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 .......................................................................................... 3
  1.1 Product Function ......................................................................................... 4

2- Hardware .......................................................................................................... 5
  2.1 Technical data .............................................................................................. 5
  2.2 Dimension drawings ................................................................................... 7
  2.3 Wiring diagram ............................................................................................ 7
  2.4 Maintenance and Cautions .......................................................................... 8

3- Software ............................................................................................................ 9
  3.1 Function parameter “General” .................................................................... 9
  3.2 Function parameter “Rocker N” .................................................................. 11
    3.2.1 Rocker’s Mode “Switch controller” ....................................................... 12
    3.2.2 Rocker’s mode “Dimming controller” .................................................... 15
    3.2.3 Rocker’s mode “Shutter controller” ....................................................... 19
    3.2.4 Rocker’s mode “Flexible controller” ....................................................... 22
    3.2.5 Rocker’s mode “Scene controller” ......................................................... 23
    3.2.6 Rocker’s mode “Sequence controller” .................................................... 25
    3.2.7 Button mode “Percentage controller” .................................................... 28
    3.2.8 Button mode “Threshold controller” ..................................................... 29
    3.2.9 Button mode “String(14 bytes) controller” .......................................... 31
    3.2.10 Button mode “Combination controller” ............................................. 32

4- Communication objects description ............................................................... 33
  4.1 Objects “General” ....................................................................................... 33
  4.2 Objects “Switch controller” .......................................................................... 34
  4.3 Objects “Dimming controller” ..................................................................... 35
  4.4 Objects “Shutter controller” ......................................................................... 35
  4.5 Objects “Flexible controller” ....................................................................... 36
  4.6 Objects “Scene controller” .......................................................................... 36
  4.7 Objects “Sequence controller” ..................................................................... 36
  4.8 Objects “Percentage controller” .................................................................. 37
  4.9 Objects “Threshold(1byte)” ....................................................................... 37
  4.10 Objects “string (14 byte) value” ............................................................... 37
  4.11 Objects “Combination controller” ............................................................. 38

5- Application ....................................................................................................... 40
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

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

<table>
<thead>
<tr>
<th>* Type of Device</th>
<th>M/P01.2</th>
<th>M/P02.2</th>
<th>M/P03.2</th>
<th>M/P04.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Number of button</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

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 x 41

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
### Application table

<table>
<thead>
<tr>
<th>Max. number of communication objects</th>
<th>230</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. number of group addresses</td>
<td>254</td>
</tr>
<tr>
<td>Max. number of associations</td>
<td>254</td>
</tr>
</tbody>
</table>

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

![Dimension drawings](image)

2.3 Wiring diagram

![Wiring diagram](image)

**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”

---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”

---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.
**HDL KNX / EIB – BUS**

**Panel controlle-PV2**

- **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**

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.

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”

![Flexible controller window](image)

--- **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”

---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”

---Rockers 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=start with 1, Right=start with 1
Valid: 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”

---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”

--- 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

**Flashin**: 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
3.2.10 Button mode “Combination controller”

---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.

Fig12: “Combination controller” window

---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 of 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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>General</td>
<td>Heartbeat telegram</td>
<td>C T</td>
<td>DPT 5.001</td>
</tr>
<tr>
<td>1</td>
<td>General</td>
<td>Change LED brightness</td>
<td>C W T U</td>
<td>1byte</td>
</tr>
</tbody>
</table>

This communication object is used to change LED brightness function.
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.

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left short</td>
<td>Switching (ON/Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A right short</td>
<td>Switching (ON/Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001 1bit</td>
</tr>
</tbody>
</table>

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left short</td>
<td>Switching(Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A left long</td>
<td>Dimming</td>
<td>C W T U</td>
<td>DPT 3.007 4bit</td>
</tr>
<tr>
<td>22</td>
<td>Rocker A right short</td>
<td>Switching(Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>23</td>
<td>Rocker A right long</td>
<td>Dimming</td>
<td>C W T U</td>
<td>DPT 3.007 4bit</td>
</tr>
</tbody>
</table>

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left short</td>
<td>Adjust for shutter</td>
<td>C W T U</td>
<td>DPT 1.007 1bit</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A left long</td>
<td>Move for shutter</td>
<td>C W T U</td>
<td>DPT 1.008 1bit</td>
</tr>
<tr>
<td>22</td>
<td>Rocker A right short</td>
<td>Adjust for shutter</td>
<td>C W T U</td>
<td>DPT 1.007 1bit</td>
</tr>
<tr>
<td>23</td>
<td>Rocker A right long</td>
<td>Move for shutter</td>
<td>C W T U</td>
<td>DPT 1.008 1bit</td>
</tr>
</tbody>
</table>

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left</td>
<td>Flexible</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A right</td>
<td>Flexible</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
</tbody>
</table>

These communication objects used for flexible control some device.

### 4.6 Objects “Scene controller”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A short</td>
<td>Call scene</td>
<td>C W T U</td>
<td>DPT 18.001</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A long</td>
<td>Scene dimming</td>
<td>C W T U</td>
<td>DPT 3.007</td>
</tr>
</tbody>
</table>

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left short</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A left long</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010</td>
</tr>
<tr>
<td>22</td>
<td>Rocker A right short</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010</td>
</tr>
</tbody>
</table>

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”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A</td>
<td>Percentage</td>
<td>C W T U</td>
<td>DPT 5.001</td>
</tr>
</tbody>
</table>

This communication object used for control some device, eg: Absolute dimming the brightness.

### 4.9 Objects “Threshold(1byte)”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A</td>
<td>Threshold(1byte)</td>
<td>C W T U</td>
<td>DPT 5.004</td>
</tr>
</tbody>
</table>

This communication object used for threshold control.

### 4.10 Objects “string (14 byte) value”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A</td>
<td>String(0-14bytes)</td>
<td>C W T U</td>
<td>DPT 7.001</td>
</tr>
</tbody>
</table>
This communication object used for control 14 bytes string value. According to the set and send corresponding string variables.

### 4.11 Objects “Combination controller”

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Function</th>
<th>Flags</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Rocker A left</td>
<td>COMB OBJ1 switching</td>
<td>C T</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>21</td>
<td>Rocker A left</td>
<td>COMB OBJ2 shutter</td>
<td>C T</td>
<td>DPT 1.008 1bit</td>
</tr>
<tr>
<td>22</td>
<td>Rocker A left</td>
<td>COMB OBJ3 scene</td>
<td>C T</td>
<td>DPT 18.001 1byte</td>
</tr>
<tr>
<td>23</td>
<td>Rocker A left</td>
<td>COMB OBJ4 sequence</td>
<td>C T</td>
<td>DPT 1.010 1bit</td>
</tr>
<tr>
<td>24</td>
<td>Rocker A left</td>
<td>COMB OBJ5 percentage</td>
<td>C T</td>
<td>DPT 5.001 1byte</td>
</tr>
<tr>
<td>25</td>
<td>Rocker A left</td>
<td>COMB OBJ6 threshold(0..255)</td>
<td>C T</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>26</td>
<td>Rocker A left</td>
<td>COMB OBJ7 string(14bytes)</td>
<td>C T</td>
<td>DPT 1.008 1bit</td>
</tr>
<tr>
<td>27</td>
<td>Rocker A left</td>
<td>COMB OBJ8 switching</td>
<td>C T</td>
<td>DPT 18.001 1byte</td>
</tr>
<tr>
<td>28</td>
<td>Rocker A left</td>
<td>COMB OBJ9 shutter</td>
<td>C T</td>
<td>DPT 1.010 1bit</td>
</tr>
</tbody>
</table>
These communication objects used for control of multiple objects at the same time. You can set different objects.

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

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
2. Dimming controller
3. Shutter controller
4. Flexible controller
5. Scene controller
6. Sequence controller
7. Percentage controller
8. Combination controller
9. String (14 bytes) controller

Signal output