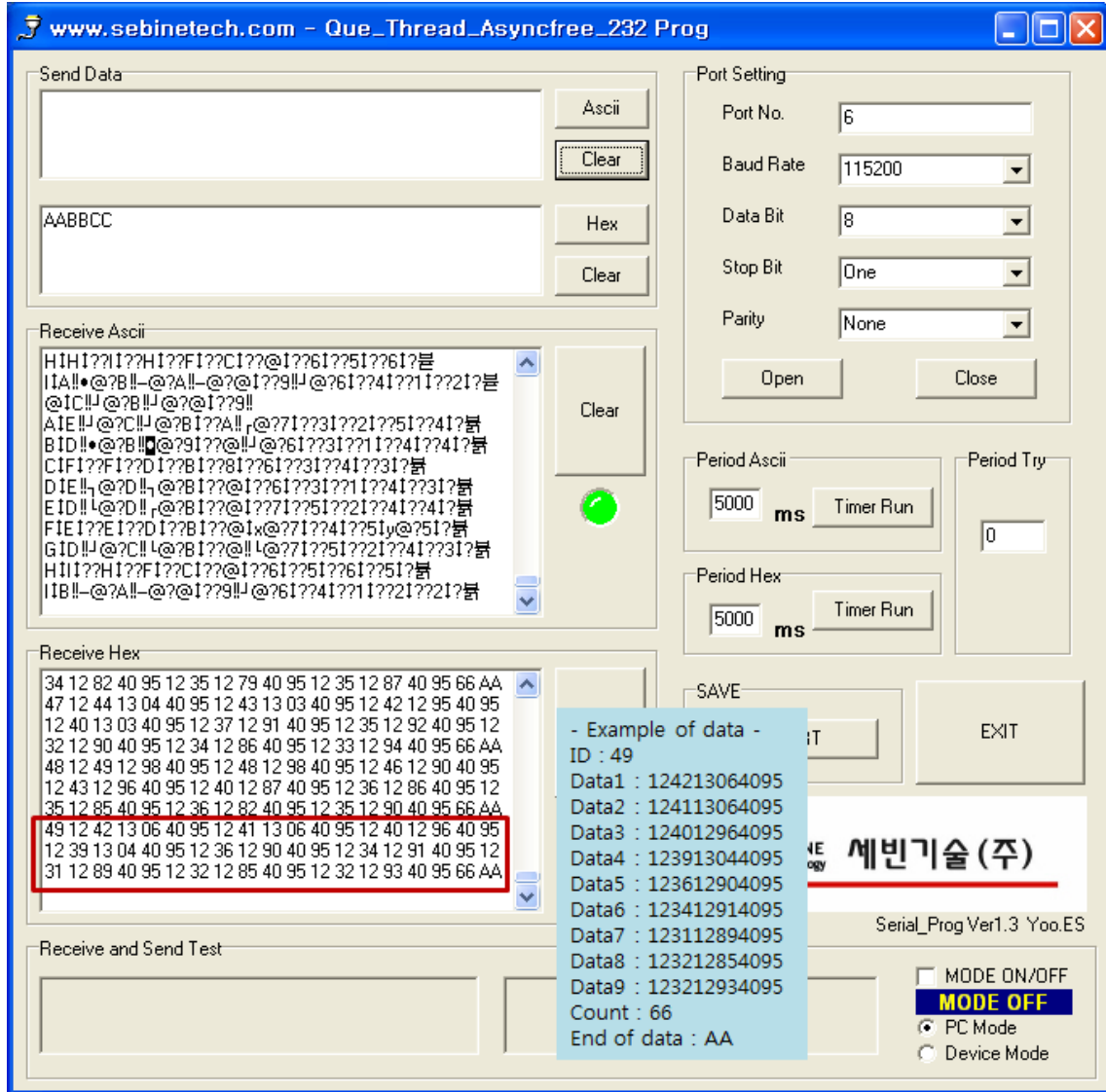
Data format(hex value) : AABBC



# UTH

## 4.3 UTH receive data

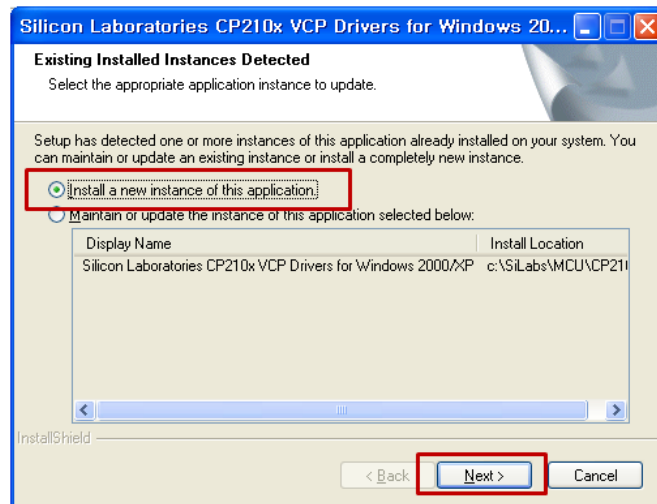
If UTH normally receives the data informing the acquired starting-point from the M100S, depending on the setting period send the data as following below.



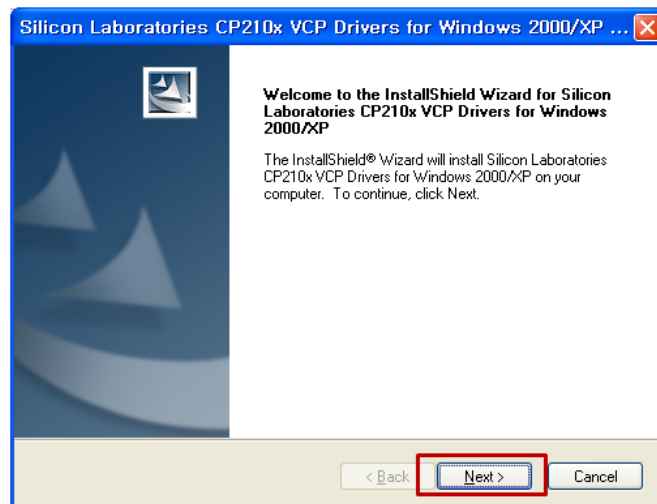
Example of UTH receiving data

## Appendix 1. UTH USB Driver Installation

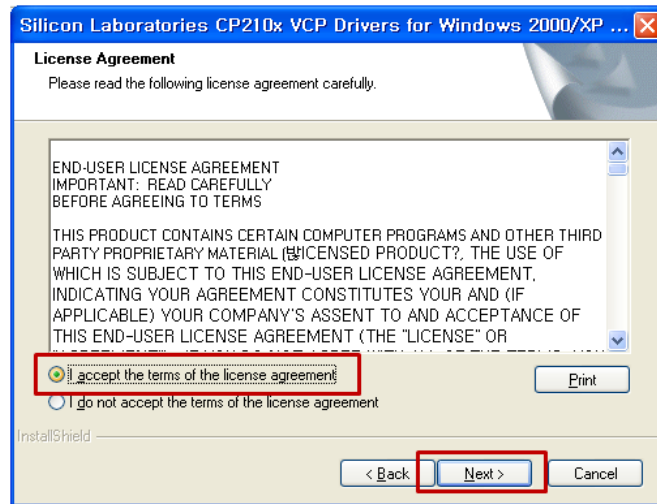
1. Run "CP210x\_VCP.exe" from user manual and utility CD in package. Install by following the procedure below.



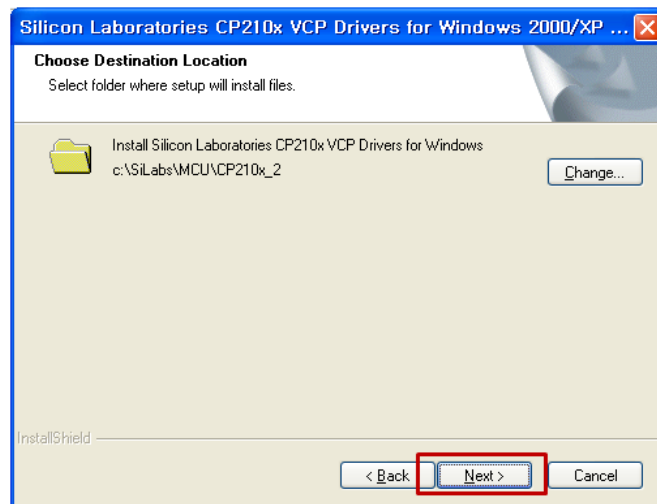
Step 1. USB Driver Installation



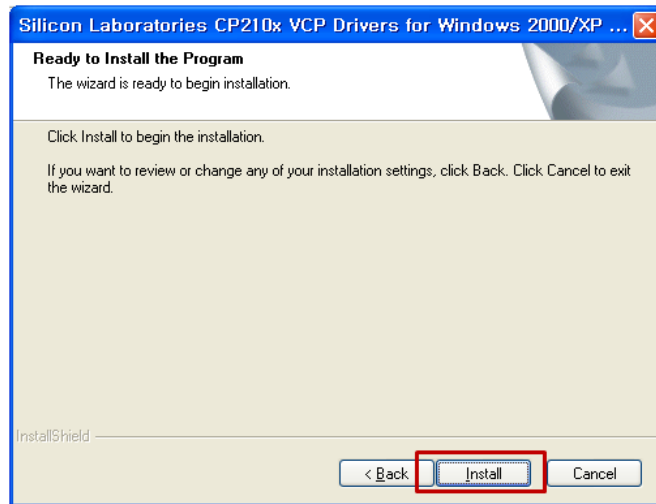
Step 2. USB Driver Installation



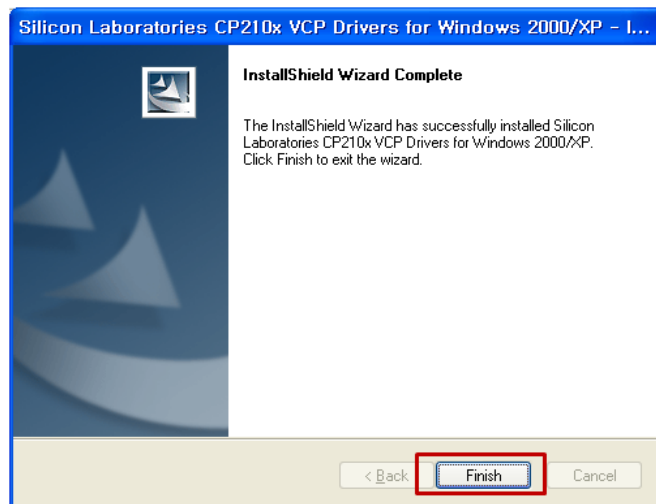
Step 3. USB Driver Installation



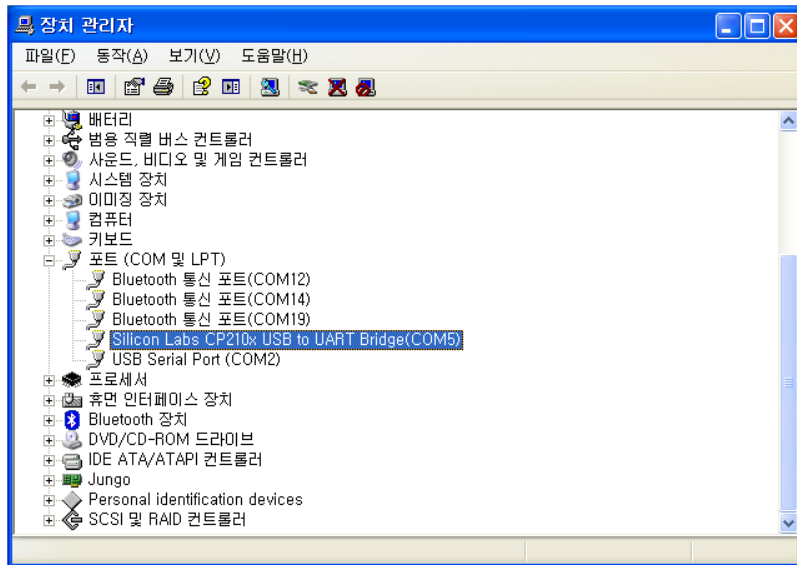
Step 4. USB Driver Installation - Default folder



Step 5. USB Driver Installation



Step 6. USB Driver Installation Complete

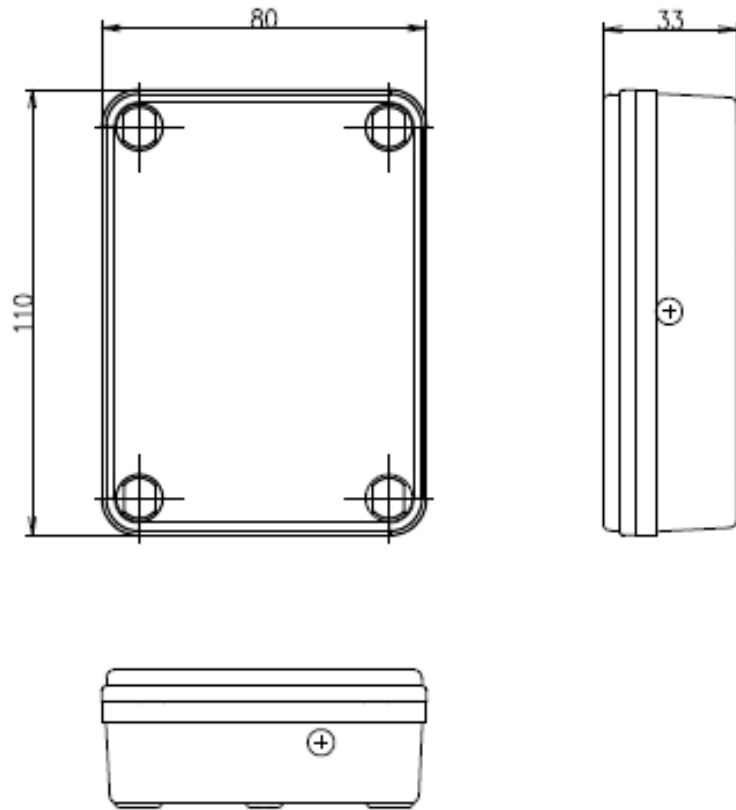


Step 7. USB Driver Installation - Window Device Manager

## Appendix 2. Document Information

Version	H/W Version	Date	Changes
1.00		2013.03.08	Initial Release Version

Appendix 3. Dimension



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