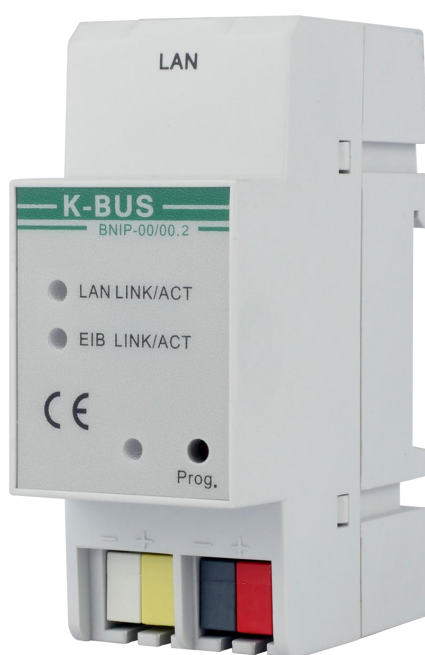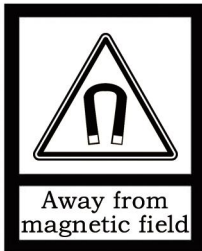# K-BUS®KNX IP Interface_V1.3

BNIP-00/00.2

KNX/EIB Home and Building Control System

Attentions

1. **Please keep devices away from strong magnetic field, high temperature, wet environment;**

Away from magnetic field	Away from high-temp	Prevent moisture

2. **Please do not fall the device to the ground or make them get hard impact;**

Handle with care

3. **Please do not use wet cloth or volatile reagent to wipe the device;**

Wipe with care

4. **Please do not disassemble the devices.**

Contents

Chapter 1 Summary

The KNX IP Interface is designed for an intelligent building control system, which is used for facilitating communication between the Ethernet network and the KNX system.

The KNX IP Interface connects the EIB/KNX system with the Ethernet network via an Ethernet RJ45 interface in the front，It serves as an interface between KNX installations and IP networks and can configure, parameterize and commission the EIB/KNX installation as well as bus monitor via the LAN using the ETS (ETS3 or later) software.

For operation an additional 21~30V DC supply is necessary. The bus connection and auxiliary power supply connection are carried out via using EIB bus connection terminals.

The device adopts an Ethernet RJ45 interface to connect with LAN network. The network interface can be operated with a transmission speed of 10/100Mbit/s Auto Sensing.

The IP address of the device can be fixed or can be received from a DHCP server(note:currently it cannot support DHCP). If you need to remain the IP address static or here no DHCP server on the network, you can assign a fixed IP address to the device via ETS. The device cannot program itself.

It can support to 2 KNX IP client connections，one for local connection, which address is 15.15.241; another for remote connection, which address is 15.15.240.

The KNX IP Interface is able to use the Engineering Tool Software ETS (ETS3 or later) with a VD4 file to allocate the physical address and set the parameter. The factory default physical addresses are 15.15.255, and the address can be modified directly via local interface settings of ETS.

The KNX IP Interface is a modular installation device. It can be installed in the distribution board on 35mm mounting rails according to EN 60 715.

This manual provides the technical information about the KNX IP Interface as well as assembly and programming in detail for users, and explains how to use the interface device by the application examples.

Note: The physical address 15.15.240 is prohibited to use for this KNX system that used the device, otherwise it will cause function malfunction！！！

Chapter 2 Technical Data

Power supply	Operation voltage	21-30V DC, via the KNX bus
	Current consumption, bus	<12mA
	Power consumption, bus	<360mW
	Auxiliary power supply	20-30V DC
	Auxiliary power consumption	<1W
Connections	KNX	Via bus connection terminal (red/black)
	External power supply	Via bus connection terminal (yellow/white)
	LAN	RJ45 socket for10/100Base-T, IEEE 802.3 network, Auto Sensing
Operating and display	Programming LED and button	For assignment of the physical address
	Green LED flashing	Indicate the application layer running normally
	LAN LINK LED ON	Network connection indicator
	LAN LINK LED flashing	Telegram traffic between the device and network
	EIB LINK LED ON	KNX bus connection indicator
	EIB LINK LED flashing	Telegram traffic between the device and KNX bus
Temperature	Operation	–5 °C ... + 45 °C
	Storage	–25 °C ... + 55 °C
	Transport	– 25 °C ... + 70 °C
Ambient	Humidity	<93%, except condensation
Design	Modular installation device, on 35mm mounting rail	
Dimensions	36 mm×90 mm×64mm	
Weight	0.1KG	
Housing, colour	Plastic housing, grey	

Application program	Max. number of communication objects	Max. number of group address	Max. number of associations
The KNX IP Interface	0	0	0

Chapter 3 Dimension and Connection Diagram

3.1. Dimension diagram
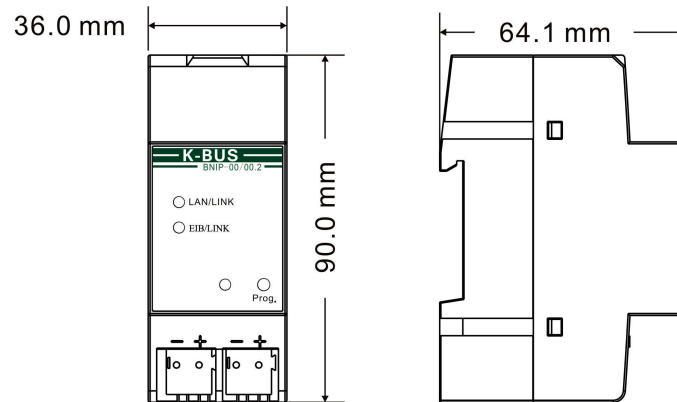
3.2. Connection diagram
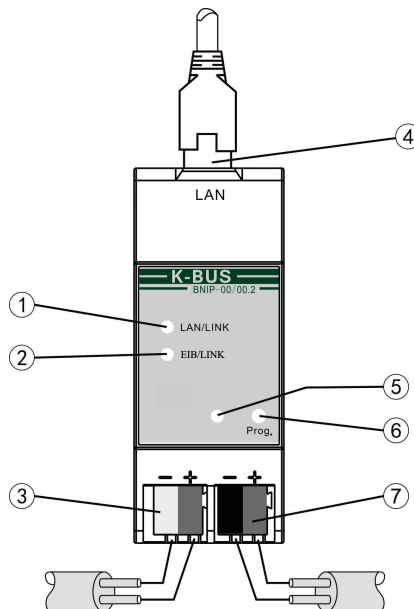
① when the device starts up,LAN/LINK slow flash (500ms) indicates the device cannot connect to the cloud server;

LAN/LINK flash (50ms) device in the configuration initialization phase

After the device is fully booted, LAN/LINK is always on, indicating that the device is connected to the cloud server;

LAN/LINK flashing indicates data transmission between the network and the device;

LAN/LINK OFF indicates that the device do not connect to the network

② EIB LINK ON, indicate that KNX bus connect normally. EIB LINK flashing, indicate that telegram traffic is ongoing

③ Auxiliary power supply connection

④ LAN connection

⑤ Programming LED, LED red for entering the physical address, LED green flashing for application layer running normally

⑥ Programming button, via long operation 5s to reset the IP address to the default address (see section 5.3 for details)

⑦ KNX bus connection terminal

Chapter 4 Parameter setting description in the ETS

4.1. Parameter window "General"

Parameter window "General" is shown in fig. 3.1. The device information,including device name,

project description,Company own etc can be set here.

1.1.7 KNX IP Interface > General		
General	Device name (30 signs)	KNX IP Interface
IP configuration	Project description (30 signs)	GVS office
	Company own (30 signs)	Video Star

Fig 3.1 "General" parameter window

Parameter "Device name (30 signs)"

This parameter is used to set the device name,so that it can be easily recognized in the LAN.

Maximum 30 characters can be input.

Parameter "Project description (30 signs)"

This parameter is used to set the project name the device belongs to.Maximum 30 characters can

be input.

Parameter "Company own(30 signs)"

This parameter is used to set the company name the device belongs to.Maximum 30 characters can

be input.

The device and project description will be shown in the User Management Client.

The company name will be shown in the User Management Client.

Note: The company name here must be the same with account name for login the User Management Client.

4.2. Parameter window "IP configuration"

Parameter window "IP configuration" is shown in fig. 3.2. Here set network connection information, such as IP address, Sub-net mask and Default gateway.

Fig.3.2 "IP configuration"parameter window

Parameter "DHCP"

This parameter is used to define if the DHCP mode activated or no. Options:

Use

Do not use

If IP interface use DHCP mode,the IP address will be provided by DHCP server.

Note: the current version IP interface cannot support DHCP mode.

Parameter "IP address"

The parameter defines the IP address of the IP Interface, the IP address is unique on the LAN, to avoid collide. Option: **Byte x: 0…255**

The IP address should be entered in a byte-by-byte manner, e.g. as follows for address 192.168.1.10:

Byte1:   192

Byte2:   168

Byte3:   1

Byte4:   10

Parameter "Net mask"

The parameter defines the subnet mask of the IP Interface. The subnet mask must be set to reflect the number and structure of the subnet. Option: **Byte x: 0…255**

In a small network the subnet mask 255.255.255.0 should be set as follows:

Byte1:   255

Byte2:   255

Byte3:   255

Byte4:   0

Parameter "Gateway"

The parameter defines the default gateway. The default gateway must be the same network segment with the IP address. Option: **Byte x: 0…255**

The default gateway 192.168.1.1 should be set as follows:

Byte1:   192

Byte2:   168

Byte3:   1

Byte4:   1

Chapter 5 Parenthetical

This chapter explain in details of implementing the following two functions and the related software required:

(1) Support remote upgrade of the device through the network;

(2) Support remote debugging of KNX engineering projects.

After obtaining the IP interface from the manufacturer, the IP interface needs to be configured by the ETS software or by changing the configuration through online network, and then restart the device (see Chapter 5.3 for details) before it can be used.

The configured IP interface cannot be programmed for itself, but it can be used to program and download others KNX devices.

The following describes the two related software that you need to use in the configuration,including the operation of remotely upgrading the device and remotely debugging the KNX project:

5.1. User Management Client

This software is used to manage the relationship between devices and debugging.

Currently, the software can only display devices that are already online. If the device is not online, it cannot be displayed.

The device and the software is related by the company information configured by ETS. The login to the software also requires company information to log in.

The company information will be distributed and managed by our company (GVS). Please contact us directly to obtain the information.

You can use this software to create a new engineering commissioning personnel account. The password of the debugging personnel cannot be modified by yourself. It can only be reset and modified by this software.

The software can be used to easily establish the relationship between equipment and commissioning personnel. After the establishment is completed, the debugger can log in to the device management software to manage the corresponding device.

(1) User Management Window:
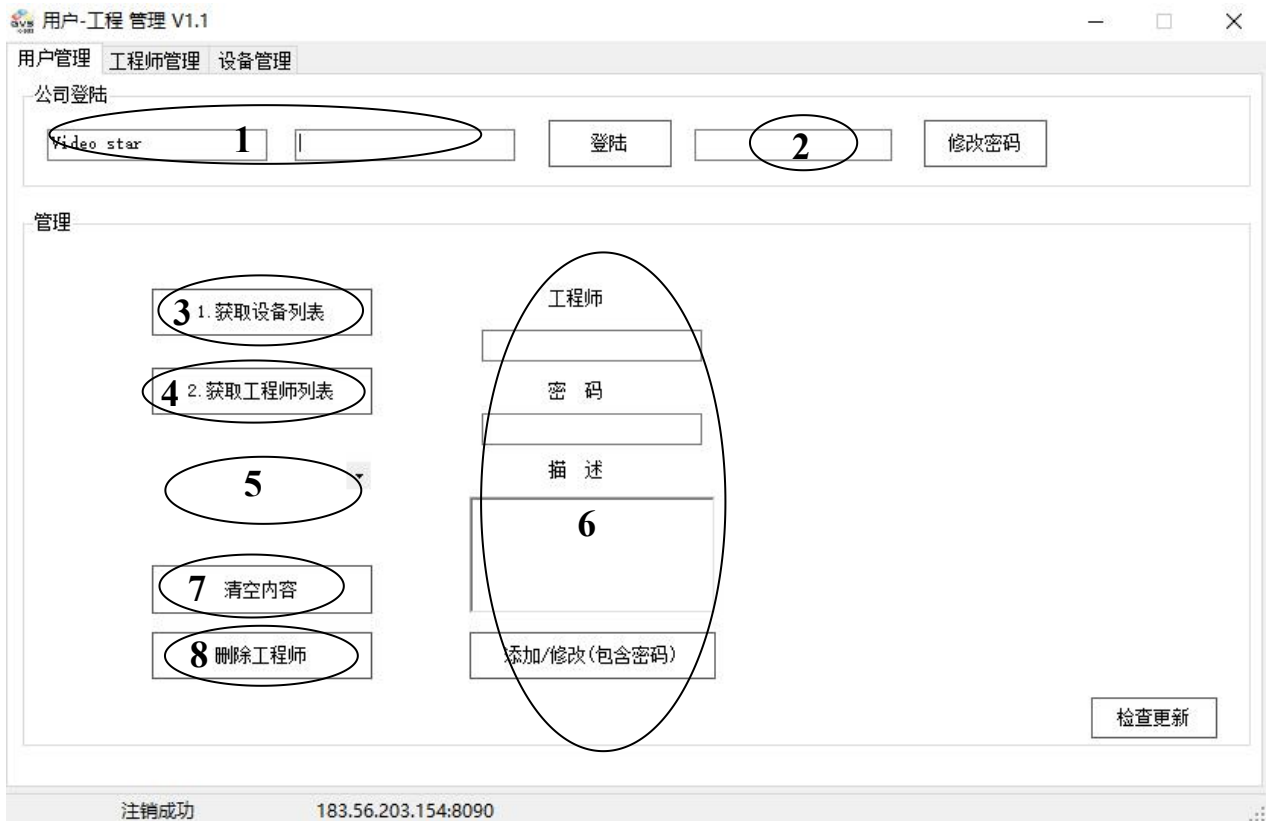
1. In the user management interface, enter the company's name and password, click Login to get the authority to manage all the devices under the company name. (The company name and default password are provided by GVS. If you log in again, you need to log out and log in again.)

2. Click Change Password: You can modify the company's default password. When you log in again, you need to use a new password to log in. (Note: Do not forget the new password after modification, otherwise you need to find the manufacturer to reset)

3. Click on the Get Device List to get all the registered devices and view them on the device management interface.

4. Click on the Get Engineers list to get all the engineers you have added.

5. View the list of engineers, you need to get it before you can view it.

6. Add or modify engineer information, you can set the password or not. Engineer information is used to log in to the device management client software.

7. Empty the contents of 6 and make new settings.

8. Select the engineer in 5 and click Delete Engineer to delete the engineer and all its associations.

(2) Engineer Management Window:

After obtaining the device list and the engineer list, you can view the IP devices associated with each engineer.
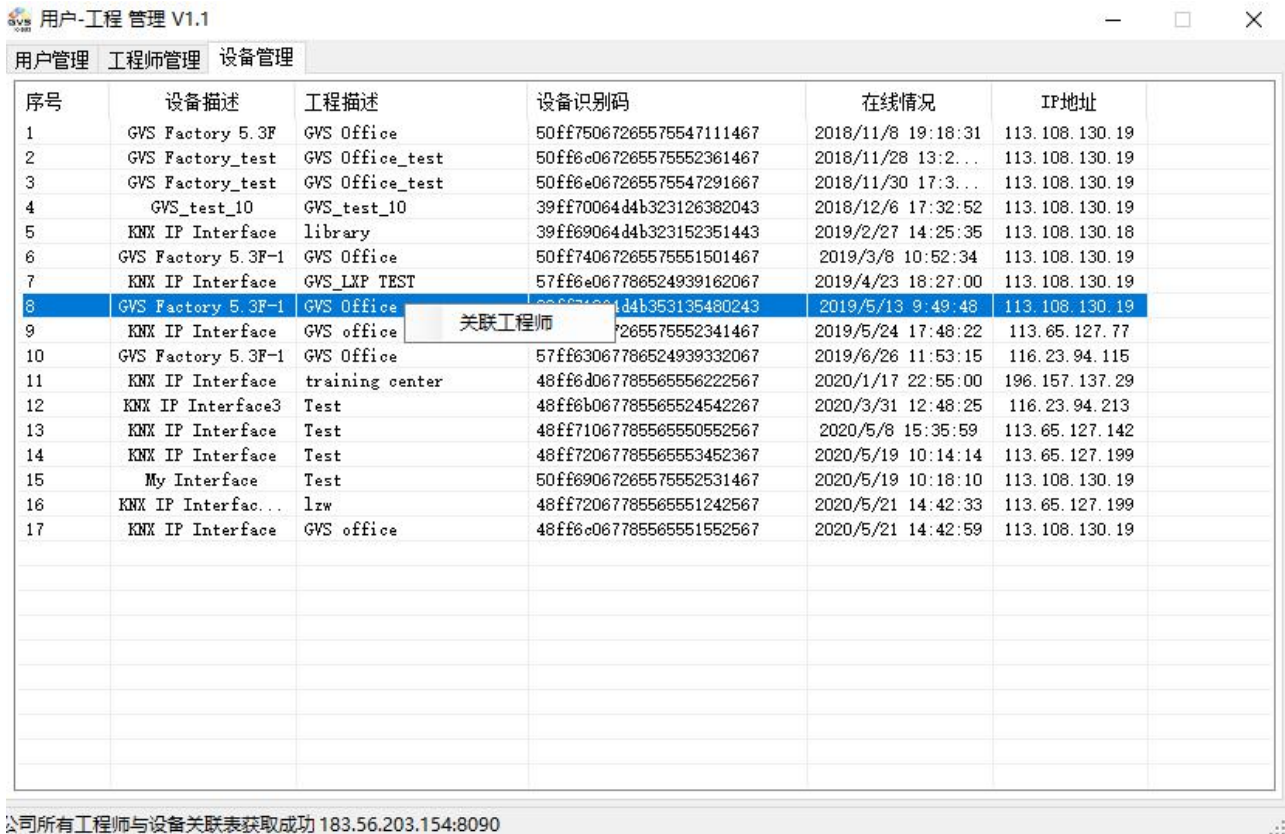

1. Select the engineer list to list all the devices managed by the engineer.

2. Right click on the device to delete the engineer's association with the device.

(3) Device Management Window:

After obtaining the device list, this window can view all registered IP devices of the company. Here you can view information about each device: device description, project description, device ID, online status, IP address. The device description and project description are obtained by the ETS configuration.

Right-click on the device to perform the operation of the associated engineer, as shown below:

5.2. Device Management Client Software

The device management client software is used to manage the IP devices of the company under the name of the engineer. Enter the company name, engineer and password to log in. After logging in, select the project in the project list, then the IP device of the project will be visible. After that, a series of operations can be performed on the IP device, such as connecting an IP device, testing transmission speed etc.

The software window is as follows:
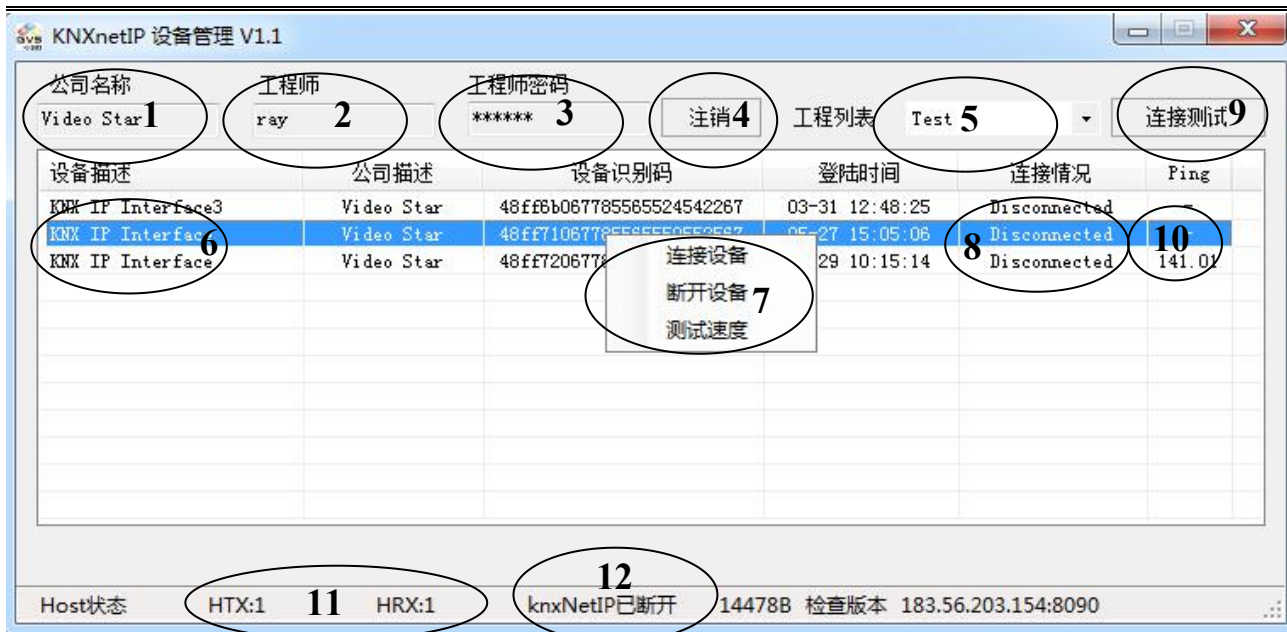
1. Enter the company name to log in.

2. Enter the engineer name to log in.

3. Enter the engineer password to log in. The information entered above is set by the user management client software, and the engineer cannot modify it.

4. Click to "login" or "logout". To log in again, you need to log out and log in again.

5. Select the project list, this information is set on EST of the device.

6. A list of all IP devices under the current project list.

7. Right click on the device to connect to the device or disconnect the device,and test the transmission speed of the device.

8. Display the connection status of the current device.

9. Connection test, test the connection status of IP devices in the list, whether they can connect to the network normally.

10.When the IP device is online, here display the transmission speed of the device, unit:ms.

11. The number of packets currently being sent and received. Double-click the device in the list to check whether the number of sent and received packets is normal. If the device does not receive the message, the device is not connected. (A heartbeat packet is sent every 16s or so to confirm the current connection status).

12. Display the connection status of knxNetIP. When the software is connected to knxNetIP, it displays the IP address and the port number of the device.

When the software is connected to IP device,it shows as below:

After confirming that the software is connected to the remote engineering IP device, select Cloud Diagnostics on the interface configuration interface of ETS5, as shown in the figure below, then you can remotely debug the project through ETS software. The prerequisite for remote debugging of the device requires that the physical address of the device in the project is assigned.

Note: The cloud debugging interface is established by the device management client software. Therefore, the software must remain open during remote debugging. After the connection is established, do not close the software. At the same time, the cloud physical address 15.15.240 cannot be changed.
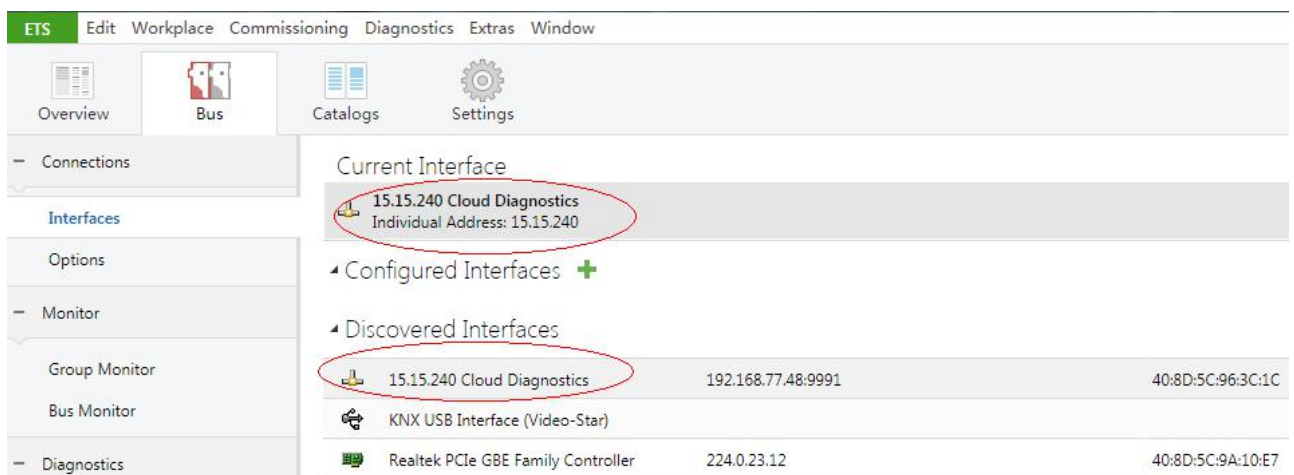
5.3. Network Configuration IP Address

The IP address of the IP device can be modified through the network. In the absence of a USB interface, the IP address can be modified via a web page so that the IP device can be connected to the ETS software, so that the IP device can be used to program and debug other devices in the project.

Modifying the IP address through the web page can only be modified locally in the project, not remotely. The specific operations are as follows:

1. Confirm that the IP device is connected properly.

2. The device will have a default IP address when it leaves the factory. Open the browser and enter the default IP address in the address bar. After confirming, you can enter the basic setting interface of the device. (Default IP address: 192.168.2.100, subnet mask: 255.255.255.0, default gateway: 192.168.2.1)

Note: The IP address of the PC needs to be in the same network segment as the IP device, and the browser can access it normally.

3. Password setting: The factory default password is admin, which can be modified, as shown in Figure 4.1. This password is only used when saving and rebooting the device.

4. IP settings: IP address, subnet mask, default gateway, DNS server, you can modify this information to make it connect to the network.

Note: When you need to reset the IP address, you can reset the IP address to the factory default address by long pressing the programming button for 5s. If the IP address is the default address, the web page configuration password will be invalidated, but the default password: admin.

5. MAC address, which is inherent to the device.

6. Equipment engineering information, this configuration by ETS, can modify this information, as shown in Figure 4.3.

7. Version information.

Fig.4.1

Fig.4.2

Fig.4.3

Chapter 6 Remote Debugging Steps

1. After obtaining the product from the manufacturer, check the product for any abnormalities.

2. Connect to the KNX system, connect the auxiliary power supply, access the network, check the indicator light, and confirm whether the power supply, KNX and network are connected.

Configure the IP interface through the ETS software to connect to the network, or configure the IP address online through the network, change the save and restart the device (see chapter 5.3 for the network configuration IP). **Note: The IP interface must be connected to the external network for remote debugging and access to the internal network. Only local debugging is supported. After accessing the external network, the LAN/LINK indicator is always on.**

3. The company administrator logs in to the user management client and establishes the relationship between the engineer and the device (see Chapter 5.1 for details).

4. The engineer logs in to the device management client and manages the IP device of the project under the personal name. For example, if the IP device is connected, remote debugging can only be performed by connecting the IP device (see section 5.2 for details).

5. Open ETS5 and select Cloud Diagnostics on the interface configuration interface of ETS.

6. Open the ETS project and you can perform remote debugging.