SIO Plus Series Controller

User's Manual

Version 1.0, Aug. 2015

KEYSTONE
MICROTECH

KT-61205/KT-61205W/KT-61220/KT-61220W

SIO Plus Series Controller

User's Manual

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Important Note

Radiation Explosure Statement

This equipment complies with CE/FCC radiation exposure limits set forth for anuncontrolled environment. This equipment should be installed and operated withminimum distance 20cm between the radiator & your body.

FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to thefollowing two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interferencethat may cause undesired operation.

Caution:

Any changes or modifications not expressly approved by the party responsible forcompliance could void the user's authority to operate this equipment.

This product contains a radio transmitter with wireless technology which has beentested and found to be compliant with the applicable regulations governing a radiotransmitter in the 2.400GHz to 2.483GHz frequency range.

The KT-61205 SIO Plus controller is a standalone remote IO controller that can connect sensors and turn on/off relays or switches for application over Ethernet and IP-based networks.
A PLC-like logic processing engine is builtin the KT-61205, so the user can program this device for process control, data aquitision or other automation application.
One of the most powerful feature of the SIO Plus controller is the capability to connect to a cloud on the internet, call K-Cloud service. The K-Cloud service provides the user an infrastructure for remote sensor reading and output control over the Internet without the complex network settings of firewallor VPN (virtual private network).

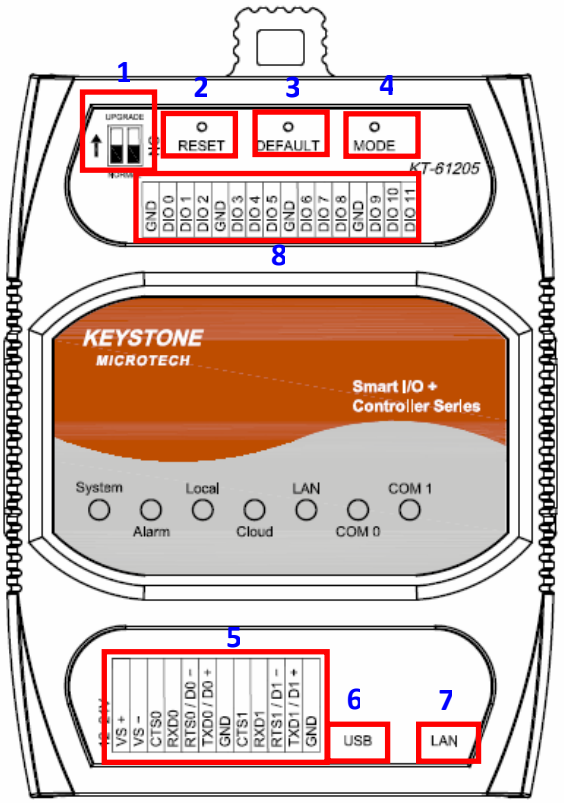
This user's manual guides you through the following steps to understandthe basic operation of the KT-61205 Smart-IO controllers:

- **Understand the hardware**
- **Install the hardware**
- **Download and install the PC Software**
- **Configure and monitor the Smart IO controller via the PC Software**
- **Write and update an advanced control block (ACB) program to the SIO plus controller**
- **Use the K-Cloud service**

1. Understand the hardware

Hardware description:

KT-61205 product overview:



1.Normal/Setting: Normal Mode or Setting Mode

2.Reset : System Reset Push Button.

3.Default: Reset to Factory default setting，not include Modbus setting.

4.Mode : Switch to Local Mode or Cloud Mode.

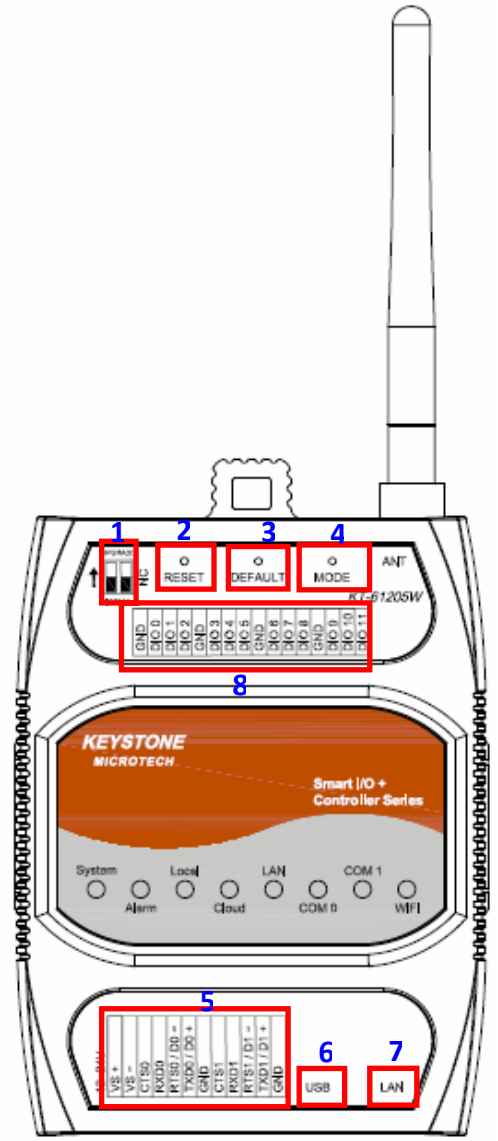
5.Terminal Block 1 : For DC 12~24V power input and RS232/RS485 signal connection.

6.USB: USB2.0 Pen-drive plug inut.

7：LAN: Ethernet RJ45 cable plug input.

8：Terminal Block 2 : Digital Input and Output Terminal.

KT-61205W product overview:



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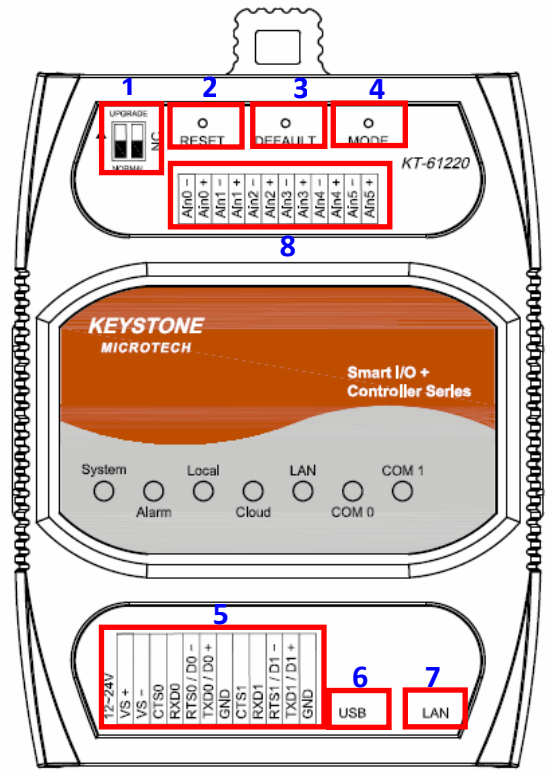
6.USB: USB2.0 Pen-drive plug inut.

7：LAN: Ethernet RJ45 cable plug input.

8 : Terminal Block 2 : Digital Input and Output Terminal.

KT-61220 product overview:



1.Normal/Setting: Normal Mode or Setting Mode

2.Reset : System Reset Push Button.

3.Default: Reset to Factory default setting，not include Modbus setting.

4.Mode : Switch to Local Mode or Cloud Mode.

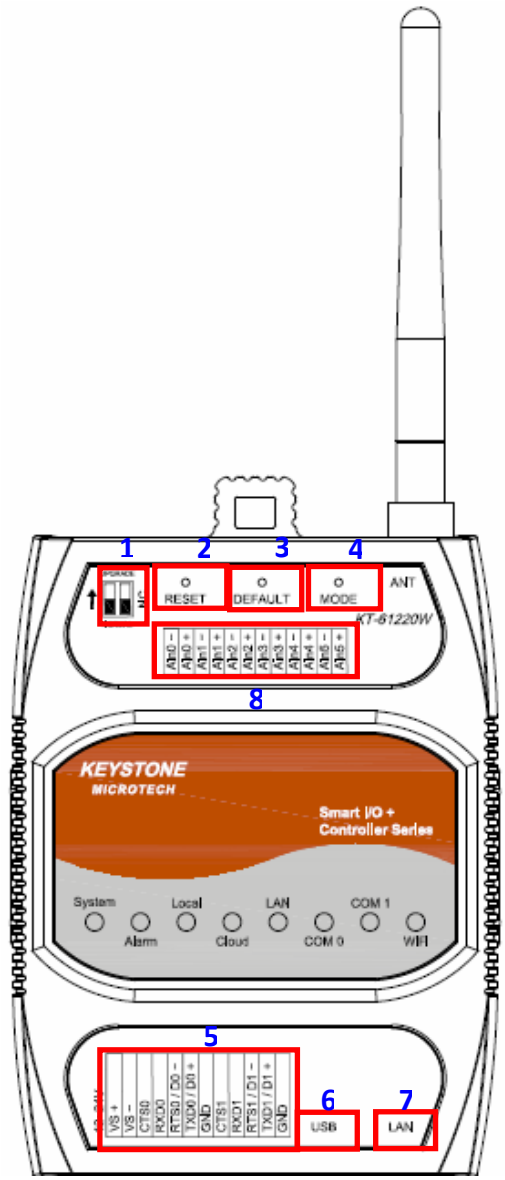
5.Terminal Block 1 : For DC 12~24V power input and RS232/RS485 signal connection.

6.USB: USB2.0 Pen-drive plug inut.

7：LAN: Ethernet RJ45 cable plug input.

8 : Terminal Block 2 :Analog Input (Voltage/Current)Terminal.

KT-61220W product overview:



1.Normal/Setting: Normal Mode or Setting Mode

2.Reset : System Reset Push Button.

3.Default: Reset to Factory default setting，not include Modbus setting.

4.Mode : Switch to Local Mode or Cloud Mode.

5.Terminal Block 1 : For DC 12~24V power input and RS232/RS485 signal connection.

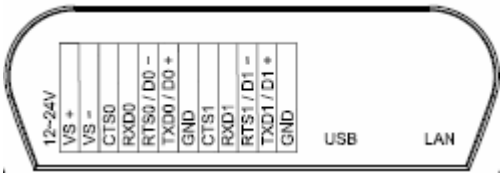
6.USB: USB2.0 Pen-drive plug inut.

7：LAN: Ethernet RJ45 cable plug input.

8：Terminal Block 2 : Analog Input (Voltage/Current)Terminal.

Panel Guide

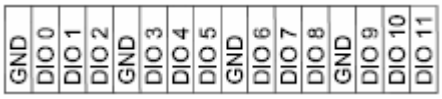
I/O Terminal Block 1 : (KT-61205/KT-61205W/KT-61220/KT-61220W)



Pin Assign Description:

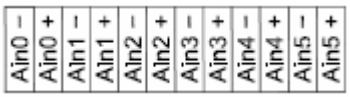
Signal	Pin Description	Specification
TXD0 **RTS0** **RXD0** **CTS0**	RS232 UART serial Port 0	Maximum baud rate: 115200bps
TXD0 / D0+ **RXD0 / D0-**	2-wire RS48 UART serial Port 0	Maximum baud rate: 921600 bps
TXD1 **RTS1** **RXD1** **CTS1**	RS232 UART serial Port 1	Maximum baud rate: 115200bps
TXD1 / D1+ **RXD1 / D1-**	2-wire RS48 UART serial Port 1	Maximum baud rate: 921600 bps
VS - / VS +	DC Power Input	+12V ~ +24V
USB	USB2.0 Pen-drive Plug	Save data into USB Pen-drive
GND	Signal GND	

I/O Terminal Block 2 : (KT-61205/KT-61205W)



Signal	Pin Description	Specification
DIO0 ~ DIO11	Digital Input/Output Port	S/W Configurable Digital Input Supprot: Type:Dry Contact, Wet Contact (NPN Type) Off Voltage : 0~ +3 Vdc, On Voltage: 5~50Vdc Over voltage protection: +50 VDC Digital Output Type: Sink Current Rating: 200mA/Channel Isolation: 3750 Vrms Over voltage protection: +50 VDC
GND	Digital Input/Output GND	

I/O Terminal Block 2 : (KT-61220/KT-61220W)



Signal	Pin Description	Specification
Ain0 ~ Ain5	Analog Input	S/W Configurable Current mode: 0 ~ 20mA; 4~20mA Voltage mode: 0~5V; -5V~+5V; 0~10V; -10V~+10V

		Resolution: 16-bits

LED Indicators:

LED	LED Status	Description
System	ON OFF Blinking	System is in Normal Operation System Power Off System is in Setting Mode
Alarm	ON OFF Blinking	Failed to upgrade firmware No alarm Equipment abnormally warning
Local	ON Blinking (100ms) Blinking (250ms)	Local Mode Module is in booting Module is in getting IP state
Cloud	ON Blinking (100ms) Blinking (250ms) Blinking (1s)	Cloud Mode Module is in booting Module is in getting IP state Module is failed to connect with Cloud Server
LAN	OFF ON Blink	Ethernet is link-OFF Ethernet is link-ON Ethernet got received packet
COM0	OFF	No data transmit

	Blinking(Green) Blinking(Amber)	COM0 RS-485 Mode transmit COM0 RS-232 Mode transmit
COM1	OFF Blinking(Green) Blinking(Amber)	No data transmit COM1RS-485 Mode transmit COM1RS-232 Mode transmit

Smart I/O+ Controller Series (KT-61205/KT-61205W/KT-61220/KT-61220W) Diversity

Main	Diversity
KT-61205	◎Ethernet 10/100 Mbps， ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎12 DIO
KT-61220	◎Ethernet 10/100 Mbps， ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎6 AI
KT-61205W	◎Ethernet 10/100 Mbps， ◎2.4GHz, IEEE802.11b/g/n 1T1R ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎12 DIO
KT-61220W	◎Ethernet 10/100 Mbps， ◎2.4GHz, IEEE802.11b/g/n 1T1R ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎6 AI

2. Install the hardware

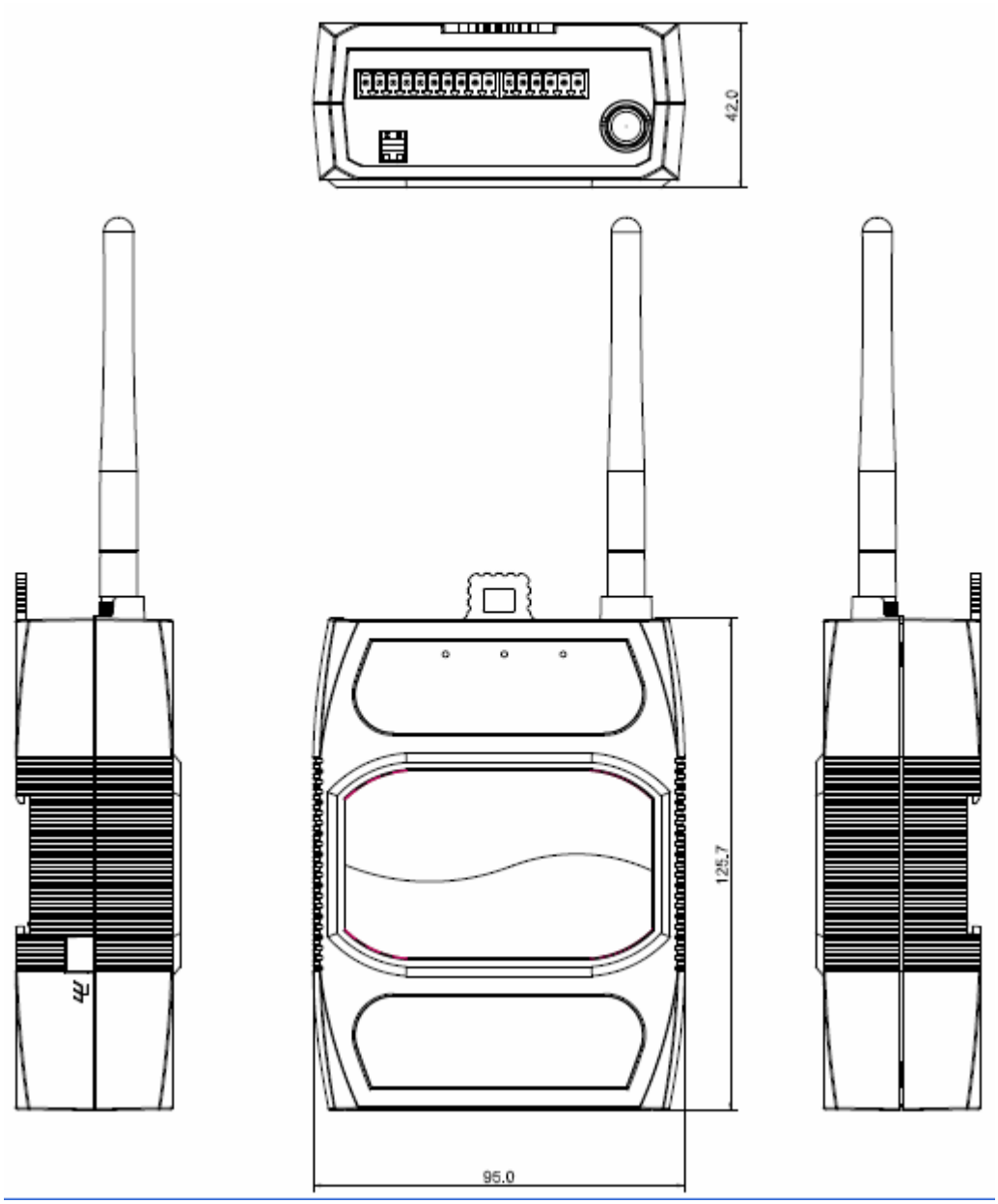
(2.1) Connecting the power：Connecting the 12 to 24 VDC power line into KT-61025/LT-61205W/KT-61220/KT-61220W SIO Plus Series terminal block (TB)。

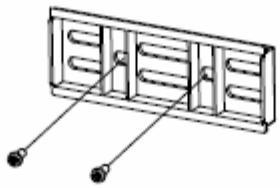
(2.2) Connecting to Network: Connect the SIO Plus Series to the Router with an Ethernet cable。

(2.3) Connecting to I/O device: Connect the SIO Plus Series RS232/RS485 serial port to another RS232/RS485 I/O device.

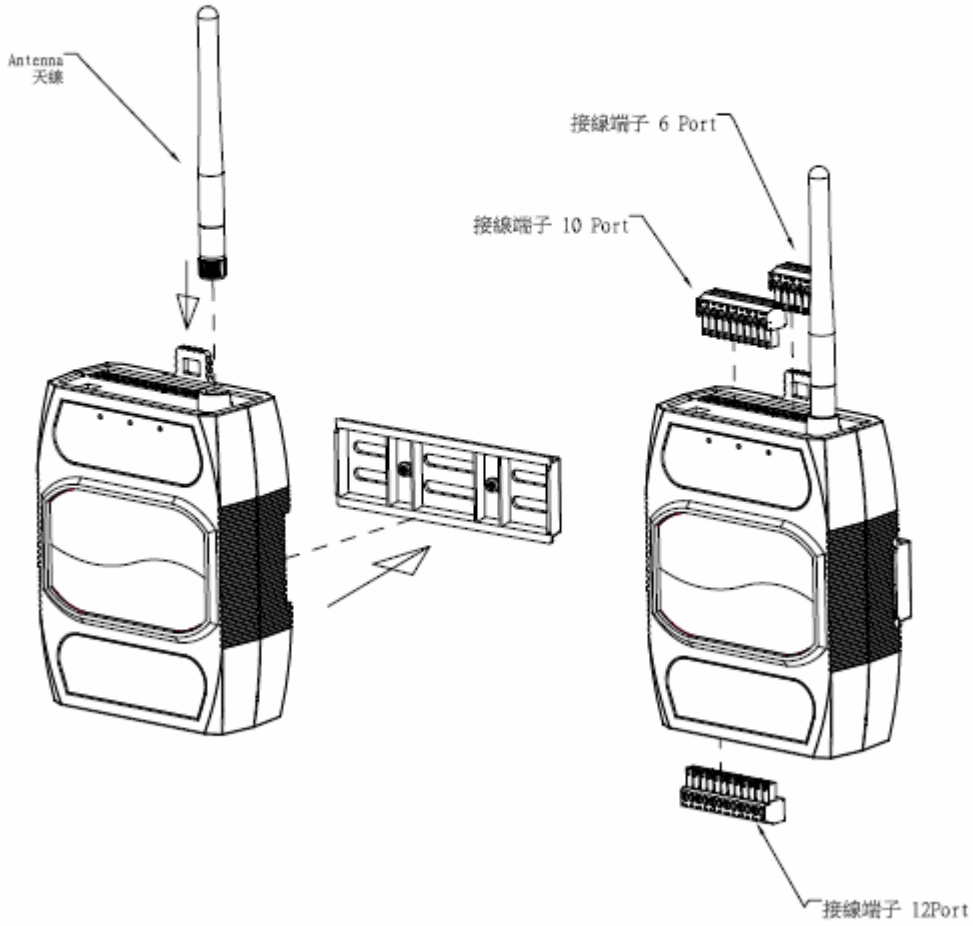
(2.4) Mechanical drawing and assembly as following.

(a). KT-61205/KT-61205W

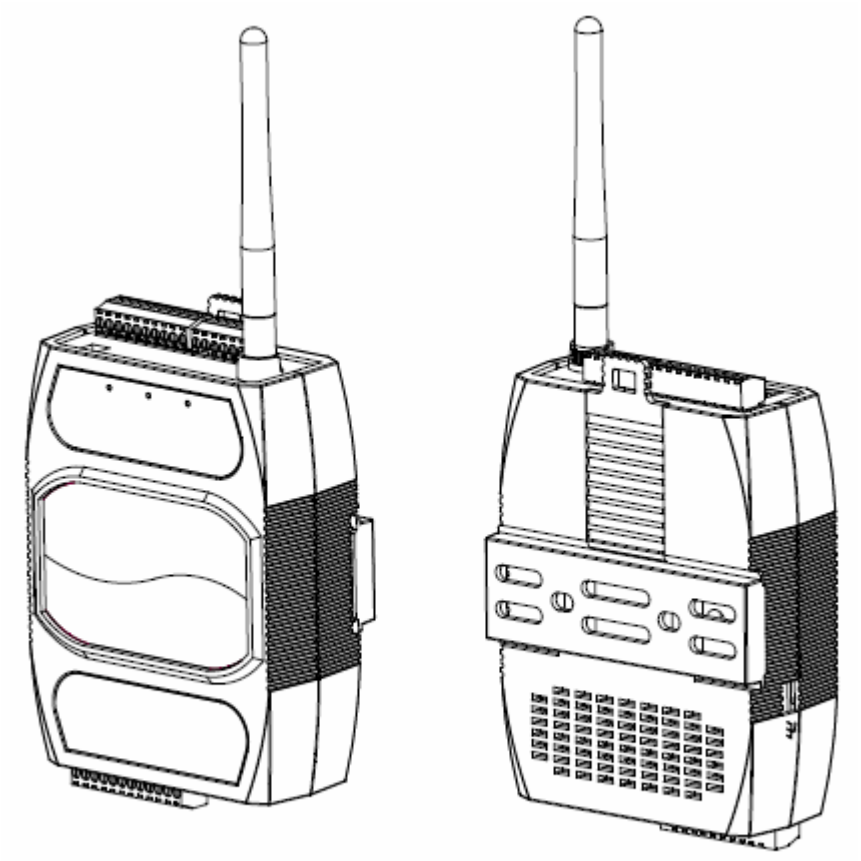




M4 自攻螺絲 QTY:2pcs

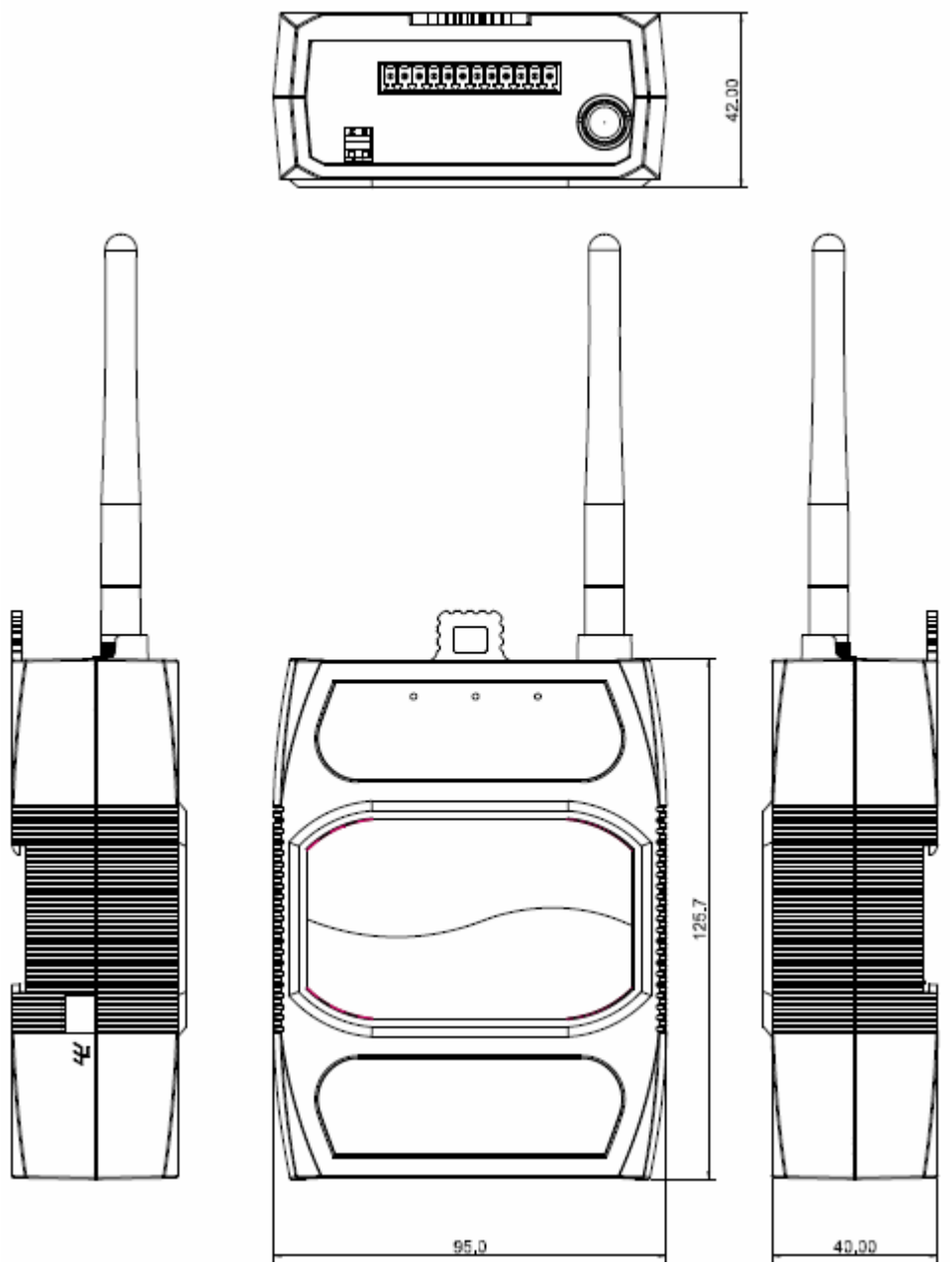


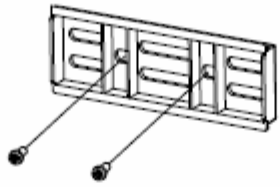
Wallmount 及配件組裝示意圖



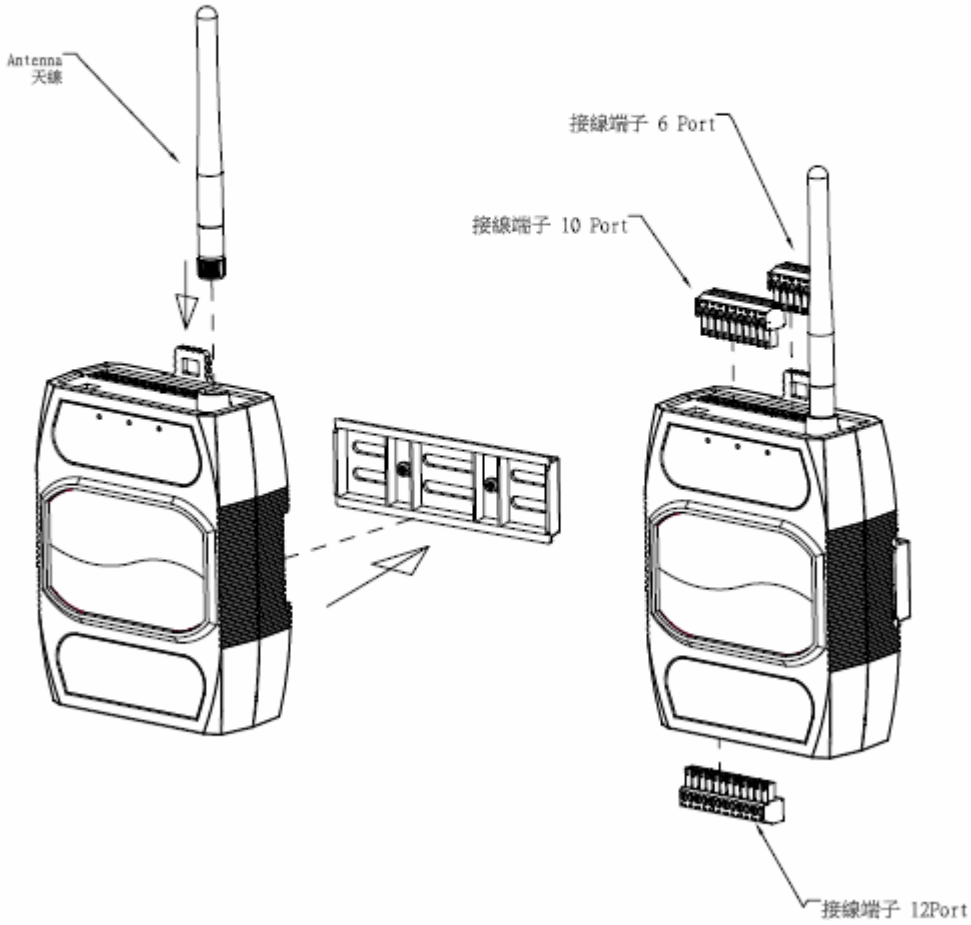
安裝完成示意圖

(b) KT-61220/KT-61220W

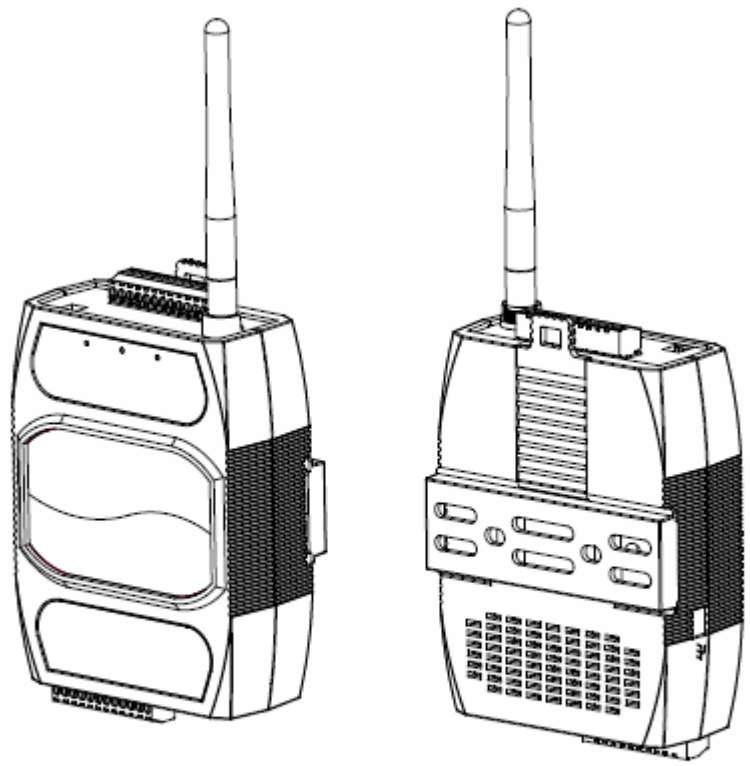




M4 自攻螺絲 QTY:2pcs



Wallmount 及配件組裝示意圖



安裝完成示意圖

3. Download and install the PC Software

"Smart IXO Studio" is a PC Windows program to

- Configure the SIO Plus controllers
- Edit and download programs to the SIO Plus controllers
- Manage cloud accounts
- Design and manage IXO-View (an user interface for APP) projects.

Please download the zipped PC program from our web-site and unzip it to a directory. The support Windows platforms are :

- Windows Vista and above(Windows 7, Windows 8)
- .Net Framework 4.0 and above.

4. Configure and monitor the SIO plus controller via the PC program

Before you use the PC program to configure the SIO plus controller, please make sure your PC is connected with the controller in the same Ethernet switch in the intranet.

Open the "Smart IXO Studio" PC software by clicking the "SmartIXOStudio.exe" file and you will see the main screen as shown in Figure 1.

Figure 1: Main screen of the PC program

Please click on the “Device Setting” icon and you will see the SIO plus controller on the list as shown inFigure 2

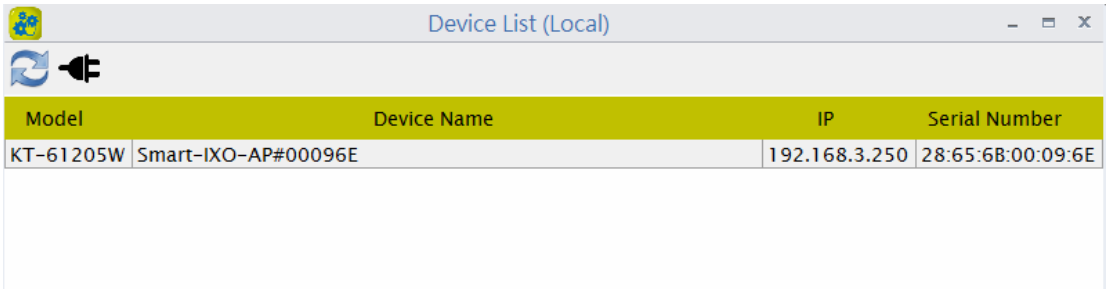


Figure 2: Device list searched in the intranet

Note:The default device name is of the format like: Smart-IXO-AP#0000XX with different serial numberafter the # sign for different SIO plus controllers. Here, we select the Smart-IXO-AP#00096E.

Double-click the device and a dialog will pop up to ask you for the management password of the device as shown in Figure 3 . Please enter the default password: **admin**, and select OK.

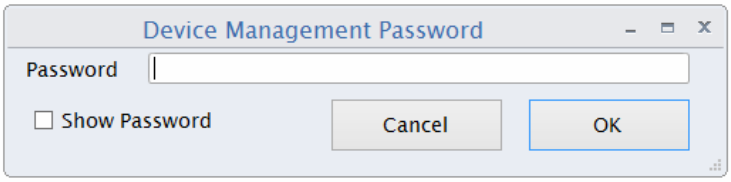


Figure 3: Enter the device management password

Then, a real-time display for the SIO plus controller is shown asFigure 4. The display will show the real-time value or status of the programming components used in the advanced control block (logic programming for SIO plus controllers).

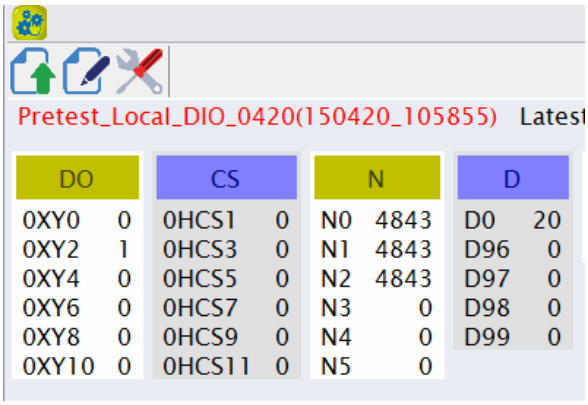


Figure 4: Real-time display of the local device

5. Write and update an advanced control block (ACB) program to the SIO plus controller

On this section, we will write a simple control program (calledas an“advanced control block(ACB)” program) to use the following resources:

- 2 digital inputs: DIO0 and DIO1 (representd as 0XY0 and 0XY1 at the program).
- 2 digital outputs: DIO2 and DIO3 (represented as 0XY2 and 0XY3 at the program).
- 1 counter: CS0 (CS represents for Counter-Set and CC for Counter-Clear).

Connect DIO0to a push button (called **Set-BTN**) and DIO1 to a second push button(**Reset-BTN**).

And, connect DIO2 to one 24VDC LED(called**LED1**) and DIO3 to the other 24VDC LED (called**LED2**).

The I/O wirinng diagram is shown as Figure 5below.

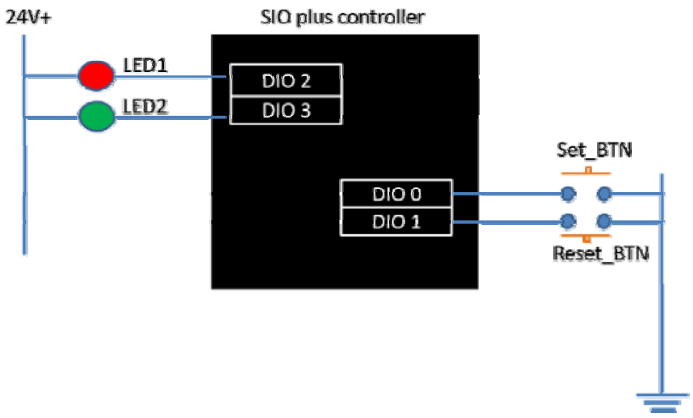


Figure 5: IO Circuit for the demo

Everytime you push-down/up the Set_BTN, the LED1 will be turned on/off, and the the counter (CS0) will add one.
Once the CS0 counter is 5 (the threshold) or above, the LED2 will be turned on.
However, you can push-down/up the Reset_BTN to reset the counter to zero and the LED2 will be turned off then.

Here are the steps to enter the advanced control block program on the PC program:
(5.1) Back to the main screen (as Figure 1), click the "Program Editing" icon, you can open the editor program.
(5.2) Select the "Advanced Control Block" page and click the "Add New Program"icon on the top-left corner as shown in Figure 6.

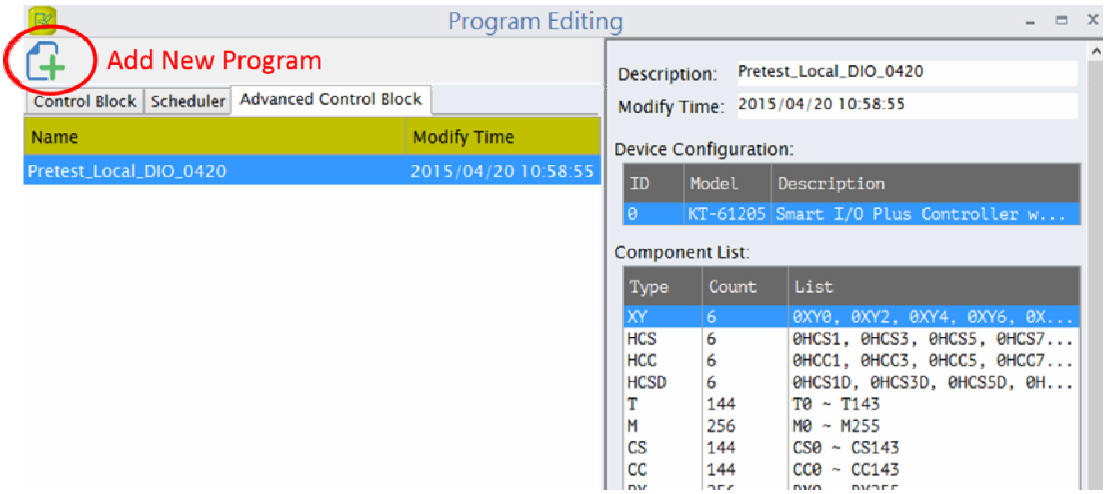


Figure 6: Add a new advanced control block program

You will see the project editing screen as Figure 7.

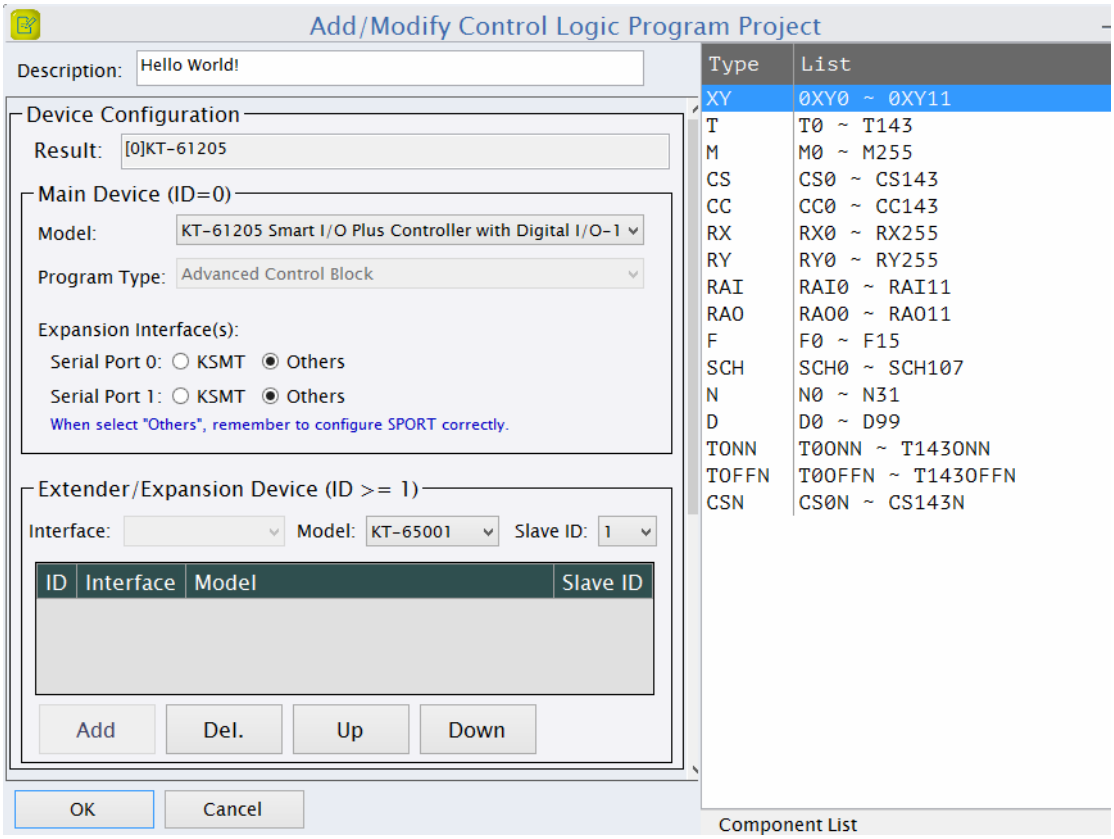


Figure 7: ACB Project Window

(5.3) Please enter the "Description"(the program name) : Hello World! and select the Main Device Model : KT-61205 Smart I/O Plus Controller with Digital I/O – 12ch as shown in Figure 7. You will see on the right side for all the resources you can use in your advance control block program, the component list.

Press OK and go to the next step.

(5.4) Youcan start to **edit your first advanced control block program "Hello World!"**

(5.4.1) The Advanced Control Block Editor is as following (Figure 8).

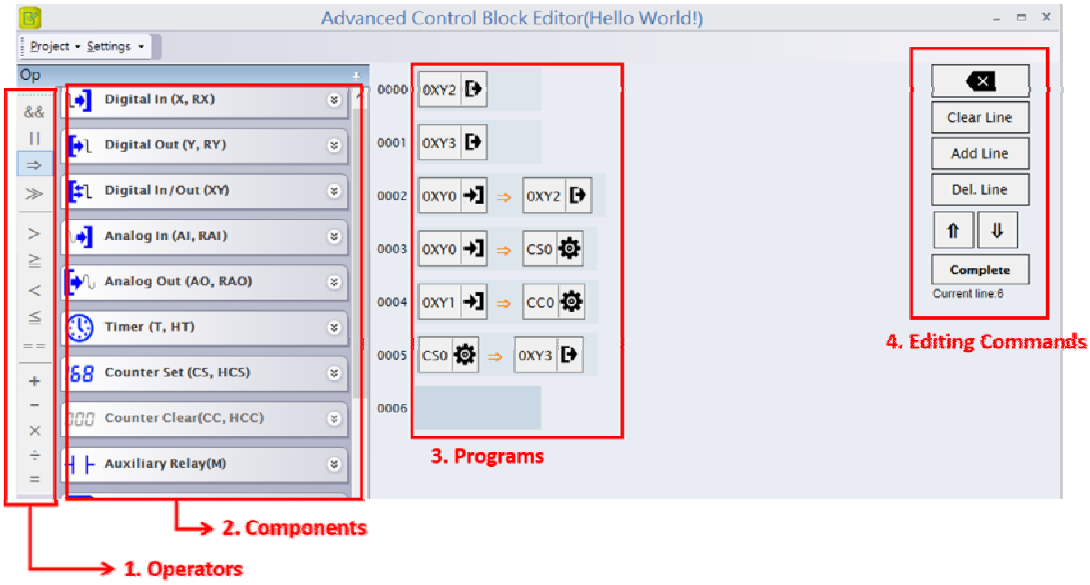


Figure 8: ACB Editors

Where you canpress the buttons at the "Editing Commands" panel to edit the control block program, like "Add Line" to add a new program line or "Del Line" to delete a program line. A line of the control block program is composed of components and operators. Please click the "Operators" and "Components" panels to select the required components.

(5.4.2) Configure two DIO ports (DIO2 and DIO3) to Digital Output:
Click on the "DIGITAL IN/OUT(XY)", you can see all the DIOs are configured as Inputs as default. Select the 0XY2 and change the In/Out Modes as Output, as shown inFigure 9

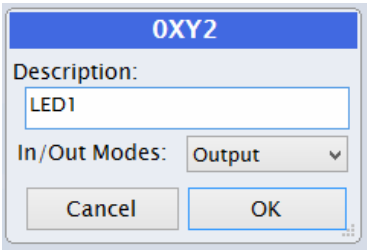


Figure 9: Configuring DIO2 as OUTPUT mode

Repeat the same steps to configure 0XY3 as output mode.
Now, both the 0XY2 and 0XY3 are now configured as"Output" ports.

(5.4.3) Now, you can enter the following program

0XY0 =>0XY2

0XY0 =>CS0

0XY1 => CC0

CS0 =>0XY3

Click the CS0 to set the Count Threshold to 5 as shown inFigure 10 .

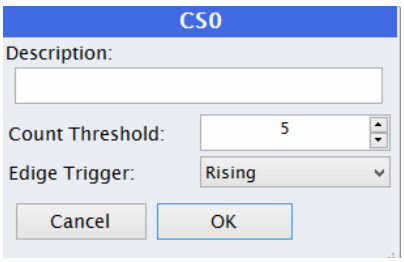


Figure 10: Set Count Threshold to 5

After editing the above program and setting the threshold value for CS0, you can press“Complete” and the save the program by replying “Yes” to the “Save Code Confirm” dialog. The advanced control block program will be saved as the name Hello World!with its modifytime shown in the ACB project window.

(5.5) **Update the program to the Smart IO controller**:

Back to the main screen, please follow the procedures on section4 and press the “Update program” icon (as Figure 11) on the up-left corner to choose the advanced control block program for updating.

Figure 11: Update program to a local controller

Select the program (Hello World!) and confirm to update. Then, you will see the following real-time display of the resources

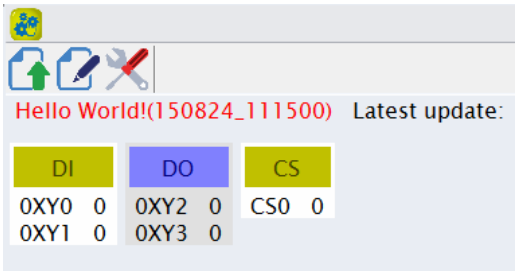


Figure 12: Realtime display in local mode

Now, you can start to push the Set_BTN and monitor the values of DIO0, DIO1, DIO2, DIO3 and CS0 (counter) on the above screen.

6. Usethe K-Cloud service:

To enable the K-Cloud service, you must prepare a SIO plus controller which has not been registered to the K-Cloud service yet. And, you must connect the Smart IO controller to an Ethernet port which is able to connect to the Internet. (Say, an internet gateway or SOHO router with several Ethernet swich ports.)

Please follow the procedures listed below to use the K-Cloud service:

- Create a company cloud space and the company administrator account
- Register the SIO plus controller to the company space
- Add a user account
- Assign the permission rights to the user account
- Add a cloud remote input (RX) to the simple “Hello world” program
- Use cloud remote control

(6.1) Create a company cloud space and the company administrator account

Back to the main screen, please follow the procedures on section 4 and press the “System Setting” icon (**as below**) to configure the SIO plus controller.

You will see the following “Device Setting” page as shown onFigure 13 . Please click the “New Company” icon at the CLOUD SERVICE to add a new company account.

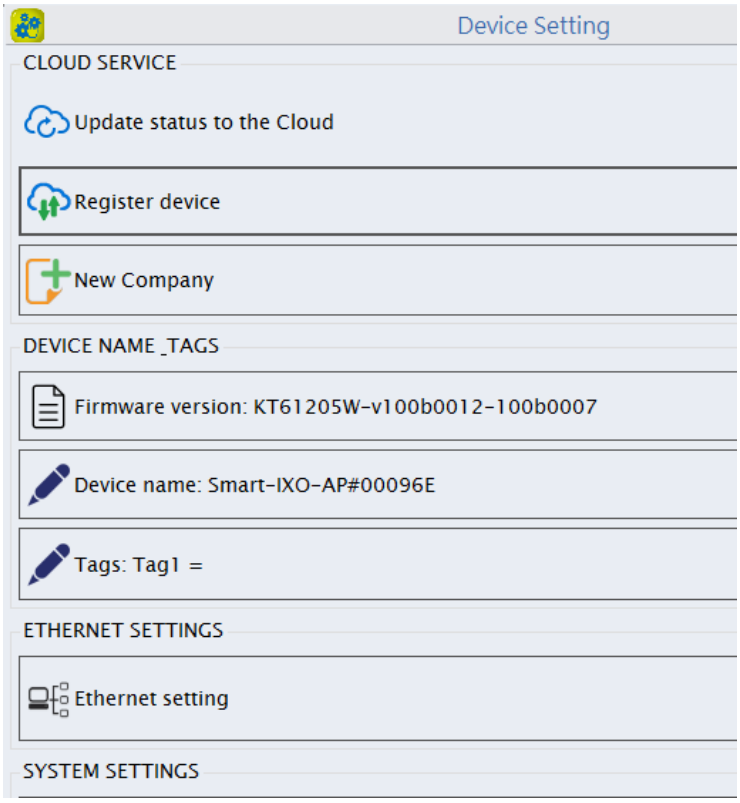


Figure 13: Device Setting page

You will be asked to enter more information for the new comapany as Figure 14

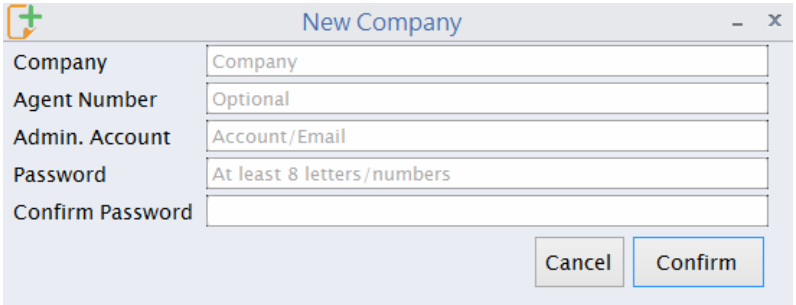


Figure 14: Create the company account

Please type in your own company name and your email address as the administrator account. It is suggested to use a valid email account. Agent Number is optional. Your distributor or agent for the SIO plus controller will provide the Agent Number to you. Press “Confirm” and wait for a few seconds and you will get a “Operation Success” confirmation. Now, you have successfully created a company space and an administrator account at the K-Cloud service.

(6.2) Register the SIO plus controller to the companyspace

Back to the “Device Setting” page (Figure 13), you can now click the “Register device”.

You will be asked to enter the company, Admin account and Admin password.Please enter the information you just type in the previous section (Figure 14). The following information, as shown in Figure 15, will be popped up for confirmation.

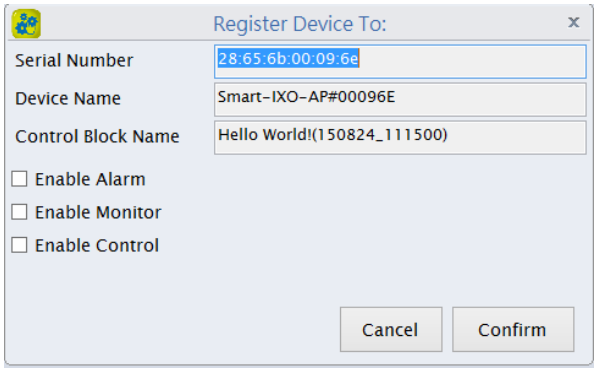


Figure 15: Register device to the cloud

After successfully register the controller to theK-Cloud service, you can log into the company space and check the status for the device.Go back to the main screen (Figure 1) and click the “Cloud Service”. You will see the the Devices(Cloud) page, as shown inFigure 16, which displays all the devices that belong to the company cloud space.At this moment, there is only one SIO plus controller register to the company cloud space. However, you can register more controllers to the cloud space following the same steps previously.

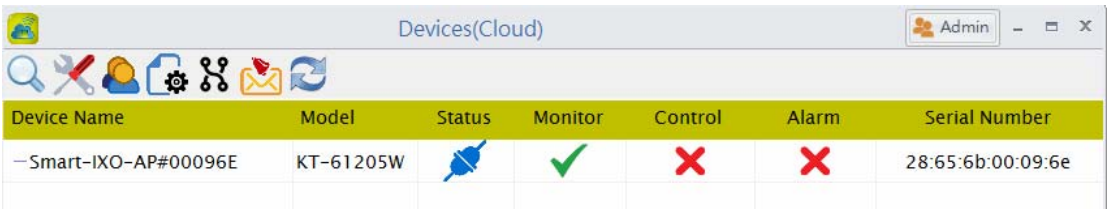


Figure 16: On-Line devices in the cloud

Click on the“--Smart-IXO-AP#00096E” line, you will see a real-time display of the status update of SIO plus controller as Figure 17.

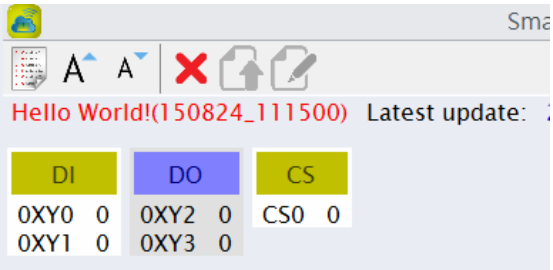


Figure 17: Realtime display in Cloud mode

(6.3) Add a user account.

In addition to the previlieged administrator account, you may want to create someuser accounts for the other membersin the company. The operation permission of the user account can be assigned by the administrator.

Here are the steps:

(6.3.1)In the “Cloud Service”, go to the cloud main page(Devices(Cloud)), click on the “Account Management” icon as Figure 18.

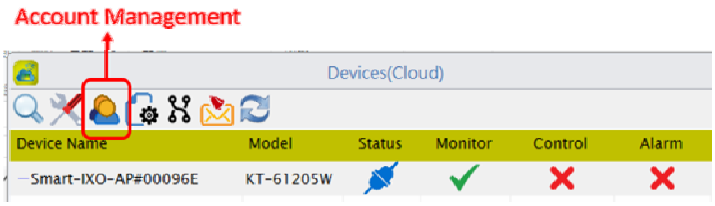
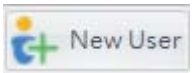


Figure 18: Click the account managment icon

Please click the New user icon on the upper right corner as below:



You will be asked to provide the information for the new user account as Figure 19.

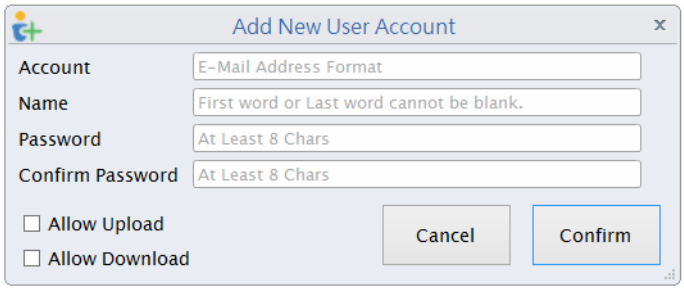


Figure 19: Add New User Account

Please add auser account for your company. Note that, as an administrator, you must assign a password for the the member account. However, as the member log into the

system for the first time, he/she will be asked to change the password then.

The account management screen will show the 2 accounts, Admin and the new created user account 123, as below:

Figure 20: All the accounts in the company

(6.4) Configure the permission rights to the member account.

Back to the Devices(Cloud)page(Figure 16), please click on the “Setting” icon (Figure 21) to configure the permission rights for the user account.

Figure 21: Cloud Device Setting

As shown inFigure 22, we assign the “Monitor” and“Control”permission rights to the member account “123” for this controller.

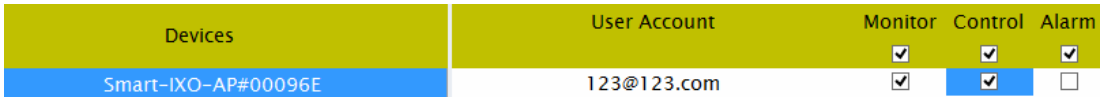


Figure 22: Change the permission for a user account

The “Monitor” permission provides user“123” the rights to monitor the status of the SIO plus controller. And, the “Control” permission allows user “123” to send the remote on/off command to the SIO plus controller. We will use a cloud remote input (RX) to show the “Control” function on the next section.

(6.5) Add a cloud remote input (RX) to the “Hello world” program

Back to the main screen and click the “Program Editing”. Press the “Hello world” program file and choose to “Edit” the program. Then add the following line to the orginal program (5.3.3):

RX0 => CC0

Then the new program is shown as below inFigure 23.

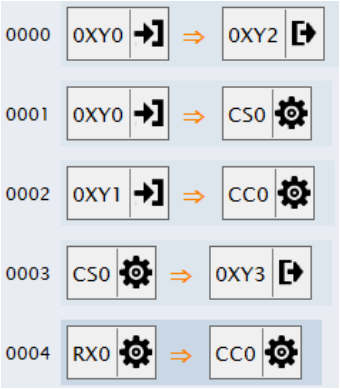


Figure 23: Add a new line to the ACB program

RX0is a cloud remote input for the SIO plus controller. It allows the end-user to send the on/off command to change the status of a virtual input of the controller. The command is issued from the PC program and forwarded by the K-Cloud service to reach the Smart IO controller.
Please follow the procedures on (5.5) to update the new code the the Smart IO controller and you can see the real-time display as Figure 24.

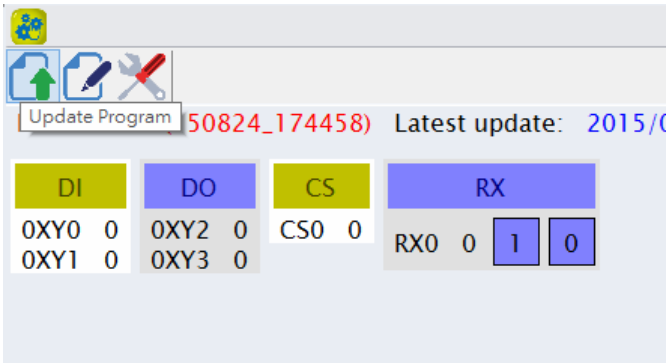


Figure 24: A new RX0 component is shown in realtime

A new component, RX0, is shownon the screen. You can change the status of RX0 by pushing the 1 or 0 button of RX0 . This is ,however, just a short-distance local Wi-Fi remote control. On the next section, we will perform a long-distance cloud remote control over the Internet.

(6.6) Use cloud remote control

Back to the main screen, click on the Account to logout as shown in Figure 25.

Figure 25: Account Logout

Please logout from the administrator account by clicking Logout button as Figure 26.

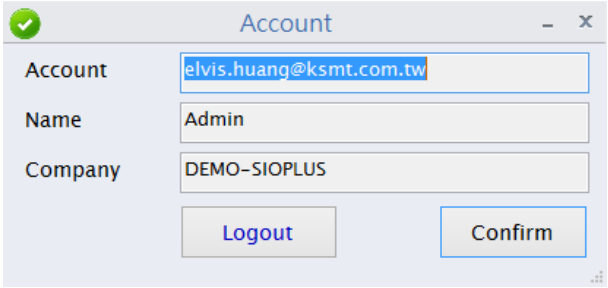


Figure 26: Loglout confirm

Please login againwith the new user account you just created on Sec. (6.3).

You will be asked to activate a new password. Please type-in a new password and confirm again.You are now logging as the new user.You can click the --Smart-IXO-AP#000XXX to get the Cloud status update and do remote control by pressing the 1or 0 button of RX0

It is a remote control from the Internet, so you can go to the place far from the Wi-Fi coverage of the Smart IO controller and reset the counter CS0 and turn off the LED2 for the example on section 5.

KT-635XXCloud Enabler Series

User Manuals

Version 1.0, Aug. 2015

KT-63511Cloud Enabler

PLC(Programmable Logic Controller) and HMI (Human-Machine Interface) devices can use the KT-635xxcloud enablerto connect to a cloud service, so that the users can control and monitor these devices remotely via the APP of their own smart phones or tablet PCs. With the assistance of the push-based notification service, PLC and HMI can deliver alarm notifications or emails to the usersin realtime. In addition, the cloud enabler also provides a data-logging function, with a USB pen-drive plugged to the device, the monitoring and controlling register data will be logged and saved as CSV files into the pen-drive.

The cloud enabler provides a 10/100 Ethernet to connect to the public cloud service in the internet. As a Modbus slave device, the cloud enabler also provides a RS-485 port to connect to the Modbus master devices, like PLC or HMI. As illustrated in Figure 27, you the see the application architecture of the cloud enablers.

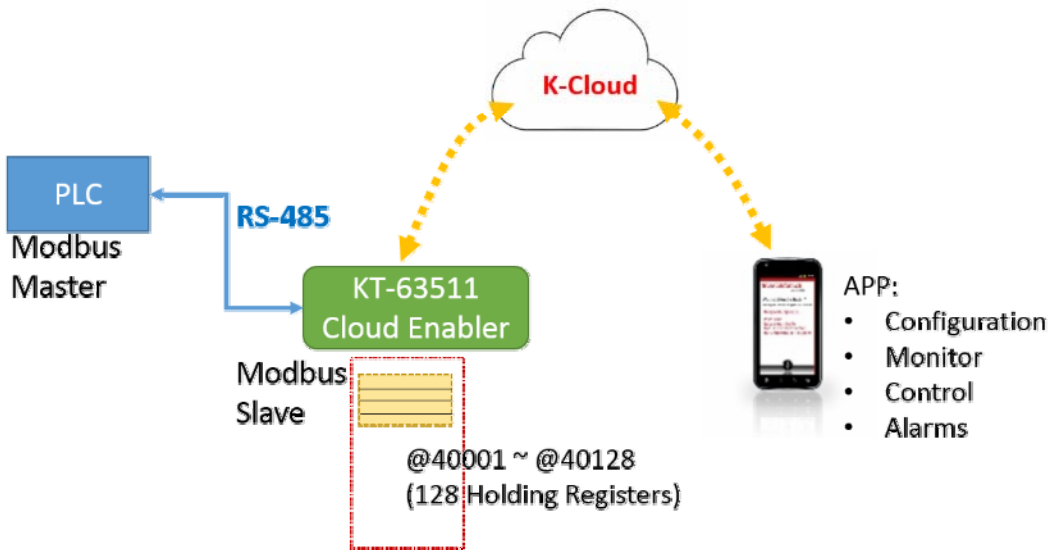


Figure 27: System Architecture of the KT-63511 cloud enablers

This user manual will guide you through the following chapters to understandthe operations of the KT-635xxCloud Enabler:

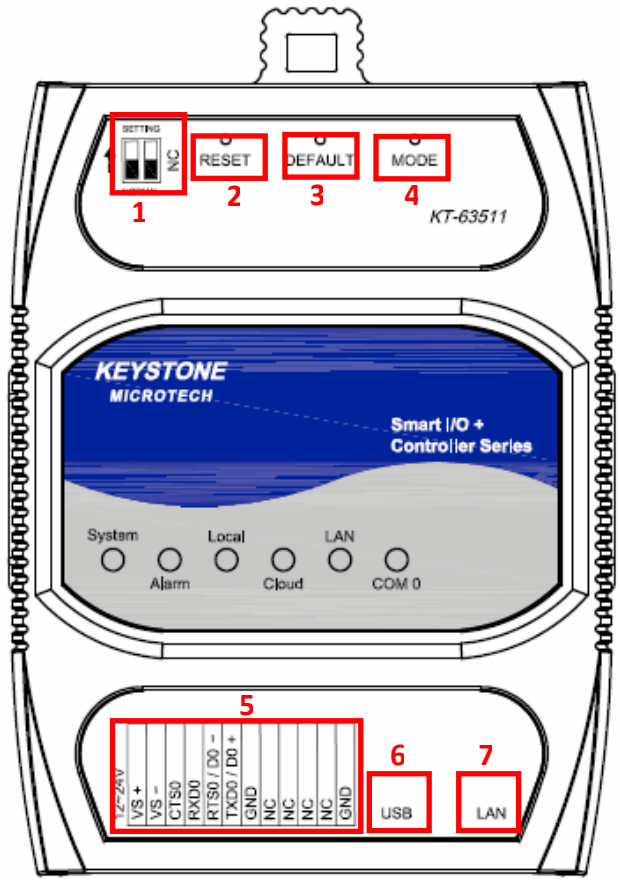
- **Understanding the hardware**
- **Installing the hardware**
- **Downloading and installing the Android APP**
- **Creating the company, system administrator and user accounts**

- **Configuring the cloud enabler**
- **Configuring the mobus registers**
- **Data logging**

1. Understanding the hardware

Hardware description:

KT-635xxCloud Enable product overview:



1.Normal/Setting: Normal Mode or Setting Mode

2.Reset : System Reset Push Button.

3.Default:Reset to Factory default setting，not include Modbus setting.

4.Mode : Switch to Local Mode or Cloud Mode.

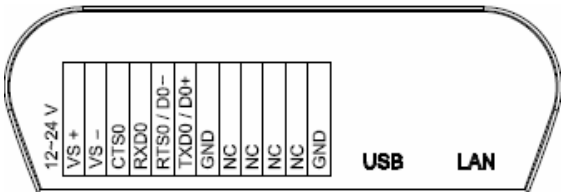
5.Terminal Block: For DC 12~24V power input and RS232/RS485 signal connection.

6.USB: USB2.0 Pen-drive plug inut.

7：LAN: Ethernet RJ45 cable plug input.

Panel Guide

I/O Terminal Block:



Pin Assign Description:

Signal	Pin Description	Specification
TXD0 **RTS0** **RXD0** **CTS0**	RS232UART serial Port	Maximum baud rate: 115200bps
TXD0 / D0+ **RXD0 / D0-**	2-wire RS48 UART serial Port	Maximum baud rate: 921600 bps
VS - / VS +	DC Power Input	+12V ~ +24V
USB	USB2.0 Pen-drive Plug	Save data into USB Pen-drive
GND	Signal GND	

LED Indicators:

LED	LED Status	Description
System	ON OFF Blinking	System is in Normal Operation System Power Off System is in Setting Mode
Alarm	ON OFF Blinking	Failed to upgrade firmware No alarm Equipment abnormally warning
Local	ON Blinking (100ms) Blinking (250ms)	Local Mode Module is in booting Module is in getting IP state

Cloud	ON Blinking (100ms) Blinking (250ms) Blinking (1s)	Cloud Mode Module is in booting Module is in getting IP state Module is failed to connect with Cloud Server
LAN	OFF ON Blink	Ethernet is link-OFF Ethernet is link-ON Ethernet got received packet
COM0	OFF Blinking(Green) Blinking(Amber)	No data transmit COM0 RS-485 Mode transmit COM0 RS-232 Mode transmit

KT-635XX Cloud Enable Series Product Differentiation:

Main Model	Feature List
KT-63511	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 1 ports ◎128 Registers(SW)
KT-63511W	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎2.4GHz, IEEE802.11b/g/n 1T1R ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 1 ports ◎128 Registers(SW)
KT-63512	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎USB HOST 2.0，

	◎RS232/RS485 configurable port * 1 ports ◎256 Registers(SW)
KT-63513	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎128 Registers(SW)
KT-63514	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎256 Registers(SW)
KT-63514W	◎Cloud Enabler ◎Ethernet 10/100 Mbps， ◎2.4GHz, IEEE802.11b/g/n 1T1R ◎USB HOST 2.0， ◎RS232/RS485 configurable port * 2 ports ◎256 Registers(SW)

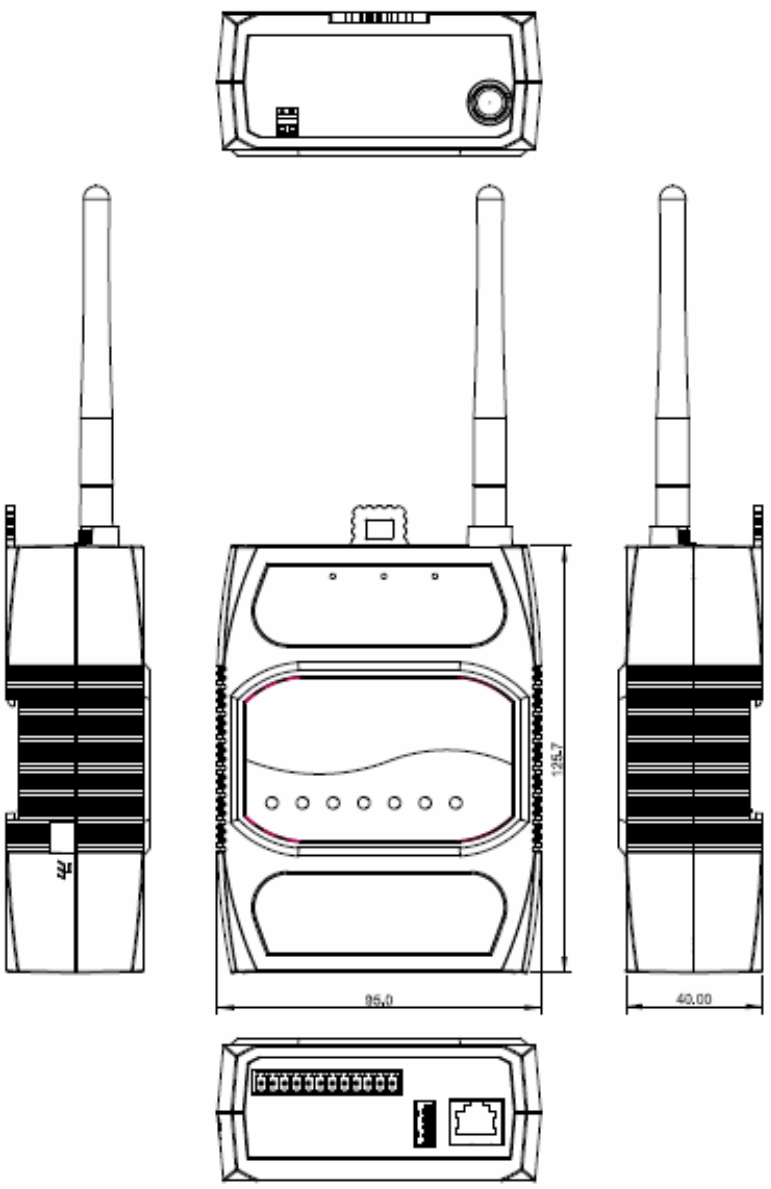
2. Hardware Installing

(2.5) Connecting the power：Connecting the 12 to 24 VDC power line into KT-635xx terminal block (TB)。

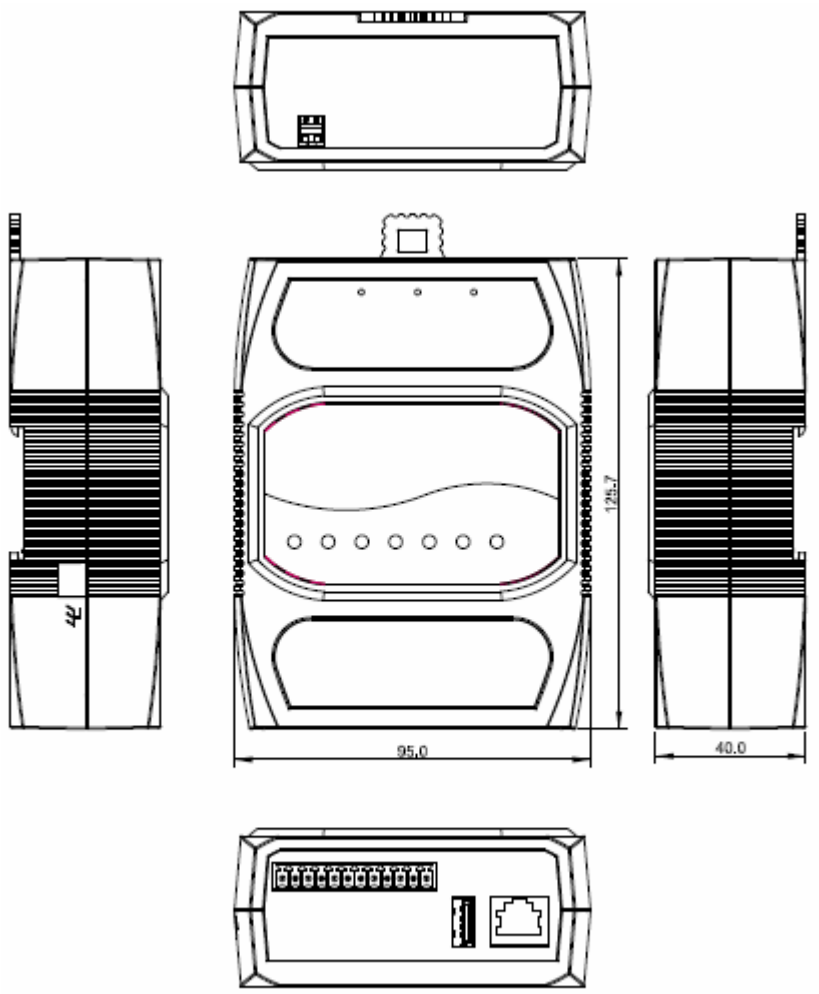
(2.6) Connecting to Network: Connect the KT-635xx to the Router with an Ethernet cable。

(2.7) Connecting to I/O device: Connect the KT-635xx RS232/RS485 serial port to another RS232/RS485 I/O device.

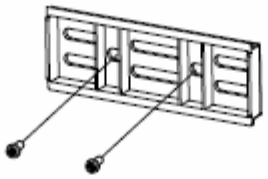
(2.8) Mechanical drawing and assembly as following.



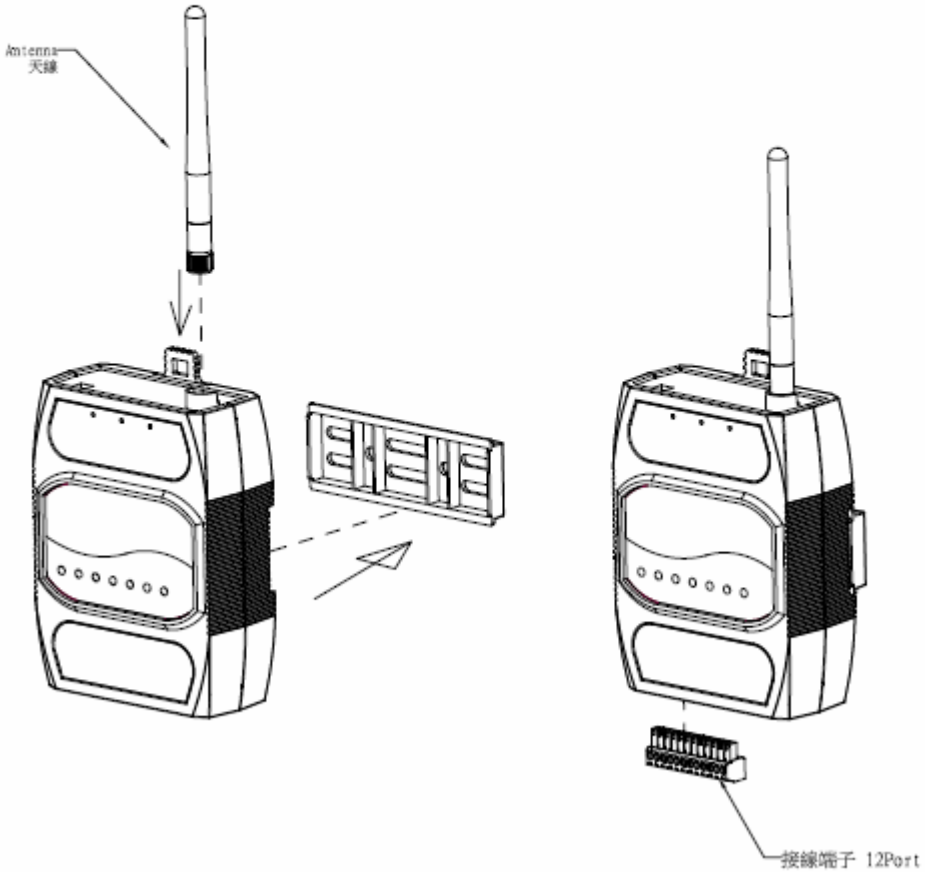
KT-63511W Cloud Enabler WIFI



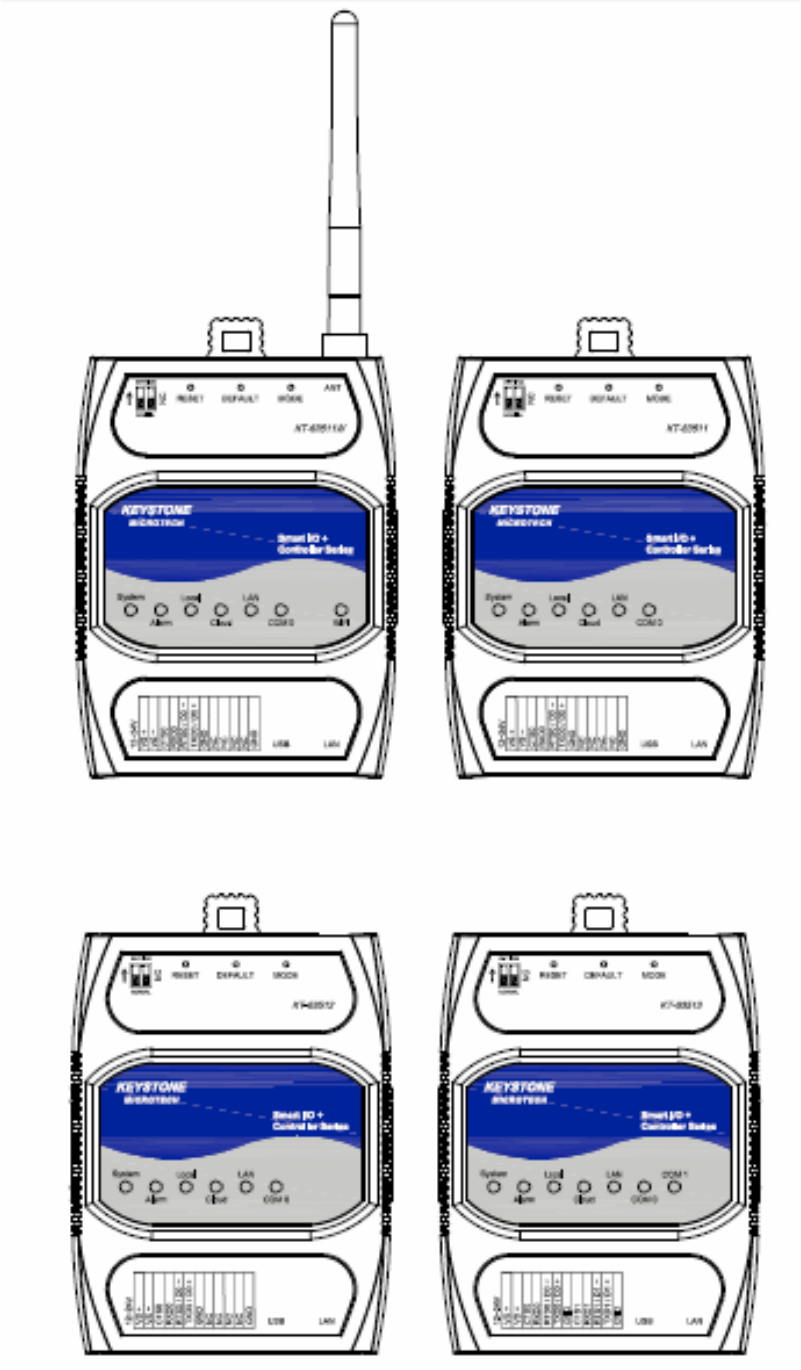
KT-63511 Cloud Enabler



M4 自攻螺絲 QTY:2pcs



Wallmount 及配件組裝示意圖


KEYSTONE
KEYSTONE
KEYSTONE
KEYSTONE

3. Downloading and installing the Android APP

Please follow the instrctions in the URL to download and install the APP.
https://bitbucket.org/cloudenabler/release/wiki/Home

4. Creating the company, system administrator and user accounts

Before you start to use the cloud service for the cloud enablers, you should open the APP to create a companyas well as the system administrator account.

(4.1) Create the company and the system administrator account:

Click to open the “Cloud Enabler” APP, you can touch the “Sign up a company”, then you will see the screen show asFigure 28 .

Following the hints in the APP to enter the information and touchCONFIRM, then you will create the company and system administrator in the cloud.

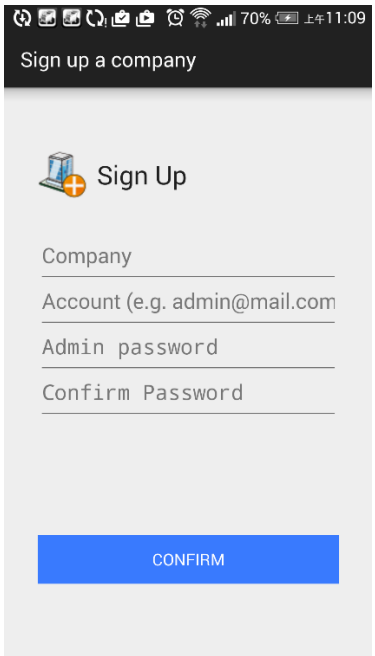


Figure 28: Sign up a new company

Please “SIGN IN” the system administrator account,then you will then be directly to the main screen as shown in Figure 29.

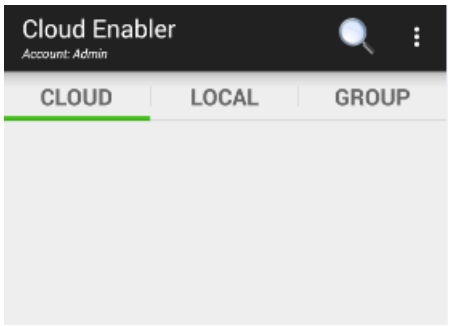


Figure 29: Main screen of the APP

(4.2) Add users accounts

Login in by the system administrator account, you can start to create more user accounts for the company. Please tocuh the ⋮ on the up left corner of the main screen(Figure 29) and select the Account Manage to create, edit and remove the user accounts. Please touch the on the up left corner of the "Account Manage" page, you can add a new user account for this company as shown in Figure 30.

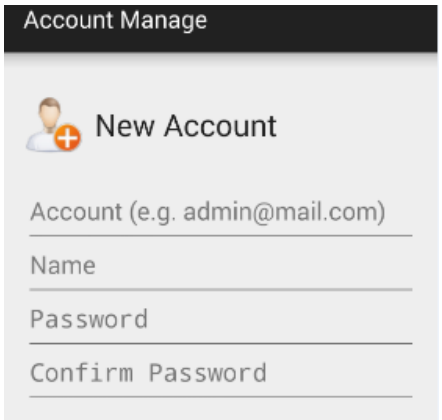


Figure 30: Add new user accounts

5. Configuring the cloud enabler

In this section, we will provide the steps to :

- **Configure the system settings of the cloud enabler**
- **Register the cloud enabler into the company account**

(5.1) Configure the system settings of the cloud enabler

Following are the factory default settings for the cloud enabler:

IP Default Settings:

- Static IP
- IP address: 192.168.3.250
- Net Mask: 255.255.255.0
- Dafault Gateway: 192.168.3.254
- DNS Server: 168.95.1.1

COM-0 Serial Port Default Setting:

- RS-485 mode
- Modbus Slave ID : 1
- Modbus Operation Mode: RTU/Slave
- Baud-Rate: 19200 bps
- Data bit: 8 bits
- Parity Check: None
- Stop bit: 1 bit

You can use the APP to adjust the settings of the KT-635xx cloud enabler, say, Modbus Slave ID, baud rate of the COM-0 serial ports…, etc). However, you should have your Androidmobile phone or tablet PC access the intranet via a Wi-Fi AP(Access Point) or router, so that the APP can directly connect with the cloud enabler in the intranet (not through the internet) as shown in Figure 31. Plug the RJ-45 cabel to the LAN port of cloud enabler and turn on the power.

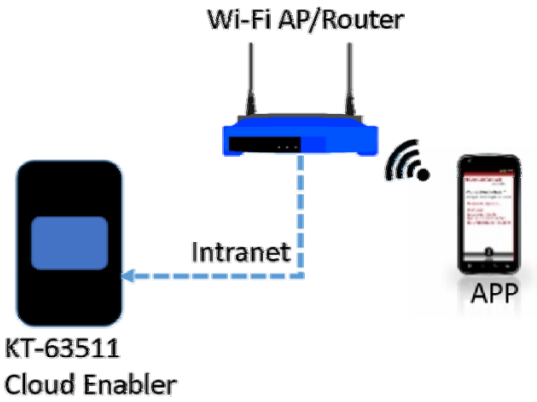


Figure 31: APP and Cloud-Enabler in the Intranet

Open the APP and SIGN-IN using the system administrator account (Admin), you will see the main screen page (as Figure 29), please slide into the “Local” page and you may see an icon (marked as CE) as shown in Figure 32.

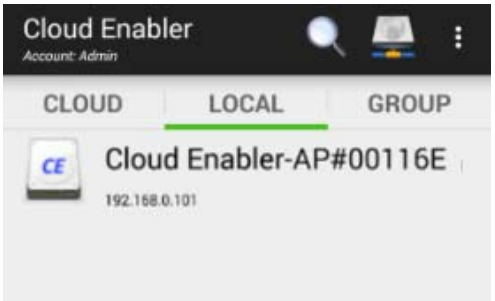


Figure 32: Local device screen

Please touch the icon and you will go to the “Local Settings” pages as shown inFigure 33 below . (The default “Device Password” is admin .)

If you cannot find the CE icon in Figure 32, you can touch the icon on the left-upper corner of the “Local” page and type-in the IP address of the cloud-enabler, then you will see the page as Figure 33 .

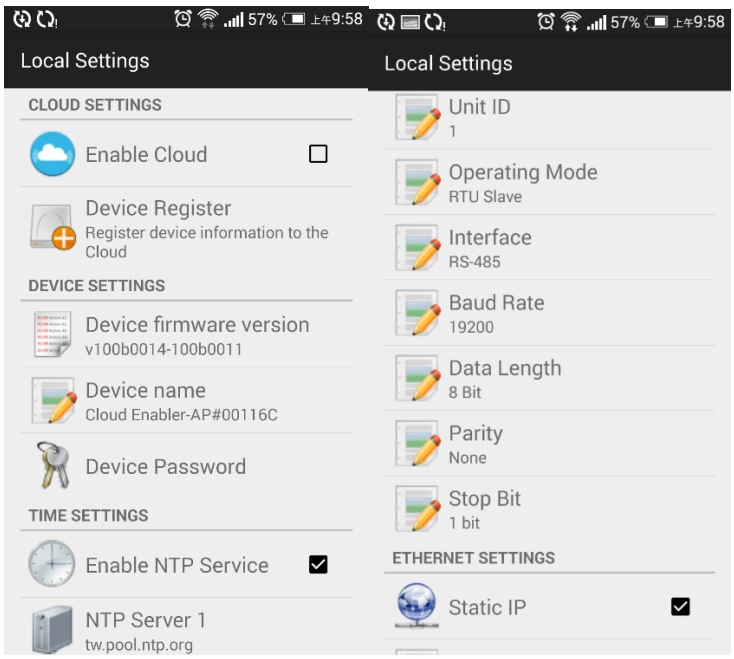


Figure 33: Local Settings for the cloud enabler

You can change the Cloud/Time/COM-0/ETHERNET settings of this cloud enabler. Some chnages of the setting might cause the re-start of the cloud enabler.

(5.2) Register the cloud enabler into the company account

The next step is to register the cloud enabler to the cloud company account so that the user can use the APP to remotely monitor and control this device. Following the steps on previous section (5.1), you can go to the Local Settings

page (Figure 33), please turn-on the “Enable Cloud” on CLOUD SETTINGs and touch the “Device Register”, the you will see the screen as shown on Figure 34.

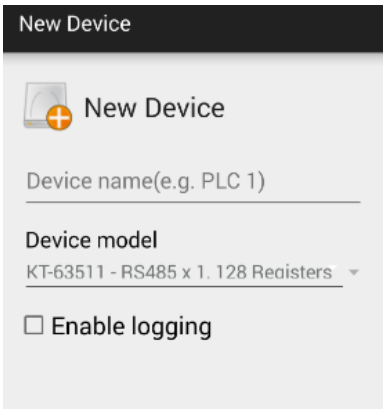


Figure 34: Register a new device to the cloud

Please type in the Device name and press CONFIRM, the cloud enabler will be registered to the company account. Back to the main screen, slide to the “CLOUD” page, you will see a cloud enabler shown as .

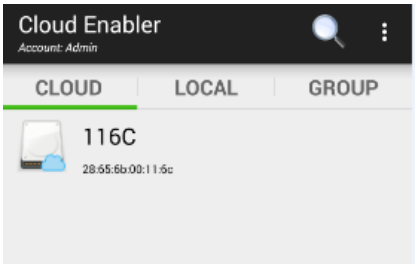


Figure 35: a cloud enabler 116C is online

In this case, the cloud enabler named “116C” is successfully registered and on-line in the company account.

6. Configuring the mobus registers:

The cloud enabler connects with the Modbus master device(PLC or HMI) via the RS-485 serial port(as shown in Figure 27). Operated as a Modbus slave, the cloud enabler support 128 holding registers that allows the PLC/HMI to read/write through the Modbus/RTU or Modbus/ASCII protocol.

In the APP, the holding registers are represented from number 40001 to 40128. However, some PLC or HMI use the data address 0 ~ 127 to represent these addresses.

You can use the APP to configure the access rights (Modbus-Write or APP-Write) and the data types. (16-bit integer, 32-bit integer, 32-bit IEEE 754 floating poing …,etc). Please click the cloud enabler icon as shown in Figure 35 and you will be directed to the cloud device page. Please press the icon to configure a new register as shown in Figure 36. Please type in the description for the register, select the data types (also the access rights), assign the register address and specify whether to log this register into a data log.

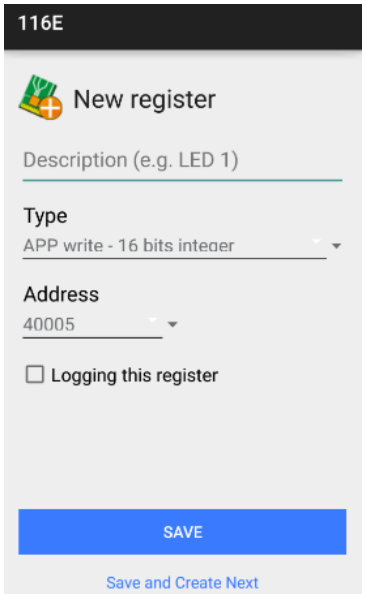


Figure 36: Add a new register

Once you configure all the necessary registers, you can see all the registers as shown in Figure 37.

Figure 37: All the configured registers for a cloud enabler

7. Data Logging

KT-635xx cloud enabler supports the data logging function for the configured registers. You should plug a USB pen-drive into the USB port as the recording storage media. Once you use the APP to start logging, all the configured register value will be logged as a CSV file under a /YYYYMM/ directory in the USB pen-drive, where YYYY represents the year, say 2015, and MM represents the month, say 08 for Aug.

Everytime you want to change the logging configuration, say, whether to log for some registers, you should stop logging first. Once data logging is restarted again, a new CSV file will be created. Up to 100 CVS files will be created for one day with the trailing number from 00 to 99 on the filename.

On Figure 36, you can see an option, Logging this register, for logging configuration. However, you can also long-press the configured register (as shown in Figure 37) until it pop up a screen, then you could select "Edit" to turn on/off the "Eable logging" option.

To start or stop the data logging for a cloud enabler, please long-press the device name for more than 1 second on the "Cloud" page of the main screen (as shown in Figure 35). Select "Edit" on the pop-up screen and you will be directed to the "Edit Device" page as shown in Figure 38. You can turn on/off the "Enable logging" option to start or stop data logging for this cloud enabler.

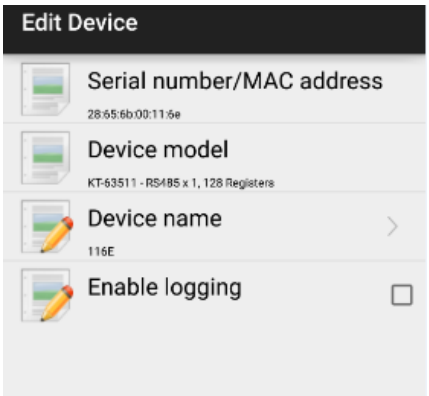


Figure 38: Edit the cloud enabler

You can turn off data logging and remove the USB pen-drive to get the logged CSV files. However, an internal FTP server is also built in the cloud enabler so that you can download the logged files via a FTP client software as shown in Figure 39.

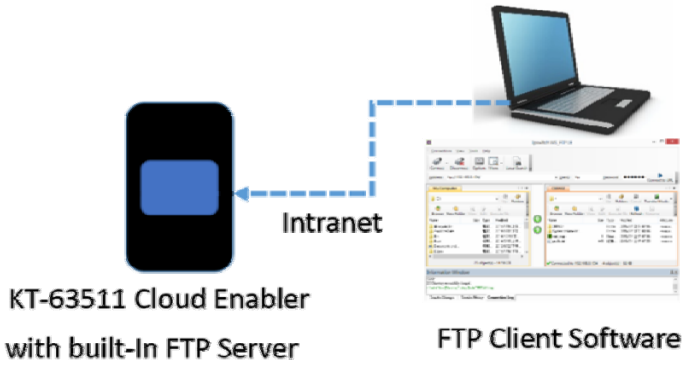


Figure 39: FTP to get log files

Default FTP account is : ftp
Default FTP password is : admin (the same as the device setting password, you can change the password in the APP later.)

Please chooseaUSB pen-drive which supports the FAT32 file system. In general, a pen-drive with 2GB to 32GB capacity will meet the requirements.

END