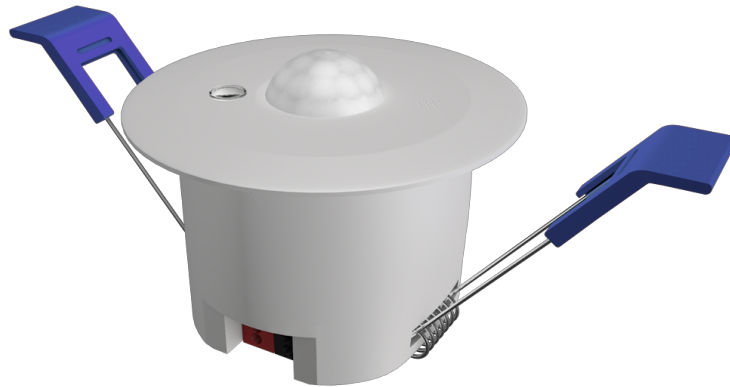


## **Illuminance Infrared Motion Sensor**

**Manual -Ver2.1**

SNR0202



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## 1 Overview

This manual provides users with detailed technical information of the illuminance infrared motion sensor, including installation and programming details, and explains how to use the illuminance infrared motion sensor based on actual examples. The illuminance infrared motion sensor is mainly installed on the ceiling.

The illuminance infrared motion sensor is mainly used in lighting, that is, where brightness is concerned, or where monitoring is needed, that is, monitoring whether someone is moving, and then performing actions

Installed as a system with other devices via EIB / KNX bus.

Use engineering design tool software ETS to set up and operate the entire system.

## 2 Product and function overview

The illuminance infrared motion sensor is mainly installed on the ceiling. It is a kind of device that can sense external signals and physical conditions (such as light and movement) and transfer the sensed information to other device (such as dimmers and relays) and realize its function .Connect to the EIB / KNX system through the EIB bus terminal, use the engineering design tool software ETS software (version ETS4.0 or above) to perform physical address allocation and parameter setting.

Functions:

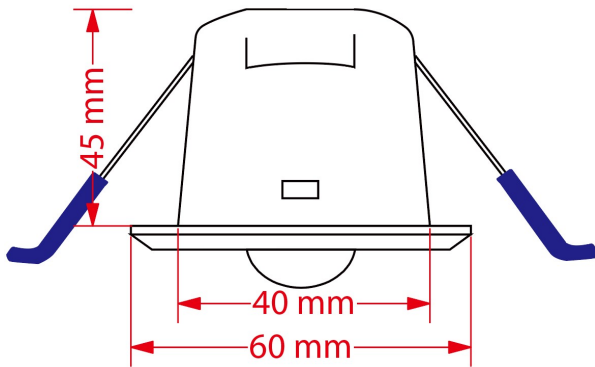
- (1) Illuminance value cycle output function
- (2) 2-way control luminance channel, output 1bit, 4 bit, 1byte data
- (3) Infrared motion trigger control function
- (4) Infrared motion and brightness logic function
- (5) Infrared motion Master-Slave function
- (6) The output control function of illumination and infrared movement is enabled or disabled by the object
- (7) The combination of illumination and movement controls the function of the light
- (8) Infrared motion, illumination, 2-in-1 sensor

## 3 Detailed parameters

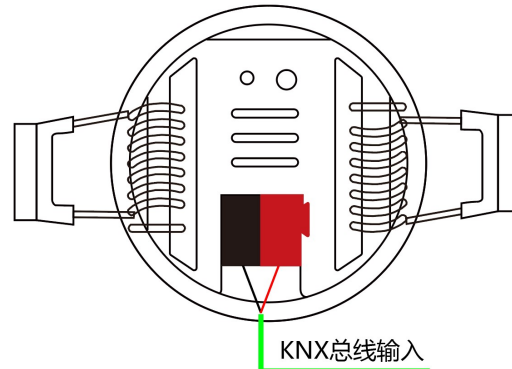
Bus input	21-30V DC
Bus current	≤12mA
Power	<360mW
Sensing distance	Installation height 2.5m~3.5m, Radiation range:≥10m
Shell material	ABS
Dimension (H x W x D)	Height H=76mm Diameter =76mm
Installation method	Embedded installation (Hole Size: Diameter 62-72mm)
Weight (approx.)	0.05KG
Operating temperature	-5°C- 45°C
Storage temperature	- 20°C- 70°C
Relative humidity	max 90%

## 4 Dimensional drawing, wiring diagrams and induction diagram

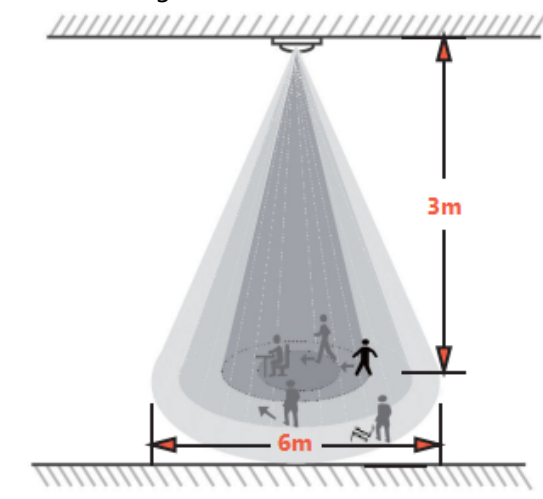
Dimensional drawing



Wiring diagram



Induction diagram



H: range: 2.5m~3m, recommended value: 2.7m

D1: range: 4m~5m, the range with high sensitivity

D2: Range: 5m~7m, the maximum sensing range

## 5 Parameter setting and communication object description

### 5.1 Application Function Overview

#### Illumination function

This function is mainly used for lighting, such as outdoor lighting. We often need to turn on the light when it is dark and turn it off when it is dawn. This operation can be easily implemented with a sensor. The sensor automatically senses the current illumination to achieve automatic control.

#### Move function

The move function mainly implements the action when the sensor senses the movement of a person, and ends the action when the person is not sensed for a period of time. For example, on the public aisle, you can set the sensor to automatically turn on the lights when it senses that someone is coming, and turn off the lights automatically after a delay after a person has passed, so as to achieve the maximum energy saving effect. Can also be used in other occasions, such as elevator halls, underground garages, etc.

### Logic function

The logic function is a combination of illuminance and movement functions, combining the two functions of illuminance and movement. For example, to control home lighting, we want the lights to turn on automatically as soon as we enter the room, but we do not need to perform this action during the day, only at night. And when the person leaves or the sensor can't detect the movement of the object, the light will automatically turn off for a period of time, and the entire process of light control can be completed automatically by this logic function of the sensor.

### Master-Slave function

The sensor's master-slave function is generally used in situations where multiple sensors control one or a class of device at the same time. When the main sensor receives the specified information from the sensor, it outputs the start value. After a delay, if the information from the sensor is not received during this period of time, then output the end value. If the specified value is received again during this time, the delay restarts. For example, several sensors control a light at the same time. One of the slave sensors senses that someone has moved, at this time, the slave sensor sends a message. After receiving the specified information, the master sensor outputs a message and turns on the lamp. If the main sensor didn't receive the specified message for a while, it outputs a message again, turn off the light.

### Inhibition of movement, illuminance and logic functions

This function is convenient for certain situations where illuminance, movement or logic needs to be disabled. When the illumination or movement of a certain sensor is prohibited, the illumination or movement will no longer affect this sensor. After the logic function is disabled, the sensor will not perform any logic operation.

## 5.2 Setting of function parameters

The following uses ETS5 as an example to set parameters in ETS5.

Open the illuminance infrared mobile sensor parameter setting interface in ETS5, as shown in Figure 5.1.1. The "General" parameter setting interface can set whether functions such as illumination sensing, motion sensing and device status feedback are disabled/enabled.

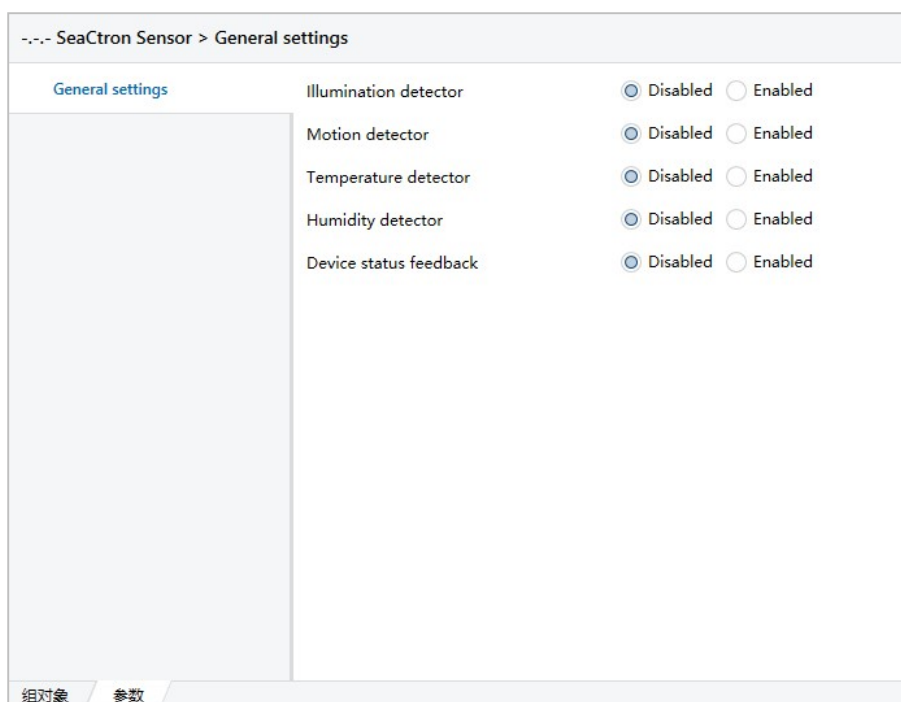


Figure 5.1.1

Parameter	Description
Illumination detector	Illumination detector (options: disable, enable)
Motion detector	Motion detector (options: disable, enable)
Temperature detector	(This parameter is reserved)
Humidity detector	(This parameter is reserved)
Device status feedback	Device status feedback (options: disable, enable)

### 5.2.1 Illumination detector

“Illumination detector” parameter setting interface is shown in Figure 5.1.2

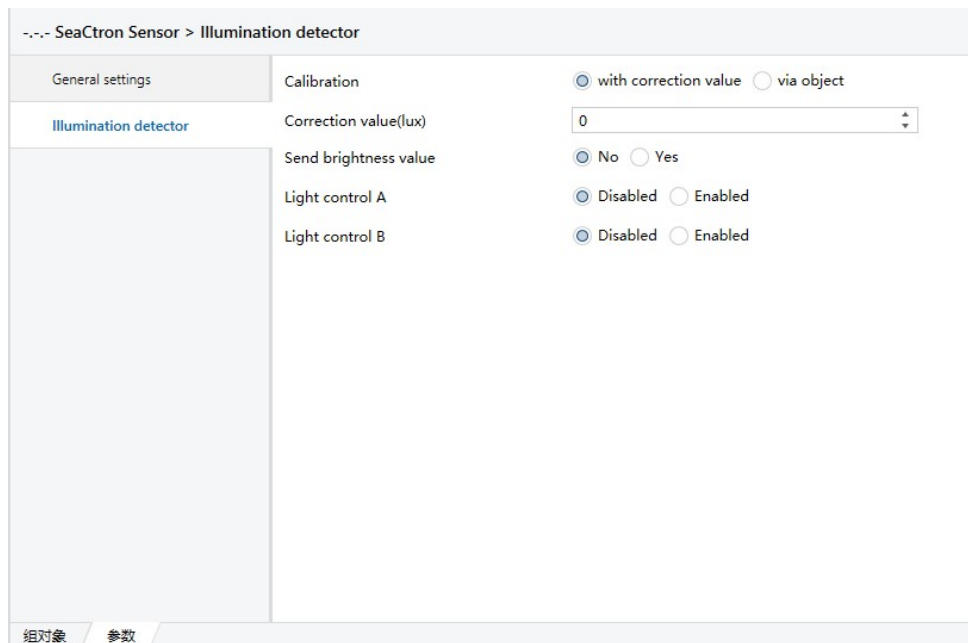


Figure 5.1.2

Parameter	Description
Calibration	This parameter is only used to calibrate the brightness value when it is obtained from the inside, options: with correction value (Fill in the correction value in the VD library for correction) , via object (Correction via object) . When with correction value is selected, parameter correction value (lux) (correct value) will appear, range: -200~200. Example: When the actual brightness value is 100lux, the detection value inside the sensor is 150lux. At this time, the correction value -50lux needs to be filled in the VD library, or -50lux is corrected by the object.
Send brightness value	Use this parameter to determine whether to send brightness values to the bus, options: “yes” or “no” . When “yes” is selected, parameter “the mode for sending value” (Send mode) will appear, options: “transmit value in the event of changes” (Send data as soon as the brightness value changes), “transmit value in cycles” (Send data cyclically) . When “transmit value in the event of changes” is selected, parameter “send brightness value on change” (When the change exceeds a specified value, the brightness value is sent to the bus) will appear, options: change>=10lux, change>=25lux, change>=50lux, change>=75lux, change>=100lux) ; when “transmit value in cycles” is selected, parameter “the time in cycles” will appear (cycle time), options: 1 second, 2 seconds.....120minutes.
Sending brightness value	This parameter is used to determine whether to send the internally detected illuminance value to the bus, options: “yes” or “no” . When “yes” is selected, parameter “the mode

	for sending value" (Send mode) will appear, options: "transmit value in the event of changes" (Send whenever brightness value changes more than a certain value) , "transmit value in cycles" (Send data cyclically) . When "transmit value in the event of changes" is selected, parameter "send brightness value on change" (When the change exceeds a specified value, the brightness value is sent to the bus) will appear, options: change>=10 change>=25, change>=50, change>=75, change>=100); when "transmit value in cycles" is selected, parameter "the time in cycles" will appear (cycle time) , options: 1 second, 2 seconds.....120minutes.
Light control A	Light control A, options: "enable" , "disable" . When "enable" is selected, the interface appears as shown in Figure 6.1.3.
Light control B	Light control B (same as Light control A)

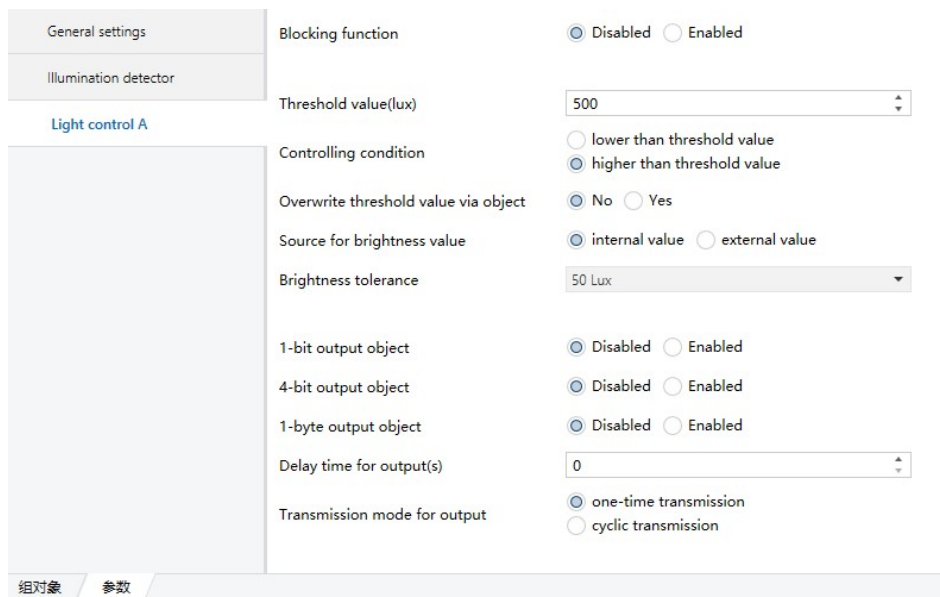


Figure 5.1.3

Parameter	Description
Blocking function	Blocking function, options: "enable" , "disable" . When "enable" is selected, parameter "blocking value" will appear, options: " blocking=1, unblocking=0" , " blocking=0, unblocking=1" , blocking value after voltage recovery(blocking status after voltage recovery) , options: " blocking" , " unblocking" , "as before voltage failure" .
Threshold value (lux)	Threshold value, options: 0-1200.
Controlling condition	Controlling condition, options: higher than threshold value, lower than threshold value.
Overwrite threshold value via object	Overwrite threshold value via object, options: yes, no
Source for brightness value	Source for brightness value, options: "internal value" , "external value"
Brightness tolerance	Brightness tolerance, options: 10lux, 25lux, 50lux, 75lux, 100lux, 150lux, 200lux
1-bit output object	This parameter is used to output 1bit data, options: "enable" , "disable" . When "enable" is selected, parameter "1-bit value" will appear, options: "on" , "off" .
4-bit output object	This parameter is used to output 4 bit data, options: enable, disable. When enable is selected, parameter "4-bit value" will appear, options: "Decrease, Break" , "Decrease 1%" ..... "Decrease 100%" , " Increase, Break" , "Increase 1%" ..... "Increase 100%"
1-byte output object	This parameter is used to output 1byte data, options: enable, disable. When enable is selected, parameter "1-byte type" will appear, options: scene number (1.....

	64) ,percentage (0%.....100%) , unsigned value(0.....255) ; When "scene number (1.....64) is selected , parameter "scene number" will appear , can fill 1~64; when "percentage (0%.....100%) " is selected, parameter "percentage" will appear, options 0%~100%; when "unsigned value(0.....255) " is selected, parameter "unsigned value" will appear, can fill 0~255.
Delay time for output(s)	Delay time for output(s), 0~255.
Transmission mode for output	Transmission mode for output, options: one-time transmission, cyclic transmission. When "cyclic transmission" is selected, parameter "cyclic time for output" will appear (Interval time for cyclic output) , options: " 1 second "," 2 seconds" ..... "120 minutes" .

### 5.2.2 Motion detector

"Motion detector" parameter setting interface is shown in Figure 5.1.4

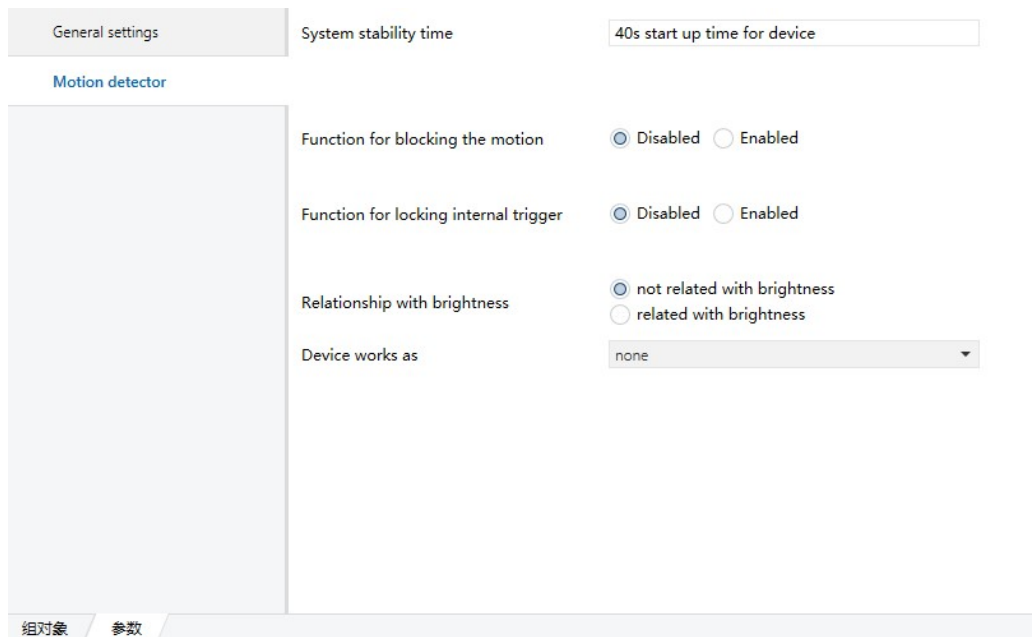


Figure 5.1.4

Parameter	Description
System stability time: 40s start up time for device	40s start up time for device
Function for blocking the motion	Function for blocking the motion, options: enable, disable. When "enable" is selected, parameter "blocking value" will appear, options: " blocking=1, unblocking=0" , " blocking=0, unblocking=1" , blocking value after voltage recovery(blocking status after voltage recovery) , options: " blocking" , " unblocking" , "as before voltage failure" .
Function for locking internal trigger	Function for locking internal trigger, options: "enable" , "disable" . When "enable" is selected, parameter "locking value" will appear, options: " locking=1, unlocking=0" 、 " locking=0, unlocking=1" ; locking value after voltage recovery (locking status after voltage recovery) , options: blocking" 、 " unblocking" 、 "as before voltage failure"
Relationship with brightness	This parameter is used to determine whether the motion detector control is related to illumination, options: "not related with brightness" , "related with brightness" , when "related with brightness" is selected, parameter "threshold value" will appear, can fill 0~1200, overwrite threshold value via object, options: "yes" 、 "no" ; "source for brightness value" , options: "internal value" , "external value" .
Device works as	This parameter indicates the device working mode, options: "none" 、 "single or master mode" , "slave mode" . When "single or master mode" is selected, the interface appears



as shown in Figure 5.1.5; when “slave mode” is selected, the interface appears as shown in Figure 5.1.6

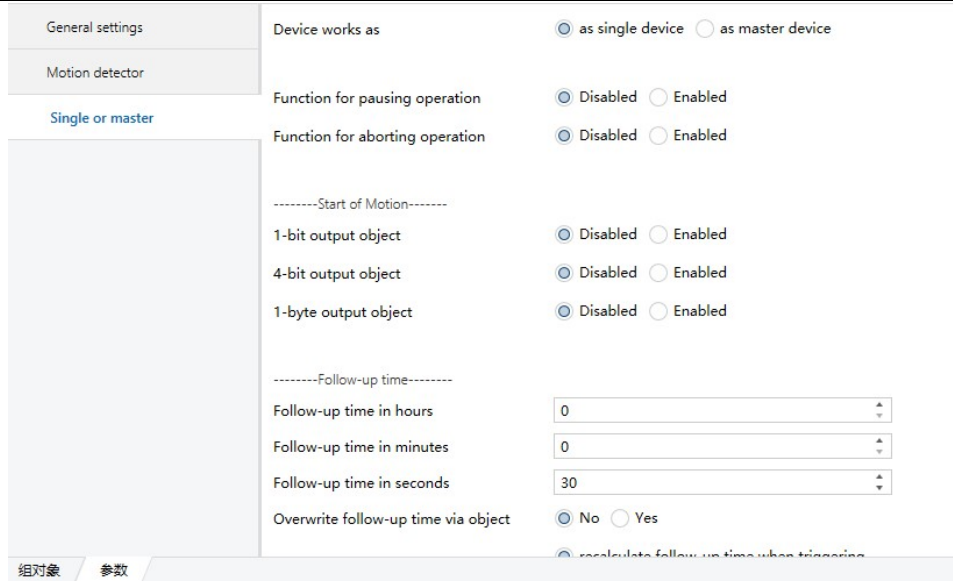


Figure 5.1.5

Parameter	Description	
Device works as	Device function mode, options: “as single device” , “as master device” . When “as master device” is selected, parameter “ input value as master” will appear (value that triggers motion sensing when acting as master) , options “on” , “off” .	
Function for pausing operation	Function for pausing operation, options: enable, disable. When enable is selected, parameter “for current operation” will appear, options: “pause=0, continue=1” , “pause=1, continue=0”	
Function for aborting operation	This parameter is used to perform a forced clear operation by motion detector, options: “enable” , “disable” . When “enable” is selected, parameter “for current operation” will appear, options: “abort when receiving 0” , “abort when receiving 1” .	
Start of motion (This parameter is used to start sending data to the bus when the sensor detects someone)	1-bit output object	This parameter is used to output 1bit data, options: “enable” , “disable” . When “enable” is selected, parameter “1-bit value” will appear, options: “on” , “off” .
	4-bit output object	This parameter is used to output 4 bit data, options: enable, disable. When enable is selected, parameter “4-bit value” will appear, options: “Decrease, Break” , “Decrease 1%” ..... “Decrease 100%” , “ Increase, Break” , “Increase 1%” ..... “Increase 100%”
	1-byte output object	This parameter is used to output 1byte data, options: enable, disable. When enable is selected, parameter “1-byte type” will appear, options: scene number (1.....64) ,percentage (0%.....100%) , unsigned value(0.....255) ; When “scene number (1.....64) is selected, parameter “scene number” will appear , can fill 1~64; when “percentage (0%.....100%) ” is selected, parameter “percentage” will appear, options 0%~100%; when “unsigned value(0.....255) ” is selected, parameter “unsigned value” will appear, can fill 0~255.
Follow-up time (This parameter is used to send data when the sensor	Follow-up time in hours	Follow-up time in hours, you can fill in 0-23
	Follow-up time in minutes	Follow-up time in minutes, you can fill in 0-59
	Follow-up	Follow-up time in seconds, you can fill in 0-59

detects someone, and to set the time for sending additional data when the sensor senses that no one is there after the person walks by)	time in seconds	
	Overwrite follow-up time via object	Overwrite follow-up time via object, options: "yes" , "no" .
	Motion trigger during follow-up time	This parameter is used to set whether to recalculate the duration when the motion detector is re-triggered., options: "recalculate follow-up time when trigger" , "not recalculate follow-up time when trigger" .
End of motion (This parameter is used for the sensor to sense that no one is there for a period of time and send data to the bus)	1-bit output object	This parameter is used to output 1bit data, options: "enable" , "disable" . When "enable" is selected, parameter "1-bit value" will appear, options: "on" , "off" .
	4-bit output object	This parameter is used to output 4 bit data, options: enable, disable. When enable is selected, parameter "4-bit value" will appear, options: "Decrease, Break" , "Decrease 1%" ..... "Decrease 100%" , " Increase, Break" , "Increase 1%" ..... "Increase 100%"
	1-byte output object	This parameter is used to output 1byte data, options: enable, disable. When enable is selected, parameter "1-byte type" will appear, options: scene number (1.....64) ,percentage (0%.....100%) , unsigned value(0.....255) ; When "scene number (1.....64) is selected, parameter "scene number" will appear , can fill 1~64; when "percentage (0%.....100%) " is selected, parameter "percentage" will appear, options 0%~100%; when "unsigned value(0.....255) " is selected, parameter "unsigned value" will appear, can fill 0~255.
Dead time after end of motion(s)		This parameter is used for the sensor to sense that no one is there for a period of time. After sending an execution action to the bus, the sensor does not perform any operation after a certain period of time. You can fill in "0-255".

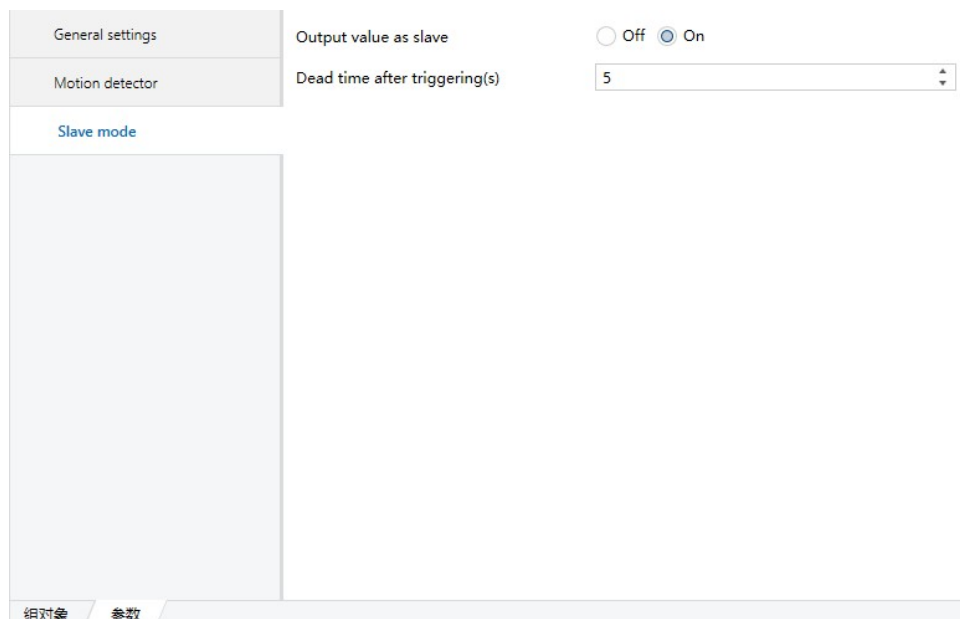


Figure 5.1.6

Parameter	Description
Output value as slave	Output value as slave (options: "on" , "off" )
Dead time after triggering (s)	This parameter is used to perform no operation for a certain period of time after the slave sensor is triggered. (can fill in 0-255)

### 5.2.3 Device status feedback

This parameter is used for device status feedback, options: "enable" , "disable" ; When "enable" is selected , parameter "cycle time for feedback" will appear, options: "1 second" , "2 seconds" ..... "120 minutes" .

## 5.3 Communication object description

The communication object is the medium for the device to communicate with other devices on the bus, that is, only the communication object can perform bus communication. The role of each communication object is described in detail below.

Note: "C" in the table below indicates that the communication function of the communication object is enabled, "W" indicates that the value of the communication object can be rewritten through the bus, and "R" indicates that the value of the communication object can be read through the bus. "T" indicates that the communication object has the transmission function, and "U" indicates that the value of the communication object can be updated.

### 5.3.1 Illumination function communication object

序号	名称	对象功能
0	Brightness value (calibration)	(-L...+L)
1	Brightness value (output)	value in lux
2	Light control block A	block/unblock
3	Overwrite light threshold A	value in lux
4	External brightness value A (input)	value in lux
5	Light control 1-bit output A	On/Off
6	Light control 4-bit output A	4-bit value

Figure 5.2.1

Number	Name	Communication object function	Data type	Attribute
0	Brightness value (calibration)	(-L_+L)	2 Byte	C, R, W, T
This communication object is enabled when "via object" is selected in the parameter "calibration". Through this communication object, the current ambient brightness value can be calibrated.				
1	Brightness value (output)	Value in lux	2 Byte	C, R, W, T
This communication object is enabled when the parameter "send brightness value" selects "yes". This communication object can directly indicate the current ambient brightness value.				
2,8	Light control block A/B	Block/unblock	1 bit	C, R, W, T
This communication object is enabled when the parameter "Blocking function" in "light control A/B" selects "Enable" , sending a 1-bit instruction through the communication object blocks any operation of the illuminance sensor on the channel.				
3,9	Overwrite light threshold	Value in lux	2 Byte	C, R, W, T
This communication object is enabled when "yes" is selected in the parameter " overwrite threshold value via object " ,				

through this communication object will send a 2-byte instruction to overwrite light threshold of the corresponding channel.				
4,10	External brightness value A/B (input)	Value in lux	2 Byte	C, R, W, T
This communication object is enabled when the parameter "source for brightness value" in "light control A/B" selects "external value" , through this communication object the 2-byte brightness input value from other devices can be received.				
5, 11	Light control 1-bit output A/B	On/Off	1 bit	C, R, W, T
This communication object is enabled when the parameter "1-bit output object" in "light control A/B" selects "enable" , the on/off of other devices can be controlled by sending a 1-bit instruction through this communication object.				
6, 12	Light control 4-bit output A/B	4-bit value	4 bit	C, R, W, T
This communication object is enabled when the parameter "4-bit output object" in "light control A/B" selects "enable" , you can control the increase or decrease of dimming by sending a 4-bit instruction through this communication object				
7,13	Light control 1-byte output A/B	1-byte value	1 Byte	C, R, W, T
This communication object is enabled when the parameter "1-byte output object" in "light control A/B" selects "enable" , sending a 1-byte instruction through this communication object to control the scene, output percentage, etc.				

Table 1.1

### 5.3.2 Communication object of motion sensing function

序号	名称	对象功能	描述
14	Motion control block	block/unblock	
15	Motion sensor trigger lock	lock/unlock	
16	Motion, Overwrite light threshold	value in lux	
17	Motion, External brightness value (input)	value in lux	
18	Motion, Master input	On/Off	
19	Start of motion, 1-bit output	On/Off	
20	Start of motion. 4-bit output	4-bit value	

序号	名称	对象功能	描述
14	Motion control block	block/unblock	
15	Motion sensor trigger lock	lock/unlock	

Number	Name	Communication object function	Data type	Attribute
14	Motion control block	Block/unblock	1 bit	C, R, W, T
The communication object is enabled when the parameter "function for blocking the motion" selects enabled, sending "0" / "1" instructions through this communication object can block or unblock any operation of the channel from motion detector.				

15	Motion sensor trigger lock	lock/unlock	1 bit	C, R, W, T
This communication object is enabled when "Enable" is selected in the parameter "function for locking internal trigger". Sending a "0" / "1" instruction through this communication object can block or unblock the internal trigger function of motion detector.				
16	Motion, Overwrite light threshold	Value in lux	2 Byte	C, R, W, T
This communication object is enabled when "Yes" is selected in the parameter " overwrite threshold value via object ", through this communication object, a 2-byte instruction can be sent to rewrite the light threshold of the corresponding channel.				
17	Motion, External brightness value (input)	Value in lux	2 Byte	C, R, W, T
This communication object is enabled when " external value " is selected in the parameter " source for brightness value ", this communication object can receive the 2-byte brightness value input from other devices.				
18	Motion, Master input	On/Off	1 bit	C, R, W, T
This communication object is enabled when the parameter "device work as" in "single or master" selects "as master device". Through this object the data input from the slave device can be received.				
19, 23	Start/End of motion, 1-bit output	On/Off	1 bit	C, R, W, T
This communication object is enabled when the parameter "1-bit output object" of "start / end of motion" in "single or master" selects "enable". A 1-bit instruction can be sent through this communication object to control the on/off of other devices.				
20,24	Start/End of motion, 4-bit output	4-bit value	4 bit	C, R, W, T
This communication object is enabled when the parameter "4-bit output object" of "start / end of motion" in "single or master" selects "enable", send a 4-bit instruction through this communication object to control the increase or decrease of dimming.				
21,25	Start/End of motion, 1-byte output	1-byte value	1 Byte	C, R, W, T
This communication object is enabled when the parameter "1-byte output object" of "start / end of motion" in "single or master" selects "enable", send a 1-byte instruction through this communication object to control the scene, output percentage, etc.				
22	Motion, Overwrite follow-up time	In seconds	2Byte	C, R, W, T
This communication object is enabled when the parameter "Overwrite follow-up time via object" of "follow-up time" in "single or master" is selected as "yes", sending a 2-byte instruction through this communication object can overwrite the follow-up time.				
26	Motion control pause	Pause/continue	1 bit	C, R, W, T
The communication object is enabled when the parameter "function for pausing operation" in "single or master" selects enabled. Sending the value "0" / "1" through this communication object can pause/continue the normal operation of the sensor.				
27	Motion control abort	On/Off	1 bit	C, R, W, T
The communication object is enabled when the parameter "function for aborting operation" in "single or master" selects enabled, send the value "0" / "1" through this communication object to clear the status of the sensor.				
28	Motion, slave output	On/Off	1 bit	C, R, W, T
The communication object is enabled when " slave mode " is selected in the parameter " device work as ", the communication object outputs "0" / "1" to the host device.				

### 5.3.3 Device status feedback

序号▲	名称	对象功能	描述	群组
-----	----	------	----	----

Number	Name	Communication object function	Data type	Attribute
57	Device status	1-byte value	1 Byte	C, R, W, T
This communication object is enabled when "enabled" is selected in the parameter "device status feedback". This communication object can directly indicate the current status of the device.				

## 6 Safe use and maintenance

- (1) Read all instructions carefully before use
- (2) Keep away from places with sensitive air temperature changes such as air conditioners, refrigerators and stoves;
- (3) Under a certain temperature, the effect of wind speed on the sensor is not great;
- (4) When the ambient temperature is close to the temperature of the human body, the sensor response is not very sensitive and may even fail;
- (5) Do not separate furniture, large bonsai, glass, curtains and other objects between the sensor and the detected human body;
- (6) The sensor should not be directly facing doors and windows and places with direct sunlight (illumination and movement), otherwise the hot air flow outside the window and people walking will cause the sensor to report falsely, and the drastic changes in light will also cause the sensor to report
- (7) To establish a good ventilation environment
- (8) During use, pay attention to moisture, shock and dust
- (9) Do not expose to rain or other liquids or corrosive gases
- (10) If it is wet or attacked by liquid, it should be dried in time
- (11) When the machine fails, please contact professional maintenance personnel or our company

## 7 Contact

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