Dry Contact 4CH Sensor

M/S04.1

Program version: V1.1

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HDL KNX / EIB-BUS

(Intelligent Installation Systems)

Product Manual

Contents

1- General

HDL KNX / EIB dry contact 4CH sensor is developed by HDL. Using KNX/EIB BUS communication with other KNX devices. Database need to be downloaded to the switch actuator by using ETS, The document descripts how to use the products. Our products use standard according to EMC, electrical safety, environmental conditions.

The dry contact is used to control switched loads, such as:

*** switch control**
*** dimming control**
*** Shutter control**
*** Flexible control**
*** Scene control**
*** Sequence control**
*** Percentage control**
*** Threshold control**
*** String control**
*** Forced control**
*** PWM output**
*** 5 logic control**
*** Counting control**
*** 5 logic control**
*** Combination control**
*** LED status indicator**
*** Alarm control**
*** Heating control**
*** 0-10V dimming**
*** Other Equipments**

1.1-Product Function

Dry contact 4CH sensor is one of the products in HDL KNX/EIB serials. It includes 4 channel signal input and 4 channel signal output, The signal input channel can receive signal from the temperature sensor and from the dry contact sensor, it offers 4 channels output DC0-10V dimming signal or 4 channels drive for the LED status.
This module including the functions of temperature collection, dry contact input, 5 logic output, 0-10V dimming, sensor, LED driver function, etc. control way including relay control, dimming control, curtain control, scene control, etc. in a logic control process each logic combines with 4 signal input channels.

The M/S04.1 there is 3 work modes,

1- Sensors controller.
2- Logic controller
3- Dimming controller

- **Sensors controller**

  Switch controller
  Switch/Dimming controller
  Shutter controller
  Flexible controller
  Scene controller
  Sequence switch
  Percentage controller
  Threshold controller
  String (14bytes) controller
  Forced position controller
  Counter controller
  Combination controller

- **Logical controller**

  Dry contact sensor
  Temperature sensor
  Black A
  Object out put 1……Object 10

  A1：Switching
  A2: Alarm
  A3: Shutter
  A4: Scene

A5: Sequence
A6: Percentage
A7: Threshold
A8: Threshold
A9: String (14bytes)
A10: String (14bytes)

- **Dimming controller**

Input A function
Dry contact sensor
Temperature sensor
0-10 ballast dimming
Staircase lighting
Flashing
Scene
Threshold
Heating

2- Hardware

The technical properties of HDL KNX/EIB M/S04.1 is as the following sections.

2.1 Technical data

Power supply

*Operating voltage(supply by the bus)	21...30 V DC,
* Current consumption EIB / KNX	< 15 mA
Input sensors	Switch/Temperature sensor
Temperature sensor choice	TTS/APR 1.0

NOTE: You have to choice the special temperature sensor supplied by HDL. The type is TTS/APR 1.0.

TTS/APR 1.0

Output/Input nominal values

* Type of Device	M/S04.1
* Number of input pins	4
* Number of output pins	4

Connections

* EIB / KNX	Bus Connection Terminal 0.8 mm Ø, single core
* Load circuits	Screw terminal with Slotted head 0.2...4 mm² multi- core 0.4...6 mm² single-core
* cable shoe	12 mm
* Tightening torque	Max. 0.8 Nm

Operating and display

* Red LED and push button	Indicate enter programming mode

Temperature range

* Operation	– 5 °C ~ + 45 °C
* Storage	– 25 °C ~ + 55 °C
* Transport	– 25 °C ~ + 70 °C

Environment conditions

* humidity	max. 95 % Non-condensing

Appearance design

* Dimensions (H x W x D)	50 x 50 x 13
Weight (unit kg)	0.06
Installation	screw fixation
Mounting position	
Material and Colour	Plastic, black
Standard and Safety	Certificated
* LVD Standard	EN60669-2-1 , EN60669-1
*EMC Standard	EN50090-2-2

CE mark

* In accordance with the EMC guideline and low voltage guideline

Pollutant Comply with RoHS

loads

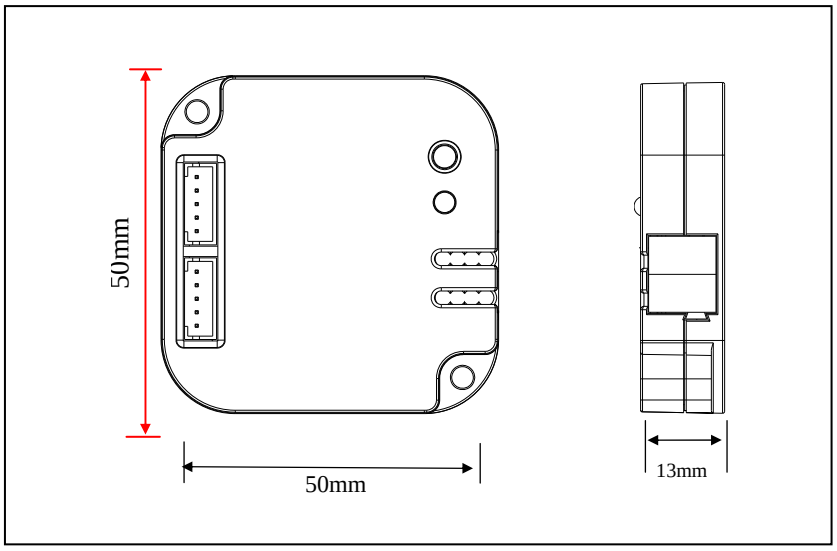
* Dimmable Ballast 0-10V

Application table

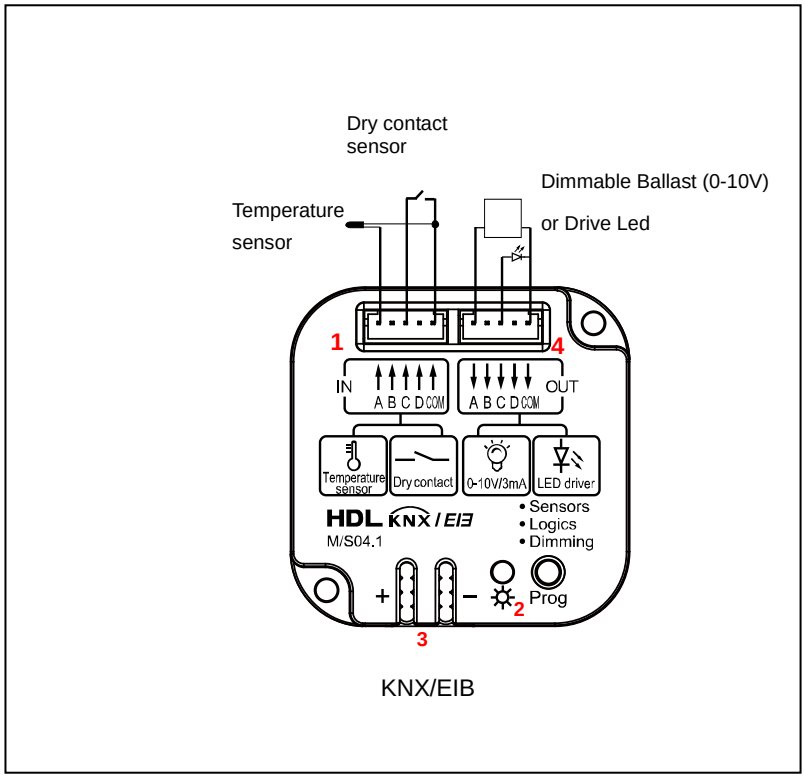
Dry contact functions	Sensors controller	logical controller	dimming controller
Max. number of communication objects	130	150	122
Max. number of group addresses	254	254	254
Max. number of associations	254	254	254

Note: The programming requires the KNX/EIB Software Tools ETS.

2.2 Dimension drawings



2.3 Wiring diagram



M/S04. 1

1 Input pin, from left to right is A,B,C,D,COM,
2 Programming button＆Programming LED
3 KNX/EIB
4 Output pin, contact to dimmable ballast or Led driver.

Note: a) Dimensions of the space to be provided for each dry contacts.
b) Dimensions and position of the means for supporting and fixing the switch within this space
c) Minimum clearance between the various parts of the switch and the surrounding parts where fitted
d) Minimum dimensions of ventilating opening, if needed, and their correct arrangement.

2.4 Maintenance and Cautions

*Please read this user manual carefully before any operation.
*Don't close to the interfering devices.
*The site should be ventilated with good cooling environment.
*Pay attention to damp proof, quakeproof and dustproof.
*Avoid rain, other liquids or caustic gas.
*Please contact professional maintenance staff or HDL service center for repair or fix.

*Remove the dust regularly and do not wipe the unit with the volatile liquids like alcohol, gasoline, etc.
*If damaged by damp or liquid, turn off it immediately.
*Regularly check the circuitry and other related circuit or cables and replace the disqualified circuitry on time.
*Installation location should be well-ventilated, pay attention to moisture, shock, dust proof.

3- Software

HDL KNX/EIB 4 Dry sensor type is M/S04.1, and the database name is “Dry Contact 4CH Sensor”. It’ s Interface and the functions apply parameters please overview the following description of the paragraph.

The device contact to temperature sensor and dry contact, with the function of sending the variety data points at the same time that can simultaneously control many different types of KNX equipment.

The following paragraph will description of output and input’s setting in detail.

3.1 Database functions Overview

The following table provides an overview of the functions and some parameters with the switch actuators:

function	Description
Sensors controller	**---**
General	**Heartbeat telegram**
Switch controller	Y
Switch/Dimming controller	Y
Shutter controller	Y
Flexible controller	Y
Scene controller	Y
Sequence controller	Y
Percentage controller	Y
Threshold controller	Y
String(14 bytes)controller	Y
Forced position controller	Y
Counter controller	Y
Combination controller	Y
Logical controller	**---**
Switching	Y
Alarm	Y
Shutter	Y
Scene	Y
Sequence	Y
Percentage	Y
Threshold	Y
String (14 bytes)	Y
Dimming controller	**---**

Scene NO.1-64	**Y**
Sequence	**Y**
Staircase light	**Y**
Flashing	**Y**
Scene	**Y**
Threshold	**Y**
Heating	**Y**
1bit/1byte PWM control	**Y**

Table1: Database application overview.

Note: For each function and mode, can only be used alone.

3.2 Function parameter “General”

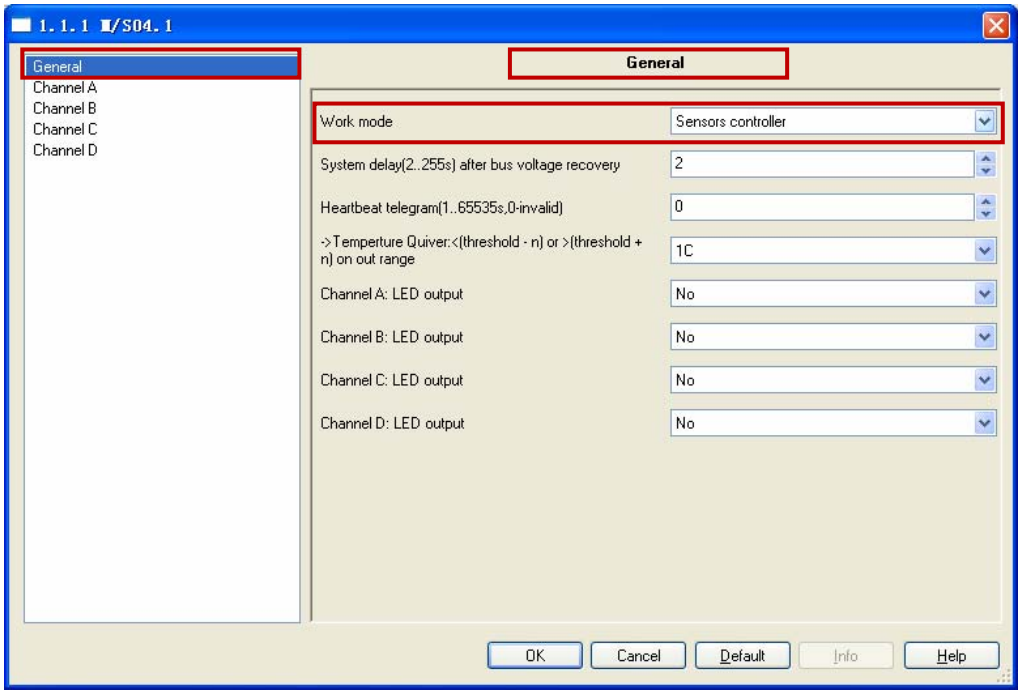


Fig1: “General” parameter windows

In the parameter of the general windows can set the work mode of the module.

---Work mode

Options: **Sensors controller**
Logical controller
Dimming controller

The dry contact 4ch sensor there is 3 work modes.The following will detail these three modes.

3.2.1 Work mode “Sensors controller”

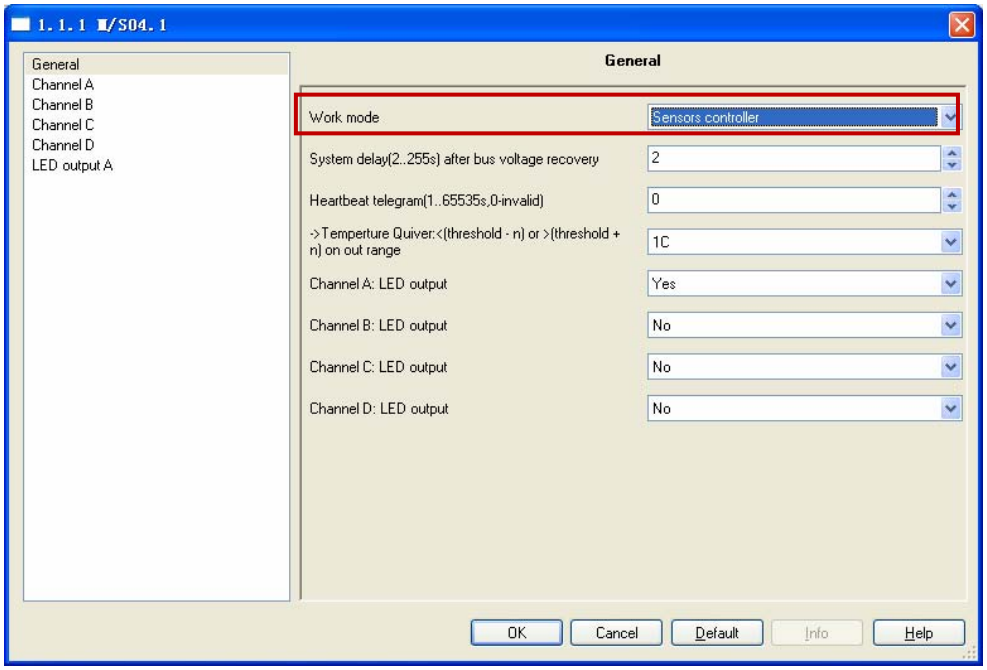


Fig2: “Sensors controller” parameter windows

---System delay (2…255s) after bus voltage recovery

The device will be delayed for 2..255s after the power on. The default value is 2 seconds. The Min. value is 2 seconds, and the max. value is 255 seconds.
Options: **2…255s**

When power on and after the delay time out, the device begin working.

---Heatbeat telegram (1…65535s，0-invalid)
The range of the parameter is 0 to 65535s. 0 is that the function is invalid, other of parameter enable this function

Options: 0…65535s

The parameter set to nonzero, Device will send a telegram telegram cyclically after time out. Send the value alternately between 0 and 1. This function use or not decided by user.

-> Temperature Quiver: < (threshold – n) or >(threshold +n) on out range)
Temperature within the effective range, when changes in the set range, the status does not change.
When the temperature changes greater than **n**, the status will

change.The quiver range beteen threshold – n and threshold or between threshold and threshold +n.

Options: 0…10C

---Channel A: LED output

The module has 4 output channels, channel A, channel B, channel C and channel D.

Options: NO
YES

If you selection YES, there will be appearing the setting page of the “LED output A”. This page show you that how to set the led state parameter. Channel B,C,D outputs are as same as A.

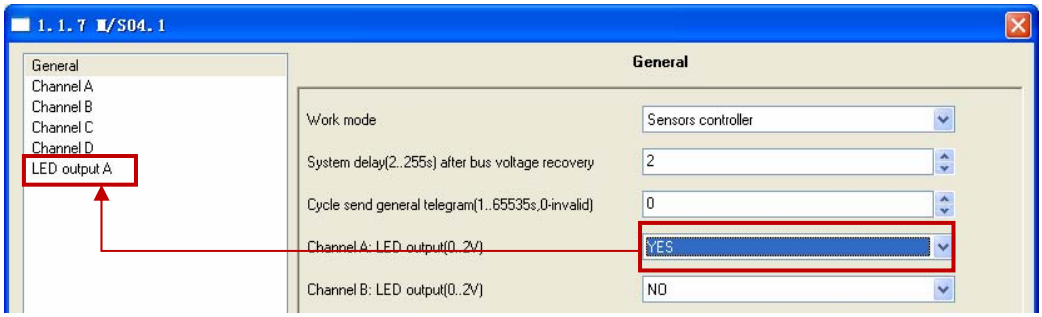


Fig2.1: “LED output A” parameter windows

3.2.1.1 The parameter window of “LED output A”

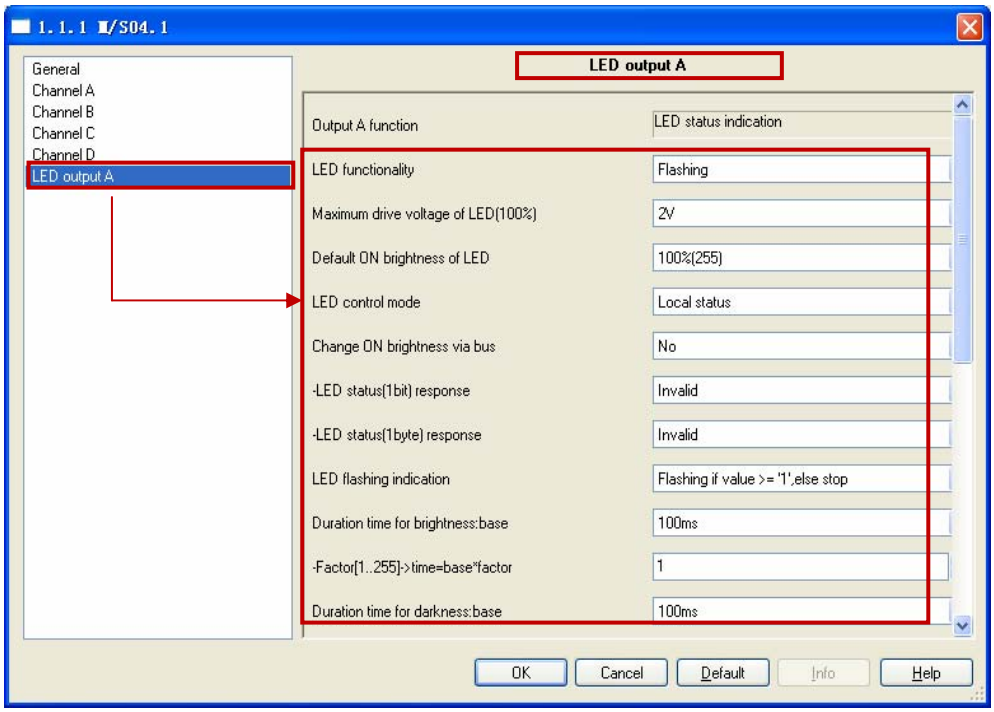


Fig3: “LED output A” parameter window

The M/S 04 module’s LED output there is 2 functions.

---LED functionality

Options: Switch state ON/OFF
Flashing

Switch state ON/OFF: This function show how to operation the LED’s state.

Flashing: LED’s state is flashing.

- **Selection “Switch state ON/OFF”**

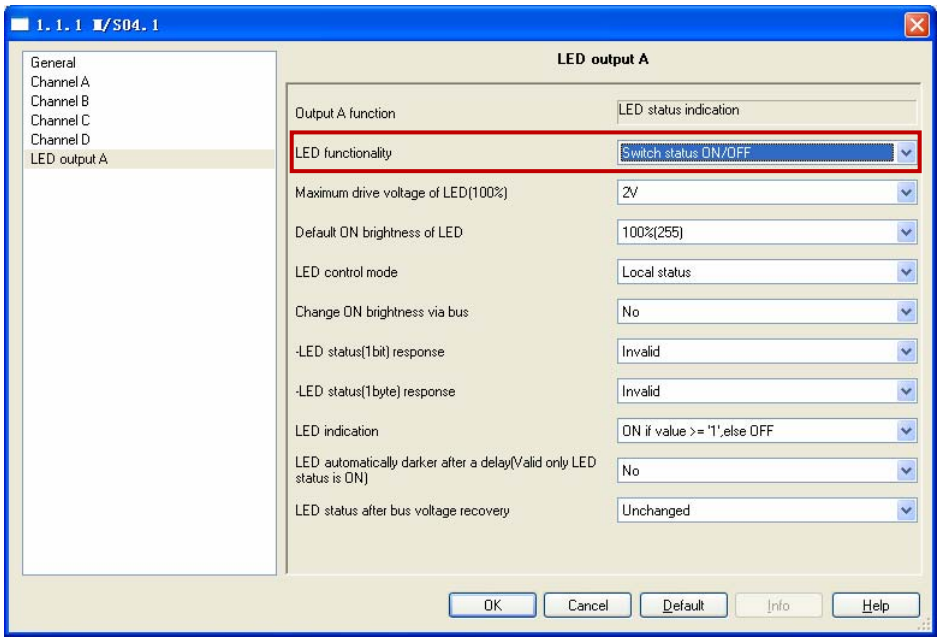


Fig4: "Switch state ON/OFF" parameter window

---Maximum drive voltage of LED(100%)

Set the drive voltage of LED. The range is 1V to 10V.

Options: 1V-10V

---Default ON brightness of LED

Set the default brightness of LED. The range is 10% to 100%.

Options: 10%---100%(255)

--- LED control mode

Set the control mode of LED.

Options: Local status

Via bus(1 bit-operation and 1 byte-Brightness)

Local status: The LED controlled by local stauts.

Via bus: the LED controlled by the telegram via bus.

---Change ON brightness via bus

Set the enable of change on brightness via bus.

Options: NO

YES

NO: you can't change brightness via bus.

YES: you can change brightness via bus.

--LED status(1 bit) response

Set the response of LED status.

Options: Invalid

1 bit always response

1 bit only changed

1 bit always response: it's always response.

1 bit only changed: it's response when status changed.

--LED status(1 byte) response

Options: Invalid
1 byte always response
1 byte only changed

1 byte always response: it's always response.

1 byte only changed: it's response only when status changed.

--- LED indication

Options: ON if value>="1", else OFF
ON if value is "0", else OFF
Always ON
Always OFF

ON if value>="1", else OFF: the value>="1", LED state is ON, else LED state is OFF.

ON if value is "0", else OFF: the value is 0, LED state is ON, else LED state is OFF.

Always ON: LED state is always ON.

Always OFF: LED state is always OFF.

---LED automatically darker delay time: base

Set the delay time's base.

Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor

Options: 1…255

Set the delay time, this time is options value* base. After this time, LED automatically darken the set value.

--- LED States after bus voltage recovery

Options: OFF
ON

Set to LED state after bus voltage recovery.

- **Selection "Flashing"**

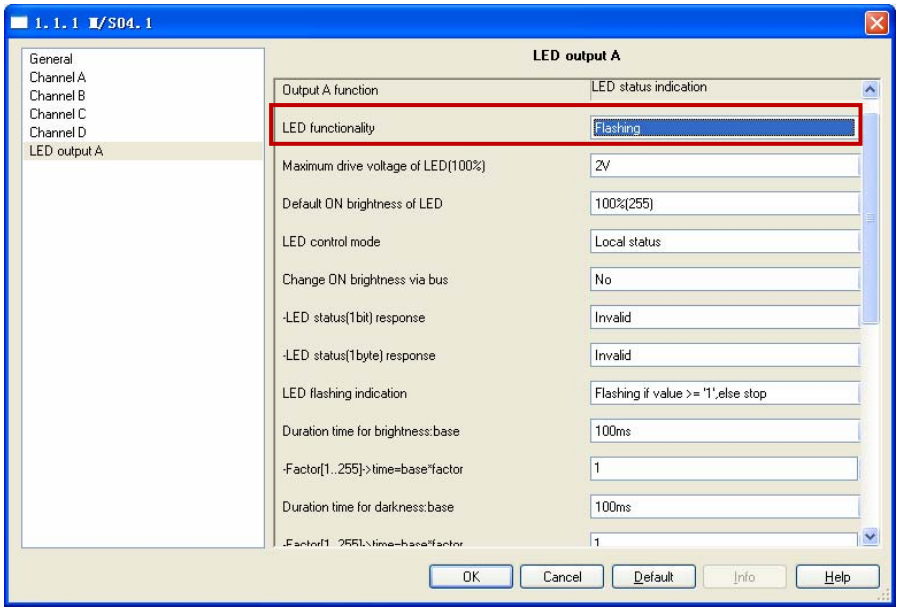


Fig5: "Flashing" parameter window

LED State is flashing. Flashing parameter's setting as follows.

---Maximum drive voltage of LED(100%)

Set the drive voltage of LED. The range is 1V to 10V.

Options: 1V-10V

---Default ON brightness of LED

Set the default brightness of LED. The range is 10% to 100%.

Options: 10%---100%(255)

--- LED control mode

Set the control mode of LED.

Options: Local status

Via bus(1 bit-operation and 1 byte-Brightness)

Local status: The LED controlled by local stauts.

Via bus: the LED controlled by the telegram via bus.

---Change ON brightness via bus

Set the enable of change on brightness via bus.

Options: NO

YES

NO: you can't change brightness via bus.

YES: you can change brightness via bus.

--LED status(1 bit) response

Set the response of LED status.

Options: Invalid

1 bit always response

1 bit only changed

1 bit always response: it's always response.
1 bit only changed: it's response when status changed.

--LED status(1 byte) response
Options: Invalid
1 byte always response
1 byte only changed
1 byte always response: it's always response.
1 byte only changed: it's response only when status changed.

--- LED indication
Options: Flashing if value>="1", else stop
Flashing if value is "0", else stop
Always flashing
Flashing if value>="1", else OFF: the value>="1", LED state is flashing, else LED state is no flashing.
flashing if value is "0", else OFF: the value is 0, LED state is flashing, else LED state is OFF.
Always flashing: LED state is always flashing.

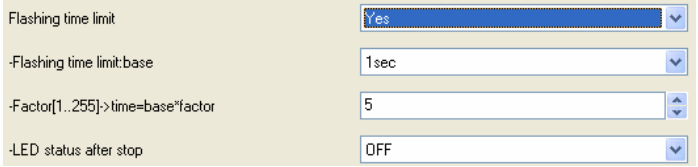
---Duration time for brightness : base
Set the delay time's base.
Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor
Options: 1…255
Set the delay time, this time is options value* base. After this time, LED automatically reaches the setting brightness value.

---Duration time for darkness: base
Set the delay time's base.
Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor
Options: 1…255
Set the delay time, this time is options value* base. After this time, LED automatically darkens the setting value.

---Flashing time limit
Set the time of flashing, after this time the LED will stop flashing



--- **LED** States after bus voltage recovery

Options: OFF

ON

Set to LED state after bus voltage recovery.

3.2.1.2 The parameter window of "Channel A"

Channel N as an input pin there are 2 kinds of input methods：
Dry contact sensor and Temperature sensor.

3.2.1.2.1 The parameter window of "Dry contact sensor"

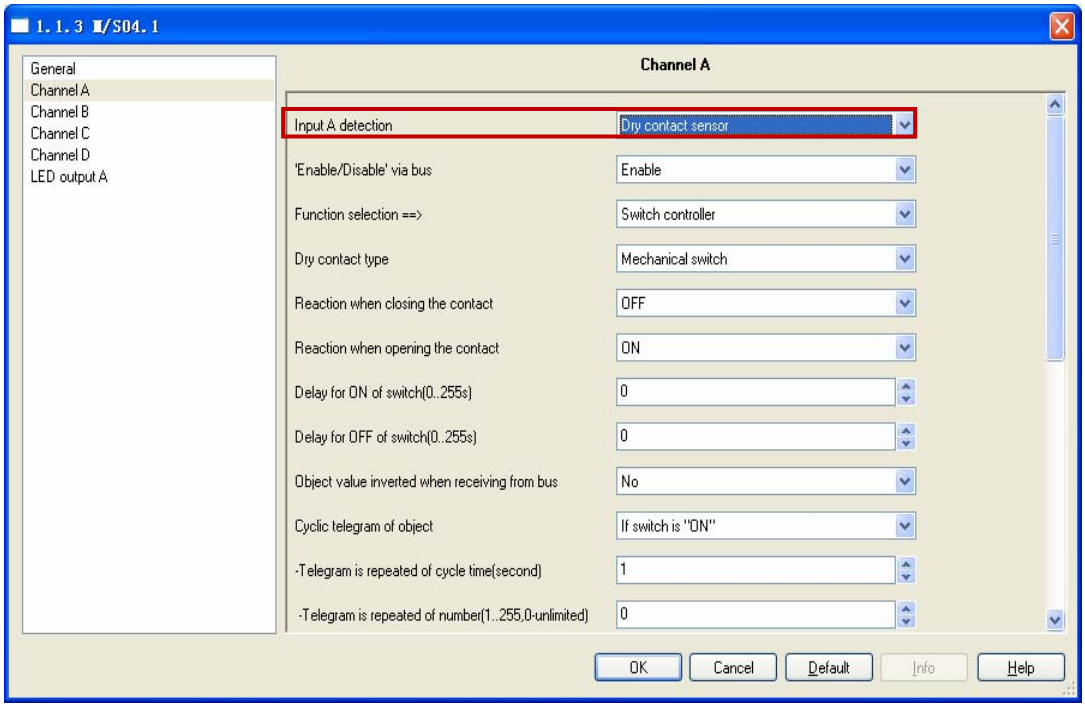


Fig6: "Dry contract sensor" parameter window

Input A as a dry contact sensor, you have to do the following settings.

---Enable/Disable via bus

Set the enable of input A,

Options: Enable
Disable

Enable: input A enable. Select this one, input A has some functions.

Disable: input A disable.

---Function selection==>

Options: Switch controller
Switch / Dimming controller
Shutter controller
Flexible controller
Scene controller
Sequence controller
Percentage controller
Threshold controller
String (14bytes) controller
Forced position controller
Counter controller
Combination controller

Select the different functions the parameters settings are also different.

➢ ***Selection "Switch controller"***

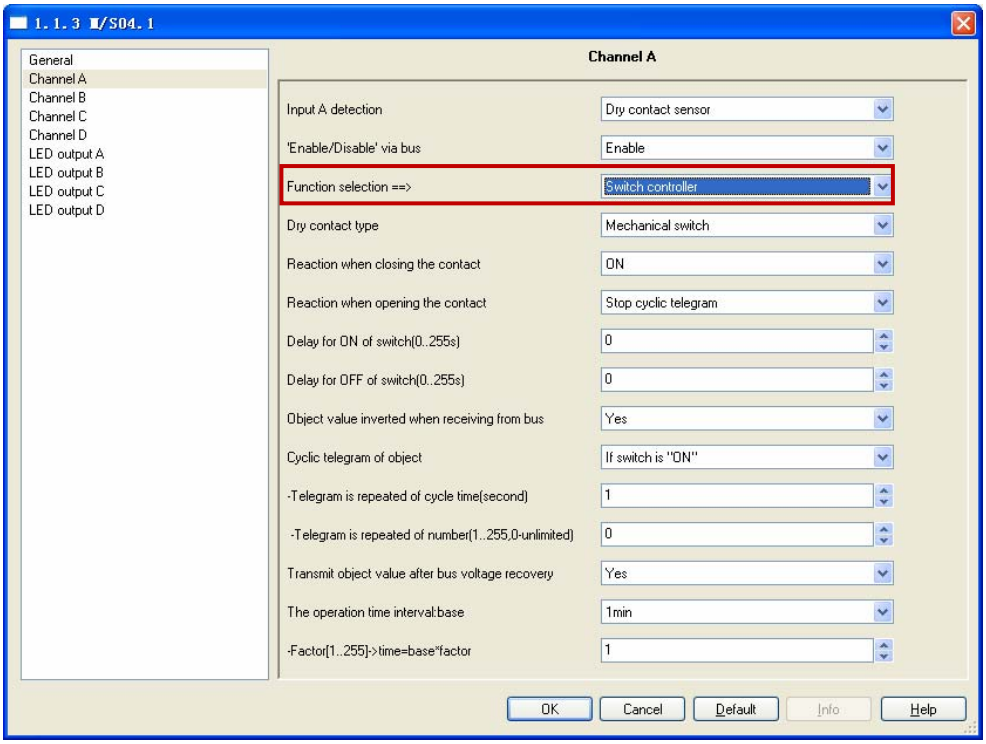


Fig7: “Switch controller” parameter window

Dry contact has 2 types.

Input A as a dry contact, the function is switch controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

- The follow setting is that the dry sensor’s type is mechanical switch.

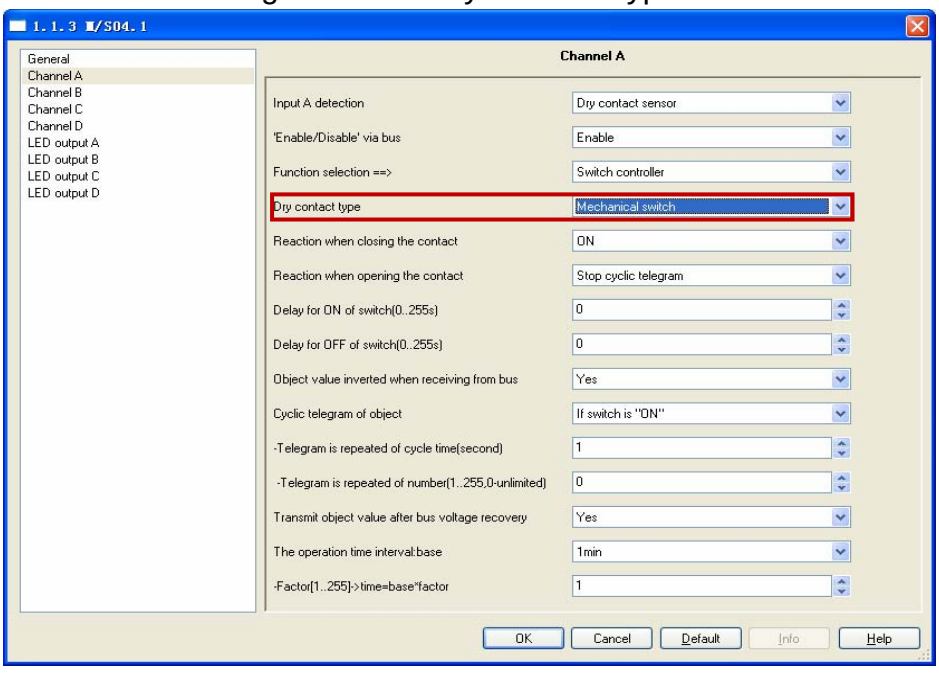


Fig7.1: “Mechanical switch” parameter window

---Reaction when closing the contact

Options: Unchanged
ON
OFF
Toggle
Stop cyclic telegram

When closing the dry contact it will send a target variable. 1 is ON, 0 is OFF.

Unchanged: It will send the value is same to the last time.

ON: it will send the value is 1.

OFF: it will send the value is 0.

Toggle: the dry contact is closed, send the value negated with the last time.

Stop cyclic telegram: This is mainly used for the following cycle settings

---Reaction when opening the contact

Options: Unchanged
ON
OFF
Toggle
Stop cyclic telegram

When opening the dry contact it will send a target variable. 1 is ON, 0 is OFF.

The setting is same to the closing.

---Delay for ON of switch (0…255s)

---Delay for OFF of switch (0…255s)

Options: (0…255s)

Set the delay time for ON and OFF of switch.

The range is 0…255s.

---Object value inverted when receiving from bus

Options: NO
YES

NO: when receiving the value from bus is not negated.

YES: when receiving the value from bus is negated.

---Cyclic telegram of object

Options: NO
If switch is ON
If switch is OFF
Always transmission

NO: there is not cyclic function.

If switch is ON:

If switch is OFF
Always transmission:

---Transmit object value after bus voltage recovery
Options: NO
YES
Whether transmit object value after bus voltage recovery.
---The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour
Factor (1…255)->time=base*factor
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- The follow setting is that the dry sensor's type is electronic switch.

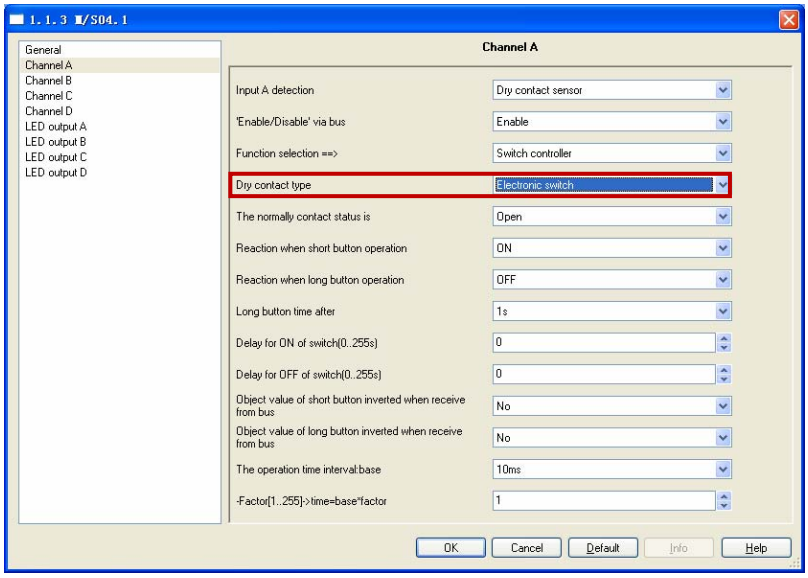


Fig7.2: "Electronic switch" parameter window

---The normally contact status is
Options: Close
Open

Set the dry contact status when have no operation.
Close: the contact status is close.
Open: the contact status is open

---Reaction when short button operation
---Reaction when long button operation
Options: invalid
Unchanged
ON
OFF
Toggle
These 2 parameters are about reaction when button operation.

---Delay for ON of switch (0…255s)
---Delay for OFF of switch (0…255s)
Options: 0..255s
Set the delay time for ON and OFF of switch.
The range is 0…255s.

---Object value inverted when receiving from bus
Options: NO
YES
NO: when receiving the value from bus is not negated.
YES: when receiving the value from bus is negated.
---The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour
Factor (1…255)->time=base*factor
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Switch/Dimming controller"***

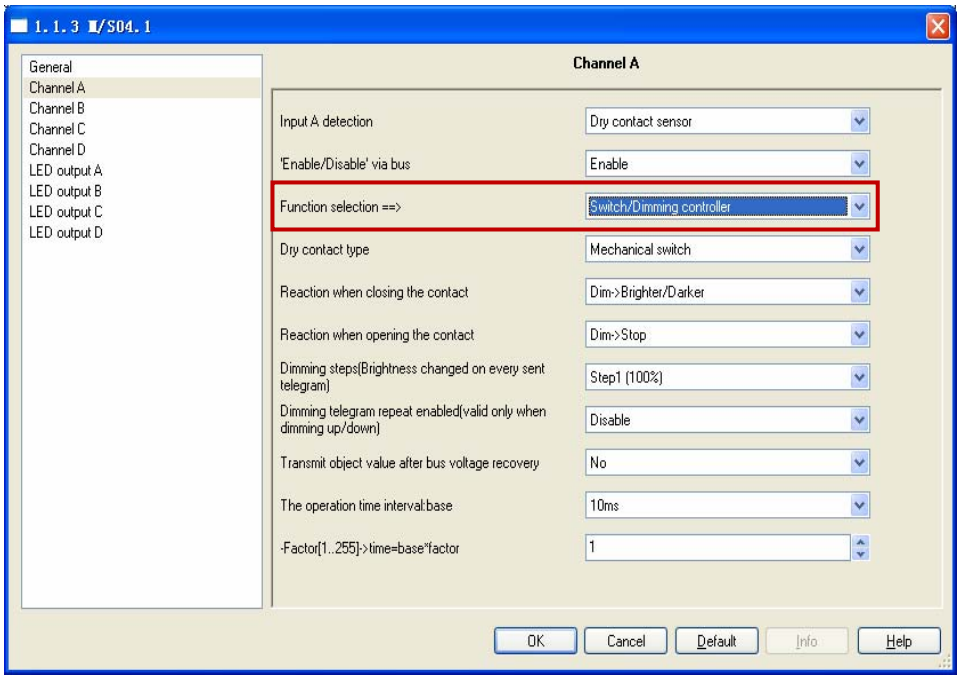


Fig8: "Switch/Dimming controller" parameter window

Input A as a dry contact, the function is switch controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

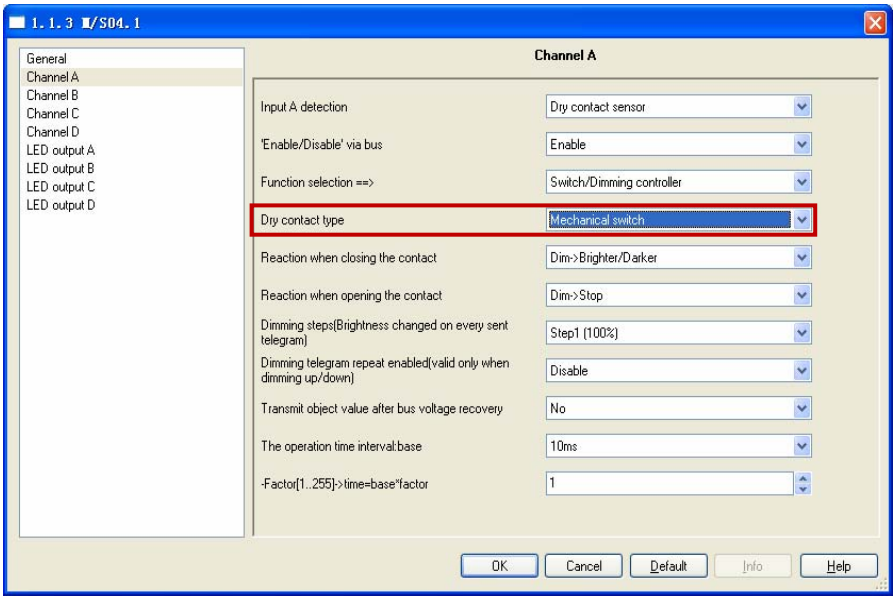


Fig8.1: "Mechanical switch" parameter window

---Reaction when closing the contact:

Set function when closing the dry contact.

Options: Invalid
Dim->Brighter
Dim->Darker
Dim-> Brighter/Darker
Dim-> Stop

Invalid: the dry contact is invalid.

Dim->Brighter: when closing the dry contact will increase brightness.

Dim->Darker: when closing the dry contact will decrease brightness.

Dim-> Brighter/Darker: when closing the dry contact will increase/decrease brightness.

Dim->Stop: when closing the dry contact will stop.

---Reaction when opening the contact:

Set function when opening the dry contact, setting is same to closing the contact.

---Dimming steps (Brightness changed on every sent telegram):

Options: Step1 (100%)
Step2 (50%)
Step3 (25%)
…..
Step7 (1.56%)

Set the brightness values of each change.

---Dimming telegram repeat enabled (valid only when dimming up/down):

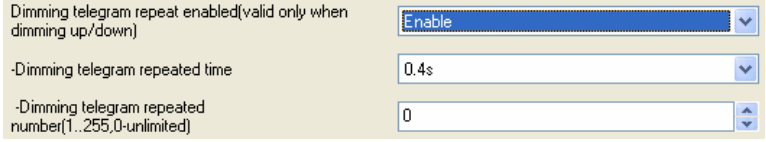
Options: Disable
Enable

Whether repeated receiving telegram.

Disable: do not repeated receiving telegram.

Enable: when dimming up/down will repeat receiving telegram.

When select enable, there are some parameters as follow.



---Dimming telegram repeated time
Options: 0.2s---60s

---Dimming telegram repeated number (1…255,0-unlimited)
Options: 0---255

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

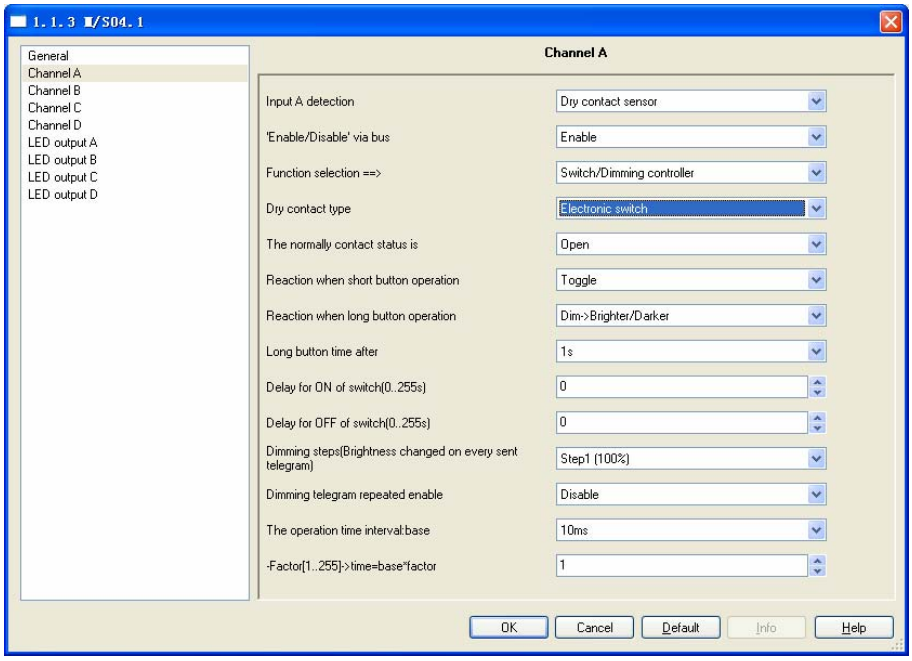


Fig8.2: “Electronic switch” parameter window

---The normally contact status is

Options: Close
Open
Set the dry contact status when have no operation.
Close: the contact status is close.
Open: the contact status is open.

---Reaction when short button operation
---Reaction when long button operation
Options: invalid
Unchanged
ON
OFF
Toggle
---Reaction when long button operation
Options: invalid

---Delay for ON of switch (0…255s)
---Delay for OFF of switch (0…255s)
Options: 0..255s
Set the delay time for ON and OFF of switch.
The range is 0…255s.

---Object value inverted when receiving from bus
Options: NO
YES
NO: when receiving the value from bus is not negated.
YES: when receiving the value from bus is negated.

---The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour
Factor (1…255)->time=base*factor
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Shutter controller"***

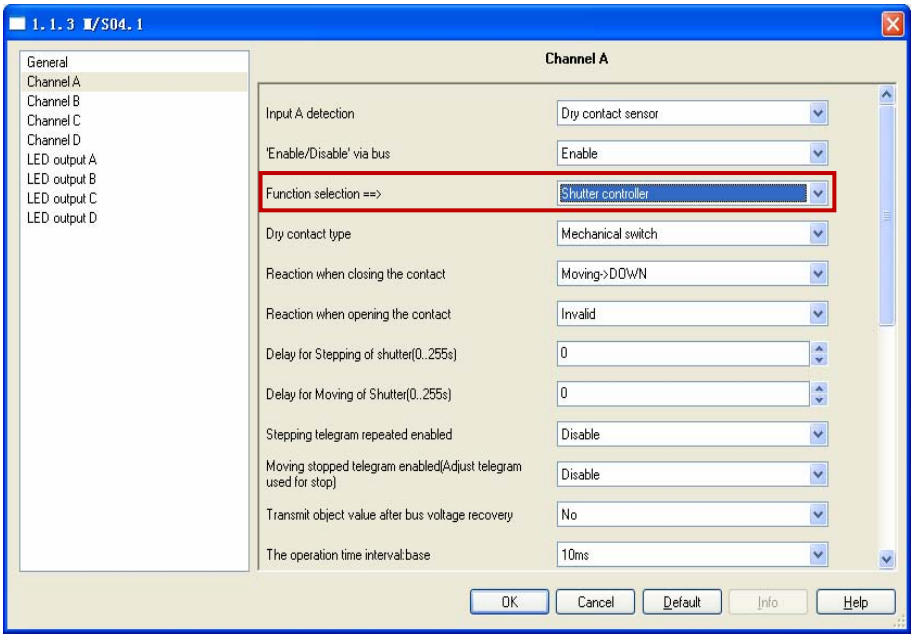


Fig9: "Shutter controller" parameter window

Input A as a dry contact, the function is shutter controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

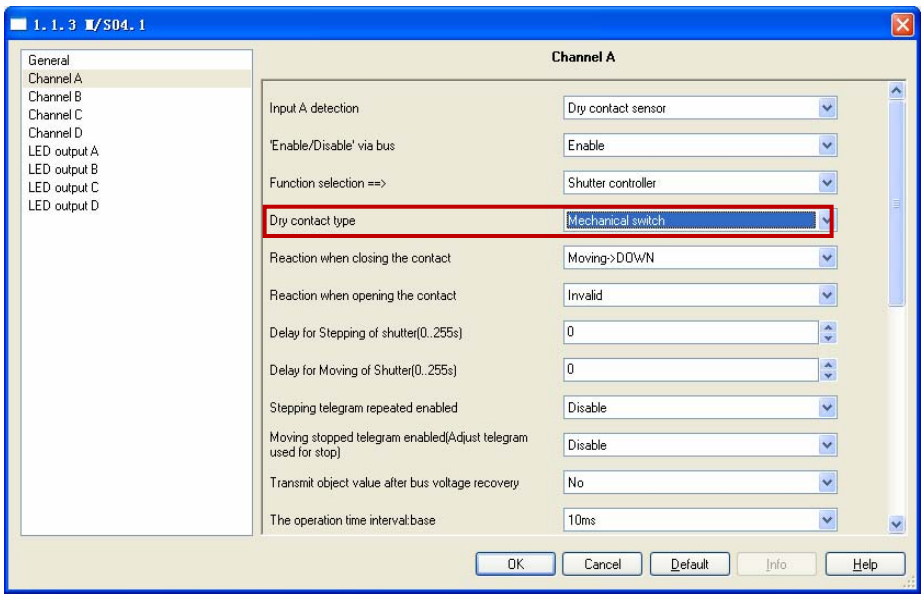


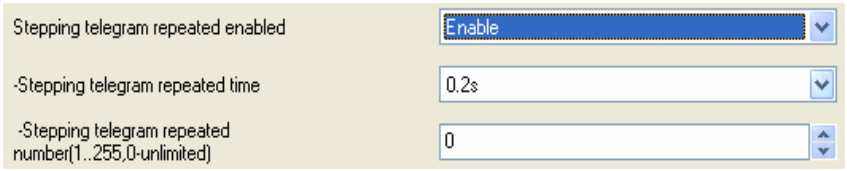
Fig9.1: "Mechanical switch" parameter window

---Reaction when closing the contact:
---Reaction when opening the contact:
Set function when closing/opening the dry contact.
Options: Invalid
Stepping->Increase
Stepping->Decrease
Stepping->Toggle
Stepping->Repeat telegram stopped
Moving->UP
Moving->DOWN
Moving->Toggle
Invalid: when closing/opening dry contact is invalid.
Stepping->Increase: when closing dry contact to increase.
Stepping-> Decrease: when closing dry contact to Decrease.
Stepping-> Toggle: when closing dry contact to toggle.
Stepping->Repeat telegram stopped: when closing dry contact to repeat telegram stopped.
Moving-> UP: when closing dry contact to up.
Moving-> Down: when closing dry contact to down.
Moving-> Toggle: when closing dry contact to toggle.

When opening the dry contact, setting is same to closing the contact.

---Delay for stepping of shutter (0…255s)
---Delay for Moving of shutter (0…255s)
Options: 0…255s
Set the delay time for stepping/Moving of shutter.

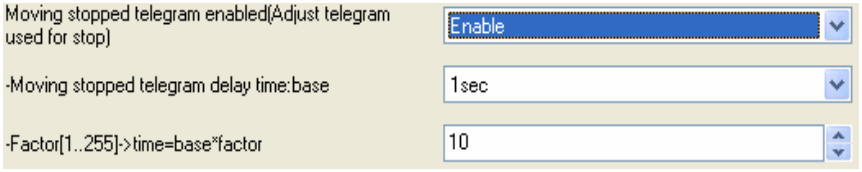
---Stepping telegram repeated number (1…255, 0-unlimited)
Options: Disable
Enable
Whether repeated receive stepping telegram.
Disable: do not repeated receive stepping telegram.
Enable: repeat receiving stepping telegram.
When select enable, there are some parameters as follow.



---Stepping telegram repeated time
Options: 0.2s---60s
Set the time of stepping telegram repeated.

---Stepping telegram repeated number (1…255,0-unlimited)
Options: 0---255

---Moving stopped telegram enabled (Adjust telegram used for stop)
Options: Disable
Enable



---Moving stopped telegram enabled (Adjust telegram used for stop)
Options: 100ms, 1sec, 1min, 1hour

---Factor (1..255)->time=base*factor

---Transmit object value after bus voltage recovery
Options: NO
YES
Whether transmit object value after bus voltage recovery.
NO: do not transmit object value after bus voltage recovery.
YES: will transmit object value after bus voltage recovery.

--The operation time interval: base
Options: 10ms
100ms
1sec
1min
1hour
--Factor (1…255) ->time=base*factor
Options: 1---255
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

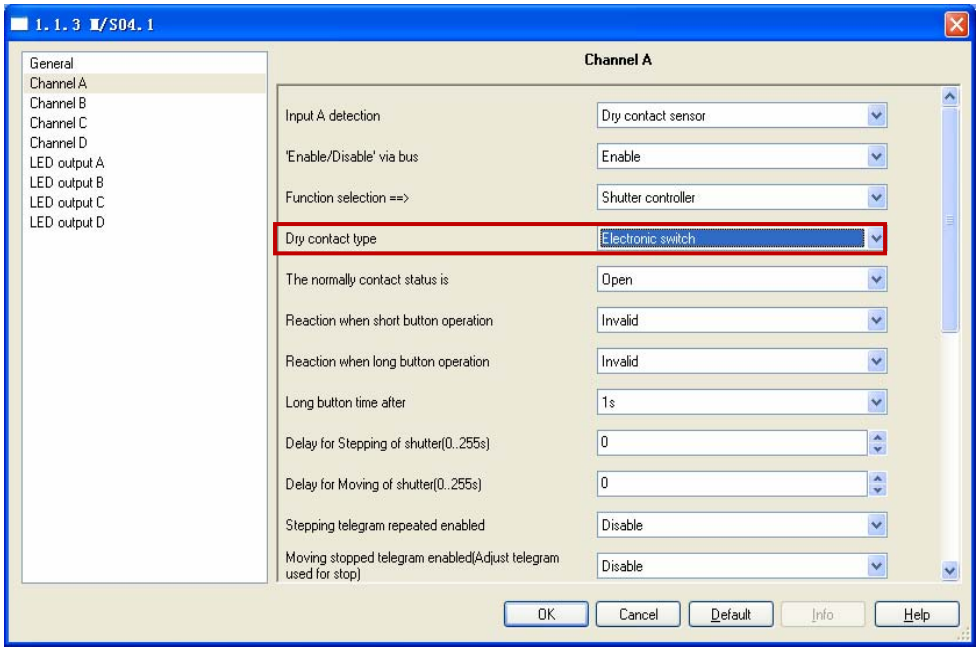


Fig9.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.
Close: the contact status is close.
Open: the contact status is open.

---Reaction when short button operation

Set the function of short operation the dry contact.

Options: Invalid
Stepping->Increase/STOP
Stepping->Decrease/STOP
Stepping->Toggle/STOP
Moving->UP
Moving->DOWN
Moving->Toggle

Invalid: short operation dry contact is invalid.
Stepping->Increase/Stop: when short operation dry contact to increase/stop.
Stepping-> Decrease/Stop: when short operation dry contact to Decrease/Stop.
Stepping-> Toggle/Stop: when short operation dry contact to toggle/stop.
Moving-> UP: when short operation dry contact to up.

Moving-> Down: when short operation dry contact to down.
Moving-> Toggle: when short operation dry contact to toggle.

---Reaction when long button operation

Set the function of long operation the dry contact.

Options: Invalid
Stepping->Increase/STOP
Stepping->Decrease/STOP
Stepping->Toggle/STOP
Moving->UP
Moving->DOWN
Moving->Toggle
Press: Moving->UP, Release: Call short button
Press: Moving->DOWN, Release: Call short button
Press: Moving->Toggle, Release: Call short button

Invalid: when long operation dry contact is invalid.
Stepping->Increase/Stop: when long operation dry contact to increase/stop.
Stepping-> Decrease/Stop: when long operation dry contact to Decrease/Stop.
Stepping-> Toggle/Stop: when long operation dry contact to toggle/stop.
Moving-> UP: when long operation dry contact to up.
Moving-> Down: when long operation dry contact to down.
Moving-> Toggle: when long operation dry contact to toggle.
Press: Moving->UP, Release: Call short button: Pressing the dry contact to up, release the dry contact to send the value of short button.
Press: Moving->DOWN, Release: Call short button: Pressing the dry contact to down, release the dry contact to send the value of short button.

Press: Moving->Toggle, Release: Call short button: Pressing the dry contact to toggle, release the dry contact to send the value of short button.

---Long button time after

Options: 0.2s…..60s
Set the time of the long button. The range is 0.2s to 60S.

---Delay for Stepping of shutter (0…255s)
---Delay for Moving of shutter (0…255s)

Options: 0..255s
Set the delay time for Stepping/Moving of shutter.

The range is 0…255s.

---Object value inverted when receiving from bus

Options: NO
YES

NO: when receiving the value from bus is not negated.

YES: when receiving the value from bus is negated.

---The operation time interval: base

Options: 10ms, 100ms, 1sec, 1min, 1hour

Factor (1…255)->time=base*factor

---Delay for ON of switch (0…255s)

---Delay for OFF of switch (0…255s)

Options: 0..255s

Set the delay time for ON and OFF of switch.

The range is 0…255s.

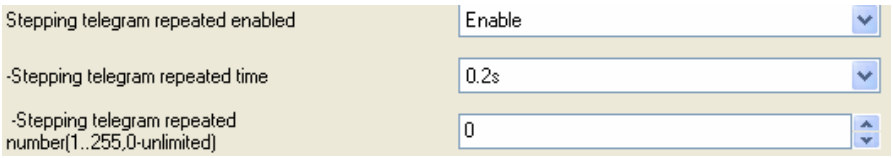
---Stepping telegram repeated enabled

Options: Disable
Enable

Set the enable of stepping telegram repeated.

Disable: do not repeated stepping telegram.

Enable: will repeated stepping telegram.



---Stepping telegram repeated time

Options: 0.2s---60s

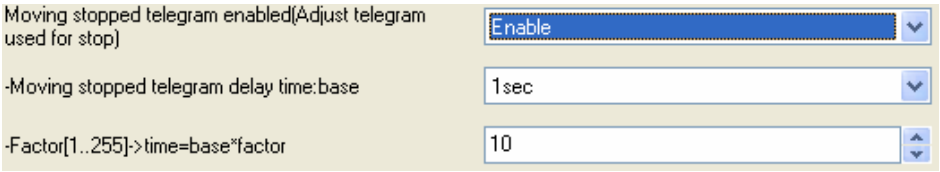
Set the time of stepping telegram repeated.

---Stepping telegram repeated number (1…255,0-unlimited)

Options: 0---255

---Moving stopped telegram enabled (Adjust telegram used for stop)

Options: Disable
Enable



---Moving stopped telegram enabled (Adjust telegram used for stop)
Options: 100ms, 1sec, 1min, 1hour

---Factor (1..255)->time=base*factor

---The operation time interval: base

Options: 10ms, 100ms, 1sec, 1min, 1hour

---Factor (1..255)->time=base*factor

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Flexible controller"***

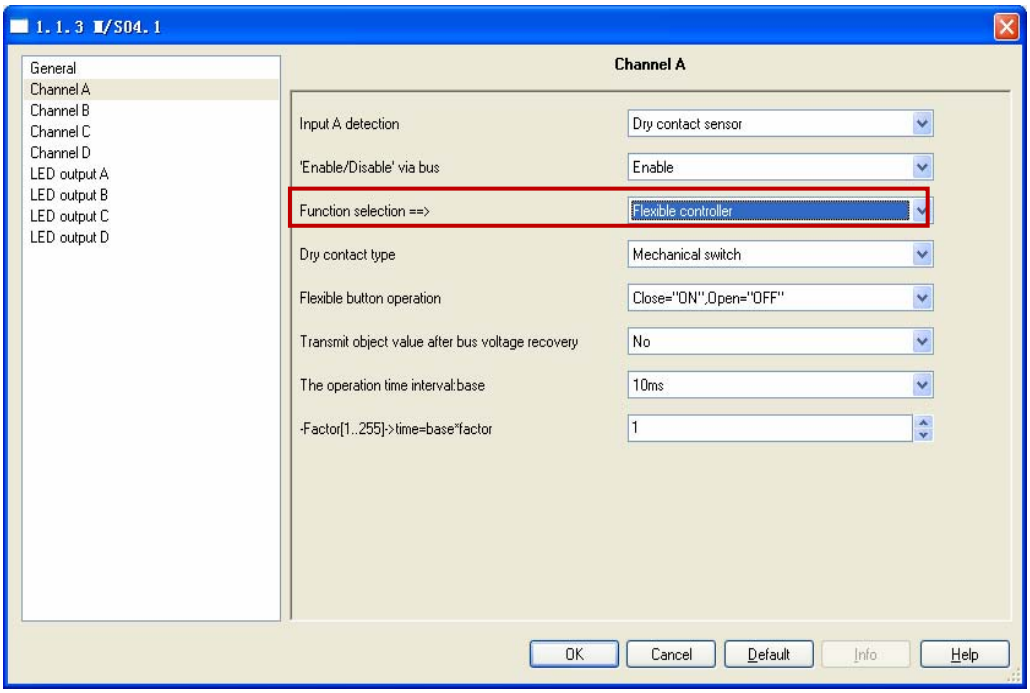


Fig10: "Flexible controller" parameter window

Input A as a dry contact, the function is flexible controller.

---Dry contact type

Options: Mechanical switch
Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

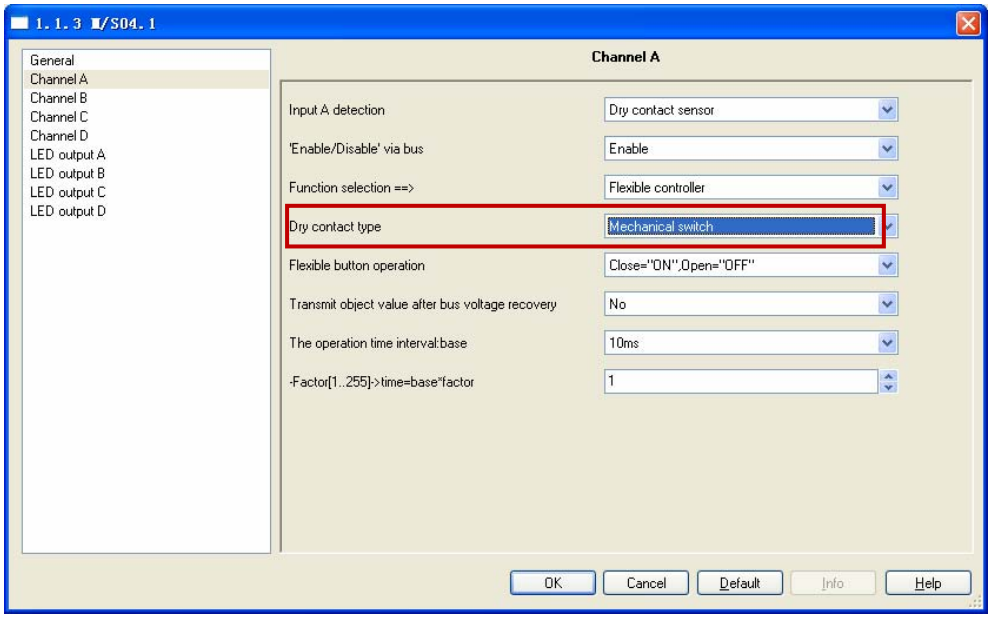


Fig10.1: "Mechanical switch" parameter window

---Flexible button operation:

Set function when operation the dry contact.

Options: Invalid

Close="toggle"
Open="toggle"
Close="ON"
Open="ON"
Close="ON", Open="ON"
Close="OFF"
Open="OFF"
Close="OFF", Open="OFF"
Close="ON", Open="OFF
Close="OFF", Open="ON

Invalid: the dry contact is invalid.

Toggle: the dry contact is toggle.

Press="ON" : Press dry contact is ON.

Press="ON", Release="ON": Press and release dry contact are all on.

Press="OFF" : Press dry contact is OFF.

Release="OFF": release dry contact is off.

Press=" OFF", Release=" OFF": Press and release dry contact are all off.

Press=" ON", Release=" OFF": Press dry contact is on, release is off.

Press=" OFF", Release=" ON": Press and release dry contact are all off.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

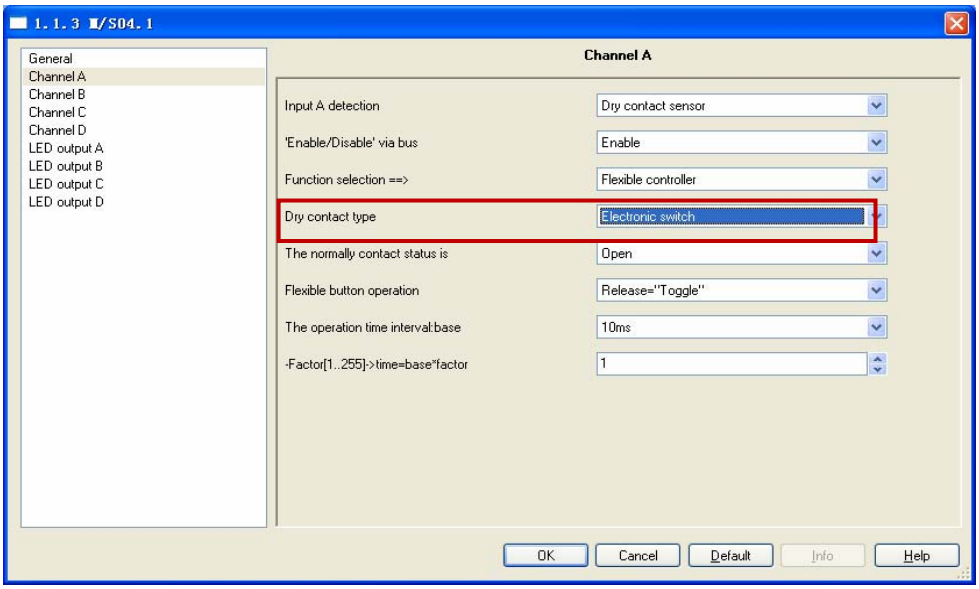


Fig10.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Flexible button operation

Set the function of short operation the dry contact.

Options: Invalid
Press=”toggle”
Release=”toggle”
Press =”ON”
Release =”ON”
Press =”ON” ,Release =”ON”
Press ==”OFF”
Release =”OFF”
Press =”OFF” ,Release =”OFF”
Press =”ON” ,Release =”OFF”
Press =”OFF” ,Release =”ON”

Invalid: the dry contact is invalid.
Press=Toggle: press the dry contact is toggle.
Release=”toggle”: release the dry contact is toggle.
Press=”ON” : Press dry contact is ON.
Press=”ON”, Release=”ON”: Press and release dry contact are all on.
Press=”OFF” : Press dry contact is OFF.
Release=”OFF”: release dry contact is off.
Press=” OFF”, Release=” OFF”: Press and release dry contact are all off.
Press=” ON”, Release=” OFF”: Press dry contact is on, release is off.
Press=” OFF”, Release=” ON”: Press and release dry contact are all off.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Scene controller"***

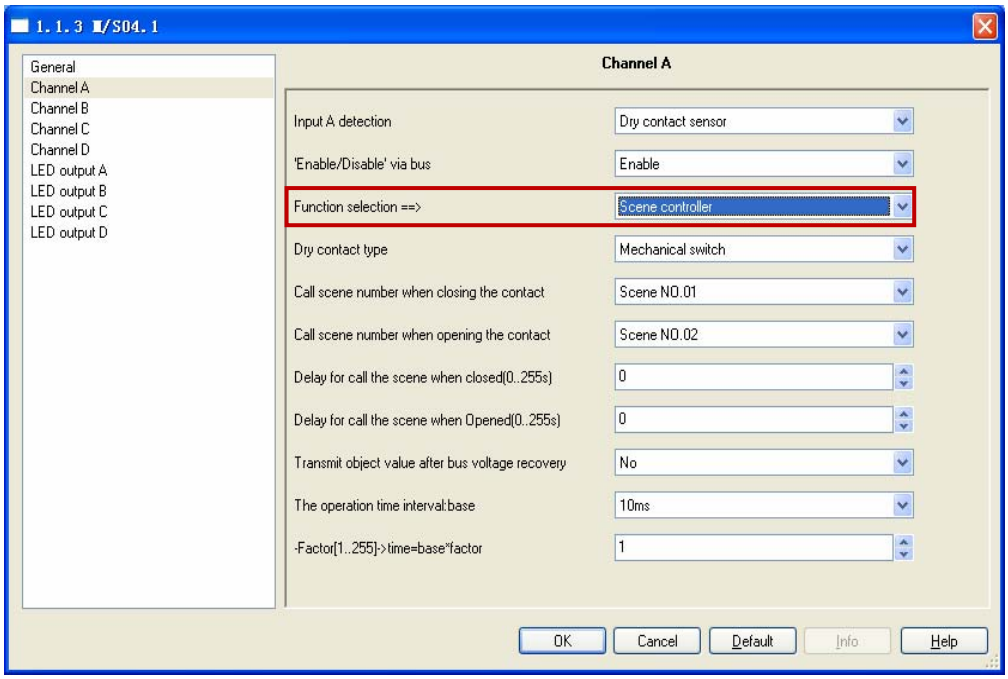


Fig11: "Scene controller" parameter window

Input A as a dry contact, the function is scene controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

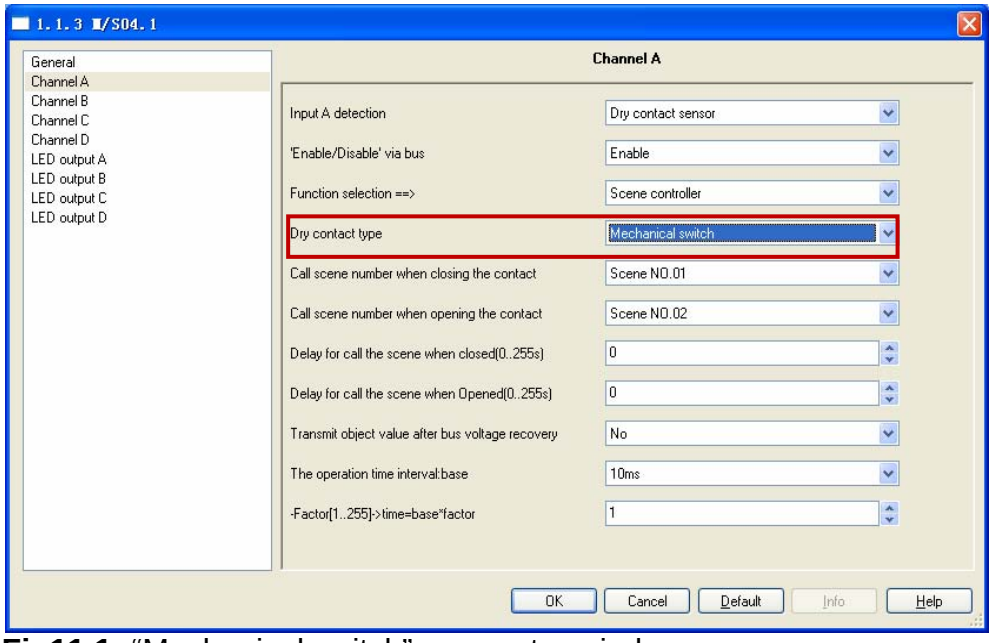


Fig11.1: "Mechanical switch" parameter window

---Call scene number when closing the contact:

---Call scene number when opening the contact:

Options: Scene NO.01
Scene NO.02
…….
Scene NO.64

Call the scene number of opening/closing the dry contact. The range is scene 1 to 64.

---Delay for call the scene when closed (0…255s):

Options: 0…255s

Set the delay time after closed dry contact then call scene. The range is 0…255s.

---Delay for call the scene when opened (0…255s):

Options: 0…255s

Set the delay time after opened dry contact then call scene. The range is 0…255s.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

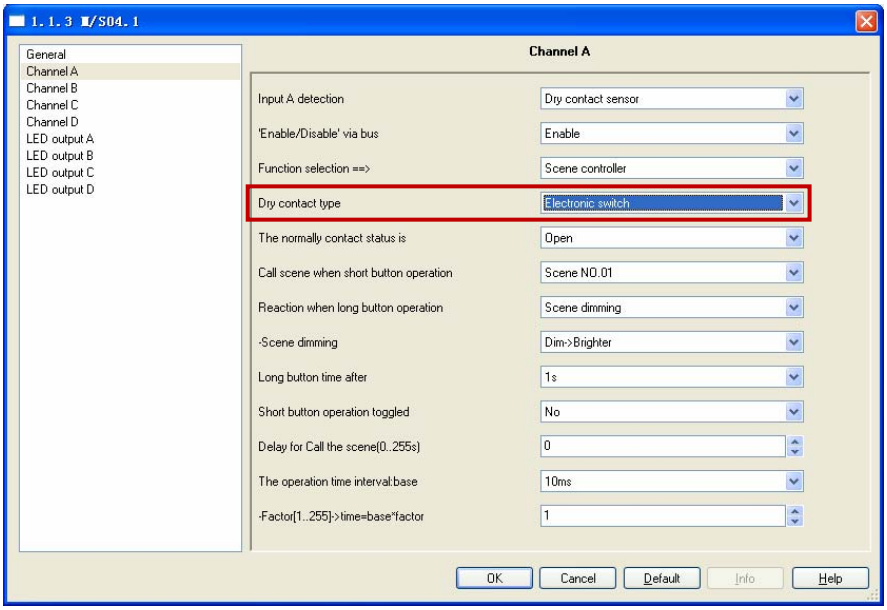


Fig11.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Call scene when short button operation

Options: Scene NO.01
Scene NO.02
…….
Scene NO.64

Call the scene number when short button operation the dry contact. The range is scene 1 to 64.

---Reaction when long button operation

Set the dry contact's functions when long button operation.

Options: Scene dimming
Scene saving
Dimming and saving

✧ **---Scene dimming**

Options: Dim-> Brighter
Dim-> Darker
Dim-> Brighter/Darker

Dim->Brighter: long button operation to increase light brightness.

Dim->Darker: long button operation to decrease light brightness

Dim-> Brighter/Darker: long button operation to increase/decrease light brightness.

✧ **---Scene saving**

Saving the scene, and the scene number is 1..64

✧ **---Dimming and Saving**

Dimming and saving together.

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Short button operation toggled

Options: NO
YES

---Toggled scene of the short operation

Options: Scene NO.01
Scene NO.02
…….
Scene NO.64

---Delay for call the scene when opened (0…255s):

Options: 0…255s

Set the delay time after opened dry contact then call scene. The range is 0…255s.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Sequence controller"***

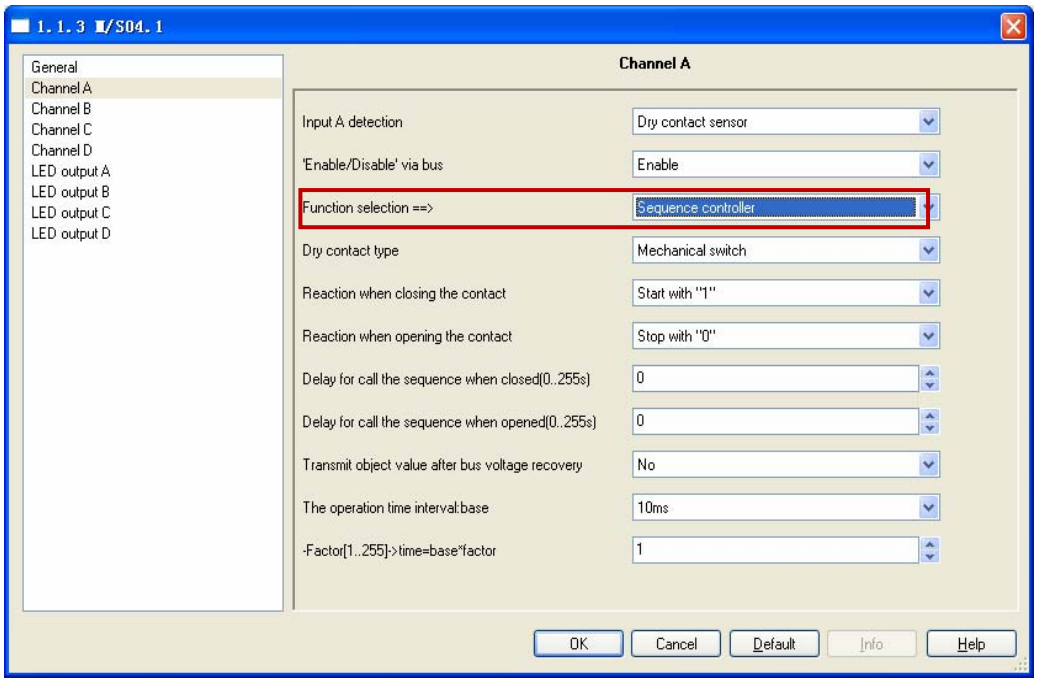


Fig12: "Sequence controller" parameter window

Input A as a dry contact, the function is sequence controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

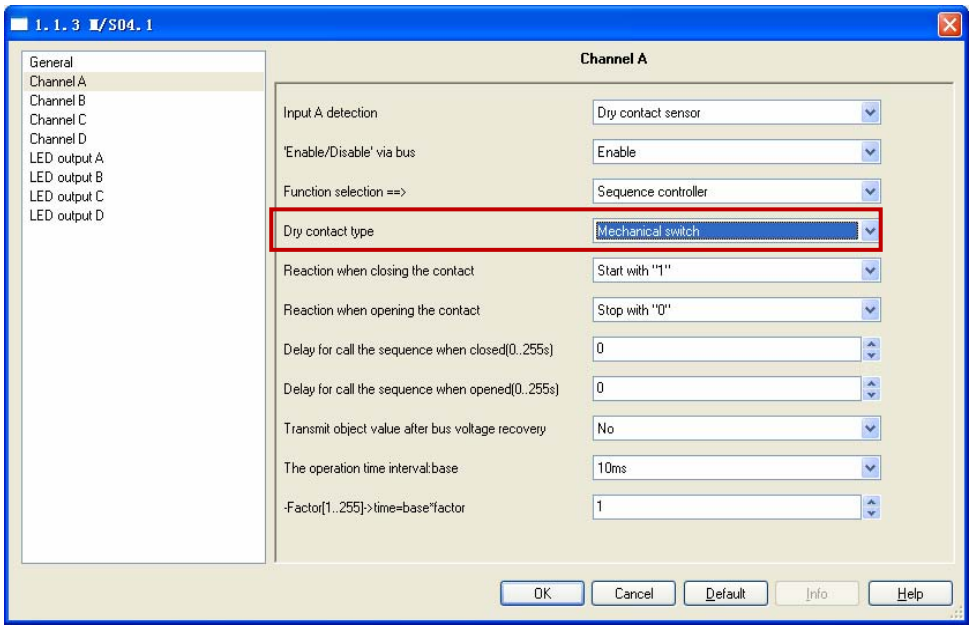


Fig12.1: "Mechanical switch" parameter window

---Reaction when closing the contact

---Reaction when opening the contact

Set the function of the dry contact when opening/closing it.

Options: Invalid
Toggle
Start with “1”
Stop with “0”

Invalid: the dry contact is invalid.

Toggle: when opening/closing the dry contact is a toggle.

Start with”1” : telegram value 1 is start.

Stop with”0” : telegram value 0 is stop.

---Delay for call the sequence when closed (0…255s):

Options: 0…255s

Set the delay time after closed dry contact then call the sequence. The range is 0…255s.

---Delay for call the sequence when opened (0…255s):

Options: 0…255s

Set the delay time after opened dry contact then call the sequence. The range is 0…255s.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

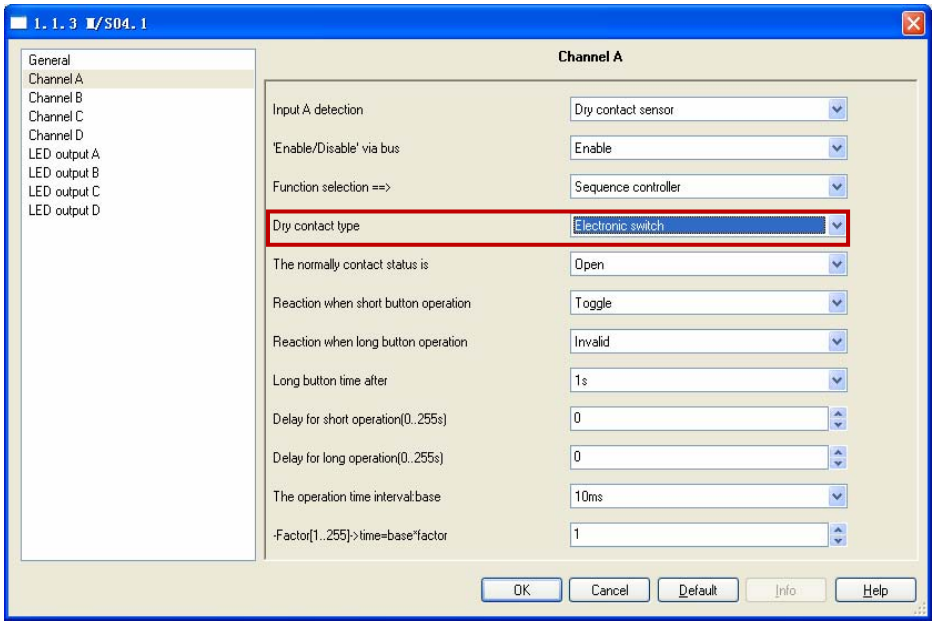


Fig12.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Reaction when short button operation

---Reaction when long button operation

Set the function of the dry contact when short/long button operation.

Options: Invalid
Toggle
Start with "1"
Stop with "0"

Invalid: the dry contact is invalid.

Toggle: when long/short operation the dry contact is a toggle.

Start with"1": telegram value 1 is start.

Stop with"0": telegram value 0 is stop.

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Delay for short operation (0…255s):

---Delay for long operation (0…255s):

Options: 0…255s

Set the delay time after operation dry contact . The range is 0…255s.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "percentage controller"***

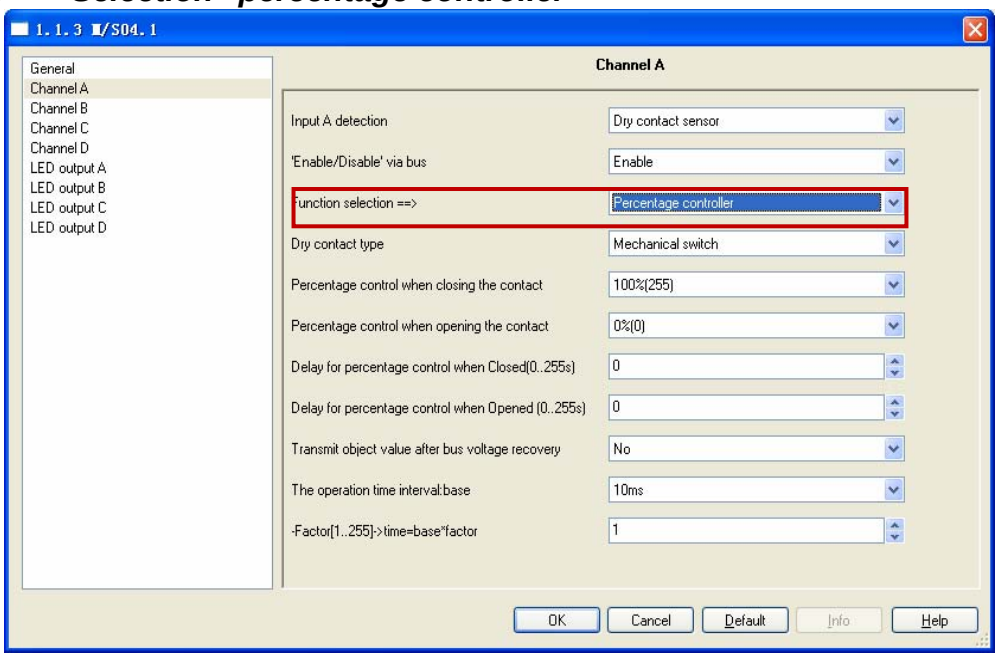


Fig13: "percentage controller" parameter window

Input A as a dry contact, the function is percentage controller.

---Dry contact type

Options: Mechanical switch
Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

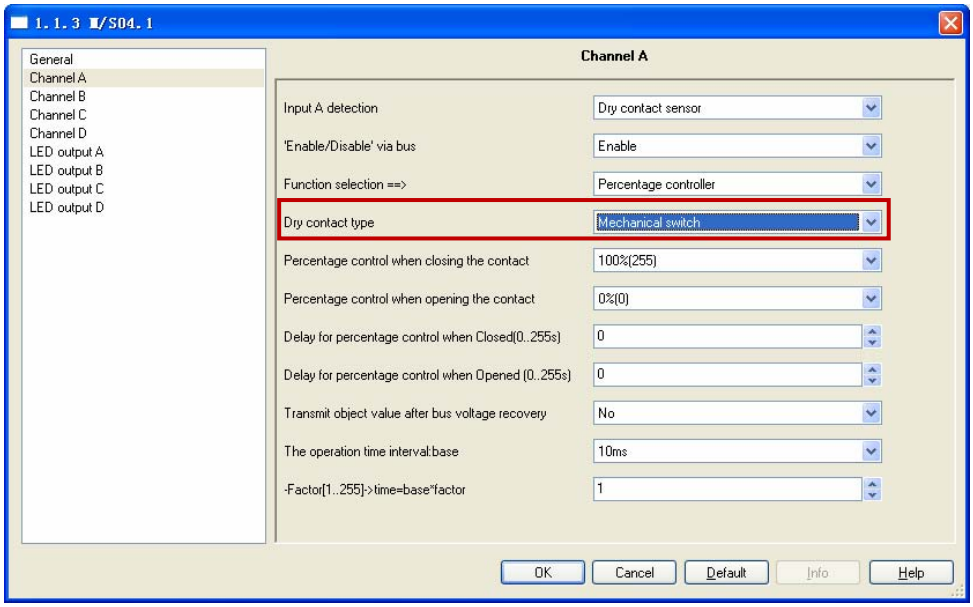


Fig13.1: "Mechanical switch" parameter window

---Percentage control when closing the contact
--- Percentage control when opening the contact

Set the light level when closing/opening the dry contact.

Options: invalid
0%(0)—100%(255)

Invalid: the dry contact is invalid.

0%(0)—100%(255) : the light's brightness.

---Delay for percentage control when closed (0…255s):

Options: 0…255s

Set the delay time after closed dry contact. The range is 0…255s.

---Delay for call the sequence when opened (0…255s):

Options: 0…255s

Set the delay time after opened dry contact. The range is 0…255s.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms

100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

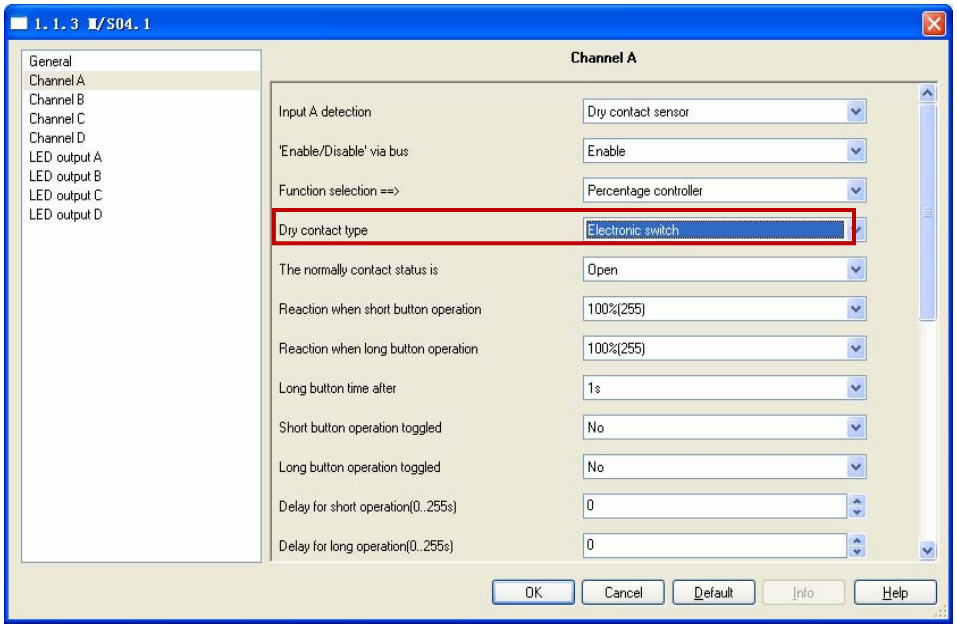


Fig13.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Reaction when short button operation

---Reaction when long button operation

Options: invalid
0%(0)—100%(255)

Invalid: the dry contact is invalid.

0%(0)—100%(255) : the light's brightness.

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Short button operation toggled:
Options: NO
YES
--Toggled **brightness** of the short operation
Options: 0%(0)—100%(255)

---Long button operation toggled:
Options: NO
YES
--Toggled brightness of the long operation
Options: 0%(0)—100%(255)

---Delay for short operation (0…255s):
---Delay for long operation (0…255s):
Options: 0…255s
Set the delay time after operation dry contact. The range is 0…255s.

--The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour

--Factor (1…255) ->time=base*factor
Options: 1---255
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Threshold controller"***

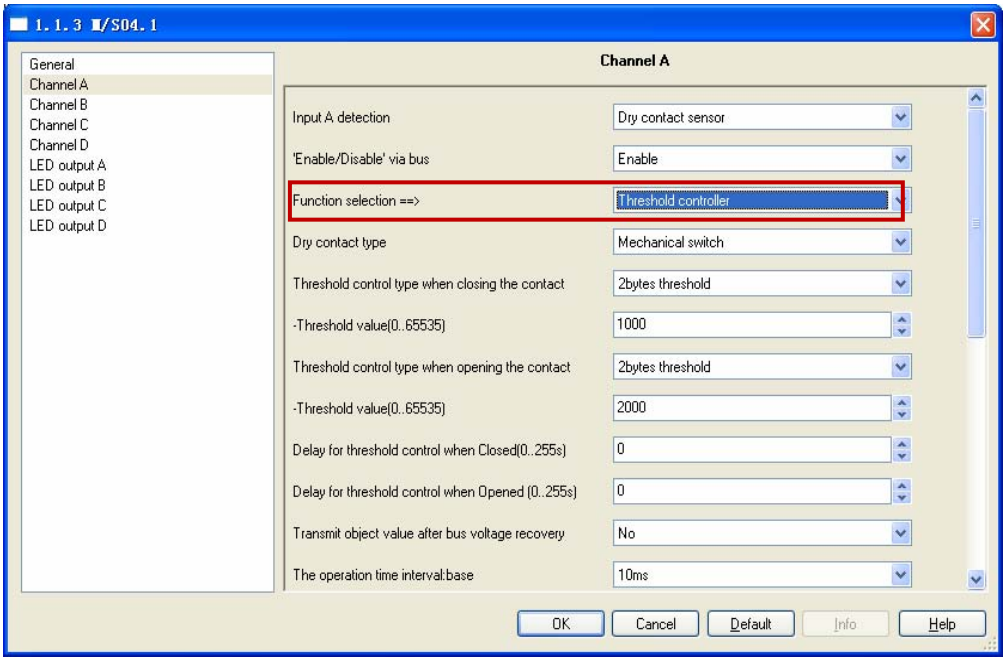


Fig14: "threshold controller" parameter window

Input A as a dry contact, the function is threshold controller.

---Dry contact type

Options: Mechanical switch
Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

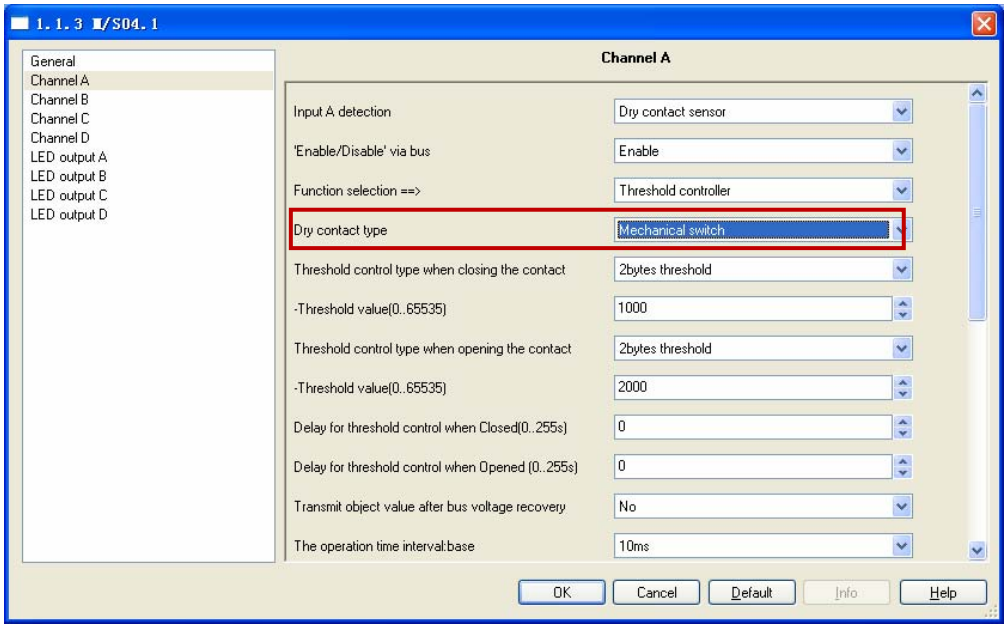


Fig14.1: "Mechanical switch" parameter window

---Threshold control type when closing the contact

--- Threshold control type when opening the contact

Set the threshold control type when closing/opening the dry contact.

Options: invalid
1byte threshold
2bytes threshold

Invalid: the dry contact is invalid.

1 byte threshold: the threshold type is 1 byte. The threshold is 0…255.

2 bytes threshold: the threshold type is 2 bytes. The threshold is 0…65535.

---Delay for threshold control when closed (0…255s):

Options: 0…255s

Set the delay time after closed dry contact. The range is 0…255s.

---Delay for threshold control when opened (0…255s):

Options: 0…255s

Set the delay time after opened dry contact. The range is

0…255s.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

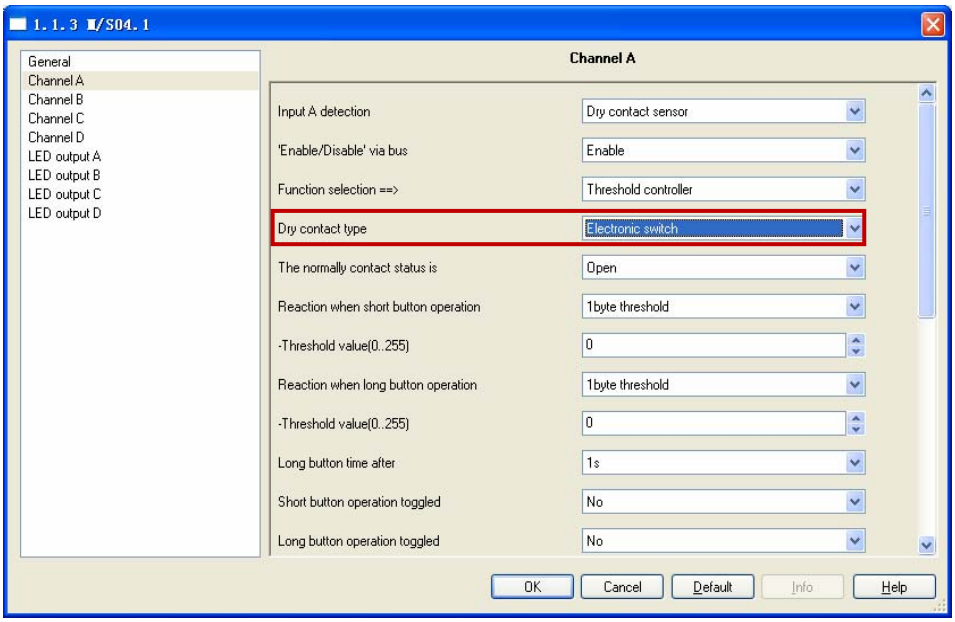


Fig14.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Reaction when short button operation
---Reaction when long button operation
Set the function of short operation the dry contact.
Options: invalid
1byte threshold
2bytes threshold
Invalid: the dry contact is invalid.
1 byte threshold: the threshold type is 1 byte. The threshold is 0…255.
2 bytes threshold: the threshold type is 2 bytes. The threshold is 0…65535.

---Long button time after
Options: 0.2s…..60s
Set the time of the long button. The range is 0.2s to 60S.

---Short button operation toggled:
Options: NO
YES
--Toggled threshold (0…65535) of the short operation
Options: 0—65535

---Long button operation toggled:
Options: NO
YES
--Toggled threshold (0…255) of the long operation
Options: 0…255

---Delay for short operation (0…255s):
---Delay for long operation (0…255s):
Options: 0…255s
Set the delay time after operation dry contact. The range is 0…255s.

--The operation time interval: base
Options: 10ms
100ms
1sec
1min
1hour
--Factor (1…255) ->time=base*factor
Options: 1---255
These two parameters are setting the time interval of repeat

operation dry contact, the time is base*factor.

➢ ***Selection "String(14bytes) controller"***

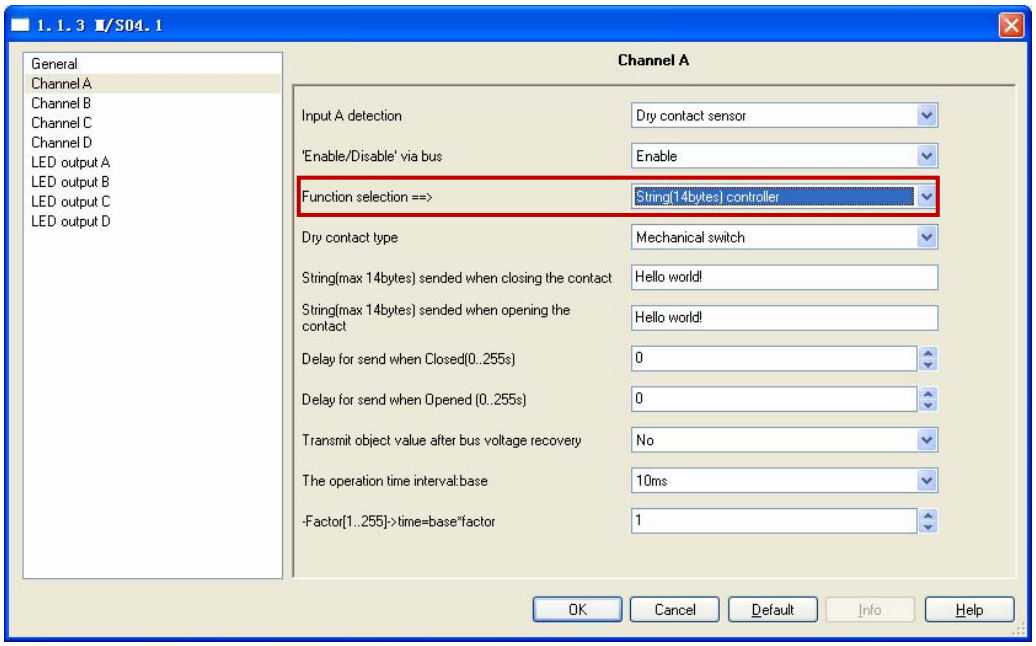


Fig15: "String (14bytes) controller" parameter window

Input A as a dry contact, the function is string (14bytes) controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

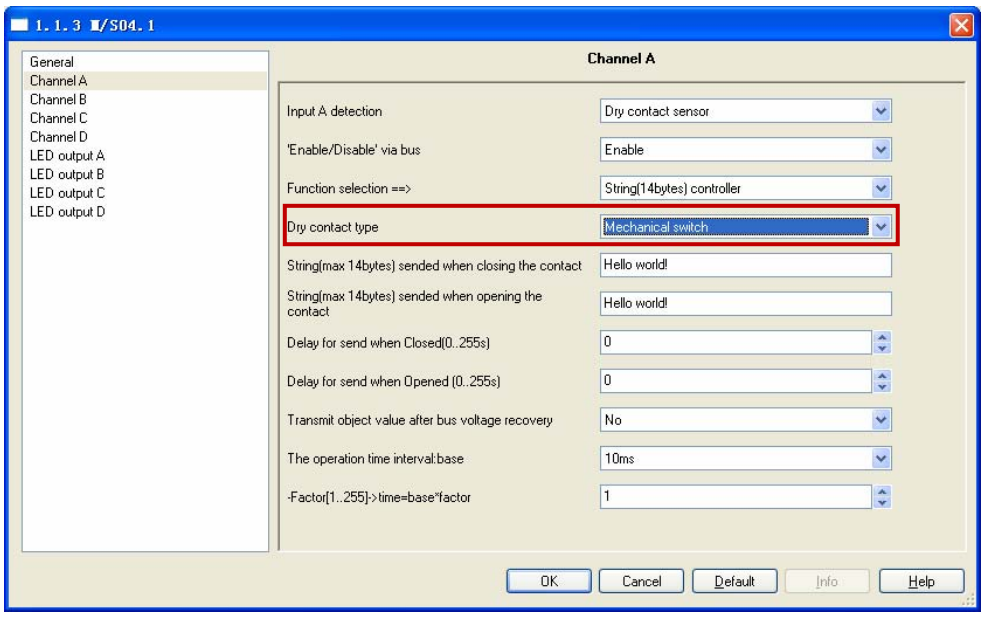


Fig15.1: "Mechanical switch" parameter window

---String (max 14bytes) sended when closing the contact
--- String (max 14bytes) sended when opening the contact
Set the string sended when closing/opening the dry contact. The string Max. length is 14bytes

---Delay for send when closed (0…255s):
---Delay for send when opened (0…255s):
Options: 0…255s
Set the delay time after closed/opened dry contact. The range is 0…255s.

---Transmit object value after bus voltage recovery
Options: NO
YES
Whether transmit object value after bus voltage recovery.
NO: do not transmit object value after bus voltage recovery.
YES: will transmit object value after bus voltage recovery.

--The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour

--Factor (1…255) ->time=base*factor
Options: 1---255
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

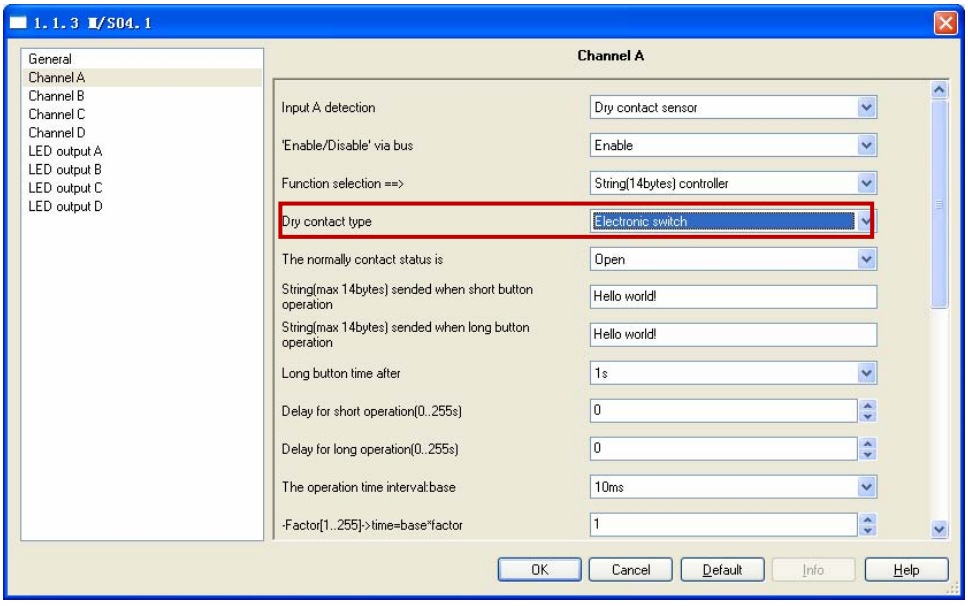


Fig15.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---String (max 14bytes) sended when short button operation

--- String (max 14bytes) sended when long button operation

Set the string sended when short/long button operation the dry contact. The string Max. length is 14bytes

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Delay for short operation (0…255s):

---Delay for long operation (0…255s):

Options: 0…255s

Set the delay time after operation dry contact. The range is 0…255s.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Forced position controller"***

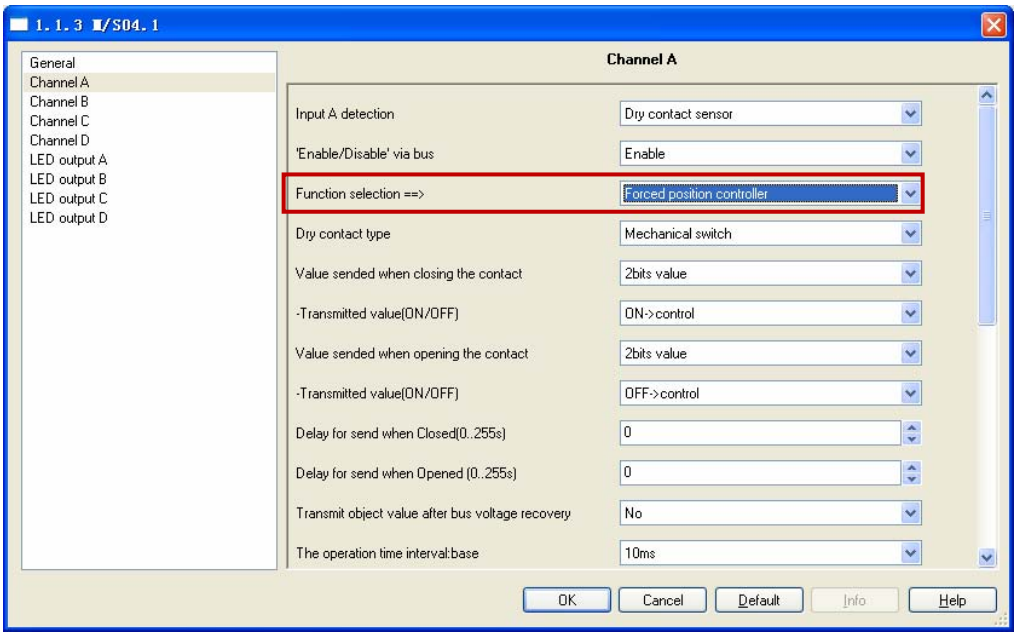


Fig16: "Forced position controller" parameter window

Input A as a dry contact, the function is forced position controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

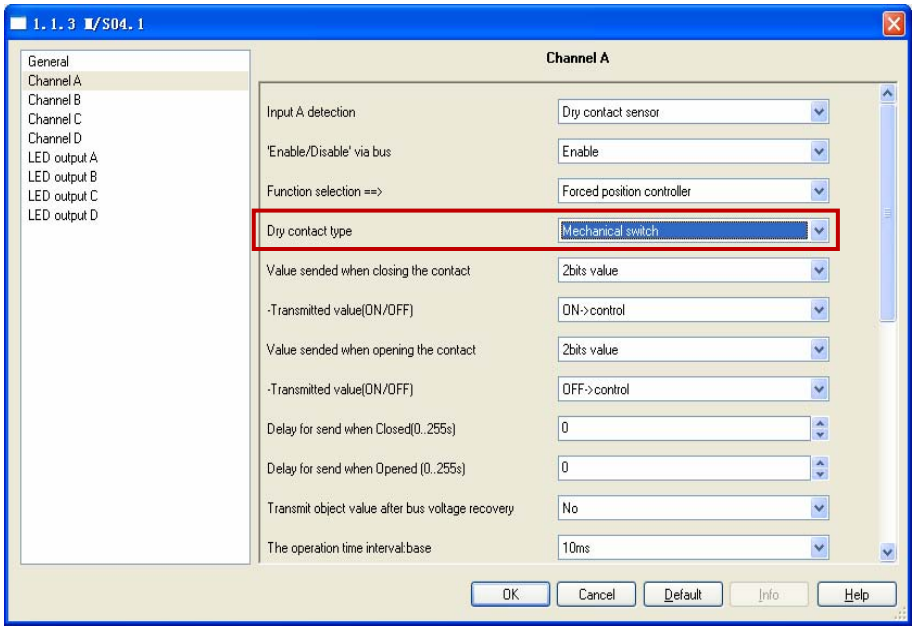


Fig16.1: "Mechanical switch" parameter window

---Value sended when closing the contact

--- Value sended when opening the contact

Set the value sended when closing/opening the dry contact.
Options: Invalid
2 bits value
1byte value (0…255)
2bytes value (-32768…32767)
2bytes value (0…65535)
2bytes value (Float)
4bytes value (0…2147483647)
Invalid: the dry contact is invalid.
2 bits value: 2 bits value sended when closing/opening the dry contact.

--- Transmitted value(ON/OFF)
Options: ON->control
OFF->control
NO control
On-> control:
OFF->control:
NO->control

2bytes value(-32768…32767): -32768…32767 sednded when closing/opening the dry contact.
2bytes value(0…65535): 2bytes value(0…65535) sednded when closing/opening the dry contact.
2bytes value(Float): -100…100 value sednded when closing/opening the dry contact.
4bytes value(0…2147483647): 0…2147483647 sednded when closing/opening the dry contact.

---Delay for send when closed (0…255s):
---Delay for send when opened (0…255s):
Options: 0…255s
Set the delay time after closed/opened dry contact. The range is 0…255s.

---Transmit object value after bus voltage recovery
Options: NO
YES
Whether transmit object value after bus voltage recovery.
NO: do not transmit object value after bus voltage recovery.
YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electronic switch

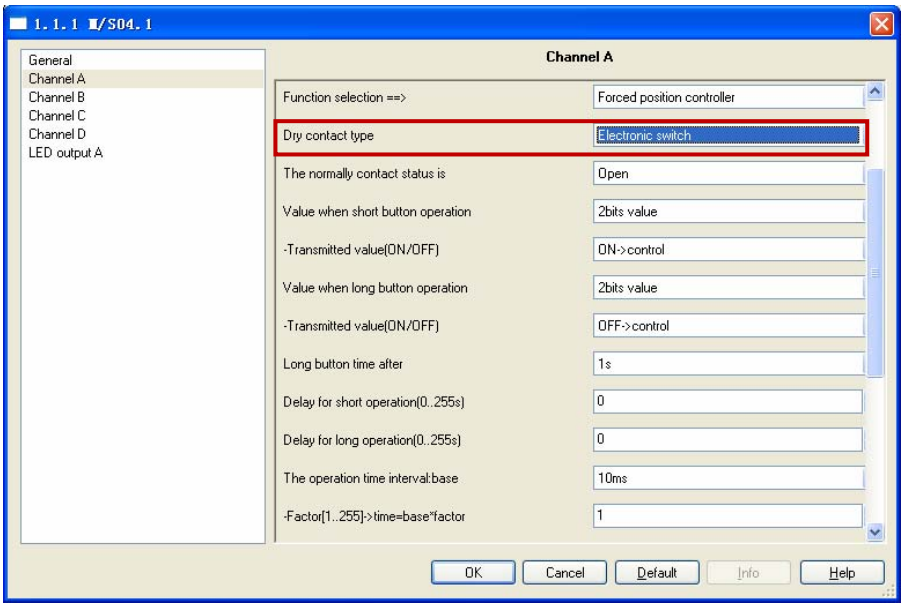


Fig16.2: “Electronic switch” parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Value when short button operation

--- Value when long button operation

Set the value sended when short/long button operation the dry contact.

Options: Invalid
2 bits value
1byte value (0…255)

2bytes value(-32768…32767)
2bytes value(0…65535)
2bytes value(Float)
4bytes value(0…2147483647)

Invalid: the dry contact is invalid.

2 bits value: 2 bits value sended when closing/opening the dry contact.

--- Transmitted value(ON/OFF)
Options: ON->control
OFF->control
NO control
On-> control
OFF->control
NO->control

2bytes value(-32768…32767): -32768…32767 sednded when closing/opening the dry contact.

2bytes value(0…65535): 2bytes value(0…65535) sednded when closing/opening the dry contact.

2bytes value(Float): -100…100 value sednded when closing/opening the dry contact.

4bytes value(0…2147483647): 0…2147483647 sednded when closing/opening the dry contact.

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Delay for short operation (0…255s):

---Delay for long operation (0…255s):

Options: 0…255s

Set the delay time after operation dry contact. The range is 0…255s.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

➢ ***Selection "Counter controller"***

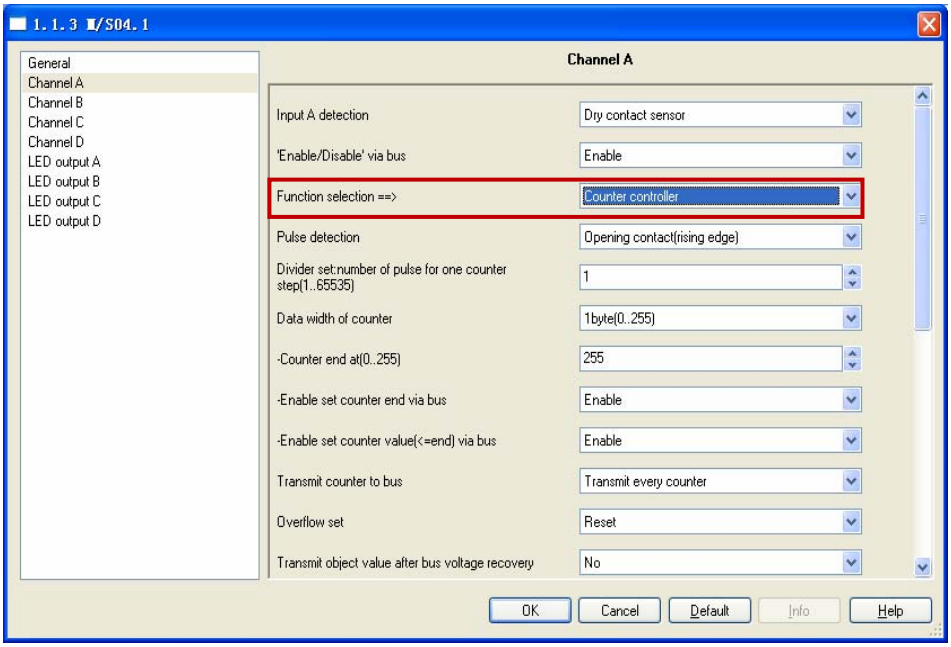


Fig17: "Counter controller" parameter window

Input A as a dry contact, the function is counter controller.

---Pulse detection

Options: Closing contact (falling edge)
Opening contact (rising edge)
Closing (falling edge) and Opening (rising edge)

Closing contact (falling edge): when the falling edge count.

Opening contact (rising edge): when the rising edge count.

Closing (falling edge) and Opening (rising edge): falling edge and rising edge all count.

---Divider set: number of pulse for one counter step (1…65535)

Options: 1…65535

Set the number of pulses counted once, the range is 1…65535.

---Data width of counter

Options: 1 byte (0…255)
2 bytes (0…65535)
4 bytes (0…2147483647)

Set the width of counter.

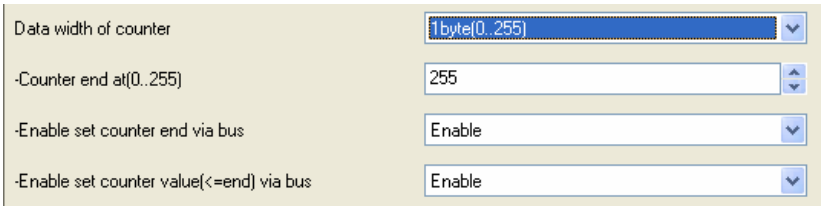
1 byte (0…255): the width of counter is 0…255.

2 bytes (0…65535) : the width of counter is 0…65535.

4 bytes (0…2147483647): the width of counter is

0…2147483647.

When the data width of counter is 1byte:



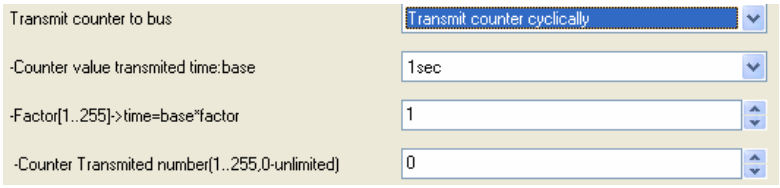
---Counter end of (0…255)
Set the end of count. The end counter is 0…255.
2bytes end counter is 0…65535.
4bytes end counter is 0…2147483647.
---Enable set counter end via bus
Whether set end counter via bus.
Options: Enable
Disable
Enable: you can set end counter via bus.
Disable: you can't set end counter via bus.

---Enable set counter value (<=end) via bus
Whether set start counter via bus.
Options: Enable
Disable
Enable: you can set start counter via bus.
Disable: you can't set start counter via bus.

--- Transmit counter to bus

Options: Don't transmission
Transmit every counter
Transmit counter cyclically

Don't transmission: every counter don't transmission.
Transmit every counter: every counter do transmission.
Transmit counter cyclically:



--Counter value transmited time : base
--Factor(1…255)->time=base* factor
These two parameters are setting the time counter value transmited, the time is base*factor.
--Counter Transmited number (1…255,0-unlimited)

---Overflow set: Reset

Reset and Alarm
Stop
Stop and Alarm

Reset: overflow set will reset counter.
Reset and Alarm: overflow set will reset counter and alarm.
Stop: overflow set will stop counter.
Stop and Alarm: overflow set will stop and alarm.

--Transmit object value after bus voltage recovery

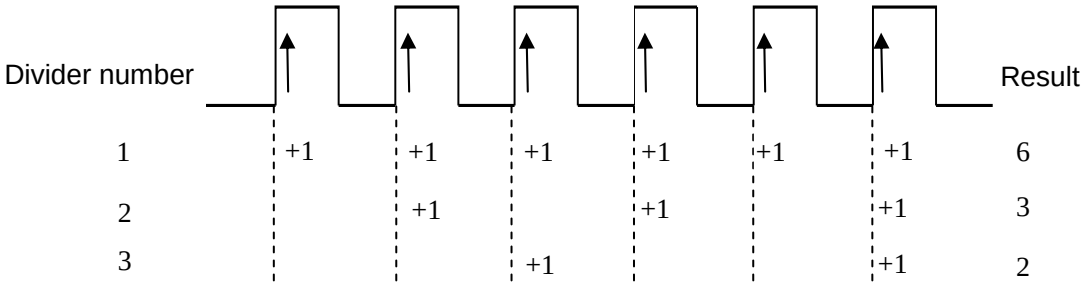
--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.



➢ ***Selection "Combination controller"***

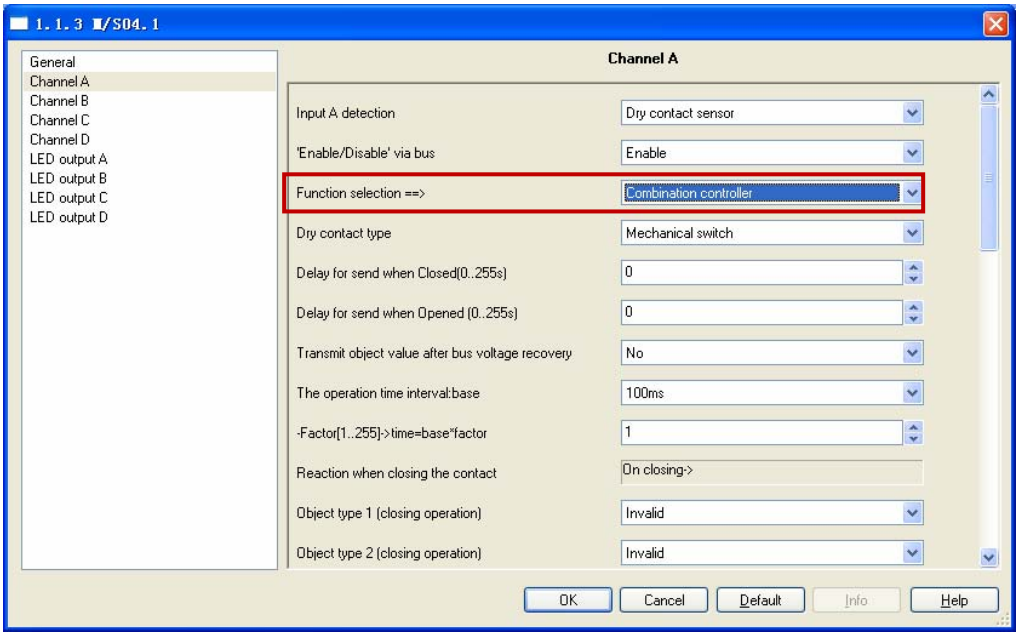


Fig18: "combination controller" parameter window

Input A as a dry contact, the function is combination controller.

---Dry contact type

Options: Mechanical switch

Electronic switch

Dry contact has two types, the details setting as follow.

- Mechanical switch

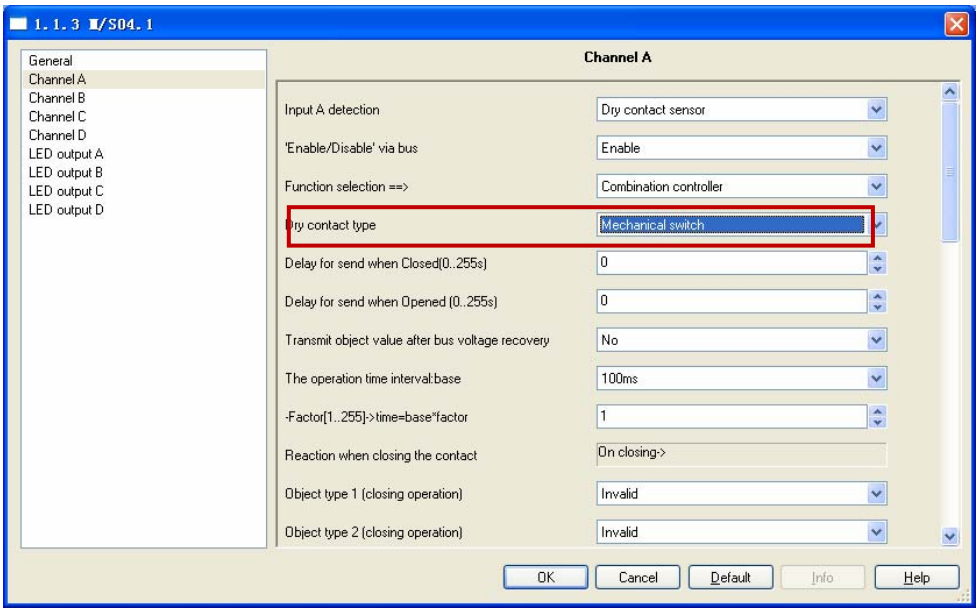


Fig18.1: "Mechanical switch" parameter window

---Delay for send when closed (0…255s):

---Delay for send when opened (0…255s):

Options: 0…255s

Set the delay time after closed/opened dry contact. The range is 0…255s.

---Transmit object value after bus voltage recovery

Options: NO
YES

Whether transmit object value after bus voltage recovery.

NO: do not transmit object value after bus voltage recovery.

YES: will transmit object value after bus voltage recovery.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

Reaction when closing the contact: ON closing

--Object type 1(closing operation)
--Object type 1(closing operation)
……
--Object type 10 (closing operation)

✧ **Options:** Invalid
Switch controller
Shutter controller
Scene controller
Sequence controller
Percentage controller
Threshold controller
14byte value controller (string)

This mode is that closing dry contact can control several objects. if set some these items, and when closing dry contact that can send several control telegram simultaneously.

Opening dry contact's setting is same as left button.

- Electronic switch

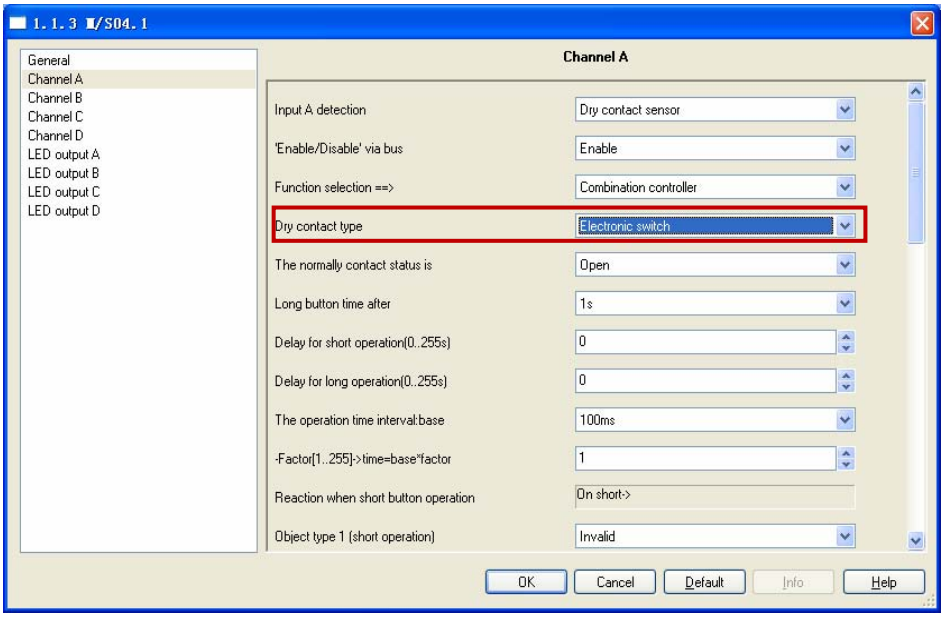


Fig18.2: "Electronic switch" parameter window

---The normally contact status is

Options: Close
Open

Set the dry contact status when have no operation.

Close: the contact status is close.

Open: the contact status is open.

---Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

---Delay for short operation (0…255s):

---Delay for long operation (0…255s):

Options: 0…255s

Set the delay time after operation dry contact. The range is 0…255s.

--The operation time interval: base

Options: 10ms
100ms
1sec
1min
1hour

--Factor (1…255) ->time=base*factor

Options: 1---255

These two parameters are setting the time interval of repeat

operation dry contact, the time is base*factor.

Reaction when short button: ON short
--Object type 1(short operation)
--Object type 1(short operation)
……
--Object type 10 (short operation)

✧ **Options:** Invalid
Switch controller
Shutter controller
Scene controller
Sequence controller
Percentage controller
Threshold controller
14byte value controller (string)

This mode is that short button operation dry contact can control several objects. If set some these items, and when short button operation dry contact that can send several control telegram simultaneously.

Long button operation dry contact's setting is same as left button.

3.2.2 Work mode " Logical controller"

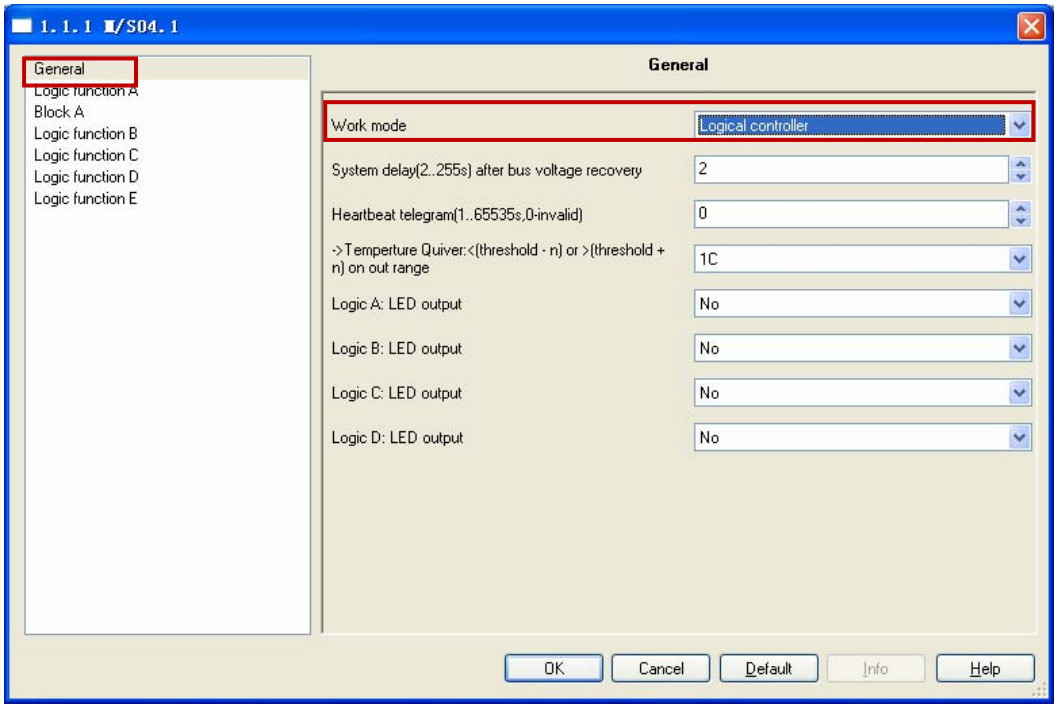


Fig19: "logical controller" parameter window

--System delay (2…255s) after bus voltage recovery

The device will be delay for 2..255s after the power on. The default value is 2 seconds. The Min. value is 2 seconds, and the

max. value is 255 seconds.
Options: 2…255s

--Heartbeat telegram (1…65535s,0-invalid)
The range of the parameter is 0 to 65535s. 0 is that the function is invalid, other of parameter enable this function

Options: 0…65535s

The parameter set to nonzero, Device will send a telegram data cyclically when time out. Send the value alternately between 0 and 1.
This function use or not decided by user.

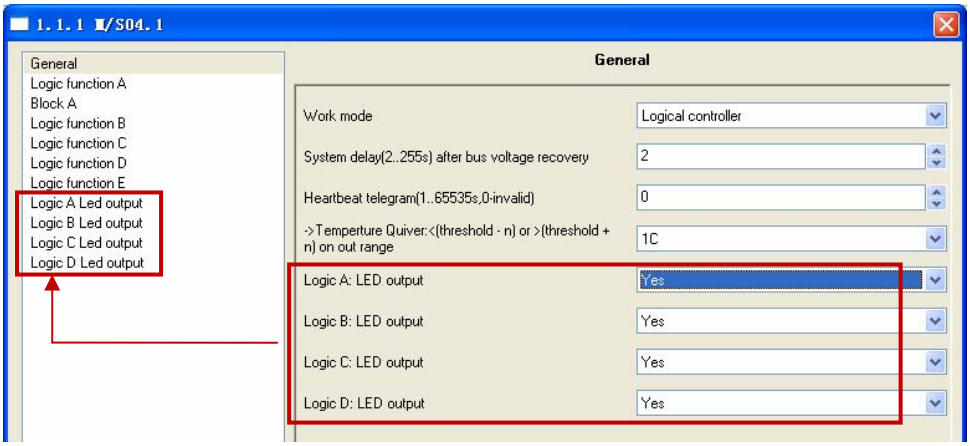
-> Temperature Quiver: < (threshold – n) or >(threshold +n) on out range)

Temperature within the effective range, when changes in the set range, the status does not change.
When the temperature changes greater than **n**, the status will change.The quiver range beteen threshold – n and threshold or between threshold and threshold +n.

Options: 0…10C

--Channel A: LED output (0…2V)
LED output's setting.
Options: NO
YES
NO: output A is invalid.
YES: select this one you can set to output A's parameter.
The setting as follows.

3.2.2.1 Logic A Led output



Output A ,B,C,D's setting are the same.

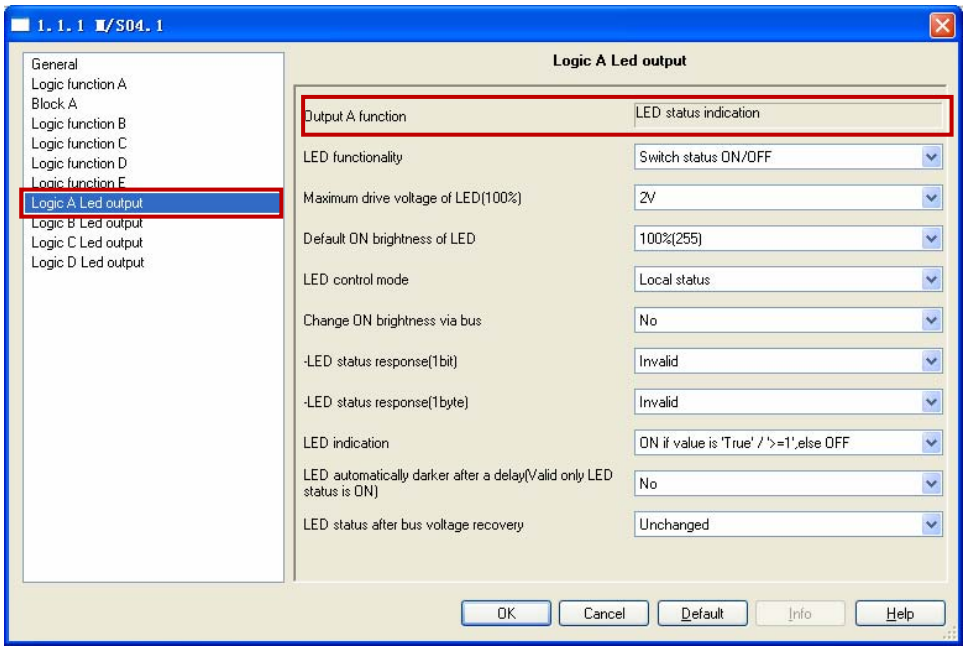


Fig20: "Logic A Led output " parameter window

Output A function: LED status indication

--LED functionality

Set output A's function. There are 2 functions, switch status ON/OFF and flashing.

Options: Switch status ON/OFF

Flashing

Switch status ON/OFF: the function is the status of input A.

Flashing: output A is flashing.

The detail settings are as follow.

➢ ***Switch status ON/OFF*:**

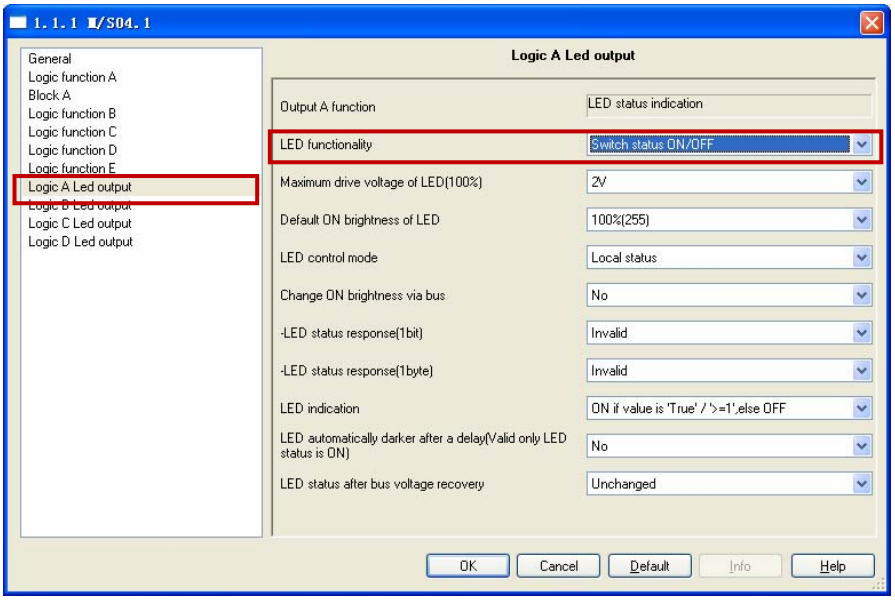


Fig21: "Switch state ON/OFF" parameter window

---Maximum drive voltage of LED(100%)

Set the maximum drive voltage of LED. The range is 1V to 10V.

Options: 1V-10V

---Default ON brightness of LED

Set the default brightness of LED. The range is 10% to 100%.

Options: 10%---100%(255)

--- LED control mode

Set the control mode of LED.

Options: Local status

Via bus(1 bit-operation and 1 byte-Brightness)

Local status: The LED controlled by local stauts.

Via bus: the LED controlled by the telegram via bus.

---Change ON brightness via bus

Set the enable of change on brightness via bus.

Options: NO

YES

NO: you can't change brightness via bus.

YES: you can change brightness via bus.

--LED status(1 bit) response

Set the response of LED status.

Options: Invalid

1 bit always response

1 bit only changed

1 bit always response: it's always response.

1 bit only changed: it's response when status changed.

--LED status(1 byte) response

Options: Invalid

1 byte always response

1 byte only changed

1 byte always response: it's always response.

1 byte only changed: it's response only when status changed.

--- LED indication

Options: ON if value>="1", else OFF

ON if value is "0", else OFF

Always ON

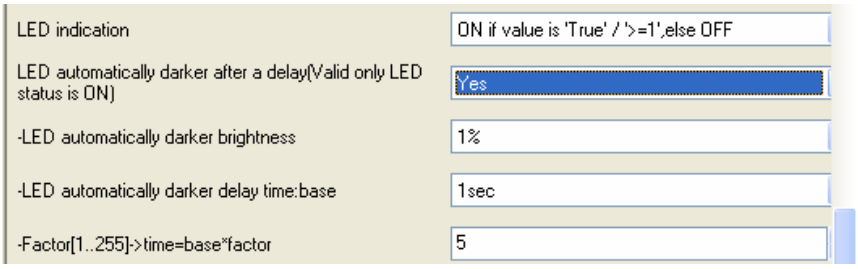
Always OFF

ON if value>="1", else OFF: the value>="1", LED state is ON, else LED state is OFF.

ON if value is "0", else OFF: the value is 0, LED state is ON, else LED state is OFF.

Always ON: LED state is always on.

Always OFF: LED state is always OFF.



---LED automatically darker delay time: base

Set the delay time's base.

Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor

Options: 1…255

Set the delay time, this time is options value* base. After this time, LED automatically darkens the setting value.

--- LED States after bus voltage recovery

Options: unchanged

OFF

ON

Set to LED state after bus voltage recovery.

➢ ***Selection "Flashing"***

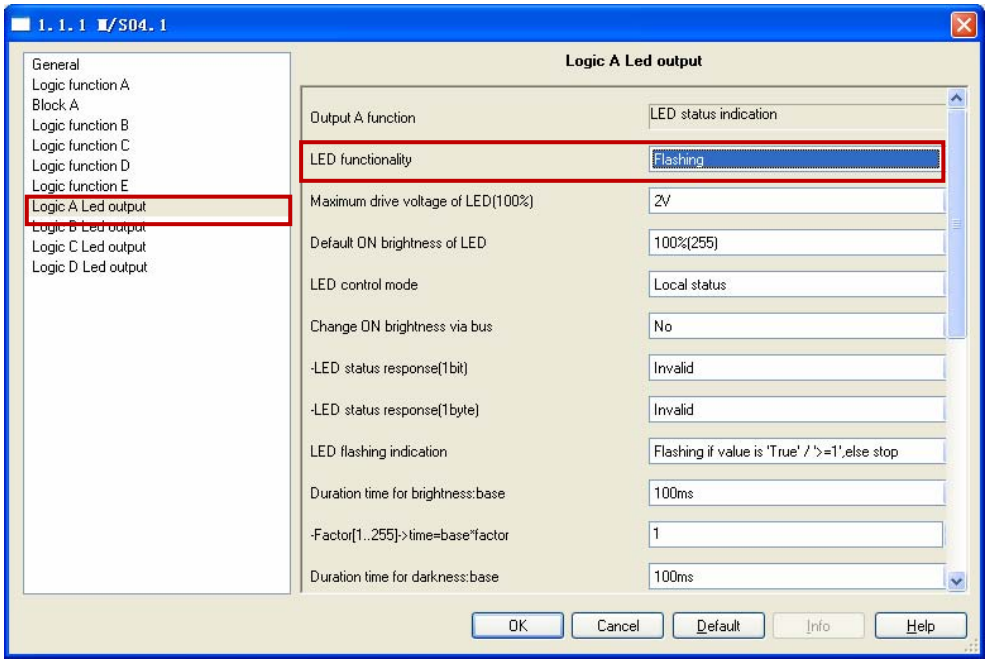


Fig22: "Flashing" parameter window

LED State is flashing. Flashing parameter's setting as follows.

---Maximum drive voltage of LED(100%)

Set the maximum drive voltage of LED. The range is 1V to 10V.

Options: 1V-10V

---Default ON brightness of LED

Set the default brightness of LED. The range is 10% to 100%.

Options: 10%---100%(255)

--- LED control mode

Set the control mode of LED.

Options: Local status

Via bus(1 bit-operation and 1 byte-Brightness)

Local status: The LED controlled by local stauts.

Via bus: the LED controlled by the telegram via bus.

---Change ON brightness via bus

Set the enable of change on brightness via bus.

Options: NO

YES

NO: you can't change brightness via bus.

YES: you can change brightness via bus.

--LED status(1 bit) response

Set the response of LED status.

Options: Invalid

1 bit always response
1 bit only changed

1 bit always response: it's always response.
1 bit only changed: it's response when status changed.

--LED status(1 byte) response

Options: Invalid
1 byte always response
1 byte only changed

1 byte always response: it's always response.
1 byte only changed: it's response only when status changed.

--- LED indication

Options: Flashing if value>="1", else stop
Flashing if value is "0", else stop
Always flashing

Flashing if value>="1", else OFF: the value>="1", LED state is flashing, else LED state is no flashing.
flashing if value is "0", else OFF: the value is 0, LED state is flashing, else LED state is OFF.
Always flashing: LED state is always flashing.

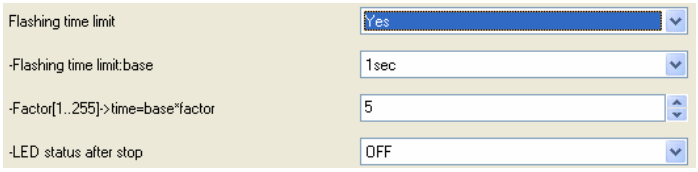
---Duration time for brightness : base
Set the delay time's base.
Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor
Options: 1…255
Set the delay time, this time is options value* base. After this time, LED automatically reaches the setting brightness value.

---Duration time for darkness: base
Set the delay time's base.
Options: 100ms, 1sec, 1min 1hour

---Factor(1…255)->time = base* factor
Options: 1…255
Set the delay time, this time is options value* base. After this time, LED automatically darkens the setting value.

---Flashing time limit
Set the time of flashing, after this time the LED will stop flashing



--- LED States after bus voltage recovery

Options: OFF

ON

Set to LED state after bus voltage recovery.

3.2.2.2 Logic function A

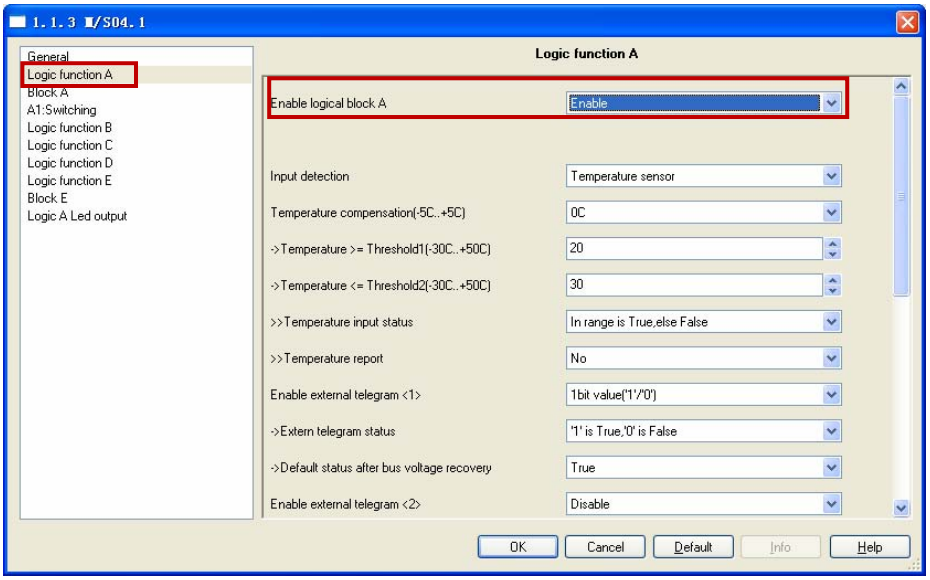


Fig23: "Logic function A" parameter window

The window is setting the parameter of logic A. There are 6 logical conditions at most.

---Enable logical block A

Options: Disable

Enable

Disable: the logical block A is invalid.

Enable: you can set logic block A's function.

---Input detection

"Input A" as a logical condition.

Options: Disable

Dry contact sensor

Temperature sensor

Disable: "input A" not as a logical condition.

Dry contact sensor: input A 's work mode is dry contact sensor.

Temperature sensor: input A's work mode is temperature sensor.

Temperature compensation(-5C…+5C)

➢ ***When input detection is dry contact sensor***

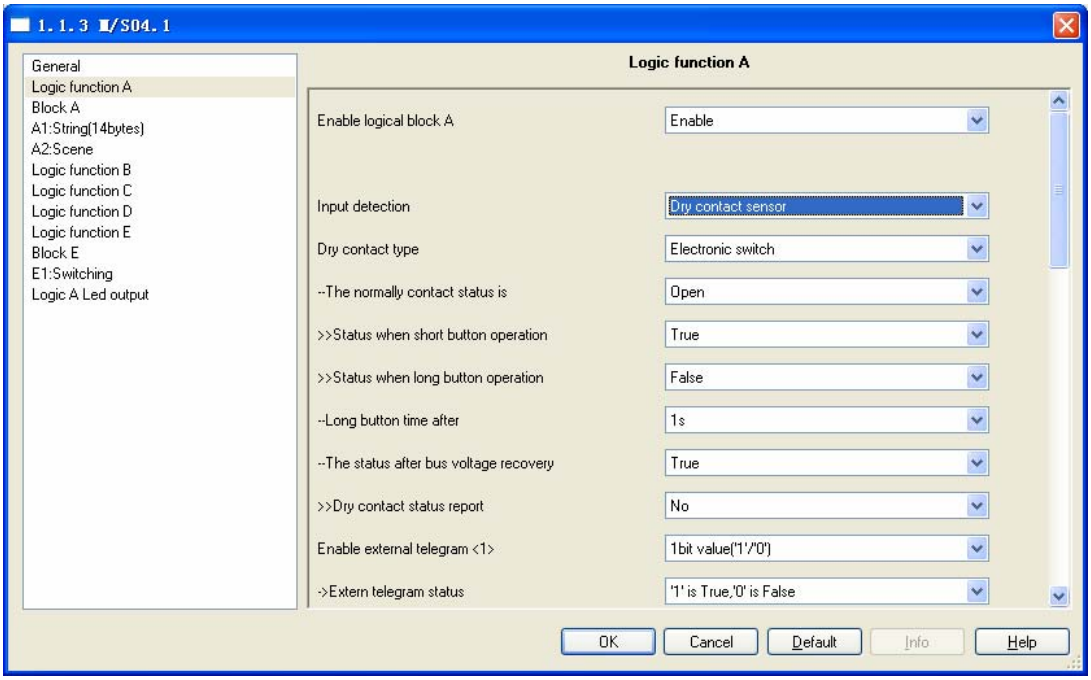
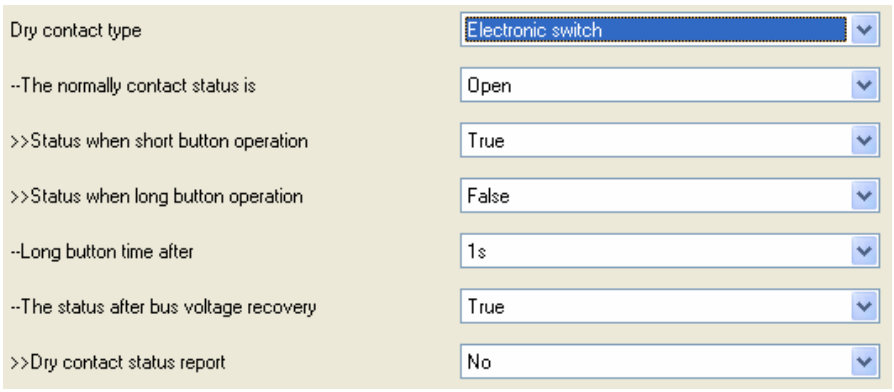


Fig23.1: "input detection is dry contact sensor" parameter window

---Dry contact type: Electronic switch
Mechanical switch

The dry contact sensor is electronic switch, you need set parameters as follow.



--The normally contact status is

Options: Open
Close

Set the dry contact status when have no operation.
Close: the contact status is close.
Open: the contact status is open

>>Status when short button operation

>>Status when long button operation

Options: Invalid
True
False
Toggle

These 2 parameters are about logic conclusion when button operation.

--Long button time after

Options: 0.2s…..60s

Set the time of the long button. The range is 0.2s to 60S.

--The status after bus voltage recovery

Options: Invalid
True
False
Toggle

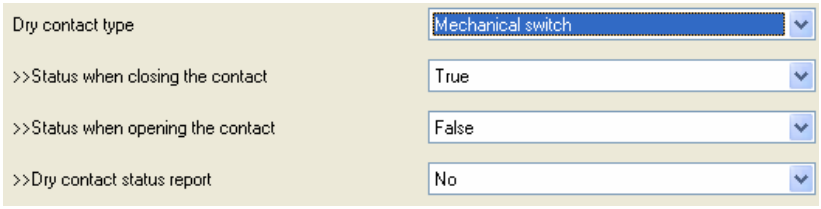
Set the logic conclusion after bus voltage recovery.

>>Dry contact status report

Options: NO
YES

Whether to report the status of dry contact

The dry contact sensor is mechanical switch, you need set parameters as follow.



>>Status when closing the contact

>>Status when opening the contact

Options: Invalid
True
False
Toggle

These 2 parameters are about logic conclusion when button operation.

>>Dry contact status report

Options: NO

YES

Whether to report the status of dry contact

---Enable external telegram<1>:

External telegram <1> as a logical condition.

Options: Disable

1 bit value (‘1’/’0’)

1 byte threshold (0…255)

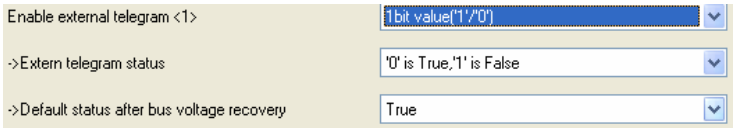
2 bytes threshold (0…65535)

2 bytes float threshold (-50…50)

4 bytes threshold (0…2147483647)

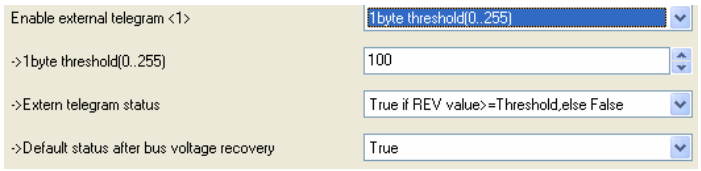
Disable: External telegram <1> is invalid.

1 bit value (‘1’/‘0’): when external telegram is 1 bit value, the logical is true or false.



->Default status after bus voltage recovery: set the status is true or false after voltage recovery.

2 bytes threshold (0…65535): external telegram is 2 bytes threshold, the setting as follows.



->1byte threshold (0…255): set the threshold, the range is 0…255.

->Extern telegram status:

Options: True if REV value >= threshold, else False

True if REV value <= threshold, else False

True if REV value >= threshold, else False: when extern telegram value >= threshold, the logical is true, else is false.

True if REV value <= threshold, else False: when extern telegram value <= threshold, the logical is true, else is false.

->Default status after bus voltage recovery: set the status is true or false after voltage recovery.

2 bytes threshold (0…65535)

2 bytes float threshold (-50…50)

4 bytes threshold (0…2147483647)

These 3 external telegram types’ settings are same as above settings.

---Enable external telegram<2>
---Enable external telegram<3>
---Enable external telegram<4>
---Enable external telegram<5>

The settings are same as"Enable external telegram<1>".

---Logical relation of Block A
Options: AND
OR

---Result of logic A inverted
Whether the results of the logic to be negated
Options: NO
YES

3.2.2.3 Block A

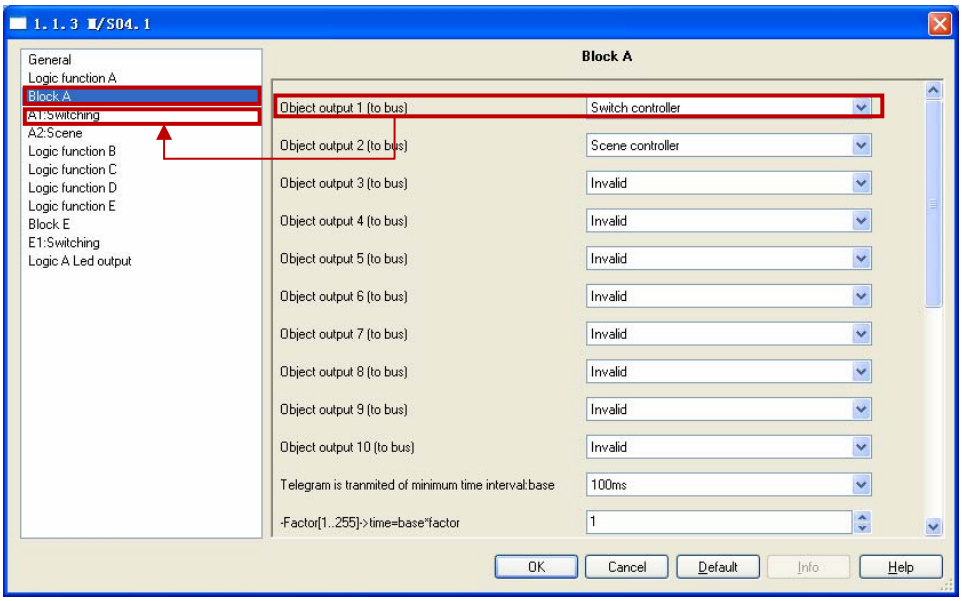


Fig24: "Block A" parameter window

This parameter window is setting the targets type when logic A is true.

---Object output 1(to bus)
Options: Invalid
Switch controller
Alarm controller
Shutter controller
Scene controller
Sequence controller

Percentage controller
Threshold controller
String (14 bytes) controller

There are 9 kinds of the target type, the details setting as below.
The default is invalid

- ***Switch controller***

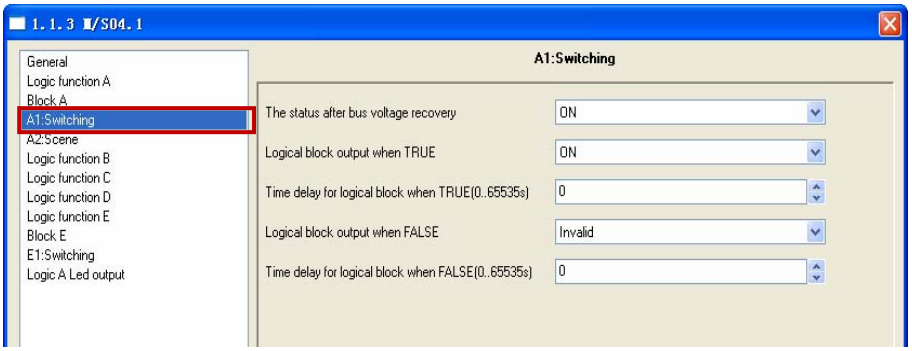


Fig24.1: "A1:Switching" parameter window

->The status after bus voltage recovery:

Options: Invalid
ON
OFF
Recovery

When power on and the bus voltage recovery, this function will be executed. four selection will be available as following:

Recovery: After bus voltage recovery, the channel switch position will be back to the state of the power-down previous.

ON: The channel position will switch ON after bus voltage recovery.

OFF: The channel position will switch OFF after bus voltage recovery.

Recovery: The channel switch position recovery the status of before bus voltage recovery.

->Logical block output when true:

Options: Invalid
ON
OFF
Toggle

➢ ***Alarm***

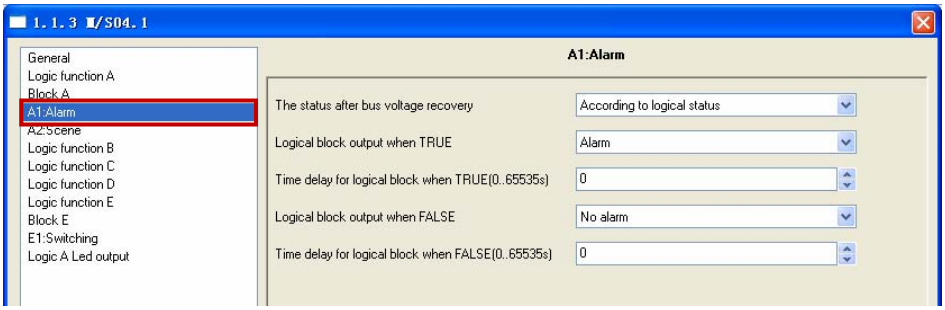


Fig24.2: "A1: Alarm" parameter window

->The status after bus voltage recovery:

Options: Invalid
Alarm
No alarm
Recovery
According to logical status

->Logical block output when TRUE:

Options: Invalid
Alarm
No alarm
Toggle

->Time delay for logical block when TRUE (0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
Alarm
No alarm
Toggle

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

➢ ***Shutter controller***

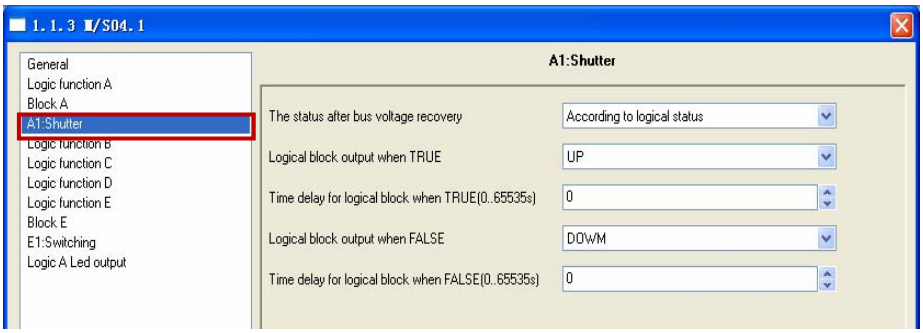


Fig24.3: "A1: Shutter" parameter window

->The status after bus voltage recovery:

Options: Invalid
UP
DOWN
Recovery
According to logical status

->Logical block output when TRUE:

Options: Invalid
Toggle
UP
DOWN

->Time delay for logical block when TRUE(0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
Toggle
UP
DOWN

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

➢ ***Scene***

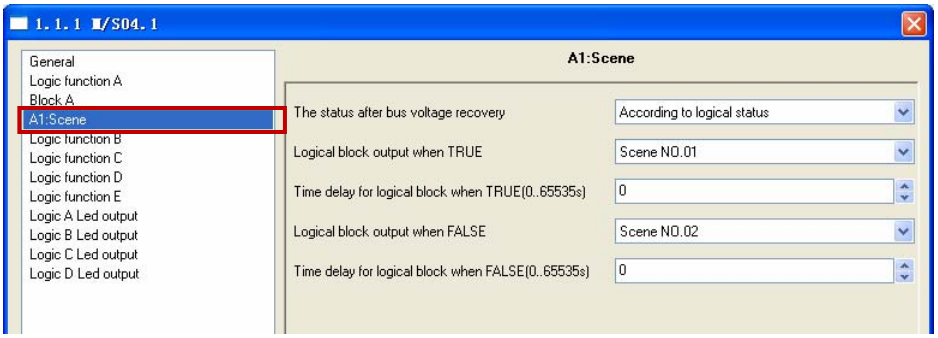


Fig24.4: "A1: Scene" parameter window

->The status after bus voltage recovery:

Options: Invalid
Defined scene
Recovery
According to logical status

->Logical block output when TRUE:

Options: Invalid
Scene NO.01
….
Scene 64

->Time delay for logical block when TRUE(0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
Scene NO.01
….
Scene 64

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

➢ ***Sequence***

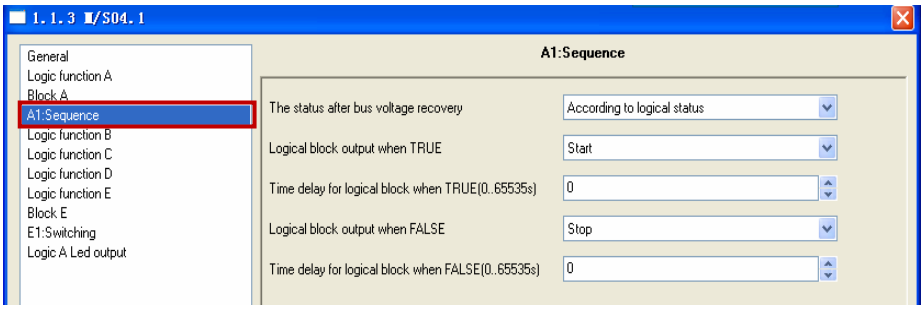


Fig24.5: "A1: Sequence" parameter window

->The status after bus voltage recovery:

Options: Invalid
Start
Stop
Recovery
According to logical status

->Logical block output when TRUE:

Options: Invalid
Toggle
Start
Stop

->Time delay for logical block when TRUE(0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
Toggle
Start
Stop

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

➢ ***Percentage***

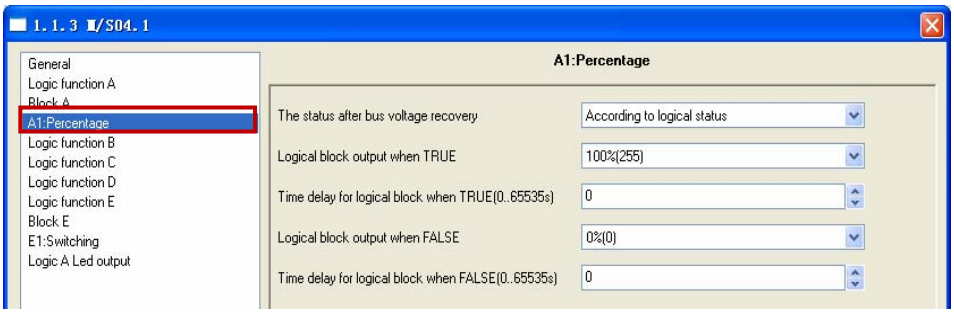


Fig24.6: "A1: Percentage" parameter window

->The status after bus voltage recovery:

Options: Invalid
Defined percentage
Recovery
According to logical status

->Logical block output when TRUE:

Options: Invalid
0%(0)....100%(255)

->Time delay for logical block when TRUE(0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
0%(0)....100%(255)

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

➢ ***Threshold***

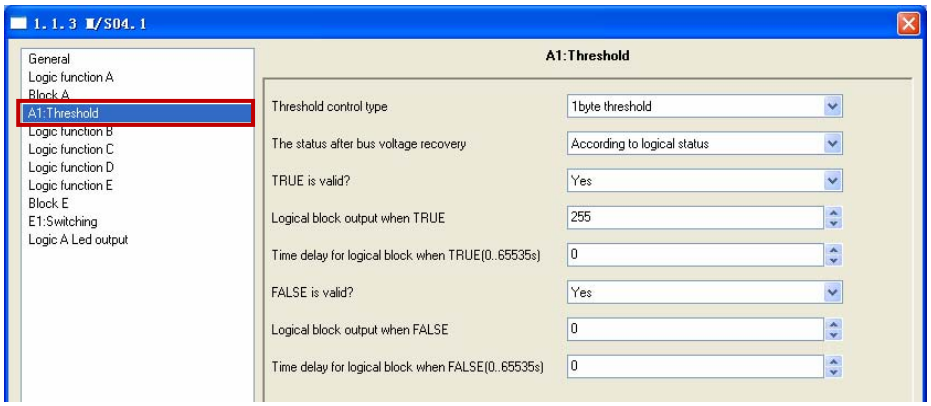


Fig24.7: "A1: Threshold" parameter window

->Threshold control type:

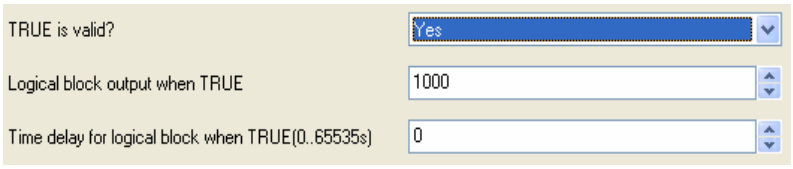
Options: 1 byte threshold
2 bytes threshold

->The status after bus voltage recovery:

Options: Invalid
Defined threshold
Recovery
According to logical status

-> TRUE is valid?

Options: NO
YES



block output when TRUE:

Options: Invalid
Toggle
Start
Stop

->Time delay for logical block when TRUE(0…65535):

Options: 0…65535

->Logical block output when FALSE:

Options: Invalid
Toggle
Start
Stop

->Time delay for logical block when FALSE (0…65535):

Options: 0…65535

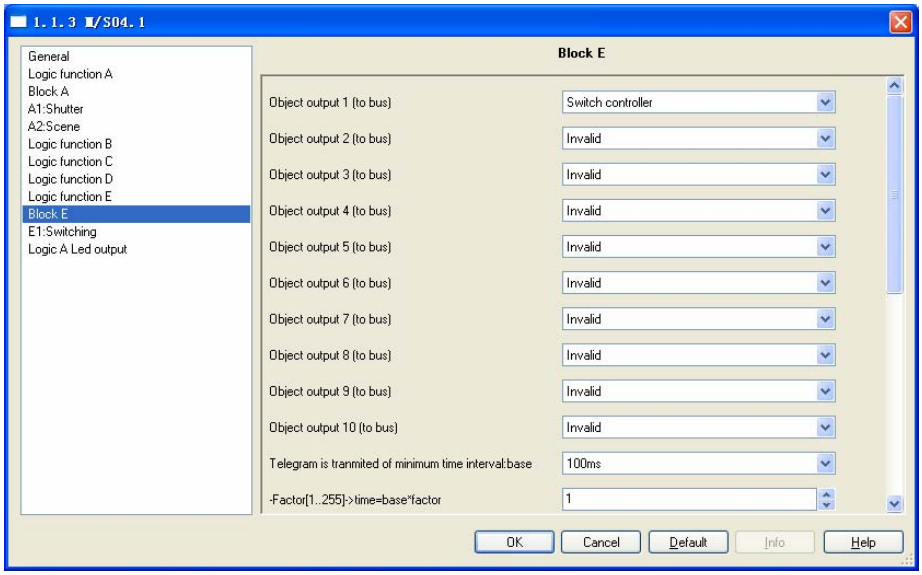


Fig25: “Block E” parameter window

3.2.3 Work mode “Dimming controller”

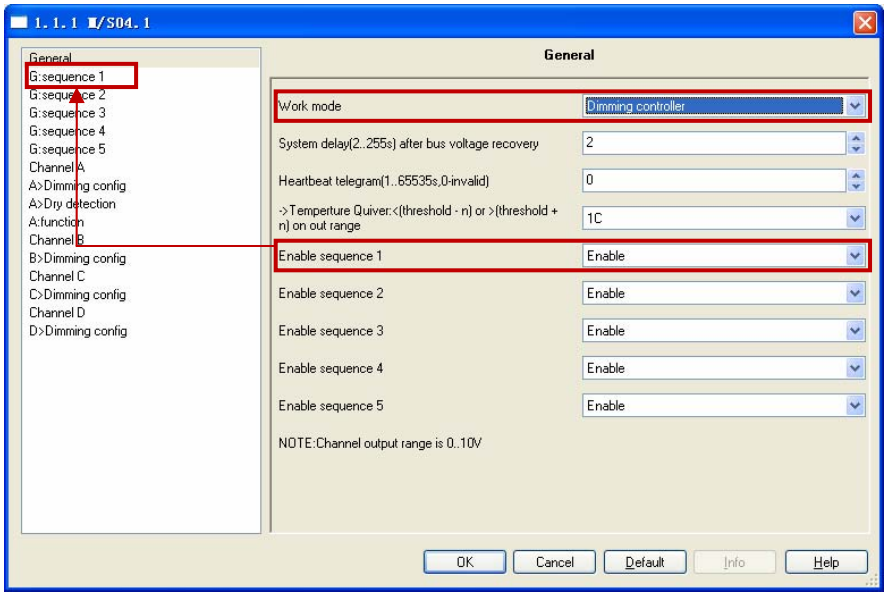


Fig26: “Dimming controller” parameter windows

--System delay (2…255s) after bus voltage recovery

The device will be delay for 2..255s after the power on. The default value is 2 seconds. The Min. value is 2 seconds, and the max. value is 255 seconds.

Options: **2…255s**

--Heartbeat telegram (1…65535s,0-invalid)

The range of the parameter is 0 to 65535s. 0 is that the function is invalid, other of parameter enable this function

Options: **0…65535s**

The parameter set to nonzero, Device will send a telegram data cyclically when time out. Send the value alternately between 0 and 1.

This function use or not decided by user.

-> Temperature Quiver: < (threshold – n) or >(threshold +n) on out range)

Temperature within the effective range, when changes in the set range, the status does not change.

When the temperature changes greater than **n**, the status will change.The quiver range beteen threshold – n and threshold or between threshold and threshold +n.

Options: 0…10C

--Enable sequence 1

Options: **Disable**

Enable

Set the enable of wequence1, if you choose Enable, you'll set some parameters as follow.

3.3.3.1 G：sequence 1

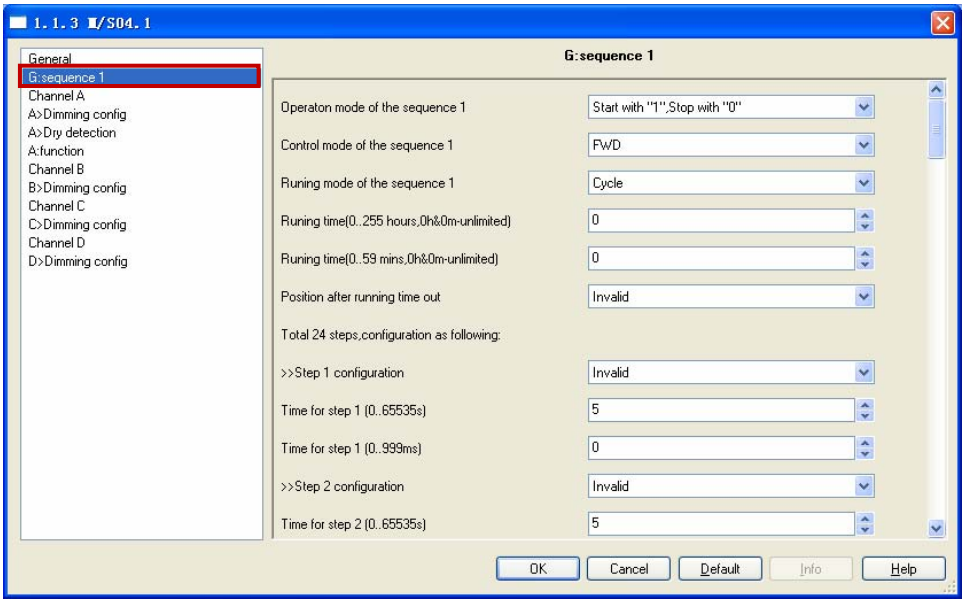


Fig27: “G: sequence 1” parameter windows

---Operation mode of the sequence 1

Set the operation mode.

Options: Start with “1”,Stop with “0”
Start with “0”,Stop with “1”
Start with “1/0”,can’t stop

Start with “1”,Stop with “0”: When receives “1”, then run sequence 1,When receives 0, then stop sequence 1.

Start with “0”, Stop with “1”: when receives 0, then run sequence 1,
When receives 1, then stop sequence 1.

Start with “1/0”,can’t stop: Both receive 1 or 0,.start the sequence 1.

---Control mode of the sequence 1

Set the control mode.

Options: FWD
REW
Random

FWD: Forward mode

REW: Back work mode

RANDOM: Random mode

---Running mode of the sequence 1

Set the running mode

Options: Single
Cycle

Single: Run only ones.

Cycle: Cycle run.

---Running time(0…255hours,0h&0m-unlimited)

Set the sequence running time .
Options: 0-255

---Running time(0…59mins, 0h&0m-unlimited)
Set the sequence running time. The longest time is 59mins.
Options: 0-59

Note: Unlimited when the time set to 0h&0m.

---Position after time out
If the sequence running in Cycle mode, and is run time greater than zero, After time out, the sequence will back to this set position.

Total 24steps, configuration as following:

---Step 1 configuration
Options: invalid
Scene NO.01
…
Scene NO.64
---Time for step 1(0…65535s)
Set the time for the step. The longest time is 65535s.
---Time for step 1(0…999ms)
Set the time for the step. The longest time is 999ms.
Set of other steps is same as the step 1.

3.2.3.2 Channel A

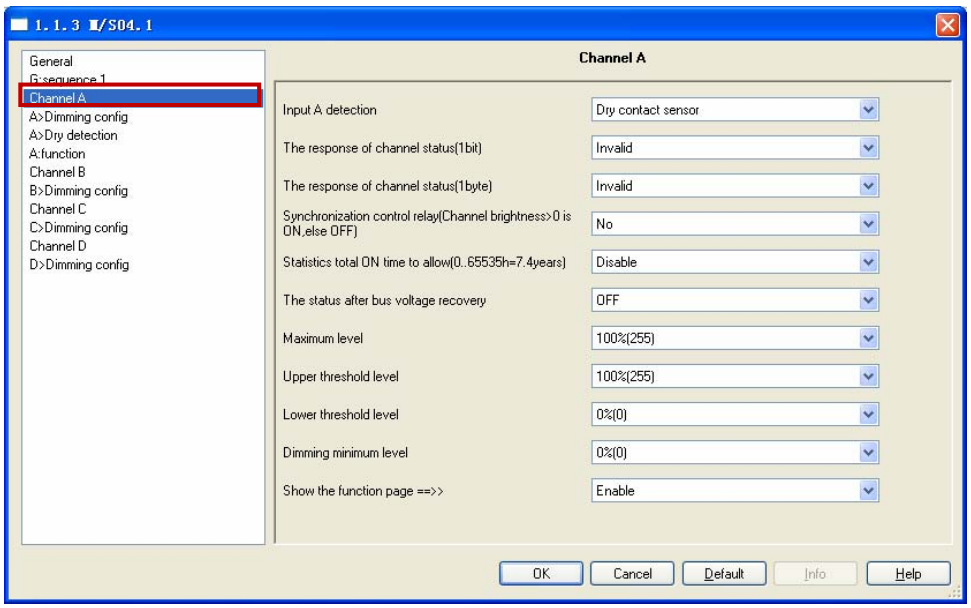


Fig28: “Channel A” parameter windows

---Input A detection

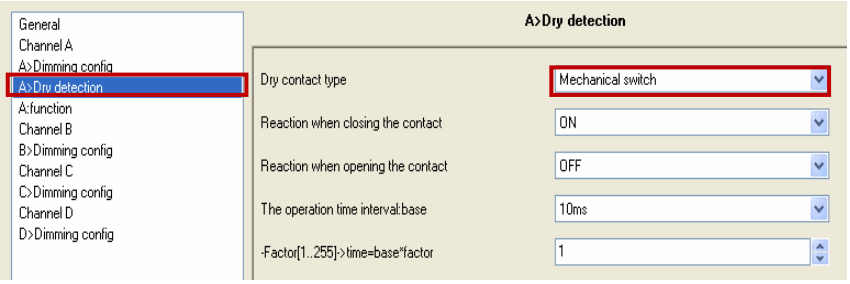
Set the input A detection's type.

Options: No detection
Dry contact sensor
Temperature sensor

No detection: Input A is invalid.

Dry contact sensor: input A is a dry contact sensor.

If you select this type, the settings below will appear.



---Dry contact type:

Options: Mechanical switch.
Electronic switch

- Mechanical **switch**

---Reaction when closing the contact

---Reaction when opening the contact

Options: Unchanged
ON
OFF
Toggle
Dim-> Brighter
Dim-> Darker
Dim-> Brighter/Darker
Dim-> Stop

Invalid: the dry contact is invalid.

Dim->Brighter: when operation the dry contact will increase brightness.

Dim->Darker: when operation the dry contact will decrease brightness.

Dim-> Brighter/Darker: when operation the dry contact will increase/decrease brightness.

Dim->Stop: when closing the dry contact will stop.

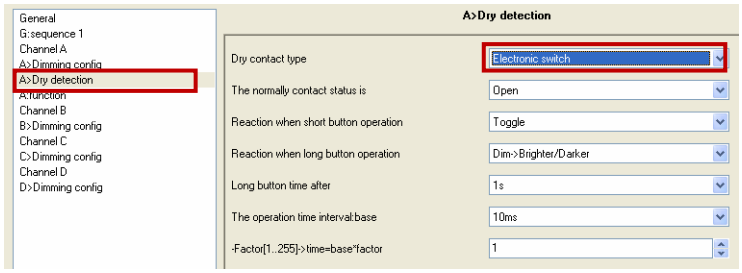
---The operation time interval: base

Factor (1…255) ->time=base*factor

These two parameters are setting the time interval of

repeat operation dry contact, the time is base*factor.
Options: 10ms, 100ms, 1sec, 1min, 1hour
Factor (1…255)->time=base*factor
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

- Electric **switch**



The dry contact type is electronic switch

---The normally contact status is
Options: Close
Open
Set the dry contact status when have no operation.
Close: the contact status is close.
Open: the contact status is open

---Reaction when short button operation
---Reaction when long button operation
Options: invalid
Unchanged
ON
OFF
Toggle
These 2 parameters are about reaction when button operation.

---Long button time after
Options: 0.2s…60s
Set the time of the long button. The range is 0.2s to 60S.

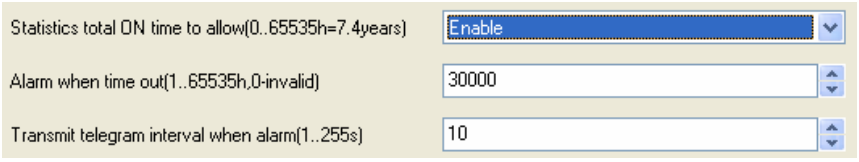
---The operation time interval: base
Options: 10ms, 100ms, 1sec, 1min, 1hour
Factor (1…255)->time=base*factor
These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.
---The response of channel status (1 bit)
Options: Invalid
1 bit always response
1 bit only changed

1 bit always response: it always response,
If the channel is ON, then response 1
If the dimmer is OFF, response 0
1 bit only changed: it will be response when the dimmer state was changed

---The response of channel status (1 byte)
Options: Invalid
1 byte always response
1 byte only changed
1 byte always response: it always response of the light level value.
1 byte only changed: it will be response when the light value was changed.

---Synchronization control relay (Channel brightness>0 is ON, else OFF)
Options: NO
YES

---Statistics total ON time to allow (0..65535h =7.4years)
This function is used to calculate the total ON time for channel output, The maximum time is 65535h. This function is very useful, Because can know channel work status through this function.
Options: Disable
Enable
Disable: don't timing.
Enable: Statistics time.



---Alarm when time out (1…65535h,0-invalid)
When the device's operating time arrive the setting value will alarm.
The value rang is 1…65535h, 0 is invalid.
---Transmit telegram interval when alarm
Set the alarm time interval.

---The status after bus voltage recovery
Set the status of restore mode after power on for each channel.

Options: OFF
Defined brightness value
Last brightness value

Off: After power on and the channel's status is off.

Defined brightness value: After power on and the channel's status is defined brightness value

Last brightness value: After power on and the channel's status is last brightness value

---Brightness value

Set the brightness vauel.

---Maximum level

Set the maximum level.

Options: 0%(0)-100%(255)

---Upper threshold level

Set the upper threshold level.

Options: 0%(0)-100%(255)

---Lower threshold level

Set the lower threshold level.

Options: 0%(0)-100%(255)

---Dimming minimum level

Set the dimming minimum level.

Options: 0%(0)-100%(255)

---Show the function page== >>

Set the enable and show the function page.

Options: Disable
Enable

Disable: Don't show the function page about dimmer.

Enable: Show the function page, the page is set the function about dimmer.

3.2.3.3 Dimming config

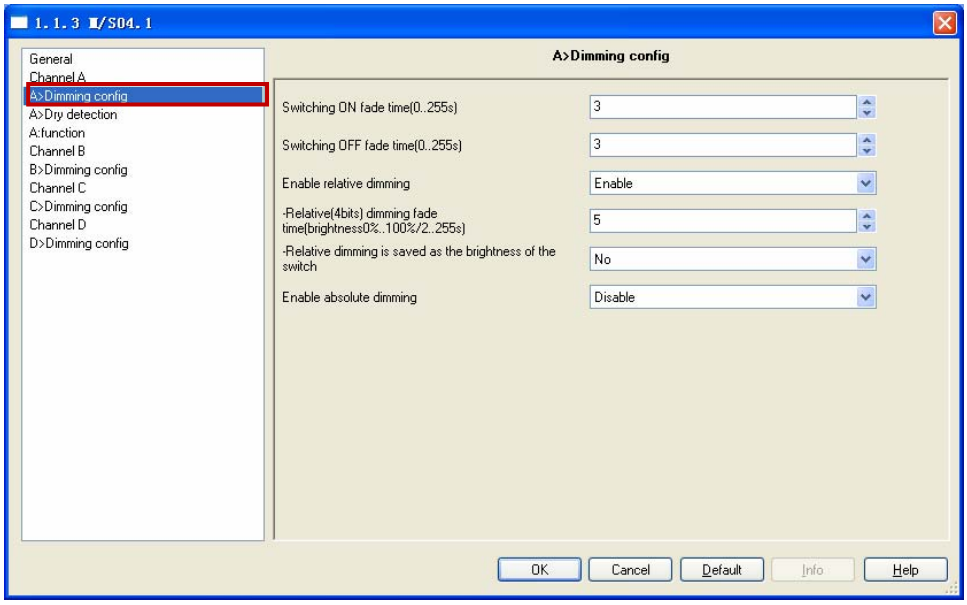


Fig29: "Dimming config" parameter windows

---Switching ON fade time(0…255s)

Set the time for switch ON.

Note: brightness0%...100%/0..255s

---Switching OFF fade time(0…255s)

Set the time for switch OFF.

Note: brightness0%...100%/0..255s

---Enable relative dimming

Options: Disable

Enable

Disable: No allow to relative dimming

Enable: Allow to relative dimming

Note: Relative dimming fade time(brightness0%...100%/0..255s),the data length is 4bits

---Enable absolute dimming

Options: Disable

Enable

Disable: No allow to absolute dimming

Enable: Allow to absolute dimming

Note: Ablolute dimming fade time (brightness0%...100%/0..255s),the data length is 1byte

3.2.3.4 A: function

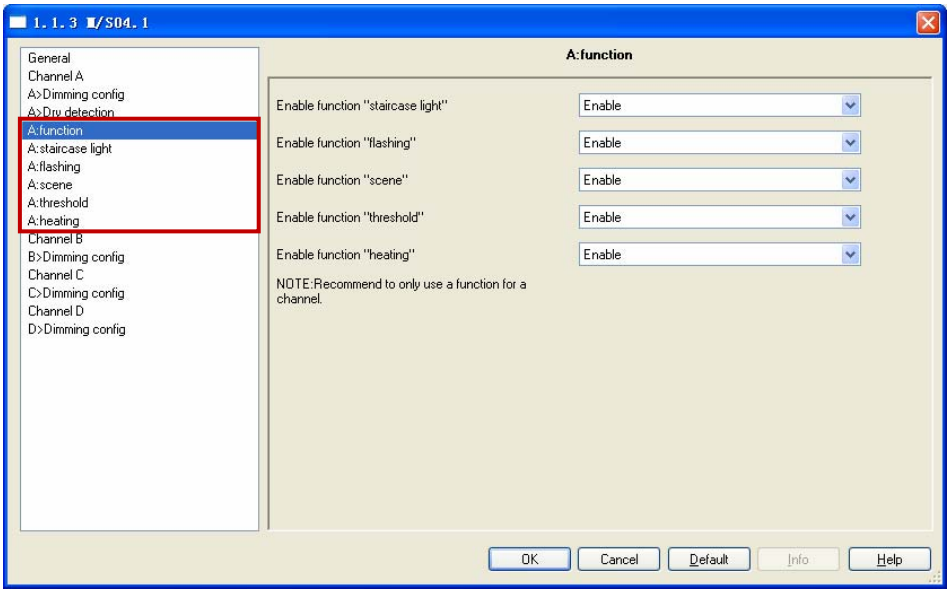


Fig30: "A:function" parameter windows

The window is set the enable for the below function.

---Enable function "staircase light"

---Enable function "flashing"

---Enable function "scene"

---Enable function "threshold"

---Enable function "heating"

➢ ***A: function "staircase light"***

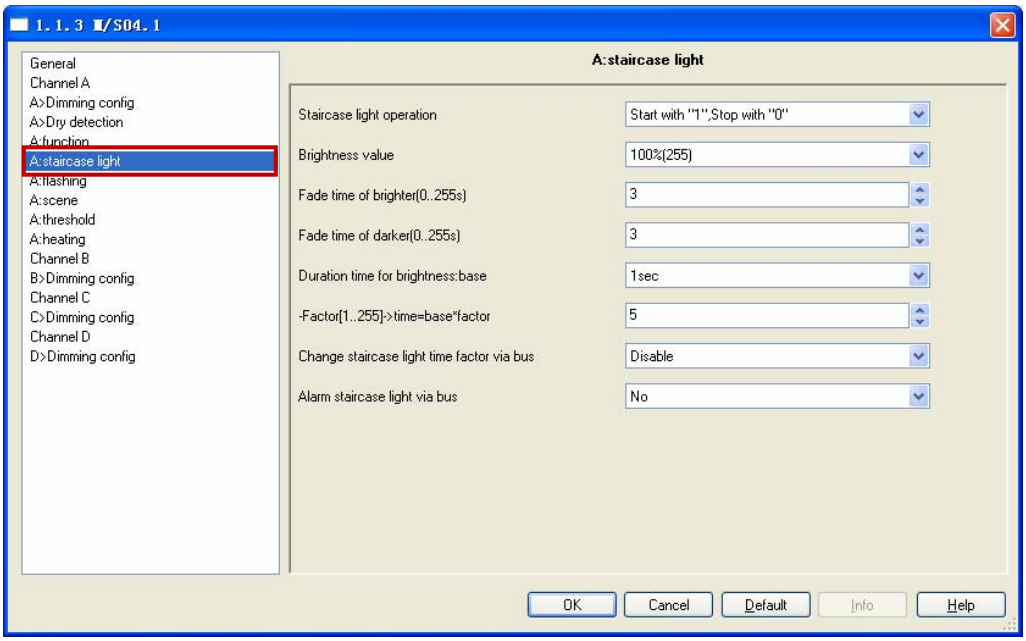


Fig30.1: "staircase light" parameter windows

For staircase application

---Staircase lighting operation

Options: Start with “1”, stop with“0”
Start with“1”, invalid with“0”
Start with“1/0”,can’t stop

Start with “1”, stop with“0”: When receive data 1 and the staircase light start run automatic, stop with time out or stop with 0.

Start with“1”, invalid with“0”: When receive data 1 and the staircase light start run automatic, 0 is invalid.

Start with“1/0”, can’t stop: When receive data 1/0 and the staircase light start run automatic, Can’t stop.

---Brightness value

Set the brightness value of staircase light.

---Fade time of brighter: (0...255s)

Fade seconds in the brighter state.

--- Fade time of darker: (0...255s)

Fade seconds in the darker state.

---Duration time for brightness: base

Duration minutes in the brightness state.

Options: 1sec, 1min, 1hour

-Factor(1..255)->time=base*factor

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

---Change staircase lighting time via bus

Options: Disable
Enable

Disable: Can’t modify staircase lighting delay off time via bus, only can be set by database.

Enable: allow modify staircase lighting delay off time via bus by user.

---Alarm staircase light via bus

Options: NO
YES

NO: Prohibition Alarm.

YES: allow alarm via bus by user.

➢ ***A: function "flashing"***

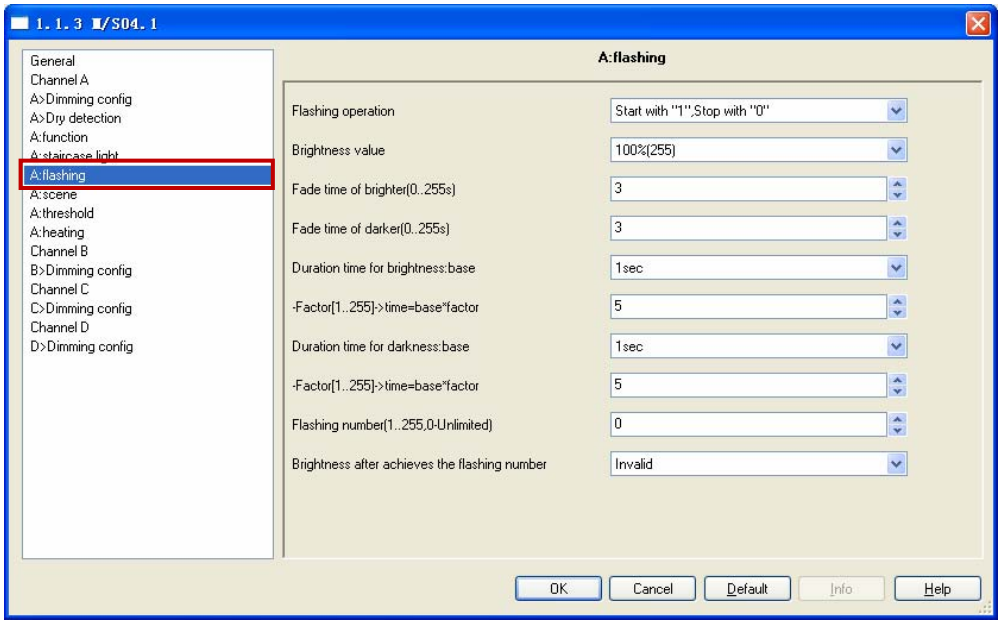


Fig30.2: "Flashing" parameter windows

Flashing between ON and OFF in this mode.

---Flashing operation

This function has three Control modes.

Options: Start with "1", stop with"0"

Start with"1", invalid with"0"

Start with"1/0",can't stop

Start with "1", stop with"0": Start flashing with 1 and stop flashing with 0.

Start with"1", invalid with"0": Start flashing with 1 and invalid with 0.

Start with"1/0",can't stop: Start flashing with 1 or 0,can't stop.

---Brightness value： 0%...100%

Set the brightness value.

---Fade time of brighter: (0...255s)

Fade seconds in the brighter state.

--- Fade time of darker: (0...255s)

Fade seconds in the darker state.

---Duration time for brightness: base

Duration minutes in the brightness state.

Options: 1sec, 1min, 1hour

-Factor(1..255)->time=base*factor

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

---Duration time for darkness: base

Duration minutes in the darkness state.

Options: 1sec, 1min, 1hour

-Factor(1..255)->time=base*factor

These two parameters are setting the time interval of repeat operation dry contact, the time is base*factor.

---Duration time for darkness: (0...255 Min)

Duration minutes in the darkness state.

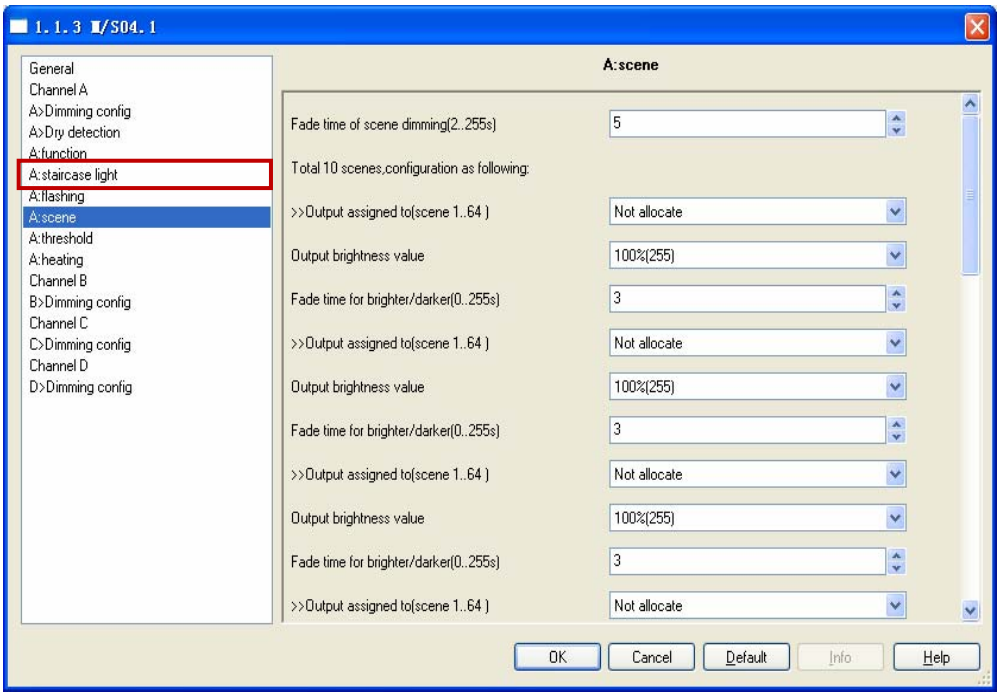
---Flashing number (0...255, 0-Unlimited)

The number of flashing, range between 0 and 255. 0 is unlimited.

---Brightness after achieves the flashing number

Set the brightness after achieves the flashing number, the range is 0%(0)…100% (255).

➢ ***A: function "scene"***



---Fade time of scene dimming: (0...255s)

Fade seconds in the brighter state.

Total 10 scenes, configuration as following, the setting like below.

Eace scene is same **as following:**

--->>Output assigned to(scene 1..64)

Allocate the scene.

---Output brightness value

Set the output brightness value 0%..100%

---Fade time for brighter/darker (0…255s)

Set the time for brighter or darker.

➢ ***A: function "threshold"***

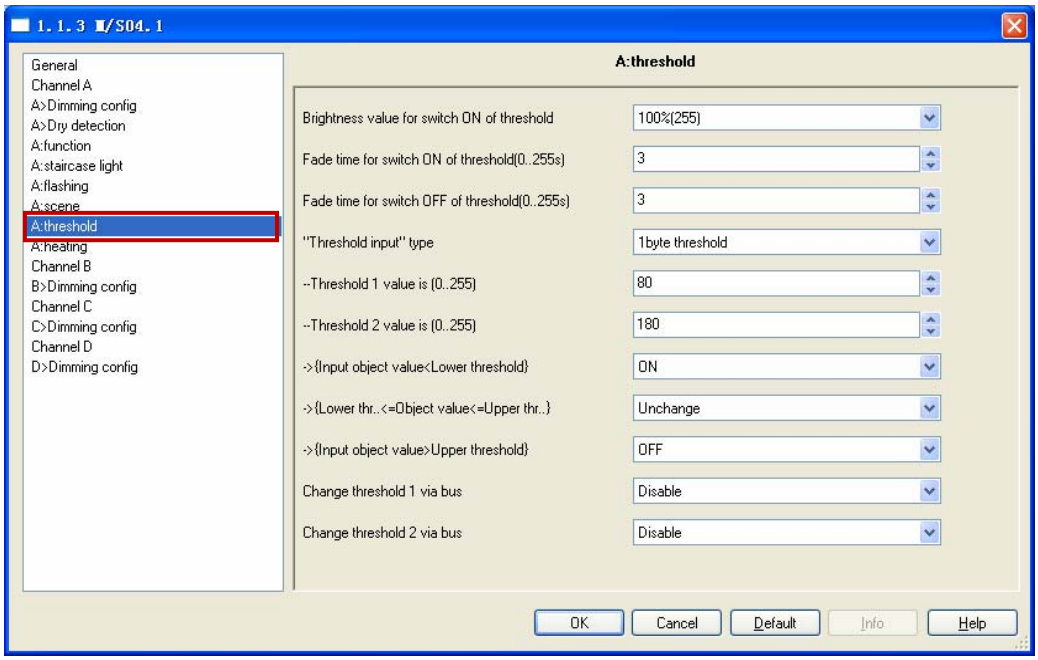


Fig30.4: "Threshold" parameter windows

---Brightness value for switch ON of threshold

Config the brightness for the switch ON

---Fade time for switch ON of threshold (0…255s)

Config the time for switch ON

---Fade time for switch OFF of threshold (0…255s)

Config the time for switch OFF

---Threshold input type

Options: 1 byte threshold

2 bytes threshold

Set the type of threshold input.

---Threshold 1 value is (0…255)

Set threshold 1 value between 0 and 255. Default is 80.

---Threshold 2 value is (0…255)

Set threshold 2 value between 0 and 255. Default is 180.

---Input object value<Lower threshold

If the value of receiving telegram from bus lower than the minimum threshold value, the switch will action according to below option (ON or OFF or no Unchange)

Options: Unchange
ON
OFF

Unchange: The channel switch position no changed.
ON: The channel switch position set to ON.
OFF: The channel switch position set to OFF

---Lower threshold<=Input value<=Upper threshold

If the value of receiving telegram from bus between Lower threshold and Upper threshold, the switch will action according to below option (ON or OFF or no action)

Options: **Unchange**
ON
OFF

Unchange: The channel switch position no changed.
ON: The channel switch position set to ON.
OFF: The channel switch position set to OFF

---Input value>Upper threshold

If the value of receiving telegram from bus more than the upper threshold value, the switch will action according to below option (ON or OFF or no action)

Options: Unchange
ON
OFF

Unchange: The channel switch position no changed.
ON: The channel switch position set to ON.
OFF: The channel switch position set to OFF

---Change threshold 1 via bus

Options: Disable
Enable

Disable:No allow to change the threshold 1 value from bus.

Enable:Allow to change the threshold 1 value from bus.

---Change threshold 2 via bus

Options: **Disable**
Enable

Disable:No allow to change the threshold 2 value from bus.

Enable:Allow to change the threshold 2 value from bus.

- ***A: function "heating"***

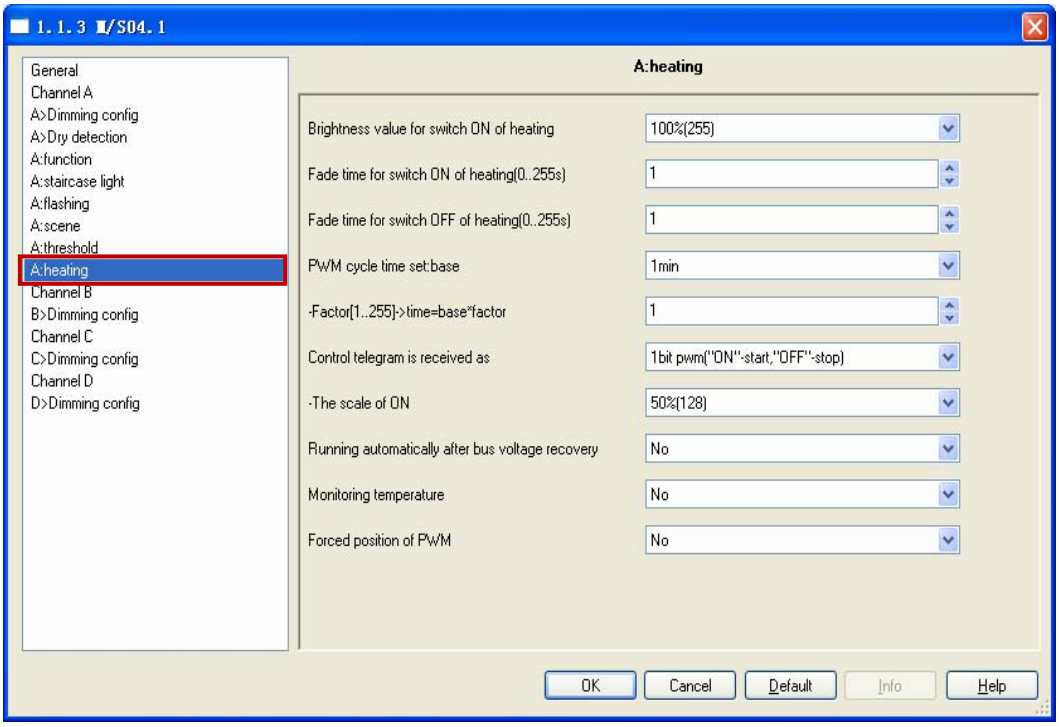


Fig30.5: "heating" parameter windows

---Brightness value for switch ON of heating

Config the brightness for the switch ON

---Fade time for switch ON of heating (0…255s)

Config the time for swich ON

---Fade time for switch OFF of heating (0…255s)

Config the time for swich **OFF**

---PWM cycle time set: base

Options**:** 1sec, 1min, 1hour

-Factor(1..255)->time=base*factor

These two parameters are setting the PWM cycle time of repeat operation dry contact, the time is base*factor.

---Control telegram is received as

Type of control can be control as 1bit or 1byte.

Options: **1bit PWM(1-start/0-stop)**

1byte(255-switch ON/0-switch OFF/ other valve)

1bit PWM(1-start/0-stop): The PWM start and switch ON by the value of receiving telegram “1” , and stop by “0”.

1byte(255-ON/0-OFF/other valve): the switch ON always by the value of receiving telegram “255”, the switch OFF by the value of receiving telegram “0”. The PWM runs and pulse width of PWM is set according to the value of receiving telegram (1 to 254)

---The scale of ON

This parameter will set the valve of the PWM (pulse width).

Options: 0%(OFF)
10%(26)
20%(51)
30%(77)
40%(102)
50%(128)
60%(153)
70%(179)
80%(204)
90%(230)
100%(ON)

--- Running automatically after bus voltage recovery

The PWM runs automatic by the setting YES, The PWM runs by manual when set to NO.

Options: NO
YES

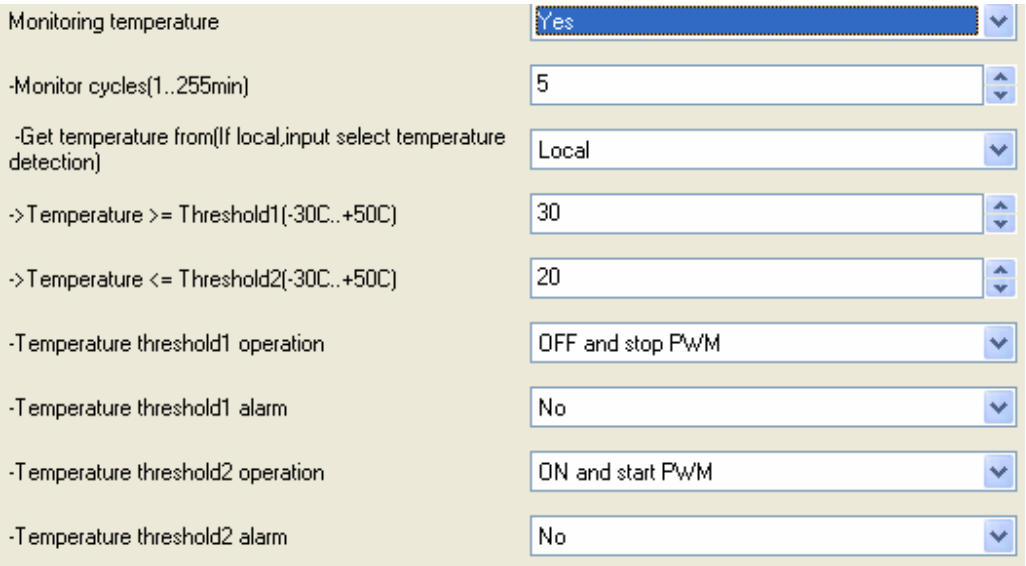
YES: PWM running automatic at power on.
NO: PWM running by manual.

--- Monitoring temperature

It will monitor temperature by the setting YES, it will not monitoring temperature when set to NO.

Options: **NO**

YES



--- Forced position of PWM

Options: **NO**

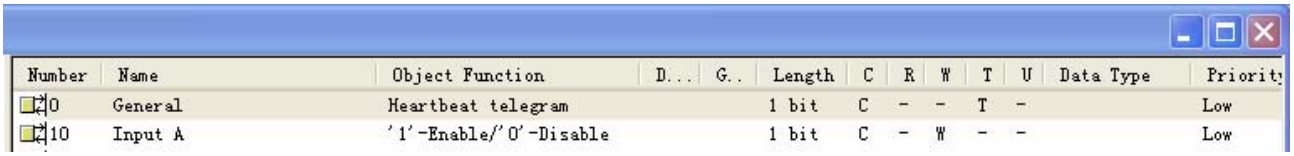
YES

4- Communication objects description

In this section will introduce the communication objects, The objects will show by setting the function enable.

4.1 Sensor controller

4.1.1 Objects “General” and Enable of “Input A”

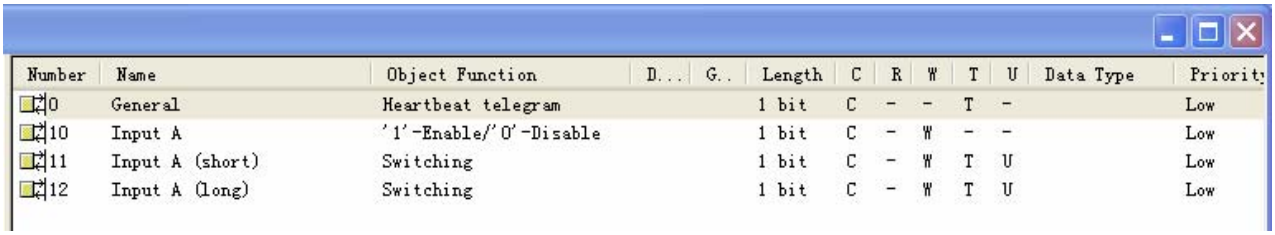


NO.	Object name	Function	Flags	Data type
0	General	Heartbeat telegram	C T	DPT 1.003 1bit
This communication object is always active and valid. Invert the value send telegram to bus in next frame. e.g. last telegram value is “1”, the next telegram value is “0”				
10	Input A	1-Enable,/0-disabel	C W	DPT 1.003 1bit
This communication object is set the enable of input A. when receive the telegram 1,the input function is enable, when received the telegram 0 ,the function is disable.				

4.1.2 Dry contact sensor

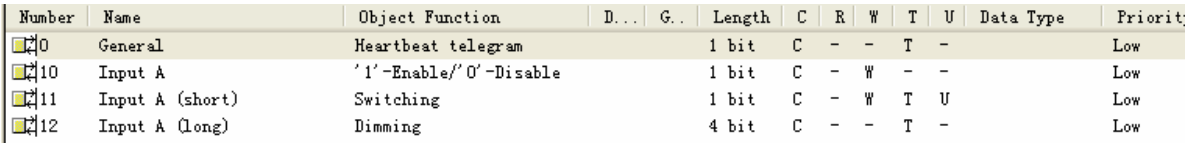
NOTE: Input A has 12 kinds of functions and dry contact has 2 work types, this manual is take Electronic switch for example.

- Objects “Switch controller”



NO.	Object name	Function	Flags	Data type
11	Input A(short)	switching	C W T U	DPT 1.001 1bit
12	Input A(long)	switching	C W T U	DPT 1.001 1bit
These communication objects are switch controller, when operation dry contact A will send value to BUS, then control switch.				

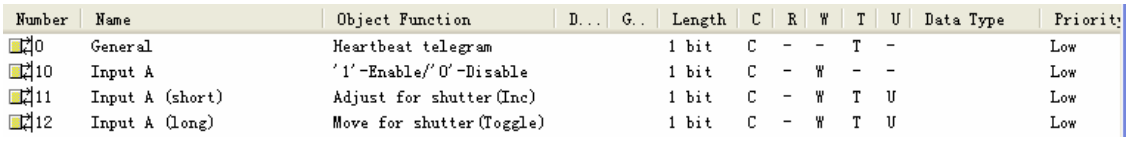
- Objects “Switch/Dimming controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Switching			1 bit	C	-	W	T	U		Low
12	Input A (long)	Dimming			4 bit	C	-	-	T	-		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Switching	C W T U	DPT 1.001 1 bit
12	Input A(long)	Dimming	C T	DPT 3.007 4 bit
These communication objects used for switch control and relative dimming control, when operation dry contact A will send value to BUS, then control switch or relative dimming.				

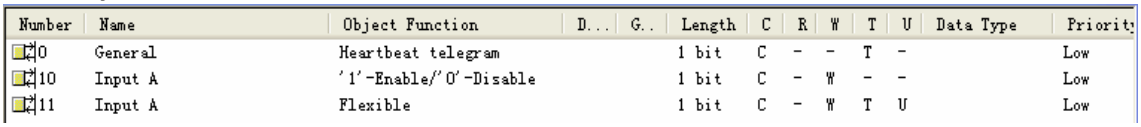
- Objects “shutter controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Adjust for shutter(Inc)			1 bit	C	-	W	T	U		Low
12	Input A (long)	Move for shutter(Toggle)			1 bit	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Adjust for shutter(Inc)	C W T U	DPT 1.007 1 bit
12	Input A(long)	Move for shutter(Toggle)	C W T U	DPT 1.007 1 bit
These communication objects used for shutter control, when close or opened the dry contact will send the value to BUS, then control shutter.				

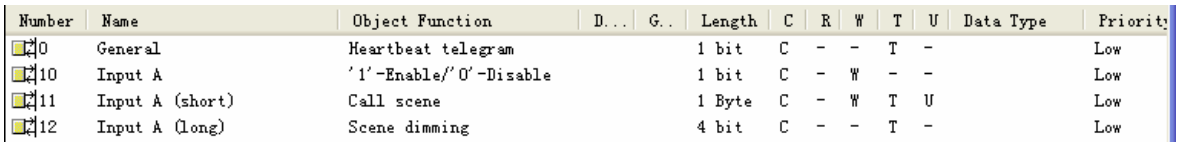
- Objects “Flexible controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A	Flexible			1 bit	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A	Flexible	C W T U	DPT 1.001 1 bit
This communication object used for flexible control, when control the dry contact will sends the value “1”or“0” to BUS, then can flexible control.				

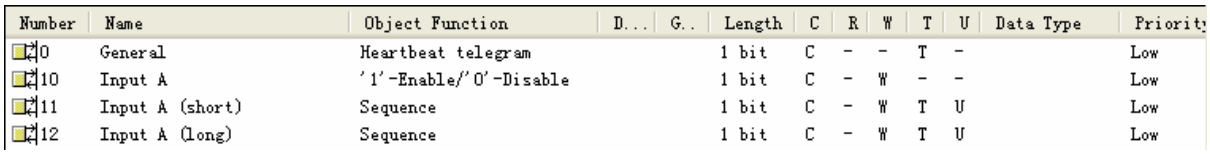
- Objects “scene controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Call scene			1 Byte	C	-	W	T	U		Low
12	Input A (long)	Scene dimming			4 bit	C	-	-	T	-		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Call scene	C W T U	DPT 18.001 1 byte
12	Input A(long)	Scene dimming	C T	DPT 3.007 4 bit
This communication object used for scene control, when short or long operation the dry contact will call scene or scene dimming.				

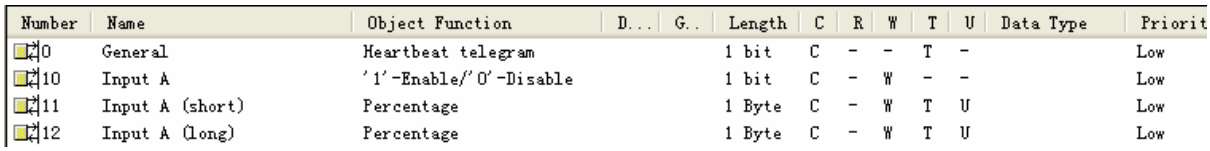
- Objects “sequence controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Sequence			1 bit	C	-	W	T	U		Low
12	Input A (long)	Sequence			1 bit	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Sequence	C W T U	DPT 1.010 1 bit
12	Input A(long)	Sequence		
This communication object used for sequence control, when short or long operation the dry contact will sends the value to BUS, then control sequence.				

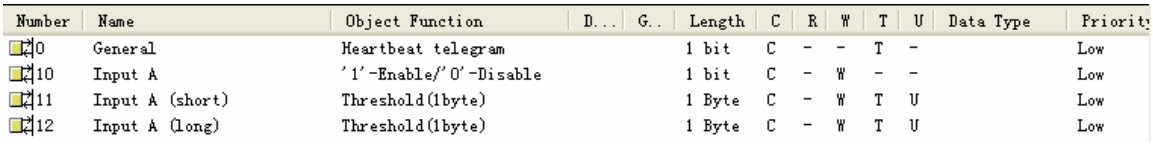
- Objects “Percentage controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Percentage			1 Byte	C	-	W	T	U		Low
12	Input A (long)	Percentage			1 Byte	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Percentage	C W T U	DPT 5.001 1 byte
12	Input A(long)	percentage		
This communication object used for percentage control, when short or long operation the dry contact will sends the value to BUS, then percentage control.				

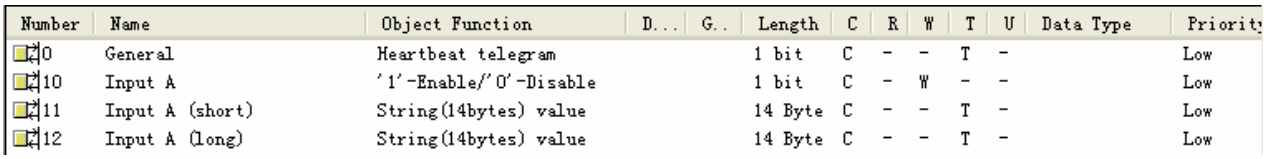
- Objects “Threshold controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	Threshold(1byte)			1 Byte	C	-	W	T	U		Low
12	Input A (long)	Threshold(1byte)			1 Byte	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Threshold (1bytes)	C W T U	DPT 5.004 1 bytes
12	Input A(long)	Threshold (1byte)	C W T U	DPT 7.001 1 byte
This communication object used for threshold control, when short or long operation the dry contact will sends the value to BUS, then control threshold.				

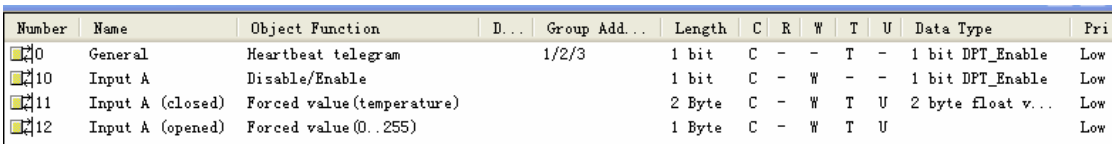
- Objects “String(14bytes)controller”



Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A (short)	String(14bytes) value			14 Byte	C	-	-	T	-		Low
12	Input A (long)	String(14bytes) value			14 Byte	C	-	-	T	-		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	String(14 bytes)value	C T	DPT 16.000 14 bytes
12	Input A(long)	String(14 bytes)value	C T	DPT16.000 14 byte
This communication object used for string control, when short or long operation the dry contact will sends the value to BUS.				

- Objects “Forced position controller”



Number	Name	Object Function	D...	Group Add...	Length	C	R	W	T	U	Data Type	Pri
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Disable/Enable			1 bit	C	-	W	-	-	1 bit DPT_Enable	Low
11	Input A (closed)	Forced value(temperature)			2 Byte	C	-	W	T	U	2 byte float v...	Low
12	Input A (opened)	Forced value(0..255)			1 Byte	C	-	W	T	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	Forced value (temperature)	C W T U	DPT 5.004 2 bytes
12	Input A(long)	Forced value (0…255)	C W T U	DPT 7.001 1 byte
This communication object used for forced value control, when short or long				

operation the dry contact will sends the value to BUS, then forced value control.

- Objects “Counter controller”

Number	Name	Object Function	D...	G..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram			1 bit	C	-	-	T	-		Low
10	Input A	'1'-Enable/'0'-Disable			1 bit	C	-	W	-	-		Low
11	Input A	Counter(0..255)			1 Byte	C	-	W	T	U		Low
12	Input A	Set counter end(0..255)			1 Byte	C	-	W	-	U		Low
13	Input A	Set counter(0..255)			1 Byte	C	-	W	-	U		Low

NO.	Object name	Function	Flags	Data type
11	Input A	Counter (0…255)	C W T U	DPT 5.004 1 byte
12	Input A	Set counter end(0…255)	C W U	DPT 5.004 1 byte
13	Input A	Set counter (0…255)	C W U	DPT 5.004 1 byte
This communication object used for send the pulse counter.				

- Objects “Combination controller”

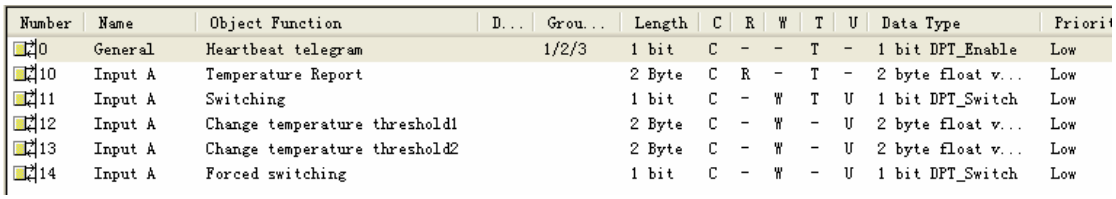
Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
10	Input A	Disable/Enable			1 bit	C	-	W	-	-	1 bit DPT_Enable	Low
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
11	Input A (closed)	COMB OBJ1 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
12	Input A (closed)	COMB OBJ2 shutter			1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
13	Input A (closed)	COMB OBJ3 scene			1 Byte	C	-	-	T	-		Low
14	Input A (closed)	COMB OBJ4 sequence			1 bit	C	-	-	T	-	1 bit DPT_Start	Low
15	Input A (closed)	COMB OBJ5 percentage			1 Byte	C	-	-	T	-	8 bit unsigned...	Low
16	Input A (closed)	COMB OBJ6 threshol...			1 Byte	C	-	-	T	-		Low
17	Input A (closed)	COMB OBJ7 String(1...			14 Byte	C	-	-	T	-	Character string	Low
18	Input A (closed)	COMB OBJ8 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
19	Input A (closed)	COMB OBJ9 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
20	Input A (closed)	COMB OBJ10 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
21	Input A (opened)	COMB OBJ1 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
22	Input A (opened)	COMB OBJ2 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
23	Input A (opened)	COMB OBJ3 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
24	Input A (opened)	COMB OBJ4 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
25	Input A (opened)	COMB OBJ5 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
26	Input A (opened)	COMB OBJ6 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
27	Input A (opened)	COMB OBJ7 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
28	Input A (opened)	COMB OBJ8 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
29	Input A (opened)	COMB OBJ9 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
30	Input A (opened)	COMB OBJ10 switching			1 bit	C	-	-	T	-	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A(short)	COMB OBJ1 switching	C T	DPT 1.001 1 bit
...		COMB OBJ1 shutter	C T	DPT 1.008 1 bit

20		COMB OBJ1 scene	C T	DPT 18.001 1 byte
		COMB OBJ1 sequence	C T	DPT 1.010 1 bit
		COMB OBJ1 percentage	C T	DPT 5.001 1 byte
		COMB OBJ1 Threshold(0…255)	C T	DPT 5.004 1 byte
		COMB OBJ1 Threshold(0…65535)	C T	DPT 7.001 2 byte
		COMB OBJ1 String (14 bytes)	C T	DPT 16.000 14 byte
These communication objects used for combination control, it contains switch, shutter, scene, sequence, percentage, threshold, string(14 bytes) controller, when short operation the dry contact, it will send the value to the BUS, then control other devices.				
21 ... 30	Input A(long)	COMB OBJ1 switching	C T	DPT 1.001 1 bit
		COMB OBJ1 shutter	C T	DPT 1.008 1 bit
		COMB OBJ1 scene	C T	DPT 18.001 1 byte
		COMB OBJ1 sequence	C T	DPT 1.010 1 bit
		COMB OBJ1 percentage		DPT 5.001 1 byte
		COMB OBJ1 Threshold(0…255)	C T	DPT 5.004 1 byte
		COMB OBJ1 Threshold(0…65535)	C T	DPT 7.001 2 byte
		COMB OBJ1 String (14 bytes)	C T	DPT 16.000 14 byte
These communication objects used for combination control, it contains switch, shutter, scene, sequence, percentage, threshold, string(14 bytes) controller, when long operation the dry contact, it will send the value to the BUS, then control other devices.				

4.1.3 Temperature sensor

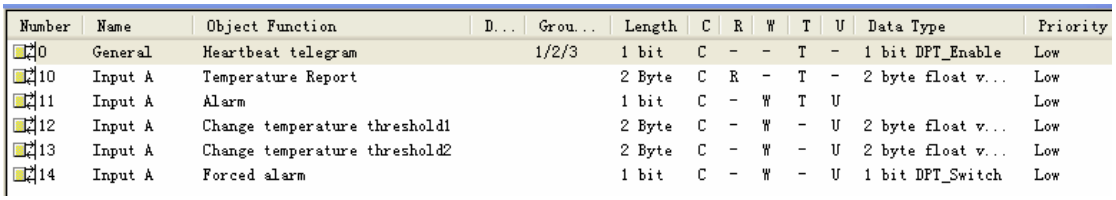
- Objects “Switch controller”



Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priorit
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Switching			1 bit	C	-	W	T	U	1 bit DPT_Switch	Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced switching			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Switching	C W T U	DPT 1.001 1 bit
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced switching	C W U	DPT 9.001 1 bit
These communication objects used for switch control, when operation the dry contact will switch control or change temperature threshold.				

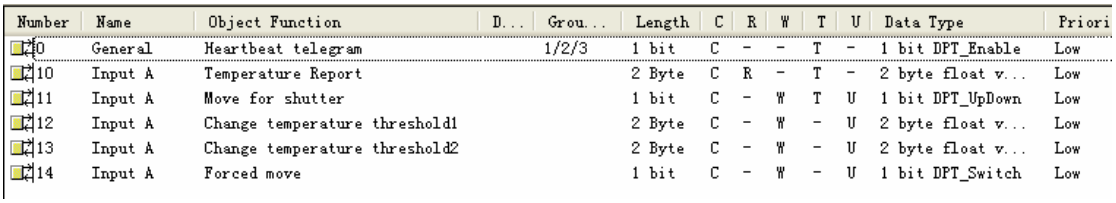
- Objects “Alarm controller”



Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Alarm			1 bit	C	-	W	T	U		Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced alarm			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Alarm	C W T U	DPT 1.005 1 bit
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced alarm	C W U	DPT 1.001 1 bit
These communications object used for alarm control, when operation the dry contact will alarm or change temperature threshold.				

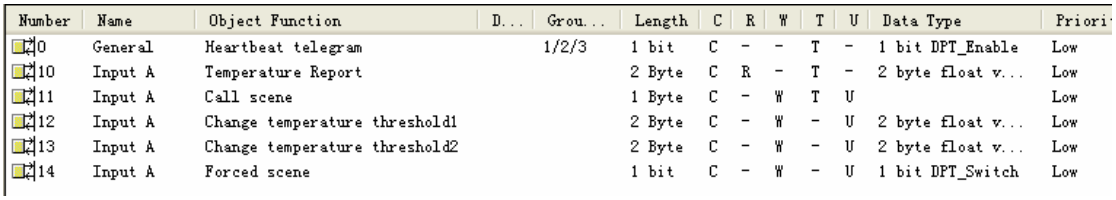
- Objects “shutter controller”



Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priori
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Move for shutter			1 bit	C	-	W	T	U	1 bit DPT_UpDown	Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced move			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Move for shutter	C W T U	DPT 1.008 1 bit
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced move	C W U	DPT 1.001 1 bit
These communication objects used for shutter control, when operation the dry contact will move for shutter or change temperature threshold.				

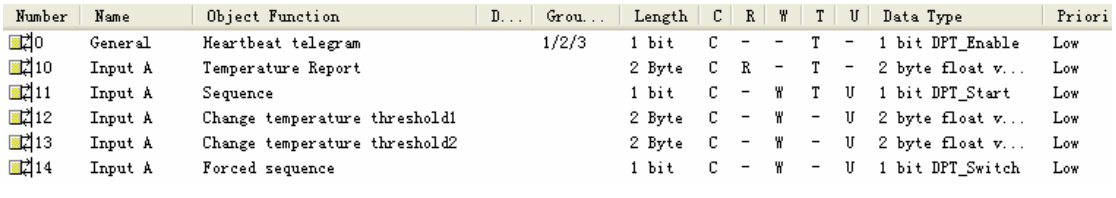
- Objects “Scene controller”



Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priori
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Call scene			1 Byte	C	-	W	T	U		Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced scene			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Call scene	C W T U	DPT 18.001 1 bit
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced scene	C W U	DPT 1.001 1 bit
These communication objects used for scene control, when operation the dry contact will call scene or change temperature threshold.				

- Objects “sequence controller”



Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priori
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Sequence			1 bit	C	-	W	T	U	1 bit DPT_Start	Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced sequence			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Sequence	C W T U	DPT 1.010 1 bit
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced sequence	C W U	DPT 1.001 1 bit
These communication objects used for sequence control, when operation the dry contact will sequence control or change temperature threshold.				

- Objects “Percentage controller”

Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Percentage			1 Byte	C	-	W	T	U	8 bit unsigned...	Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced percentage			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	Percentage	C W T U	DPT 5.001 1 byte
12 13	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced percentage	C W U	DPT 1.001 1 bit
These communication objects used for percentage control, when operation the dry contact will control percentage or change temperature threshold.				

- Objects “Threshold controller”

Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A...	Threshold value(1byte)			1 Byte	C	-	W	T	U		Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced threshold value			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type

11	Input A	Threshold value(1 byte)	C W T U	DPT 5.001 1 byte
12 **13**	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced threshold value	C W U	DPT 1.001 1 bit
These communication objects used for threshold value control, when operation the dry contact will threshold control or change temperature threshold.				

- Objects “String(14bytes)controller”

Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	String(14bytes) value			14 Byte	C	-	-	T	-	Character stri...	Low
12	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Forced string			1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11	Input A	String(14bytes) value	C W T U	DPT 16.000 1 byte
12 **13**	Input A	Change temperature threshold 1/2	C W U	DPT 9.001 2 byte
14	Input A	Forced string	C W U	DPT 1.001 1 bit
These communication objects used for string control, when operation the dry contact will control string or change temperature threshold.				

- Objects “Forced position controller”

Number	Name	Object Function	D...	Grou...	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1/2/3	1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report			2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A...	Forced value(2bits)			2 bit	C	-	W	T	U	1 bit controll...	Low
12	Input A...	Forced value(2bits)			2 bit	C	-	W	T	U	1 bit controll...	Low
13	Input A	Change temperature threshold1			2 Byte	C	-	W	-	U	2 byte float v...	Low
14	Input A	Change temperature threshold2			2 Byte	C	-	W	-	U	2 byte float v...	Low

NO.	Object name	Function	Flags	Data type
11	Input A (in range/TEMP THR1)/ (out	Forced value(2 bits)	C W U	DPT 2.001 2 bit

12	range/TEMP THR1)			
13 **14**	Input A	Change temperature threshold 1/2	C W U	DPT 1.001 1 bit
These communications object used for scene control, when operation the dry contact will call scene or change temperature threshold.				

- Objects “Combination controller”

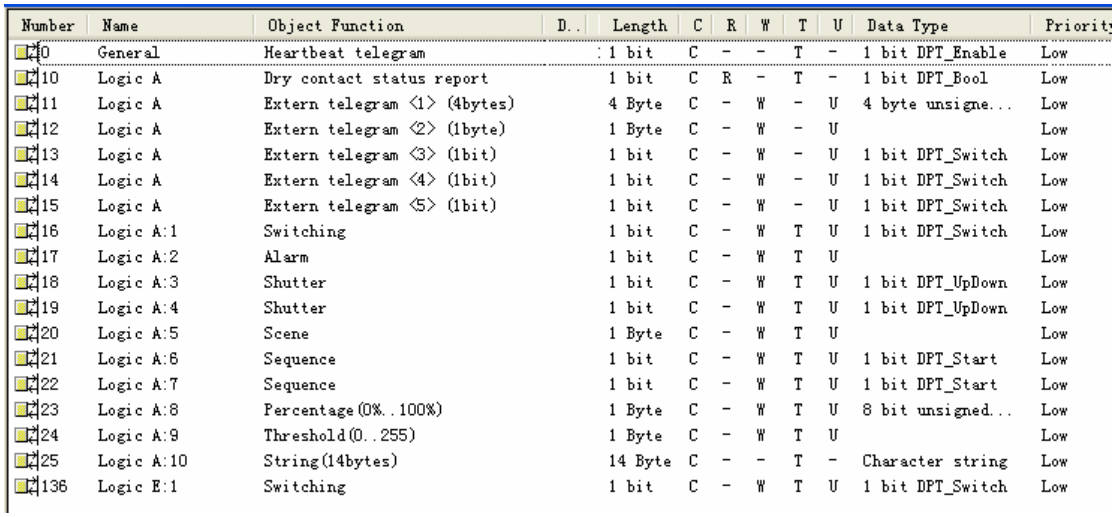
Number	Name	Object Function	D...	Length	C	R	W	T	U	Data Type	Pri
0	General	Heartbeat telegram		1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Input A	Temperature Report		2 Byte	C	R	-	T	-	2 byte float v...	Low
11	Input A	Change temperature thres...		2 Byte	C	-	W	-	U	2 byte float v...	Low
12	Input A	Change temperature thres...		2 Byte	C	-	W	-	U	2 byte float v...	Low
13	Input A (in range/TEMP THR1)	COMB OBJ1 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
14	Input A (in range/TEMP THR1)	COMB OBJ2 alarm		1 bit	C	-	-	T	-		Low
15	Input A (in range/TEMP THR1)	COMB OBJ3 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
16	Input A (in range/TEMP THR1)	COMB OBJ4 scene		1 Byte	C	-	-	T	-		Low
17	Input A (in range/TEMP THR1)	COMB OBJ5 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
18	Input A (in range/TEMP THR1)	COMB OBJ6 threshold(0..255)		1 Byte	C	-	-	T	-		Low
19	Input A (in range/TEMP THR1)	COMB OBJ7 String(14bytes)		14 Byte	C	-	-	T	-	Character string	Low
20	Input A (in range/TEMP THR1)	COMB OBJ8 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
21	Input A (in range/TEMP THR1)	COMB OBJ9 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
22	Input A (in range/TEMP THR1)	COMB OBJ10 scene		1 Byte	C	-	-	T	-		Low
23	Input A (out range/TEMP THR2)	COMB OBJ1 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
24	Input A (out range/TEMP THR2)	COMB OBJ2 alarm		1 bit	C	-	-	T	-		Low
25	Input A (out range/TEMP THR2)	COMB OBJ3 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
26	Input A (out range/TEMP THR2)	COMB OBJ4 scene		1 Byte	C	-	-	T	-		Low
27	Input A (out range/TEMP THR2)	COMB OBJ5 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
28	Input A (out range/TEMP THR2)	COMB OBJ6 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
29	Input A (out range/TEMP THR2)	COMB OBJ7 percentage		1 Byte	C	-	-	T	-	8 bit unsigned...	Low
30	Input A (out range/TEMP THR2)	COMB OBJ8 threshold(0..255)		1 Byte	C	-	-	T	-		Low
31	Input A (out range/TEMP THR2)	COMB OBJ9 String(14bytes)		14 Byte	C	-	-	T	-	Character stri...	Low
32	Input A (out range/TEMP THR2)	COMB OBJ10 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
11 **12**	Input A	Change temperature thres1/2	C W U	DPT 9.001 2byte
13 **…** **22**	Input A(in range/TEMP THR1)	COMB OBJ1 switching	C T	DPT 1.001 1 bit
		COMB OBJ1 alarm	C T	DPT 1.005 1 bit
		COMB OBJ1 shutter	C T	DPT 1.008 1 bit
		COMB OBJ1 scene	C T	DPT 18.001 1 byte
		COMB OBJ1 sequence	C T	DPT 1.010 1 bit
		COMB OBJ1 percentage	C T	DPT 5.001 1 byte

		COMB OBJ1 Threshold(0…255)	C T	DPT 5.004 1 byte
		COMB OBJ1 Threshold(0…65535)	C T	DPT 7.001 2 byte
		COMB OBJ1 String (14 bytes)	C T	DPT 16.000 14 byte
These communication objects used for combination control, it contains switch, shutter, scene, sequence, percentage, threshold, string(14 bytes) controller, when operation the dry contact, it will send the value to the BUS, then control other devices.				
21 ... 30	Input A(out range/TEMP THR2)	COMB OBJ1 switching	C T	DPT 1.001 1 bit
		COMB OBJ1 alarm	C T	DPT 1.005 1 bit
		COMB OBJ1 shutter	C T	DPT 1.008 1 bit
		COMB OBJ1 scene	C T	DPT 18.001 1 byte
		COMB OBJ1 sequence	C T	DPT 1.010 1 bit
		COMB OBJ1 percentage	C T	DPT 5.001 1 byte
		COMB OBJ1 Threshold(0…255)	C T	DPT 5.004 1 byte
		COMB OBJ1 Threshold(0…65535)	C T	DPT 7.001 2 byte
These communication objects used for combination control, it contains switch, shutter, scene, sequence, percentage, threshold, string(14 bytes) controller, when operation the dry contact, it will send the value to the BUS, then control other devices.				

4.2 Logical controller

4.2.1 Logical function A and block A



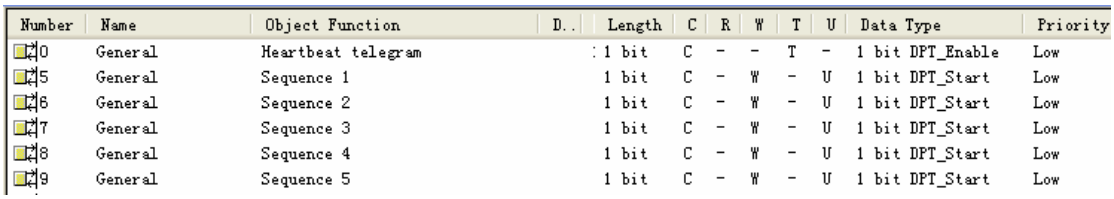
Number	Name	Object Function	D..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Logic A	Dry contact status report		1 bit	C	R	-	T	-	1 bit DPT_Bool	Low
11	Logic A	Extern telegram <1> (4bytes)		4 Byte	C	-	W	-	U	4 byte unsigne...	Low
12	Logic A	Extern telegram <2> (1byte)		1 Byte	C	-	W	-	U		Low
13	Logic A	Extern telegram <3> (1bit)		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
14	Logic A	Extern telegram <4> (1bit)		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
15	Logic A	Extern telegram <5> (1bit)		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
16	Logic A:1	Switching		1 bit	C	-	W	T	U	1 bit DPT_Switch	Low
17	Logic A:2	Alarm		1 bit	C	-	W	T	U		Low
18	Logic A:3	Shutter		1 bit	C	-	W	T	U	1 bit DPT_UpDown	Low
19	Logic A:4	Shutter		1 bit	C	-	W	T	U	1 bit DPT_UpDown	Low
20	Logic A:5	Scene		1 Byte	C	-	W	T	U		Low
21	Logic A:6	Sequence		1 bit	C	-	W	T	U	1 bit DPT_Start	Low
22	Logic A:7	Sequence		1 bit	C	-	W	T	U	1 bit DPT_Start	Low
23	Logic A:8	Percentage (0%..100%)		1 Byte	C	-	W	T	U	8 bit unsigned...	Low
24	Logic A:9	Threshold (0..255)		1 Byte	C	-	W	T	U		Low
25	Logic A:10	String(14bytes)		14 Byte	C	-	-	T	-	Character string	Low
136	Logic E:1	Switching		1 bit	C	-	W	T	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags	Data type
10	Logic A	Dry contact status report	C R T	DPT 1.002 1 bit
This communication object used for dry contact status report, when operation the dry contact will send the status to the KNX/EIB Bus.				
11 … 15	Logic A	Extern telegram<1> … Extern telegram<5>	C W U	DPT 9.001 2byte
These communication objects are as conditions of logic, these conditions are from KNX/EIB bus by panels or other devices. There are 5 extern telegrams.				
16 … 25	Logic A:1 … Logic A:10	Switching controller	C W T U	DPT 1.001 1 bit
		Alarm controller	C W T U	DPT 1.005 1 bit
		Shutter controller	C W T U	DPT 1.008 1 bit
		Scene controller	C W T U	DPT 18.001 1 byte
		Sequence controller	C W T U	DPT 1.010 1 bit
		Percentage (0%..100%)	C W T U	DPT 5.001 1 byte
		Threshold (0…255)	C W T U	DPT 5.004 1 byte
		String(14bytes)	C W TU	DPT 7.001 2 byte

When the logic A is true will control these objects, logic A 1to logic A 10,contains switching, alarm, shutter, scene, sequence, percentage, string (14 bytes). Logical B, logical C, logical D are same to logic A.				
136	Logic E:1	Switching	C W T U	DPT 1.001 1 bit
		Alarm	C W T U	DPT 1.005 1 bit
		Shutter	C W T U	DPT 1.008 1 bit
		Scene	C W T U	DPT 18.001 1 byte
		Sequence	C W T U	DPT 1.010 1 bit
		Percentage(0%..100%)	C W T U	DPT 5.001 1 byte
		Threshold (0..255)	C W T U	DPT 5.004 1 byte
		Threshold (0..65535)	C W T U	DPT 7.001 1 byte
		String(14bytes)	C W T U	DPT 16.000 14 byte
Logic E's condition is controlled by logic A, logic B, logic C, logic D's output.				

4.3 Dimming controller

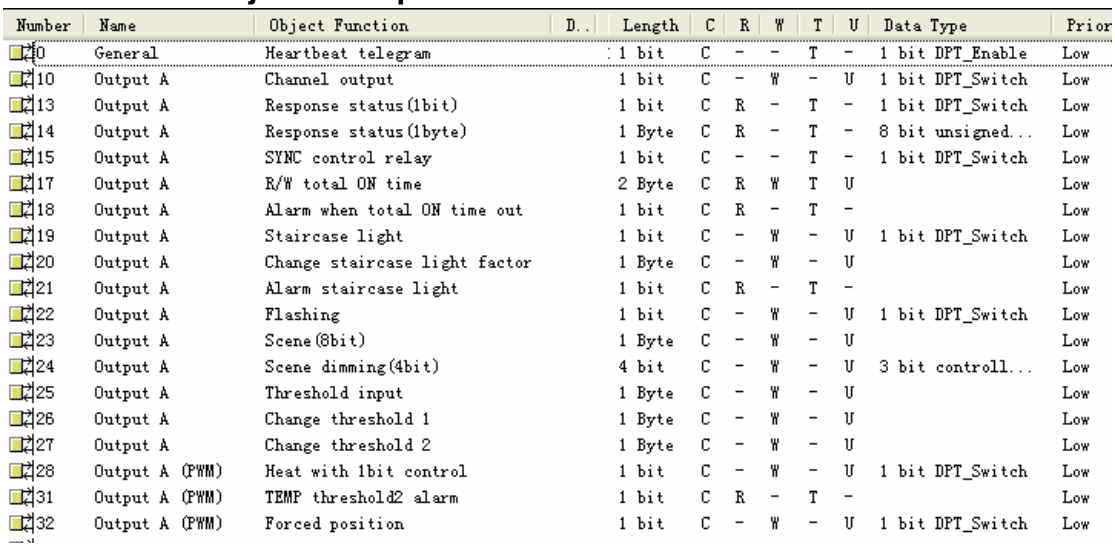
4.3.1 Objects “General”



Number	Name	Object Function	D..	Length	C	R	W	T	U	Data Type	Priority
0	General	Heartbeat telegram		1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
5	General	Sequence 1		1 bit	C	-	W	-	U	1 bit DPT_Start	Low
6	General	Sequence 2		1 bit	C	-	W	-	U	1 bit DPT_Start	Low
7	General	Sequence 3		1 bit	C	-	W	-	U	1 bit DPT_Start	Low
8	General	Sequence 4		1 bit	C	-	W	-	U	1 bit DPT_Start	Low
9	General	Sequence 5		1 bit	C	-	W	-	U	1 bit DPT_Start	Low

NO.	Object name	Function	Flags	Data type
5 **…** **9**	General	Sequence 1 … Sequence 5	C W U	DPT 1.010 1 bit
These communication objects are implementation of sequence control. The sequence will be control when receive the value by other devices via KNX/EIB Bus.				

4.3.2 Objects “output A”



Number	Name	Object Function	D..	Length	C	R	W	T	U	Data Type	Prior
0	General	Heartbeat telegram		1 bit	C	-	-	T	-	1 bit DPT_Enable	Low
10	Output A	Channel output		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
13	Output A	Response status(1bit)		1 bit	C	R	-	T	-	1 bit DPT_Switch	Low
14	Output A	Response status(1byte)		1 Byte	C	R	-	T	-	8 bit unsigned...	Low
15	Output A	SYNC control relay		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
17	Output A	R/W total ON time		2 Byte	C	R	W	T	U		Low
18	Output A	Alarm when total ON time out		1 bit	C	R	-	T	-		Low
19	Output A	Staircase light		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
20	Output A	Change staircase light factor		1 Byte	C	-	W	-	U		Low
21	Output A	Alarm staircase light		1 bit	C	R	-	T	-		Low
22	Output A	Flashing		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
23	Output A	Scene(8bit)		1 Byte	C	-	W	-	U		Low
24	Output A	Scene dimming(4bit)		4 bit	C	-	W	-	U	3 bit controll...	Low
25	Output A	Threshold input		1 Byte	C	-	W	-	U		Low
26	Output A	Change threshold 1		1 Byte	C	-	W	-	U		Low
27	Output A	Change threshold 2		1 Byte	C	-	W	-	U		Low
28	Output A (PWM)	Heat with 1bit control		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low
31	Output A (PWM)	TEMP threshold2 alarm		1 bit	C	R	-	T	-		Low
32	Output A (PWM)	Forced position		1 bit	C	-	W	-	U	1 bit DPT_Switch	Low

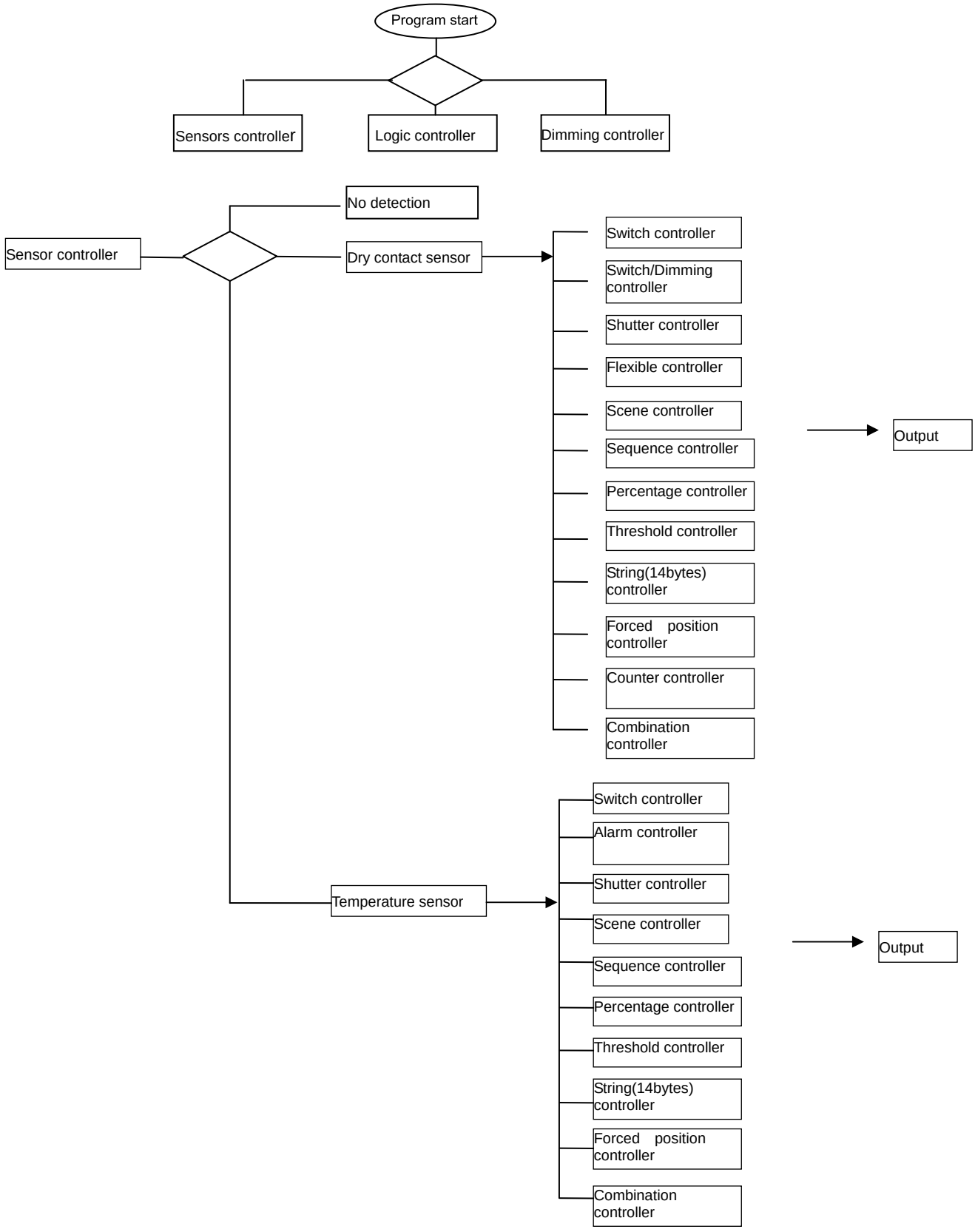
NO.	Object name	Function	Flags	Data type
10	Output A	Channel output	C W U	DPT 1.001 1 bit
This communication object is implementation channel output A control. The output A will be control when receive the value by other devices via KNX/EIB Bus.				
13	Output A	Response status(1 bit)	C R T	DPT 1.001 1 bit

… 27		Response status(1byte)	C R T	DPT 5.001 1 byte
		SYNC control relay	C T	DPT 1.001 1 bit
		Temperature report	CRT	DPT 9.001 2 byte
		R/W total ON time	CRWTU	DPT 7.007 1 bit
		Alarm when total ON time out	CRT	DPT 1.005 1 bit
		Staircase light	CWU	DPT 1.001 1 bit
		Change staircase light factor	CWU	DPT 5.004 1 byte
		Alarm staircase light	CRT	DPT 1.005 1 bit
		Flashing	C WU	DPT 1.001 1 bit
		Scene(8 bit)	C WU	DPT 18.001 1 byte
		Scene dimming(4 bit)	C WU	DPT 3.007 4 bit
		Threshold input	C WU	DPT 5.004 1 byte
		Change threshold 1	C WU	DPT 5.004 1 byte
		Change threshold 1	C WU	DPT 5.004 1 byte
This communication object is implementation channel output A's functions control. The output A will be control when receive the value by other devices via KNX/EIB Bus.				
28 … 32	Output A （PWM）	Heat with 1 bit control	CWU	DPT 1.001 1 bit
		TEMP threshold2 alarm	CRT	DPT 1.005 1 bit
		Forced position	CWU	DPT 1.001 1 bit
These communication objects used for combination control,				

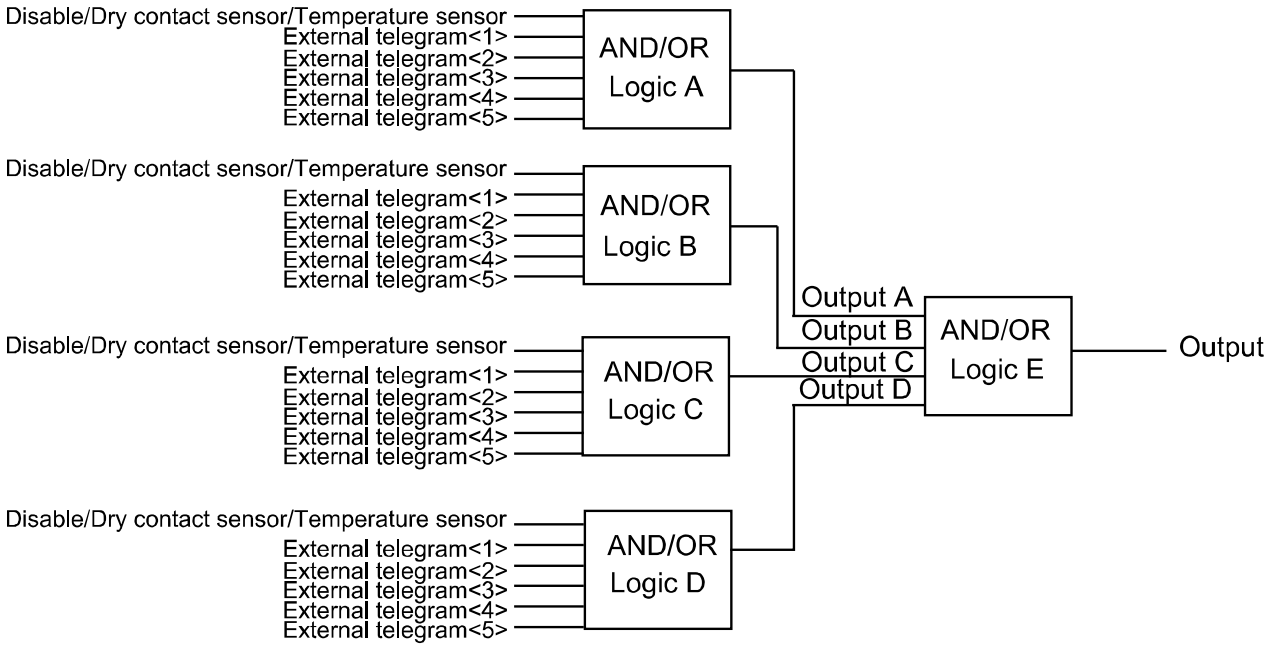
Note: Output B,C,D 's setting are all same to output A.

5- Application

5.1 Sensor control



5.2 Logic control



5.3 Dimming control