

HL2036/8036 Series Thermostat User Manual

HL2036/8036 Series FCU Thermostat: Using acrylic mirror cover display and equipped with touch buttons, it can control ordinary AC three-speed fans and on/off electric valves to achieve accurate room temperature control, some models have RS-485 interface, which can be integrated by the building control system through Modbus-RTU protocol.



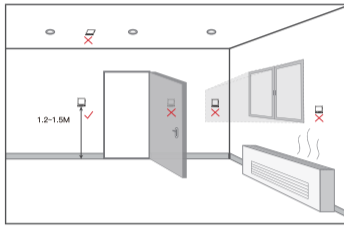
Model

N/M	Model	Color	FCU Type	Valve Type	FanType	After Set Temp	On/off timer	S1/S2 Input	RS-485
1	HL2036DA2-T	White	2-Pipe	On/Off	AC 3 speed	Fan keep running	✓	✓	
2	HL2036DB2-T	White	2-Pipe	On/Off	AC 3 speed	Fan stop running	✓	✓	
3	HL2036FCV2-T	White	4-Pipe	On/Off	AC 3 speed	Fan keep running	✓	✓	
4	HL8036DA2	White	2-Pipe	On/Off	AC 3 speed	Fan keep running		✓	✓
5	HL8036DB2	White	2-Pipe	On/Off	AC 3 speed	Fan stop running		✓	✓
6	HL8036FCV2	White	4-Pipe	On/Off	AC 3 speed	Fan keep running		✓	✓
7	HL8036DA2-S2TL-MD	White	2-Pipe	On/Off	AC 3 speed	Fan keep running	✓	✓	✓
8	HL8036DB2-S2TL-MD	White	2-Pipe	On/Off	AC 3 speed	Fan stop running	✓	✓	✓
9	HL8036FCV2-DK-S2TL-MD	White	4-Pipe	On/Off	AC 3 speed	Fan keep running	✓	✓	✓

Specifications

Accuracy: ±1°C	Power Supply: AC90~240V, 50/60Hz
Display Resolution: 0.5°C	Wiring Terminations: One 2.5 mm ² or Two 1.5 mm ² Wires
Display Temperature Range: 0 ~ 55°C	Max Load Current: < 2 A (Resistive) , < 1 A (Inductive)
Operation Environment: Temperature 0 ~ 45°C	Shell Material: PC + ABS Anti-flaming
Humidity 5 ~ 95% RH (non-condensing)	Dim. H × W × D (mm): 86×86×12.5
Protection Level: IP 30	Mounting Hole Dim: 60 mm
Power Consumption: < 2 W	

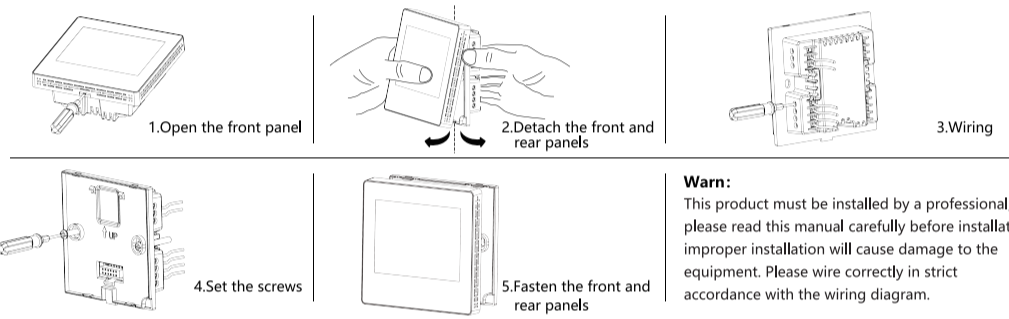
Mounting



Do not install this product in the following locations:

- Locations exposed to direct sunlight.
- Locations where air circulation is obstructed, such as in the corner of a wall, behind a door, etc.
- Near heat-generating equipment.
- Poor thermal insulation on exterior walls.
- Room ceiling.

Installation diagram

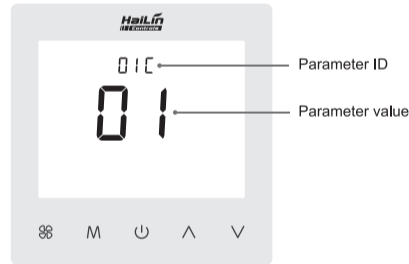


Warn:
This product must be installed by a professional, please read this manual carefully before installation, improper installation will cause damage to the equipment. Please wire correctly in strict accordance with the wiring diagram.

Parameter configuration

- Enter the normal parameter setting interface: in the power off state, press \cup and hold the button for 5s.
- Enter the advanced parameter setting interface: in the power off state, press and hold \cup + \vee for 5s. Parameter names with "*" are advanced parameters.
- Change parameter settings: after entering the menu, press \otimes button (page up) or M key (page down) to switch the parameter ID and use the \wedge or \vee keys to adjust the parameter value.
- Exit the parameter setting menu: no buttons, automatically save the settings and exit the menu after 30 seconds of operation, and directly save the settings and exit the menu by pressing the buttons \cup .

Note: After exiting the menu, please make sure that the device does not power off for 30 seconds so that the parameters can be saved.

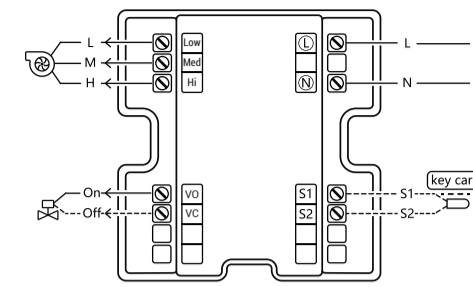


Parameter setting table^[1]

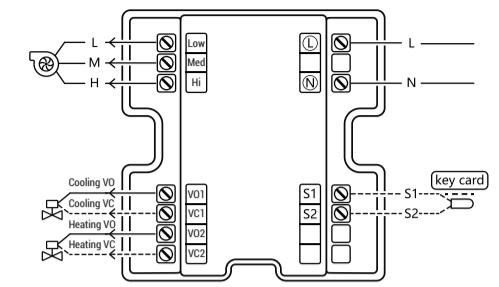
ID	Name	Default Value	Description	Suitable Models
01C	Modbus address	01	01~64	4~9
01	Button lock range ^[2]	00	00: No lock 01: Lock on/off button 02: Lock temperature adjustment 04: Lock fan speed button 08: Locking mode setting	1~9
02	Temporary local unlocking*	01	00: Disable 01: Enable	1~9
03	Normal menu operation permissions*	00	00: Read+write 01: Only read	1~9
04	Temperature display value correction	00	Range: -5~5°C Step size: 0.5°C	1~9
05	Power-down memory	02	00: Power down 01: Power on 02: Power-down memory	1~9
06	Low temperature protection	00	00: Forbidden 01: Enable	1~9
07	Protection low temperature*	05	Range: 0~17°C Step size: 0.5°C	1~9
08	Clock setting and timing	00	00: No timing 01: Once timing 02: Repeated timing	1~3, 7~9
09	Clock setting and time period programming	00	00: No programming 01: 5+2 programming 02: 7 days 4 periods programming	1~3, 7~9
10	Customize shortcut function keys ^[1]	06	Range: ID	1~9
11	Main area displayed the content	00	00: Room temp 01: Setting temp	1~9
12	Setting temp upper limit*	35	Range: 2~90°C Step size: 0.5°C	1~9
13	Setting temp lower limit*	05	Range: 0~88°C Step size: 0.5°C	1~9
14	Backlight trigger mode*	00	00: Press button triggered 01: Often bright	1~9
16	Return difference setting*	01	Range: 1~5°C Step size: 0.5°C	1~9
22	S1/S2 input option*	00	00: Temperature sensor 01: Dry contactor	1~9
26	Key card input*	01	00: Normally open (Close: occupied; Connect open: unoccupied) 01: Normally close (Close: unoccupied; Connect open: occupied)	1~9
27	Occupancy status association options*	01	00: Disable 01: ECO mode 02: On/off	1~9
01U	FCU type ^[3]	--	00: 2 pipe 01: 4 Pipe	3, 6, 9
02U	Mode setting ^[4]	02	00: Only heating 01: Only cooling 02: Cooling+heating(manual set) 03: Cooling+heating(auto)	--
05U	4 pipe auto mode dead zone*	01	Range: 1~3°C Step size: 0.5°C	3, 6, 9
06U	DA/DB select ^[3]	--	00: DA 01: DB	1~9
07U	Ventilation mode ^[3]	01	00: Disable 01: Enable	1~9

Wiring

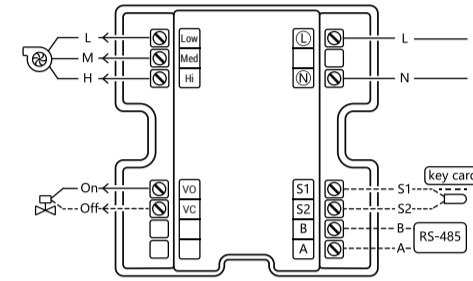
For models: ① HL2036DA2-T, ② HL2036DB2-T



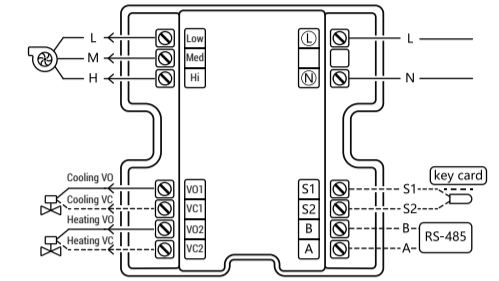
For models: ③ HL2036FCV2-T



For models: ④ HL8036DA2, ⑤ HL8036DB2, ⑦ HL8036DA2-S2TL-MD, ⑧ HL8036DB2-S2TL-MD



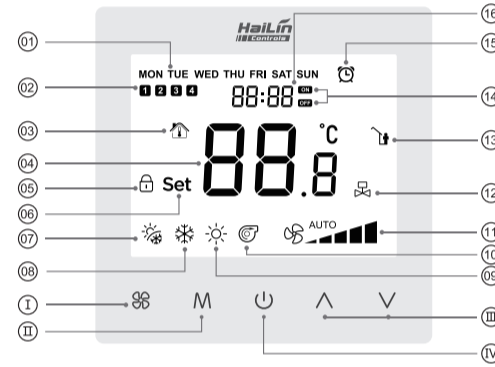
For models: ⑥ HL8036FCV2, ⑨ HL8036FCV2-DK-S2TL-MD



Note: If the normally closed two-wire valve is used on site, only the "open" terminal can be connected.

AB Please use shielded twisted pair wire, S1, S2, A, B are weak wires cannot be in a trunk with other AC220V strong wires, please separate wiring, otherwise it is easy to cause damage to the thermostat.

Icon description



①	Week	⑨	Heating Mode
②	Time Bucket	⑩	Ventilation Mode
③	Room Temp	⑪	Fan Speed
④	Temp Display	⑫	Valve on/Off
⑤	Button Lock	⑬	Key Card Connection
⑥	Setting Temp	⑭	On/Off Timer
⑦	Auto Mode	⑮	Following Schedule
⑧	Cooling Mode	⑯	Time

Ⅰ	Fan Speed	Ⅲ	Setting
Ⅱ	Mode	Ⅳ	ON/OFF

Parameter setting table^[1]

ID	Name	Default Value	Description	Suitable Models
08U	Anti cold air delay*	00	Range: 0~300s Step size: 10s	1~9
10U	Fan speed option*	02	00: Singel speed 02: 3 speed	1~9
01E	ECO mode: cool set point	28	Range: 22~32°C Step size: 0.5°C	1~9
02E	ECO mode: heat set point	16	Range: 10~21°C Step size: 0.5°C	1~9
03E	ECO mode: fan speed	00	00: Low speed 01: Med speed 02: High speed	1~9
04E	ECO mode: differential	02	Range: 1~5°C Step size: 0.5°C	1~9
02C	Baud rate*	00	00: 4800 01: 9600 02: 19200 03: 38400	4~9
03C	Parity bite*	01	00: No parity 01: Odd 02: Even	4~9
28	Action if remote sensor fails*	00	00: Switch to build-in sensor automatically 01: Alert remote sensor failure	1~9
29	Room temp. high alarm threshold*	55	Range: 35~90°C	1~9
01o	Software version ^[3]	--	Current version	1~9
05o	Protocol version ^[3]	--	Current protocol version	4~9
02o	Reset options*	00	00: Not reset 01: Reset to factory default	1~9

Note: [1] The table covers the parameters for all models of this series of products, and the parameter table will be different when it comes to a specific model, please refer to column "Suitable models".

[2] Combining values is supported. For example, if the parameter value is set to 03 (03=01+02), 01: on/off button and 02: temp. adjustment are locked.

[3] "-" indicates that the parameter default setting may varies for different models and production batches.

[4] Parameter value 03: cool & heat (auto) is only available for models 3, 6, 9; the other options are suitable for models 1~9.

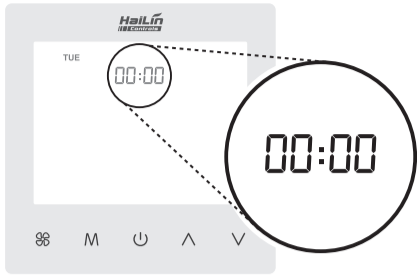
Shortcut key table

Name	Trigger Mode	Description
Display temp. offset	When power off press and hold the \wedge and \vee buttons for 5s	Range: -5~5°C, the display value of the thermostat is corrected, and the built-in sensor of the temperature value can also come from the external sensor.
Normal parameter	When power off press and hold on/off button for 5s	Go to the parameter settings menu to view or modify normal parameters.
Temporary unlock	When power off press and hold M and \vee key for 5s	When the button lock is activated, the buttons can be temporarily unlocked in this way; if no button presses in 30s thermostat returns to locked state automatically.
Advanced parameter	Press the on/off and \vee for 5s	Go to the parameter settings menu to view or modify normal and advanced parameters.
Normal parameter shortcuts	When power off press and hold \vee button for 5s	Users can associate this shortcut to any parameter item, and the associated parameter ID is "10".

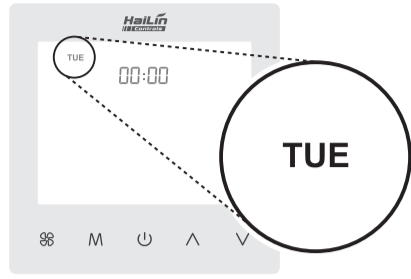
Clock setting

- After entering the parameter configuration menu, select the "08" or "09" parameter, set the parameter value to "00", and then press and hold the M button to enter the clock setting interface.
- Press the M button to switch the setting items, and press the ^ or v button to adjust the setting value; when the modification is complete, press the button to save the settings.

1. Set the hours and minutes



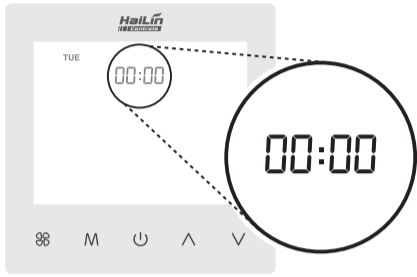
2. Set the date



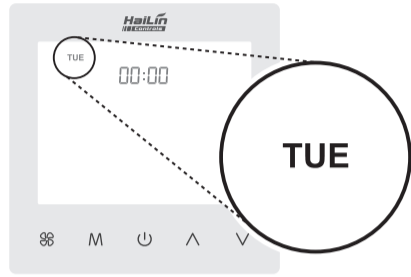
Timer on/off

- After entering the parameter configuration menu, select the "08" parameter, set the parameter value to "01" (single timing) or "02" (repeat timing) as needed, and then press and hold the M button to enter the timing setting process.
- Press the M button to switch the setting items, press the ^ or v button to adjust the setting value, and when the time is set to "--:--", it means that this timer option is disabled; press the button to save the settings after the modification is completed.

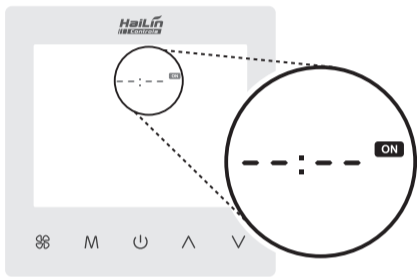
1. Calibrate the hours and minutes



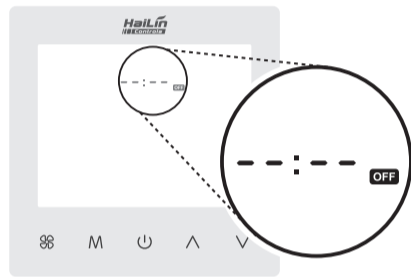
2. Calibrate the weeks



3. Set a timer to turn on

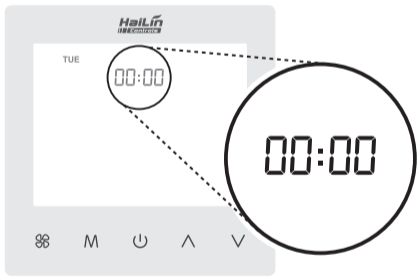


4. Set a scheduled turn off

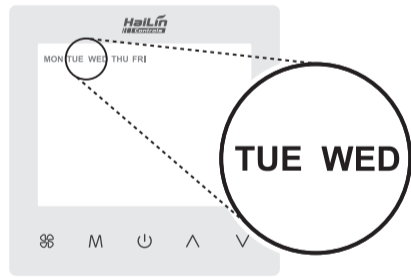


- After entering the parameter configuration menu, select the "09" parameter, set the parameter value to "01" (Weekday & weekends), and then press and hold the M button to enter the schedule setting process.
- Press the M button to switch the setting items, and press the ^ or v button to adjust the setting value; When the modification is done, press the button to save the settings.

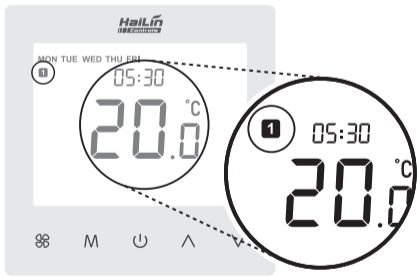
1. Calibrate the current time (hours, minutes and weeks)



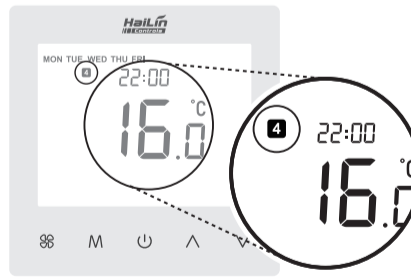
2. Set a schedule for weekdays (Monday to Friday)



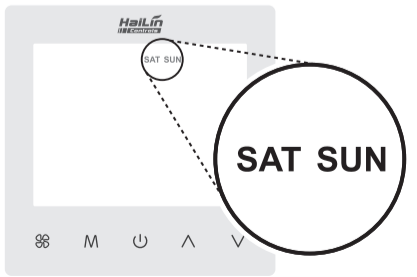
3. Set the time period 1 start time and set point



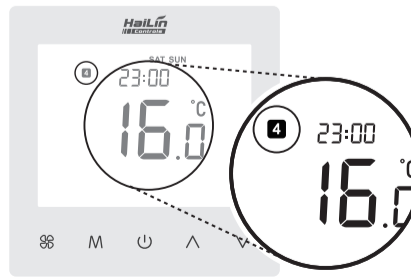
4. Set the time period 2 3 4 start time and set point



5. Set a schedule for weekend (Saturdays and Sundays)



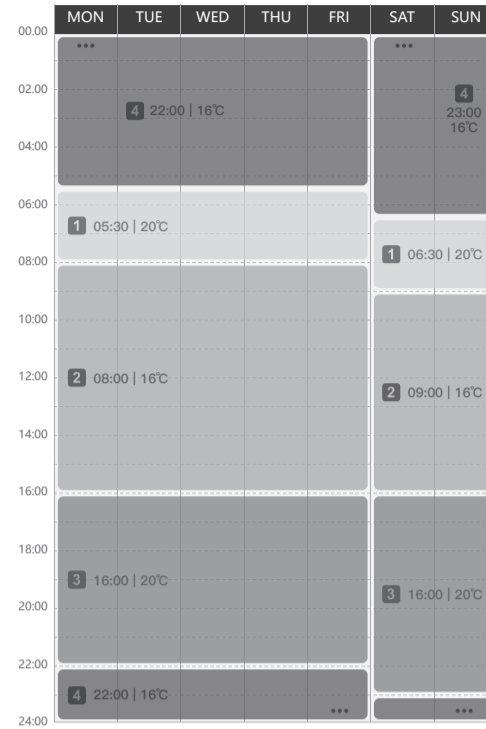
6. Set the start time and set point for the 4 periods in turn



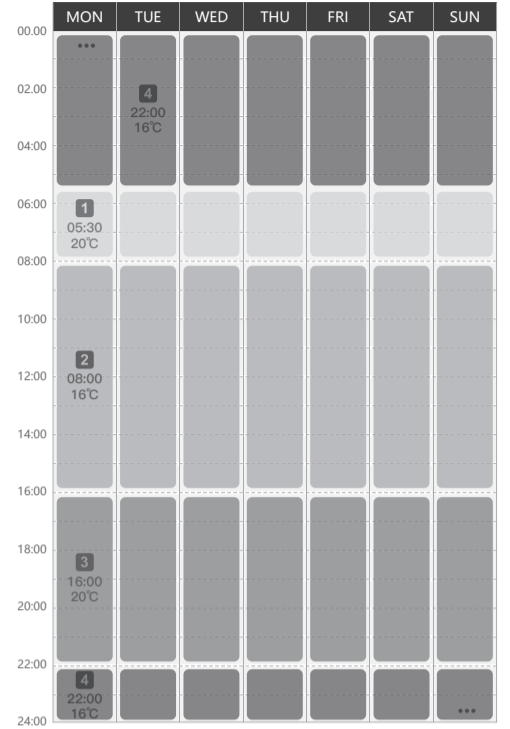
Clock & Schedule setting

- The 5+2 mode refers to the weekly plan being divided into two parts: weekdays and weekends, with 4 periods defined in each part, a start time and set point are defined in each period.
- The 7-day mode refers to the weekly schedule being programmed independently for 7 days, with 4 periods per day, each of which defines the start time and set point.

5+2 mode: 4 periods to program the default time and set point



7-day mode: 4 periods, default time and set point

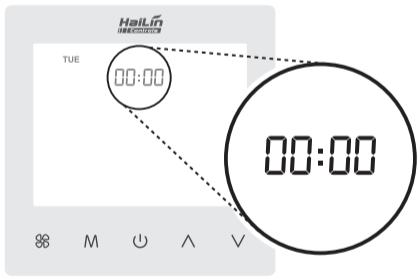


Periods	Parameter	Weekday	Weekends
1	Start time	05:30	06:30
	Set point	20°C	20°C
2	Start time	08:00	09:00
	Set point	16°C	16°C
3	Start time	16:00	16:00
	Set point	20°C	20°C
4	Start time	22:00	23:00
	Set point	16°C	16°C

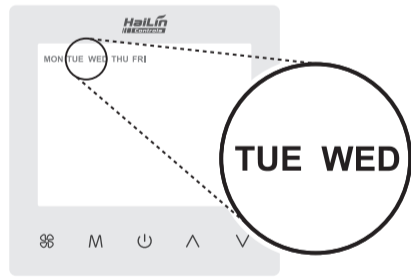
Periods	Parameter	Everyday
1	Start time	05:30
	Set point	20°C
2	Start time	08:00
	Set point	16°C
3	Start time	16:00
	Set point	20°C
4	Start time	22:00
	Set point	16°C

- After entering the parameter configuration menu, select the "09" parameter, set the parameter value to "01" (Weekday & weekends), and then press and hold the M button to enter the schedule setting process.
- Press the M button to switch the setting items, and press the ^ or v button to adjust the setting value; When the modification is done, press the button to save the settings.

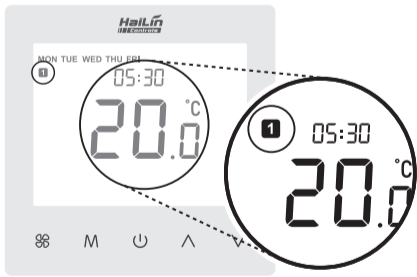
1. Calibrate the current time (hours, minutes and weeks)



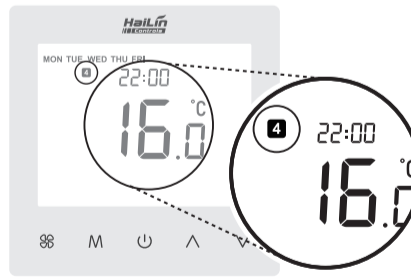
2. Set a schedule for weekdays (Monday to Friday)



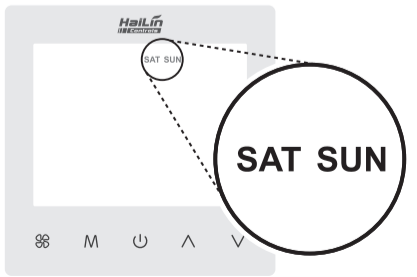
3. Set the time period 1 start time and set point



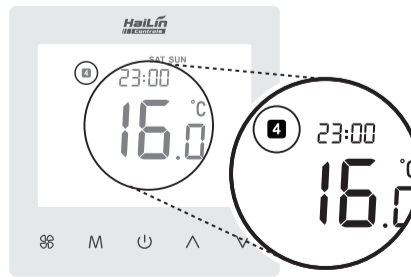
4. Set the time period 2 3 4 start time and set point



5. Set a schedule for weekend (Saturdays and Sundays)



6. Set the start time and set point for the 4 periods in turn



Description of functions and control logic

Function	Description
Valve control	In cooling mode, when the room temperature is higher than the set point + differential (1°C by default), the cooling valve is opened, and when the room temperature drops to the set point, the cooling valve is closed. In heating mode, when the room temperature is lower than the set point-differential (1°C by default), the heating valve is opened, and when the room temperature rises to the set temperature, the heating valve is closed.
Fan control	The fan speed is automatically adjusted according to the difference between the room temperature and the set point: when the difference is 1°C, the low speed; when the difference of 2°C, medium speed; high speed when the difference is 3°C or higher. Fan status after valve closing: DA2/FCV2: fan keep running; DB2: fan stop running.
Anti frozen protect	After power off, when the room temperature drops to less than or equal to the Anti-frozen set point temperature (5°C by default), the heating is turned on and the fan runs at high speed; after the room temperature rises to Anti-frozen set point +2°C, the heating is stopped and the fan is turned off.
Normal parameter shortcuts	Users can set the menu items corresponding to the shortcut buttons.
S1/S2 input	The input terminal can be configured as either a temperature sensor (AI) or a dry contact input (DI). When an external sensor is connected to the S1/S2, it will automatically replace the built-in sensor as the thermostat's display temperature. When the S1/S2 is connected to the keycard, the keycard signal can be associated with the energy-saving mode (default configuration) or on/off via the parameter configuration.
4 pipe auto mode	When the system is configured as 4 pipe controls and the model is set to cool & heat (auto), manual switching mode is prohibited, and the thermostat automatically switches between cooling and heating modes according to the set point and room temperature.
Room temp. source	When room temp. is from build-in sensor, "↑" display on screen; When room temp. is from remote sensor, "↓" do not display on screen.

Faults and alarms

- When the indoor measured temperature exceeds the "indoor high temperature alarm threshold" (parameter 29), it enters the indoor high temperature alarm state, and the main display area displays "H1"; when the temperature is lower than 0°C, enter the indoor low temperature alarm state, and the main display area will display "L0". The indoor temperature measurement may come from a built-in sensor or an external sensor, depending on the parameter settings.
- In the case that the indoor temperature measurement comes from the built-in sensor, if the built-in sensor is broken/ short-circuited, it will enter the fault alarm state. In the fault alarm state, the thermostat will shut down the valve and fan, and display the fault code in the main display area. For details about the fault types corresponding to the fault codes, see below table.
- If the S1/S2 terminals are connected to an external temperature sensor, the indoor temperature is measured from the external sensor. If the external sensor has a break/short circuit fault, it is decided whether to enter the fault alarm state or automatically switch to the built-in sensor to continue working according to the configuration of parameter 28.

Alarm information table

Bit	Failure Type	Display	Bit	Failure Type	Display
BIT0	internal sensor short	E1	BIT4	external sensor short	E3
BIT1	internal sensor open	E2	BIT5	external sensor open	E4
BIT2	internal sensor high temp	H1	BIT6	external sensor high temp	H1
BIT3	internal sensor low temp	L0	BIT7	external sensor low temp	L0