



HDL-MFH06.432
User Manual

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Update History

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

No.	Version	Update Information	Date
1	V1.0.0	Initial release	May.22 nd , 2020

1 Introduction

6CH Floor Heating Module (See Figure 1) is a 6-channel floor heating controller. Each channel supports Relay output and 0-10V power output. With built-in PI controller, 13 digital temperature sensors and overheat protection function, the Module can be used to control floor heating and indoor temperature.



Figure 1

1.1 Functionality

- Detects temperature with digital temperature sensor DS18B20, maximum length of the sensor cable is 100 meters.
- 6 channels of separate PI Control, supports floor heating and floor cooling
- Supports AC/DC electrical heating valve and 0-10V electrical heating valve
- The control range of temperature is 5~40°C, the accuracy is 0.5°C
- Supports flush function, manual flush or timer controlled
- Supports master and slave mode
- Optional multiple mode: Timer, away, home, normal, etc

- Maximum and minimum heating value can be set
- Expand control: Command can be sent to external high power relay, to control the high power loads, like heater
- Supports floor overheat protection and temperature sensor failure protection
- Online update supported via HDL Buspro Setup Tool

1.2 Parameters

Basic Parameters :	
Working voltage	15~30V DC
Working current	150mA/24V DC
Output channel	6
DC 0-10V output current	10mA
Input voltage	AC100-240V (50/60Hz)
Relay output current	1A
Relay unit life time	5,000,000 actuations
External Environment:	
Working temperature	-5°C ~45°C
Working relative humidity	≤90%
Storage temperature	-20°C ~60°C
Storage relative humidity	≤93%
Specifications:	
Dimensions	144mm×90mm×64mm
Net weight	285g
Housing material	Nylon, PC
Installation	35mm DIN rail installation
Protection rating (Compliant with EN 60529)	IP20

1.3 Product Interface

The connection and interface of 6-channel floor heating controller like the below figure 2.

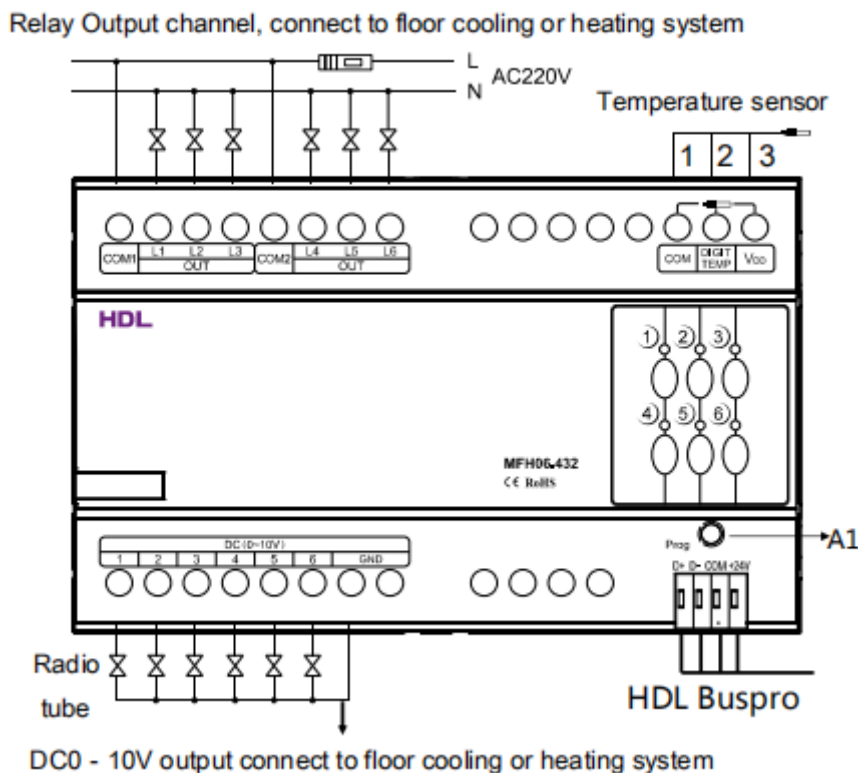


Figure 2

1. White wire
2. Yellow wire
3. Red wire

A1: Programming button & module indicator: It flickers when the module is working properly. Keep pressing the programming button for 3 seconds, the address of the module can be read and modified in HDL Buspro Setup Tool.

Note: It is better to twist shielded CAT5E cable, data cable and ground cable. The probe may be not detected if unqualified cable is used.

2 Configuration

2.1 Basic Information

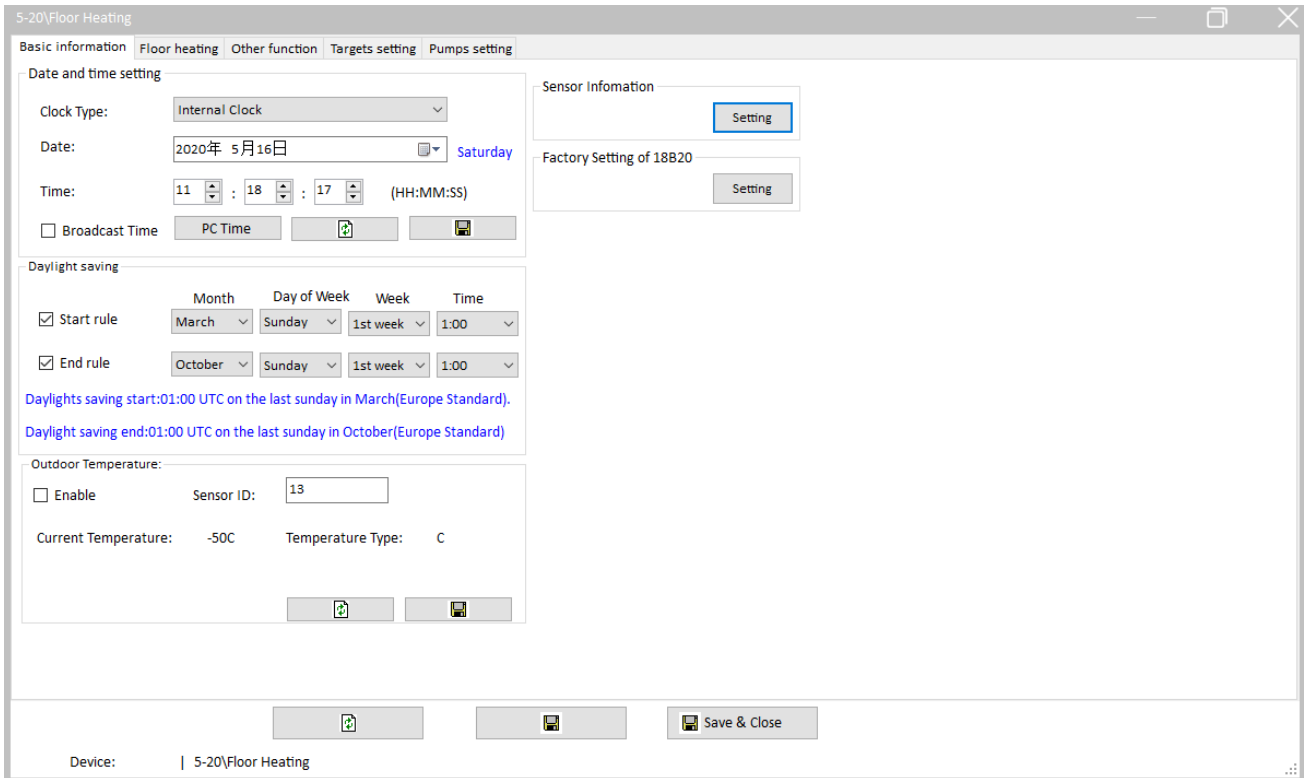


Figure 3

2.1.1 Date and time setting

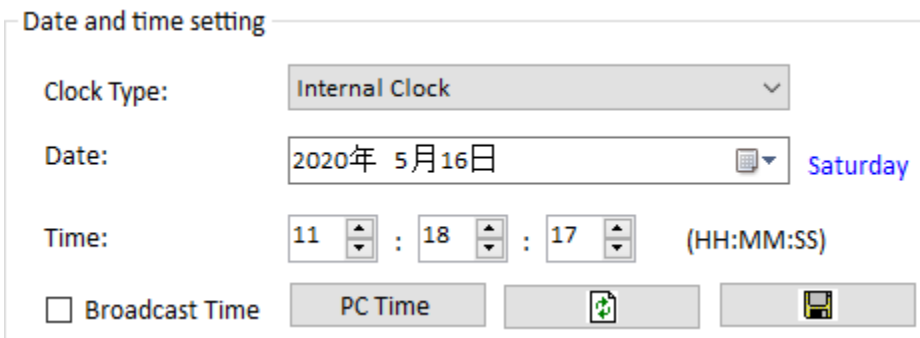


Figure 3

Set the time for Floor Hearing:

Clock type:

Internal clock: use floor heating time. (HDL-MFH06.432 has built-in battery and real time clock).

External clock: use other device' s time, such as logic module, DMX recorder.

Time: select the time, or use PC Time.

Broadcast Time: broadcast to HDL-BUS system.

2.1.2 Daylight saving

- Daylight saving

	Month	Day of Week	Week	Time
<input checked="" type="checkbox"/> Start rule	March	Sunday	1st week	1:00
<input checked="" type="checkbox"/> End rule	October	Sunday	1st week	1:00

Daylights saving start:01:00 UTC on the last sunday in March(Europe Standard).
Daylight saving end:01:00 UTC on the last sunday in October(Europe Standard)

Figure 4

It is used for Summer Time.

2.1.3 Daylight saving

Outdoor Temperature:

<input checked="" type="checkbox"/> Enable	Sensor ID:	22
Current Temperature:	30C	Temperature Type: C



 

Figure 5

It is used to set the outdoor temperature.

2.1.4 Sensor information and factory setting of 18B20

Sensor Infomation

Setting

Factory Setting of 18B20

Setting

Figure 6

It is used to read sensor information and set the ID of 18B20.

2.2 Floor heating

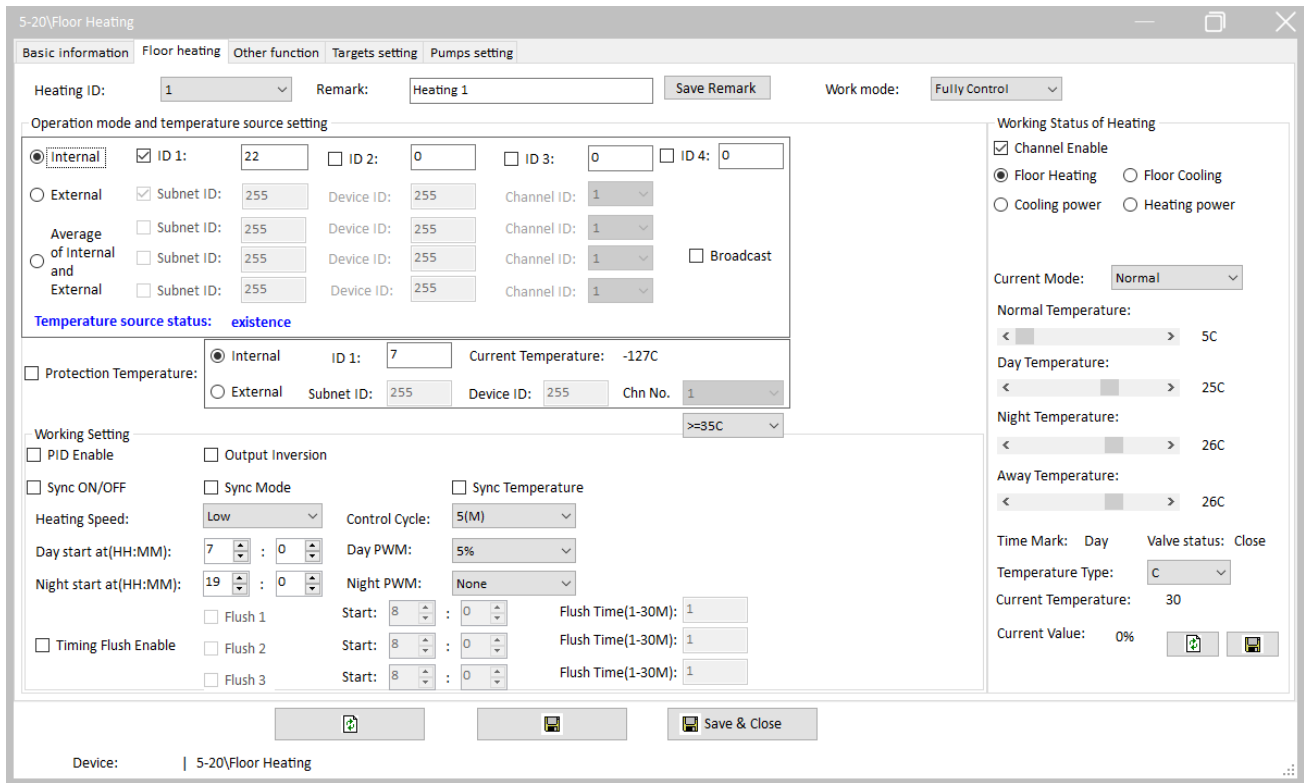


Figure 7

2.2.1 Heating ID

Heating ID: channel ID of floor heating module, from 1 to 6.



Figure 8

2.2.2 Work mode

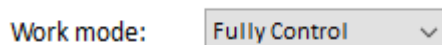


Figure 9

Slave control: in “slave control” (and DLP shall be in “fully control” mode), the HDL-MFH06.432 works in a simplest way, it just reacts the commands (relay on... relay off...) that sent to it, the DLP panel is in charge of the controlling, and the HDL-MF

H06.432 is just a simple actuator (so it does not has to be HDL-MFH06.432, it can be a general relay module).

Fully control: in “fully control” (and DLP shall be in “slave control” mode, Version4 DLP, the HDL-MFH06.432 works in a smarter way, it is in charge of the controlling. The DLP will be just a user interface that accepts the user command and transfers the command to HDL-MFH06.432. You can have other functions that built in the floor heating module when it is configured in this mode.

2.2.3 Operation mode and temperature source setting

Figure 10

Internal: use floor heating module’s digital temperature sensor, one channel has max four IDs for sensor.

External: use other device’s sensor.

Average of internal and External: the average temperature between Internal and External.

2.2.4 Protection Temperature

Figure 11

Use to shut down floor heating if floor is overheated, so as to protect the floor.

Internal: use floor heating module’s digital temperature sensor.

External: use other device’s temperature sensor.

2.2.5 Working Setting

Figure 12

PID Enable: PID algorithm, suitable for controlling floor heating, recommend to tick.

Output inversion: need to tick this option if a negative logic valve is used.

Sync ON/OFF, Sync Mode, Sync Temperature: If checked, it will receive and execute the user input that broadcast from any DLP, so that one DLP can control all online HDL-MFH06.432.

Heating Speed : you can select 5 heating speed from here.

Control Cycle: recommend to use 5 minutes. (turning on and off frequently is not good for relay.)

Day start at(HH:MM): setting a day start time.

Day PWM: It means when the temperature reach setting temperature, still have a PWM output in day mode.

Night start at(HH:MM): setting a night start time.

Night PWM: It means when the temperature reach setting temperature, still have a PWM output in night mode.

2.2.6 Timing Flush Enalbe

Figure 13

When time is reached, flush function will be triggered and start to clean the pipe. (HDL-MFH06.432 has built-in battery and real time clock.)

2.3 Other function

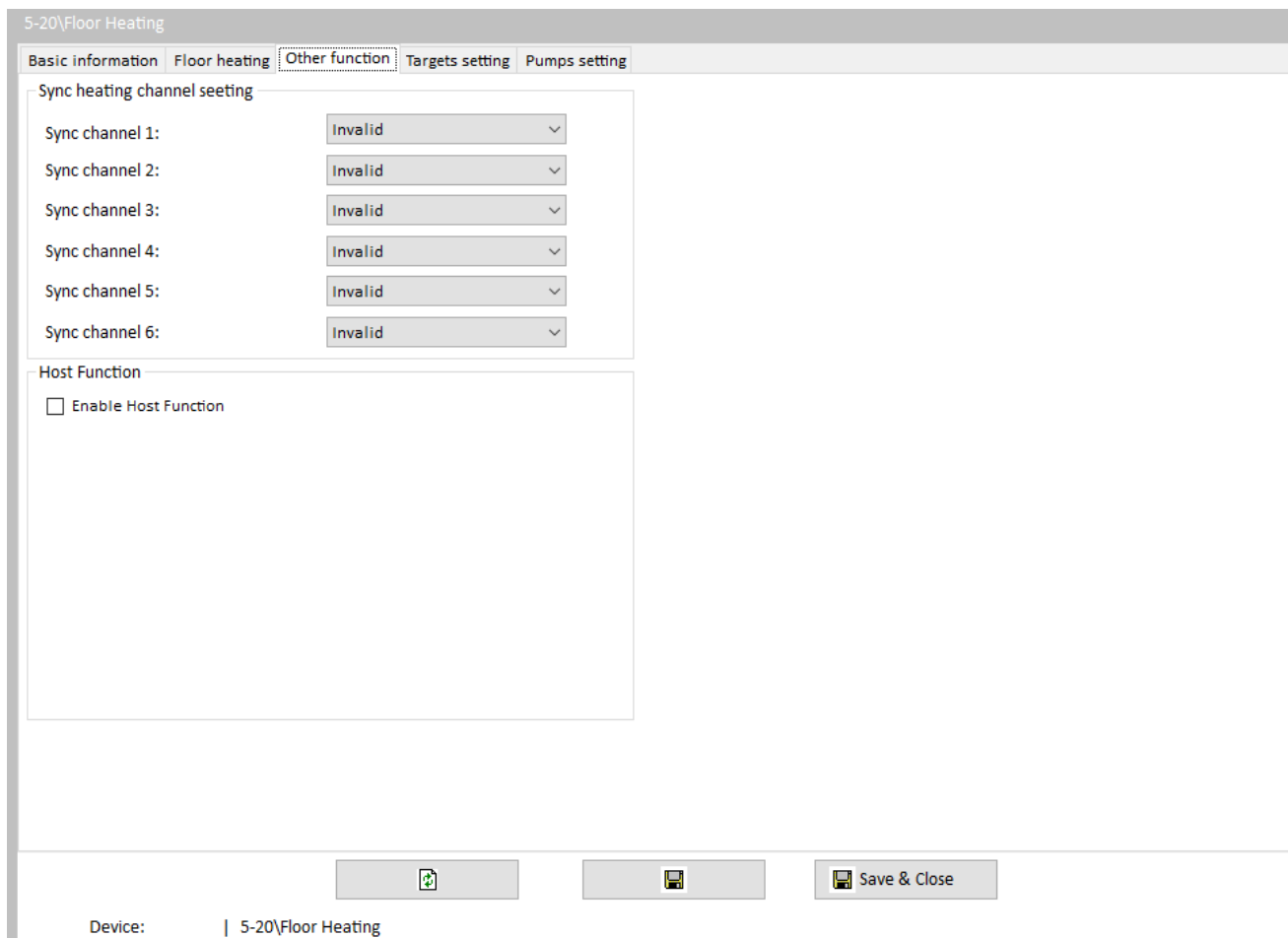


Figure 13

2.3.1 Sync heating channel setting

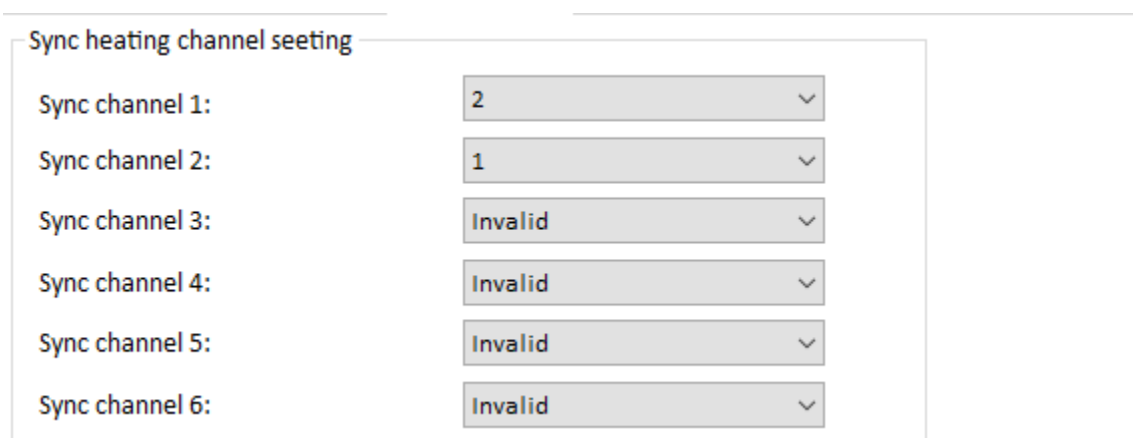


Figure 14

Use in central control, synchronous setting temperature and mode. See above, channel 2 is synchronized with channel1's setting.

2.3.2 Host Function

Host Function

Enable Host Function

Host Channle No.:

	Subnet ID	Device ID	Channel No.
<input checked="" type="checkbox"/> Slave 1	<input type="text" value="5"/>	<input type="text" value="21"/>	<input type="text" value="1"/>
<input checked="" type="checkbox"/> Slave 2	<input type="text" value="5"/>	<input type="text" value="21"/>	<input type="text" value="2"/>
<input type="checkbox"/> Slave 3	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="1"/>
<input type="checkbox"/> Slave 4	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="1"/>

Figure 15

If using host function, the slave floor heating channel will synchronize with the host floor heating channel.

2.4 Targets setting

5-20\Floor Heating

Basic information | Floor heating | Other function | **Targets setting** | Pumps setting

ON/OFF Switching Target Setting

Floor Heating ID: Enable

Floor Heating/ON
 Floor Heating/OFF
 Floor Cooling/ON
 Floor Cooling/OFF

Index	Subnet ID	Device ID	Type	Param1	Param2	Param3	Param4
1	5	4	Single Channel Control	1(Channel no.)	100(Intensity)	0:0(Running time[M:S])	N/A
2	255	255	Invalid	N/A	N/A	N/A	N/A
3	255	255	Invalid	N/A	N/A	N/A	N/A
4	255	255	Invalid	N/A	N/A	N/A	N/A
5	255	255	Invalid	N/A	N/A	N/A	N/A

Relay Target Setting

Relay No.: Enable Relay Status: Relay ON Relay OFF

Index	Subnet ID	Device ID	Type	Param1	Param2	Param3	Param4
1	255	255	Invalid	N/A	N/A	N/A	N/A
2	255	255	Invalid	N/A	N/A	N/A	N/A
3	255	255	Invalid	N/A	N/A	N/A	N/A
4	255	255	Invalid	N/A	N/A	N/A	N/A
5	255	255	Invalid	N/A	N/A	N/A	N/A

Device: | 5-20\Floor Heating

Figure 16

2.4.1 ON/OFF Switching Target Setting

ON/OFF Switching Target Setting

Floor Heating ID: Enable

Floor Heating/ON
 Floor Heating/OFF
 Floor Cooling/ON
 Floor Cooling/OFF

Index	Subnet ID	Device ID	Type	Param1	Param2	Param3	Param4
1	5	4	Single Channel Control	1(Channel no.)	100(Intensity)	0:0(Running time[M:S])	N/A
2	255	255	Invalid	N/A	N/A	N/A	N/A
3	255	255	Invalid	N/A	N/A	N/A	N/A
4	255	255	Invalid	N/A	N/A	N/A	N/A
5	255	255	Invalid	N/A	N/A	N/A	N/A

Figure 17

When the floor heating status is changed, will trigger this targets.

2.4.2 Relay Target Setting

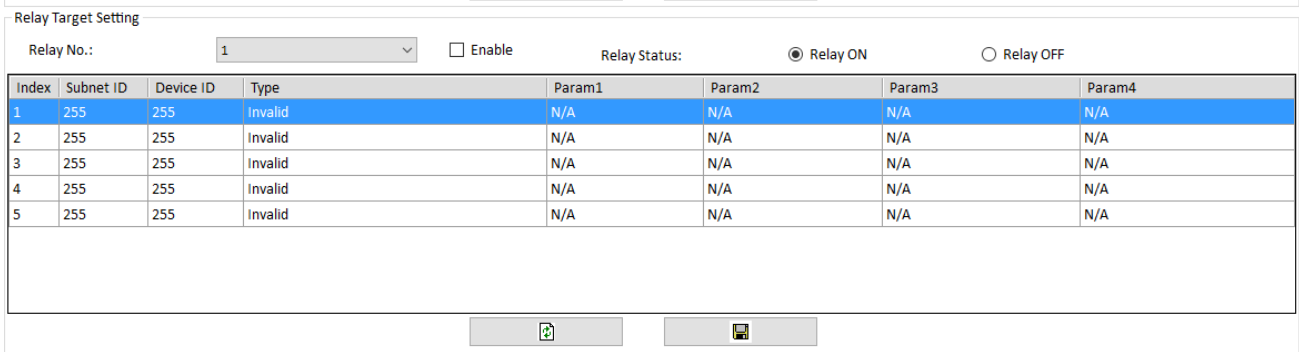
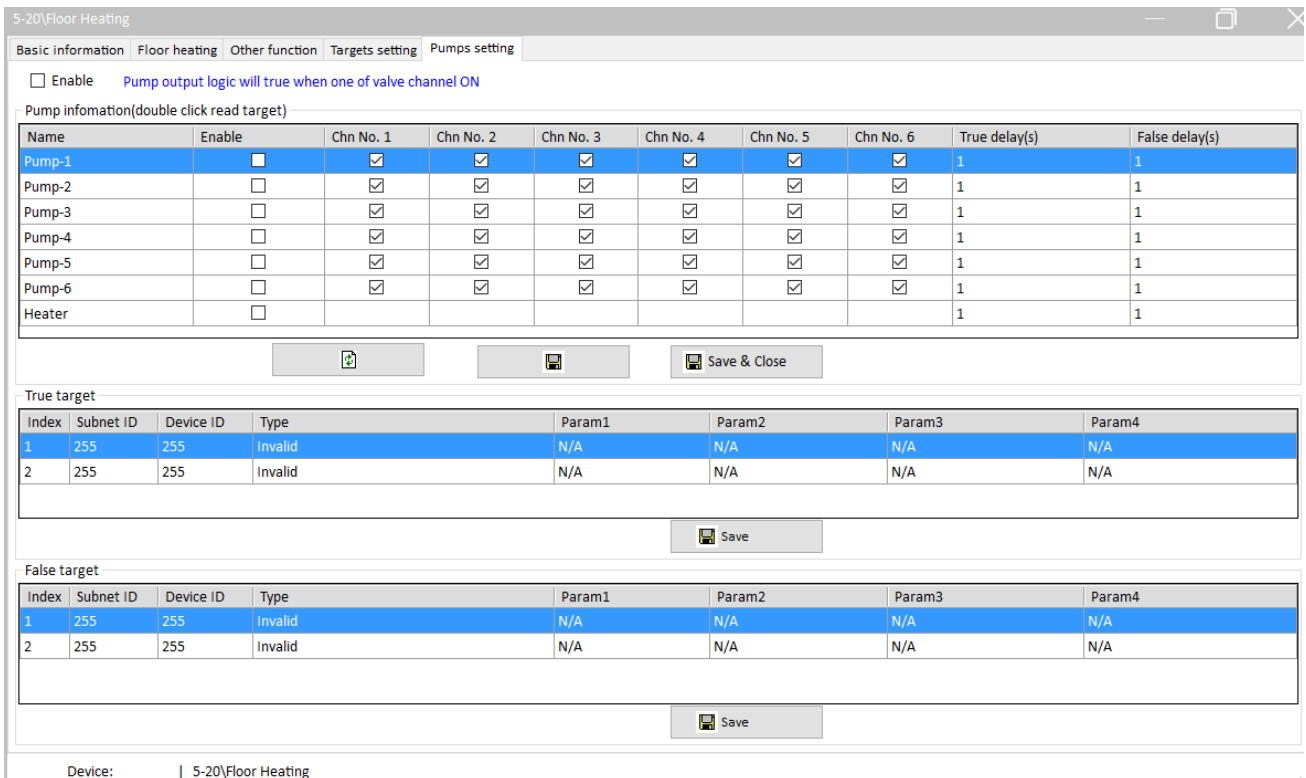


Figure 18

When the relay status is changed, will trigger this targets.

2.5 Pumps setting

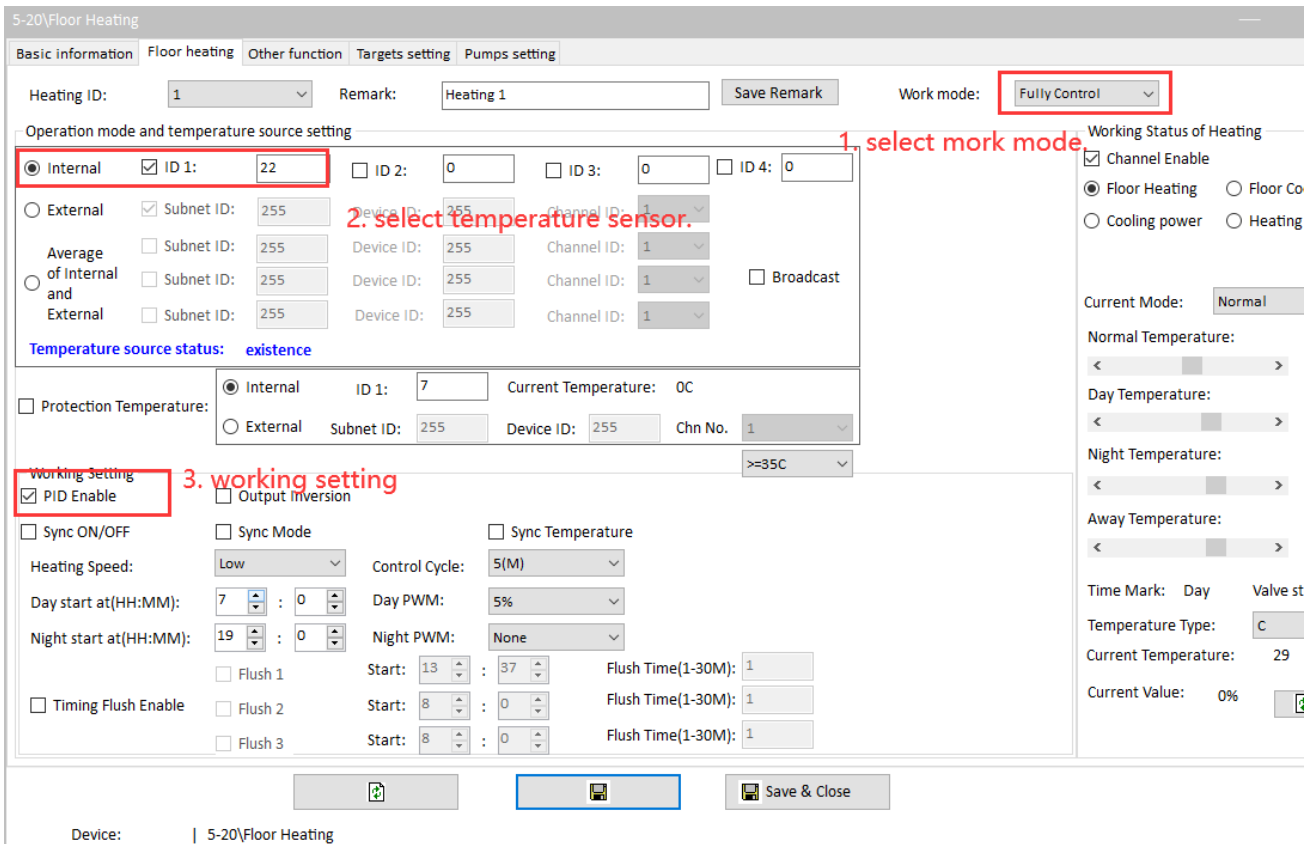


Pumps output logic will be true when one of selected channels is on, pumps output logic will be false when all selected channels are off.

2.6 Control the Dimmer by Panel.

Let's use the HDL-MPL8.48 to take an example, and floor heating module work in fully control mode, DLP work in slave mode.

Floor heating: when we select fully control in floor heating module, set the temperature sensor source and setting the working mode as PID mode.



DLP panel: we need to select floor heating, slave control, input floor heating ID in the master page, and set the temperature source.

The screenshot shows the 'Floor heating' settings page. The interface is divided into several sections:

- Device Information:** Mode is set to 'Floor Heating', 'Slave Control', and 'Master'.
- Temperature sensor:** 'Read from bus' is selected. The 'Receive Feedback' dropdown is set to 'Receive Feedback'. The 'Subnet ID' is 5, 'Device ID' is 20, and 'Channel' is 1.
- Temperature range:** Range from 5C to 35C.
- Working setting:** Output is 'Relay ON/OFF', Heating Speed is 'Medium', Control Cycle is '5(M)', Day start is 7:00, and Night start is 19:00.
- Test:** 'ON Heating' is checked, and the current temperature is 29C.

Annotations in red text and boxes highlight specific settings:

- 4. select floor heating, slave control
- 5. Input floor heating ID in master page
- 6. Input the temperature sensor source

Buttons at the bottom include 'Save & Close'.