

RS485/KNX Bidirectional Converter Configuration Tool

User Manual -Ver. 1.4

Version Update:

Version	Update	Date
User manual Ver 1.2		2015/04/29
User manual Ver 1.4	Functions added: ACK respond, Read telegraph, Respond telegraph	2015/07/4

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1. Software Introduction

This configuration tool is supposed to be used together with the KNX/RS485 Converter (bidirectional). The physical address and database of the device can be assigned by ETS software, then the configuration tool here will be used to set the telegraph which needed to be transferred, after that the data burning process could be finished by using the USB/RS485 Converter. This tool is able to set “RS485 to KNX (write)”, “RS485 to KNX (read)”, “RS485 to KNX (1Byte)”, “KNX to RS485 (write)”, “KNX to RS485 (read)”, “KNX to RS485 (respond)”. RS485 to KNX and KNX to RS485 telegraph with a max of 512 telegraphs, 1byte type KNX plus/minus telegraph with a max of 256 groups.

2. Operating Environment

Operating System: windows XP、windows 2000、windows 2003、windows 7。

3. Software Installation

Double click .exe file.

4. Operating Guidance

Including Menu Introduction, Window Interface, User Interface Operation, Operation.

Open the software, the interface goes to Fig. 4.0.1.

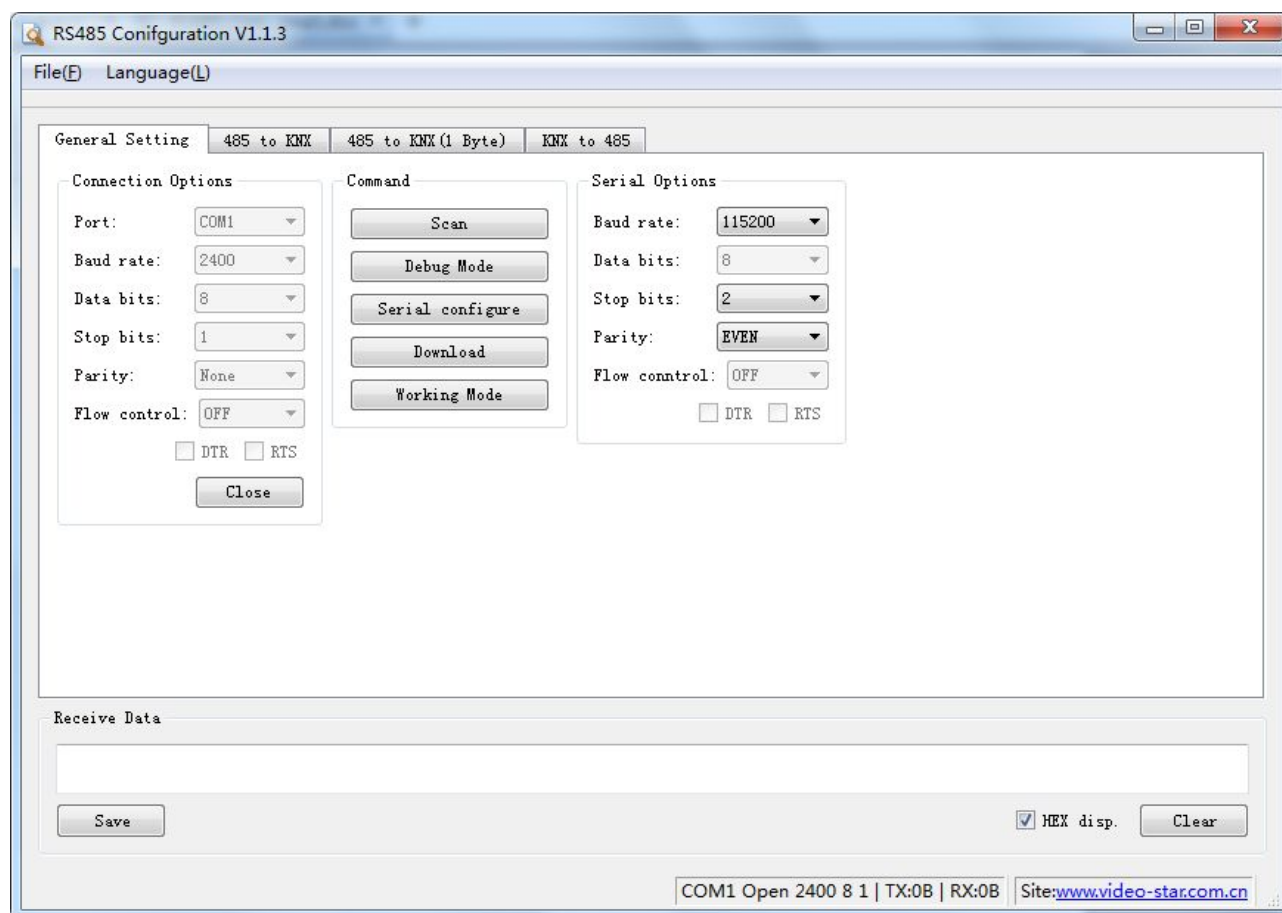


Fig 4.0.1 Software Interface

4.1 Menu Introduction

4.1.1 File



Fig. 4.1.1 File

(1) Import

Import db file, serial port parameter and telegraph parameter can be imported.

(2) Export

Export db file, serial port parameter and telegraph parameter can be saved.

(3) Close

This used to clear telegraph setting parameter, after that the new setting is possible.

(4) Exit

Exit the software

4.1.2 Language

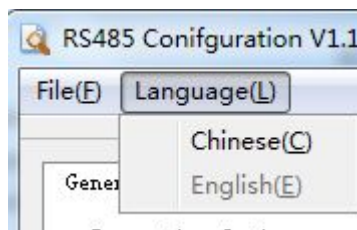


Fig. 4.1.2 Language Menu

(1) Chinese

(2) English

4.2 Window Interface

(1) General Setting

This is used to set the general features including connection parameter setting of serial port, operation command and serial port parameter setting. Fig 4.2.1 for details.

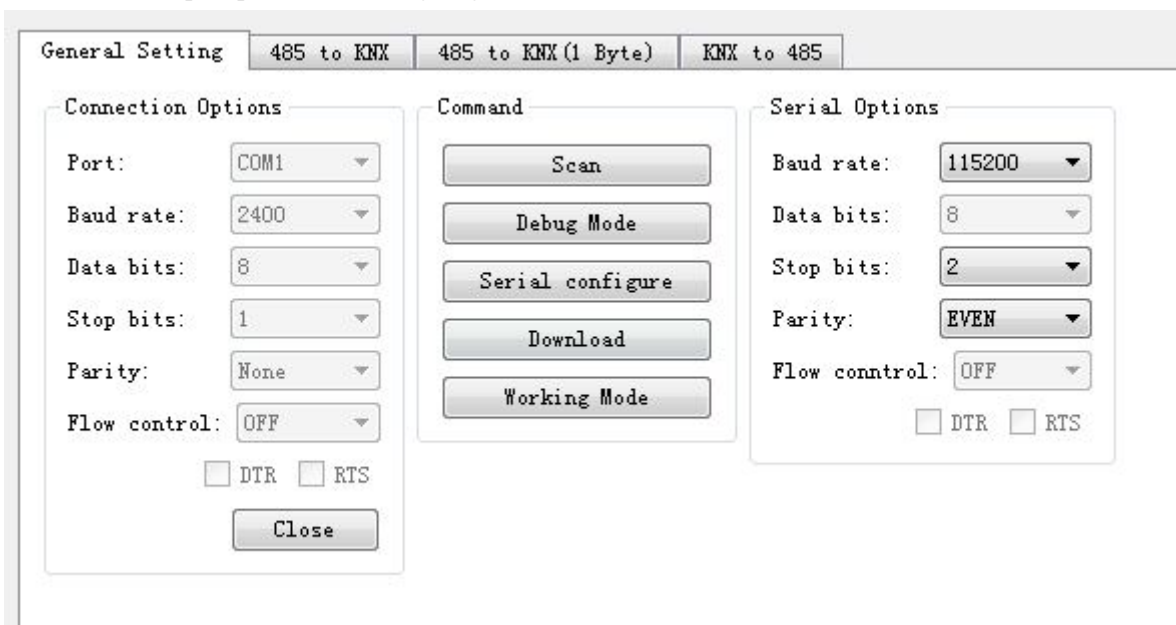


Fig 4.2.1 General Setting

(2) RS485 to KNX Telegraph Interface

This is used to transfer the RS485 telegraph into KNX one (1bit to 2Byte), this sends the commands of READ and WRITE to the BUS. Fig. 4.2.2 for details.

Fig. 4.2.2 RS485 to KNX Telegraph Interface

(3) RS485 to KNX Telegraph (1Byte) Interface

This is used to transfer the RS485 telegraph into KNX one(1 Byte). Fig. 4.2.3 for details.

Fig. 4.2.3 RS485 to KNX Telegraph (1Byte) Interface

(4) KNX to RS485 Telegraph Interface

This is used to set the telegraph transfer sent to RS485 bus when WRITE, READ and RESPOND to the KNX group address. Fig. 4.2.4 for details.

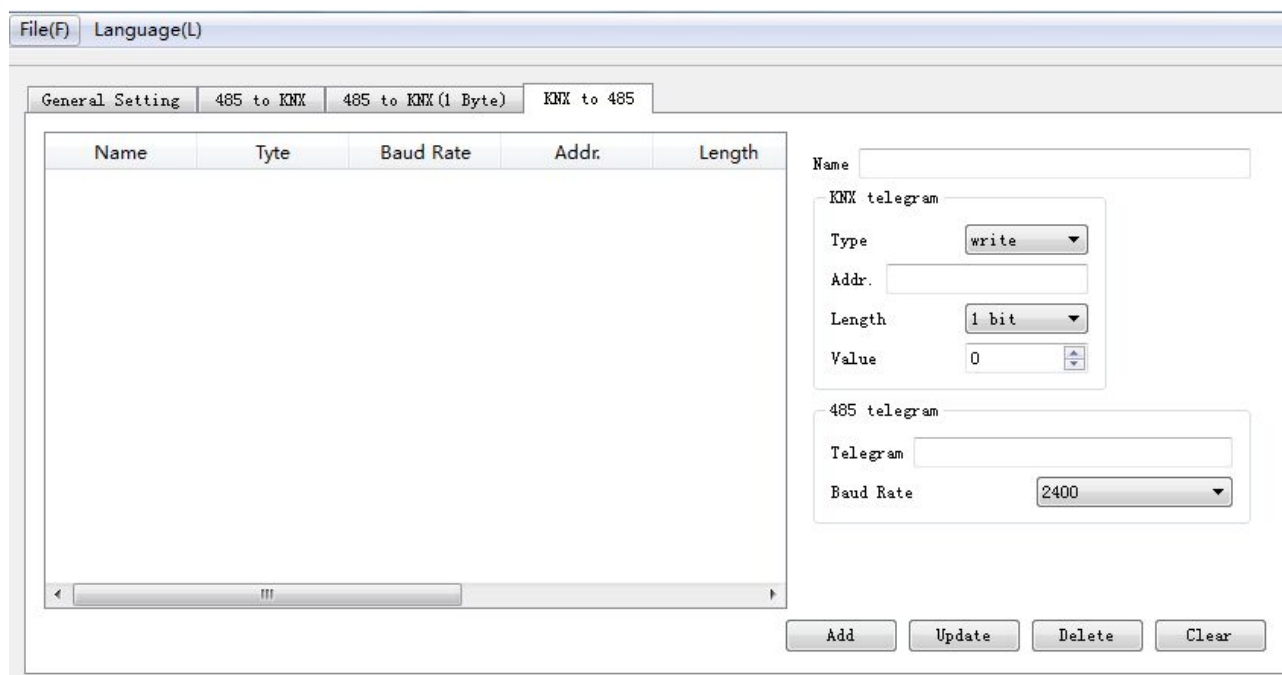


Fig. 4.2.4 KNX to RS485 Telegraph Interface

(5) Telegraph Reception Interface:

This is to display the telegraph received. Fig. 4.2.5 for details.



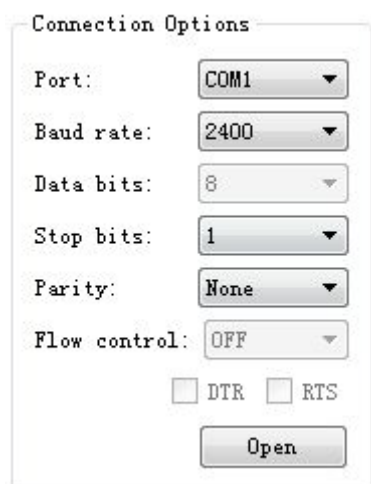
Fig. 4.2.5 Telegraph Reception Interface

4.3 User Interface Operation

This includes the serial port connection parameter, command operation interface, RS485 to KNX, RS485 to KNX (1Byte), KNX to RS485.

(1) Serial Port Connection Parameter

Choose the serial port connected now, click open the serial port will be enough. Here we don't have to set the parameters manually since the scanning can be used to update the port parameter. Manual setting is suggested only if the user knows all the details. Fig. 4.3.1 for details.



The image shows a 'Connection Options' dialog box with the following settings:

Parameter	Value
Port:	COM1
Baud rate:	2400
Data bits:	8
Stop bits:	1
Parity:	None
Flow control:	OFF
DTR	<input type="checkbox"/>
RTS	<input type="checkbox"/>

At the bottom of the dialog is an 'Open' button.

Fig. 4.3.1 Serial Port Connection Setting

(2) Command Operation Interface

When serial port connection is enabled, the interface here will be enabled with possible operation.



The image shows a 'Command' window with five buttons arranged vertically:

- Scan
- Debug Mode
- Serial configure
- Download
- Working Mode

Fig. 4.3.2 Command Operation Interface

SCAN: To scan automatically the serial port parameter for example bit rate, stop bit etc. Here the software will send commands automatically to the converter and receive feedback telegraph and then set the parameters.

Configuration Mode: After a successful scan, click this and you will enter the Configuration Mode, where the serial port parameter setting and relevant telegraph download can be realized.

Serial Port Setting: This is used to enable the parameter of serial port setting, after click the connection of serial port will be updated to the serial port parameter used now.

Data Download: To download the set telegraph, telegraph setting will be explained in latter chapters.

Working Mode: Click after setting and the converter will start working mod. If it's not clicked for long, the device will also enter working mode. Power off/on will have the same effect.

Operation: First scan to get the present serial port setting of the converter, then use Configuration Mode

button to enter configuration mode, then the following steps will be valid (or else invalid)

After that, set the serial port parameter, click Serial Port Setting to download the parameter into the converter.

After that, click Data Download to download all the data into the converter.

After download, click Working Mode to make the device work normally.

(3) Serial Port Setting Interface

This is used to set the RS485 serial port parameter with details of bit rate, stop bit, check bit, the rest unnecessary. Fig. 4.3.3for details.

The image shows a 'Serial Options' dialog box with the following settings:

- Baud rate: 115200
- Data bits: 8
- Stop bits: 2
- Parity: EVEN
- Flow control: OFF
- Buttons: ☐ DTR, ☐ RTS

Fig. 4.3.3Serial Port Setting Interface

(4) RS485 to KNX

This is used to convert the RS485 telegraph into KNX telegraph in it's WRITE and READ operation. First the RS485 for converting should be filled in with the group address, data length and value after conversion. Max telegraph converted is 512. Fig. 4.3.4for details.

Name, define a name to distinguish the telegraph

RS485 telegraph input, max 65Byte data, use "SPACE" and "-" to separate different data

Respond telegraph input, max 32Byte data, use "SPACE" and "-" to separate different data, if it's not filled then there will be no response.

KNX telegraph type, options with WRITE and READ

KNX telegraph group address, range from 0/0/1 to 15/7/255

Data Length, options with 1 Bit,2 Bit,4 Bit,6 Bit,1 Byte,2 Byte

Data Value, input within range

Add, to add the present converting telegraph

Update, to update the present telegraph

Delete, to delete the present telegraph

Clear, to clear all telegraphs

Send, to test the sent RS485 telegraph

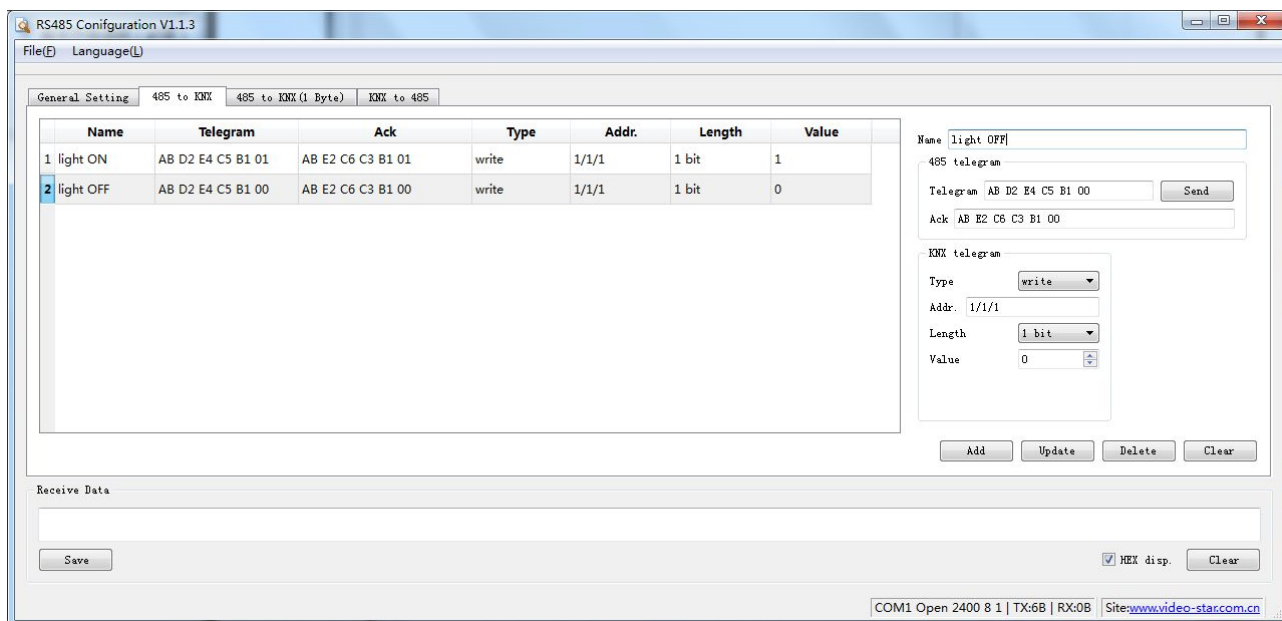


Fig. 4.3.4 RS485 to KNX Telegraph Operation Interface

WRITE is mainly used to realize the control of RS485 panel to KNX devices. The following figure has included 2 telegraphs for light ON/OFF. So when the RS485 sends "AB D2 E4 C5 B1 01", the converter will transfer it into a WRITE telegram with its KNX group address as 1/1/1 and length as 1 bit and value as 1, if this group address has been connected to the light, then the latter will be switched on. Meanwhile, the converter will respond to the RS485 "AB E2 C6 C3 B1 01", telling it that the telegram is executed. If the Respond is not set before, the converter will not send the data back for feedback. Relevant operation will work in a similar way.

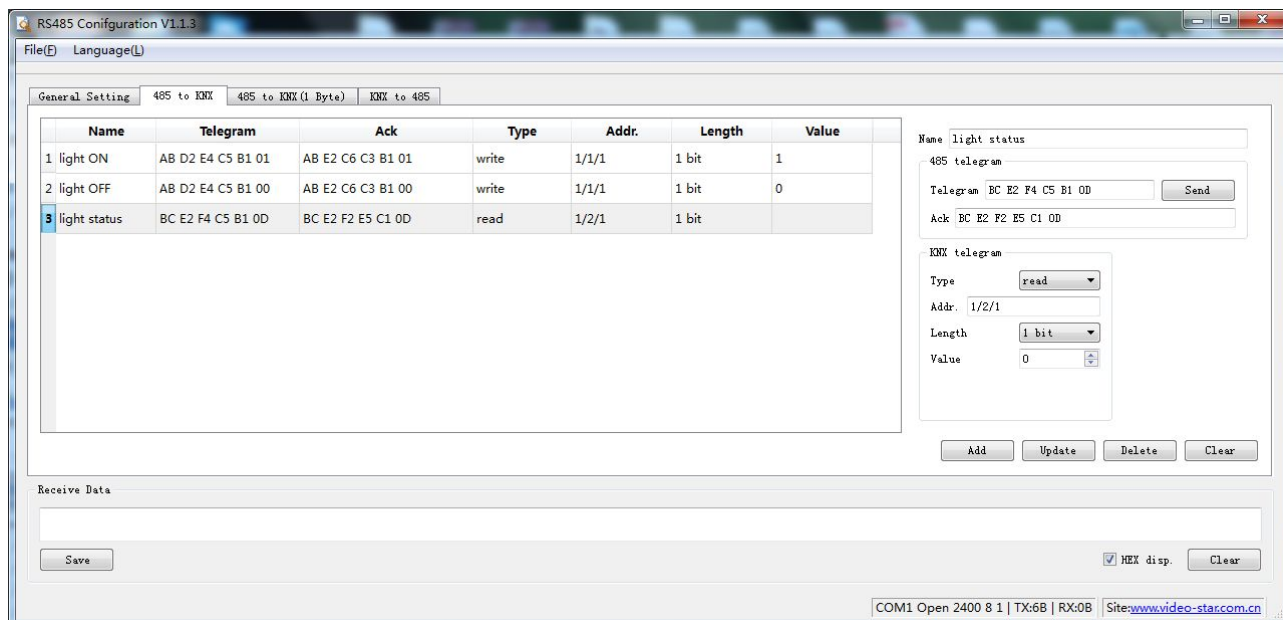


Fig. 4.3.5 RS485 to KNX Telegraph READ Operation Interface

"READ" function is mainly used to send query order from 485 panel to KNX devices. There is one telegram

configured for the state of Light1(shown in the fig.) . When “BC E2 F4 C5 B1 0D” was sent from 485 end, the gateway will transfer it to a telegram of 1bit length, with group address 1/2/1. If the group address is associated with lights state, then a reply order will be sent from the corresponding communication object. At the same time, the gateway will respond group 485 end as “2BC E2 F2 E5 C1 0D” and that means the gateway has handled the telegram. If the response telegram was not configured, then the gateway will not sent data reply.

(5)485 telegram to KNX telegram (1 Byte)

It is used to configure 485 telegram into KNX(1 Byte) telegram. You need to write required conversion 485 telegram “+”and telegram “-”, the group address after conversion,minimal value, maximum value,and interval value. It can support up to 256 conversion groups.

Name, you can fill out the name of telegram to distinguish from different meaning.

Filling out telegram(+), it can support 64Byte data at most, and you can separate them with blank or “-”.

Filling out Ack (+), it can support 32Byte data at most, and you can separate them with blank or “-”, no response for no data.

Filling out telegram(-), it can support 64Byte data at most, and you can separate them with blank or “-”.

Filling out Ack (-), it can support 32Byte data at most, and you can separate them with blank or “-”, no response for no data.

Group address of KNX telegram, you can write group address between 0/0/1 to 15/7/255.

The Min. value is used to set the minimal value of 1Byte data.

The Max. value is used to set the maximum value of 1Byte data.

The Interval value is used to set the interval value of 1Byte data.

Add. Adding the written conversion telegram.

Update. Updating present telegram.

Delete. Deleting present telegram.

Clear. Clearing all telegram.

Send. Testing telegram sent by 485.

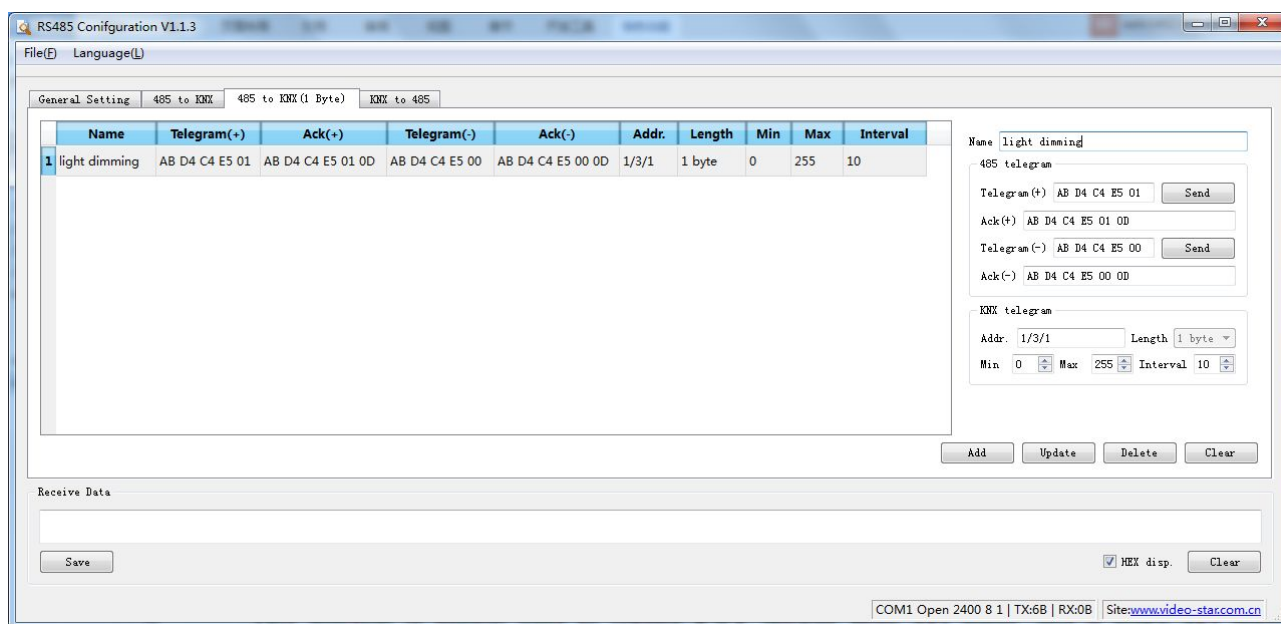


Fig.4.3.6 operation interface of 485 to KNX(1 Byte) telegram

This function is mainly used to control KNX devices from 485 panel, and it make 485 devices to communicate 2 buttons to achieve dimming, volume up/down operation possible. The data type must be 1byte. There are 2 telegram configured (shown in fig.) for lights on/off. When “AB D4 C4 E5 01” was sent from 485 end, the gateway will transfer it to a telegram of 1byte length, with group address 1/3/1. The value will be accumulated according to interval value on the basis of minimal value. If the group address is associated with lights, then the corresponding lights will be performed dimming operation. At the same time, the gateway will respond group 485 end as “AB D4 C4 E5 01 0D” and that means the gateway has handled the telegram. If the response telegram was not configured, then the gateway will not send data reply.

Similarly, reducing down operation is alike.

NOTE: the initial value is the minimal value, so it will automatically back to this value after gateway restart.

(6) KNX telegram to 485 telegram

It is used to configure KNX telegram into 485 telegram. You need to write the group address, data length, data value of KNX telegram required conversion and the 485 telegram after conversion. It can support up to 512 telegram conversion. See in fig. 4.3.7.

Name, you can fill out the name of telegram to distinguish from different meaning.

Type of KNX telegram. Write, Read, Response can be selected.

Group address of KNX telegram. You can write group address between 0/0/1 to 15/7/255.

Data length. 1 Bit, 2 Bit, 4 Bit, 6 Bit, 1 Byte, 2 Byte can be selected.

Filling out 485 telegram, it can support 64Byte data at most, and you can separate them with blank or “-”.

Baud rate. It is used to set baud rate transmit.

Data value. It is to be written in a range.

Add. Adding the written conversion telegram.

Update. Updating present telegram.

Delete. Deleting present telegram.

Clear. Clearing all telegram.

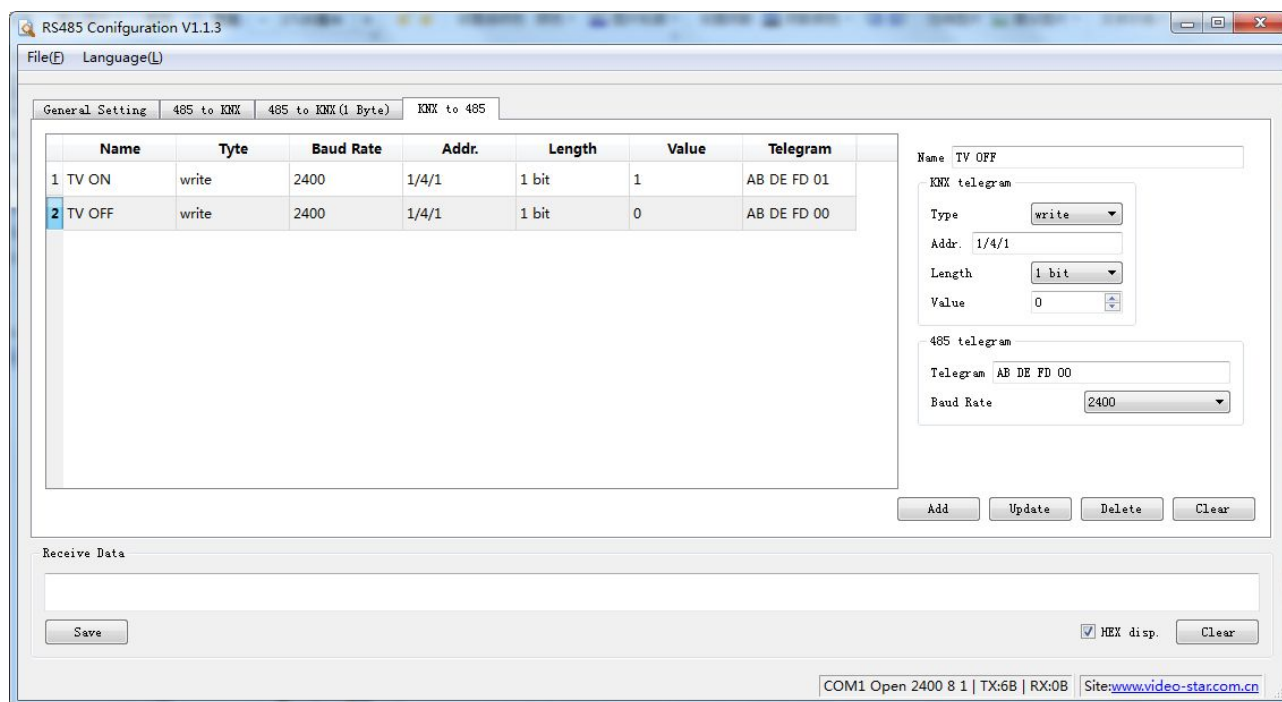


Fig.4.3.7 Operation interface of KNX to 485(write) telegram

This function is mainly used to control 485 devices from KNX devices. There are 2 telegram configured(shown in fig.) for 485 TV on/off. When the write telegram with group address 1/4/1, 1bit length, and value 1 is sent from KNX devices, the gateway will transfer it as “AB DE FD 01” to 485 end. If the group address is associated with 485 TV sets, then the corresponding TV will be turned on.

Similarly, the close operation is alike.

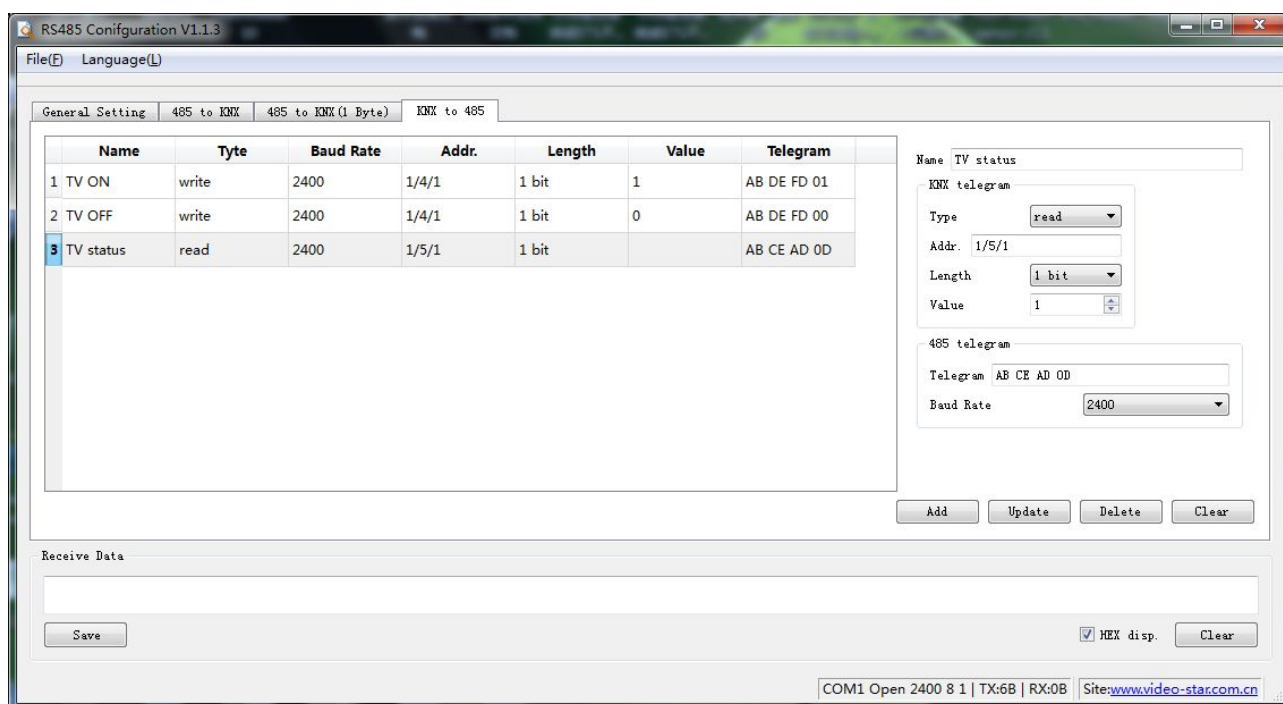


Fig.4.3.8 Operation interface of KNX to 485(read) telegram

This function is mainly used to send read order to 485 devices from KNX devices, it can be defined as control order as well. There is one telegram configured (shown in the fig.) for the state of TV. When the read telegram with group address 1/5/1, 1bit length is sent from KNX devices, the gateway will transfer it as “AB CE AD 0D” to 485 end. If the group address is associated with the state of 485 TV sets, then the corresponding TV will receive the read telegram of this state.

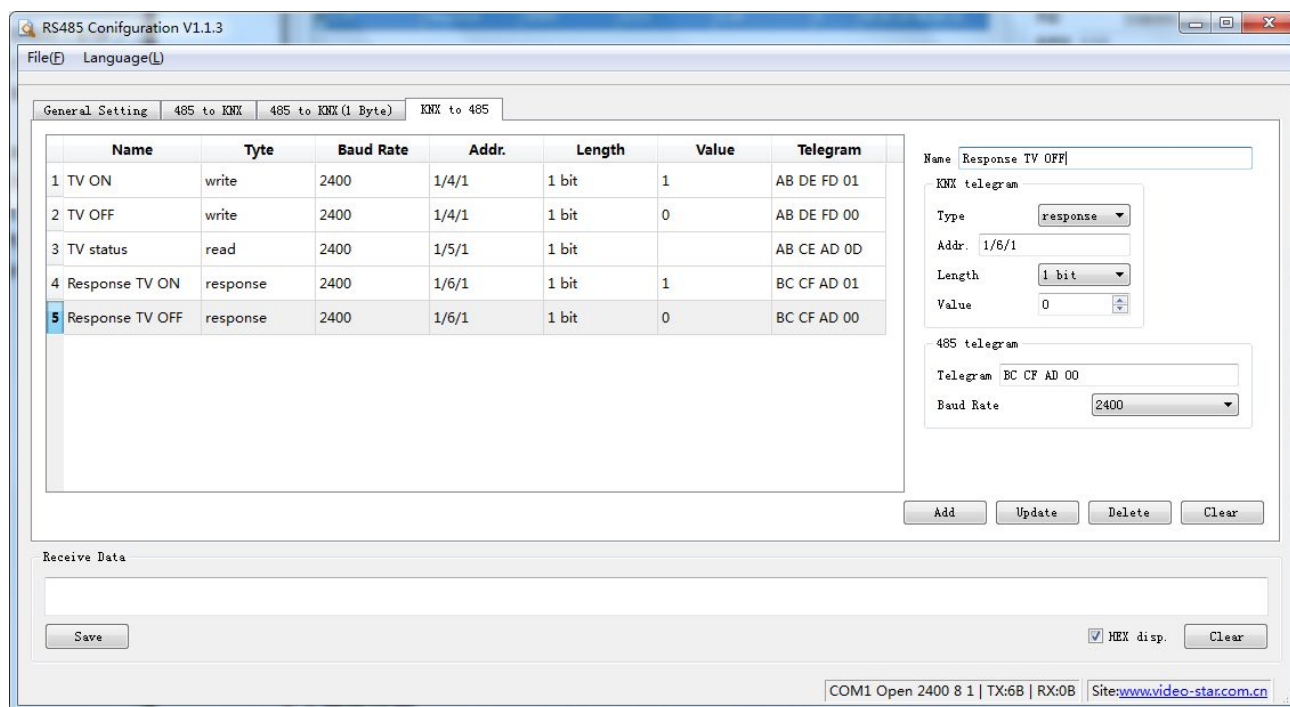


Fig.4.3.9 Operation interface of KNX to 485(Response) telegram

This function is mainly used to forward telegram to 485 devices when converting response telegram of KNX devices. There are 2 telegram configured for response (shown in fig.). When state on-the response telegram with group address 1/6/1, 1bit length, and value 1 is sent from KNX devices, the gateway will transfer it as “BC CF AD 01” to 485 end.

Similarly, the off state is alike.

4.4 Operation

Note: 485 serial Converter for debugging is needed for gateway configuration, such as a USB to 485 converter. There is no specified brand requirement for it, an ordinary one will work. Under normal circumstance, the GND of 485 end can be left unconnected, but in order to keep data stability, you can connect it to ground line.

(1) Connecting A,B,GND of USB to 485 end, and the 485 supplies VCC and GND. At the same time, connecting 485 gateway to KNX bus, and USB to 485 converter to PC.

(2) Selecting connection to PC serial, clicking open serial.

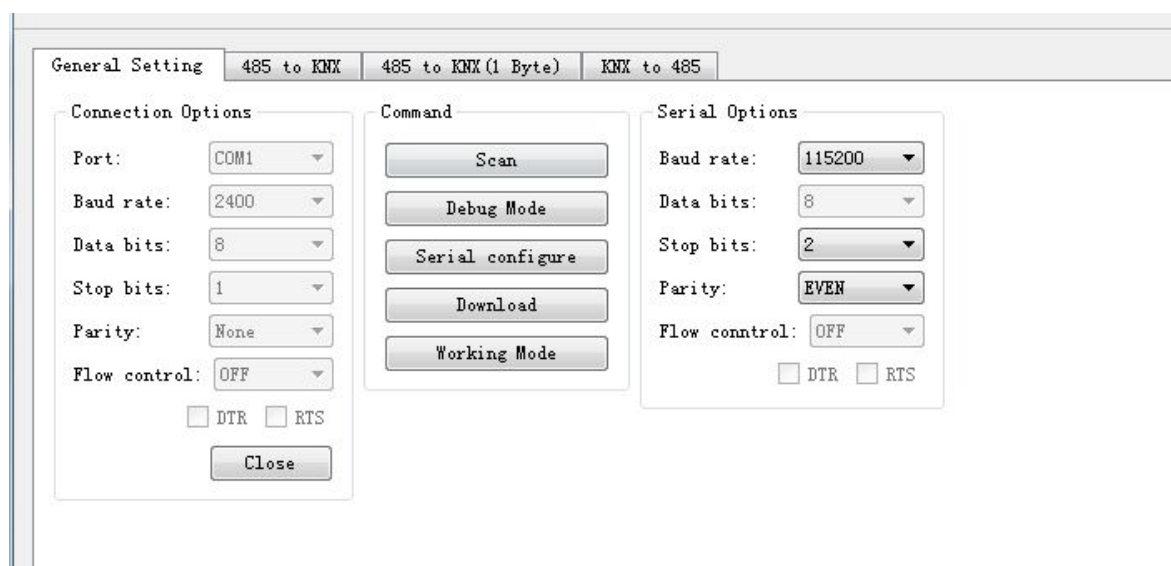


Fig. 4.4.1 Serial connection

(3) Scanning serial parameter, acquiring preset serial configuration automatically.

If any serial is detected, the interface (as shown in fig.4.4.1) will pop out, and feedback a telegram to the receiving window.

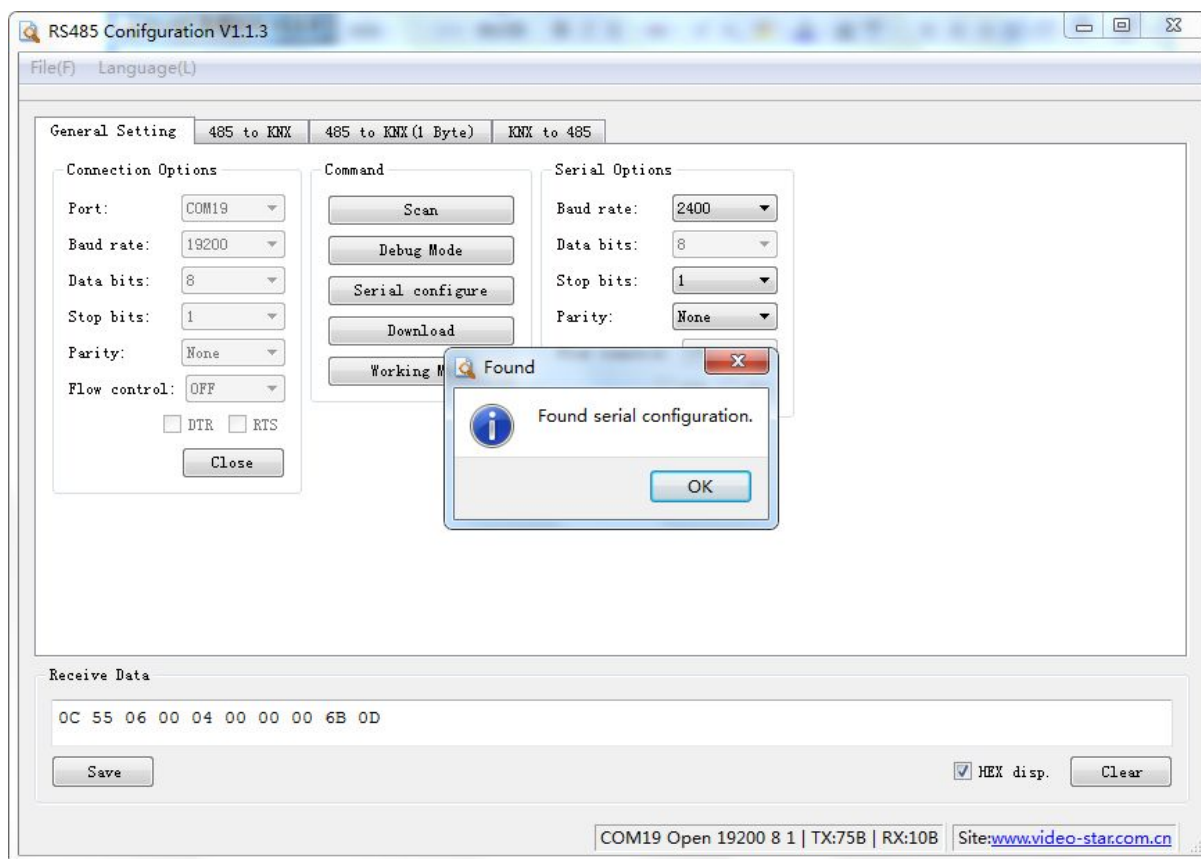


Fig. 4.4.2 Scanning gateway serial configuration

(4) Setting serial parameter, selecting serial configuration needed.

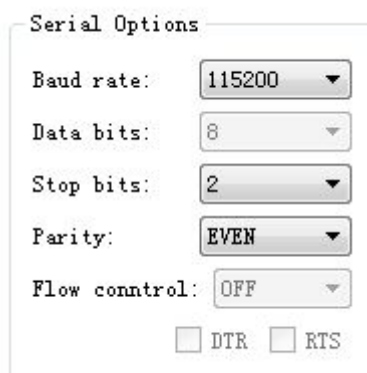


Fig. 4.4.3 Configuration of gateway serial

(5) Configuring the telegram needed to be converted.

(6) Click Debug mode, and the gateway will work under this mode and then serial parameter configuration and telegram download operation will be possible.

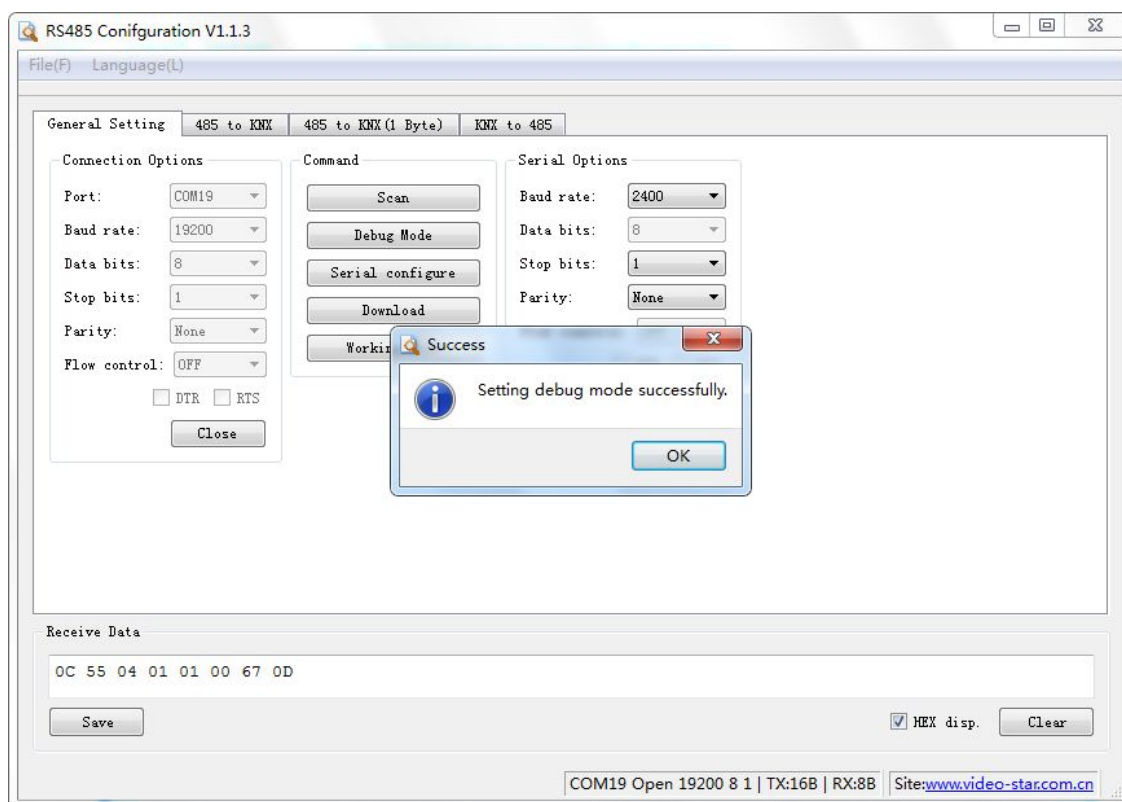


Fig. 4.4.4 Debugging Mode

(7) Click Serial Configure, and download the parameter to the gateway.

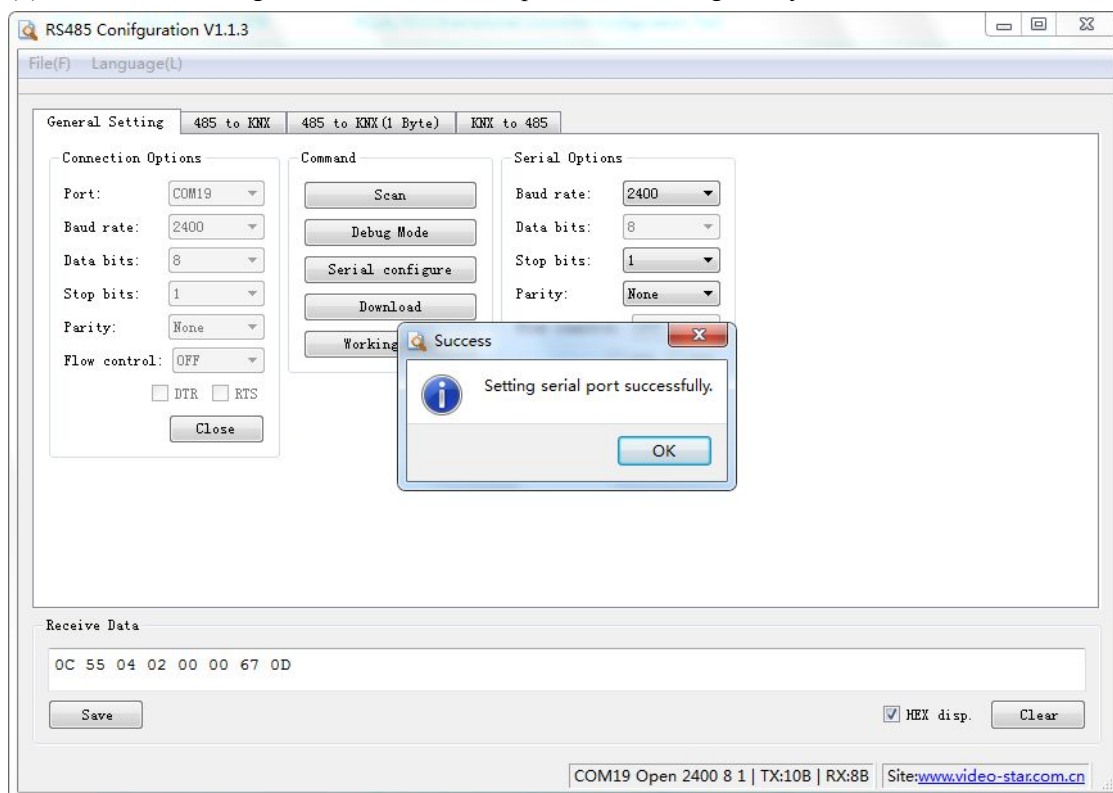


Fig. 4.4.5 Downloading the serial configuration to the gateway

(8) Click download, then all telegram will be downloaded.

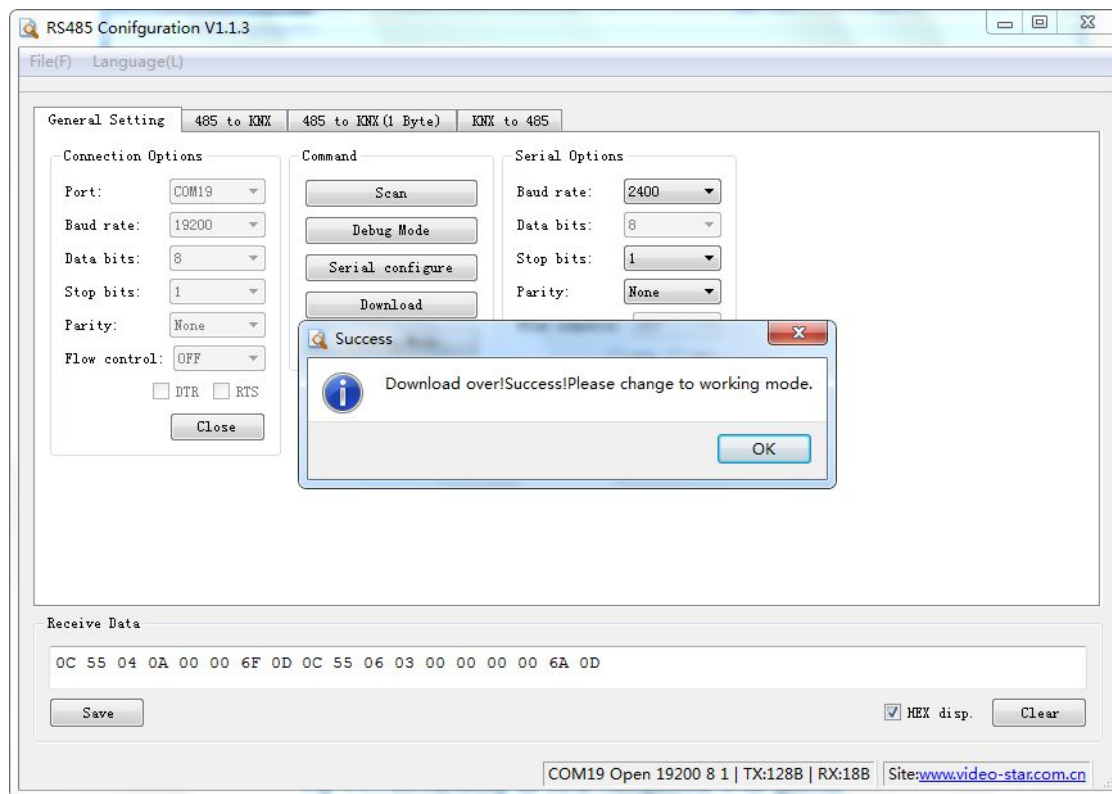


Fig. 4.4.6 Downloading data to gateway

(9) Click Working Mode, the gateway will work under this mode.

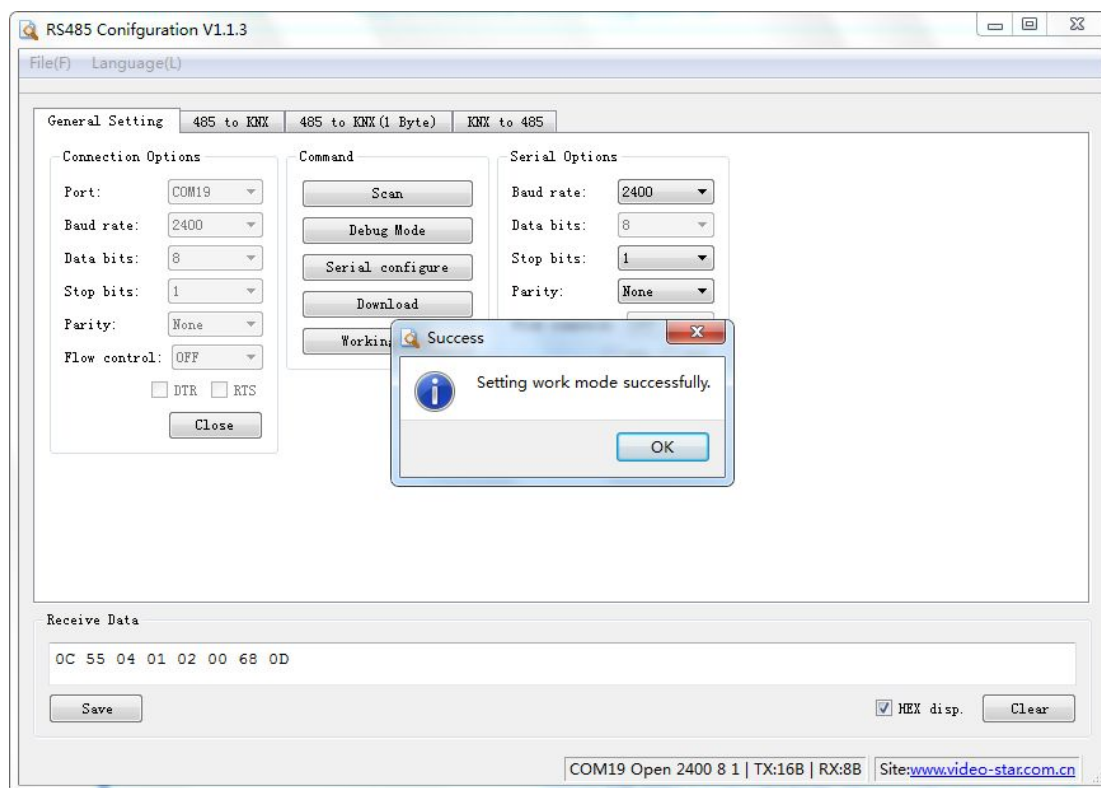


Fig. 4.4.7 Setting Working Mode

(10) Parameter import and export

Import: Click File-Import-Choosing the file you needed-Open.

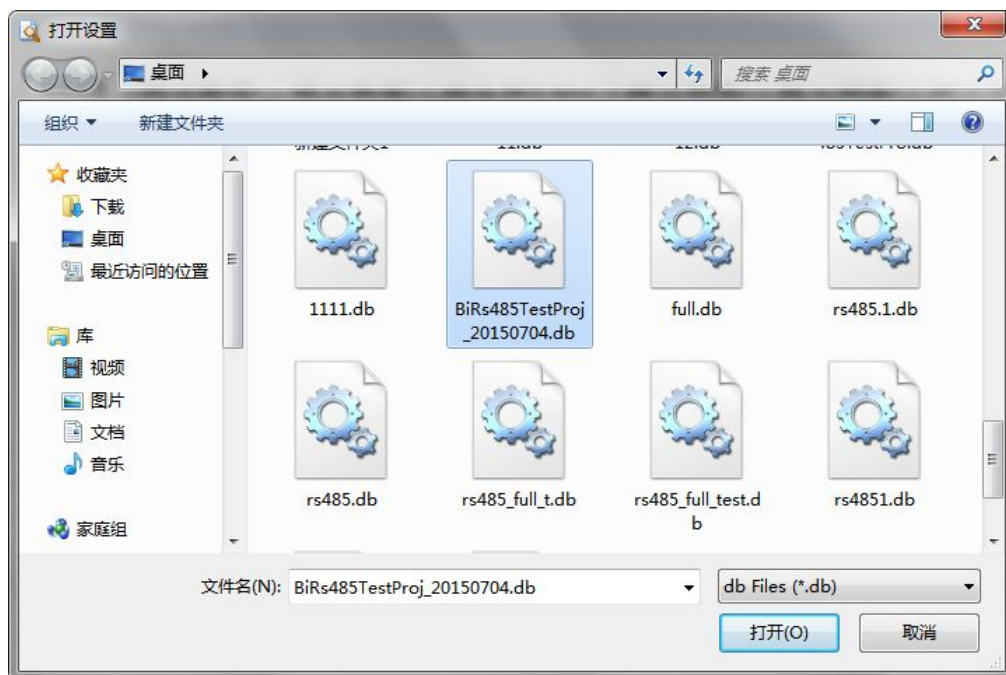


Fig. 4.4.8 Import Interface

Export: Click File-Export-File Name-Save

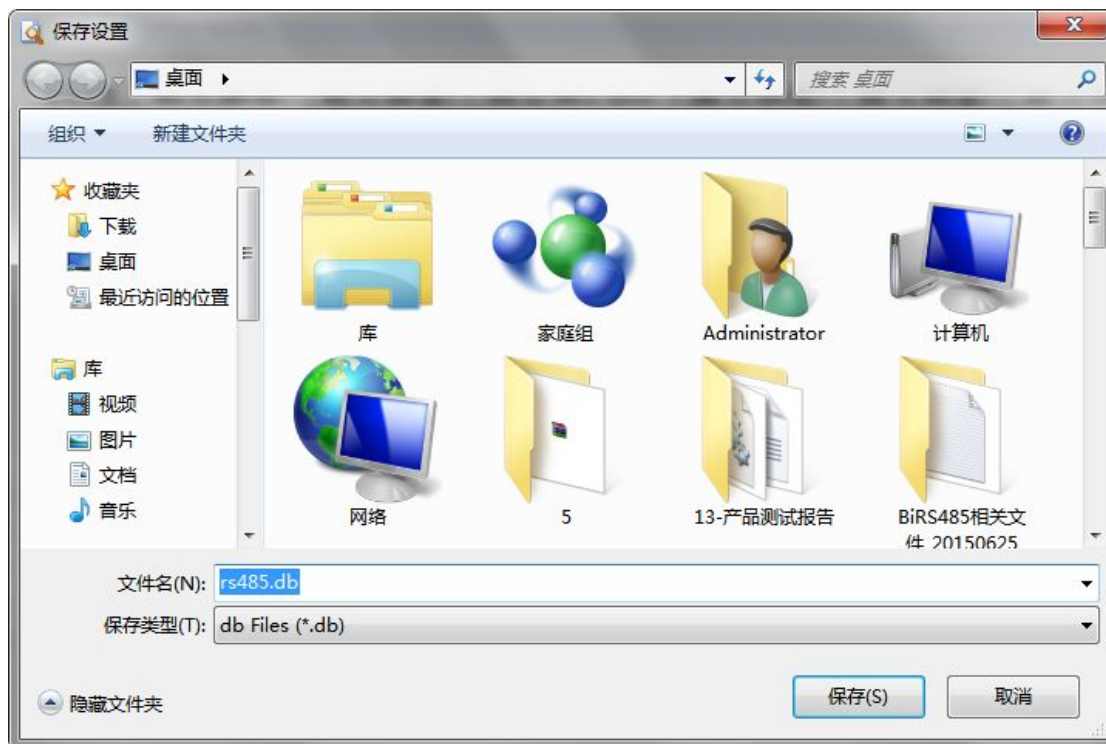


Fig.4.4.9 Export Interface