

# KNX Multi-protocol Communication Control Gateway

Manual-Ver2.1

MG0201



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## 1 Overview

This manual provides you with detailed technical information of the KNX multiprotocol communication control gateway (SC-GW-2.1.1), including installation and programming details, and explains how to use the KNX multiprotocol communication control gateway host based on actual examples (SC-GW-2.1.1). In order to facilitate installation to the distribution box, the KNX multi-protocol communication control gateway host (SC-GW-2.1.1) is designed as a modular installation device that can be installed on a 35 mm DIN rail.

Functions:

(1) With coupler function, coupling different KNX branches;

(2) KNX lines with the same group ID can be set to communicate with each other,

and KNX communication with different group IDs will not interfere with each other;

(3) It can communicate with the upper computer WINCONTROL intelligent lighting system integrated control software;

(4) 4-way RS485 standard interface (customizable)

(5) 4-way dry contact I/O contact signal input interface;

(6) 3-way infrared IR emission;

(7) 2-way LAN network interface (built-in 8-way TCP/IP or UDP port, can be used as

server or client, 2-way LAN port with switch function);

(8) All interfaces can be mixed with each other for communication;

(9) All protocol or interface data are uniformly defined by the upper-layer software sub-action library, event library, and time action execution library, and functional modules such as clock, timing, data processing, bus transceiver, and scene are added to realize central control;

(10) With clock timing management function: you can freely define the clock management of the KNX branch line scene, add time control for specific occasions, and switch the light timing through the schedule; the system comes with a calendar, and you can choose the year, month, day, week and The setting of a specific day can set up to 128 event time management;

(11) Scope of use: projector, air conditioning system, background music system, landscape lighting system, fire emergency lighting system, I/O signal input system, security access control system, infrared equipment system, geothermal heating system, lighting management control software , teaching platform software system, central control system, warehouse management system, hospital medical management system;

(12) Open connection with third-party software platform systems;

## 2 Detailed parameters

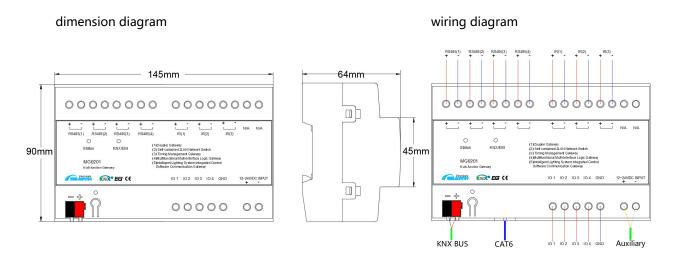
Bus input	21-30V DC	
Bus current	≤10mA	
Auxiliary voltage	24 VDC	
Auxiliary current	<75mA	
	4-way RS485 (Custom Interface)	
	3-way IR interface	
Function interface	2-way LAN network (8-way TCP/IP/UDP)	
	4-way I/O ports	
	1-way KNX/EIB interface	



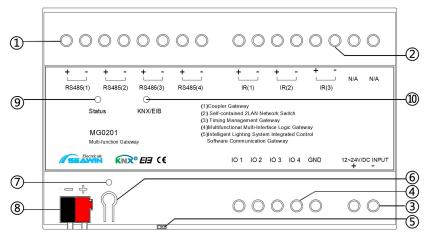


Shell material	PA66
Dimension (H x W x D)	90mmX144mmX64mm
Weight (approx.)	0.3KG
Installation method	35mm DIN rail mounting
Operating temperature	-5°C- 45°C
Storage temperature	-20°C- 70°C
Transportation temperature	-25°C+70°C
Relative humidity	max 90%

## **3** Dimension diagram and wiring diagram



## 4 Product Operating Instructions



①Description: RS485 terminal block: one in and one out, the aperture can be connected to φ4 wires;
②Description: IR terminal: one in and one out, the aperture can be connected to φ4 wires;
③Description: 12~24VDC power supply wiring port, the aperture can be connected to φ4 wire;
④Description: IO terminal: including 4-way IO, the aperture can be connected to φ4 wires;
⑤Description: Network LAN port, with switch function, can be connected with CAT6 network cable;
⑥Description: Reset button, press and hold for 10s to complete the reset operation;
⑦Description: Reset indicator light, when the reset operation is completed, the indicator light flashes red;
⑧Description: KNX terminal block, KNX bus connection, the red line is connected to "+", and the black line is connected



#### to "-";

5

②Explanation: Device power status indicator, when the indicator is green, the device bus power supply status is normal;
 ③Explanation: KNX bus status indicator light, the indicator light is green in normal state, and the indicator light is off in abnormal state;

## Software Introduction

## 5.1 Interface introduction

#### 5.1.1 New project interface

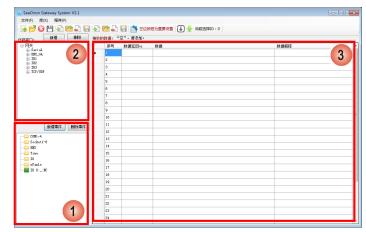
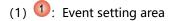


Figure 5.1



- (2) 2: Action library
- (3) 3: Event action correlation setting area
- 5.1.2 Basic information setting interface

未启用该Socket。	未启用该Soo	ket•	Socket3 未启用さ		设置	Socket4 未启用该Sock	
Socket5 未启用该Socket。 设置	Socket6 未启用该Soc	ineto Web	Socket7 未启用は		设置	Socket8 未启用该Sock	set o 设置
串口设置: COM1	C0#12		COM3			CO#4	2
波特案: 1200	▼ 波特案: 1	200	<ul> <li></li></ul>	1200	•	波特率: 12	200
奇偶校验: 无	<ul> <li>奇偶校验:</li> </ul>	无	▼ 奇偶校验	: 无	•	奇偶校验:	无 ,
傳止位: 1 个傳止位	<ul> <li>傳止位:</li> </ul>	1 个停止位	<ul> <li>傳止位:</li> </ul>	1 个停止位	-	停止位:	1 个停止位 ,
	15	I Nod			lodbus		I Modbus

Figure 5.2



自用本Socket	基本设置 IP地址: 端口: 工作模式:	0 . 0 . ( 0 TCP Service	0 . 0
<ul> <li>心跳包设置</li> <li>□ 启用心跳包(建议启用)</li> <li>心跳包执行周期(秒): 0</li> <li>心跳包数据(18个字节内):</li> </ul>			V HEX
	ſ	确定	取消

Figure 5.3

(1) (1): 8-way socket settings. Click "Settings" in the lower right corner of the corresponding socket to pop up the setting interface (as shown in Figure 4.3), check "Enable this socket", each socket has "TCP Client", "TCP Service" and "UDP" three working modes, select the required mode and set the corresponding IP address, port and other parameters;

(2) Heartbeat packet settings: To active the heartbeat packet, check "Enable heartbeat packet", set the heartbeat packet execution cycle, and fill in the heartbeat packet data. After the setting is completed, the socket will continuously send the set data according to the set heartbeat packet execution cycle.

(3) 2: Parameter setting of 4-way RS485 serial ports. "baud rate", "parity" and "stop bit" can be set.

5.1.3 Gateway settings interface

1) Click "IR Learning" to perform IR learning on IR1, IR2 and IR3 channels.

✓ SeaCtron Gateway Setting 注意:不能同时插入网关和近外学习设备。	
[紅外学习] 网络模块设置   2002网关设置   数据下载   红外学习	通讯端口 ◎ USB ● 网络
<ul> <li>● IR1</li> <li>● IR2</li> <li>● IR3</li> <li>进入学习(普通)</li> <li>进入学习(空调)</li> <li>红外潮试</li> <li>週出学习</li> <li>红外学习執握保存路径:</li> </ul>	网络连接相关 为了保证数据传输和设置参数 的稳定性,想要通过网络设置 网关除了"初始化设置"以外, 其他必须通过TCFi连接未执行。
新建红外数据 打开红外数据 数据保存	网络模块IF地址: 192 168 1 135 端口: 1001 TCP连接

Example: IR learning for IR1\_ID0.

- (1) Connect the infrared learning device;
- (2) Open the infrared learning interface;
- (3) New infrared data;
- (4) Select IR1;
- (5) Select the corresponding ID;

(6) Click "Enter Learning (General)" or "Enter Learning (Air Conditioning)", and the LED on the infrared learning device is blinking;

(7) Point the learned infrared device (such as a TV remote control) at the infrared learning device, press the button, the LED on the infrared learning device stops flashing, and the "\*" symbol appears in the upper right corner of the corresponding ID (IR1\_ID0), which represents the infrared Learning success



- (8) Click on the infrared test;
- (9) After the test is correct, enter the infrared learning of the next ID;
- (10) After learning, click "Data Save";
- (11) Unplug the infrared learning device. (Note: the gateway and infrared learning device cannot be inserted at the

#### same time)

2) Click "Network Module Settings"

<ul> <li>SeaCtron Gateway Setting</li> <li>注意:不能同时插入网关和红外学习设备。</li> </ul>		
红外学习 网络模块设置 IOIX网关设置 数据下拿 网关网络模块设置 IP地址: 192 .168 .0 .136 子网箱码: 255 .255 .255 .1	或 初始化设置 通过网络搜索设备	通讯端口 ② USB ④ 网络
Trystep:     223 : 233 : 233 : 1       默认网关:     192 : 168 : 0 : 1       首选DKS:     194 : 25 : 2 : 129       备用DKS:     194 : 25 : 2 : 130       端口:     1001	NAC:1E3017722357 (192.168.0.136)	网络连接相关 为了保证数据传输和设置参数 的稳定性,想要通过网络设置 网关除了"初始化设置"以外, 其他必须通过TCF连接来执行。 网络模块TF地址: 192,168,0,136
2 同步网关时钟 获取网关时钟	设定"网关网络模块"	端口: 1001 TCP连接
设备信息获取成功。		

①: Click "Search for devices through the network", you can search all online devices on the same local area network.

Double-click the device you want to edit. You can change the parameters such as IP address and port in the "Gateway Network Module Settings" . After completing the settings, click Set "Gateway Network Module" to change its parameters

Network connection: Double-click the device you want to edit from the searched devices and click "TCP connection" in the lower right corner to connect the devices.

2: After the device is connected to the network, click "Get Gateway Clock", the current time of the gateway is displayed in the lower left corner of the interface; click "Synchronize Gateway Clock" to synchronize the clock on the gateway and the computer.

(3) Click on "KNX Gateway Settings"

江外学	3 网络模	块设置 KMX网关设置	数据下载			诵讯端口
F	可关网络植块	·设置				
	设备名称:	Seactron		IP地址:	192 . 168 . 0 . 122	
	设备组别:	组:2	•	子网摘码:	255 , 255 , 255 , 0	网络连接相关
	设备IIAC:	00 08 26 75 24 43		默认网关:	192 . 168 . 0 . 1	为了保证数据传输和设置参数 的稳定性,想要通过网络设置
	KART HE HE (D-					网关除了"初始化设置"以外 其他必须通过TCP连接来执行。
	控制传输递	择: TTL、网络	VRNX 🚽			网络模块IP地址:
	荻取	设备信息	设备	i重启	设定	端口: 1001
						断开连接

After the network connection is successful, click "Get Device Information" to get the parameters in the setting of KNX module , and you can also set the parameters of the KNX gateway network module. After setting all parameters, click "Set". If you need to restart the KNX gateway, click "Device Restart".



#### (4) Click "Data Download"

红外学习 网络模块设置 1000网关设置 数据下载2	通讯端口
程序下载	◯ USB
F:\场盈电气工作设料\研发、测试\网关测试\网关测试L程T [20150818] 测览 进入下载模式 连接 下载	网络连接相关 为了保证数据传输和设置参数 的稳定性,想要通过网络设置 网关除了"初始化设置"以列 其他必须通过10许将来执行:
红外线数据下载 异出或导入数据选择:全部 ▼	网络模块IP地址:
→山田→→ (あれめの)*・王申	PP394根以F17007E: 192 . 168 . 1 . 135 端口: 1001 TCP连接

1: Communication port setting area

Download data commonly used internet connection.

## 2: Program download area

Network download: After setting the IP address and port, click "Connect", after the "Network connection succeeded" is displayed in the lower left corner, click "Download" directly.



3: Infrared data download area

Export or import data selection ", optional: all, infrared group 1, infrared group 2, infrared group 3; path of import data, click" execute import data "

### 5.2 Programming example

### 5.2.1 Example of data conversion between different protocols

1) Double-click to open the software tringered, pop-up programming interface

2) "File"  $\rightarrow$  "New Project";

3) Click "Basic Information Settings", if you need to use socket or RS485 port, first set the basic information of the corresponding interface;

4) Click "Add event", empty folder appears, as shown below.



Double-click the folder, the following interface appears



‡库:	名称:	
	接收源选择:	
	普通模块:	串口:
	COM Socket1 Socket2 Socket3	Socket Socket Socket Socket
	选择提示: 空描令	
	在下面的文本框中填入搬收代码	HEX

Select the receiving source, fill in the receiving code and name, and click OK to finish. Example: Click "COM1", and enter "11" in the receiving code. When the data is hexadecimal, you need to select "HEX".

5) Drag the port that needs to send data to "Data" in the table, for example: send port is "KNX\_GA", drag "GA" to "Data" in the table, and the following window pops up:

<b>区</b> KNX发送设定	
说明: 在组地 进制的数据。	3址中输入十进制的数据,在数据中输入十六
组地址:	0 0 0
数据长度:	0-6Bit 👻
数据:	00
	<b>确定 取消</b>

Fill in the group address, data length and data sent, and click OK. Appropriate data appears in the table

席号	数据延迟ms	数据	数据解释	
1	5	F2 13 00 05 01 00 03 F5 00 00 00	KKX:0/0/0:00	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	I         S           2         -           3         -           4         -           5         -           6         -           7         -           8         -           9         -           10         -           11         -           12         -           13         -           14         -           15         -	1         5         72 13 00 05 01 00 03 75 00 00 00           2             3             4             5             6             7             8             10             12             13             14             15	1         5         12 13 00 05 01 00 03 F5 00 00 00         DDD:::0/0/0:00           2         Image: Ima

You can drag up to 30 sent data into the table. If you need to delete some, delete the data under "Data" corresponding to the transmission instruction in the table.

The action library can also be set in advance, and all the actions to be used are written into the action library. When the events and actions need to be associated, drag the corresponding action to the event action association setting table of the corresponding event. The steps to build an action library are as follows:

- (1) Pull down the "Library" in the menu bar to create a new action library;
- (2) After the new action library is created, the newly created action library will be generated in the interface, as shown below:





- (3) Select the action library and click "Add" above to pop up the newly added action "Action".
- (4) Double click "Action" <sup>(2)</sup>, the action and event library window appears on the right <sup>(3)</sup>, drag the action in <sup>(1)</sup> you

want to set to the data in 3, a data filling box pops up, after completing, click OK, the data and explanation of

this action will be displayed automatically in (3). Click Finish to save this action.

(5) Pull down the "Library" in the menu bar and click "Save Action Library" to save the entire action library.

SeaCtron Gateway System V2.1		
文件(F) 库(K) 程序(P)		
	🛛 崎 上 🔚 📩 左边按钮为重要设置 🕕 🔶 当前选择ID : 0	
代码窗口: 新增 翻除	据收的数据: 12	
□ 同关   □ Serial	动作、事件库窗口	3
- COM1	名称: Actionl	
COM2 COM3	<b>赴报</b> :	
- CON4 - XXX_GA	#1041* 解释: 无法解释。	
IR1     IR2		
IR3     TCP/UDP	完成	
- ActionFile (2015-05-05)		
新贈事件 删除事件	1	
XNI		
- <u></u> D 2		
xPanle		
	•	

6) After writing, open "Program" → "Basic Information Settings"

Socket1 未启用该Soc		Ē	Socket2 未启用该Soc		置	Socket3 未启用该Soc	_	置	Socket4 未启用该Soc		55
Socket5 未启用该Soc		盂	Socket6 未启用该Soci			Socket7 未启用该Soc	_	語	Socket8 未启用该Soc		2.1
1口设置: COM1			COM2			COM3			C0//4		
波特室: 1	200	•	波特室: 1:	200	•	波特室: 1	200	-	波特室: 1	200	•
奇偶校验:	无	•	奇偶校验:	无	•	奇偶棱验:	无	•	奇偶校验:	无	•
停止位:	1 个停止位	-	停止位:	1 个停止位	•	停止位:	1 个停止位	•	停止位:	1 个停止位	•
	🕅 No	dbus		<b>n</b>	odbus		<b>I B</b>	dbus		<b></b>	odbus

After setting the corresponding information, click OK

7) Click "Program"  $\rightarrow$  "Gateway Settings", the following interface appears



意:不能同时插入网关和红外学习设备。 外学习 网络模块设置 1000网关设置 数据下载	
	通讯端口
程序下载	○ USB ◎ 网络
C:\Users\Administrator\Desktop\ctrlFile(2015-04-10).ted	
进入下载模式 连接 下载	网络连接相关
	网络模块IP地址:
	192 168 0 132
红外线数据下载	端口: 1001
与上式与入数据选择: 全部	
ALTINA (SUBSIA ED.	
导入数据路径: 浏览	
执行导入数据	
	连接

If the IR data is set in the sending data, click "IR learning"  $\rightarrow$  "New IR data"  $\rightarrow$  select the corresponding IR  $\rightarrow$  "Enter learning"  $\rightarrow$  point the remote controller you want to learn to the infrared learning device and press the button until the corresponding ID "\*" appears in the upper right corner  $\rightarrow$  "Infrared test"  $\rightarrow$  "Data save". After the infrared learning is completed, unplug the infrared learning device. (Note: the gateway and infrared learning device cannot be inserted at the same time)

8) Connect to the network and configure the network module.

After setting, click "Settings". Select "Network" on the right, change the IP address and port of the network module to the corresponding IP address and port on the left, and click "Connect". "Network connection succeeded" is displayed at the bottom left.

146学习 网络相	真块设置 KNNX网关设置 数据T		
网关网络模块		初始化设置	通讯端口 ◎ USB ● 网络
IP地址:	192 . 168 . 0 . 136	通过网络搜索设备	
子阿掩码: 默认网关: 首选DRS: 备用DRS: 端口:		MAC:1E3017722357 (192.168.0.136)	网络连接相关 为了保证数据传输和设置参数 的稳定性,想要通过网络设置 网关统了"初胎化设置"以外 其他公须通过TCF连接来执行。 网络模块IT地址: 182 _ 168 _ 0 _ 138
同步网关时	<b>·</b> · · · · · · · · · · · · ·	设定"网关网络模块"	」 端口: 1001 TCP连接

9) Click "KNX Gateway Settings"  $\rightarrow$  "Get Device Information" to set the gateway network module. After setting, click "Set".

10) Click "Data Download". If IR is set, you need to download infrared data first, and then download program.

### 5.2.2 Example of timing settings



2) "File"  $\rightarrow$  "New Project";

3) Click "Basic Information Settings", if you need to use socket or RS485 port, first set the basic information of the corresponding interface;

4) Click "Add event", empty folder appears, as shown below



	COM1-4
	Socket1-8
	KNX
-	Time
-	10
	xPanle
	ID 0:_:NC

Double-click the folder, the following interface appears

2 ID 0 事件设置 事件库:	名称:	
	#次语选辑: 著通镜块: 	
		288     coin:     coin:     coin:       Image: Coin:     Image: Coin:     Image: Coin:     Image: Coin:       Image: Coin:     Image: Coi
	2014年2011 王信司 在下面的文本哲中頃入操唆代码	I HEX
		前定 取消

Click the Time icon was and the following figure will pop up. Fill in or tick the timing of the time.

Time定时执行	Ī				
日期:	2015-11-03 12	:19:24		🔲 指定年	份 🔲 指定月份 📄 指定日
重复星期	月: 🔲 星期日	🔲 星期一	🔲 星期二	■ 星期三 ■ 星	星期四 🔲 星期五 🔲 星期六
里麦生共	ル・ 🗌 生期口	□ 星期一	□		E期四 🗌 重期五 📄 重期六

For example:

(1) Set the timing every Monday to Friday at 8:30 in the morning, then set 8:30:00 at the date field, and check "Monday", "Tuesday", "Wednesday", "Thursday" and "Friday" "

(2) Set the timing of every Saturday at 12:00 in August 2019, then set 2019-08-\*\* 12:00:00 (\*\* is any number) at the date field, and check "Specify the year" "Specify the month" " Saturday ".

(3) Drag the port that needs to send data from the code window to "Data" in the table, for example: the sending port is "KNX\_GA", drag "GA" to "Data" in the table, and the following window pops up:

C KNX发送设定	
说明: 在组地 进制的数据。	址中输入十进制的数据,在数据中输入十六
组地址:	0 0 0
数据长度:	0-6Bit 👻
数据:	00
	<b>确定 取消</b>

Fill in the group address, data length and data that you want to send, and click OK. The corresponding data appears in the table



序号	数据延迟ms	数据	数据解释
1	5	F2 13 00 05 01 00 03 F5 00 00 00	XXX:0/0/0:00
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

You can drag up to 30 sent data into the table. If you need to delete some transmissions, delete the data under "Data" corresponding to the transmission instruction in the table.

- (4) After setting, save the project file
- (5) Click "Program"  $\rightarrow$  "Gateway Settings", the following interface pops up:

I外学习 网络模块设置 IXXX网关设置 数据下载	12 m tel m
程序下载	通讯端口 ○ USB ● 网络
C:\Users\kdministrator\Beaktop\ctrlFile(2015-04-10).ted 進入下载模式 连接 下载	网络连接相关 网络模块IP地址: 192 .186 . 0 .132
红外线款据下载 导出或导入数据选择:全部 ◆	號口: 1001
导入数据路径: 浏览 执行导入数据	

Click "Network Module Settings" above, as shown below:

	模块设置 KANK网关设置 数据		通讯端口			
网关网络模式	网关网络模块设置 初始化设置					
IP地址:	192 . 168 . 1 . 115	通过网络搜索设备				
子网掩码:	255 . 255 . 255 . 1		网络连接相关			
默认网关	192 . 168 . 1 . 1		为了保证数据传输和设置参数			
首选DNS:	194 . 25 . 2 . 129		的稳定性,想要通过网络设置			
备用DNS:	194 . 25 . 2 . 130		网关除了"初始化设置"以外			
端口:	1001		其他必须通过TCP连接来执行。			
			网络模块IP地址:			
	通过TCP或USB设定		192 . 168 . 1 . 135			
			端口: 1001			
同步网关键	讨钟 获取网关时钟	设定"网关网络模块"	TCFi车接			

Click "Search for devices through the network", after searching, click the searched IP, set the required network address, subnet mask, etc., click "Settings", "Gateway Network Module", and after setting is completed, connect to "TCP Connect ". The network connection is complete.

(6) Click "data download" above, in the program download, select the saved project in program download, click download.

#### 6 Safe use and maintenance

- (1) Read all instructions carefully before use.
- (2) Create a good ventilation environment.



- (3) During use, pay attention to moisture, shock and dust.
- (4) Strictly forbid to rain, contact with other liquids or corrosive gases.
- (5) If it is wet or attacked by liquid, it should be dried in time.
- (6) When the machine fails, please contact professional maintenance personnel or our company.

## 7 Contact

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