Introduction of Gateway

ZWG2000AG

Catalogue

1 Description

Thanks for Purchasing Universe Future Technology Co,.LTD products.

Gateway(ZWG2000AG) which based on z-wave technology is professionally designed for Internet of Things. It work like a bridge between the internet and the appliance or the office device,user can remotely control the Light,Curtain Motor,Air Condition,TV,Projector and so on,via the APP which designed and worked with gateway,it also can deal with the data which received from sensor ,to support the smart control.Meanwhile our gateway integrated security system,user can remotely monitor online via the IP camera,when alarm happen,our system can send message to user in the first time.Our gateway adopt z-wave technology which is bidirectional communication,that make it possible to know the status of device anytime,wireless communication is convenience for constructing,no need wiring.Humanized logic and User Interface designed make user feel very comfortable when using our products.

Products that are Z-Wave certified can be used and communicate with other Z-Wave certified devices.

Feature:

- ARM9-S™ ARM® Thumb® Processor running at up to 400 MHz,high quality assurance.
- Modular Design for Hardware,easy for future update and modify.
- Simple Linux kernel for Software system,easy for maintain and APP Update.
- Support multiple communication protocol: Z-wave,TCP/IP,UPNP,DDNS, HTTP,DNS.
- Redundant design for the communication between the gateway and control terminal,make the alarm message send in time.
- Support web for configuration,convenience for setting and modify.
- Internal log file design,safer for fault analyses.
- Separating Reset mode design, user can chose to reset only password or HomeID or Gateway IP.
- Support Encipher Transmit Mode and non-Encipher Transmit Mode.
- Support TSL between the gateway and terminal.

2 Diagram

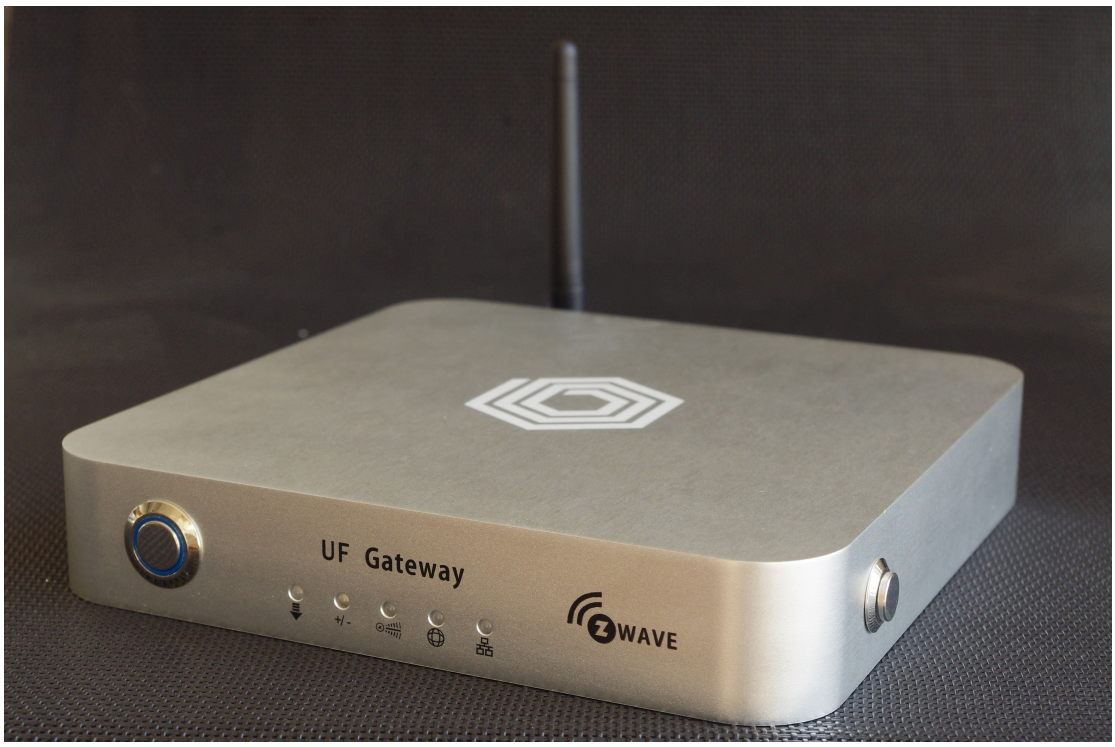

Figure 2-1: Gateway

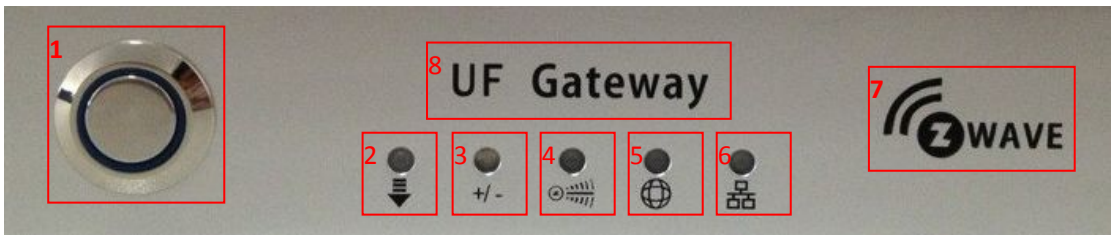

Figure: 2-2 Front

Figure:2-3 Right

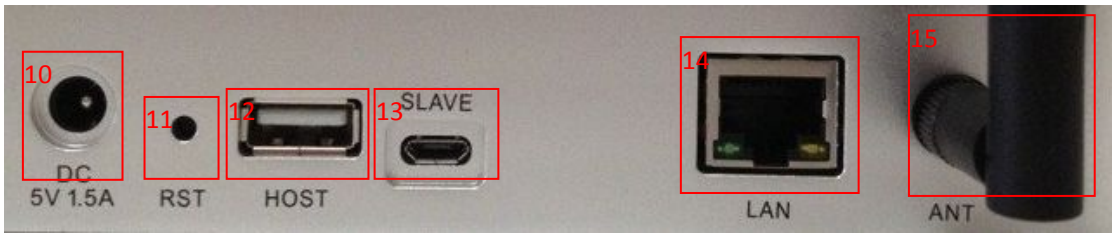

Figure: 2-4 Back

Table 2-1

No.	Name	Function
1	Power Button and Power LED	Power on/off、Power status
2	Download LED	Data download status
3	Inclusion/Exclusion LED	Inclusion/Exclusion status
4	Z-Wave LED	Radio status
5	WAN LED	WAN Link status
6	LAN LED	LAN Link status
7	Z-Wave Logo	Z-Wave Logo
8	Product Name	Product Name
9	Inclusion/Exclusion Button	Inclusion/Exclusion operation button
10	Power Plug	Power plug
11	Reset Button	Reset IP and password
12	USB	Manual update new version
13	Mini USB	ISP
14	Ethernet Port	Network interface
15	Antenna	Antenna for wireless

3 Specification

Table 3-1

Items	Specification
CPU	ARM9 (400 MHz@1.0V Inclusion/Exclusion 10%)+ ZM3102
DRAM	128M
Flash	256M
Voltage	5DCV
Current	0.5A
Consumption	<2.5w
Frequency	908.4MHz
Range	≤30m(inside), 100m (outside)
Node	232
Protocol	TCP/IP、UPNP、DDNS、HTTP、DNS、Z-Wave
Temperature	10-45℃
Humidity	10%-70%RH
Power	Adapter (5V 1.5A)
Weight	350g
Dimension	165mm*165mm*30mm

4 LED Status

Table4-1

LED Status	Description
Power Supply LED: On/Blue	Power on right now
Ethernet Port LED: On/Orange	Ethernet port power on
Ethernet Port LED: On/Green	Ethernet port physics link is ok
Ethernet Port LED:Blink/Green	Gateway is communicating right now
Down load LED:Blink/Green	Gateway is updating new version
Inclusion/Exclusion LED: Blink/Blue	Gateway is on Exclusion mode
Inclusion/Exclusion LED:Blink/Green	Gateway is on Inclusion mode
Inclusion/Exclusion LED:Blink/Blue and Green	Gateway is rebuilding z-wave router
Inclusion/Exclusion LED:On/Green→Off	IP reset (when holding for 3s)
Inclusion/Exclusion LED:On/Blue→Off	Password reset (when holding for 10s)
Download and Inclusion/Exclusion LED:Blink/green	Gateway is starting
z-wave LED:Blink/Green	Gateway is communication with other device
WAN LED:On/Green	Gateway link with Internet OK
WAN LED:Blink/Green	Gateway is checking the internet status
WAN LED:Off	Gateway do not link to Internet
LAN LED:On/Green	Physical Link between Gateway and router is ok
LAN LED:Blink/Green	Gateway is communicating right now(tcp/ip)
LAN LED:Off	Physical Link between Gateway and router is not ok

5 Installation

The product does not require installation. After breaking package, assembling antenna, putting gateway on a desk which is 0.8m – 1.0m high, then power on, connecting to router with network table.

NOTE:

* DO NOT PUT GATEWAY ON THE GROUND OR LOWER PLACE.
* DO NOT USE AC POWER ADAPTER WHICH DO NOT CONFORM TO THE REQUIREMENTS OF PRODUCTS SPECIFICATION.
* GATEWAY IS A STATIC CONTROLLER WHICH IS NOT PORTABLE, PLEASE DO NOT MOVE IT AFTER RE-BUILTING ROUTER.
* IT IS BETTER AWAY FROM OTHER RADIO SOURCE.
* RF JIMMING IS NOT PERMIT WHEN USING GATEWAY.

6 Operation

6.1 Power on/off

Power on

Function: power supply, start system

Step:

Step-1: Plug in AC adapter

Step-2: Press power button

(Power LED will turn on with BLUE. After 10s, the Download LED and Inclusion/Exclusion LED will blink for 13s, then Download LED and Inclusion/Exclusion LED will turn off, then system is ready)

Power off

Function: power off and shutdown the system

Step:

Step-1: Press power button

(Button will pop-up, then the Power LED will turn on)

6.2 Web Setting

Web Setting

Function: view system setting

Step:

Step-1: Running Browse

Step-2: Input Gateway IP at address field, format is “IP:8080”, for example “192.168.0.88:8080”, “192.168.0.98” is gateway IP, “8080” is port number.

（Gateway default IP：192.168.0.88，port：8080，password：888888）

Step-3：Enter （Then screen turn to login page，figure 6.2-1）

Step-4：Input gateway ID in “控制器 ID”field,Input gateway in“密码”field.

Step-5：Click“登陆”

（If ID and password are right ,will turn to web manage page,figure 6.2-2）

Figure 6.2-1

Figure 6.2-2

6.3 Base Information

Base Information

Function：view base information，contain gateway ID、product ID、version

Step：

Step-1：Login Web manage page(refer to 6.2 web setting)

Step-2：Click“基本信息” （figure 6.3-1）

Step-3：Click“控制器基本信息” （figure 6.3-2）

Figure 6.3-1

Figure 6.3-2

6.4 Network Information

Network Information

Function：view network information,contain gateway IP、sub mask、router IP、Time server IP

Step：

Step-1：Login Web manage page(refer to 6.2 web setting)

Step-2：Cilck“基本信息” （figure 6.4-1）

Step-3：Click“网络信息”　　(figure 6.4-2)

Figure 6.4-1

Figure 图 6.4-2

6.5 Network Settings

Network Settings

Function：network settings

Step：

Step-1：Login Web manage page(refer to 6.2 web setting)

Step-2：Click“控制器管理”　　(figure 6.5-1)

Step-3：Click“网络配置”　　(figure 6.5-2)

Step-4：Input gateway IP、sub mask、router IP and time server IP according to user's network environment.(server IP MUST be 202.120.2.101)

Step-5：Click“确认”

Step-6：Power off

Step-6：Power on (切记网关要重启之后新的配置才会生效)

NOTE：

* advice user to remember the network setting information after modifying

* the new setting will be valid ONLY after restarting gateway

Figure 6.5-1

Figure 6.5-2

6.6 Z-Wave Reset

Z-Wave Reset

Function： initialize z-wave environment,clear z-wave node information，re-generate HomeID

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click“控制器管理” （figure 6.6-1）

Step-3: Click“控制器复位” （figure 6.6-2）

Step-4: Input password in“登陆密码”field

Step-5: Click“确定”

（after about 60s, gateway will reboot automatically）

Figure 6.6-1

Figure 6.6-2

6.7 Password Modify

Password Modify

Function: modify gateway password

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click“控制器管理” （figure 6.7-1）

Step-3: Click“修改密码” （figure 6.7-2）

Step-4: input old in“当前密码”field, input new password in“新密码”, input new password in“确认新密码”field again

Step-5: Click“确定”

（new password will be valid at once,no need to reboot）

NOTE:

* advice user to remember the new password
* for the security,the password should not be too simple

Figure 6.7-1

Figure 6.7-2

6.8 Z-Wave device information

Z-Wave device information

Function: view Z-Wave device information, contain device ID、device name、device type、device supporting command、manufacture ID

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click“设备管理” (figure 6.8-1)

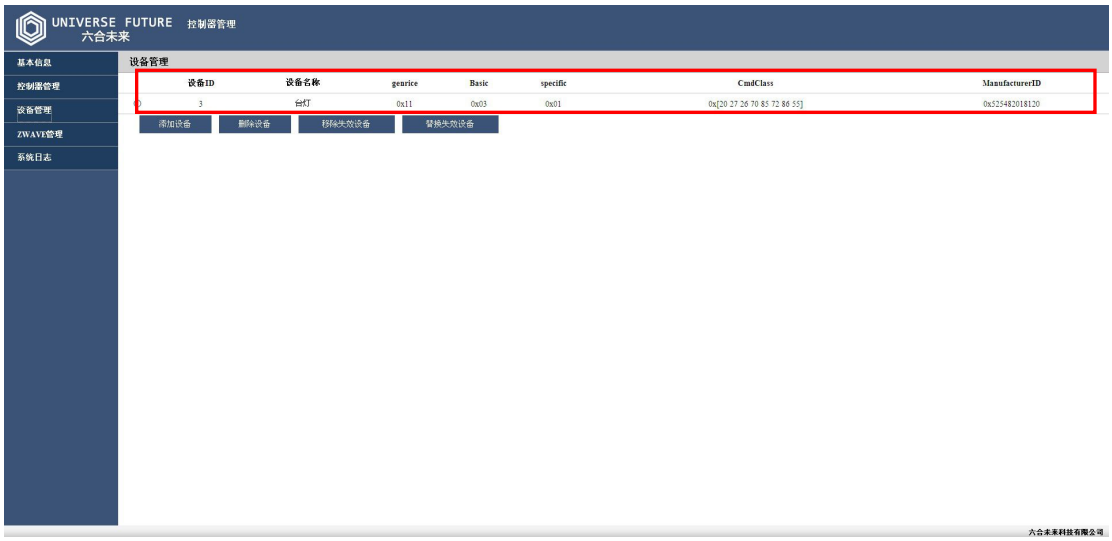

Figure 6.8-1

6.9 Inclusion

Inclusion

Function: add new device to z-wave network

Method 1

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2：Click“设备管理”　　（figure 6.9-1）

Step-3：Click“添加设备”

（then Inclusion/Exclusion LED turn green and blink until success or timeout for fail）

Step-4：Trigger device to send NIF

（the way to send NIF is different because the device design is different. If gateway received NIF, the Inclusion/Exclusion LED will turn off）

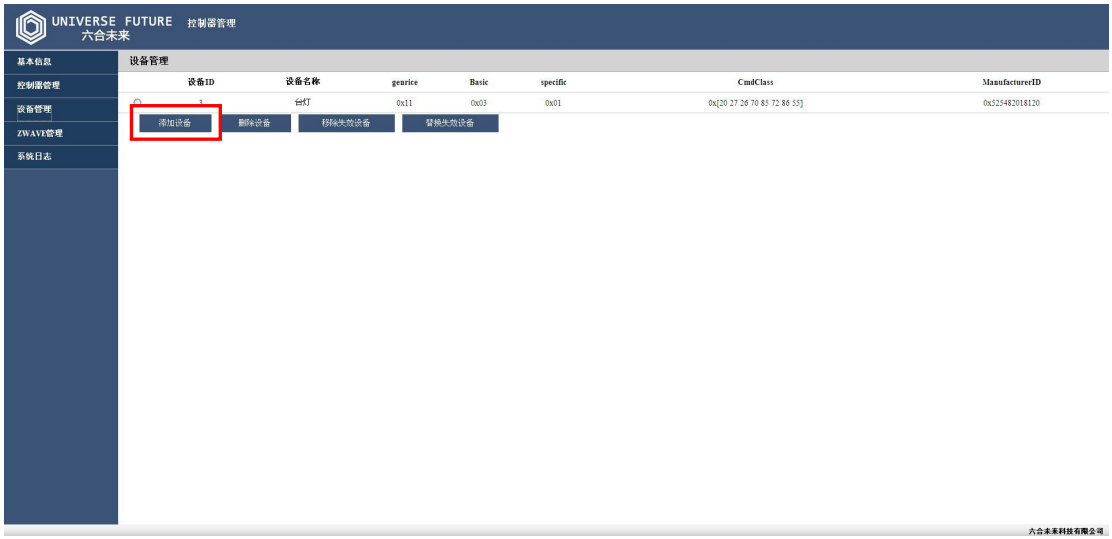

Figure 6.9-1

Method 2

Step:

Step-1：double click slowly Inclusion/Exclusion button

（then Inclusion/Exclusion LED will turn green and blink until success or timeout for fail）

Step-2：Trigger device to send NIF

（the way to send NIF is different because the device design is different. If gateway received NIF, the Inclusion/Exclusion LED will turn off）

NOTE:

* SHOULD do Exclusion first before Inclusion, in order to clear the old data in device
* the distance of two device should be less then 2m when doing Inclusion
* some device can be operated immediately, for example switch, some device need to do configuration before it can work normally, for example sensor, please refer to the introduction of device

6.10 Exclusion

Exclusion

Function：delete a device from network, or clear the old data in the device which have been inclusion into other network

Method 1

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)
Step-2: Click“设备管理” （figure 6.10-1）
Step-3: Click“删除设备”
（then Inclusion/Exclusion LED will turn blue and blink until success or timeout for fail）
Step-4: Trigger new device to send NIF
（the way to send NIF is different because the device design is different. If gateway received NIF, the Inclusion/Exclusion LED will turn off ）

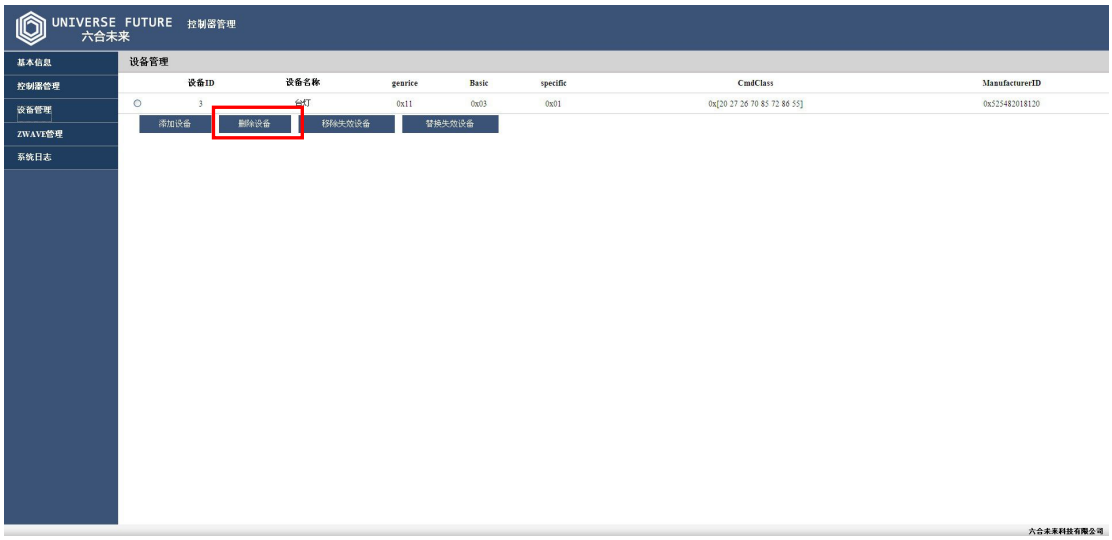

Figure 6.10-1

Method 2

Step:
Step-1: Press Inclusion/Exclusion button about 5s until Inclusion/Exclusion LED blink then release
（then Inclusion/Exclusion LED will turn blue and blink until success or timeout for fail）
Step-2: Trigger new device to send NIF
（the way to send NIF is different because the device design is different.）
NOTE:
* the distance of two device should be less than 2m when doing Exclusion

6.11 Remove fail device

Remove fail device

Function: delete a fail device which is out of control
Step:
Step-1: Login Web manage page(refer to 6.2 web setting)
Step-2: Click“设备管理” （figure 6.11-1）
Step-4: Chose the device to be removed
Step-5: Click“移除失效设备”
NOTE:
* this operation will success ONLY when the fail device can not send ACK to gateway

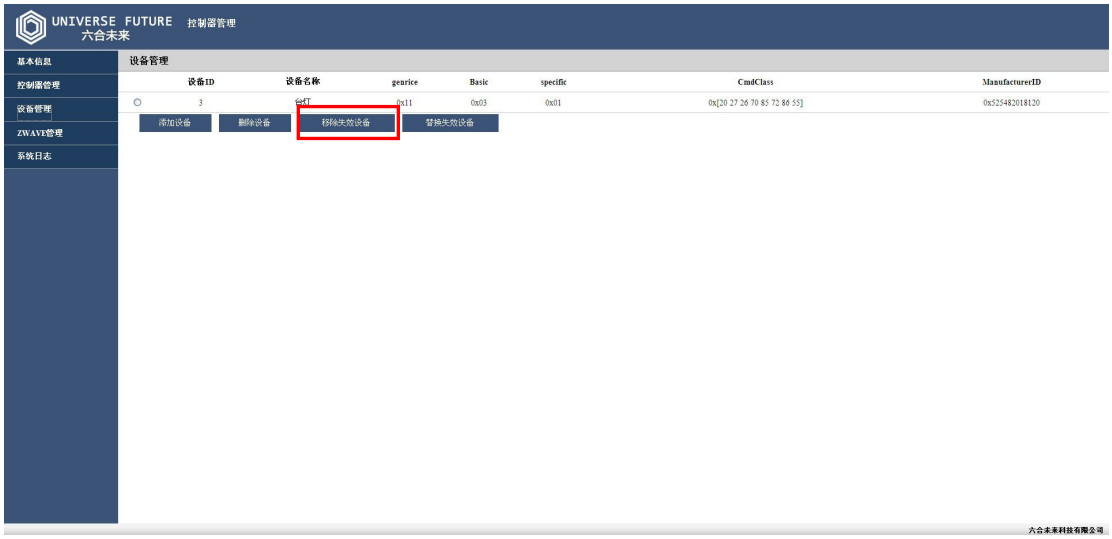

Figure 6.11-1

6.12 Replace fail device

Replace fail device

Function: replace the fail device with a new device

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click "设备管理" (figure 6.12-1)

Step-4: Chose the device to be replace

Step-5: Click "移除失效设备"

Step-6: Trigger new device to send NIF

(the way to send NIF is different because the device design is different.)

NOTE:

* this operation will success ONLY when the fail device can not send ACK to gateway
* SHOULD do Exclusion first before doing replace fail device, in order to clear the old data in device

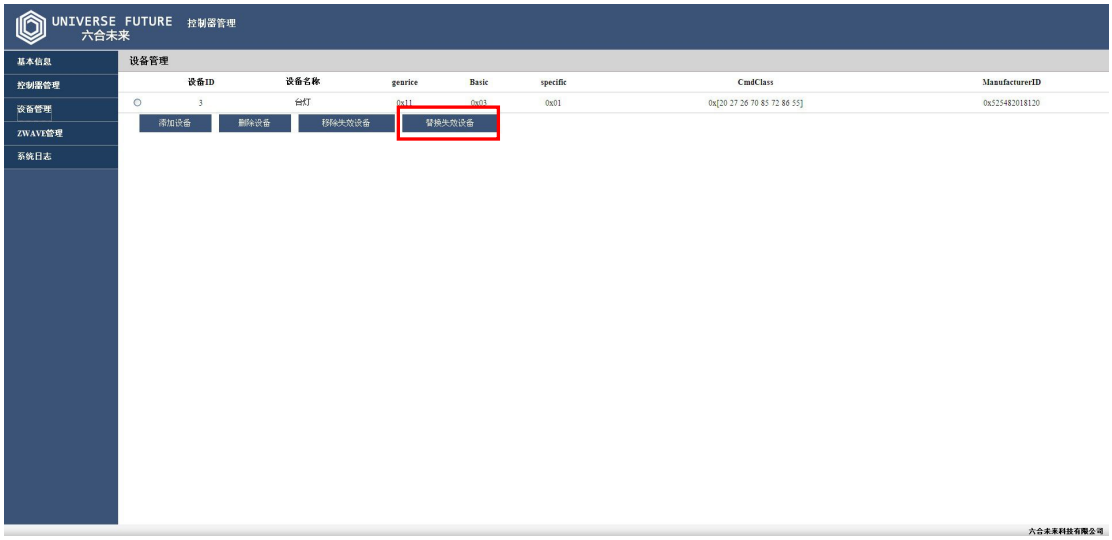

Figure 6.12-1

6.13 Rebuilt Router

Rebuilt Router

Function: rebuilt router for the gateway

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click "ZWAVE 管理" (figure 6.13-1)

Step-3: Click "确定" of "重建路由"

(then Inclusion/Exclusion LED will blink between green and blue until finish)

NOTE:

* this process will take more time if there are more devices in the network, please wait and do not login gateway, do not power off all device
* SHOULD do this operation after inclusion all devices and have chosen a static place for gateway
* rebuilt router Only valid for LISTEN device

Figure 6.13-1

6.14 Learn Mode

Learn Mode

Function: make gateway be Inclusion to another network or Exclusion from anothe network

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: do Z-Wave reset in "控制器管理" (see 6.6 z-wave rest, ignore this step if there is no device in gateway)

Step-3: Click "ZWAVE 管理" (figure 6.14-1)

Step-4: Click "确定" of Learn Mode

Step-5: Another primary controller do Inclusion

NOTE:

* SHOULD do exclusion first before doing this operating

* the distance of two device should be less than 2m when doing Learn Mode

Figure 6.14-1

6.15 Shift

Shift

Function: transfer the Inclusion/Exclusion function to secondary controller

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click “ZWAVE 管理” (figure 6.15-1)

Step-4: Click “确定” of “控制权交换”

Step-5: Another second controller set Learn Mode

NOTE:

* the distance of two device should be less than 2m when doing shift

Figure 6.15-1

6.16 Refresh Frequency Settings

Refresh Frequency Settings

Function: set refresh interval

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click "ZWAVE 管理" (figure 6.16-1)

Step-4: Input the time in "自动刷新频率" field

Step-5: Click "确定" of "自动刷新频率"

NOTE:

* value range : 0~60, 0 mean do not refresh, default value is 60
* SHOULD set refresh frequency when using first gateway

Figure 6.16-1

6.17 System Time Settings

System Time Settings

Function: set system clock

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click "ZWAVE 管理" (figure 6.17-1)

Step-4: Input the time value in "设置时间" field

Step-5: Click "确定" of "设置时间"

NOTE:

* time formate: year-month-day hour:minute:second, for example "2013-11-29 15:56:18". There is a space between day and hour
* SHOULD set refresh frequency when using first gateway

Figure 6.17-1

6.18 Log File

Log File

Function: view log of gateway

Step:

Step-1: Login Web manage page(refer to 6.2 web setting)

Step-2: Click "系统日志" (figure 6.18-1)

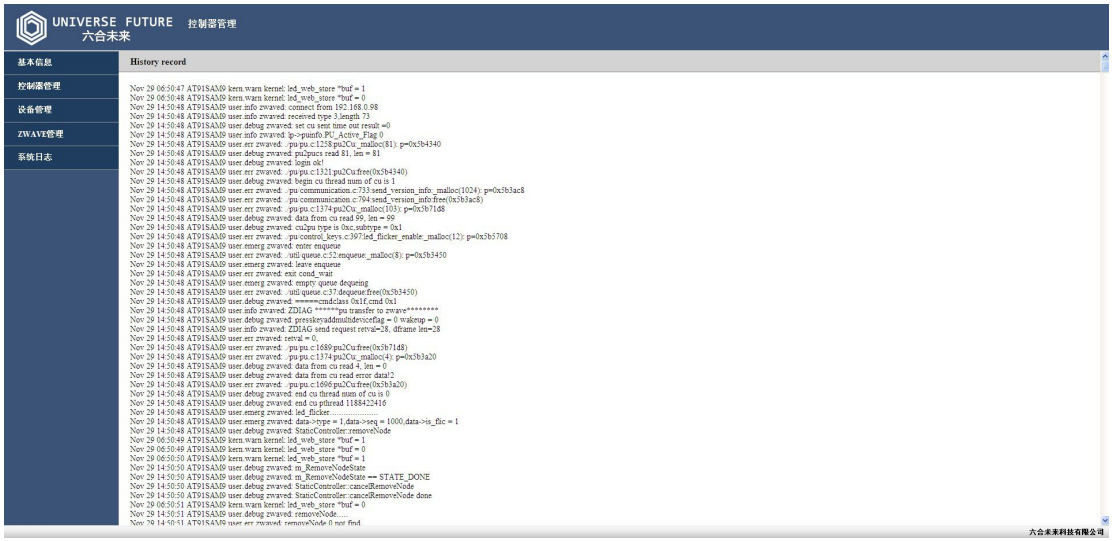

Figure 6.18-1

6.19 IP Reset

IP Reset

Function: reset gateway IP

Step:

Step-1: Press Reset button for 3s, when Inclusion/Exclusion LED turn green then release

(then Inclusion/Exclusion LED turn green, after system reset ok,gateway will reboot automatically,default IP will be valid)

NOTE:

* default IP: 192.168.0.88
  Sub mask: 255.255.255.0
  Router IP: 192.168.0.1
* SHOULD set available IP for gateway after reset

6.20 Password Reset

Password Reset

Function: reset password to factory default

Step:

Step-1: Press Reset button for 10s, then release when Inclusion/Exclusion LED turn blue

(after reset ok,gateway will reboot automatically,default password will be valid)

NOTE:

* default password: 888888
* for security,user should chang password immediately

7 Router Settings

This chapter describe how to set the router in order support remotely control.

Because there are so many kinds of router,herein only show a general way, please refer to your router introduction for more detail.

Step:

Step-1: login router

Step-2: click port mapping

Step-3: add new item,content as bellow:

Name: Gateway (or user defined)

Internal Port: 6000

External Port: 6000 (or user defined)

IP Address: gateway IP

Step-4: Enable UPnP

Step-5: Enable DNS

Server Supplier: (User select refer to router)

Host Name: (User apply the third server supplier)

User Name: (Supplied by the third server supplier)

Password: (Supplied by the third server supplier)

If User want to use DDNS which supplied by UF,please ignore the step-5.UF supply DDNS for each product

8 APP

The software of gateway is different for different using.Please refer to your introduction of software when you download.

9 Quick Manual

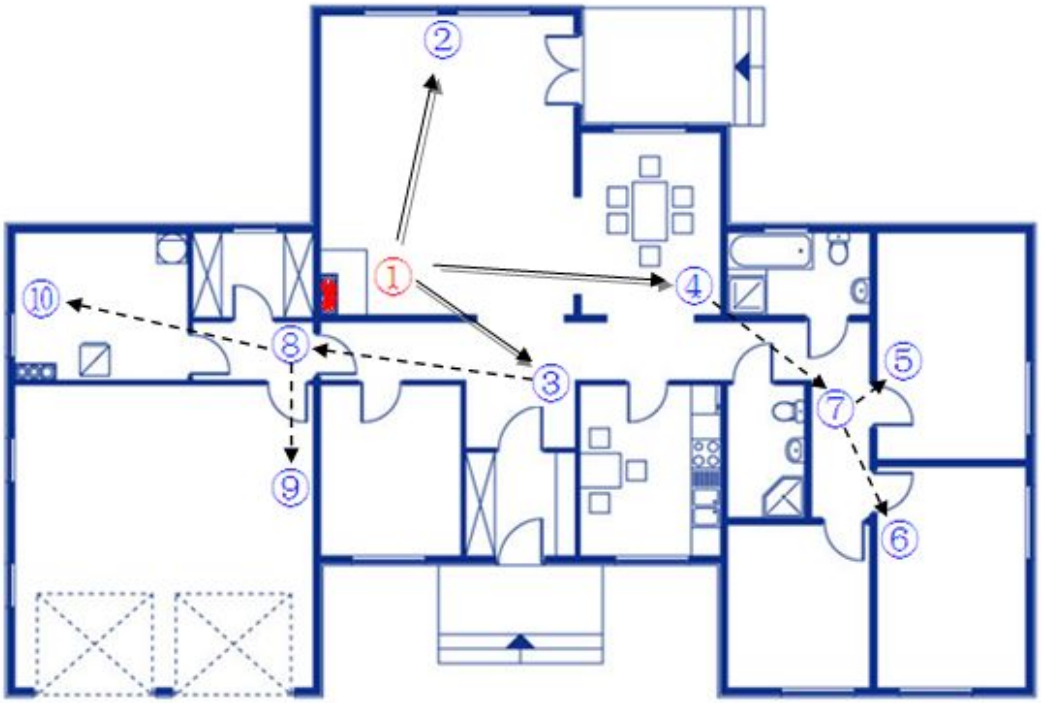

Figure7.1

Figure7.1 is a application of gateway .Number is gateway,number 2、3、4、5、6、7、8、9、10 are devices(we assume that they are switch module).

Environment:

There is WiFi router,its IP is 192.168.0.1,which have been set for internet,any device can link to internet when insert network cable.

Gateway default IP:192.168.0.88,default password: 888888

9.1 Installation

→Installing device2、3、4、5、6、7、8、9、10 on the wall，power on them

9.2 power on gateway

→Remove packages,insert AC adapt then power on,system will be ready after 60s

9.3 Modify gateway IP

→Connecting gateway to PC with network cable,PC local IP should be:192.168.0.100，default gateway IP:192.168.0.1

→Running IE browse,input 192.168.0.88:8080,then Enter

→Input controller ID and password (Controller ID and password on label)
→Login

----------refer to 6.2 Web Setting----------

→Link to network setting page,input controller IP:192.168.1.88, sub mask:255.255.255.0, router IP:192.168.1.1, time server IP:202.120.2.101
→Reboot

----------refer to 6.5 Network Setting----------

9.4 Modify password (option)
→Refer to 6.7 password modify
9.5 Refresh Frequency Settings (option)
→refer to 6.16 refresh frequency settings
9.6 System time setting (option)
→refer to 6.17 system time setting
9.7 Network Cable Connect
→Connect gateway and router with network cable
9.8 Inclusion
→Double click slowly,then Inclusion/Exclusion LED turn green and blink
→Trigger device 2 to send NIF
→Inclusion/Exclusion LED turn off mean success
→Inclusion device3、4、5、6、7、8、9、10 with the same way
(if device 5、6、7、10 are far away form gateway, please remove gateway closely then try again)

----------refer to 6.9 Inclusion----------

9.9 Rebuilt router
→refer to 6.13 rebuilt router
(should wait when doing rebuilt router, or you can ignore temporary this step and do other step ,do it finally)
9.10Running APP
→Mobile or PAD login WiFi router
→running APP
→Searching gateway IP automatically or input it manually 192.168.1.88
→Input password
→Login
9.11Basic management
→Create room
→Name device、chose icon、chose room
9.12Others
→Scene
→Security
9.13 Router settings (option)
→Login routers
→router settings, refer to 7 router settings
(Ignore this step or error settings will cause remote control error)

10 Glossary

Table 7-1

Glossary	Explanation
Z-Wave Network	A collection of Z-Wave devices which is controlled by primary and secondary controllers operating on the same system. A Z-Wave network has its own unique ID code so that controllers not in the network cannot control the system.
Z-Wave Device	Device which support z-wave technology
Controller	Can be used to control other nodes in a Z-Wave network
Inclusion	Add a Z-Wave device to the network.
Exclusion	Delete a Z-Wave device from the network
Device ID	Unique identifier of device in the network,assigned by the controller
Home ID	Unique identifier of controller for a network,8 byte long,will be regenerated when z-wave reset
Learn Mode	Only controller have such function

Release Record

Version	Description	Author	Date
V1.0	new version issue	Lyons	2013.11.28

Federal Communications Commission (FCC) Interference Statement
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generate, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RF exposure warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.