M/US05.1

KNX Mini Ultrasonic Sensor

User Manual

Version： V1.0.0

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Content

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Update History

The form below contains the information of every update. The latest version contains all the updates of all former versions.

No.	Version	Update Information	Date
1	V1.0.0	Initial release	Dec 4th, 2020

1 Introduction

KNX Mini Ultrasonic Sensor (See Figure 1) contains four independent logic blocks and one combined logic block. The logic inputs include ultrasonic sensor status, brightness value, temperature and external telegrams. Depending on the user's needs, the sensor can be set to either master-slave mode or single mode, etc.

This manual offers the information on installation steps, connection and configuration of KNX Mini Ultrasonic Sensor on ETS5.

Note: the pictures in the manual are for reference, the actual pictures should prevail.

Figure 1. Mini Ultrasonic Sensor

1.1 Features

KNX Mini Ultrasonic Sensor main features include:

(1) With 2CH lighting control, 4 sections of brightness and delay time can be set in dimming output. With gradually dimming effect, the sensor supports automatic or semi-automatic mode. Telegram locking/unlocking and delay time can be set.

(2) With 2CH constant brightness control, dimming values and forced operation can be set.

(3) The sensor has 5 logic blocks and each block contains 10 object outputs. Telegram locking/unlocking and delay time can be set.

(4) Control types: Switch control, Absolute dimming control, Shutter control, Alarm control, Percentage control, Sequence control, Scene control, String (14 bytes) control, Threshold control, Logic combination control.

(5) Logic inputs: Ultrasonic sensing status, brightness value, temperature and external telegrams.

(6) 2 logical relations: AND, OR.

(7) 2 working modes: Single mode and master / slave mode.

(8) The logic validity can be set by external telegram so as to ensure that end users can reset

the logics.

1.2 Important Notes

(1) Installation - This device should be mounted at the ceiling at a recommended height of 2-3m from the floor.

(2) Programming - The device is compliant with the KNX standard and the parameters are set by the Engineering Tool Software (ETS).

(3) The KNX bus voltage is 21-30V DC.

1.3 Product Information

(1) Dimensions - See Figure 2 – 4

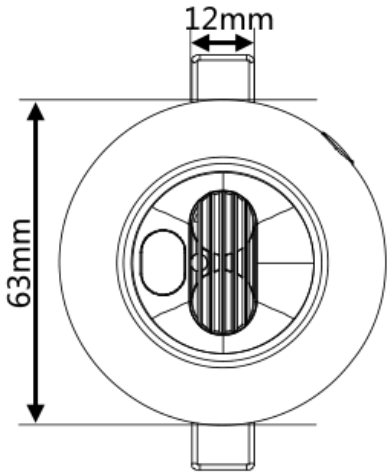


Figure 2. Dimensions - Front View Figure

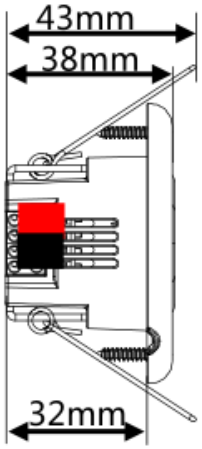


Figure 3. Dimensions - Side View

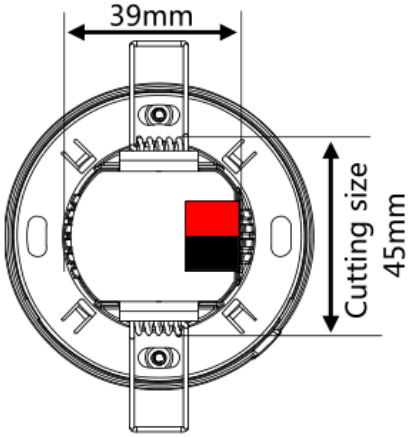


Figure 4. Dimensions - Back View

(2) Components – See Figure 5 – 6

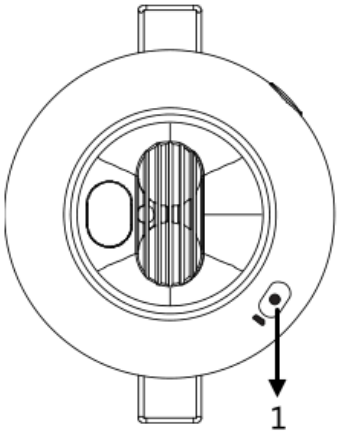


Figure 5. Components - Interior View

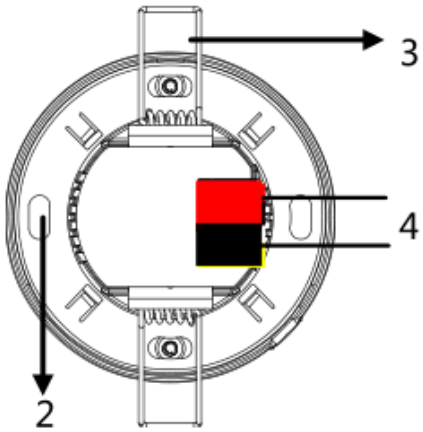
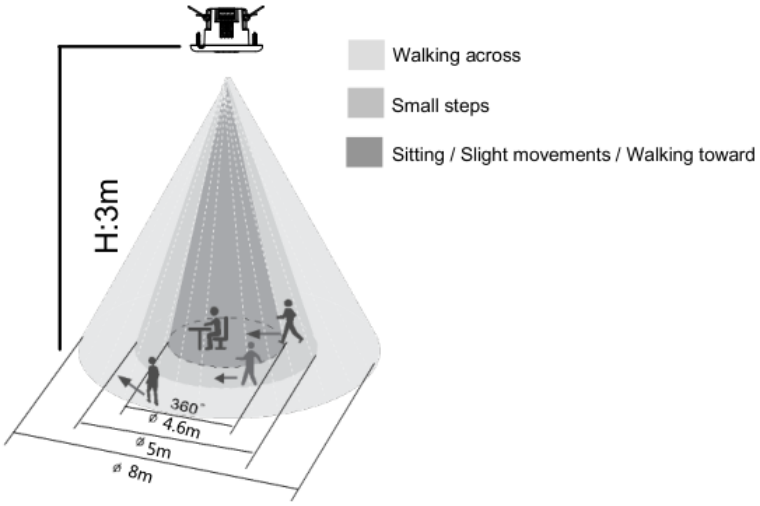


Figure 6. Components - Back View

1. Programming button & programming LED
2. Screw hole
3. Spring clips
4. KNX/EIB bus connector

(3) Detection Range - - See Figure 7



Detection Range (At 25℃)

Mounting height	Sitting / Slight movements / Walking towards	Small steps	Walking across
3m	4.6m	5m	8m

Figure 7. Detection Range

(4) Ceiling – mounted - See Figure 8 – 10

Step 1. When installing the sensor in the thin ceiling, produce an opening of diameter 45mm in the ceiling.

Step 2. Fix the sensor into position with the assistance of the spring clips after wiring.

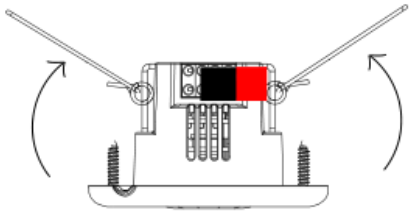


Figure 8

⇩1

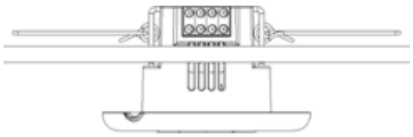


Figure 9

⇩2

Figure 10

(5) Flush - mounted - See Figure 11 – 14

Step 1. When installing the sensor in the thick wall, produce an opening of diameter 45mmn and depth of 35mm in the wall.

Step 2. Remove the spring clips and pry apart the cover and the senor.

Step 3. Fix the sensor in the wall with screws.

Step 4. Attach the cover to the sensor.

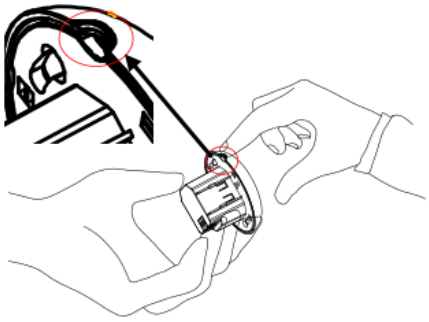


Figure 11

⇩1

Figure 12

⇩2

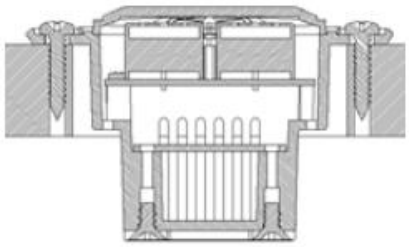


Figure 13

⇩3

Figure 14

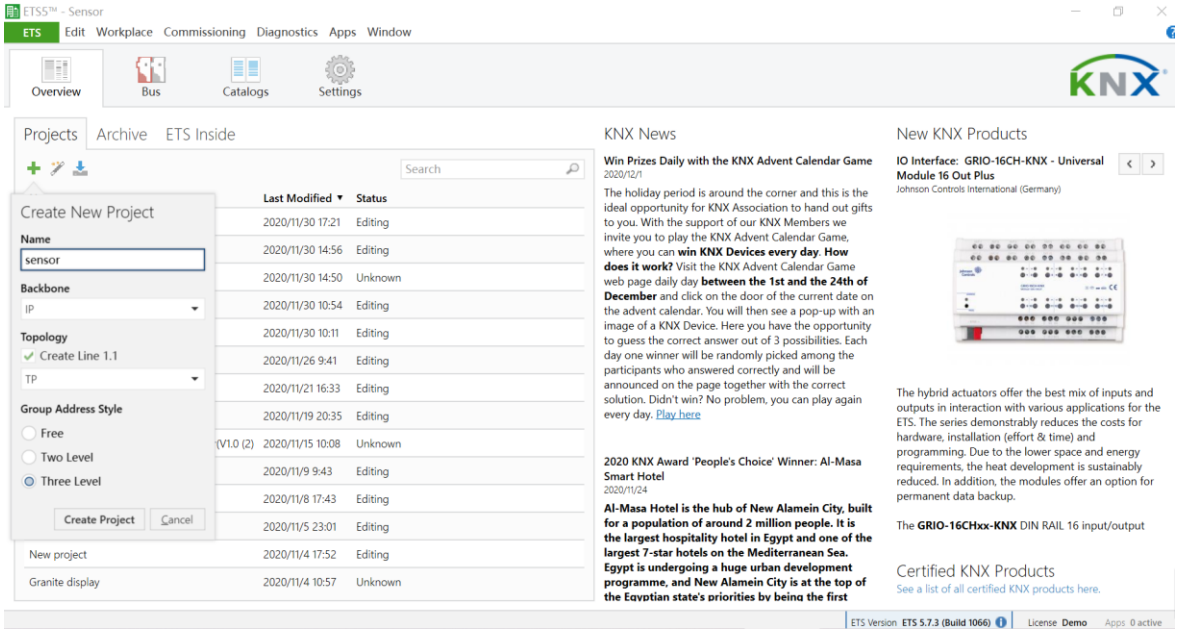
Figure 11 - 14. Installation – Flush-mounted

2 Configuration on ETS5

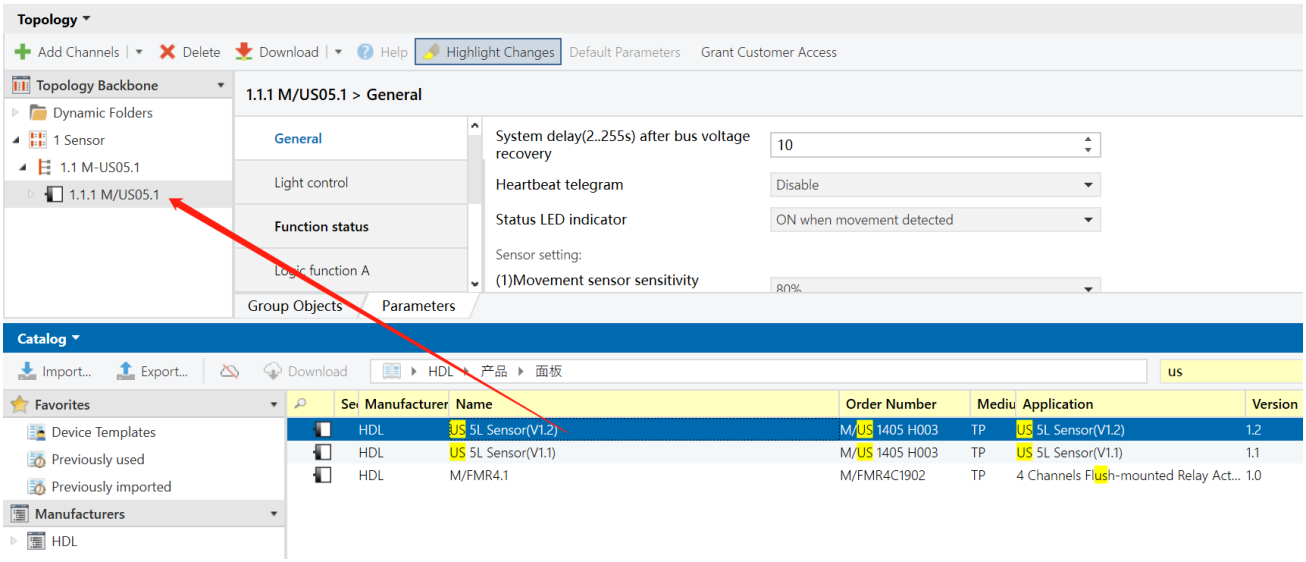
2.1 Import Devices

Add device/database before program it.

1. Create project in ETS5, if you have project, ignore it. Select three level group address style when create project.



2. Refer to the device version from the label, select Catalog, drag the database to current Line. According to the label of sensor, you can ask HDL technical support for corresponding database.



2.2 General

This document mainly describes 1.2 version M/US05.1 KNX Mini Ultrasonic sensor.

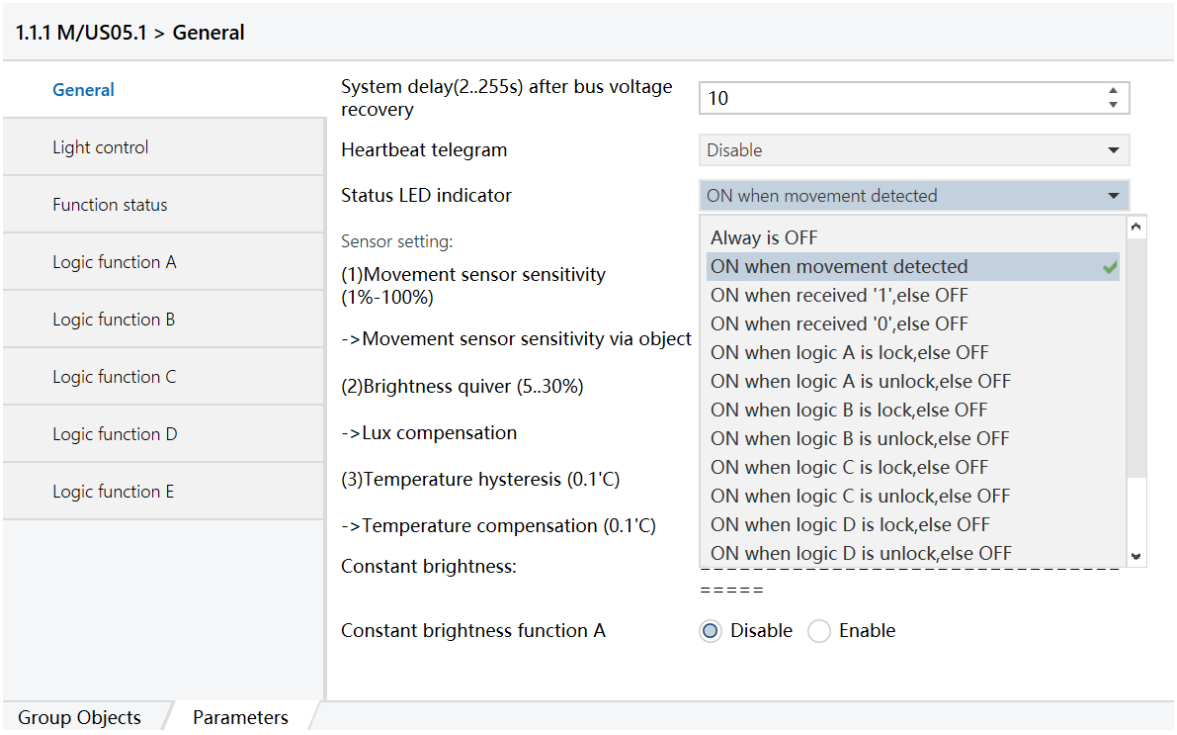
(1) System delay (2…255s) after bus voltage recovery: time-delay function, namely a delay time between powering on the device and activating the system, which ranges from 2 to 255 s. The default value is 10 s.

(2) Heartbeat telegram: It is used to check whether the communication between device and system is normal.

- Disable: disable heartbeat telegram function.
- Send value “0” cyclically: devices will send “0” on the KNX bus at a set time interval.
- Send value “1” cyclically: devices will send “1” on the KNX bus at a set time interval.
- Send value “1/0” inverted cyclically: devices will send “0” and “1” alternately on the KNX bus at a set time interval.

(3) Status LED indicator:

Set the LED indicator’s status, for normal use ON when movement detected.



If select anyone except 'Always is OFF', there has 'Led indicator (Enable/Disable)' function.

We can use this Group Address to enable or disable the Led indicator.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low
15	General	Led indicator status			1 bit	C	R	W	T	-	switch	Low

'ON when received '1', else OFF', means if received 'Led indicator (Enable/Disable),1', then turn ON the Led indicator.

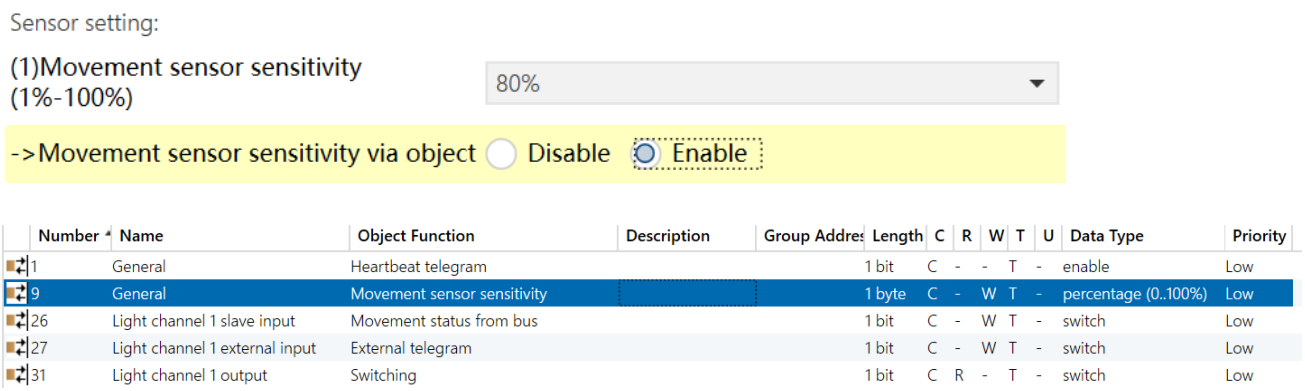
'ON when received '0', else OFF', means if received 'Led indicator (Enable/Disable),0', then turn ON the Led indicator.

2.1.1 Sensor Settings

(1) Movement sensor sensitivity (1%-100%): use 80% by default.

(2) Movement sensor sensitivity via object:

If enable, we can modify sensor sensitivity via Group Address.



Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
9	General	Movement sensor sensitivity			1 byte	C	-	W	T	-	percentage (0..100%)	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low

(3) Brightness quiver (5...30%)

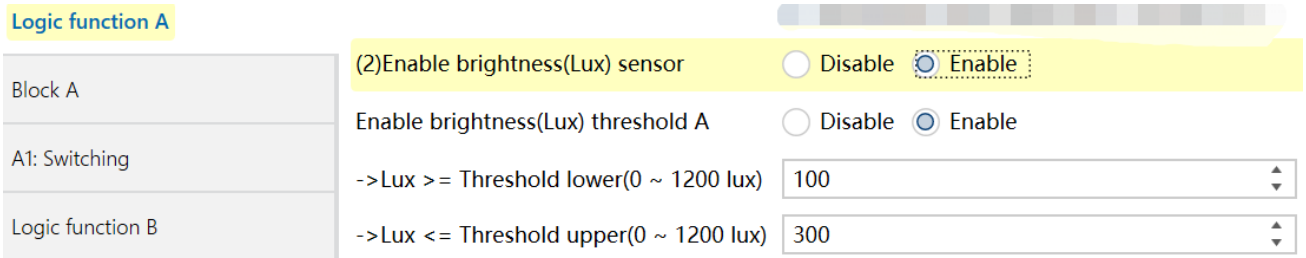
This threshold affects the actual effective range. Take an example as below.

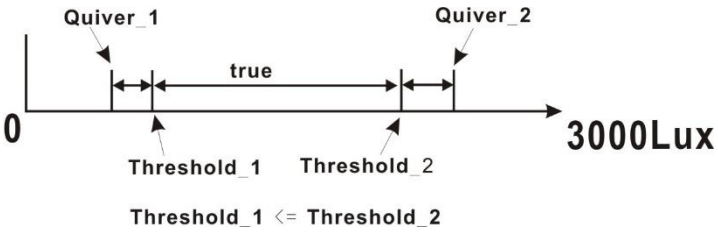
The Brightness quiver is used for brightness in logic.

If n = 5%, Threshold_1 ⩽ Threshold_2, Threshold_1 = 100 Lux and Threshold_2 = 300 Lux, actual effective range will be 95~315 Lux.

Threshold_1 * (1 – 5%) = 100 * (1 - 5%) = 95 Lux

Threshold_2 * (1 + 5%) = 300 * (1 + 5%) = 315 Lux

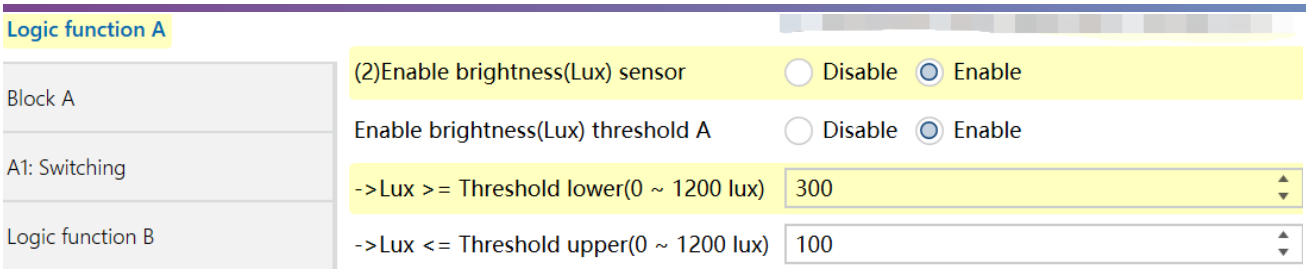


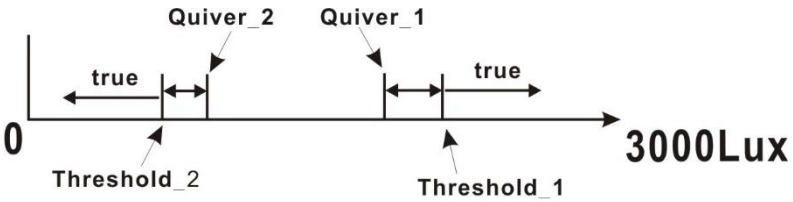


If n = 5%, Threshold_1 > Threshold_2, Threshold_1 = 300 Lux and Threshold_2 = 100 Lux, actual effective range will be 105 ~ 285 Lux.

Quiver_1 = Threshold_1 * (1 – 5%) = 300 * (1 - 5%) = 285 Lux

Quiver_2 = Threshold_2 * (1 + 5%) = 100 * (1 + 5%) = 105 Lux

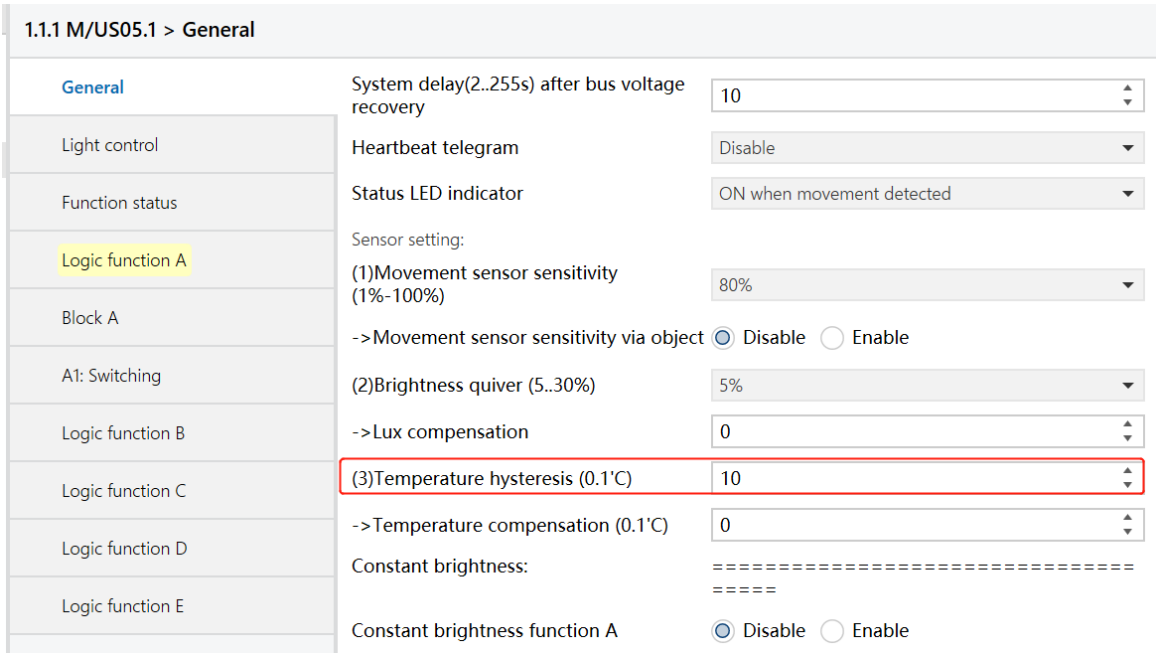




Threshold_1 > Threshold_2

(4) Lux compensation: If actual Lux value is not correct, you can use this to adjust the Lux value.

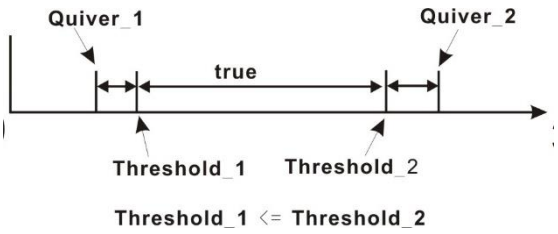
(5) Temperature hysteresis (0.1℃): The hysteresis for Logic Temperature input.

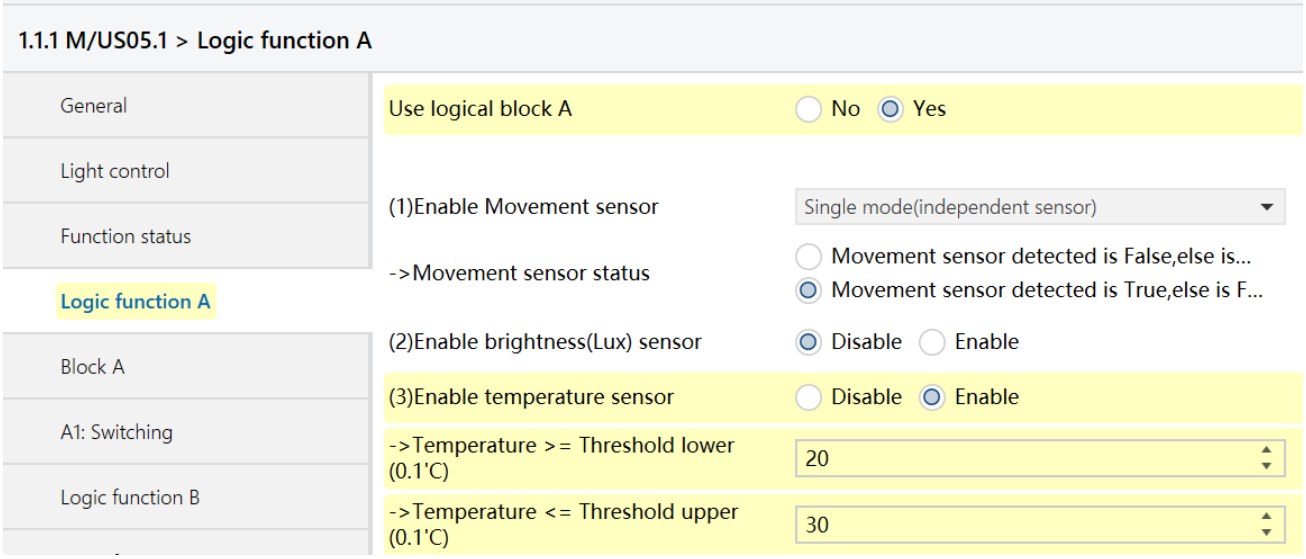


If hysteresis is 10, Threshold_1 ≤ Threshold_2, Threshold_1 = 20℃ and Threshold_2 = 30℃. Then effective value is 19~31℃.

Threshold_1 – 1℃= 19℃

Threshold_2 + 1℃= 31℃



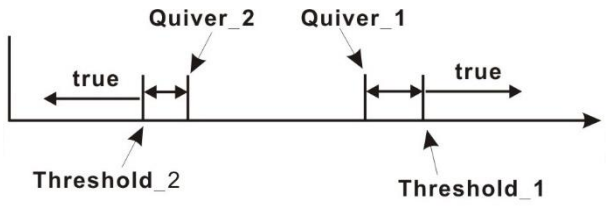


If hysteresis is 10, Threshold_1 > Threshold_2, Threshold_1 = 30℃ and Threshold_2 = 20℃.

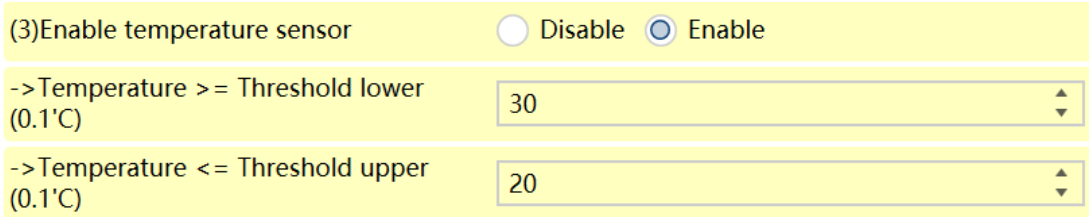
Then effective value is <21℃ or <29℃.

Threshold_1 – 1C= 29℃

Threshold_2 + 1C= 21℃



Threshold_1 > Threshold_2



-> Temperature compensation (0.1'C): If temperature value is not correct, you can use this to adjust the temperature value.

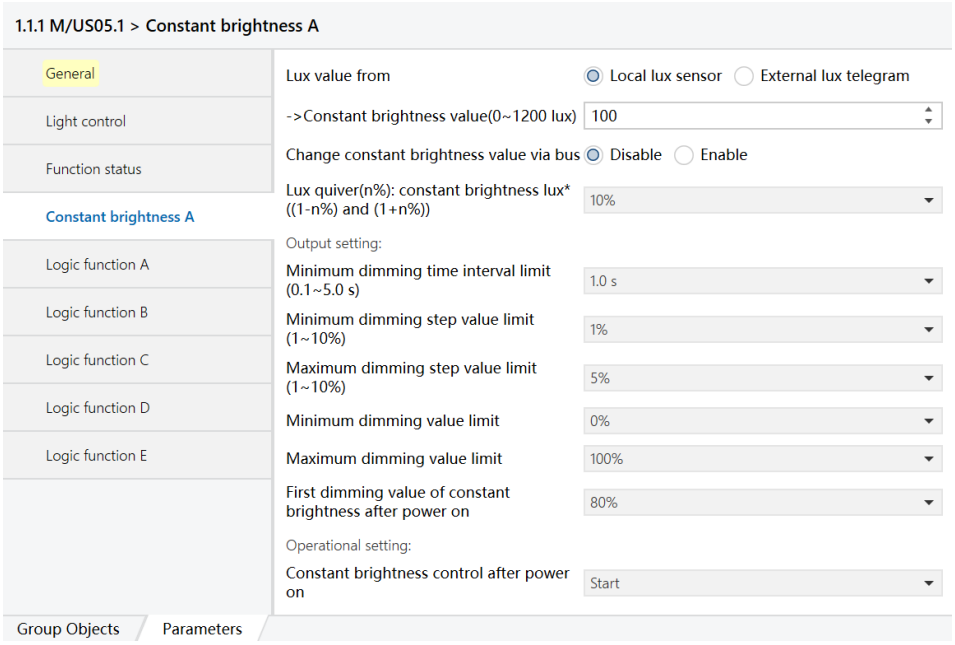
2.1.2 Constant Brightness

(1) Constant brightness: Keep the range detected by the sensor at a constant value.

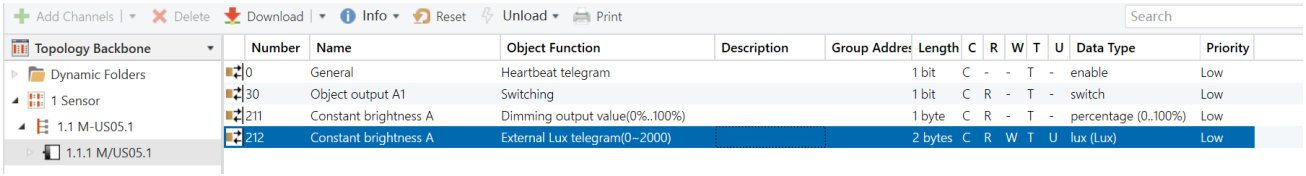
Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low
242	Constant brightness A	Dimming output value(0%..100%)			1 byte	C	R	-	T	-	percentage (0..100%)	Low

Trigger condition: Detection and Brightness are as logic input condition. When sensor detects movement and brightness lower than the preset value, then turn on the light (100%), and then the light will be dimming to preset value by auto. If no movement after delay time, the Constant Brightness function will stop.

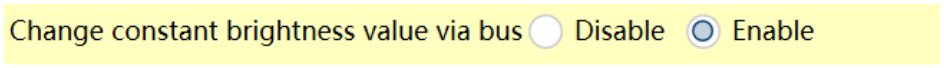
You can enable the Constant Brightness function A/B in General setting.



- Lux value can get from local lux sensor or external lux sensor.



- Constant brightness value range is 0~1200 lux and it use 100 lux by default. It can be changed by Bus if change constant brightness value via bus option is enabled.



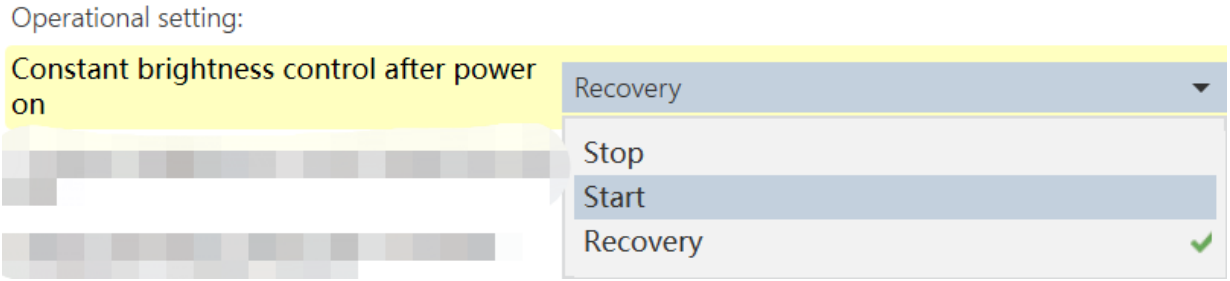
0	General	Heartbeat telegram	1 bit	C	-	-	T	-	enable	Low
30	Object output A1	Switching	1 bit	C	R	-	T	-	switch	Low
211	Constant brightness A	Dimming output value(0%..100%)	1 byte	C	R	-	T	-	percentage (0..100%)	Low
213	Constant brightness A	Constant bri.. Lux (0~2000)	2 bytes	C	R	W	T	U	lux (Lux)	Low

(2) Output setting

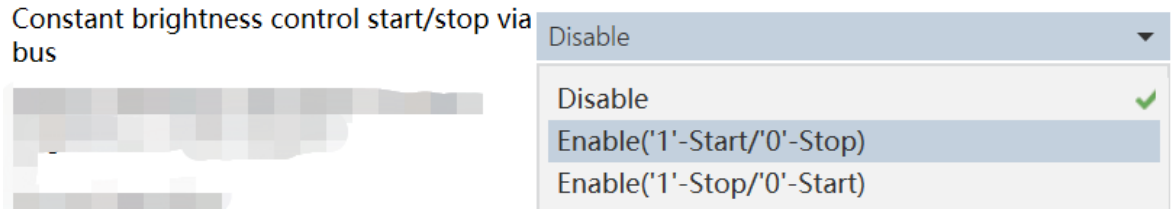
- Minimum dimming time interval limit range is from 0.1s to 5.0s.
- Minimum dimming step value limit range is from 1 to 10%.
- Maximum dimming step value limit range is from 1 to 10%.
- Minimum dimming value limit range is from 0% to 100%.
- Maximum dimming value limit range is from 0% to 100%.
- First dimming value of constant brightness after power on: After the power recovery, sensor will restore to the selected dimming value. Dimming value can be 0% ~ 100% and last dimming value. It uses 80% dimming value by default.

(3) Operational setting

- Constant brightness control after power on: After the power recovery, whether the constant brightness control function is enabled or disabled. Recovery means restore to the status before power failure after re-power on.



- Constant brightness control start/stop via bus: Enable or disable the constant brightness control from the bus.

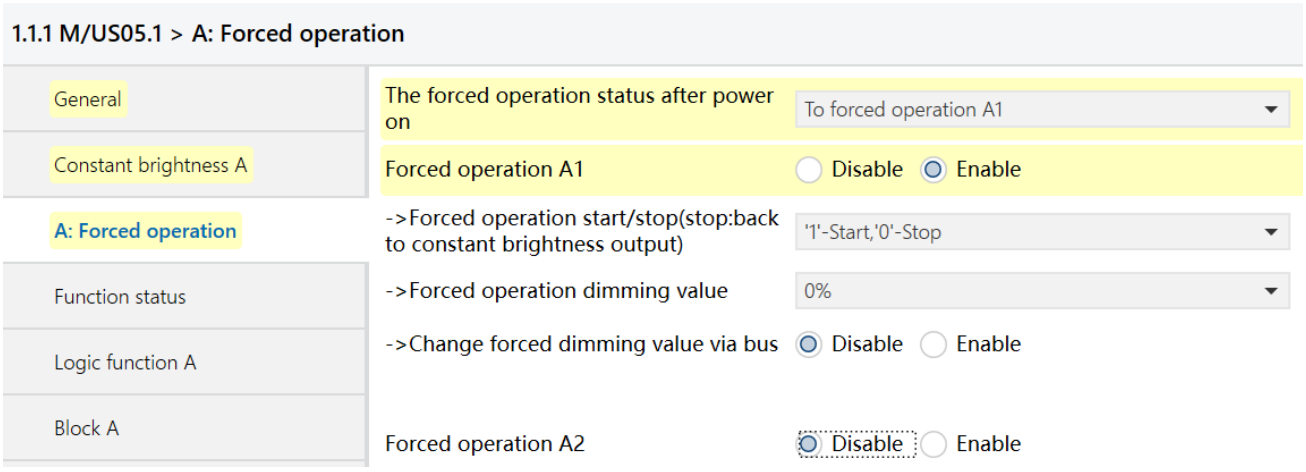


Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
30	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low
211	Constant brightness A	Dimming output value(0%..100%)			1 byte	C	R	-	T	-	percentage (0..100%)	Low
213	Constant brightness A	Constant bri.. Lux (0~2000)			2 bytes	C	R	W	T	U	lux (Lux)	Low
210	Constant brightness A	'1'-Start/'0'-Stop			1 bit	C	R	W	T	U	start/stop	Low

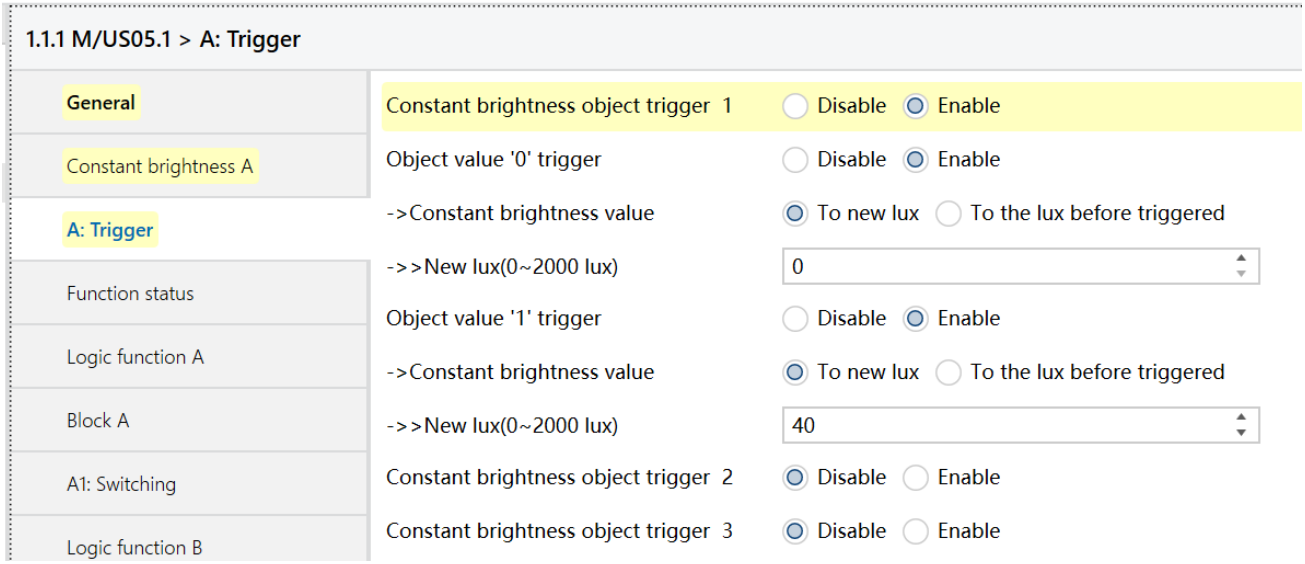
(4) Output dimming value after constant brightness control stopped: Whether directly output a specific dimming value after stop constant brightness control.

(5) Forced operation

Activate an operation after the power recovery. Usually it is used to output a different dimming value than constant brightness. When the force is stopped, return to constant brightness output.



(6) Trigger

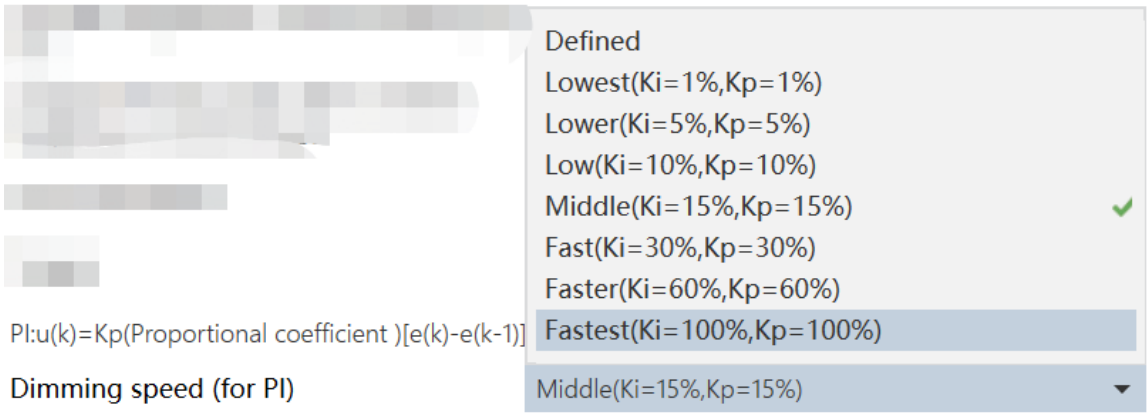


- To new lux: if to change current constant brightness value to new one, enable trigger function, send value “0” or “1” to number 222 group address.
- To the lux before triggered: if to switch back to current constant brightness value, select this option.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
30	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low
211	Constant brightness A	Dimming output value(0%..100%)			1 byte	C	R	-	T	-	percentage (0..100%)	Low
222	Constant brightness A Trigger 1	'1'/'0'-trigger			1 bit	C	R	W	T	-		Low

2.1.3 PI:u(k)=Kp(Proportional coefficient)[e(k)-e(k-1)]+Ki(integration time)e(k)

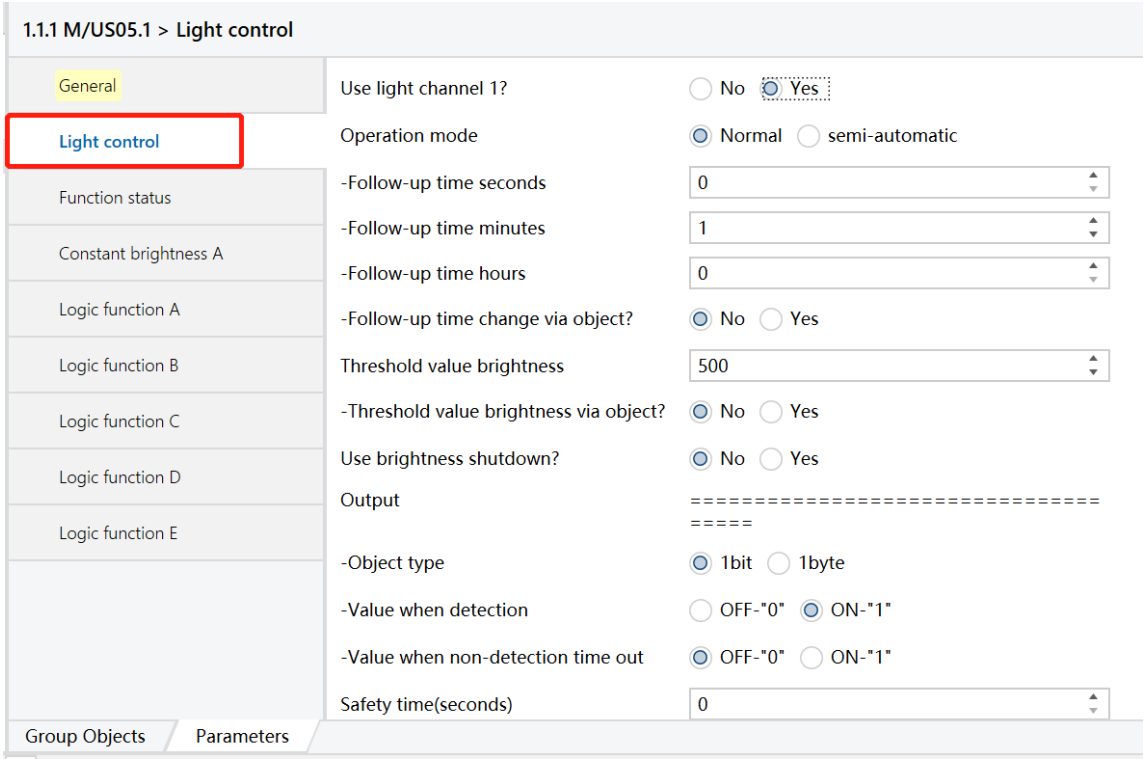
Dimming speed (for PI): Select the suitable dimming speed for constant brightness function.



2.3 Light Control

Lighting control function. If just use PIR or PIR + brightness to control the light, you can set the parameter in Light Control1 or Light Control2. Take Light Control1 as example.

Enable the Light Control1 in General.



■ Operation mode:

Normal: The logic can start by automation.

Semi-automatic: The logic needs to start when it receives External switching telegram '1'.

No matter which mode you select, create and link group address to Number 27.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low
242	Constant brightness A	Dimming output value(0%..100%)			1 byte	C	R	-	T	-	percentage (0..100%)	Low

- Follow-up time: If there is no detection after this time, it will trigger the output for non-detection.

- Follow-up time change via object: If Yes, then can use group address to change the follow-up time from BUS.

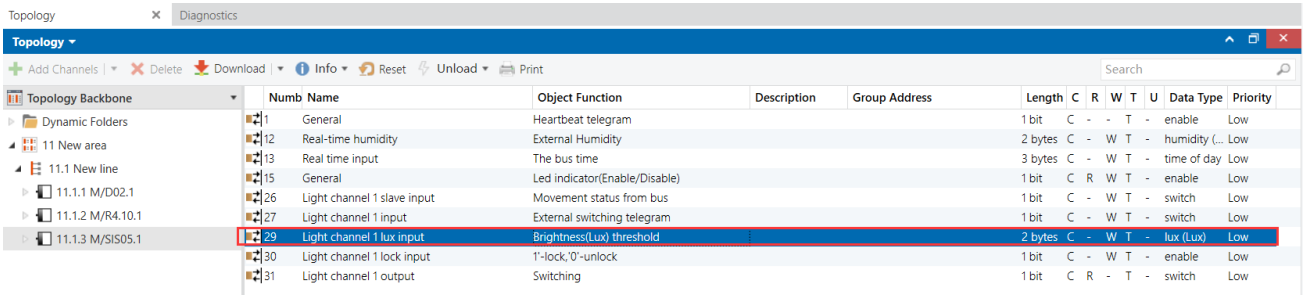
Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
28	Light channel 1 time input	follow-up time(minutes)			2 bytes	C	-	W	T	-	time (min)	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low
242	Constant brightness A	Dimming output value(0%..100%)			1 byte	C	R	-	T	-	percentage (0..100%)	Low

■ Threshold value brightness:

In light control parameters, all the conditions use “AND” logical relationship by default. If only use PIR sensor and brightness is less than 1200, set threshold to 1200.

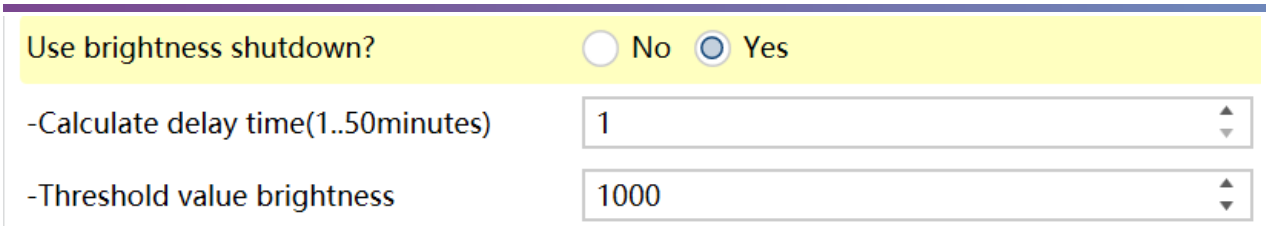
For example: If the brightness is less then Threshold value and it detects movement, will turn on the light. If the brightness is over then Threshold value and it detects movement, will not turn on the light.

- Threshold value brightness via object: If yes, then can use group address to change the threshold value from BUS.



■ Use brightness shutdown:

If Yes, it will trigger the output for non-detection when value is in Threshold value brightness during delay time.



When the brightness is 1000 lux during 1 minute, will turn off the light directly.

- Output mode:

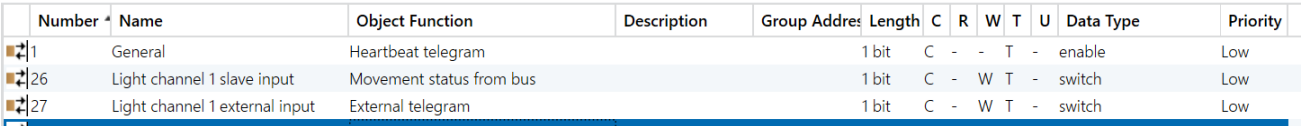
Individual: It can send out one output, you can select the output type (1bit or 1byte) and the value for detection/non-detection.

- Safety time (seconds):

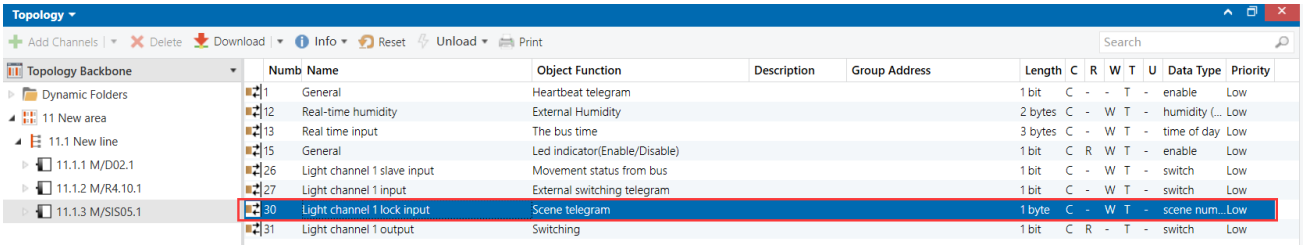
Only after this safety time will newer output be activated.

- Lock:

'1'-lock, '0'-unlock; '0'-lock, '1'-unlock: Used 1bit group address to lock/unlock the logic for Light Control1.



Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
26	Light channel 1 slave input	Movement status from bus			1 bit	C	-	W	T	-	switch	Low
27	Light channel 1 external input	External telegram			1 bit	C	-	W	T	-	switch	Low
30	Light channel 1 lock input	1'-lock,'0'-unlock			1 bit	C	-	W	T	-	enable	Low
31	Light channel 1 output	Switching			1 bit	C	R	-	T	-	switch	Low



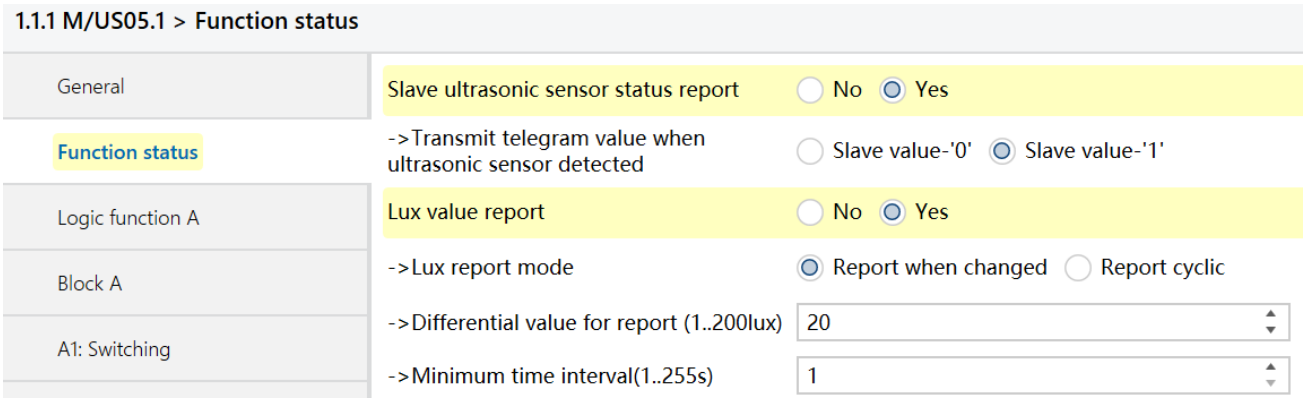
-- Only lock/unlock: Just lock/unlock the logic for Light Control1.

-- Lock/Unlock and transmit value: Lock/Unlock the logic for Light Control1 and send out a value to output group address. For example: Lock the logic and turn on the light when you

press button.

-- Automatic unlock after lock delay: It will automatically unlock after the delay time.

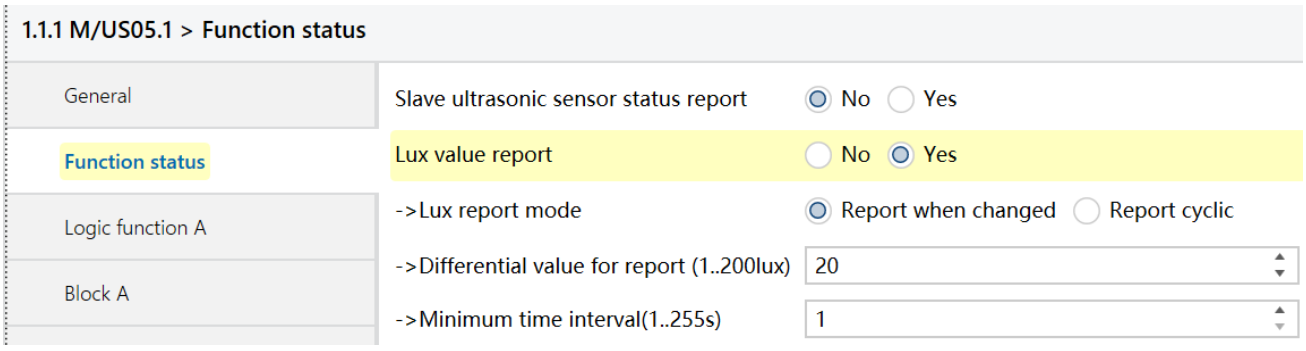
2.4 Function Status



- Slave ultrasonic sensor status report: send value “0” or “1” to bus.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
30	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low
3	Function status	Slave sensor status to bus			1 bit	C	-	W	T	-	switch	Low

- Lux report mode: feedback current lux value to bus.



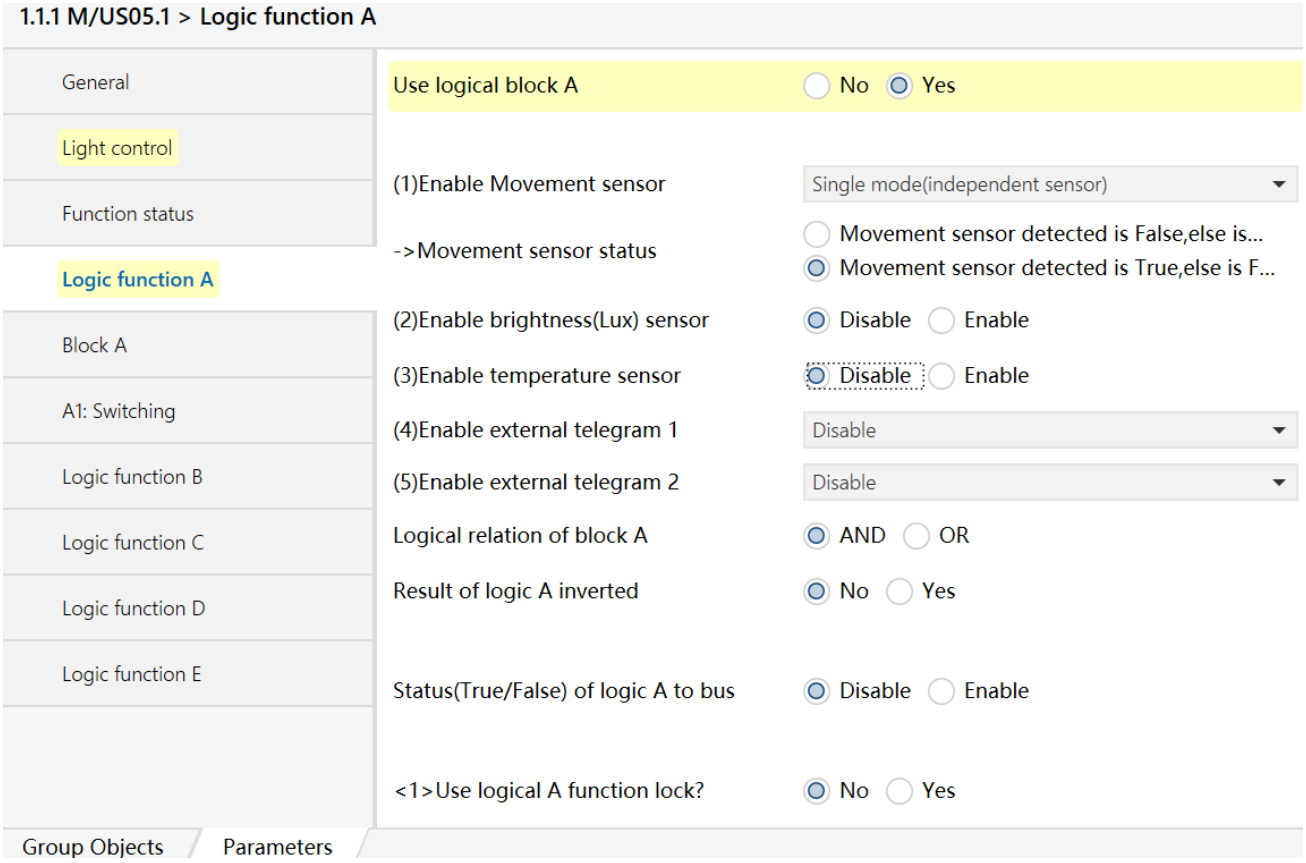
Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
30	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low
5	Function status	Brightness(Lux) value			2 bytes	C	R	-	T	-	lux (Lux)	Low

2.5 Logic Function A/B/C/D

There are four independent logic, you can select movement /brightness /temperature /humidity /external telegram as logic input conditions, and you can use 1bit group address to

enable/disable the logic function.

Take Logic Function A as example:

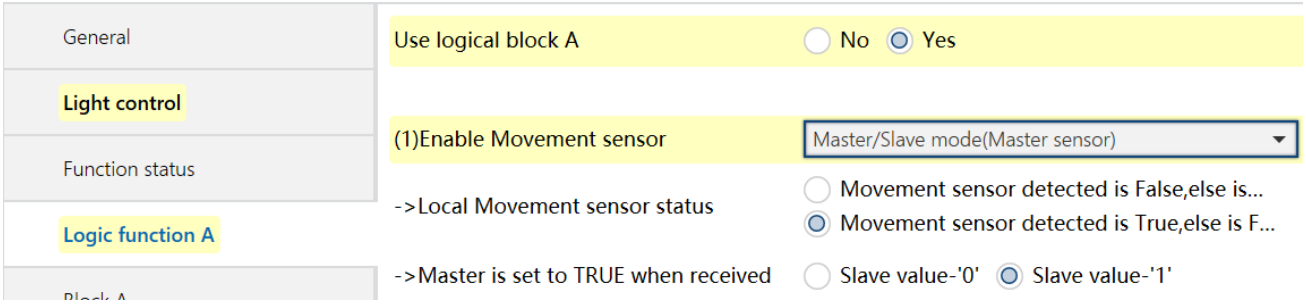


(1): Enable movement sensor: If enable, the movement sensor as logic input condition.

-- Disable: The ultrasonic sensor is not used in this logic.

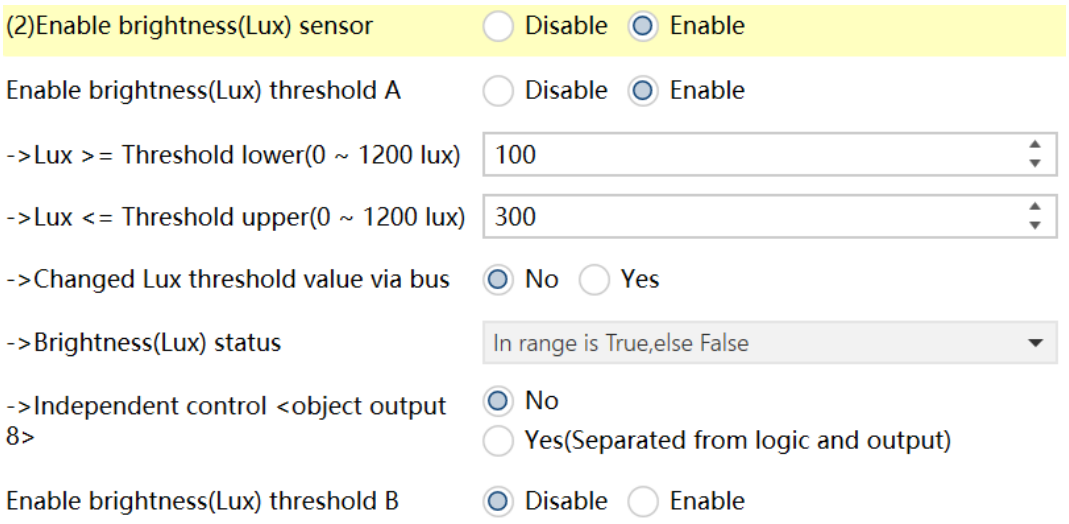
-- Single mode (independent sensor): This ultrasonic sensor works as logic input condition, and you can select the sensor status. Suggest select ultrasonic sensor detected is True, else is False.

-- Master/Slave mode (Master sensor): More sensors work as logic input condition, but this sensor as master. It can use 1bit group address to link to slave sensor, when receive salve value, then the master set to Ture.



Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
41	Object input A	Movement status from bus			1 bit	C	-	W	T	U	switch	Low
61	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low

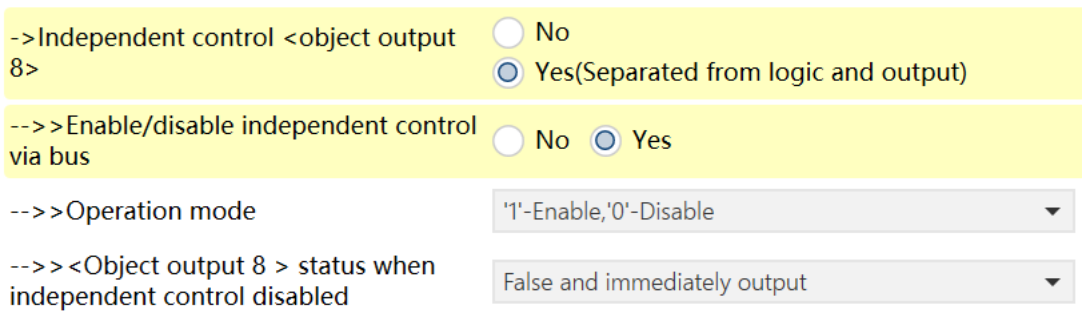
(2): Enable Brightness (Lux) Sensor: It supports up to 3 brightness thresholds. You can select the brightness value.



-- Change Lux threshold value via bus: If enable, can modify the value via group address.

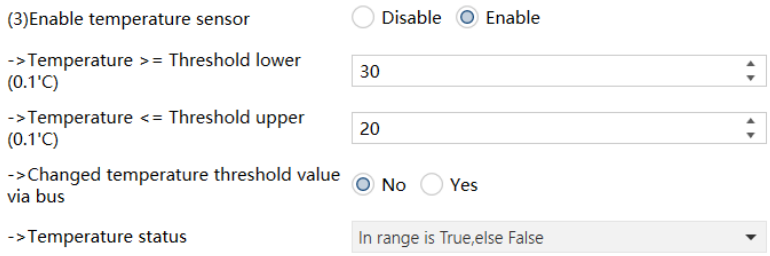
-- Brightness (Lux) status: Select the Ture/False status for logic.

-- Independent control < object output 8: It can independently control the object output8 when brightness is in the range. This is separated from Logic A.



(3): Enable temperature sensor: If enable, the local temperature works as logic input condition, you can select the temperature range and the temperature status.

And it supports modify the temperature threshold value from Bus.



(5) Enable external telegram 1

(6) Enable external telegram 2

-- There are two external telegram which from Bus can work as logic input condition.

- Logic relation of block A:

  AND: Only when all input conditions are met can the target be executed

  OR: If one of the input conditions is met, the target can be executed

- Result of logic A inverted: Inverted the logic A result or not.

- **Status (True/False) of logic A to bus:** If enable, it will send out the logic A status to Bus via group address.

- **Use logical A function lock?**

  -- Use telegram via bus: If yes, then can use Big telegram or Scene telegram to lock/unlock the Logical A.

Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
1	General	Heartbeat telegram			1 bit	C	-	-	T	-	enable	Low
61	Object output A1	Switching			1 bit	C	R	-	T	-	switch	Low
78	<1>Logic A function	Lock logic function			1 bit	C	-	W	T	-	enable	Low

-- Logic A output status when logic function lock: Set the output status when logic lock.

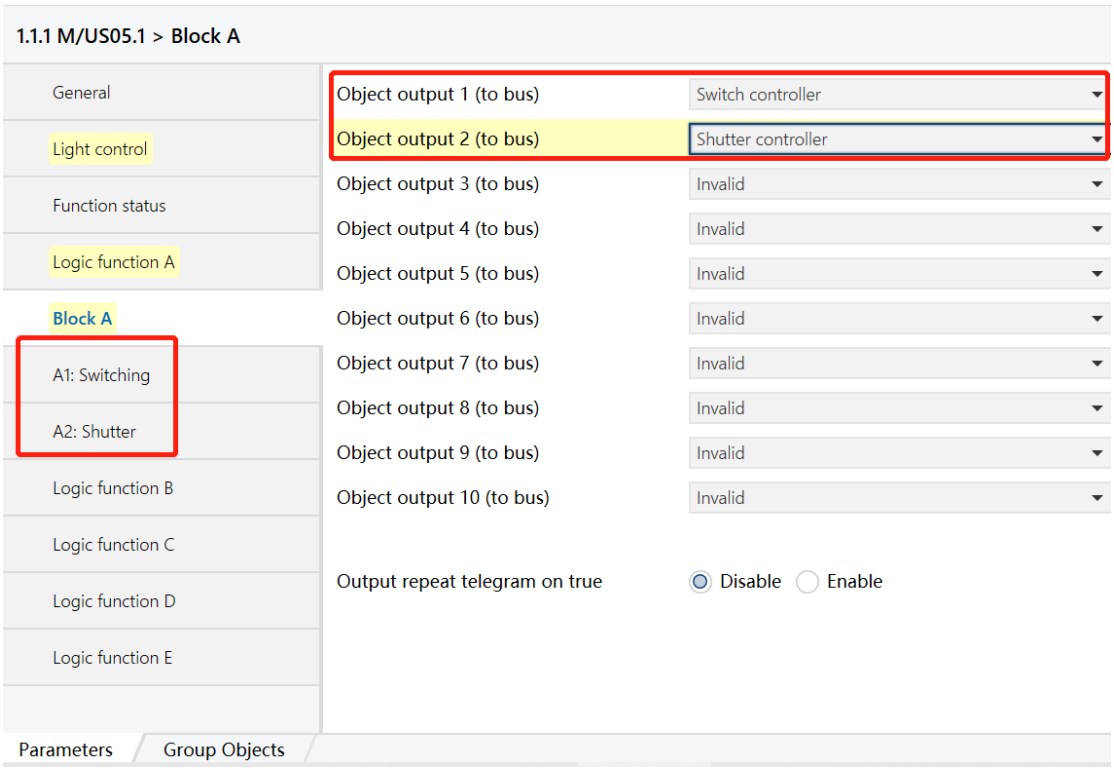
-- Logic A automation unlock after logic function lock: It will auto unlock after delay time.

- **Logic A output status when logic function unlocks:** Set the output status when logic unlock.
- **Feedback logic A function lock status:** If enable, it can use 1bit group address to feedback the lock status to Bus.

2.1.4 Block A

Enable the output object for logic, take Logic function A as example. Logic function B/C/D are same.

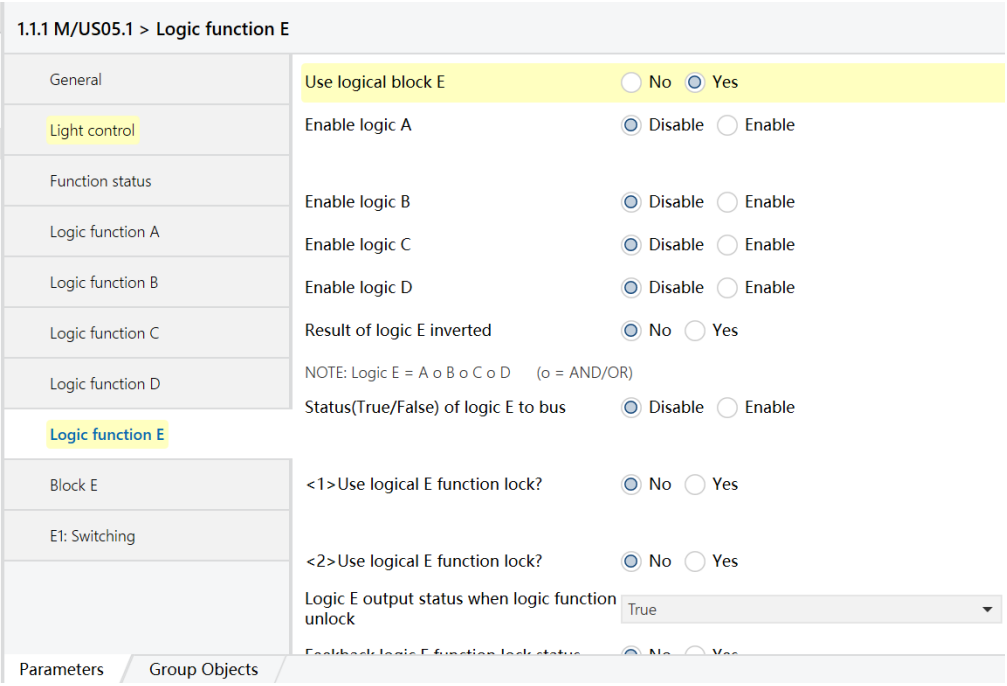
For example: Logic function A has two outputs, one is control single light, second is control curtain.



Output repeat telegram on true: Enable/disable the repeat telegram on true.

2.5 Logic Function E

Logic function E has combination function, it can combine logic A/B/C/D. For example, when logic A and logic B are both true, then turn on the light.



- **Enable logic A/B/C/D:** Enable logic A/B/C/D as logic E input condition or not.

  Result of logic A/B/C/D inverted: Inverted the result of logic A/B/C/D or not.

- **Result of logic E inverted:** Inverted the result of logic E or not.

- **Status (True/False) of logic E to bus:** If send out the logic E status to bus or not.

- **Use logical E function lock?**

  -- Use telegram via bus: If yes, then can use Big telegram or Scene telegram to lock/unlock the Logical E.

  -- Logic E output status when logic function lock: Set the output status when logic lock.

  -- Logic E automation unlock after logic function lock: It will auto unlock after delay time.

- **Logic E output status when logic function unlocks:**

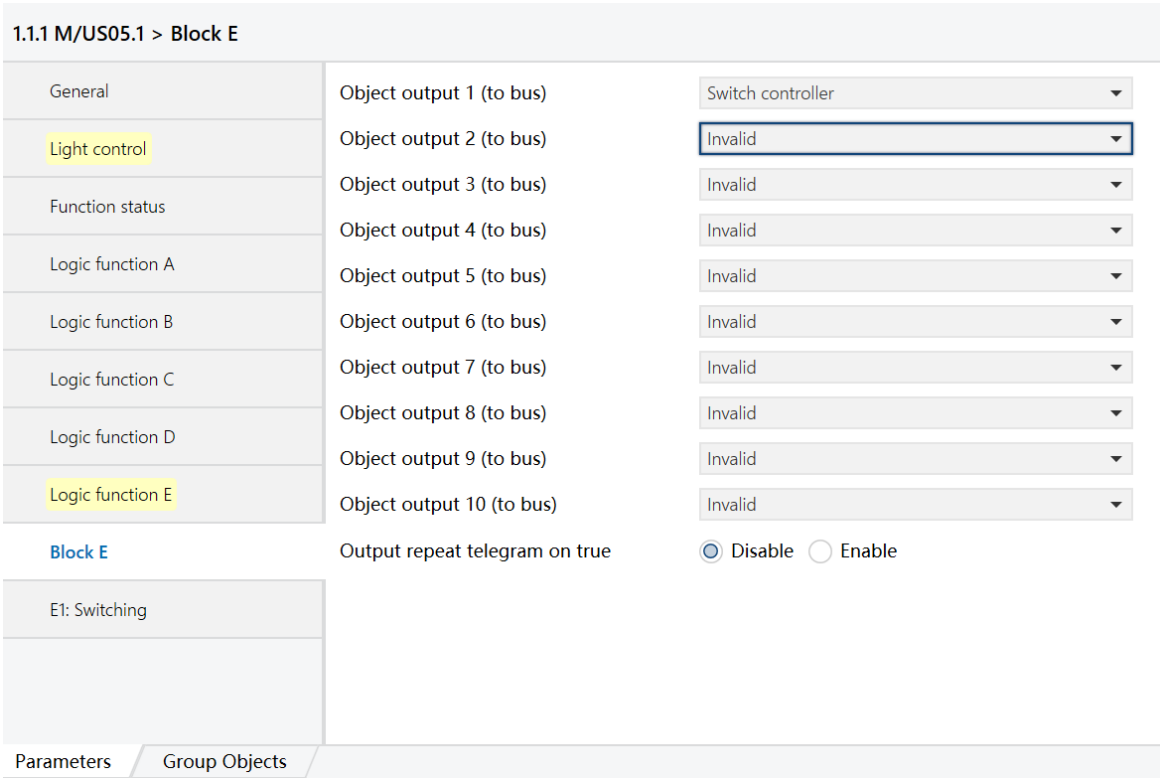
  -- Set the output status when logic unlock.

- **Feedback logic E function lock status:** If enable, it can use 1bit group address to feedback the lock status to Bus.

2.6 Block E

Enable the output object for logic E.

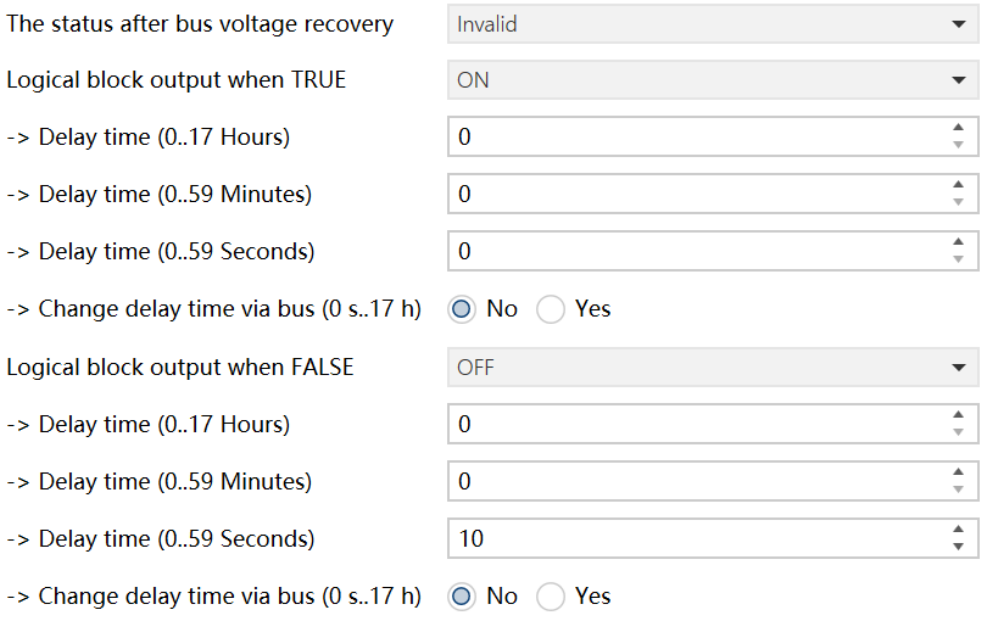
For example: Logic function E has one output (Switch controller to control single light).



Output repeat telegram on true: Enable/disable the repeat telegram on true.

2.7 Output of Logic Function E

After enable the output objects in Block E, then it will show the output setting for logic true/false.



- **The status after bus voltage recovery:** Set the status after bus voltage recovery.
- **Logical block output when True:** Set the detail function when logic true.

  Delay time: After delay time, will trigger the output.

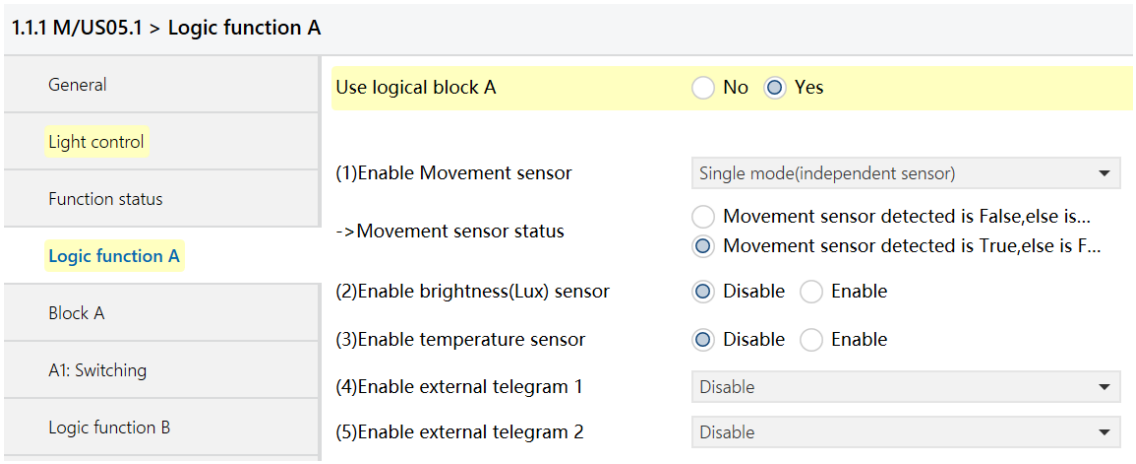
  Change delay time via bus (0s..17h): The delay time can be changed by bus.
- **Logical block output when False:** Set the detail function when logic false.

  Delay time: After delay time, will trigger the output.
- **Change delay time via bus (0s..17h)**: The delay time can be changed by bus.

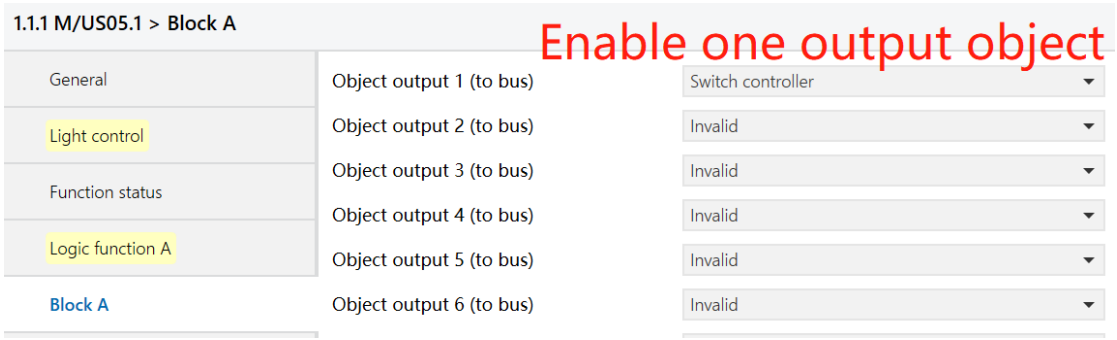
3 Examples

3.1 Single movement control one light

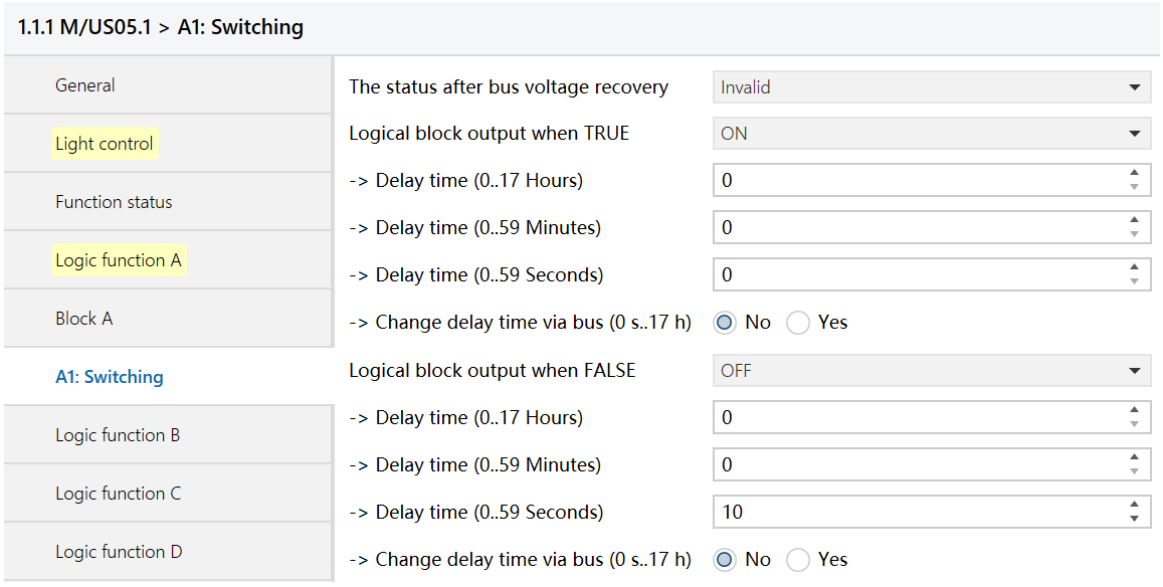
(1) Enable Logic function A and select Single mode.



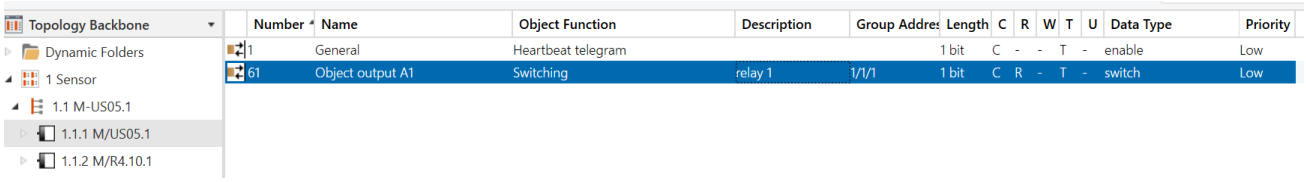
(2) Enable one output object, because control one light turns on/off, so we can use Switch controller type.

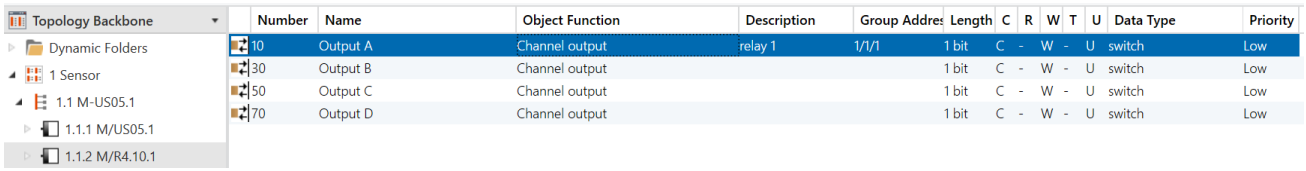


(3) Set the detailed function for output.



(4) Link the group address to light. It means when it detects a movement, it will turn on relay1; when there is no detection in 10s, it will turn off relay1.

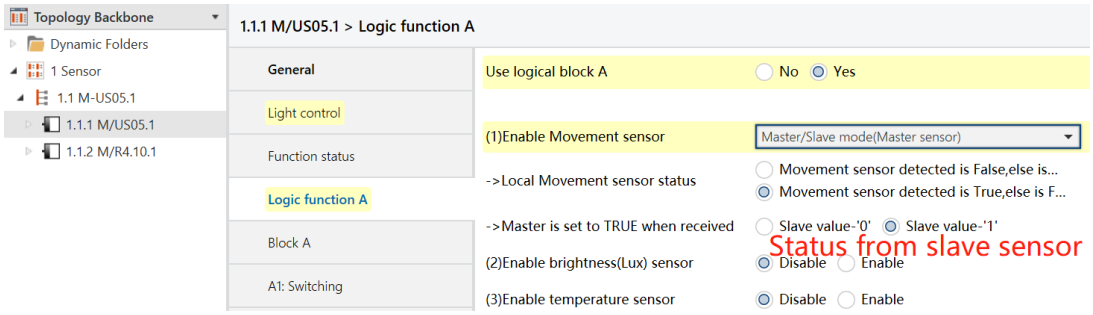




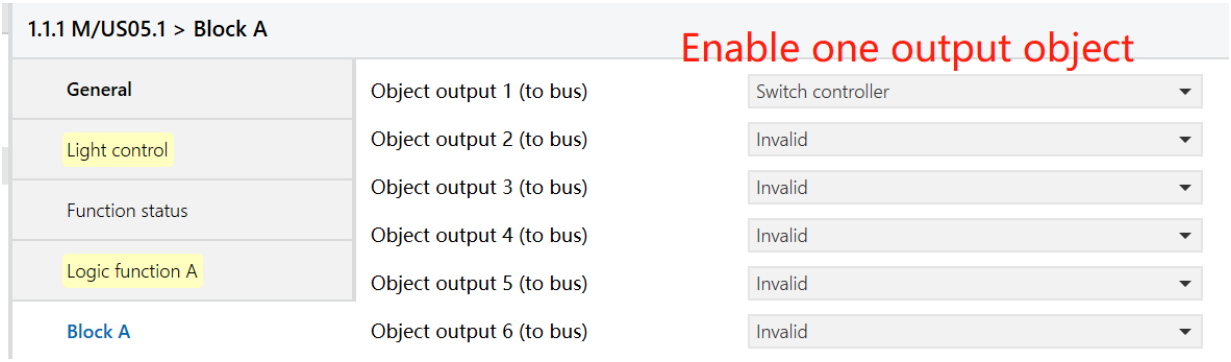
3.2 Master/Slave movement control one light

Some projects will use two sensors to control same light. One of sensors has detection, will turn on the light; If master sensor no detection for 10s and slave sensor not sent '1' in 10s, will turn off relay1.

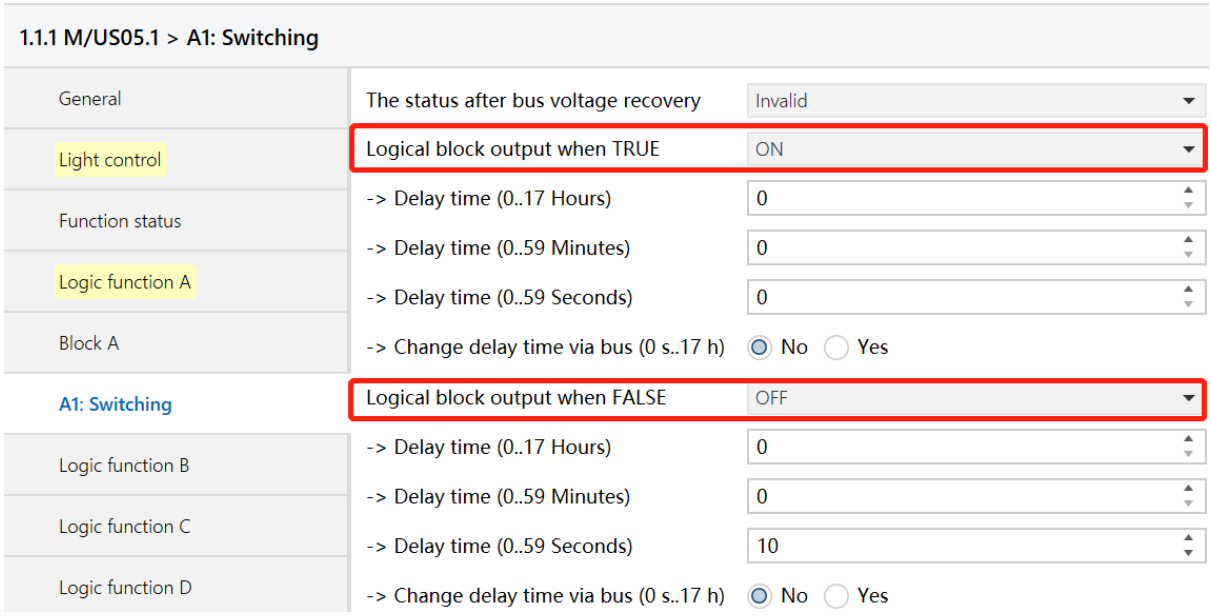
1) Master sensor enable Logic function A and select Master/Slave mode (Master sensor).



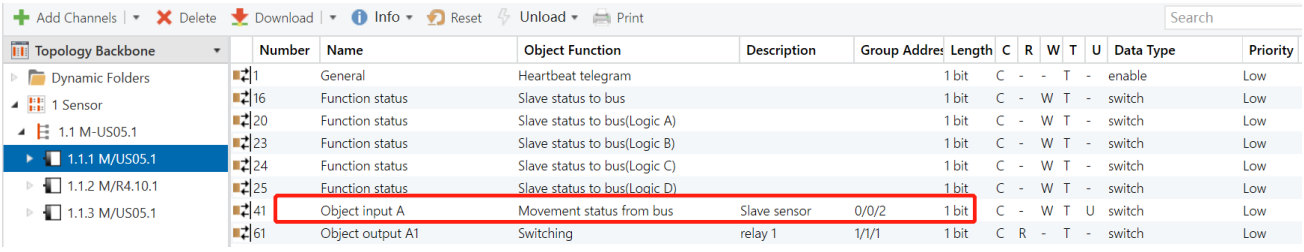
2) Master sensor enable one output object, because control one light turns on/off, so we can use Switch controller type.

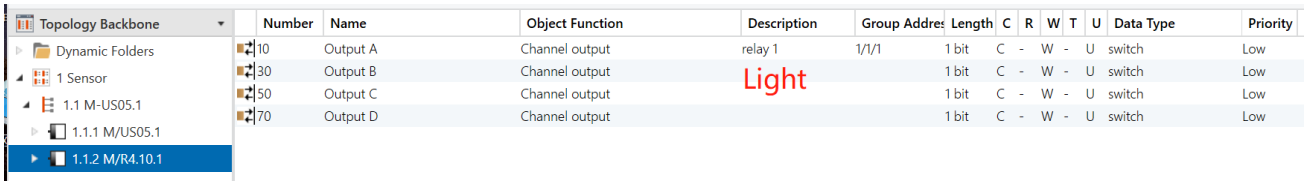


3) Set the detailed function for master sensor output.

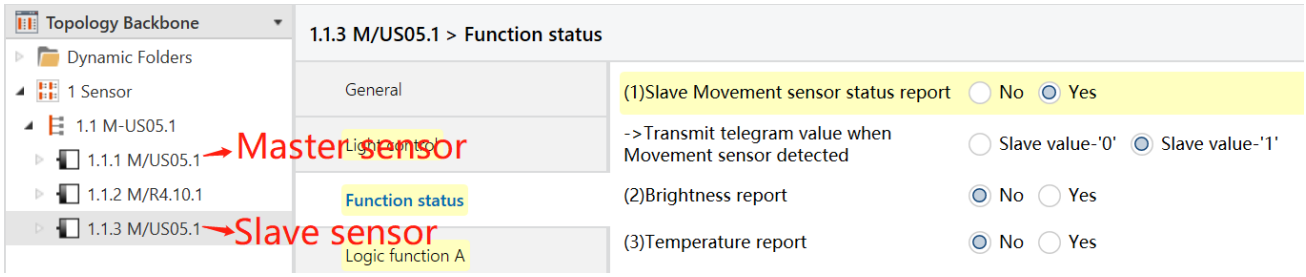


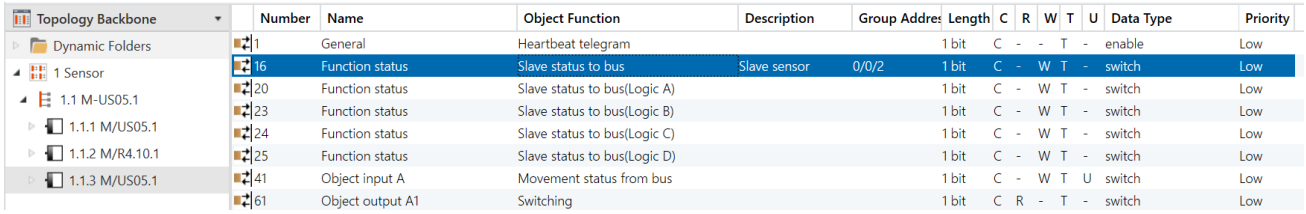
4) Link the movement status from bus (other sensor's status), and link the address to light. That means current sensor or other sensor has detection, will turn on relay1; when master sensor no detection for 10s and slave sensor not sent '1' in 10s, will turn off relay1.





5) Slave sensor reports the status to bus via group address.

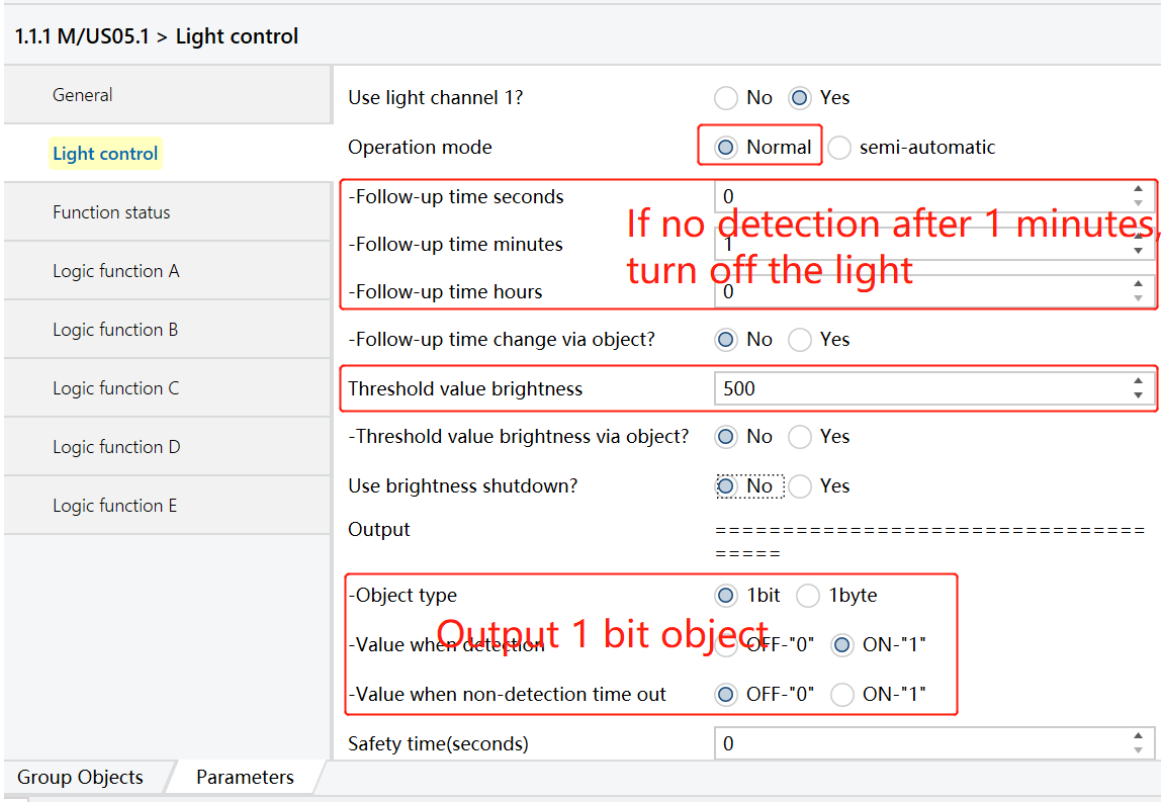




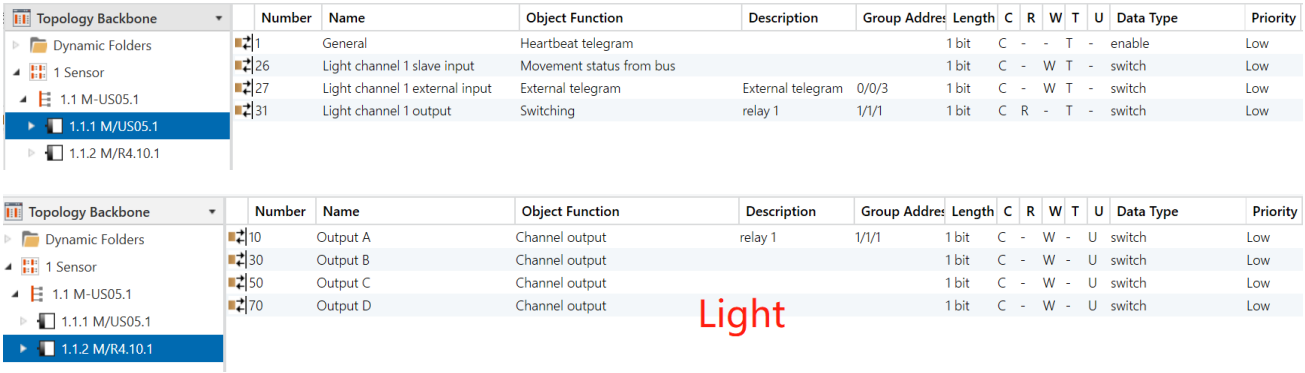
3.3 Light Control 1 (Fully-automatic/Normal)

Use movement and brightness as logic input. When the brightness in under preset value and has detection, then turn on light. If there is no detection after delay time, turn off the light.

1) Enable normal mode, set the delay time and object type.



2) Link the output of light channel 1.



Result:

a) Now is in normal mode, no matter it has external telegram or not, the logic will start by automation. If has group address for external telegram:

When receive External telegram '1', will turn on the light directly.

When receive External telegram '0', will turn off the light directly.

b) When the brightness is less than 50 lux and has movement, then turn on the light.

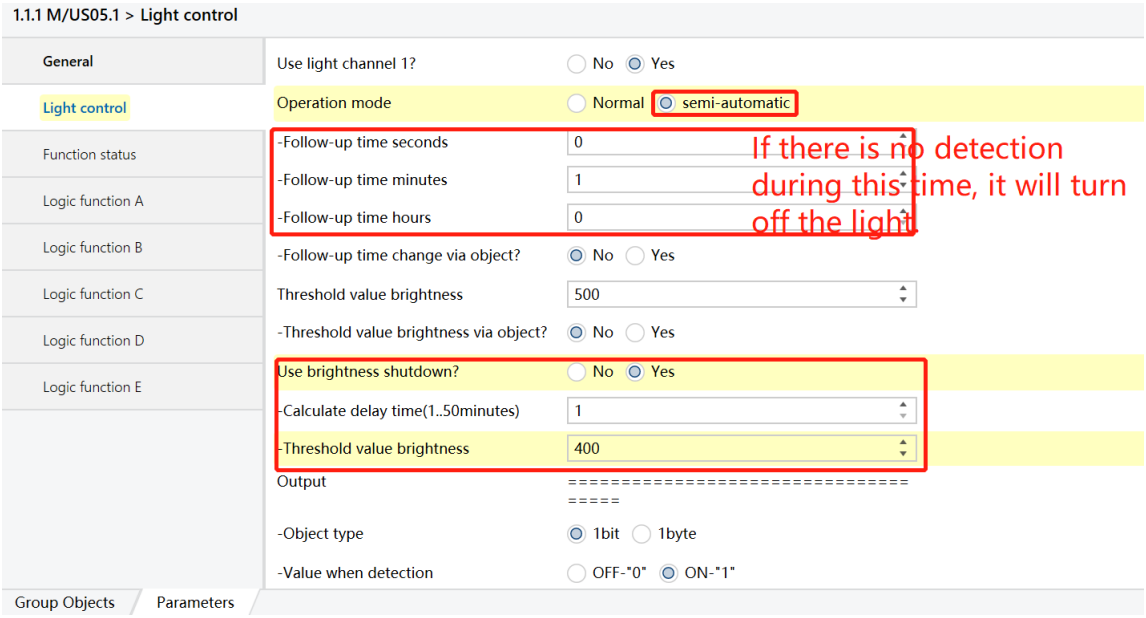
c) When there is no movement after 1 minute, turn off the light.

3.4 Light Control 1 (Semi-automatic)

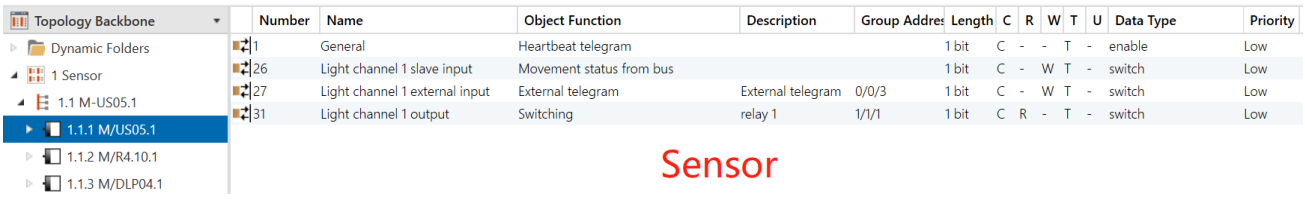
Use movement and button as logic input. When press the button, sensor will turn on the light,

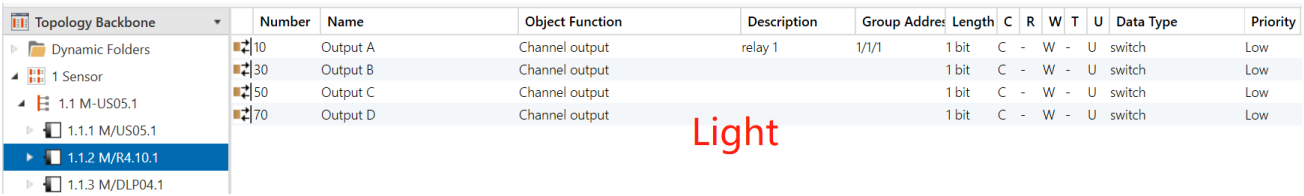
If there is no detection for preset time or the brightness are in preset value for a time, will turn off the light.

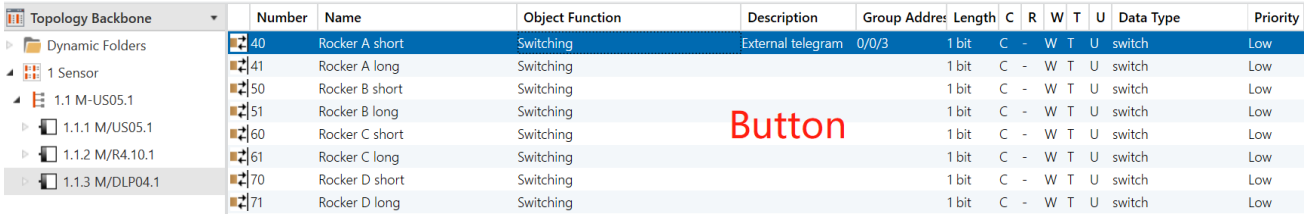
1) Enable semi-automatic mode, set the delay time and object type.



2) Link the group address for sensor/relay/button.







Number	Name	Object Function	Description	Group Addres	Length	C	R	W	T	U	Data Type	Priority
40	Rocker A short	Switching	External telegram	0/0/3	1 bit	C	-	W	T	U	switch	Low
41	Rocker A long	Switching			1 bit	C	-	W	T	U	switch	Low
50	Rocker B short	Switching			1 bit	C	-	W	T	U	switch	Low
51	Rocker B long	Switching			1 bit	C	-	W	T	U	switch	Low
60	Rocker C short	Switching			1 bit	C	-	W	T	U	switch	Low
61	Rocker C long	Switching			1 bit	C	-	W	T	U	switch	Low
70	Rocker D short	Switching			1 bit	C	-	W	T	U	switch	Low
71	Rocker D long	Switching			1 bit	C	-	W	T	U	switch	Low

Result:

1: When press the button, the light will turn on.

2: If there is no detection for 1 minute, sensor will turn off the light. Or the brightness from dark to 400lux and over 400lux for 1minute, will turn off the light.