

FOUR-PIPE CASSETTE TWO-PIPE CASSETTE FAN COIL UNIT

SERVICE MANUAL

SF2-xxxC4
SF2-xxxC2



sinclair
AIR CONDITIONING

CONTENTS

- 1. Main PCB Ports 2
- 2. Fan coil unit Settings..... 4
- 3. Display Panels..... 12
- 4. Control 14
- 5. Fault Code and Definition 24
- 6. Troubleshooting 29
- 7. Appendix 34

1. Main PCB Ports

1.1 Compact 4-way cassette

Figure 1.1: Compact 4-way Cassette main PCB ports

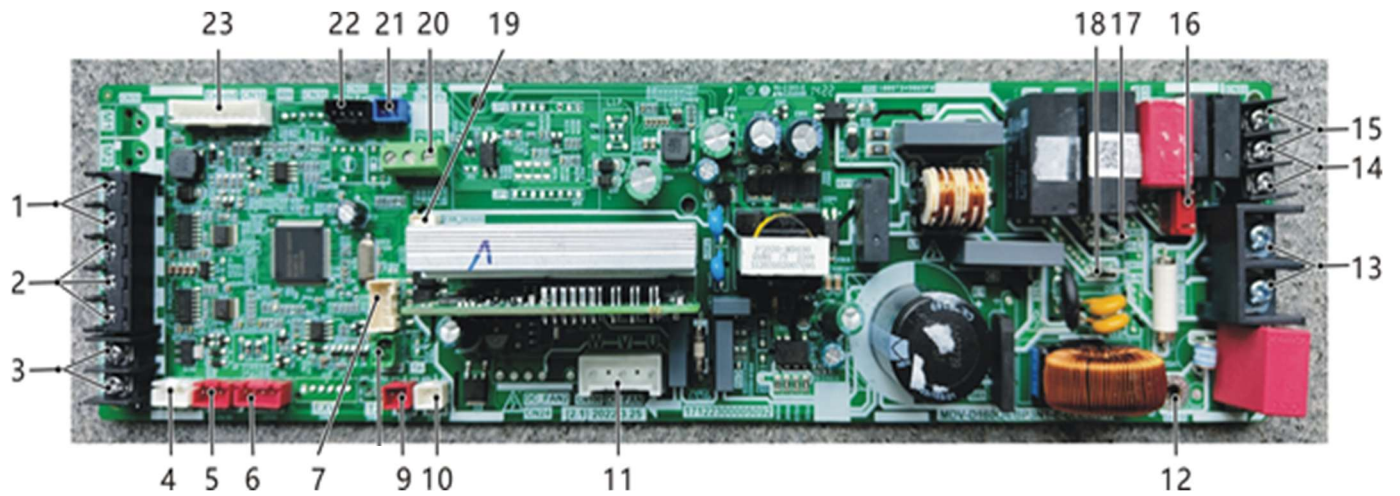


Table 1.1 Compact 4-way Cassette main PCB port description

No.	Bit No	Description		Voltage	Standard/ Optional
1	CN3_X1、CN3_X2	POWER: Mains input; X1 X2 carrier wired controller interface port		DC +18V	Standard
2	CN3_P 、 CN3_Q 、 CN3_E	PQE: Modbus communication port		DC +5V	Optional
3	CN2_X 、 CN2_Y 、 CN3_E	XYE: Centralized control communication port		DC +5V	Optional
4	CN5	WATER: Water level switch port		DC +3.3V	Standard
5	CN190	PUMP: Water pump output port		DC +12V	Standard
6	CN30	Display panel interface port		DC +12V	Standard
7	CN25	DEBUG: Main control program burn port		DC +3.3V	Standard
9	CN83	T2B: Heating pipe temperature sensor port		DC +3.3V	Standard (only four pipe)
10	CN80	T2A: Refrigerating pipe temperature sensor port		DC +3.3V	Standard
11	CN100	DC_FAN: DC Fan;		< AC 250V	Standard
12	EARTH	EARTH: Grounding screw position		/	Standard
13	CN1	Power input		AC 220V	Standard
14	CN22_3 (live line)	V2 valve control signal output port	Two-pipe: Both cooling and heating valves are V1	AC 220V	Standard
	CN22_2 (null line)				Standard
15	CN22_1 (live line)	V1 valve control signal output port	Four-pipe: Cooling valve is V1, heating valve is V2	AC 220V	Standard
	CN22_2 (null line)				Standard
16	CN20	Reserved AC 220V output port		AC 220V	Optional
17	CN29	ALARM: Fault alarm output; Electric auxiliary heat live line output		AC 220V (live)	Optional
18	CN12	Electric auxiliary heat null line output		AC 220V (null)	Optional
19	CN4	Fan driver burn-in port		DC +5V	Standard
20	CN55	Remote on/off port		DC +12V	Standard
21	CN82	T1: Room temperature sensor port		DC +3.3V	Standard
22	CN99	After-sales work docking port		DC +12V	Optional
23	CN18	Communication board docking port		DC +12V	Standard

1.2 4-way cassette

Figure 1.2: 4-way Cassette main PCB ports

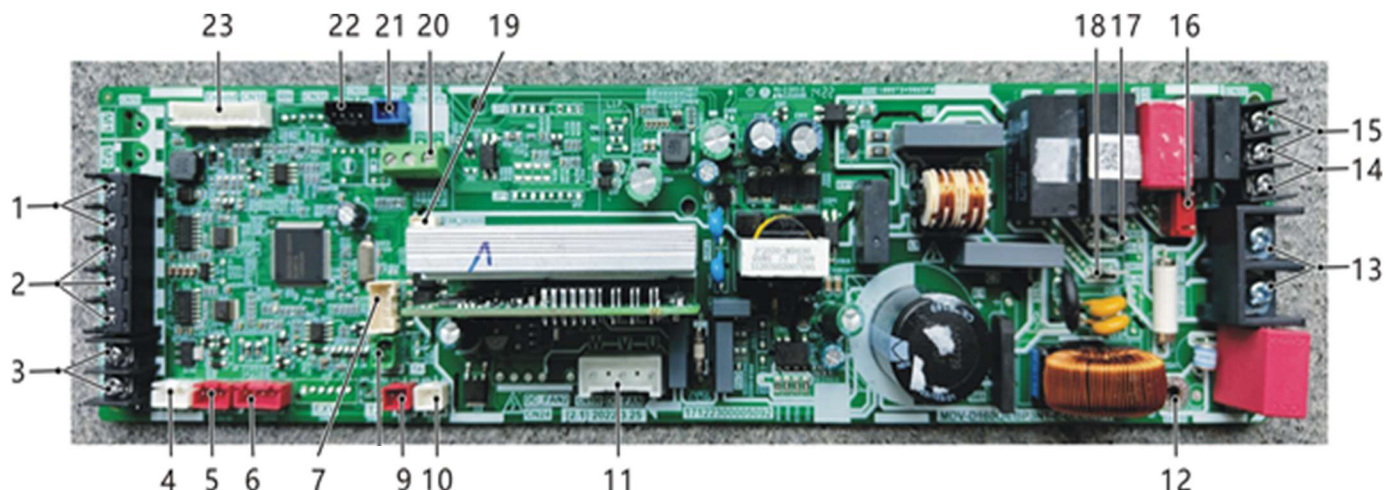


Table 1.2 4-way Cassette main PCB port description

No.	Bit No	Description		Voltage	Standard/ Optional
1	CN3_X1、CN3_X2	POWER: Mains input; X1 X2 carrier wired controller interface port		DC +18V	Standard
2	CN3_P 、CN3_Q 、 CN3_E	PQE: Modbus communication port		DC +5V	Optional
3	CN2_X 、CN2_Y 、 CN3_E	XYE: Centralized control communication port		DC +5V	Optional
4	CN5	WATER: Water level switch port		DC +3.3V	Standard
5	CN190	PUMP: Water pump output port		DC +12V	Standard
6	CN30	Display panel interface port		DC +12V	Standard
7	CN25	DEBUG: Main control program burn port		DC +3.3V	Standard
9	CN83	T2B: Heating pipe temperature sensor port		DC +3.3V	Standard (only four pipe)
10	CN80	T2A: Refrigerating pipe temperature sensor port		DC +3.3V	Standard
11	CN100	DC_FAN: DC Fan;		< AC 250V	Standard
12	EARTH	EARTH: Grounding screw position		/	Standard
13	CN1	Power input		AC 220V	Standard
14	CN22_3 (live line)	V2 valve control signal output port	Two-pipe: Both cooling and heating valves are V1	AC 220V	Standard
	CN22_2 (null line)				Standard
15	CN22_1 (live line)	V1 valve control signal output port	Four-pipe: Cooling valve is V1, heating valve is V2	AC 220V	Standard
	CN22_2 (null line)				Standard
16	CN20	Reserved AC 220V output port		AC 220V	Optional
17	CN29	ALARM: Fault alarm output; Electric auxiliary heat live line output		AC 220V (live)	Optional
18	CN12	Electric auxiliary heat null line output		AC 220V (null)	Optional
19	CN4	Fan driver burn-in port		DC +5V	Standard
20	CN55	Remote on/off port		DC +12V	Standard
21	CN82	T1: Room temperature sensor port		DC +3.3V	Standard
22	CN99	After-sales work docking port		DC +12V	Optional
23	CN18	Communication board docking port		DC +12V	Standard

2. Fan coil unit Settings

2.1 Parameter settings

Taking SWC-61 as an example, the parameters can be set in the power-on or power-off state.

① On the main page, hold "☐" and "≡" for 2 seconds to enter the parameter setting interface, and the main interface will display "CC"

②

a) Wired controller Parameter Settings (Cxx)

When display "CC", press "☐" will enter the wired controller Parameter Settings "Cxx". Press "▲" and "▼" to switch the parameter code and press "☐" to enter Parameter value setting interface. Then press "▲" and "▼" to change Parameter value and press "☐" to save changes.

b) Fan coil unit Parameter Settings (Nxx)

When display "CC", press "▼", then the fan coil unit number will be displayed ("n00-n63" is displayed, and the last two digits are the fan coil unit addresses). Press the "☐" to enter the fan coil unit parameter setting interface, and "n00" will be displayed. Use "▲" and "▼" to adjust to "Nxx" and press the "☐" to confirm. Finally, press "▲" and "▼" to change Parameter value and press "☐" to save changes.

③ Press the "⌚" button to return to the previous page until exiting the parameter setting or exiting the parameter setting after 60s without any operation.

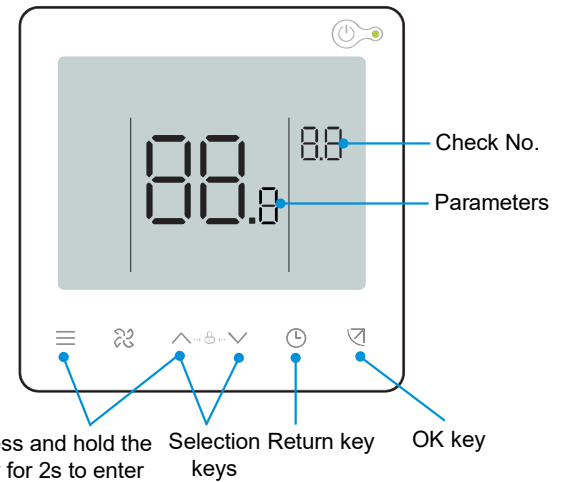


Table 2.1: Wired controller Parameter Settings

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
C00	Main and secondary wired controller setting	0 indicates the main wired controller 1 indicates a secondary wired controller	0	If two wired controllers control one FCU, addresses for two wired controllers must be different. You are not allowed to set FCU parameters via the secondary wired controller (address 1), but can set the wired controller.
C01	Cooling only/cooling and heating setting	00: Cooling and Heating 01: Cooling Only	00	Heating mode is not available in cooling only setting
C02	Auto restart function setting for the wired controller	00: No 01: Yes	00	If the value is set to 00, the wired controller screen displays cooling, medium fan speed, and set temperature 24°C after each power-on. If the value is set to 01, the wired controller screen displays the mode, temperature, and fan speed that were previously set before a power failure upon each power-on.
C03	Time to remind users to clean the filter on the wired controller	00/01/02/03/04	01	00: No reminder to clean filter 01: 500 h 02: 1000 h 03: 2500 h 04: 5000 h
C04	Settings for infrared receiver of wired controller	00: Disable 01: Enable	01	When "Disable the infrared receiver of the wired controller" is on, the wired controller cannot receive remote control signal.
C05	Whether indoor ambient temperature is displayed	00: No 01: Yes	00	

Table 2.1: Wired controller Parameter Settings (continues)

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
C06	LED indicator of wired controller	00: Off 01: On	01	When it is on, LED indicator shows the on/off state of the fan coil unit. When it is off, LED indicator is off.
C07	Wired controller Follow Me temperature calibration	Celsius: -5.0 to 5.0	Celsius: -1.0	
C08	Lower limit of cooling temperature	17°C to 30°C	17°C	
C09	Upper limit of cooling temperature	17°C to 30°C	30°C	
C10	Lower limit of heating temperature	17°C to 30°C	17°C	
C11	Upper limit of heating temperature	17°C to 30°C	30°C	
C12	Accurate to 0.5 °C	00: No 01: Yes	01	
C13	Wired controller button light setting	00: Off 01: On	01	
C14	Send configuration parameters stored when the wired controller is powered	00: No 01: Yes	01	
C15	Whether buzzer of the wired controller rings	00: No 01: Yes	01	
C16	Backlight time	00/01/02	00	00: 15 s 01: 30 s 02: 60 s
C17	Whether energy efficiency attenuation is displayed when power off	00/01	00	(Reserved)
C18	Whether FCU blockage is displayed when power off	00/01	00	(Reserved)
C19	T1 temperature selection	F0/F1/F2/F3/...#FCU	F1	F0: T1 temperature sensor F1: Follow Me, #FCU (FCUs connected to the system, ranging from 0 to 63) (Note: The secondary wired controller does not respond to Follow Me) F2: (reserved) F3: (reserved)
C20	Swing direction setting	00/01	00	00: Forward (default) 01: Reverse

Table 2.2: Fan coil unit Parameter Settings

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
N00	Static pressure of FCU	FCU static pressure level: 00/01/02/03/ 04/05/06/07/ 08/09/~ /19/F F	FF	The FCU sets the selected corresponding static pressure for DIP
N01	Power failure memory function setting for the FCU	00/01	01	00: No 01: Yes
N02	Whether the FCU has up/down swing?	00/01/02/03/ 04	01	no setup
N03	Whether the FCU has left/right swing?	00/01	01	no setup
N04	Whether the display board of FCU receives remote control signals	00/01	00	00: Yes 01: No
N05	Buzzer of the FCU rings	00/01/02	02	00: No 01: Yes 02: Display panel only
N06	Light (display panel) setting	00/01	01	00: Off 01: On
N07	Temperature unit	00/01	00	00: Celsius 01: Fahrenheit
N08	Mode changeover time interval in the auto mode (min)	00/01/02/03	00	(Reserved)
N11	Set outdoor temperature when auxiliary heater is on	Celsius: -25°C to 20°C	0°C	(Reserved)
N12	Indoor temperature when auxiliary heater is on	10°C to 30°C	24°C	(Accuracy is 1°C)
N13	T1 temperature difference when auxiliary heater is on	0-7	6	0-7 indicates 0 - 7°C (The value is accurate to 1°C.)
N14	T1 temperature difference when auxiliary heater is off	0-10	5	0-10 indicates -4 - 6°C (The value is accurate to 1°C.)
N15	Auxiliary heater on/off	00/01/02	00	00: Auto 01: (Reserved) 02: (Reserved)

Table 2.2: Fan coil unit Parameter Settings (continues)

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
N17	FCU's anti-cold wind temperature in heating mode	00/01/02/03/04	00	Fan coil unit: 00: 32°C; 01: 34°C; 02: 36°C; 03: 38°C; 04: anti-cold wind invalid
N18	Fan speed setting in Cooling standby mode	00/01/02/03/04/05/06/07/14	01	00: Start/Stop delay 01: Speed 1 02: Speed 2 03: Speed 3 04: Speed 4 05: Speed 5 06: Speed 6 07: Speed 7 14: Fan speed before going to standby mode
N19	Standby fan speed range in dry mode	00/01/02/03	01	(Reserved)
N20	Fan speed setting in heating standby mode	0/1/14	0	0: Termal 1: Speed 1 14: Fan speed before going to standby mode
N21	Time to stop the fan of FCU (Termal)	01/02/03/04	01	00: Stop 01: 4min 02: 8min 03: 12min 04: 16min
N22	EEV opening selection during heating standby	00/01/02/14	14	(Reserved)
N23	Cooling return difference temperature	00/01/02/03/04	00	00: 1°C 01: 2°C 02: 0.5°C 03: 1.5°C 04: 2.5°C
N24	Heating return difference temperature	00/01/02/03/04	00	00: 1°C 01: 2°C 02: 0.5°C 03: 1.5°C 04: 2.5°C
N25	FCU heating temperature compensation	00/01/02/03/04	00	00: 6°C 01: 2°C 02: 4°C 03: 8°C 04: 0°C
N26	FCU cooling temperature compensation	00/01/02/03/04	00	00: 6°C 01: 2°C 02: 4°C 03: 8°C 04: 0°C

Table 2.2: Fan coil unit Parameter Settings (continues)

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
N27	Maximum indoor temperature drops in dry mode	00/01/02/03/04	01	(Reserved)
N28	Upper limit of automatic fan speed in cooling mode	4/5/6/7	5	(Reserved)
N29	Upper limit of automatic fan speed in heating mode	4/5/6/7	5	(Reserved)
N30	Constant air flow setting	00/01	01	(Reserved)
N31	High ceiling setting	00/01/02	00	00: 3m; 01: 4m; 02: 4.5m
N32	Q4/Q4C air outlet 1 setting	00/01	00	00 - Free control 01 - Off
N33	Q4/Q4C air outlet 2 setting	00/01	00	00 - Free control 01 - Off
N34	Q4/Q4C air outlet 3 setting	00/01	00	00 - Free control 01 - Off
N35	Q4/Q4C air outlet 4 setting	00/01	00	00 - Free control 01 - Off
N36	Cooling only for FCU	00/01	00	(Reserved)
N37	One-to-more of wired controller enabled	00/01	00	00: No 01: Yes
N38	On/Off port logic via remote control	00/01	00	00: Remote off (closed); 01: Remote off (open) Note: When powered off remotely, the digital display of wired controller of SDV6 displays d61
N39	Power off delay via remote control	00/01/.../06	00	00 - No delay 01 - 1min delay 02 - 2min 03- 3min 04- 4min 05- 5min 06- 10min
N40	Alarm port logic	00/01	00	(Reserved)
N41	Powerful operation	00/01	00	(Reserved)
N42	Sterilization function	00/01	00	00: Sterilization unavailable (default) 01: Sterilization available
N43	Sterilization enabling method	00/01/02	00	00: Auto on 01: Forced on 02: Forced off
N44	Whether silent mode is enabled	00/01	00	(Reserved)
N45	ECO	00/01	00	(Reserved)
N46	Drying time at self-cleaning	0/1/2/3	0	(Reserved)

Table 2.2: Fan coil unit Parameter Settings (continues)

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks	
N47	Mildew-proof fan operation duration (power off in cooling/dry mode, except power off due to faults)	00/01/02/03	00	(Reserved)	
N48	Dirt proof for ceiling	00/01	00	00: Invalid 01: Valid	
N49	Condensation proof	00/01	00	00: Invalid 01: Valid	
N50	Human Detect Sensor	00/01/02	0	00: Invalid 01: Used to adjust the set temperature when unattended 02: Used to turn off the unit when unattended	
N51	Setting temperature adjustment interval when unattended	00/01/02/03/04/05	00	00: 15 min 01: 30 min 02: 45 min 03: 60 min 04: 90 min 05: 120 min	
N52	Setting maximum temperature adjustment when unattended	00/01/02/03	03	00: 1°C 01: 2°C 02: 3°C 03: 4°C	
N53	Stop delay when unattended	00/01/02/03/04/05	01	00: 15 min 01: 30 min 02: 45 min 03: 60 min 04: 90 min 05: 120 min	
N54	Enabling FCU energy-saving function	00/01	01	(Reserved)	
N55	Energy rating of cooling MPC	00/01/02	00	(Reserved)	
N56	Energy rating of heating MPC	00/01/02	00	(Reserved)	
N57	On-site air flow adjustment factor (only applies to horizontal concealed unit)	00/01/02/03/04/05/06	00	Speed 7 00: 1(default) 01: 1.05 02: 1.1 03: 1.15 04: 0.95 05: 0.9 06: 0.85	Speed 1 00: 1 01: 1.05 02: 1.1 03: 1.15 04: 1 05: 1 06: 1
N58	Initial static pressure detection	00/01	00	(Reserved)	
N59	Filter ending - initial static pressure	00/01/.../19	00	(Reserved)	

	setting			
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Table 2.2: Fan coil unit Parameter Settings(continues)

Parameter Code	Parameter Name	Parameter Range	Default Value	Remarks
N60	Ambient temperature when preheating is turned on	00/01/02	00	(Reserved)
N61	Fresh air dry contact 1	00/01	00	(Reserved)
N62	Fresh air dry contact 2	00/01	00	(Reserved)
N63	Fresh air dry contact 3	00/01	00	(Reserved)
N64	Valve enabled/ disabled in heating mode	00/01	00	00: Valve enabled at the time of heating 01: Valve disabled at the time of heating, applicable to fan coil unit only
N65	Fan coil unit's anti-hot wind temperature setting in cooling mode (anti hot air temperature of fan coil unit of the old platform)	01/02/03/04	00	00: 0°C 01: -2°C 02: -4°C 03: -6°C 04: Invalid anti-hot wind Note: Applicable to fan coil unit only
N66	Auto Dry Function	00/01	00	(Reserved)
N67	Auto Dry Target relative humidity	40%/41%/42%/... .../7 65% 0%	65%	(Reserved)
N68	Refrigerant leakage fault reset	00/01	00	(Reserved)
N69	Target humidity for third-party dehumidifiers	35%/36%/37%/... /75%	65%	(Reserved)

2.2 Fan coil unit parameter query

Taking SWC-61 as an example

- ① Hold "≡" and "∧" for 2 seconds to enter the query interface, "u00-u03" indicates ODUs, "n00-n63" indicates FCUs (the last two digits are the ODU or FCU addresses), and "CC" indicates the wired controller. Press "∧" and "∨" to switch the FCU code (For example n02), then press "↵" to enter the parameter query page.
- ② In the parameter query page, use "∧" and "∨" to query parameters, and the parameters can be queried cyclically.
- ③ The check list serial number is displayed in upper right corner of the wire controller, while the parameter value is displayed in the middle of the wire controller.
- ④ Press "⌚" to exit the query page. The parameter query page automatically closes if no button is pressed within the next 60 seconds.

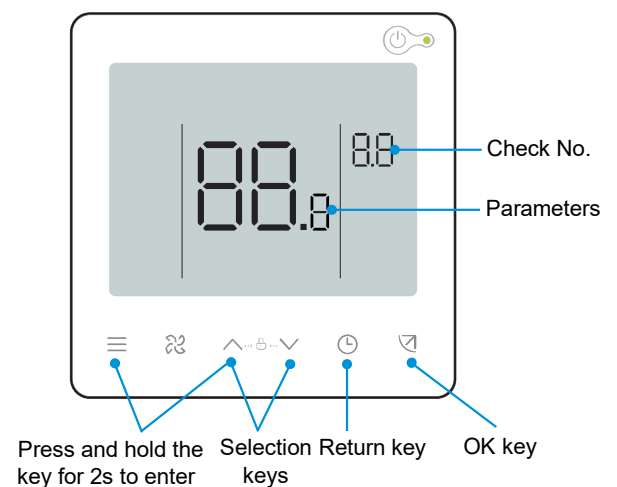


Table 2.3: FCU parameters check list

Check No.	Parameters	Remarks
1	FCU communication address	0 - 63
2	Capacity of fan coil unit	Unit: HP
3	Actual set temperature Ts	Unit: °C
4	Set temperature of the unit that is operating currently, Ts (Remarks: The temperature displayed is the actual set temperature Ts)	Unit: °C
5	Actual T1 indoor temperature	Actual value = value displayed
6	Modified indoor temperature T1_modify	Actual value = value displayed
7	[---] is displayed	[---]
8	T2A heat exchanger liquid pipe temperature	Actual value = value displayed
9	T2B heat exchanger gas pipe temperature	Actual value = value displayed
10	[---] is displayed	[---]
11	[---] is displayed	[---]
12	[---] is displayed	[---]
13	[---] is displayed	[---]
14	[---] is displayed	[---]
15	[---] is displayed	[---]
16	[---] is displayed	[---]
17	Software version No.	Actual value = value displayed
18	Historical error code (recent)	Actual value = value displayed
19	Historical error code (sub-recent)	Actual value = value displayed
20	[---] is displayed	[---]

Notes:

1. If use other controllers, please refer to the corresponding manual.

Table 2.4: Query of wired controller address

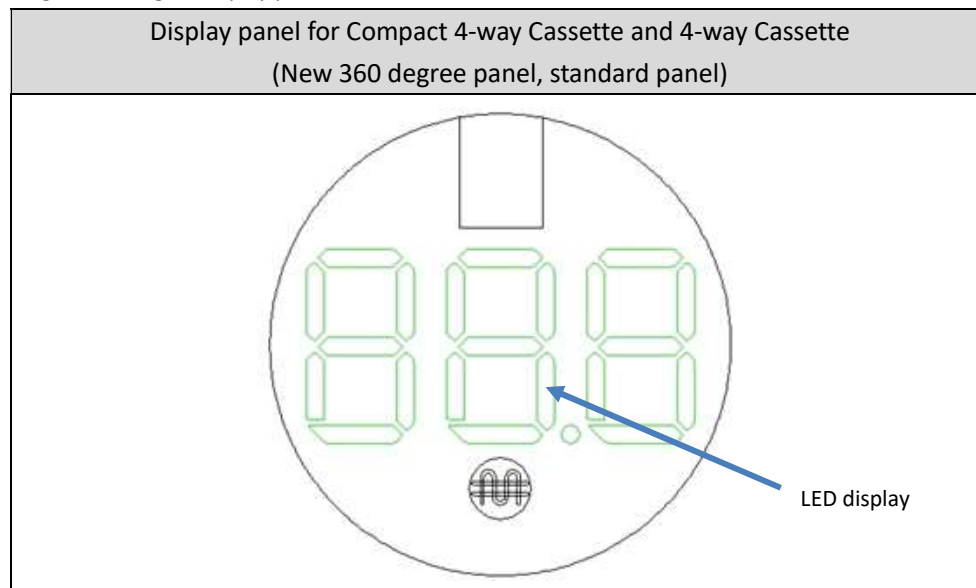
Check No.	Parameters	Remarks
1	Query of active FCU addresses for wired controller (one-to-more)	Each address is displayed for 1.5 s. Addresses are alternatively displayed. To clear historical addresses, restore the wired controller to factory settings.
2	Historical record query of FCU addresses for wired controller (one-to-more)	
3	Wired controller program version No.	

3. Display Panels

3.1 Appearance of display panel

The appearance of the digital display panel used is shown in Figure 3.1.

Figure 3.1: Digital display panel



3.2 Output under normal operating conditions

Unit state		Digital display
Standby		
Operating	Normal operation	Cooling and heating: set temperature
		dehumidify mode: set temperature
		Fan only mode: indoor ambient temperature
	Special operation ¹	Mode code
Error ²		Error code

Notes:

1. The special operation modes and the error code refers to *Table 5.1: Compact 4-way Cassette and 4-way Cassette FCU fault codes*

3.3 Function descriptions

3.3.1 Power failure memory function

The power failure memory function can be used to ensure that, in the event of a power outage, the fan coil units, which was in operation before, automatically restart once the power returns. When the power returns following a power outage, units with Power failure memory function enabled restart with the same operating mode, fan speed and remote control lock status settings as before the power outage. If, during this timed delay, the remote or wired controller is used to send a command to a unit, that unit starts-up immediately with those new settings. Fan coil units with this function disabled go into standby once the power returns following a power outage.

3.3.2 Heating mode temperature compensation setting

Since fan coil units are often installed at ceiling level, and since warm air rises, the ambient temperature sensed at the unit can be higher than the ambient temperature where users are standing or sitting. To compensate for this, in heating mode the fan coil units target a temperature that is higher than the set temperature. The heating mode temperature compensation setting sets the difference between the set temperature and the target temperature. For example, if the set temperature is 20°C and the heating mode compensation setting is 4°C, the units target an ambient temperature (sensed at the unit) of 24°C.

Depending on a variety of factors including the height of the room and the position of the units, different values may be appropriate for the heating mode temperature compensation setting. Values of heating mode temperature compensation can be selected by controller.

3.3.3 Cooling mode temperature compensation setting

With cooling mode temperature compensation, in cooling mode the fan coil units target a temperature that is lower than the set temperature. The cooling mode temperature compensation setting sets the difference between the set temperature and the target temperature. For example, if the set temperature is 26°C and the cooling mode compensation setting is 2°C, the units target an ambient temperature (sensed at the unit) of 24°C. Values of cooling mode temperature compensation can be selected by controller.

4. Control

4.1 Fan only mode

The FCU can be set to operate in fan only mode via the Sinclair remote controller or wired controller.

In fan only mode, the 2-way valves or 3-way valves for both cooling and heating are closed. The default room setting temperature is 24°C and can't be adjusted by remote controller or wired controller.

In fan only mode, if the fan speed is set to auto, the fan speed will be determined according to Fig. 4.1.

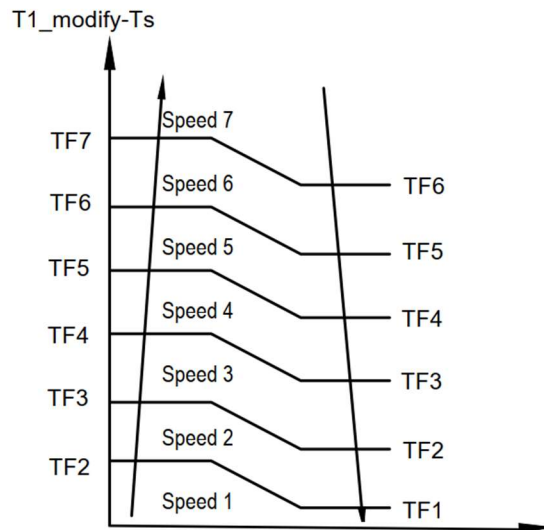


Figure 4.1 Air supply mode auto fan speed judgment diagram in fan only mode

Notes:

1. In Figure 4.1, the temperature points from bottom to top have " $\geq$ ", while from top to bottom have " $<$ ".
2. If the fan speed is set to auto when switching modes, the fan speed remains unchanged initially, and then switches after 3 minutes. The switching time starts from the last time the fan speed was set to automatic in the previous mode.
3. TF1-7 stands for parameters setting in EEPROM.

4.2 Cooling mode

The FCU can be set to operate in cooling mode via the remote controller or wired controller.

FCU judges the operation state according to the temperature compensation value (ΔTC) and the difference value between detected indoor temperature ($T1_modify$) and set temperature (T_s). When the indoor temperature reaches the set one, FCU shut down. When the indoor temperature exceeds the set one, FCU start running.

In cooling mode, the 2-way valve or 3-way valve for both heating is closed, the 3-way valve or 2-way valve for cooling is controlled as shown in Figure 4.2. If a 0-10V output control valve is used, it is controlled as shown in Figure 4.3. In Figure 4.3, 0V output indicates the valve is fully closed, 10V output indicates the valve is fully open, and other values represent different degrees of opening. (Please remind the customer that the actuator action of the selected valve must be consistent with our functional logic. If not, customization is required.) If the fan speed is set to auto, the fan speed will be determined according to Figure 4.4.

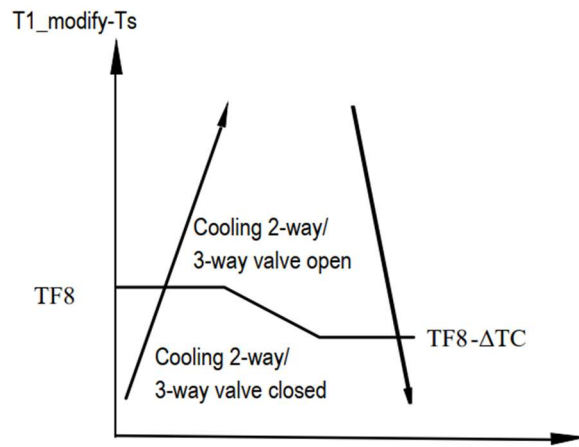


Figure 4.2 2-way valve or 3-way valve adjustment in cooling mode

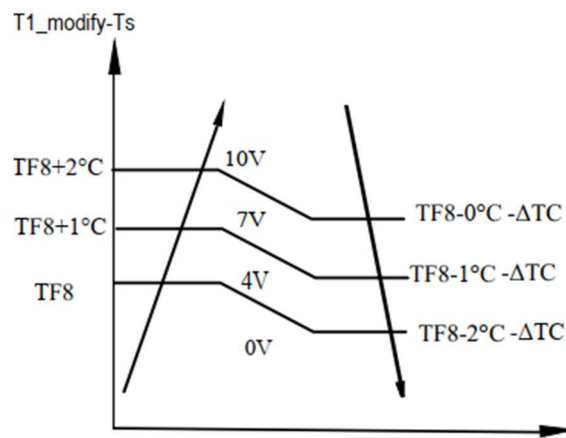


Figure 4.3 2-way valve or 3-way valve 0-10V control adjustment in cooling mode

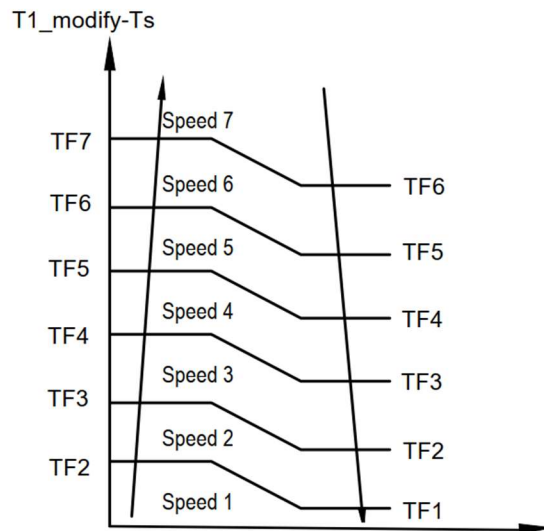


Figure 4.4 Air supply mode auto fan speed judgment diagram in cooling mode

Notes:

1. In Figure 4.2- Figure 4.4, the temperature points from bottom to top have "≥", while from top to bottom have "<".
2. If the fan speed is set to auto when switching modes, the fan speed remains unchanged initially, and then switches after 3 minutes. The switching time starts from the last time the fan speed was set to automatic in the previous mode.
3. TF1-8 stands for parameters setting in EEPROM.

4.3 Heating mode

The FCU can be set to operate in heating mode via the remote controller or wired controller.

In heating mode, the 3-way valve or 2-way valve is controlled as shown in Figure 4.5. If a 0-10V output control valve is used, it is controlled as shown in Figure 4.6. In Figure 4.6, 0V output indicates the valve is fully closed, 10V output indicates the valve is fully open, and other values represent different degrees of opening. (Please remind the customer that the actuator action of the selected valve must be consistent with our functional logic. If not, customization is required.) If the fan speed is set to auto, the fan speed will be determined according to Figure 4.7.

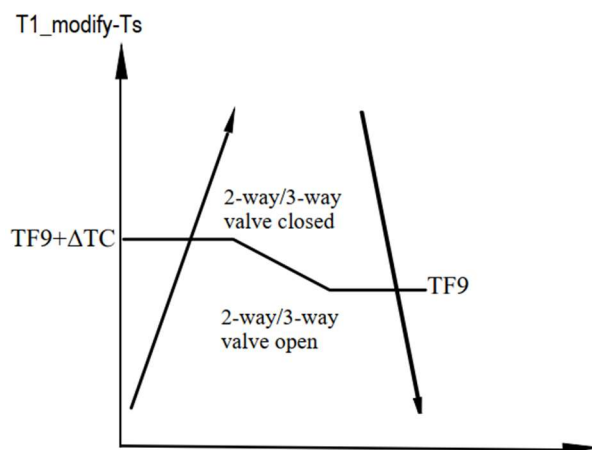


Figure 4.5 Action rule diagram for 3-way valve or 2-way valve in heating mode

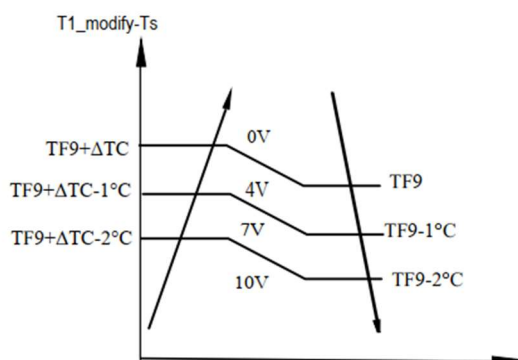


Figure 4.6 0-10V output control valve regulation logic in heating mode

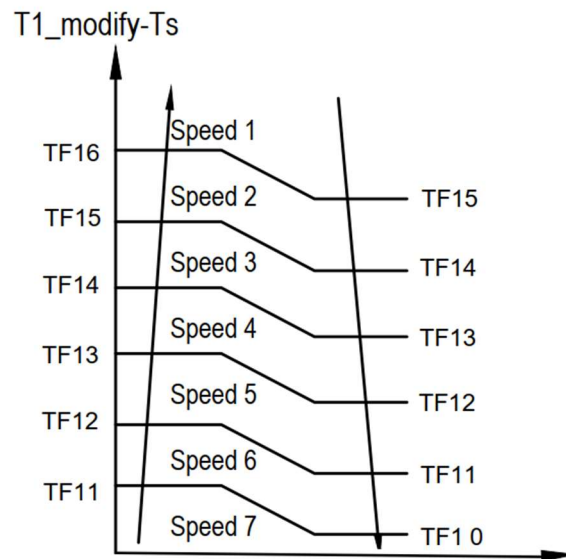


Figure 4.7 Heating mode auto fan speed judgment diagram

Notes:

1. In Figures 4.5, 4.6, and 4.7, the temperature points from bottom to top have "≥", while from top to bottom have "<".
2. If the fan speed is set to auto when switching modes, the fan speed remains unchanged initially, and then switches after 3 minutes. The switching time starts from the last time the fan speed was set to automatic in the previous mode.
3. TF9-16 stands for parameters setting in EEPROM.

4.4 Auto mode

The FCU can be set to operate in auto mode via the remote controller, wired controller.

In auto mode, FCU judges the operation state according to the detected indoor temperature ($T1_modify$) and set temperature (T_s). Table 4-1 indicates the relation of $T1_modify$, T_{sc} and T_{sh} .

In auto mode (except for the anti-cold air function), if a shutdown signal is received, the fan must delay shutdown by 30 seconds.

Table. 4-1 Auto mode operation judgment logic

Tsc-Tsh value	Heating mode condition	Cooling mode condition
$T_{sc}-T_{sh} = 0^{\circ}\text{C}$	$T1_modify < T_{sh} - 2^{\circ}\text{C}$	$T1_modify \geq T_{sc} + 2^{\circ}\text{C}$
$0 < T_{sc}-T_{sh} < 3^{\circ}\text{C}$	$T1_modify < T_{sh} - 1.5^{\circ}\text{C}$	$T1_modify \geq T_{sc} + 1.5^{\circ}\text{C}$
$T_{sc}-T_{sh} \geq 3^{\circ}\text{C}$	$T1_modify < T_{sh}$	$T1_modify \geq T_{sc}$

Notes:

1. T_{sc} : setting cooling temperature, T_{sh} : setting heating temperature, $T1_modify$: detected indoor temperature

4.5 Dry mode

The FCU can be set to operate in dry mode via the remote controller or wired controller. The control rules for dry mode are:

1. The set temperature can be freely adjusted between 17°C and 30°C via the remote controller or wired controller.
2. The action of the 3-way valve or 2-way valve is the same as in cooling mode.
3. The indoor fan speed is fixed at the speed 1 and cannot be adjusted.
4. The action of the air guide vanes is the same as in cooling mode.
5. Auxiliary function and protective function are the same as in cooling mode.

4.6 Temperature compensation control

Because of the installation position of Fan coil unit and different layout, indoor temperature detected by Fan coil unit may not consist with actual temperature. Indoor temperature could be compensated by controller (The parameter code is “N25” “N26”)

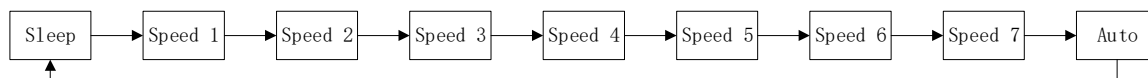
4.7 Fan control

4.2.1 Fan speeds control

The FCU can work in seven-speeds or three-speeds.

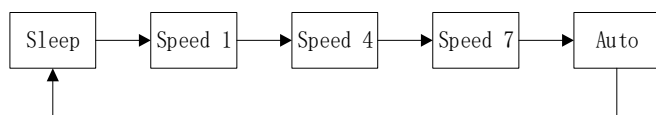
● Seven-speeds

When the Fan coil unit detects seven wind speeds the wind speed is set as follows.



● Three-speeds

When the Fan coil unit detects only three wind speeds the wind speed is set as follows.



● 0-10V voltage control

Table. 4-2 0-10V output control for fan speed

Type	Voltage output range (V)	Fan speed	Note
7 fan speeds	voltage<1	OFF	OFF
	1≤voltage<3	Speed 1	SSL
	3≤voltage<4	Speed 2	SL
	4≤voltage<5	Speed 3	L
	5≤voltage<6	Speed 4	M
	6≤voltage<7	Speed 5	H
	7≤voltage<8	Speed 6	SH
	8≤voltage<10	Speed 7	SSH
Automatic fan speed	Fan speed controlled by the wired controlled		

For the specific FCU series, please consult the technical manual of each series. The following table describes the fan control in different situations.

4.2.2 Fan control in different situations

Table. 4-3.1 Fan control in different situations

	FCU Status	Cooling Mode	Dry Mode	Heating Mode	Fan Mode	Speed Switch
Operating in Set Speed	Operating	Set speed	Speed 1	Set speed	Set speed	User set
	Standby	Set speed	Speed 1	Termal	/	
	Off	Stop fan	Stop fan	Stop fan	Stop fan	
	Fault	Stop fan	Stop fan	Stop fan	Stop fan	

Table. 4-3.2 Fan control in different situations

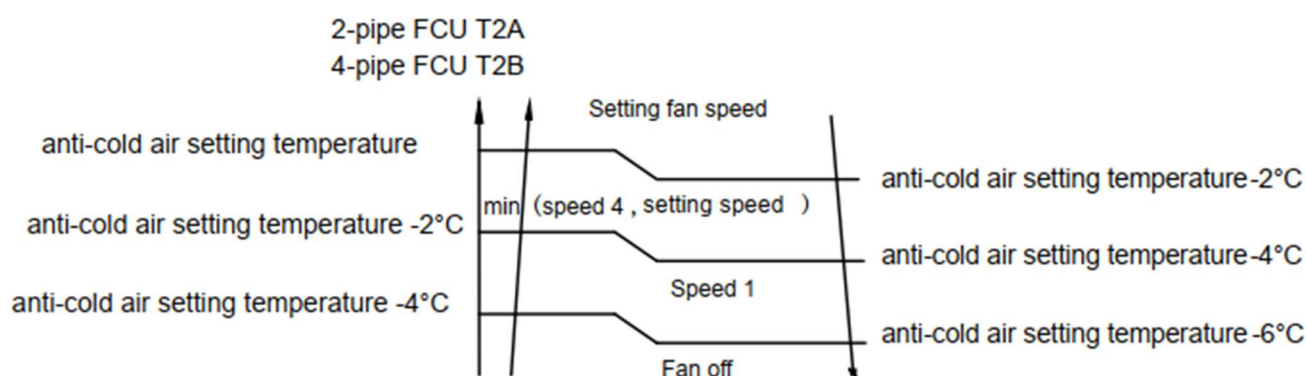
	FCU Status	Cooling Mode	Heating Mode	Auto Mode	Fan Mode	Speed Switch
Automatic Fan Speed	Operating	Automatic	Automatic	Automatic	Speed 1	Switch fan speed based on the difference of the set temperature and return air temperature
	Standby	Automatic	Termal	Automatic cooling, automatic fan speed, automatic heating, and Termal mode operating	/	
	Off	Stop fan	Stop fan	Stop fan	Stop fan	
	Fault	Stop fan	Stop fan	Stop fan	Stop fan	

Note:

Termal: In the heating mode, The FCU in the standby state heating mode will run fan periodically at speed 1 for one minute (the period can be set by controller)

4.2.3 Anti-cold air control

This function only be used in heating mode. For the 2-pipe FCUs, fan speed is changed according to value changes of the heat exchanger inlet temperature (T2A). For the 4-pipe FCUs, fan speed is changed according to value changes of the heat exchanger outlet temperature (T2B). If the FCU is turned off, the fan is turned off as well.



Note:

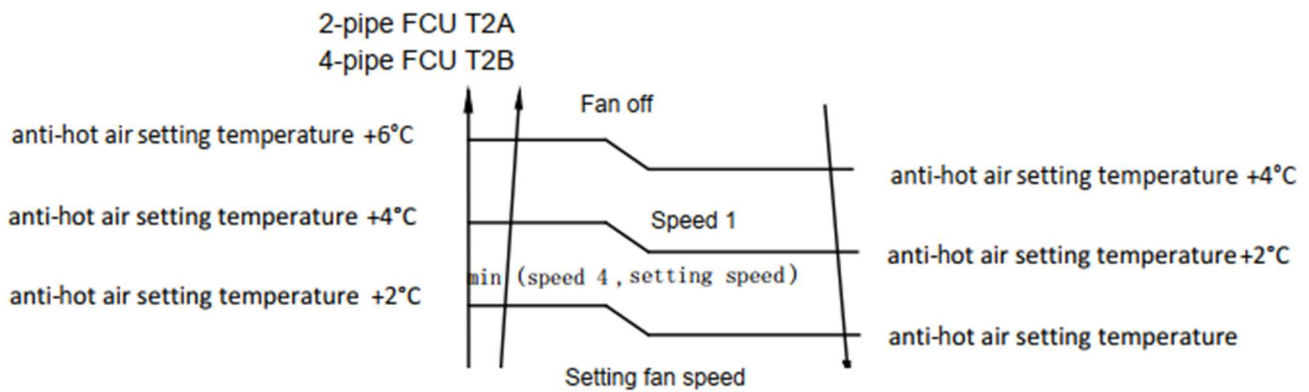
FCU's anti-cold air temperature in heating mode can be set by wired controller, the parameter setting code is "N18".

While in anti-cold air mode, set temperature (Ts) is displayed normally.

When the sensor T2A(T2B) or T1 is damaged, the anti-cold wind control is invalid.

4.2.4 Anti-hot air control

This function only be used in cooling mode. For the 2-pipe FCUs, fan speed is changed according to value changes of the heat exchanger inlet temperature (T2A). For the 4-pipe FCUs, fan speed is changed according to value changes of the heat exchanger outlet temperature (T2B). If the FCU is turned off, the fan is turned off as well.



Note:

FCU's anti-hot wind temperature in cooling mode can be set by wired controller, the parameter setting code is "N65".

While in anti-hot air mode, set temperature (Ts) is displayed normally.

When the sensor T2A(T2B) or T1 is damaged, the anti-hot wind control is invalid.

4.2.5 Standby fan speed Control

● Cooling standby

The default cooling standby fan speed is Speed 1. You can change the cooling standby fan speed from speed 1 to speed 7 through the controller.

The parameter setting code is "N18".

● Heating standby

The default heating standby is Termal wind speed. The speed 1 runs for 1 minute and stops for X minutes (X is the set value by the controller) which can be set from 4 minutes (default), 8 minutes, 12 minutes and 16 minutes (The parameter setting code is "N21"). And You can change the heating standby fan speed through the controller (The parameter setting code is "N20").

Termal: In the heating mode, The FCU in the standby state heating mode will run fan periodically at speed 1 for one minute (the period can be set by controller)

4.8 Swing control

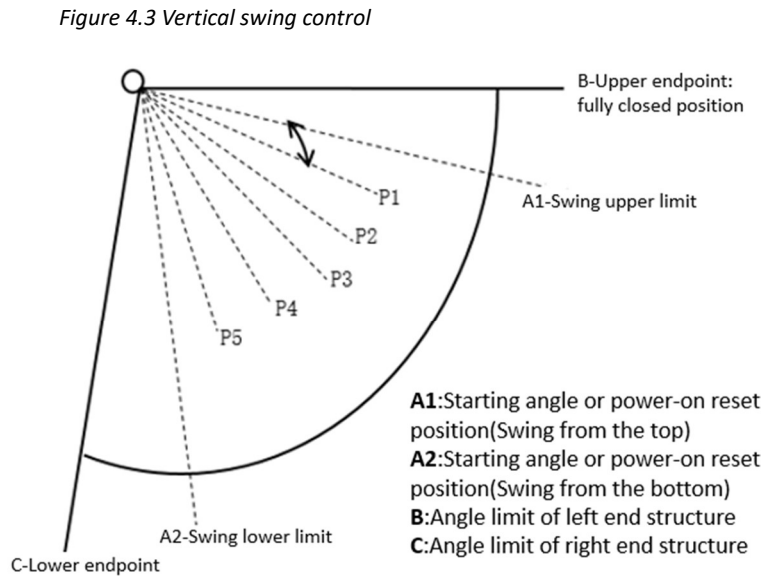
4.3.1 Vertical swing control

Different FCU series have different adjustable swing angle and default swing angle under different functions.

And each operation mode has its default adjustable range of swing angle. P1-P5 values vary because of the different operation modes and FCU series.

For details, please refer to Table 4.3

Table 4.4: Angle range of vertical swing in 4-way
Cassette/Compact 4-way cassette.



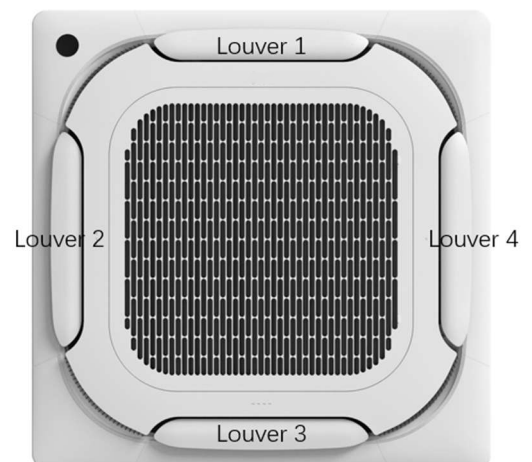
		Heating	Cooling/ventilation	Function operation	
		heating/anti-blowing/ anti-dirty of ceiling/ High ceiling setting	cooling/ Dehumidification /ventilation/anti-condensation/anti- blowing/ anti-dirty of ceiling/ High ceiling setting	Static pressure detection, leakage	Self-cleaning
4-way Cassette	Adjustable range	P1-P5		non-adjustable	non- adjustable
	The default gear	P5	P2	P5	P5
Compact 4-way Cassette	Adjustable range	P1-P5		non-adjustable	non- adjustable
	The default gear	P5	P3	P5	P5

4.3.2 Individual louver control

4-way Cassette and Compact 4-way Cassette have the individual louver control and the detail according to the following:

a) Louver selection: After entering the louver selection operation, all air flap immediately stop at the current spot and record the current spot. If there is no parameter setting within 3s, exit the louver selection state and all air flap return to the previous spot.

b) The corresponding digital tube will flash when the louver is selected. If no other operation is carried out within 1s, the current option will be confirmed.



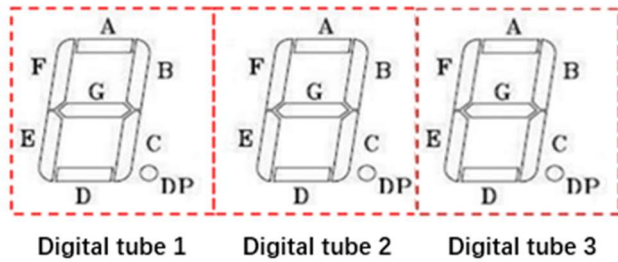


Table 4.5: Digital tube display instructions.

Louver	Digital tube 1	Digital tube 2	Digital tube 3
Louver 1	A flash	A flash	A flash
Louver 2	E/F flash	-	-
Louver 3	D flash	D flash	D flash
Louver 4	-	-	B/C flash
Louver 1+2+3+4	A/D/E/F flash	A/D flash	A/B/C/D flash

Note: If there are more than 2 louvers are set to close, only the first and second will close.

4.3.3 Anti-condensation control

In order to prevent the problem of hanging water and blowing water caused by excessive temperature difference. When the risk of condensation is detected, the Compact 4-way Cassette and 4-way Cassette adjusts the louver to the default minimum angle and limits the angle adjustment range; Other IDUs will adjust the louver to the default condensation angle and lock angle.

4.3.4 Ceiling anti-dirty control

In order to prevent flow of Compact 4-way Cassette and 4-way Cassette towards ceiling, you could open the function of control of ceiling anti-dirty, which will limit the angle that the louver allows to be set so that the airflow avoids the ceiling.

4.9 Human detect control

The Human detect sensor is optional. The operation mode of human detect control can be set by controller (N50).

1) **When set the mode "Used to adjust the set temperature when unattended" and enter the unattended state¹, the following logic is executed**

- ① When the cooling/automatic cooling mode operates, the correction value² of the set temperature Ts is + 1 every A³ minute.
- ② During heating/automatic heating mode operation, the correction value of the set temperature Ts is - 1 every A minute;
- ③ Fan speed 1
- ④ The fan louver maintains the previous angle.
- ⑤ Resume normal control when someone is detected

2) **When set the mode " Used to turn off the unit when unattended " and enter the unattended state¹, the following logic is executed**

- ① Turn off the unit

② Resume normal control when someone is detected

Note:

1. The unattended state will only be entered after the unattended state is detected for X minutes. X can be set by the controller (N53)
2. The value of maximum temperature adjustment can be set by controller (N52)
3. The value of A can be set by controller (N51)

4.10 Remote ON/OFF function

The fan coil unit's main control board have remote ON/OFF port, Port CN55 connects the positive switch signal. The positive and negative logic of the main control board is set by the wired controller or central controller. (N38)

● Remote on/off port setting status and its corresponding function

Table 4.6: Remote on/off port setting status and its corresponding function

FCU PCB Set	Port status	Corresponding function	Functional interpretation
Set to Positive logic (Default)	The port is connected, Input Low level	Remote delay OFF control	Shut down after the delay time, the controller can send commands normally, but the fan coil unit remains off.
		Remote OFF control	Direct shutdown without delay, the controller can send commands normally, but the fan coil unit remains off.
Set to negative logic	The port is disconnected, Input High level	Remote delay OFF control	Shut down after the delay time, the controller can send commands normally, but the fan coil unit remains off.
		Remote OFF control	Direct shutdown without delay, the controller can send commands normally, but the fan coil unit remains off.

The remote OFF delay time can be set through the wired controller (N39), the default value is 0

4.11 Freeze protection

Freeze protection is active in all operating modes and takes priority over other functions. When freeze protection is active, its control requirements override other control commands. The fan speed shift into speed 1 during freeze protection.

For the 2-pipe FCUs, the freeze protection is triggered or recovered according to value changes of the heat exchanger inlet temperature (T2A). For the 4-pipe FCUs, the freeze protection is triggered or recovered according to value changes of the heat exchanger outlet temperature (T2B). Freeze protection is not evaluated if a T2A/T2B sensor fault exists.

A) Freeze protection entry condition: T2A/ T2B Coil temperature $< 3^{\circ}\text{C}$ for more than 30S.

B) Freeze protection exit condition: T2A/ T2B Coil temperature $\geq 5^{\circ}\text{C}$ for more than 30S.

4.12 Beyond operation range protection

The system continuously monitors the T2A/TB temperature under all operating conditions to prevent the water temperature from exceeding the tolerable range.

For the 2-pipe FCUs, the water temperature out-of-range protection is triggered or recovered according to value changes of the heat exchanger inlet temperature (T2A). For the 4-pipe FCUs, the water temperature out-of-range protection is triggered or recovered according to value changes of the heat exchanger outlet temperature (T2B).

Water temperature out-of-range protection is not evaluated if a T2A/T2B sensor fault exists.

A) Water temperature out-of-range protection entry condition: T2A/ T2B Coil temperature $\geq 75^{\circ}\text{C}$ for more than 30S.

B) Water temperature out-of-range protection exit condition: T2A/ T2B Coil temperature $< 75^{\circ}\text{C}$ for more than 2 minutes.

5. Fault Code and Definition

5.1 Fault level

Table 5.1: Fault level definition

Content	Grade	Action	Cause
Complete shutdown	L1	Disable all available functions and do not recover them	Safety impact
Shutdown	L2	Disable all available functions and recover them after the error are removed	The device may be further damaged
Display error	L3	Enable partial restriction and inform the customer	Guarantee minimum functions

5.2 Fault code type

The fault code is indicated with English letters and Arabic numbers (20 in total), including 0, 1, 2... 8, 9, A, b, C, d, E, F, H, L, P, U, Example, 1A, P0, and 34.

Table 5.2: Fault code type

Fault category	Fault sub-category	Fault code	Type
Prompt	Not stopped	d	AHU operating status prompt
Commissioning	Not matched	U	Fault due to incorrect commissioning or installation
Communication	Communication failure	C	All communication faults (including air compressor/fan)
Device	Valve body/pump	b	Fault or abnormality of pump bodies, valve bodies, and other components
	IDU sensor/switch	H	Temperature sensor/switch fault or abnormality
	External sensor/switch (Water flow/pressure/current)	F	Fault of pressure, water flow, current sensor or switch
	Fan fault	J	Fan fault (including drive module)
Protector	Protection	P	Other faults
Others	Other failures	A	
Note: 1. The letter n is the prefix of the menu, not the fault code.			

5.3 Common fault codes

Table 5.3: Common fault codes

No.	Fault	Applicable model	Classification	New fault code (V11)	Subcode (V11)	Sub-fault	Fault level (L1 > L2 > L3)
1	Fan fault	All	Protection failure	J0	1	Multiple motor failures within 60 minutes	L1
2	Fan fault	All	Forced shutdown failure	J3		Primary motor fault	L2
3	Fan fault	All	Forced shutdown failure	J3	E	Low pressure fault of fan (no display on the panel)	L2
4	Fan fault	All	Forced shutdown failure	J3	E	Low pressure fault of fan (display on the panel)	L2
5	Fan fault	All	Forced shutdown failure	J4	5	Motor mismatch	L2
6	Water level sensor fault (reserved)	All	Forced shutdown failure	b3	4	Pump 1 body failure	L2
7	Water level sensor fault (reserved)	All	Forced shutdown failure	b3	5	Pump 2 body failure	L2
8	Water level sensor fault	All	Forced shutdown failure	b3	6	Water level switch alarm failure	L2
9	EEPROM fault	All	Electric control protection failure	P7	1	EEPROM fault	L2
10	EEPROM fault (reserved)	All	Electric control protection failure	P7	2	EEPROM failure in panel	L2
11	Air inlet sensor fault	All	Sensor fault	E2	4	T1 sensor fault	L2
12	T2A sensor fault	All IDUs with the SDV6 protocol (except HRV) or the Myhome IDU with the SDV5 protocol	Sensor fault	F0	1	T2A sensor fault	L3
13	T2B sensor fault	IDUs except HRV	Sensor fault	F2	1	T2B sensor fault	L3
14	DIP setting error	SDV6 protocol IDU	Installation failure	U1	1	Unit model not set	L2
15	DIP setting error	SDV6 protocol IDU	Installation failure	U1	2	Capacity not set	L2

Table continued on next page ...

Table 5.3: Common fault codes (continued)

No.	Fault	Applicable model	Classification	New fault code (V11)	Subcode (V11)	Sub-fault	Fault level (L1 > L2 > L3)
16	Communication fault between main control and module	All	Communication failure	C4	1	Communication fault between main control and drive module	L2
17	Communication failure between IDU and external board	All	Communication failure	C6	1	Communication failure between IDU and panel/display board	L3
18	Communication failure between IDU and external board	All	Communication failure	C7	8	Communication failure between IDU and expansion board 2	L2
19	Communication failure between IDU and external board	All	Communication failure	C7	9	Communication failure between IDU and switch module	L2
20	Humidity sensor fault (reserved)	All	Non-stop fault	EA	2	Humidity sensor fault	L3
21	Communication failure between IDU and wired controller	All	Communication failure	C5	1	Communication failure between IDU and wired controller	L3
22	Controller and panel sensor fault (reserved)	All	Non-stop fault	E3	1	Wired controller temperature sensor failure	L3
23	Controller and panel sensor fault (reserved)	All	Non-stop fault	E3	3	External temperature sensor failure	L3
24	Beyond operating range	All	Status fault	P0	2	Anti-freezing protection	L3
25	Beyond operating range	FAPU or HRV	Status fault	P0	1	Water temperature protection	L3
26	Remote shutdown	All	Warning	d6	1	Remote shutdown	L3

5.4 Load control and controller display in case of fault

Table 5.4: Load control and controller display in case of fault

No.	Fault	Forced shutdown or not in case of fault	Automatic recovery	Can the fan start	Can the pump start	Output at the alarm port	Can the pump start	Wired controller display	Display on the panel/display panel	Fault level (L1 > L2 > L3)
1	Fan fault	Yes	No	No	Yes	Yes	No	Fault code	Fault code	L1
2	Fan fault	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
3	Fan fault	Yes	Yes	No	Yes	Yes	No	Fault code	No display	L2
4	Fan fault	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
5	Fan fault	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
6	Water level sensor fault (reserved)	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
7	Water level sensor fault (reserved)	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
8	Water level sensor fault	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
9	EEPROM fault	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
10	EEPROM fault (reserved)	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
11	Air inlet sensor fault	No	Yes	Yes	Yes	Yes	No	Fault code	Fault code	L2
12	T2A sensor fault	No	Yes	Yes	Yes	Yes	Yes	Fault code	Fault code	L3
13	T2B sensor fault	No	Yes	Yes	Yes	Yes	Yes	Fault code	Fault code	L3
14	DIP setting error	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
15	DIP setting error	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
16	Communication failure between main control and fan drive module	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
17	Communication failure between IDU and external board	No	Yes	Yes	Yes	Yes	Yes	Fault code	Fault code	L3
18	Communication failure between IDU and external board (reserved)	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
19	Communication failure between IDU and external board	Yes	Yes	No	Yes	Yes	No	Fault code	Fault code	L2
20	Humidity sensor fault (reserved)	No	Yes	Yes	Yes	No	Yes	No display	No display	L3
21	Communication failure between IDU and wired controller	No	Yes	Yes	Yes	No	Yes	No display	No display	L3
22	Controller and panel sensor fault (reserved)	No	Yes	Yes	Yes	No	Yes	No display	No display	L3
23	Controller and panel sensor fault (reserved)	No	Yes	Yes	Yes	No	Yes	No display	No display	L3
24	Beyond operating range	No	Yes	Yes	Yes	Yes	No	Fault code	Fault code	L3
25	Beyond operating range	No	Yes	Yes	Yes	Yes	No	Fault code	Fault code	L3
26	Remote shutdown	No	Yes	No	Yes	No	No	Fault code	Fault code	L3

Remarks: If the auxiliary heater is turned on in case of a fault, please turn it off immediately. The fan is turned off at the current fan speed 1 minute later

5.5 Fault codes for compact 4-way cassette and 4-way cassette

When a system fault occurs, it shuts down immediately and the fan is turned off. The display panel indicates the current fault. When a system protection is triggered, the system responds according to the corresponding protection function. The display pane shows the current protection status.

Table 5.5: Compact 4-way cassette and 4-way cassette FCU fault codes

Fault code and definition	
Fault code	Definition
b34/ b35	Water pump error
b36	Water level switch error
C41	Communication error between main control board and fan drive module
C51	Communication error between main control board and wired controller
C51	Communication error between main control board and extension board
C78/ C79	
E31	Controller/ Panel sensor error
E33	External temperature sensor error
J3	Primary fan drive module error
J3E	Low voltage fault of fan
J45	Motor mismatch
P71/P72	EPROM failure
U11	Mode setting error
U12	Performance setting error
P01	Water temperature exceeds the protection range
P02	Protection against freezing
E24	T1 sensor error
F01	T2A sensor error
F21	T2B sensor error
Prompt codes and definitions (non-faults)	
d61	Remote shutdown

6. Troubleshooting

b3* Water pump/water level switch fault

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	In case of a water level alarm failure, check the water level switch.
Possible cause	■The water level switch wire gets loose or is damaged. ■The water level switch is stuck. ■The drainage of the FCU drain pan is stuck or the pump is damaged. ■FCU main board is damaged.
Troubleshooting	<pre> graph TD Start([b3* Water pump/water level switch fault]) --> Q1{Is the discharge of the drain pan abnormal} Q1 -- Yes --> A1([Rectify the drainage pipe according to installation requirements]) Q1 -- No --> Q2{Is the wiring of the water level switch short-circuited, broken or loose} Q2 -- Yes --> A2([Adjust or replace the wiring]) Q2 -- No --> Q3{Are the drainage outlets of the drain pump and drain pan abnormal} Q3 -- Yes --> A3([Replace the drain pump or clear the drainage outlet of drain pan]) Q3 -- No --> Q4{Measure if the water level switch resistance is normal, which is close to infinity when the water pump is full, and is 0 Ω when the water pump is empty.} Q4 -- Yes --> A4([Replace the water level switch]) Q4 -- No --> End([The equipment is functional.]) </pre>

C41 Communication failure between main control and drive module

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	Communication failure between drive module of fan and main control
Possible cause	■The drive module on the main board is damaged. ■The main board is damaged.
Troubleshooting	<pre> graph LR Start([C41]) -- Yes --> A1[Replace the main board] A1 -- Yes --> End([The device returns to normal and the unit is functional]) </pre>

C51 Communication failure between main control and wired controller

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	Communication failure between wired controller and main control
Possible cause	■Wiring between the wired controller and the main control is incorrect. ■The pin on the wired controller of the main board is damaged. ■The terminal block on the wired controller is damaged.
Troubleshooting	<pre> graph TD Start([C51]) --> Q1{Is the wiring between the wired controller and the main control loose/cut off.} Q1 -- Yes --> A1([Connect the cable again]) Q1 -- No --> Q2{Check whether the pins X1 and X2 on the main board get loose} Q2 -- Yes --> A2([Replace the main board]) Q2 -- No --> Q3{Are the wiring and pin of the wired controller abnormal} Q3 -- Yes --> A3([Replace the wired controller and rewire]) </pre>

C61/C7* Communication failure between main board and external board

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	Communication failure between main control and panel/communication switch module
Possible cause	■Wiring error between main control and panel/communication switch module ■The main board is damaged. ■The panel/communication switch module is damaged.
Troubleshooting	<pre> graph TD Start([C61/C7*]) --> Q1{Check whether the wiring between main control and panel/communication switch module gets loose/is disconnected} Q1 -- Yes --> A1([Connect the cable again]) Q1 -- No --> Q2{Check whether the wiring and pin on the main board are damaged} Q2 -- Yes --> A2([Replace the main board]) Q2 -- No --> Q3{Are the wiring and pin of the panel/communication switch module abnormal} Q3 -- Yes --> A3([Replace the panel digital board/communication switch module and connect the cable again]) </pre>

E3* Controller and panel sensor fault

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	The main board receives the signal indicating that the controller/panel sensor resistor is in an open circuit or short circuit
Possible cause	■ The sensor is not properly connected to the control board. ■ The sensor is damaged.
Troubleshooting	<pre> graph TD A([E3* Sensor fault]) --> B{Is the sensor terminal loose} B -- Yes --> C([Adjust the terminal again]) B -- No --> D[Measure the sensor resistance, and check whether the sensor resistance corresponds to the temperature] D -- Yes --> E([Digital display tube/wired controller fault]) D -- No --> F([Temperature sensor fault]) </pre>

P7* EEPROM fault

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	EEPROM fault
Possible cause	■The chip on the main board is damaged.
Troubleshooting	<pre> graph LR A[P7*] -- Yes --> B[Replace the main board] B -- Yes --> C[The device returns to normal and the unit is functional] </pre>

P0* Beyond operating range

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Protection logic	The detection value of the pipe temperature sensor is less than 3°C or greater than 75°C.
Protection reason	The water pipe may be frozen if the water temperature is too low, and discomfort may be caused due to too high hot air temperature, if the water temperature is too high.
Troubleshooting	No processing is required, because it is a unit protection logic. Wait until the logic exits.

J** Fan/fan drive fault

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	Fan overcurrent/fan power/fan stalling/fan start failure/fan overcurrent
Possible cause	■ The cable between the main board and the fan motor is not connected or is incorrectly connected, or the connecting terminal has poor contact. ■ The model and the fan type are unmatched. ■ The sampling resistor on the main control and the fan type are unmatched. ■ The power voltage/current is too high. ■ The fan is blocked. ■ The fan is stalled.
Troubleshooting	<pre> graph TD Start([J** Fan fault]) --> Q1{Is the IDU fan stuck} Q1 -- Yes --> A1([Adjust the IDU fan]) Q1 -- No --> Q2{Is the cable between the main board and the more not connected or loose} Q2 -- Yes --> A2([Properly connect the cable]) Q2 -- No --> Q3{Is the fan power supply abnormal} Q3 -- Yes --> A3([Power failure; contact the power supply sector]) Q3 -- No --> Q4{Is the voltage of the main board terminal abnormal} Q4 -- No --> A4([DC fan fault]) Q4 -- Yes --> Q5[Replace the main board and check whether the problem is eliminated] Q5 -- Yes --> End([The device returns to normal]) </pre>

E24&F01&F21 T1&T2A&T2B sensor fault

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	The main board detecting sensor resistor is in an open circuit or short circuit, the voltage is > 4.95 V or the voltage is < 0.05 V.
Possible cause	■The sensor is not properly connected to the control board. ■The sensor is damaged. ■The main board is damaged.
Troubleshooting	<pre> graph TD Start([E24&F01&F21 sensor fault]) --> Decision1{is the sensor terminal loose} Decision1 -- Yes --> Action1([Adjust the terminal again]) Decision1 -- No --> Decision2{Measure the sensor resistance, and check whether the sensor resistance corresponds to the temperature} Decision2 -- Yes --> Action2([IDU main board is faulty]) Decision2 -- No --> End([Temperature sensor fault]) </pre>

d61 Remote shutdown

Applicable model	The 3rd Gen (SDV6 Control) Compact 4-Way Cassette DC Fan Coil Unit
Symptom	When the unit detects that the remote port is closed, the unit switches to the shutdown state.
Protection reason	For remote shutdown of unit
Troubleshooting	No processing is required for remote unit shutdown.

7. Appendix

7.1 Temperature codes and definitions applicable to the table

Table 7.1: Temperature codes and definitions

Code	Definition	Code	Definition
T1	Room temperature	T2A	Heat exchanger coil inlet temperature
T2B	Heat exchanger coil outlet temperature	Ts	Setting room temperature

7.2 Temperature sensor resistance characteristics

Temperature (°C)	Resistance Rt (kΩ)	Temperature (°C)	Resistance Rt (kΩ)	Temperature (°C)	Resistance Rt (kΩ)	Temperature (°C)	Resistance Rt (kΩ)
-20	106.732	20	12.635	60	2.35	100	0.609
-19	100.552	21	12.05	61	2.264	101	0.591
-18	94.769	22	11.496	62	2.181	102	0.574
-17	89.353	23	10.971	63	2.102	103	0.558
-16	84.278	24	10.473	64	2.026	104	0.542
-15	79.521	25	10	65	1.953	105	0.527
-14	75.059	26	9.551	66	1.883		
-13	70.873	27	9.125	67	1.816		
-12	66.943	28	8.721	68	1.752		
-11	63.252	29	8.337	69	1.69		
-10	59.784	30	7.972	70	1.631		
-9	56.524	31	7.625	71	1.574		
-8	53.458	32	7.296	72	1.519		
-7	50.575	33	6.982	73	1.466		
-6	47.862	34	6.684	74	1.416		
-5	45.308	35	6.401	75	1.367		
-4	42.903	36	6.131	76	1.321		
-3	40.638	37	5.874	77	1.276		
-2	38.504	38	5.63	78	1.233		
-1	36.492	39	5.397	79	1.191		
0	34.596	40	5.175	80	1.151		
1	32.807	41	4.964	81	1.113		
2	31.12	42	4.763	82	1.076		
3	29.528	43	4.571	83	1.041		
4	28.026	44	4.387	84	1.007		
5	26.608	45	4.213	85	0.974		
6	25.268	46	4.046	86	0.942		
7	24.003	47	3.887	87	0.912		
8	22.808	48	3.735	88	0.883		
9	21.678	49	3.59	89	0.855		
10	20.61	50	3.451	90	0.828		
11	19.601	51	3.318	91	0.802		
12	18.646	52	3.191	92	0.777		
13	17.743	53	3.069	93	0.753		
14	16.888	54	2.952	94	0.73		
15	16.079	55	2.841	95	0.708		
16	15.313	56	2.734	96	0.686		
17	14.588	57	2.632	97	0.666		
18	13.902	58	2.534	98	0.646		
19	13.251	59	2.44	99	0.627		

NOTE CONCERNING PROTECTION OF ENVIRONMENT



This product must not be disposed of via normal household waste after its service life, but must be taken to a collection station for the recycling of electrical and electronic devices. The symbol on the product, the operating instructions or the packaging indicate such disposal procedures. The materials are recyclable in accordance with their respective symbols. By means of re-use, material recycling or any other form of recycling old appliances you are making an important contribution to the protection of our environment. Please ask your local council where your nearest disposal station is located.

In case of quality problem or other please contact your local supplier or authorized service center.

Emergency number: 112

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