

Technical Manual

SATION IR Emitter

GP2410.0101

GP2410.0304



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2 Overview

2.1 Equipment overview

This manual applies to the following equipment:

- ▮ The SATION-GP2410.0101 is an infrared emitter with a learning function.
- ▮ The SATION-GP2410.0304 darkens it with an infrared emitter

2.2 Use and usage

This device can replace the remote control to control ordinary infrared equipment to enable its rapid and convenient integration into the KNX system to achieve more intelligent home control.

2.3 Structure description

The product requires an auxiliary power supply. The bus power consumption is less than 5mA.



Figure 1 Product Appearance

2. 4 Commissioning download

Infrared Emitter can be multifunctional through parameter configuration for the startup and configuration process:

- ❑ Plug in the bus and the auxiliary power supply.
- ❑ Press the black round cover to activate the programming mode.
- ❑ Download the physical address.
- ❑ Modify the parameter configuration to configure the learning objects.
- ❑ After sending the learning command, point the target remote control at the device round head to send the control code, and the device returns to the learning completion state.
- ❑ Function code learned by performing object validation

3 Object

3. 1 Each channel object

The device contains 4 channels, each having 14 objects, Channel A object number 13-26, Channel B object number 27-40, Channel C object number 41-54, and Channel D object number 55-68. All these channel objects are used for air conditioning control. No matter which air conditioning type is selected, the number of objects remains unchanged, for some air conditioning objects, placement can not be used.

13	Channel A	Power	1 bit	C	-	W	-	U
14	Channel A	Mode	1 byte	C	-	W	-	U
15	Channel A	Fan Speed	1 byte	C	-	W	-	U
16	Channel A	Swing left/right	1 bit	C	-	W	-	U
17	Channel A	Swing up/down	1 bit	C	-	W	-	U
18	Channel A	Temperature	2 bytes	C	-	W	-	U
19	Channel A	Light	1 bit	C	-	W	-	U
20	Channel A	Sleep	1 bit	C	-	W	-	U
21	Channel A	+/-	1 bit	C	-	W	-	U
22	Channel A	Dry	1 bit	C	-	W	-	U
23	Channel A	Health	1 bit	C	-	W	-	U
24	Channel A	Save power	1 bit	C	-	W	-	U
25	Channel A	Timer	1 bit	C	-	W	-	U
26	Channel A	Ultra	1 bit	C	-	W	-	U

Figure 2: Channel object

The following table is the object description for channel A, and the other three channel objects have the same function:

Number	Functions		Usage	Data type	Direction
13	Power	Power supply	Control the air conditioning is turned on / off	DPT 1.001	Enter, write
14	Mode	pattern	Set up the air-conditioning working mode	DPT 5.010	Enter, write
15	Fan Speed	Wind speed	Set air conditioning wind speed	DPT 5.010	Enter, write
16	Swing left/right	Left / right sweep	Set the air conditioning left / right air sweep	DPT 1.010	Enter, write
17	Swing up/down	Top / bottom sweep	Set the air conditioning up / down air sweep	DPT 1.010	Enter, write
18	Temperature	Temperature setting	Set air conditioning temperature	DPT 9.001	Enter, write
19	Light	Light	Turn on / off the air conditioning panel display light	DPT 1.001	Enter, write
20	Sleep	Sleep	Set sleep mode	DPT 1.001	Enter, write
21	+/-	Temperature increases and decreases	Control the temperature step change, with a step length of 1°C	DPT 1.007	Enter, write
22	Dry	Dry	Set dry mode	DPT 1.001	Enter, write
23	Health	Health	Set up a health mode	DPT 1.001	Enter, write
24	Save power	Energy saving	Set energy saving mode	DPT 1.001	Enter, write
25	Timer	Timer	Set the timer	DPT 1.001	Enter, write
26	Ultra	Super strong	Settings are super strong	DPT 1.001	Enter, write
+14	Next channel				

Table 1: Object function

Note: All 4-channel air conditioning control objects use the built-in protocol commands without the learned infrared commands. If you want to use the learned command to control the air conditioning, you must issue the command through the corresponding execution object

3.2 Learning object

The device has three learning objects for learning the infrared function code, namely, object 0, object 1, and object 2. Object 1 is used for normal control functions in addition to functional code verification.

The following picture is a screenshot of the learning object:

0	Learning	Learning	1 byte	C	-	W	-	U
1	Execute/Check	Execute/Check	1 byte	C	-	W	-	U
2	End of capture	End of capture	1 bit	C	-	-	T	-

Figure 3: Learning object

Note: When Object 1 is used to control the function, it is valid for the four channels, that is, when receiving the command, the four channels will send the infrared code out at the same time.

The following table is the object description:

Number	Function		Usage	Data Type	Direction
0	Learning	Learning	Activate learning functions	DPT 5.010	Enter, write
1	Execute/Check	Execution / Inspection	Execute command code	DPT 5.010	Enter, write
2	End of capture	The end of learning	Indicates the completion of learning	DPT 1.002	Output, read

Table 2: Learning Objects

The learning function can be used to learn the infrared control codes of other infrared devices, allowing the device to control the infrared devices of other manufacturers, and the device can learn at most 256.

An infrared command to activate the learning function by sending a number (0-255) to object 0 and then align the infrared remote to be learned at the device by pressing the required learning, For the function key, after the device learning completion, it will send a 1 signal through object 2 to indicate learning completion.

Here are the learning steps:

- 1 Assign a group address to the object, 0,1,2, respectively.
- 2 Send a custom number (0-255) to object 0 and record it for future use.
- 3 Point the remote control at the device and press the function key.
- 4 Waiting for the learning to complete, the device will feedback a 1 signal through object 2 indicating the learning to complete and exit the learning mode.
- 5 The number sent to object 0 to object 1, the device will send the infrared command just learned, if the target device responds, indicating that the function code learning is correct.
- 6 Repeat steps 2 to 5 until all functions are learned.

Note: Each learning command must use an independent number, with up to 256 commands being learned. Duplicate numbers will override the previously learned command code.

3.3 Command object

There are 10 command objects with an object size of 1 bit, corresponding to numbers 3-12. The command object is similar to the scene function, but the object size is 1 bit, and any message receives an infrared command encoded by the parameters.

The following figure is a screenshot of the command object:

3	Command 1	Command 1	1 bit	C - W - U
4	Command 2	Command 2	1 bit	C - W - U
5	Command 3	Command 3	1 bit	C - W - U
6	Command 4	Command 4	1 bit	C - W - U
7	Command 5	Command 5	1 bit	C - W - U
8	Command 6	Command 6	1 bit	C - W - U
9	Command 7	Command 7	1 bit	C - W - U
10	Command 8	Command 8	1 bit	C - W - U
11	Command 9	Command 9	1 bit	C - W - U
12	Command 10	Command 10	1 bit	C - W - U

Figure 4: Command object

The following table is the object description:

Number	Functions	Usage	Data type	Direction	
3	Command 1	Command 1	Execthe configured command after receiving the message	DPT 1.010	Enter, write
4	Command 2	Command 2	Execthe configured command after receiving the message	DPT 1.010	Enter, write
5	Command 3	Command 3	Execthe configured command after receiving the message	DPT 1.010	Enter, write
6	Command 4	Command 4	Execthe configured command after receiving the message	DPT 1.010	Enter, write
7	Command 5	Command 5	Execthe configured command after receiving the message	DPT 1.010	Enter, write
8	Command 6	Command 6	Execthe configured command after receiving the message	DPT 1.010	Enter, write
9	Command 7	Command 7	Execthe configured command after receiving the message	DPT 1.010	Enter, write
10	Command 8	Command 8	Execthe configured command after receiving the message	DPT 1.010	Enter, write
11	Command 9	Order 9	Execthe configured command after receiving the message	DPT 1.010	Enter, write
12	Command 10	Command 10	Execthe configured command after receiving the message	DPT 1.010	Enter, write

Table 3: Command object

3.4 Execute objects independently

The device has 4 independent execution objects, corresponding numbers 69-72. Use to perform infrared commands learned by learning, distinguished from object 1

(Execute /Check), independent objects correspond to 4 channels (A-D), for example, when object 69 receives a message, only infrared commands are sent through channel A. When Object 72 receives a message, only an infrared command is sent through the channel D.

The following figure is a screenshot of the independent object:

69	Execute A	Execute A	1 byte	C - W - U
70	Execute B	Execute B	1 byte	C - W - U
71	Execute C	Execute C	1 byte	C - W - U
72	Execute D	Execute D	1 byte	C - W - U

Figure 5: Independent objects

The following table is the object description:

Number	Functions		Usage	Data type	Direction
69	Execute A	Execute A	Send the specified command to the channel A	DPT 5.010	Enter, write
70	Execute B	Execute B	Send the specified command to the channel B	DPT 5.010	Enter, write
71	Execute C	Execute C	Send the specified command to the channel C	DPT 5.010	Enter, write
72	Execute D	Execute D	Send the specified command to the channel D	DPT 5.010	Enter, write

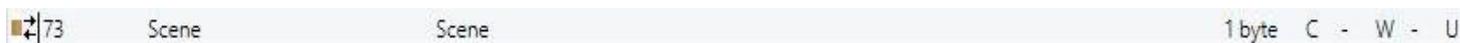
Table 4: Standalone object

3. 5 Scene object

The device has a scene object, number 73, with up to eight scenarios, each with up to 30 commands to send continuously, and can separately set the transmission interval.

Note: The scene object sends infrared commands learned through learning functions, and controls 4 channels to send data out at the same time.

The following object picture is the scene screenshot:



The following table is the object description:

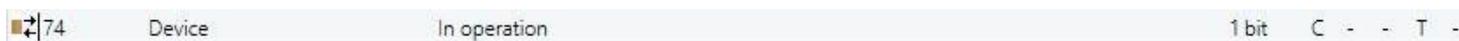
Number	Functions	Usage	Data type	Direction
73	Scene	Scene	Receive the scene number and execute the learning command	DPT 17.001 Enter, write

Table 5: Scene object

3. 6 Work object

The device has a working state object numbered 74 that periodically sends a heartbeat message to indicate whether the device works properly.\

The following picture is a screenshot of the work object



3.7: Work object

The following table is a description of the working object:

Number	Functions	Usage	Data type	Direction
74	In operation At work	Periodic sending of messages indicating whether the device is online	DPT 1.001	Output, write

Table 6: Working object

4 ETS parameter

4.1 General parameters

The following figure shows the global parameters:

The image shows a configuration interface for global parameters. It includes several sections separated by horizontal lines:

- Startup timeout:** A dropdown menu currently set to "1s".
- Send object "in operation":** Two radio buttons, "no" (selected) and "yes".
- Command 1 through Command 10:** Ten input fields, each containing the value "0" and having up/down arrow buttons on the right.
- AC Control:** Two radio buttons, "Disable" (selected) and "Enable".
- Scene:** Two radio buttons, "Disable" (selected) and "Enable".

Figure 8: Global parameters

The parameter "Startup timeout" is used to set the device startup time and does not respond to any message until the startup time timeout.

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
Startup timeout	0- 60s [1s]	The equipment starts to work normally after the specified time, And can receive external messages.

Table 7: Parameter description

Parameter "AC Control" is used to activate the built-in air conditioning control function.

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
AC Control	<ul style="list-style-type: none"> ● Disable ● Enable 	Activate the built-in air-conditioning control function.

Table 8: Parameter description

Parameter "Scene" is used to activate scene control.

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
Scene	<ul style="list-style-type: none"> ● Disable ● Enable 	Activate the scene functionality.

Table 9: Parameter description

Parameters "Command 1" to "Command 10" configure infrared command numbers corresponding to command objects 3-12. When an object receives any object value, the infrared command corresponding to the parameter number is executed.

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
Command 1	0-255 [0]	Specifies the number of the infrared command to be executed
Command 2	0-255 [0]	Specifies the number of the infrared command to be executed
Command 3	0-255 [0]	Specifies the number of the infrared command to be executed
Command 4	0-255 [0]	Specifies the number of the infrared command to be executed
Command 5	0-255 [0]	Specifies the number of the infrared command to be executed
Command 6	0-255 [0]	Specifies the number of the infrared command to be executed
Command 7	0-255 [0]	Specifies the number of the infrared command to be executed
Command 8	0-255 [0]	Specifies the number of the infrared command to be executed
Command 9	0-255 [0]	Specifies the number of the infrared command to be executed
Command 10	0-255 [0]	Specifies the number of the infrared command to be executed

Table 10: Parameter description

Parameter "Send object" in operation "" is used to activate the periodic sending objects, and the associated periodic parameters.

The following figure shows the parameter screenshot:

Send object "in operation" no yes

Telegram repeated s[1...65535]

Send value cyclically 0 1

Figure 9: Heartbeat parameters

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
Send object "in operation"	<input type="radio"/> no <input type="radio"/> yes	Activate the periodic sending function
Telegram repeated s[1...65535]	1...65535 [60]	Set the send cycle
Send value cyclically	<input type="radio"/> 0 <input type="radio"/> 1	Set the periodic sending value

Table 11: Periodic parameters

4. 2 Air conditioning parameters

The equipment has 4 channels for air conditioning control, and has built-in direct control of multiple air conditioning brands, just choose the corresponding air conditioning type. Each channel can be controlled independently to achieve exclusive control of multiple air conditioners. For the air conditioning brands that do not support, we can learn the function code after learning to the equipment to control the corresponding air conditioning. Moreover, and the infrared commands learned through learning methods can only control the air conditioning through special execution objects, and the objects with 4 channels can not be used to control the air conditioning.

The type of air conditioner supported by the equipment is related to the current version of the equipment, please check the equipment user's manual for which air conditioner brands can be directly supported by the current device. The higher the version of the device, the more types of air conditioning are supported.

The following picture shows a screenshot of the air-conditioning parameters:



Figure 10: Air-conditioning parameters

The following table shows the parameter description:

Parameter name	Dynamic range [Default]	Description
AcType	<ul style="list-style-type: none"> ● Gree ● Midea ● Haier ● Daikin ● Chigo ● Aux ● Hisense ● Panasonic ● Mitsubishi ● Galanz 	<p>By default, Gree air conditioning is selected, and it can be modified to other brands. After the air conditioning type is selected, all 4 channels are used to control the corresponding air conditioning. For the selected air conditioning directly to configure the group address to the group object can send the infrared code to the corresponding channel, there is no need to learn the infrared code of the air conditioning remote control.</p>
Channel A	<ul style="list-style-type: none"> ● Disable ● Enable 	Open or close the channel
Channel B	<ul style="list-style-type: none"> ● Disable ● Enable 	Open or close the channel
Channel C	<ul style="list-style-type: none"> ● Disable ● Enable 	Open or close the channel
Channel D	<ul style="list-style-type: none"> ● Disable ● Enable 	Open or close the channel

Table 12: Air-conditioning parameters

4.3 Scene

The device has only one scene object. When sending infrared commands through the scene object, it actually controls 4 channels to send infrared code simultaneously. The scene comes complete with eight fields

Scene parameters, thus, up to eight scene functions can be configured, each supporting 30 consecutive commands.

Note: Scene number range 1-64 but the actual command value is 0-63. The parameter "SceneCommand" has a value range of 0-255, but 255 is a reserved value. If the command uses that value and indicates that the command is invalid, the device only processes commands with a value of 0-254.

The following picture shows a screenshot of the scene parameters:

SceneValue	1
SceneDelay_A_1	50 ms
SceneCommand_A_1	255
SceneDelay_A_2	50 ms
SceneCommand_A_2	255
SceneDelay_A_3	50 ms
SceneCommand_A_3	255
SceneDelay_A_4	50 ms
SceneCommand_A_4	255
SceneDelay_A_5	50 ms
SceneCommand_A_5	255
SceneDelay_A_6	50 ms
SceneCommand_A_6	255
SceneDelay_A_7	50 ms
SceneCommand_A_7	255
SceneDelay_A_8	50 ms
SceneCommand_A_8	255
SceneDelay_A_9	50 ms
SceneCommand_A_9	255

Figure 11: Scene parameters

The following

SceneDelay_A_10	50	ms
SceneCommand_A_10	255	
SceneDelay_A_11	50	ms
SceneCommand_A_11	255	
SceneDelay_A_12	50	ms
SceneCommand_A_12	255	
SceneDelay_A_13	50	ms
SceneCommand_A_13	255	
SceneDelay_A_14	50	ms
SceneCommand_A_14	255	
SceneDelay_A_15	50	ms
SceneCommand_A_15	255	
SceneDelay_A_16	50	ms
SceneCommand_A_16	255	
SceneDelay_A_17	50	ms
SceneCommand_A_17	255	
SceneDelay_A_18	50	ms
SceneCommand_A_18	255	
SceneDelay_A_19	50	ms
SceneCommand_A_19	255	
SceneDelay_A_20	50	ms
SceneCommand_A_20	255	
SceneDelay_A_21	50	ms
SceneCommand_A_21	255	

Figure 12: Scene parameters

The following

SceneDelay_A_22	50	ms
SceneCommand_A_22	255	
SceneDelay_A_23	50	ms
SceneCommand_A_23	255	
SceneDelay_A_24	50	ms
SceneCommand_A_24	255	
SceneDelay_A_25	50	ms
SceneCommand_A_25	255	
SceneDelay_A_26	50	ms
SceneCommand_A_26	255	
SceneDelay_A_27	50	ms
SceneCommand_A_27	255	
SceneDelay_A_28	50	ms
SceneCommand_A_28	255	
SceneDelay_A_29	50	ms
SceneCommand_A_29	255	
SceneDelay_A_30	50	ms
SceneCommand_A_30	255	

Figure 13: Scene parameters

The following table

	Parameter name	Dynamic range [Default]	Description
Scene A	SceneValue	1...64 [1]	Select one from the 64 scene numbers as the command response value. Only received The corresponding scene function is performed when the object value is equal to it.
	SceneDelay_A_1	50...65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_A_1	0...255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.
	...		
	SceneDelay_A_30	50...65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_A_30	0...255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.
Scene B	SceneValue	1...64 [1]	Select one from the 64 scene numbers as the command response value. Only received The corresponding scene function is performed when the object value is equal to it.
	SceneDelay_B_1	50...65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_B_1	0...255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.
	SceneDelay_B_30	50...65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_B_30	0...255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.

The following table

Scene H	SceneValue	1…64 [1]	Select one from the 64 scene numbers as the command response value. Only received when the object value is equal to it. The corresponding scene function is performed when the object value is equal to it.
	SceneDelay_H_1	50…65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_H_1	0…255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.
	...		
	SceneDelay_H_30	50…65535ms [50ms]	Scene delay, and you must wait for the parameter to be set before each scene is sent Time delay. command
	SceneCommand_H_30	0…255 [0]	Infrared command number, corresponding to the learned infrared command stored in the device Location.255 An invalid value indicates that the command will not be processed.

Table 13: Scene parameters