LCD Panel

Model: M/DLP04.1

Guangzhou Hedong Electronic Co., Ltd (HDL)
HDL KNX / EIB – BUS

DLP Panel controller

HDL KNX / EIB-BUS
(Intelligent Installation Systems)

Product Manual

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1- Product introduction

HDL KNX / EIB series DLP Panel controller are developed by HDL. Using KNX/EIB BUS communication with other KNX devices. Database need to be downloaded to the DLP 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
* ......
* Other Controlled equipments

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1.1 Product Function

For M/DLP04.1 require. 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. HVAC control
11. Floor Heating control
12. Air conditioning control
13. Button Lock
14. Button Trigger
15. Backlight Setup
16. Night mode Setup
17. Infrared remote control
18. Temperature display
19. Time display
20. 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/DLP04.1
* Number of buttons: 10

Power supply
* Operating voltage (supply by the bus): 21...30 V DC
* Current consumption EIB / KNX (operate): < 20 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
* 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

![Dimension drawings](image)

2.3 Wiring diagram

![Wiring diagram](image)

**Programming:** 1 button + 10 button

**Lock or Unlock:** 2 button + 9 button

**Basic information setting:** 9 button + 10 button

**Programming:** Keep pressing 1 and 10 buttons together for 2 seconds, the LED Indicators will flashing.

**Lock or Unlock:** keep pressing 2 and 9 buttons together for 2s, will lock the panel or unlock the panel.

**Basic information setting:** keep pressing 9 and 10 buttons together for 2s. Will enter the main menu page.

In this page can set LCD and LED brightness, Conversion from degrees Celsius to Fahrenheit, or form Fahrenheit to degrees Celsius, etc.

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 DLP Panel type is M/DLP04.1. The Interface and the functions Apply parameters please overview the following description of the paragraph.

3.1 Function parameter “General 1”

![Image](image.png)

Fig1: “General 1” parameter windows
The window can set the DLP’s base parameters.

---LCD display of the rocker buttons image
DLP can display the image of the button. You can download the image with the special software “HDL KNX Assistant Software”.

**Options**: Buttons image “same source”
Buttons image “independent source”

**Same source**: it’s means that all button’s images are the same image source.

**Independent source**: you can download different images for every button.

---Brightness of the buttons
Set the LED’s brightness of the button.
The LED level setting range is 00% ... Level100%

**Options**: Level 00%...Level100%
---Brightness of the LCD
   Set the LED level of the backlight.
   LCD’s brightness 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

---Change LCD brightness via EIB
   If choose the Enable, other devices on the bus can send telegram
   to change LCD’s brightness.
   If choose the Disable, the LCD’s brightness can’t changed by other
   KNX/EIB devices.
   **Options:** Disable
      Enable

---LCD and LED brightness automatic darker
   It’s energy- saving mode, if enable, LCD and LED brightness will
   automatic darker after a set delay.
   **Options:** Disable
      Enable

---Active infrared function via bus
   Enable for active infrared function via bus.
   **Options:** Disable
      Enable
   Disable: you can’t active infrared function via bus.
   Enable: you can active 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 rocker A..D buttons is triggered via EIB
The DLP panel there are 5 pages. The first include A,B,C,D buttons.

**Options:** Disable
Enable

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

---Enable rocker E..H buttons is triggered via EIB
---Enable rocker I..L buttons is triggered via EIB

E..L buttons are the second and third pages. The setting is same as A..D buttons.

---Enable Slave Clock

**Options:** Disable
Enable

Inside DLP panel has a slave clock, if enable and the time can displayed on DLP.

---The local temperature correction (-5C…+5C)

**Options:** -5C…+5C

DLP panel embedded with a temperature sensor, sometimes has deviation, you can correction it by set the parameter.

### 3.2 Function parameter “General 2”

![Image of “General 2” parameter windows]

This page is setting functions about DLP panel.

---Enable: Rock A..D page
Options: Disable
Enable

If you select “enable”, the “Rock A..D” page is appear, then you can set the function of A..D buttons.  As follows:

---Rocker A work mode
The function of 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 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, 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,

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

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

* 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 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,

-->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”

![Switch controller parameter windows](image)

--- **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.
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=Dark:
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=Dark: 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: Flasing
Always ON
Always OFF
According to object status

Flasing: 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”

![Fig6: “Shutter controller” parameter windows](image)
---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”

Fig7: 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”

---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”

---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”.

--->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 controller window](image)

---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 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

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 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

*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
Flash: 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”

![14 bytes value controller window](image)

Fig12: 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”

---LED status
Set the status of LED.
**Options:**
- **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
14 byte 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
3.3 Function parameter “FCU”

![FCU window](image)

**NOTE:** This function is must coordinating with HDL’s the Fan Coil Unit Controller (M/FCU.01.10.1).

---FCU functions selection
Set to FCU’s work mode, there are 4 modes.

**Options:**
- Fan
- Heating
- Cooling
- Heating and Cooling

**Fan:** The FCU’s work mode is fan.
**Heating:** The FCU’s work mode is heating.
**Cooling:** The FCU’s work mode is cooling.
**Heating and cooling:** the FCU’s work mode is heating and cooling.

---Display temperature (Celsius degree)
Options: via EIB
    Local sensor
Via EIB: The display actual temperature is depend on other devices via EIB.
Local sensor: The display actual temperature is depend on sensor itself.

---HVAC-System
Options: 2-pipe system
        4-pipe system
2-pipe system: There is one single water circuit that is filled with cooling or heating medium according to the season.
4-pipe system: The system consists of two separate water circuits for heating and cooling

->HVAC control mode type
Options: 1 bit Command
        1 byte mode

->HVAC mode type
Options: 1 bit Command
        1 byte mode

--Fan speed
Set to FCU's fan speed.
Options: 1-fan speed
        2-fan speed
        3-fan speed
1-fan speed: If you select this one, HVAC has 1 fan speed only.
2-fan speed: If you select this one, HVAC has 2 fan speeds can be setting.
3-fan speed: If you select this one, HVAC has 3 fan speeds can be setting.

->Fan control type
Options: 1 bit object
        1 byte object

->Fan status type
Options: 1 bit object
        1 byte object

---Fan speed
3.4 Function parameter “Floor Heating”

---Display actual temperature (Celsius degree)
Setting display actual temperature source.
Options: Via EIB
Local sensor
Via EIB: The display actual temperature is received other devices via EIB.
Local sensor: The display actual temperature is received sensor of itself.

---Actual temperature correction value (Celsius degree)

Fig15: Floor heating window

NOTE: This function is must coordinating with HDL’s the Fan Coil Unit Controller (M/FCU.01.10.1).
It is used to emend temperature when difference happened to detected temperature and actual temperature.

**Options:** Disable
- Enable

**Disable:** can't emend temperature

**Enable:** you can emend temperature when difference happened to detected temperature and actual temperature.

--Temperature correction value of the outdoor(-5C…+5C)
**Options:** -5C…+5C
The temperature range is -5C…+5C.

--Temperature monitoring time interval of the outdoor(s)
**Options:** 5…255
Set to the time of temperature monitoring.

---The status operation after power on
When power on and the bus voltage recovery, this function will be executed.

**Options:** Unchange
- Recovery
- Read status

**Unchange:** The position unchanged after bus voltage recovery.

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

--Delay for status read(2…255s)
**Options:** 5…255

---LED status
Set to the LED's status when operation buttons.

**Options:** flashing
- Press="ON", Release="OFF"
- Press="OFF", Release="ON"

**Flashing:** when operation the button LED will flashing.
- **Press="ON", Release="OFF"**: when pressing the button LED is ON, and when release the button LED is OFF.
- **Press="OFF", Release="ON"**: when pressing the button LED is OFF, and when release the button LED is ON.

=>Information zone:
---Display date and time
Whether display the date and time in information zone.  
**Options:** NO, YES,  
NO: don’t display the date and time.  
YES: display the date and time.  

---Display information  
Whether display the information in information zone.  
**Options:** NO, YES,  

---Display picture of the controlled device  
Whether display the information in information zone.  

---Scrolling information displayed time interval (5…255s)  
The time range is 5…255s

3.5 Function parameter “Air-condition”

![Air-condition window](Figure16.png)  

**Fig16: Air-condition window**  
**NOTE:** This function is must coordinating with HDL’s infrared signal transmitter (M/IRAC.1).  

---Display actual temperature (Celsius degree)
Setting display actual temperature source.
DLP can display actual temperature.

=>Fan speed
Automatic speed
Low speed
Medium speed
Hight speed

=>Wind swing
Wind swing

=>Air condition mode
Automatic heating/cooling
Only heating
Only heating
Only dehumidification
Only fan

=>Air condition status
The status operation after power on
Delay for status recovery(2..255s)
LED status

=>Information zone
Display date and time
Display picture of the controlled device
Scrolling information displayed time interval (5..255s)
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>Change button LED</td>
<td></td>
<td>DPT 5.001</td>
</tr>
<tr>
<td>1</td>
<td>General</td>
<td>Change LCD brightness</td>
<td>C W T U</td>
<td>1 byte</td>
</tr>
</tbody>
</table>

These communication objects used to change LED and LCD brightness function.
### NO. Object name Function Flags Data type
<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>2</td>
<td>General</td>
<td>Infrared active/inactive</td>
<td>C W T U</td>
<td>DPT 1.003 1bit</td>
</tr>
</tbody>
</table>

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.

<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>3</td>
<td>General</td>
<td>Lock buttons</td>
<td>C W T U</td>
<td>DPT 1.003 1bit</td>
</tr>
</tbody>
</table>

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.

<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>4..27</td>
<td>General</td>
<td>Trigger left or right of rocker N</td>
<td>C W T U</td>
<td>DPT 1.008 1bit</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Object Function</th>
<th>Description</th>
<th>Group Addresses</th>
<th>Len</th>
<th>C</th>
<th>R</th>
<th>N</th>
<th>T</th>
<th>U</th>
<th>Data Type</th>
<th>Prix</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Slave clock</td>
<td>Network datetime</td>
<td></td>
<td></td>
<td>8 Byte</td>
<td>C</td>
<td>-</td>
<td>T</td>
<td>U</td>
<td></td>
<td>DPT 19.001 8 Byte</td>
<td>Lax</td>
</tr>
<tr>
<td>29</td>
<td>Slave clock</td>
<td>Network date</td>
<td></td>
<td></td>
<td>3 Byte</td>
<td>C</td>
<td>-</td>
<td>T</td>
<td>U</td>
<td></td>
<td>DPT 11.001 3 Byte</td>
<td>Lax</td>
</tr>
<tr>
<td>30</td>
<td>Slave clock</td>
<td>Network time</td>
<td></td>
<td></td>
<td>3 Byte</td>
<td>C</td>
<td>-</td>
<td>T</td>
<td>U</td>
<td></td>
<td>DPT 10.001 3 Byte</td>
<td>Lax</td>
</tr>
</tbody>
</table>

Input time & date information synchronisation of master clock in the KNX system.
### 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>40</td>
<td>Rocker A left short</td>
<td>Switching(Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Rocker A right short</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Rocker A right long</td>
<td></td>
<td></td>
<td></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>40</td>
<td>Rocker A left short</td>
<td>Switching(Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left long</td>
<td>Dimming</td>
<td>C W T U</td>
<td>DPT 3.007</td>
</tr>
<tr>
<td>42</td>
<td>Rocker A right short</td>
<td>Switching(Toggle)</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>43</td>
<td>Rocker A right long</td>
<td>Dimming</td>
<td>C W T U</td>
<td>DPT 3.007</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>40</td>
<td>Rocker A left short</td>
<td>Adjust for shutter</td>
<td>C W T U</td>
<td>DPT 1.007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1bit</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left long</td>
<td>Move for shutter</td>
<td>C W T U</td>
<td>DPT 1.008</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1bit</td>
</tr>
<tr>
<td>42</td>
<td>Rocker A right short</td>
<td>Adjust for shutter</td>
<td>C W T U</td>
<td>DPT 1.007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1bit</td>
</tr>
<tr>
<td>43</td>
<td>Rocker A right long</td>
<td>Move for shutter</td>
<td>C W T U</td>
<td>DPT 1.008</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>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>Object Function</th>
<th>Descript...</th>
<th>Group Add...</th>
<th>Length</th>
<th>C</th>
<th>R</th>
<th>W</th>
<th>T</th>
<th>U</th>
<th>Data Type</th>
<th>Pri</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>General</td>
<td>Send cycles</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>R</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Rocker A right</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Rocker B left</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Rocker B right</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Rocker C left</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Rocker C right</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Rocker D left</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Rocker D right</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Object name</th>
<th>Object Function</th>
<th>Descript...</th>
<th>Group Add...</th>
<th>Length</th>
<th>C</th>
<th>R</th>
<th>W</th>
<th>T</th>
<th>U</th>
<th>Data Type</th>
<th>Pri</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Rocker A left</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Rocker A right</td>
<td>Flexible</td>
<td></td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>T</td>
<td>U</td>
<td></td>
<td></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>40</td>
<td>Rocker A short</td>
<td>Call scene,</td>
<td>C W T U</td>
<td>DPT 18.001 1byte</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A long</td>
<td>Scene dimming</td>
<td>C W T U</td>
<td>DPT 3.007 4bit</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 4 bits 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>40</td>
<td>Rocker A left short</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010 1bit</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left long</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010 1bit</td>
</tr>
<tr>
<td>42</td>
<td>Rocker A right short</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010 1bit</td>
</tr>
<tr>
<td>43</td>
<td>Rocker A right long</td>
<td>Sequence</td>
<td>C W T U</td>
<td>DPT 1.010 1bit</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>40</td>
<td>Rocker A</td>
<td>Percentage</td>
<td>C W T U</td>
<td>DPT 5.001 1byte</td>
</tr>
</tbody>
</table>

This communication object used for control some device, eg: Absolute dimming the...
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>40</td>
<td>Rocker A</td>
<td>Threshold(1byte)</td>
<td>C W T U</td>
<td>DPT 5.004 1byte</td>
</tr>
<tr>
<td>40</td>
<td>Rocker A</td>
<td>Threshold(2byte)</td>
<td>C W T U</td>
<td>DPT 7.001 1byte</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>40</td>
<td>Rocker A</td>
<td>14 byte value</td>
<td>C W T U</td>
<td>DPT 16.000 14byte</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>40</td>
<td>Rocker A left</td>
<td>COMB OBJ1 switching</td>
<td>C T</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>41</td>
<td>Rocker A left</td>
<td>COMB OBJ2 shutter</td>
<td>C T</td>
<td>DPT 1.008 1bit</td>
</tr>
<tr>
<td>42</td>
<td>Rocker A left</td>
<td>COMB OBJ3</td>
<td>C T</td>
<td>DPT 18.001</td>
</tr>
</tbody>
</table>
These communication objects used for control of multiple objects at the same time. So, Multiple objects can synchronize operation.

**Other rockers are same to rocker A.**

### 4.12 Objects “HVAC Fan”

<table>
<thead>
<tr>
<th>Rocker</th>
<th>Data</th>
<th>Object Function</th>
<th>D .</th>
<th>G</th>
<th>Length</th>
<th>C</th>
<th>R</th>
<th>V</th>
<th>T</th>
<th>U</th>
<th>Data Type</th>
<th>Prior</th>
</tr>
</thead>
<tbody>
<tr>
<td>[151]</td>
<td>HVAC Actual temperature</td>
<td>Actual temp error signal</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>Low</td>
</tr>
<tr>
<td>[152]</td>
<td>HVAC Actual temperature</td>
<td>Frost/heat alarm error signal</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>Low</td>
</tr>
<tr>
<td>[153]</td>
<td>HVAC Setpoint</td>
<td>Basic setpoint temperature</td>
<td>2 byte</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>2 byte float ...</td>
<td>HVAC_Enable</td>
<td>Low</td>
</tr>
<tr>
<td>[154]</td>
<td>HVAC Setpoint</td>
<td>Instantaneous setpoint temp.</td>
<td>2 byte</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>2 byte float ...</td>
<td>HVAC_Enable</td>
<td>Low</td>
</tr>
<tr>
<td>[155]</td>
<td>HVAC control node</td>
<td>Automatic heating/cooling node</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[156]</td>
<td>HVAC control node</td>
<td>Activation of heating node</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[157]</td>
<td>HVAC control node</td>
<td>Activation of cooling node</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[158]</td>
<td>HVAC control node</td>
<td>Activation of fan only</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[159]</td>
<td>HVAC node</td>
<td>ON CMS for comfort node</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_ListView</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[160]</td>
<td>HVAC node</td>
<td>ON CMS for standby node</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_ListView</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[161]</td>
<td>HVAC node</td>
<td>ON CMS for night mode</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_ListView</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[162]</td>
<td>HVAC node</td>
<td>ON CMS for building protection</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_ListView</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[163]</td>
<td>HVAC Fan</td>
<td>Fan speed automatic</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[164]</td>
<td>HVAC Fan</td>
<td>Fan speed 1</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[165]</td>
<td>HVAC Fan</td>
<td>Fan speed 2</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[166]</td>
<td>HVAC Fan</td>
<td>Fan speed 3</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[167]</td>
<td>HVAC Fan</td>
<td>Status fan speed</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[168]</td>
<td>HVAC Fan</td>
<td>Status fan speed automatic</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[169]</td>
<td>HVAC Valve Heating</td>
<td>Trigger valve purge</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[170]</td>
<td>HVAC Valve Heating</td>
<td>Status valve purge</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[171]</td>
<td>HVAC Valve Cooling</td>
<td>Trigger valve purge</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>[172]</td>
<td>HVAC Valve Cooling</td>
<td>Status valve purge</td>
<td>1 bit</td>
<td>C</td>
<td>-</td>
<td>Y</td>
<td>Y</td>
<td>V</td>
<td>V</td>
<td>1 bit</td>
<td>HVAC_Enable</td>
<td>HVAC_Enable</td>
</tr>
<tr>
<td>NO.</td>
<td>Object name</td>
<td>Function</td>
<td>Flags</td>
<td>Data type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>----------------------</td>
<td>-----------------------------------------------</td>
<td>--------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>161</td>
<td>HVAC Actual temperature</td>
<td>Actual temp. error signal</td>
<td>C W T U</td>
<td>DPT 1.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>HVAC Actual temperature</td>
<td>Frost/heat alarm error signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An error signal can be received from KNX/EIB with these objects. Telegram value: “0”: No error, “1”: Error

<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>163</td>
<td>HVAC Setpoint</td>
<td>Base setpoint temperature</td>
<td>C W T U</td>
<td>DPT 9.001</td>
</tr>
<tr>
<td>164</td>
<td>HVAC Setpoint</td>
<td>Instantaneous setpoint temperature</td>
<td>C W T U</td>
<td>DPT 9.001</td>
</tr>
</tbody>
</table>

The temperature value can be transmitted to KNX bus. HVAC or FCU on the KNX bus can receiving the temperature as base setpoint temperature.

<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>166</td>
<td>HVAC control mode</td>
<td>Automatic heating/cooling mode</td>
<td></td>
<td>DPT 1.003</td>
</tr>
<tr>
<td>167</td>
<td>HVAC control mode</td>
<td>Activation of heating mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>HVAC control mode</td>
<td>Activation of cooling mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>169</td>
<td>HVAC control mode</td>
<td>Activation of fan only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These communication objects used for switching HVAC’s control mode. Telegram value “1” is valid and telegram value ‘0’ is invalid.

<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>171</td>
<td>HVAC mode</td>
<td>ON CMD for comfort mode</td>
<td></td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>172</td>
<td>HVAC mode</td>
<td>ON CMD for standby mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>173</td>
<td>HVAC mode</td>
<td>ON CMD for night mode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>174</td>
<td>HVAC mode</td>
<td>ON CMD for building</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
These communication objects used for switching HVAC work mode. Telegram value “1” is valid and telegram value ‘0’ is invalid.

<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>175</td>
<td>HVAC Fan</td>
<td>Fan speed automatic</td>
<td>C W T U</td>
<td>DPT 1.003</td>
</tr>
<tr>
<td>177</td>
<td>HVAC Fan</td>
<td>Fan speed 1</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>178</td>
<td>HVAC Fan</td>
<td>Fan speed 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>HVAC Fan</td>
<td>Fan speed 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These communication objects used for switching HVAC Fan speed. Telegram value “1” is valid and telegram value ‘0’ is invalid.

<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>180</td>
<td>HVAC Fan</td>
<td>Status fan speed 1</td>
<td>C W T U</td>
<td>DPT 1.001</td>
</tr>
<tr>
<td>181</td>
<td>HVAC Fan</td>
<td>Status fan speed 2</td>
<td>C W T U</td>
<td></td>
</tr>
<tr>
<td>182</td>
<td>HVAC Fan</td>
<td>Status fan speed 3</td>
<td>C W T U</td>
<td></td>
</tr>
</tbody>
</table>

These communication objects used to receive HVAC Fan speed. Telegram value “1” is valid.
### 4.13 Objects “Floor heating”

<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>192</td>
<td>Floor heating</td>
<td>Actual temp. error signal</td>
<td>C W T U</td>
<td>DPT 1.005, 1bit</td>
</tr>
</tbody>
</table>

An error signal can be received from KNX/EIB with these objects. 
Telegram value: "0": No error , "1": Error

<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>194</td>
<td>Floor heating</td>
<td>Normal-mode setpoint Temp.</td>
<td>C W T U</td>
<td>DPT 9.001, 2Byte</td>
</tr>
<tr>
<td>195</td>
<td>Floor heating</td>
<td>Day –mode setpoint Temp.</td>
<td>C W T U</td>
<td>DPT 9.001, 2Byte</td>
</tr>
<tr>
<td>196</td>
<td>Floor heating</td>
<td>Night –mode setpoint Temp.</td>
<td>C W T U</td>
<td>DPT 9.001, 2Byte</td>
</tr>
<tr>
<td>197</td>
<td>Floor heating</td>
<td>Away –mode setpoint Temp.</td>
<td>C W T U</td>
<td>DPT 9.001, 2Byte</td>
</tr>
</tbody>
</table>

These modes setpoint temperature can be transmitted to KNX bus.

<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>198</td>
<td>Floor heating</td>
<td>Preset 1 Temp. for timer mode</td>
<td>C W T U</td>
<td>DPT 9.001, 2Byte</td>
</tr>
</tbody>
</table>

The Time-mode preset 1 temperature can be transmitted to KNX bus.

<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>199</td>
<td>Floor heating</td>
<td>Time of day for preset 1</td>
<td>C W T U</td>
<td>DPT 10.001, 3Byte</td>
</tr>
</tbody>
</table>

The Time-mode preset 1 start time can be transmitted to KNX bus.

<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>200</td>
<td>Floor heating</td>
<td>Start/Stop heating for preset 1</td>
<td>C W T U</td>
<td>DPT 1.010, 1bit</td>
</tr>
</tbody>
</table>

The Time-mode preset 1 start time can be transmitted to KNX bus.
The Time-mode floor heating start or stop in this preset 1 time can be transmitted to KNX bus.

<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>201</td>
<td>Floor heating</td>
<td>Preset 2 Temp. for timer mode</td>
<td>C W T U</td>
<td>DPT 1.010 1 bit</td>
</tr>
</tbody>
</table>

The Time-mode preset 2 temperature can be transmitted to KNX bus.

<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>202</td>
<td>Floor heating</td>
<td>Time of day for preset 2</td>
<td>C W T U</td>
<td>DPT 1.010 1 bit</td>
</tr>
</tbody>
</table>

The Time-mode preset 2 start time can be transmitted to KNX bus.

<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>203</td>
<td>Floor heating</td>
<td>Start/Stop heating for preset 2</td>
<td>C W T U</td>
<td>DPT 1.010 1 bit</td>
</tr>
</tbody>
</table>

The Time-mode floor heating start or stop in this preset 2 time can be transmitted to KNX bus.

<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>204</td>
<td>Floor heating</td>
<td>Preset 3 Temp. for timer mode</td>
<td>C W T U</td>
<td>DPT 9.001 2 byte</td>
</tr>
</tbody>
</table>

The Time-mode preset 3 temperature can be transmitted to KNX bus.

<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>205</td>
<td>Floor heating</td>
<td>Time of day for preset 3</td>
<td>C W T U</td>
<td>DPT 10.001 3 byte</td>
</tr>
</tbody>
</table>

The Time-mode preset 3 start time can be transmitted to KNX bus.

<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>206</td>
<td>Floor heating</td>
<td>Start/Stop heating for preset 3</td>
<td>C W T U</td>
<td>DPT 1.010 1 bit</td>
</tr>
</tbody>
</table>

The Time-mode floor heating start or stop in this preset 3 time can be transmitted to KNX bus.

<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>207</td>
<td>Floor heating</td>
<td>Floor heating(1-ON,0-OFF)</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
</tbody>
</table>

This communication object used for control floor heating’s ON and OFF. Send the telegram value “1” for ON, 0 for OFF.

<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>208</td>
<td>Floor heating</td>
<td>On CMD for Normal-mode</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
<tr>
<td>209</td>
<td>Floor heating</td>
<td>ON CMD for Day-mode</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
<tr>
<td>210</td>
<td>Floor heating</td>
<td>ON CMD for Night-mode</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
<tr>
<td>211</td>
<td>Floor heating</td>
<td>ON CMD for Away-mode</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
<tr>
<td>212</td>
<td>Floor heating</td>
<td>ON CMD for Time-mode</td>
<td>C W T U</td>
<td>DPT 1.001 1 bit</td>
</tr>
</tbody>
</table>

These communication objects used for control floor heating’s mode. Send the telegram value “1” or “0” to switching floor heating’s mode. Telegram value “1” is valid, Telegram value “0” is invalid.
These communication objects used for valve purge. Send the telegram value “1” to trigger valve purge, value “0” to stop valve purge. Also, state can be feedback to the KNX bus.

4.14 Objects “Air condition”

This communication object used for control air condition is ON or OFF.

This communication object used for setpoint temperature.
These communication objects used for switching air condition’s speed. Telegram value “1” is valid.

<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>223</td>
<td>Air condition Wind</td>
<td>Wind swing(“1”-swing,”0”-stop)</td>
<td>C W T U</td>
<td>DPT 1.010 1bit</td>
</tr>
</tbody>
</table>

This communication object used for switching air condition wind. Telegram value “1” start swing, and 0 is stop.
“1”-swing, “0”-stop

These communication objects used for switching air condition’s mode. Telegram value “1” is valid.

<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>224</td>
<td>Air condition Mode</td>
<td>ON CMD for automatic</td>
<td>C W T U</td>
<td>DPT 1.001 1bit</td>
</tr>
<tr>
<td>225</td>
<td>Air condition Mode</td>
<td>ON CMD for cooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>226</td>
<td>Air condition Mode</td>
<td>ON CMD for heating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>227</td>
<td>Air condition Mode</td>
<td>ON CMD for high dehumidification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>228</td>
<td>Air condition Mode</td>
<td>ON CMD for fan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5- Application

5.1 Program functions diagram

Program Start

General Function

Switch controller

Dimming controller

Shutter controller

Flexible controller

Scene controller

Sequence controller

Percentage controller

Combination controller

String (14bytes) controller

HVAC Temp.

HVAC mode

HVAC speed

HVAC control mode

ON/OFF.

Temperature

Floor heating mode

ON/OFF

Temperature

AC speed

AC mode

Signal output

Floor Heating

Fun

Air Condition
6-Panel operation

6.1 General control

1 to 4 pages control.

6.2 Floor heating control

Pressing 2s, will control heat pipe

Heat pipe control:

Purging or stop heat pipe
Exit
6.3 HVAC control

- Pressing 2s, will control heat pipe or cool pipe
- Temperature
- HVAC mode
- HVAC speed
- HVAC control mode
- Change page
- Information zone

Heat pipe or cool pipe control

- Purging or stop heat pipe or cool pipe
- Choose heat pipe or cool pipe
- Choose heat pipe or cool pipe
- Exit

NOTE: Floor heating control and HVAC control are must coordinating with HDL’s Fan Coil Unit Controller (M/FCU.01.10.1).
6.4 AC control

NOTE: This function is must coordinating with HDL’s infrared signal transmitter (M/IRAC.1).
Basic information setting

Basic information setting: keep pressing 9 and 10 buttons together for 2s, LCD brightness and LED brightness will be setting. Conversion Celsius and Fahrenheit temperature.

**LCD:** 96, LCD’s brightness, the range is 0-100
**LED:** 100, LED’s brightness, the range is 0-100
**C/F:** CEL, temperature’s unit,
**ATDk: 1T/2T,** the backlight will dim down after no operation for 10s (if set 10s), When operation again…
1T: The button will reaction immediate, In the meantime also can control the device.
2T: The first times click button is only lighten the backlight, the second press button for control device.
7-Buttons image setting

The buttons image must download by special software, HDL KNX Assistant Software.

7.1 HDL KNX Assistant Software.exe’ s setting

- **Add one device.**

  Main form->Add device->set physical address and remark->Add OK.

Add result:

- **Add one device.**

  Select the row where need to edit. Mouse double click the row or click edit device to open the edit form.
Picture download->Add.

Edit these pictures need to download. Click add to list to add pictures to edit device list.

Click download picture.
Download completed.

7.2 Package picture

You can package these pictures edited to database. Click package, input name, OK completed.

Click picture management, see the package information.
In this form, we can import or export or add package info to edit device list.

7.3 Set communicate mode

Download picture data to device can throw two modes: usb and NetIP.
Main form->Setting->Communication mode->select mode -> save