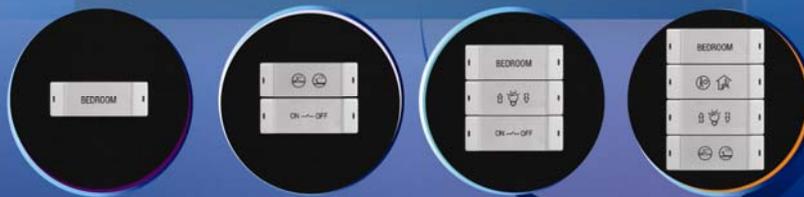# Panel Controller PV2

MODEL: M/P01.2、M/P02.2 M/P03.2、M/P04.2

Guangzhou Hedong Electronic Co.,Ltd (HDL)

HDL KNX / EIB-BUS

(Intelligent Installation Systems)

Product Manual

Contents

1- Product introduction

HDL KNX / EIB series Panel controller－PV2 are developed by HDL. Using KNX/EIB BUS communication with other KNX devices. Database need to be downloaded to the Panel controller by using the ETS2 V1.3(*.vd2)/ETS 3.0(*.vd3)/ETS4. The document describes how to use the product. Our products use standard according to EMC, electrical safety, environmental conditions. This product has the accept function of infrared remote control. So, through infrared remote control can be reach the aim of control directly.

The panels are can be use as:
* **Switch**
* **Dimmer**
* **Shutter control**
* **Flexible control**
* **Scene control**
* **Sequence control Percentage control,**
* **Threshold control,**
* **Combination control,**
* **String(14bytes) controller,**
* **Button Lock,**
* **Button Trigger.**
* **Other Controlled equipments**

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1.1 Product Function
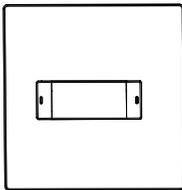
M/P01.2
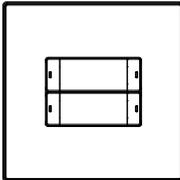
M/P02.2
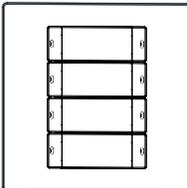
M/P03.2
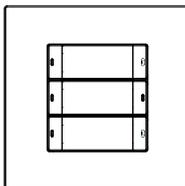
M/P04.2

For M/P01.2, M/P02.2, M/P03.2, M/P04.2 require. The manual take M/P04.2 for example.
The following functions can be set individually for each control channel:

1.-Switch control
2.-Dimming control
3.-Shutter control
4.-Flexible control
5.-Scene control
6.-Sequence control
7.-Percentage control
8.-Combination control
9.-String control
10.-Button Lock
11.-Button Trigger
12.-Night mode Setup
13.-Infrared remote control
14-Remote trigger control

2- Hardware

The technical properties of HDL KNX/EIB
Panel controller as the following sections.

2.1 Technical data

Panel type and buttons

* Type of Device	M/P01.2	M/P02.2	M/P03.2	M/P04.2
* Number of button	1	2	3	4

Power supply

*Operating voltage(supply by the bus)   21...30 V DC,
* Current consumption EIB / KNX(operate)   < 15 mA

Connections

 * EIB / KNX   Bus Connection Terminal
                                          0.8 mm Ø, single core

Operating and display

 * Push first and last button   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)   86 x 86 x41
Weight (unit kg)   0.26
Installation   Standard GI Box 86x86
Mounting position   The wall
Material and Colour   Glass and plastic, Black or White
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

Application table

Max. number of communication objects	**230**
Max. number of group addresses	**254**
Max. number of associations	**254**

Note: The programming requires the EIB Software Tools ETS2 V1.3 or ETS3.0 or ETS4.

2.2 Dimension drawings

86mm | 41mm | 60m

86

Front   Side   Back

M/P04.2

2.3 Wiring diagram

M/P01.2－48

Programming

M/P02.2－48

Lock or unlock
Programming

M/P03.2－48

Lock or unlock
Programming

M/P04.2－48

Lock or unlock
Programming

Label

KNX/EIB-BUS

Programming: Keep pressing these both buttons for 2s, will enter programming mode.

Lock or unlock: keep pressing these both buttons together for 2s, will lock or unlock the panel.
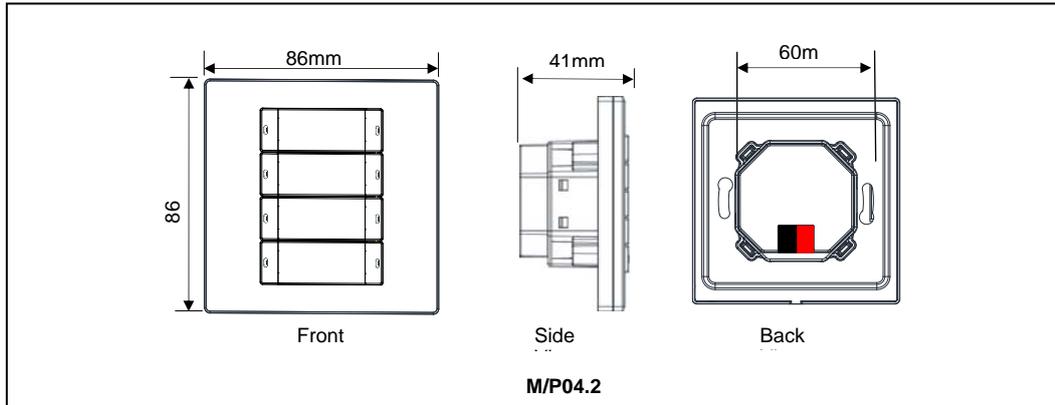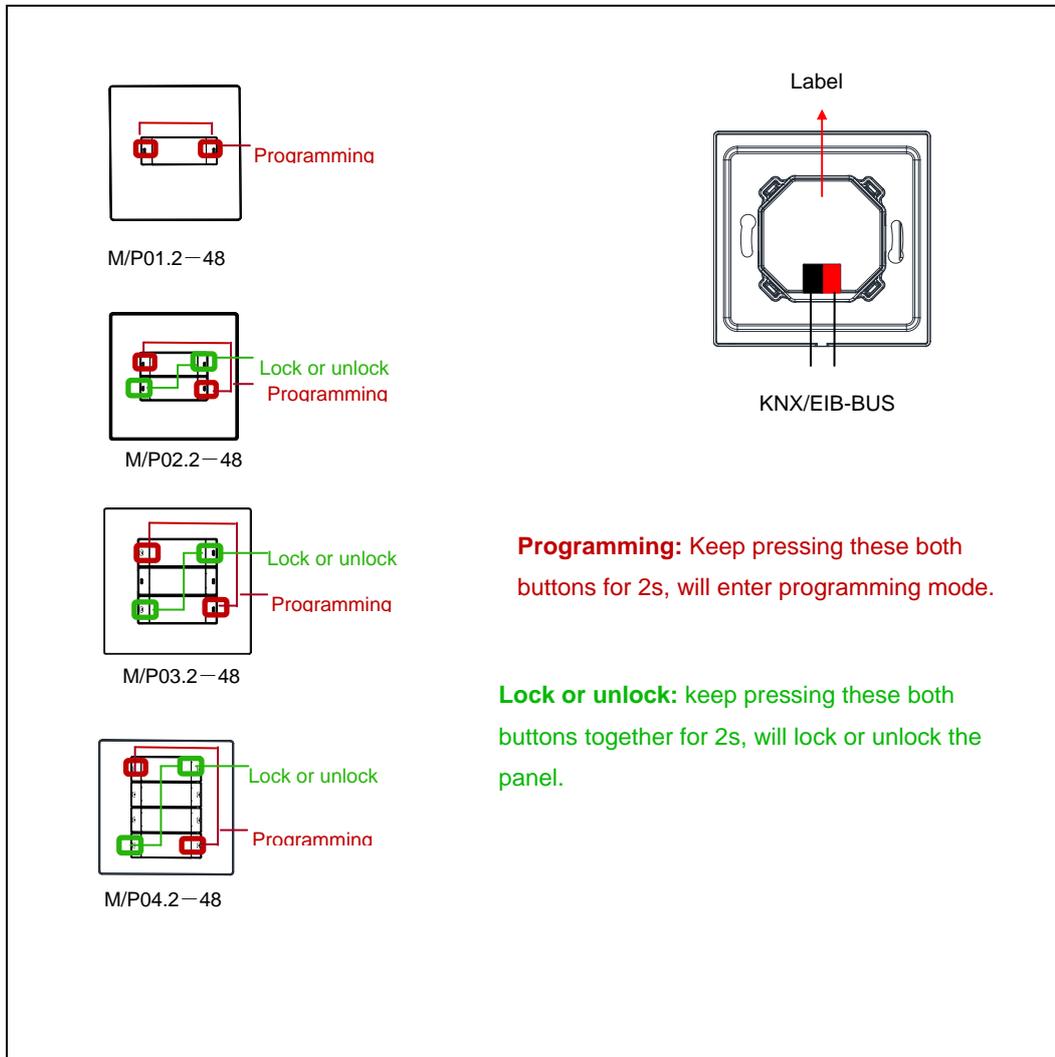
N=A,B,C,D: Order from top to bottom

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.

*For security, each circuit to connect an MCB or fuse

*Installation location should be well-ventilated, pay attention to
  moisture, shock, dust proof.

3- Software

HDL KNX/EIB Panel type is M/P04.2. The Interface and the functions Apply parameters please overview the following description of the paragraph.

3.1   Function parameter "General "
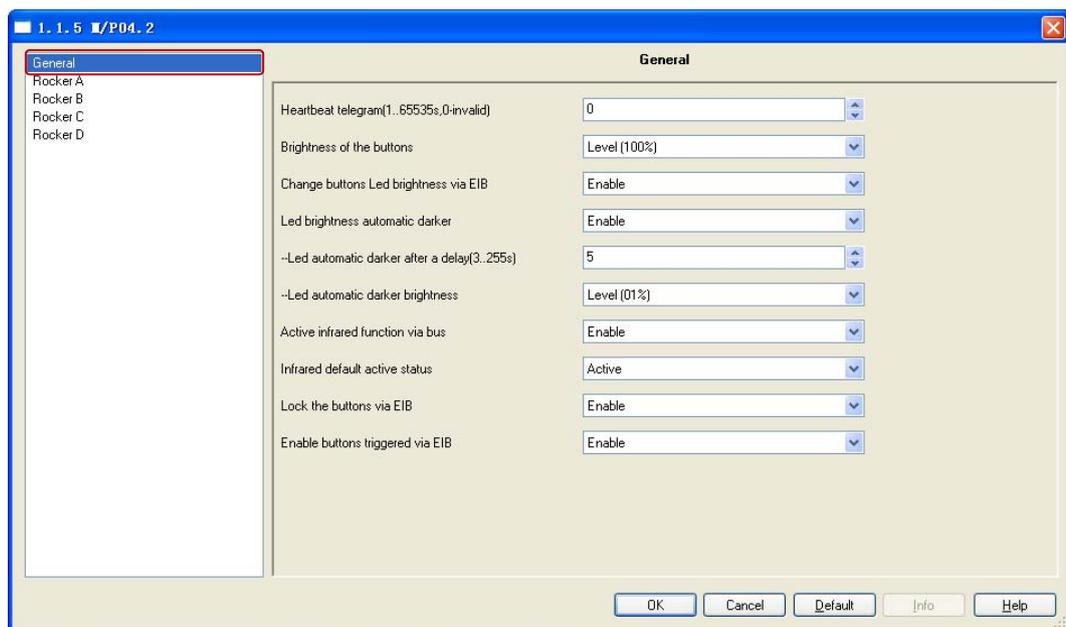
Fig1: "General " parameter window

The window can set the panel's base parameters.

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

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

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

---Brightness of the buttons

Set the LED's brightness of the button.
The LED level setting range is 00% ... Level100%
Options: Level 00%…Level100%

---Change buttons LED brightness via bus

If choose the Enable, other devices on the bus can send telegram to change the LED brightness of the buttons.

If choose the Disable, the LED brightness of the buttons can't changed by other KNX/EIB devices.

Options: Disable
           Enable

---LED brightness automatic darker

It's energy-saving mode. If enable, LED brightness will automatic become darker after a set delay.

Options: Disable
           Enable

---Active infrared function via bus

Whether activate the infrared function via bus.

Options: Disable
           Enable

Disable: you can't activate infrared function via bus.
Enable: you can activate infrared function via bus.

---Infrared default active status

Options: Inactive
           active

Inactive: infrared default status is inactive.
active: infrared default status is active.

---Lock the buttons via EIB

Options: Disable
           Enable

Disable: Can't lock the buttons via EIB.
Enable: Can lock the buttons via EIB.

---Enable buttons triggered via EIB

Options: Disable
           Enable

Disable: Can't trigger these buttons via EIB,
Enable: Can trigger these buttons via EIB.

3.2 Function parameter "Rocker N"
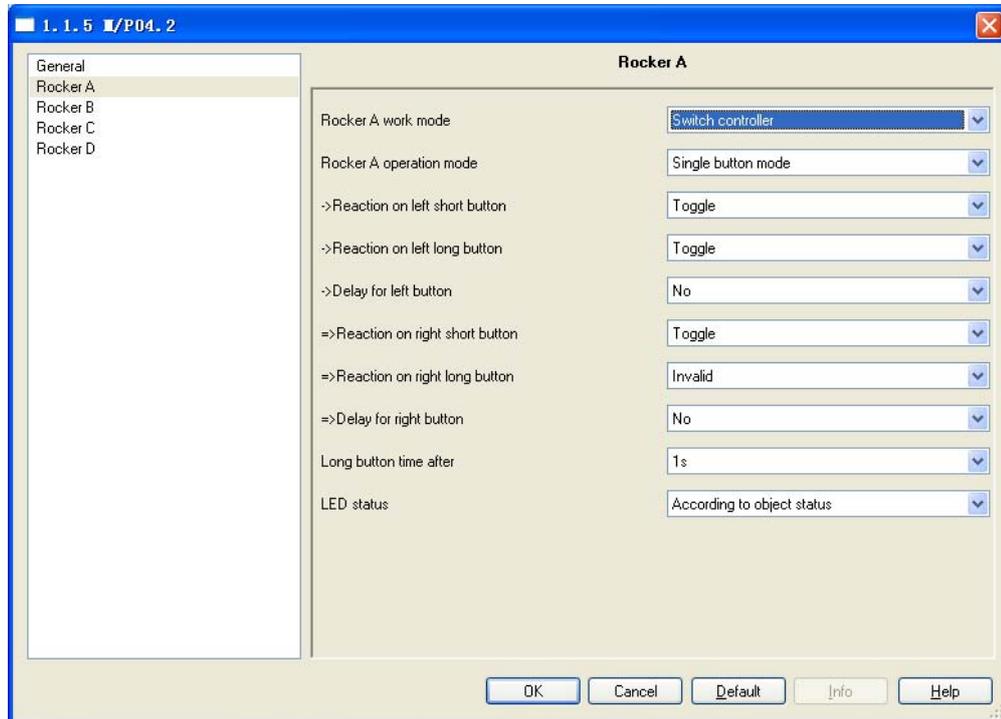
Fig2: "Rocker A" parameter window
This page is setting functions about Rocker A.

---Rocker A work mode
The Rocker "N" work mode can be selected with the following parameter.
Options: Switch controller
          Dimming controller
          Shutter controller
          Flexible controller
          Scene controller
          Sequence controller
          Percentage controller
          Threshold controller
          String(14bytes)controller
          Combination controller

3.2.1 Rocker's Mode "Switch controller"
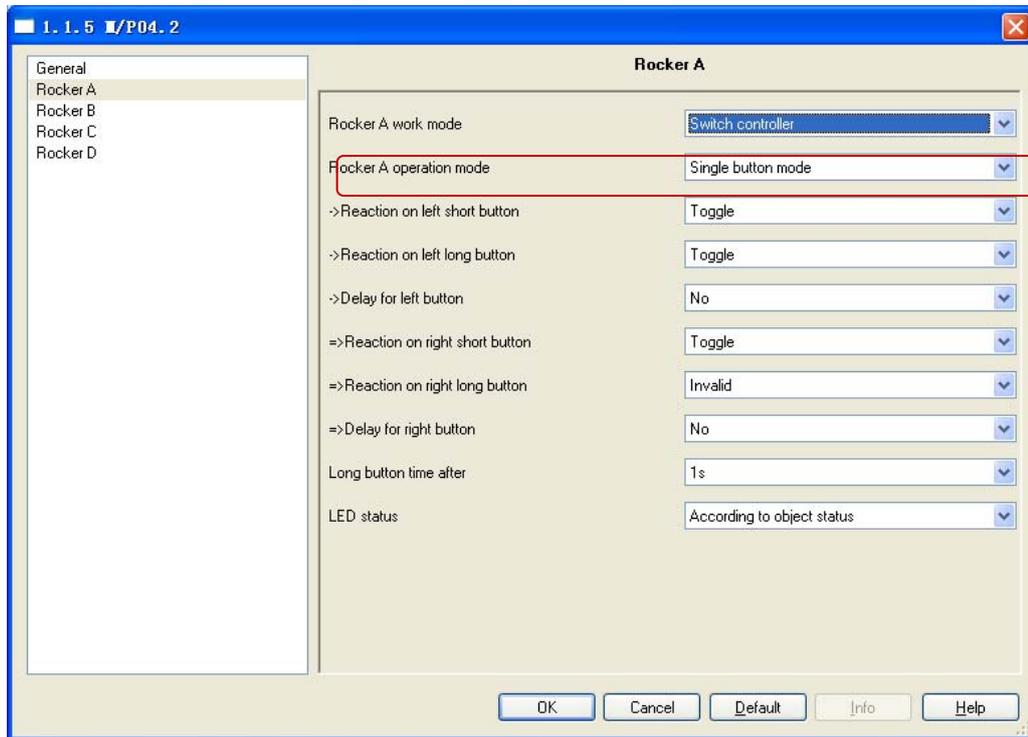
Fig3: "Switch controller" parameter windows

---Rocker A work mode
Set the rocker A's work mode.
Options: Single button mode
Double buttons mode
Single button mode: rocker A divided into left button and right button, The left button and the right button are independent

● *If you select single button mode, Rock A's setting as follows.*

-->Reaction on left short button
This parameter determines the work mode of the rocker A's left short button.
Options: Invalid
Toggle
ON
OFF
Toggle: Left short button is toggle
ON: Left short button is on.
OFF: Left short button is off.

-->Reaction on left long button

This parameter determines the work mode of the rocker A's left long button.

Options: Invalid
Toggle
ON
OFF

Toggle: Left long button is toggle
ON: Left long button is on.
OFF: Left long button is off.

-->Delay for left button

Options: NO
YES

NO: there is not delay for operation left button.
YES: If you select yes, will appears some parameter as follows,

Set the delay time for button delay operation. The delay time range is 0-255S.

>Reaction on right short button
-->Reaction on right long button
-->Delay for right button
Right button's setting as same as left button.

-->Long button time after
Set long button time,the default time is 1s.
Options: 0.2S…60S
---LED status
Set the status of LED.
Options: Flashing
Always ON
Always OFF
According to object status
Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.
Always OFF: LED's status always OFF.
According to object status: LED's status is same to the object's status.

● *If you select double buttons mode, Rock A's setting as follows.*

Double buttons mode: rocker A must set the same control targets, but you can set the different states for the buttons.

-->Reaction on short button
This parameter determines the work mode of the rocker A's short button.

Options: Invalid
  Left=toggle, Right=toggle
  Left=ON, Right=OFF
  Left=OFF, Right=ON
  Left=ON, Right=ON
  Left=OFF, Right=OFF

Left=toggle, Right=toggle: Left and right are all toggle.
Left=ON, Right=OFF: left button is on, right button is off.
Left=OFF, Right=ON: left button is off, right button is on.
Left=ON, Right=ON: left and right buttons are all on.
Left=OFF, Right=OFF: left and right buttons are all off.

-->Reaction on long button
This parameter determines the work mode of the rocker A's long button.
Options: Invalid
  Left=toggle, Right=toggle
  Left=ON, Right=OFF
  Left=OFF, Right=ON
  Left=ON, Right=ON
  Left=OFF, Right=OFF
Left=toggle, Right=toggle: Left and right buttons are all toggles.
Left=ON, Right=OFF: left button is on, right button is off.
Left=OFF, Right=ON: left button is off, right button is on.
Left=ON, Right=ON: left and right buttons are all on.
Left=OFF, Right=OFF: left and right buttons are all off.

-->Delay for button
Options: NO
　　　　　YES
NO: there is not delay when operation button.
YES: If you select yes, will appears some parameter as follows,

-->Long button time after
Set long button time,the default time is 1s.
Options: 0.2S…60S

---LED status
Set the status of LED.
Options: Flashing
　　　　　Always ON
　　　　　Always OFF
　　　　　According to object status
Flashing: when pressing the button LED will flashing.
Always ON: LED's status always ON.
Always OFF: LED's status always OFF.
According to object status: LED's status is same to the object's status.

3.2.2 Rocker's mode "Dimming controller"
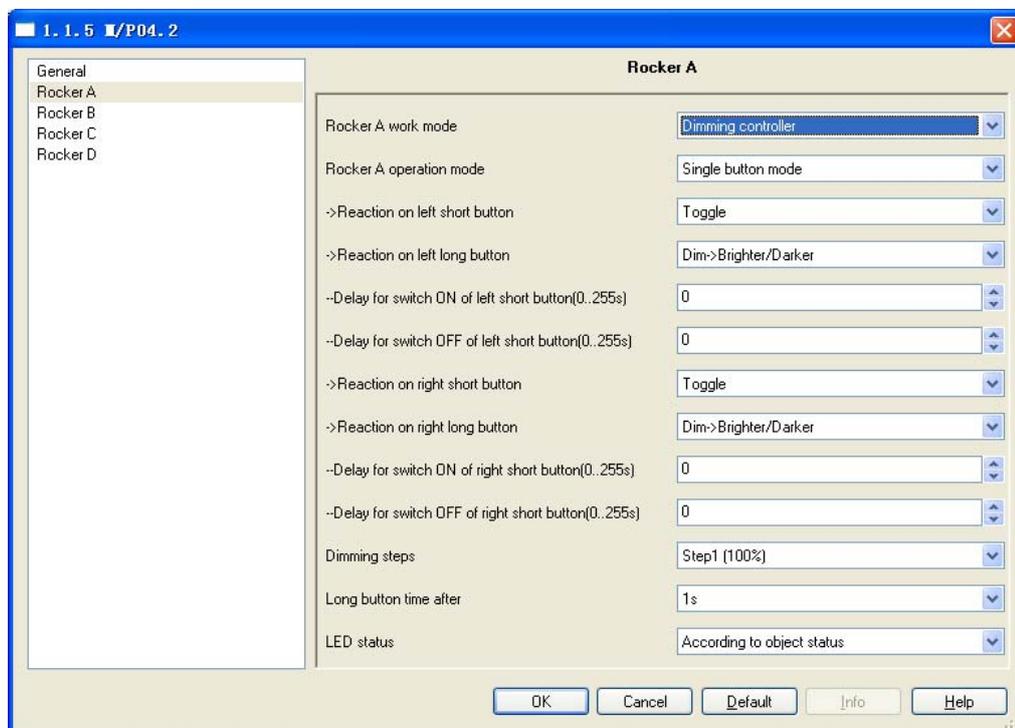
Fig4: "Dimming controller" parameter windows
---Rocker A operation mode

Set the rocker A's operation mode.

Options: Single button mode

Double buttons mode

Single button mode: rocker A divided into left button and right button, and can be set different control targets.

● *If you select single button mode, Rock A's setting as follows.*

-->Reaction on left short button

This parameter determines the work mode of the rocker A's left short button.

Options: Invalid

Toggle

ON

OFF

Toggle: Left short button is toggle

ON: Left short button is on.

OFF: Left short button is off.

-->Reaction on left long button

This parameter determines the work mode of the rocker A's left long button.

Options: Invalid

Dim->Brighter

Dim-> Darker

Dim->Brighter/Darker

Dim->Brighter: Long press left button to increase light brightness.

Dim-> Darker: Long press left button to decrease light brightness.

Dim->Brighter/Darker: Long press left button to increase light brightness, then long press left button again to decrease light brightness.

-->Delay for switch ON of left short button(0..255s)

Set the delay time for switch ON after press left short button. The delay time range is 0-255S.

Options: 0..255

-->Delay for switch OFF of left short button(0..255s)

Set the delay time for switch OFF after press left short button. The delay time range is 0-255S.

Options: 0..255

>Reaction on right short button
-->Reaction on right long button
-->Delay for switch ON of right short button(0..255s)
-->Delay for switch OFF of right short button(0..255s)
Right button's setting as same as left button.

-->Long button time after
Set long button time,the default time is 1s.
Options: 0.2S…60S

● *If you select double buttons mode, Rock A's setting as follows.*
Double buttons mode: rocker A must set the same control targets, but you can set the different states of the button.

-->Reaction on short button
This parameter determines the work mode of the rocker A's short button.

Options: Left=toggle, Right=toggle:
Left=ON, Right=OFF:
Left=OFF, Right=ON:
Left=ON, Right=ON:
Left=OFF, Right=OFF

Left=toggle, Right=toggle: Left and right buttons are all toggles.
Left=ON, Right=OFF: left button is on, right button is off.
Left=OFF, Right=ON: left button is off, right button is on.
Left=ON, Right=ON: left and right buttons are all on.
Left=OFF, Right=OFF: left and right buttons are all off.

-->Reaction on long button
This parameter determines the work mode of the rocker A's long button.

Options: Left=Dim(toggle), Right=DIM(toggle)
Left=Brighter, Right=Darker
Left=Darker, Right=Bright
Left=Bright, Right=Bright
Left=Darker, Right=Darker
Left=Dim(toggle), Right=DIM(toggle): long press left and right are all toggles.

Left=Brighter, Right=Darker: long press left button to increase light brightness, long press right button to decrease light brightness.

Left=Darker, Right=Bright: long press left button to decrease light brightness, long press right button to increase light brightness.

Left=Bright, Right=Bright: long press left and right buttons are all to increase light brightness.

Left=Darker, Right=Darker: long press left and right buttons are all to decrease light brightness.

-->Delay for switch ON of short button(0..255s)

Set the delay time for switch ON after press left short button. The delay time range is 0-255s.

Options: 0..255s

-->Long button time after

Set long button time,the default time is 1s.

Options: 0.2S…60S

---LED status

Set the status of LED.

Options: Flashing
   Always ON
          Always OFF
          According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.3 Rocker's mode "Shutter controller"
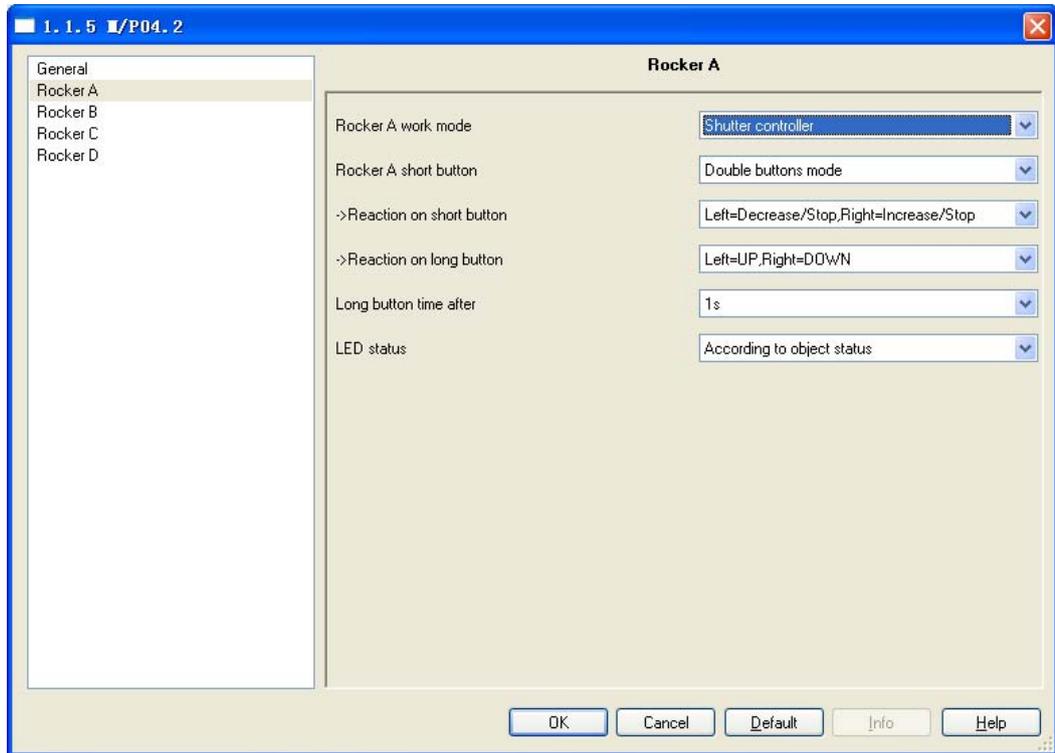
Fig5: "Shutter controller" parameter window

---Rocker A short button

Set the rocker A's operation mode.

Options: Single button mode

Double buttons mode

Single button mode: rocker A divided into left button and right button, and can set different control targets.

● *If you select single button mode, Rock A's setting as follows.*

-->Reaction on left short button

This parameter determines the work mode of the rocker A's left short button.

Options: Invalid

Stepping->Increase/Stop

Stepping-> Decrease/Stop

Stepping-> Toggle/Stop

Moving-> UP

Moving-> Down

Moving-> Toggle

Invalid: Short press left button is invalid.

Stepping->Increase/Stop: Short press left button to increase/stop.

Stepping-> Decrease/Stop: Short press left button to Decrease/Stop.

Stepping-> Toggle/Stop: Short press left button to toggle/stop.

Moving-> UP: Short press left button to up.

Moving-> Down: Short press left button to down.

Moving-> Toggle: Short press left button to toggle.

-->Reaction on left long button

This parameter determines the work mode of the rocker A's left long button.

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: Long press left button is invalid.

Stepping->Increase/Stop: Long press left button to Increase/Stop.

Stepping-> Decrease/Stop: Long press left button to Decrease/Stop.

Stepping-> Toggle/Stop: Long press left button to Toggle/Stop.

Moving-> UP: Long press left button to up.

Moving-> Down: Long press left button to down.

Moving-> Toggle: Long press left button to toggle.

Press: Moving-> UP, Release: Call short button: Long press left button to move up, Release to call short button.

Press: Moving-> Down, Release: Call short button: Long press left button to move down, Release to call short button.

Press: Moving-> Toggle, Release: Call short button: Long press left button to move toggle, Release to call short button.

Right button's setting as same as left button.

-->Long button time after

Set long button time, the default time is 1s.

Options: 0.2S…60S

- *If you select double buttons mode, Rock A's setting as follows.*

Double buttons mode: rocker A must set the same control targets, but you can set the different states of the button.

-->Reaction on short button

This parameter determines the work mode of the rocker A's short button.

Options: Invalid
  Left=Decrease/Stop, Right=Increase/Stop
  Left=Increase/Stop, Right=Decrease/Stop

Invalid: button invalid
Left=Decrease/Stop, Right=Increase/Stop: Left short button to Decrease/Stop, Right short button to Increase/Stop
Left=Increase/Stop, Right=Decrease/Stop: Left short button to Increase/Stop, Right short button to Decrease/Stop.

-->Reaction on long button

This parameter determines the work mode of the rocker A's long button.

Options: Invalid
  Left=UP, Right=DOWN
  Left=DOWN, Right=UP
  Left=UP/DOWN, Right=UP/DOWN

Invalid: Long press is invalid.
Left=UP, Right=DOWN: Left long button to UP, Right long button to down.
Left=DOWN, Right=UP: Left long button to down, Right long button to up
Left=UP/DOWN, Right=UP/DOWN: Left long button or Right long button UP/DOWN

-->Long button time after
Set long button time, the default time is 1s.
Options: 0.2S…60S

---LED status
Set the status of LED.
Options: Flashing
    Always ON

Always OFF

According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.4 Rocker's mode "Flexible controller"
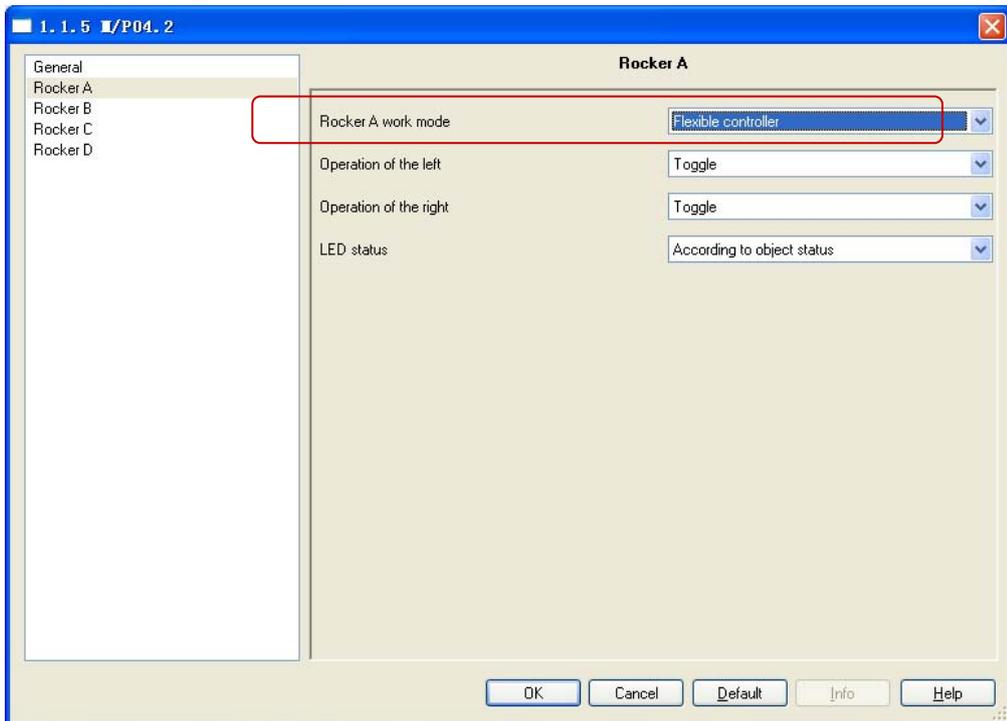

Fig6: Flexible controller window

    ---Operation of the left

      Options: Invalid

             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"

    Toggle: the left button is toggle.

    Press="ON" : Press left button is ON.

Press="ON", Release="ON": Press and release left button are all on.

Press="OFF" : Press left button is OFF.

Release="OFF": release left button is off.

Press=" OFF", Release=" OFF": Press and release left button are all off.

Press=" ON", Release=" OFF": Press left button is on, release is off.

Press=" OFF", Release=" ON": Press and release left button are all off.

---Operation of the right
The right button's setting is same as left button.

3.2.5 Rocker's mode "Scene controller"
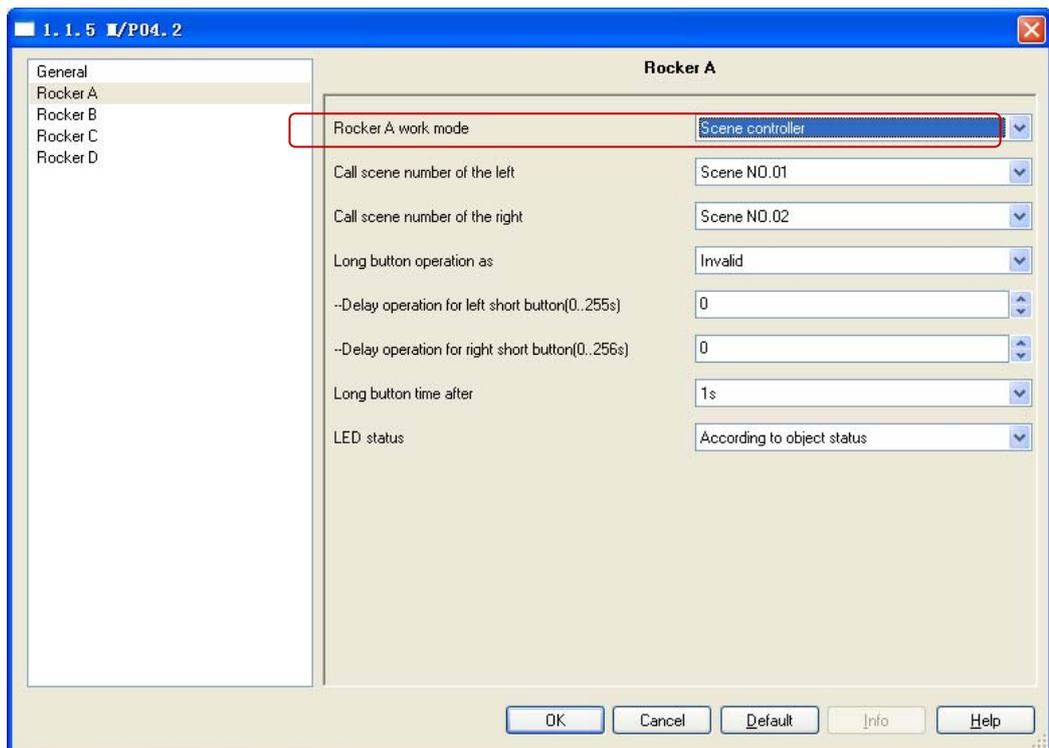
Fig7: Scene controller window

---Call scene number of the left
Call the scene number of left button.
Options: Scene NO.01—Scene NO.64

---Call scene number of the right
Call the scene number of right button.

Options: Scene NO.01-Scene NO.64

---Long time button operation as
Set the button's functions when long button press.
Options: Invalid
        Scene dimming
        Scene saving
        Dimming and Saving

✧ **---Scene dimming**
Options: Left=Brighter, Right=Darker
         Left= Darker, Right= Brighter
Left=Brighter, Right=Darker: left button: press to increase light brightness.
         right button: press to decrease light brightness
Left= Darker, Right= Brighter: left button: press to decrease light brightness.
         right button: press to increase light brightness

✧ **---Scene saving**
Long button to saving the scene, and the scene number is 1..64

✧ **---Dimming and Saving**
Dimming and saving together.Long press button for dimming UP/DOWN,Long release button for stop dimming and scene save.

---Delay operation for left short button (0-255S)
Set the delay time of left short button after press. The delay time range is 0-255S.
Options: 0-255S

---Delay operation for right short button (0-255S)
Set the delay time of right short button after press. The delay time range is 0-255S.
Options: 0-255S

---Long button time after
Set long button time,the default time is 1s.
Options: 0.2-60S

---LED of the operation mode

Set LED's mode.

Options: Show via object status

Always on

Always off

Show via object status: the LED's status shows the object's status.

Always on: the LED is always on.

Always off: the LED is always off.

3.2.6   Rocker's mode "Sequence controller"
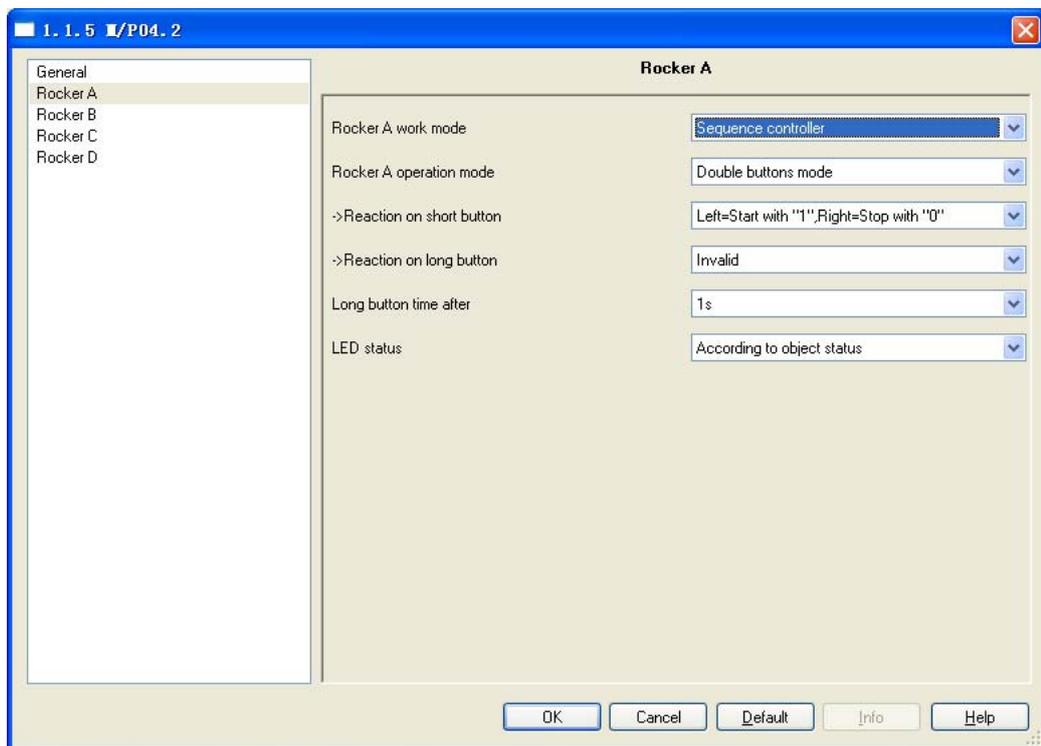
Fig8: Sequence controller window

---Rocker A operation mode

Options: single button mode

Double buttons mode

Single button mode: rocker A divided into left button and right button, can set different targets.

● *If you select single button mode, Rock A's setting as follows.*

-->Reaction on left short button

This parameter determines the work mode of the rocker A's left short button.

Options: Invalid

Toggle (Start with "1", Stop with "0"):

Start with "1"

Stop with "0"

Invalid: rocker A's left short button is invalid.

Toggle (Start with "1", Stop with "0"): rocker A's left short button is a toggle, telegram value "1" is start, telegram value "0" is stop .

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

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

-->Reaction on left long button

This parameter determines the work mode of the rocker A's left short button. The left long button is same to the left short button.

Options: Invalid

Toggle (Start-"1",Stop-"0")

Start with "1"

Stop with"0"

The left long button is same to the left short button.

The right button's setting is same as left button.

---Long button time after

Options: 0.2s…..60s

Set the time of long button. If pressing the button longer the time is long button. The default time is 1s.

● *If you select double buttons mode, Rock A's setting as follows.*

Double buttons mode: rocker A must set the same targets, but you can set the different states of the targets.

-->Reaction on short button

This parameter determines the work mode of the rocker A's short button.

Options: Invalid

Left= start with 1, Right=stop with 0

Left=stop with 0, Right=start with 1

Left=start with 1, Right=start with 1

Left=stop with 0, Right=stop with 0

Invalid: rocker A is invalid.

Left=toggle, Right=toggle: Left and right are all toggle.

Left= start with 1, Right=stop with 0: Left button telegram value is "1",Right button telegram value is "0".

Left=stop with 0, Right=start with 1: Left button telegram value is "0",Right button telegram value is "1".

Left=start with 1, Right=start with 1: Left button telegram value is "1",Right button telegram value is "1".

Left=stop with 0, Right=stop with 0: Left button telegram value is "0",Right button telegram value is "0".

-->Reaction on short button

The setting is same to the short button.

-->Long button time after

Set long button time, the default time is 1s.

Options: 0.2S…60S

---LED status

Set the status of LED.

Options: Flashing
Always ON
Always OFF
According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.7   Button mode "Percentage controller"
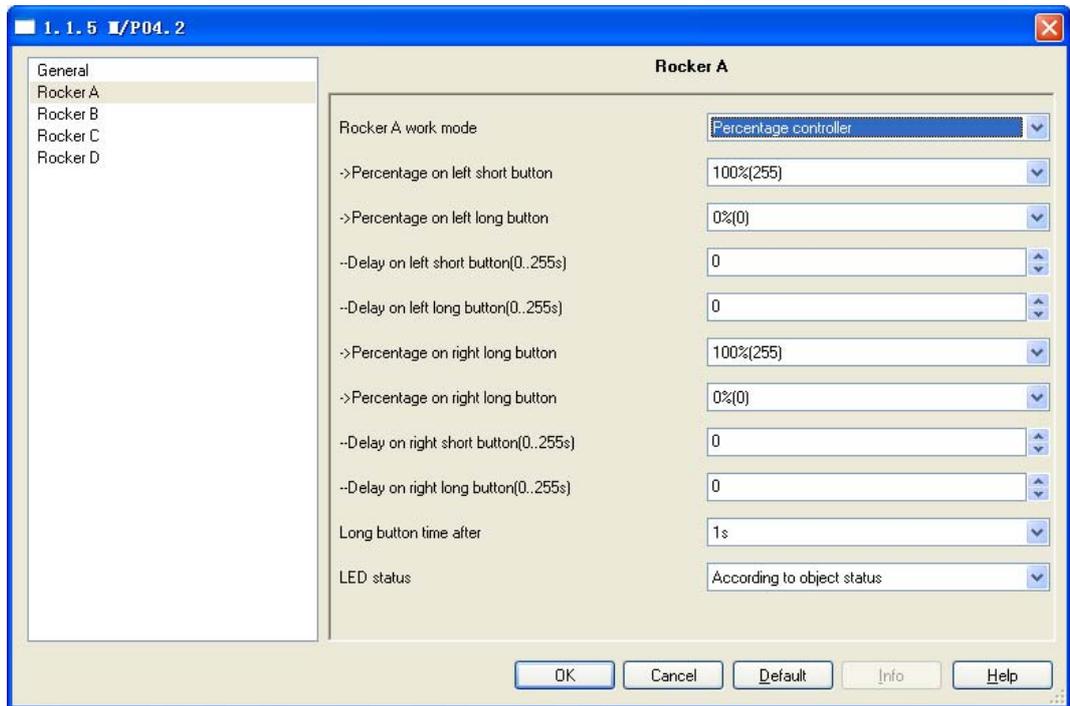
Fig9: Percentage controller window

   ---Percentage on left short button
      Set the light level of left short button.
   Options: 0%(0)—100%(255)
   ---Percentage on left long button
      Set the light level of left long button
   Options: 0%(0)—100%(255)

---Delay on left short button (0-255S)
      Set the delay time of left short button after press. The delay time
   range is 0-255S.
      Options: 0-255S
---Delay on left long button (0-255S)
      Set the delay time of left long button after press. The delay time
   range is 0-255S.
      Options: 0-255S

   The right button's setting is same as left button.
   -->Long button time after
   Set long button time,the default time is 1s.
   Options: 0.2S…60S

   ---LED status

Set the status of LED.

Options: Flashing

Always ON

Always OFF

According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.8 Button mode "Threshold controller"
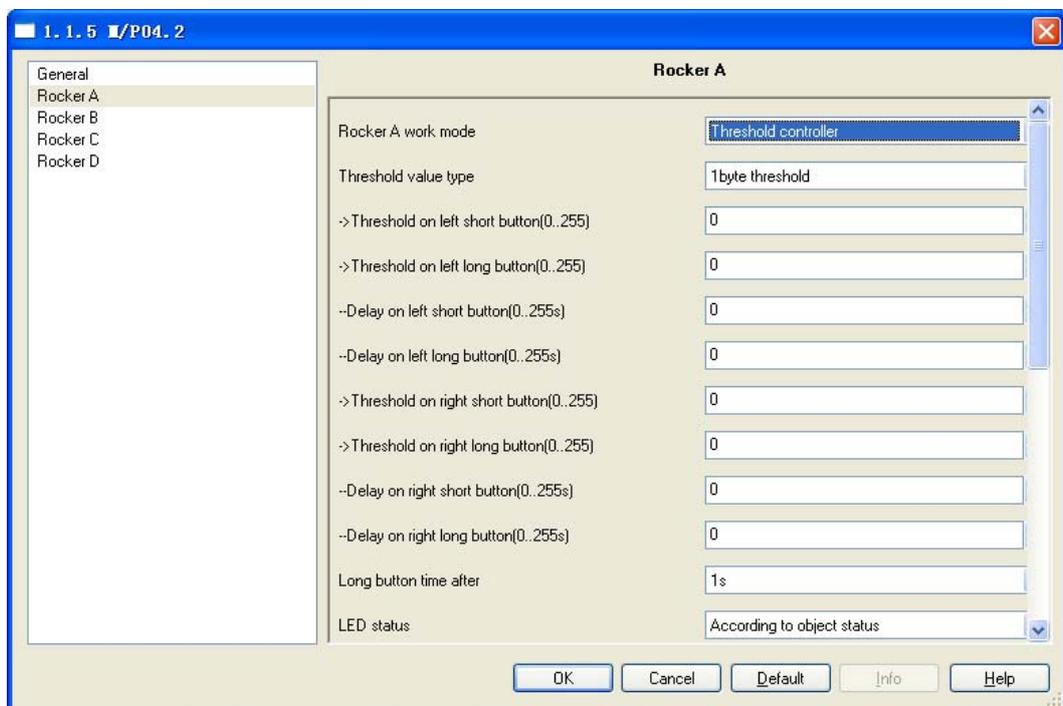
Fig10: Threshold controller window

---Threshold value type

Option: 1 byte threshold

2 bytes threshold

---Threshold on left short button (0…255)

Set the light level of left short button.

Options: 0—255

When select "2 bytes threshold" that the option's range is 0—65535.

--- Threshold on left long button

Set the light level of left long button

Options: 0—255

When select "2 bytes threshold" that the option's range is 0—65535.

---Delay on left short button (0-255S)

Set the delay time of left short button after press. The delay time range is 0-255S.

Options: 0-255S

---Delay on left long button (0-255S)

Set the delay time of left long button after press. The delay time range is 0-255S.

Options: 0-255S

The right button's setting is same as left button.

-->Long button time after

Set long button time,the default time is 1s.

Options: 0.2S…60S

---LED status

Set the status of LED.

Options: Flashing
Always ON
Always OFF
According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.9   Button mode "String(14 bytes) controller"
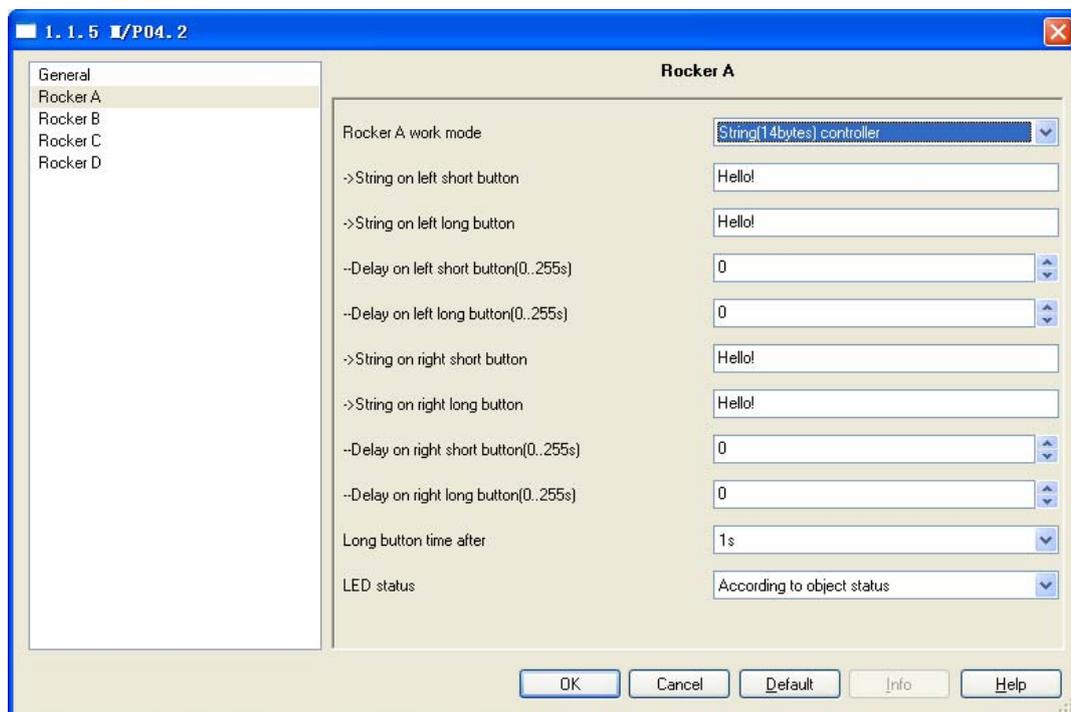
Fig11: 14 bytes value controller window

---String on left short button
Short press left button can sends the value to the bus. The value type is string Max. length is 14bytes

---String on left long button
Long press left button can sends the value to the bus. The value type is string.Max length is 14bytes

---Delay on left short button (0-255S)
Set the delay time after press short button. The delay time range is 0-255S.
Options: 0-255S

---Delay on left long button (0-255S)
Set the delay time after press long button. The delay time range is 0-255S.
Options: 0-255S

The right button's setting is same as left button.

-->Long button time after
Press button more than the setting time, it is long button.
Options: **0.2S…60S**

---LED status

Set the status of LED.

Options: Flashing

Always ON

Always OFF

According to object status

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

According to object status: LED's status is same to the object's status.

3.2.10 Button mode "Combination controller"
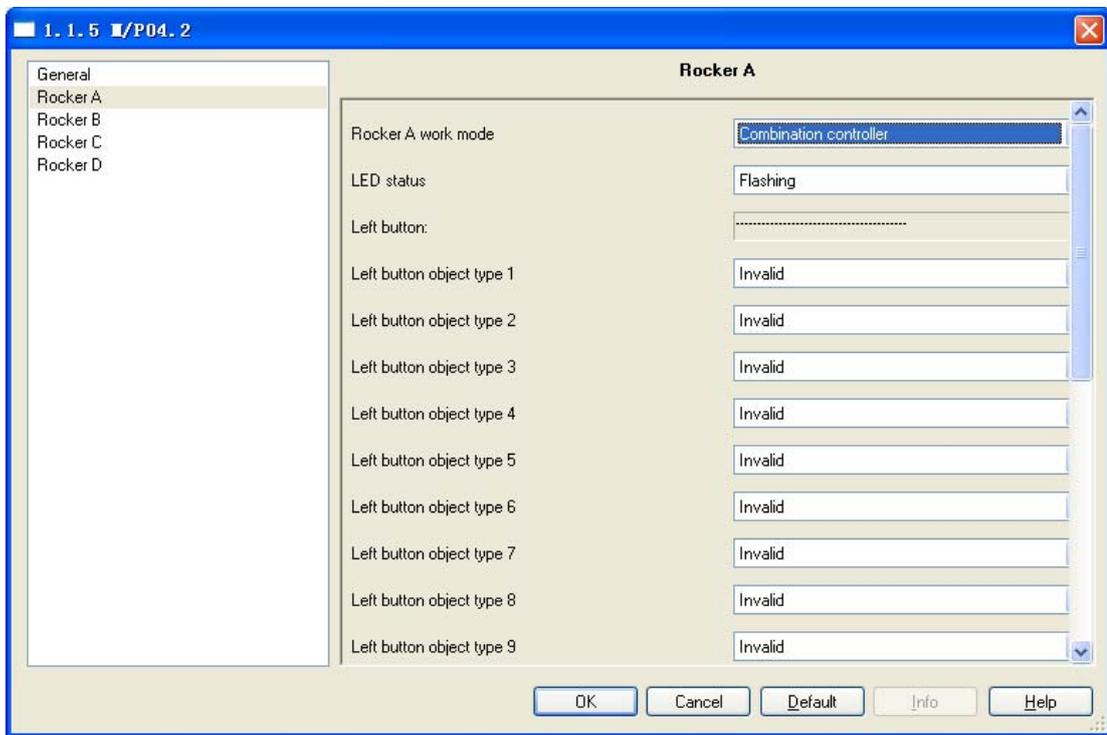
Fig12: "Combination controller" window

---LED status

Set the status of LED.

Options: Flashing

Always ON

Always OFF

Flashing: when pressing the button LED will flashing.

Always ON: LED's status always ON.

Always OFF: LED's status always OFF.

---Left button

✧ **Left button of object1…5:** Invalid

Switch controller

Shutter controller

Scene controller

Sequence controller

Percentage controller

Threshold controller

14byte value controller (string)

This mode is that left button can control several objects. if set some these items, and when press short button that can send several control telegram simultaneously. Maximum control object number of each button is 5

The right button's setting is same as left button.

4- Communication objects description

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

Note: In following sections the **N=A,B,C,D**

4.1   Objects "General"

Number	Name	Object Function	Description	Length	C	R	W	T	U	Data Type	Prio
0	General	Heartbeat telegram		1 bit	C	–	–	T	–	1 bit DPT_Enable	Low
1	General	Change button Led br...		1 Byte	C	–	W	T	U	8 bit unsigned...	Low
2	General	Infrared active/inac...		1 bit	C	–	W	T	U	1 bit DPT_Enable	Low
3	General	Lock buttons		1 bit	C	–	W	T	U	1 bit DPT_Enable	Low
4	General	Trigger left of Rock A		1 bit	C	–	W	T	U		Low
5	General	Trigger right of Rock A		1 bit	C	–	W	T	U		Low
6	General	Trigger left of Rock B		1 bit	C	–	W	T	U		Low
7	General	Trigger right of Rock B		1 bit	C	–	W	T	U		Low
8	General	Trigger left of Rock C		1 bit	C	–	W	T	U		Low
9	General	Trigger right of Rock C		1 bit	C	–	W	T	U		Low
10	General	Trigger left of Rock D		1 bit	C	–	W	T	U		Low
11	General	Trigger right of Rock D		1 bit	C	–	W	T	U		Low

NO.	Object name	Function	Flags	Data type
0	General	Heartbeat telegram	C T	DPT 5.001 1byte
1	General	Change LED brightness	C W T U	
This communication object is used to change LED brightness function.				

NO.	Object name	Function	Flags	Data type

NO.	Object name	Function	Flags				Data type
2	General	Infrared active/inactive	C	W	T	U	DPT 1.003 1bit

This communication object used to enable or disable the infrared function. if receive the value "1",and the infrared function is enabled, if receive the value "0",and the infrared function is disabled

NO.	Object name	Function	Flags				Data type
3	General	Lock buttons	C	W	T	U	DPT 1.003 1bit

This communication object used to lock the button. if receive the value "0",and all buttons locked, if receive the value "1",and all buttons is unlocked.

NO.	Object name	Function	Flags				Data type
4…11	General	Trigger left or right of rocker N	C	W	T	U	DPT 1.008 1bit

These communication objects used to trigger the button. If receive the value "1",and the single button triggered, if receive the value "0",and the button not triggered.
It is only can get a short operation when using the remote trigger button objects, Long operate is impossible.

4.2 Objects "Switch controller"

Number	Name	Object Function	Descr...	Length	C	R	W	T	U	Data Type	Priorit
0	General	Heartbeat telegram		1 bit	C	–	–	T	–	1 bit DPT_Enable	Low
20	Rocker A left short	Switching(ON)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low
21	Rocker A left long	Switching(Toggle)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low
22	Rocker A right short	Switching(Toggle)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low
23	Rocker A right long	Switching(Toggle)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags				Data type
20	Rocker A left short						
21	Rocker A left long	Switching (ON/Toggle)	C	W	T	U	DPT 1.001 1bit
22	Rocker A right short						
23	Rocker A right short						
		……					

These communication objects used for switching other switch device. Send telegram value "1" for ON, send telegram value "0" for OFF.

Tips: *Rocker A set up different work mode, will have different function, but the same object number. Other rockers are same to rocker A.*

4.3   Objects "Dimming controller"

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
20	Rocker A left short	Switching(Toggle)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low
21	Rocker A left long	Dimming		4 bit	C	–	W	T	U	3 bit controll...	Low
22	Rocker A right short	Switching(Toggle)		1 bit	C	–	W	T	U	1 bit DPT_Switch	Low
23	Rocker A right long	Dimming		4 bit	C	–	W	T	U	3 bit controll...	Low

NO.	Object name	Function	Flags				Data type
20	Rocker A left short	Switching(Toggle)	C	W	T	U	DPT 1.001 1bit
21	Rocker A left long	Dimming	C	W	T	U	DPT 3.007 4bit
22	Rocker A right short	Switching(Toggle)	C	W	T	U	DPT 1.001 1bit
23	Rocker Aright long	Dimming	C	W	T	U	DPT 3.007 4bit
These communication objects used for switch or dimming the device. Rock short button for switching,Rocker long button for dimming.							

4.4   Objects "Shutter controller"

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
20	Rocker A left short	Adjust for shutter		1 bit	C	–	W	T	U		Low
21	Rocker A left long	Move for shutter		1 bit	C	–	W	T	U	1 bit DPT_UpDown	Low
22	Rocker A right s...	Adjust for shutter		1 bit	C	–	W	T	U		Low
23	Rocker A right long	Move for shutter		1 bit	C	–	W	T	U	1 bit DPT_UpDown	Low

NO.	Object name	Function	Flags				Data type
20	Rocker A left short	Adjust for shutter	C	W	T	U	DPT 1.007 1bit
21	Rocker A left long	Move for shutter	C	W	T	U	DPT 1.008 1bit
22	Rocker A right short	Adjust for shutter	C	W	T	U	DPT 1.007 1bit
23	Rocker A right long	Move for shutter	C	W	T	U	DPT 1.008 1bit
These communication objects used for Adjust and Move for the shutter. Send the telegram value "1" to adjust or move, or send telegram value "0" to stop adjust or stop moving.							

4.5   Objects "Flexible controller"

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
20	Rocker A left	Flexible		1 bit	C	-		W	T	U	1 bit DPT_Switch	Low
21	Rocker A right	Flexible		1 bit	C	-		W	T	U	1 bit DPT_Switch	Low

NO.	Object name	Function	Flags				Data type
20	Rocker A left	Flexible	C	W	T	U	DPT 1.001 1bit
21	Rocker A right	Flexible	C	W	T	U	DPT 1.001 1bit
These communication objects used for flexible control some device.							

4.6   Objects "Scene controller"

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
20	Rocker A short	Call scene		1 Byte	C	-		W	T	U		Low

NO.	Object name	Function	Flags				Data type
20	Rocker A short	Call scene,	C	W	T	U	DPT 18.001 1byte
21	Rocker A long	Scene dimming	C	W	T	U	DPT 3.007 4bit
These communication objects used for Call and Scene dimming, Call scene NO. is 1 to 64 and the value is 0 to 63. The Scene dimming is 4bits value.							

4.7   Objects "Sequence controller"

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
20	Rocker A left short	Sequence		1 bit	C	-		W	T	U	1 bit DPT_Start	Low
21	Rocker A left long	Sequence		1 bit	C	-		W	T	U	1 bit DPT_Start	Low
22	Rocker A right short	Sequence		1 bit	C	-		W	T	U	1 bit DPT_Start	Low
23	Rocker A right long	Sequence		1 bit	C	-		W	T	U	1 bit DPT_Start	Low

NO.	Object name	Function	Flags				Data type
20	Rocker A left short	Sequence	C	W	T	U	DPT 1.010 1bit
21	Rocker A left long	Sequence	C	W	T	U	DPT 1.010 1bit
22	Rocker A right short	Sequence	C	W	T	U	DPT 1.010

					1bit
23	Rocker A right long	Sequence	C W T U		DPT 1.010 1bit
These communication objects used for start and stop sequence. Send the telegram value "1" to start one sequence, and send the telegram value '0' to stop on sequence.					

4.8 Objects "Percentage controller"

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
20	Rocker A	Percentage		1 Byte	C	-	W	T	U	8 bit unsigned...	Low

NO.	Object name	Function	Flags	Data type
20	Rocker A	Percentage	C W T U	DPT 5.001 1byte
This communication object used for control some device, eg: Absolute dimming the brightness.				

4.9 Objects "Threshold(1byte)"

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
20	Rocker A	Threshold(1byte)		1 Byte	C	-	W	T	U		Low

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
20	Rocker A	Threshold(2bytes)		2 Byte	C	-	W	T	U	2 byte unsigne...	Low

NO.	Object name	Function	Flags	Data type
20	Rocker A	Threshold(1bytes)	C W T U	DPT 5.004 1byte
20	Rocker A	Threshold(2byte)	C W T U	DPT 7.001 1byte
This communication object used for threshold control.				

4.10 Objects "string (14 byte) value"

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
20	Rocker A	String(14bytes) ...		14 Byte	C	-	W	T	U	Character string	Low

NO.	Object name	Function	Flags	Data type

20	Rocker A	String(14 byte value)	C	W	T	U	DPT 16.000 14byte

This communication object used for control 14 bytes string value. According to the set and send corresponding string variables.

4.11 Objects "Combination controller"

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
20	Rocker A left	COMB OBJ1 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
21	Rocker A left	COMB OBJ2 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
22	Rocker A left	COMB OBJ3 scene		1 Byte	C	-	-	T	-		Low
23	Rocker A left	COMB OBJ4 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
24	Rocker A left	COMB OBJ5 percen...		1 Byte	C	-	-	T	-	8 bit unsigned...	Low
25	Rocker A left	COMB OBJ6 thresh...		1 Byte	C	-	-	T	-		Low
26	Rocker A left	COMB OBJ7 String...		14 Byte	C	-	-	T	-	Character string	Low
27	Rocker A left	COMB OBJ8 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
28	Rocker A left	COMB OBJ9 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
29	Rocker A left	COMB OBJ10 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
30	Rocker A right	COMB OBJ1 switching		1 bit	C	-	-	T	-	1 bit DPT_Switch	Low
31	Rocker A right	COMB OBJ2 shutter		1 bit	C	-	-	T	-	1 bit DPT_UpDown	Low
32	Rocker A right	COMB OBJ3 scene		1 Byte	C	-	-	T	-		Low
33	Rocker A right	COMB OBJ4 scene		1 Byte	C	-	-	T	-		Low
34	Rocker A right	COMB OBJ5 scene		1 Byte	C	-	-	T	-		Low
35	Rocker A right	COMB OBJ6 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
36	Rocker A right	COMB OBJ7 percen...		1 Byte	C	-	-	T	-	8 bit unsigned...	Low
37	Rocker A right	COMB OBJ8 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low
38	Rocker A right	COMB OBJ9 percen...		1 Byte	C	-	-	T	-	8 bit unsigned...	Low
39	Rocker A right	COMB OBJ10 sequence		1 bit	C	-	-	T	-	1 bit DPT_Start	Low

NO.	Object name	Function	Flags		Data type
20	Rocker A left	COMB OBJ1 switching	C	T	DPT 1.001 1bit
21	Rocker A left	COMB OBJ2 shutter	C	T	DPT 1.008 1bit
22	Rocker A left	COMB OBJ3 scene	C	T	DPT 18.001 1byte
23	Rocker A left	COMB OBJ4 sequence	C	T	DPT 1.010 1bit
24	Rocker A left	COMB OBJ5 percentage	C	T	DPT 5.001 1byte
25	Rocker A left	COMB OBJ6 threshold(0..255)	C	T	DPT 1.001 1bit
26	Rocker A left	COMB OBJ7 string(14bytes)	C	T	DPT 1.008 1bit
27	Rocker A left	COMB OBJ8 switching	C	T	DPT 18.001 1byte
28	Rocker A left	COMB OBJ9 shutter	C	T	DPT 1.010 1bit

29	Rocker A left	COMB OBJ10 switching	C T	DPT 5.001 1byte

These communication objects used for control of multiple objects at the same time. You can set different objects.

NO.	Object name	Function	Flags	Data type
20	Rocker A right	COMB OBJ1 switching	C T	DPT 1.001 1bit
21	Rocker A right	COMB OBJ2 shutter	C T	DPT 1.008 1bit
22	Rocker A right	COMB OBJ3 scene	C T	DPT 18.001 1byte
23	Rocker A right	COMB OBJ4 sequence	C T	DPT 1.010 1bit
24	Rocker A right	COMB OBJ5 percentage	C T	DPT 5.001 1byte
25	Rocker A right	COMB OBJ6 switching	C T	DPT 1.001 1bit
26	Rocker A right	COMB OBJ7 shutter	C T	DPT 1.008 1bit
27	Rocker A right	COMB OBJ8 scene	C T	DPT 18.001 1byte
28	Rocker A right	COMB OBJ9 sequence	C T	DPT 1.010 1bit
29	Rocker A right	COMB OBJ10 percentage	C T	DPT 5.001 1byte

These communication objects used for control of multiple objects at the same time. You can set different objects.

Other rockers are same to rocker A.

5- Application

5.1 Program functions diagram

	Program Start → General Function		
1	Switch controller	No / Yes	
2	Dimming controller	No / Yes	
3	Shutter controller	No / Yes	
4	Flexible controller	No / Yes	
5	Scene controller	No / Yes	Signal output
6	Sequence controller	No / Yes	
7	Percentage controller	No / Yes	
8	Combination controller	No / Yes	
9	String (14bytes) controller	No / Yes	

--43/----