

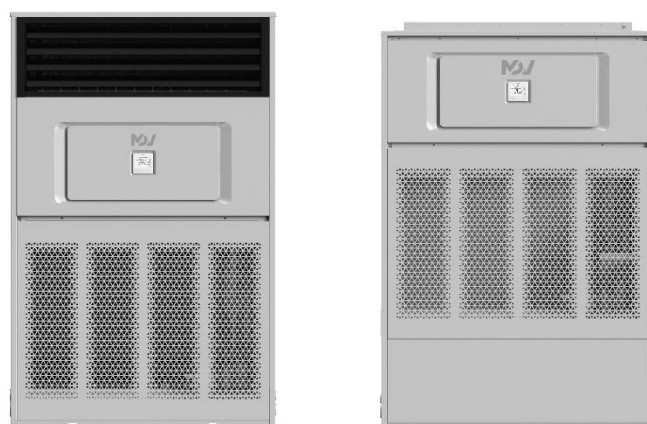


R410A

Commercial Air Conditioners

# Service Manual

## Floor Standing Units

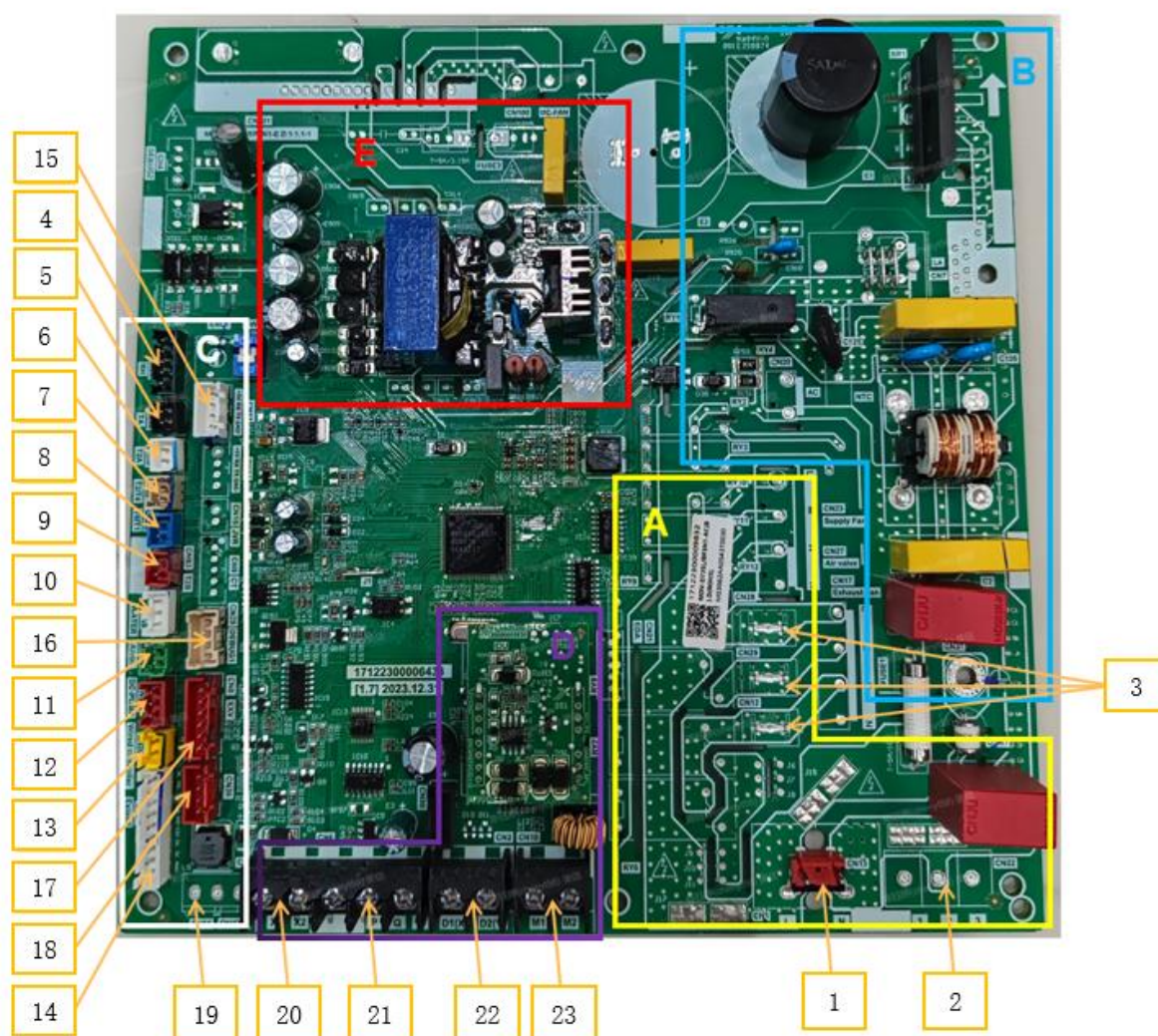


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## Floor Standing

## MDV Indoor Units



| Label in Figure 3.10 | Code                   | Content                                                                                        | Port voltage           | Note     |
|----------------------|------------------------|------------------------------------------------------------------------------------------------|------------------------|----------|
| 1                    | CN1(L,N)               | AC power input                                                                                 | 220V AC                | Standard |
| 2                    | CN22<br>(ALARM,N,AC2)  | AC power output Used for customization function:<br>alarm/Strong electric sterilization module | 220V AC                | Standard |
| 3                    | CN12(H-L)<br>CN29(H-N) | Reserved                                                                                       | 220V AC                | Reserved |
| 4                    | CN35                   | Humidity sensor connection                                                                     | 3.3V DC <sup>[5]</sup> | Standard |
| 5                    | CN16                   | Reserved                                                                                       | 3.3V DC                | Reserved |
| 6                    | CN80                   | T2A Temperature sensor connection                                                              | 3.3V DC                | Standard |
| 7                    | CN81                   | T2 Temperature sensor connection                                                               | 3.3V DC                | Standard |
| 8                    | CN82                   | T1 Ambient Temperature sensor connection                                                       | 3.3V DC                | Standard |
| 9                    | CN83                   | T2B Temperature sensor connection                                                              | 3.3V DC                | Standard |
| 10                   | CN5                    | Water level switch port                                                                        | 3.3V DC <sup>[5]</sup> | Standard |

Table continued on next page ...

Table 3.11: High Static Pressure Duct main PCB ports (continued)

| Label in Figure 3.10 | Code          | Content                                                                                       | Port voltage                                 | Note     |
|----------------------|---------------|-----------------------------------------------------------------------------------------------|----------------------------------------------|----------|
| 11                   | CN-A          | Sterilization module port                                                                     | 12V DC                                       | Reserved |
| 12                   | CN190         | Drainage pump port                                                                            | 12V DC <sup>[5]</sup>                        | Standard |
| 13                   | CN26          | Communication with wire controller                                                            | 18V DC <sup>[5]</sup>                        | Standard |
| 14                   | CN18          | Switch module                                                                                 | 5V/12V DC <sup>[5]</sup>                     | Standard |
| 15                   | CN14/CN11     | Fan module connection                                                                         | 5V DC                                        | Standard |
| 16                   | CN25          | Program burning port(indoor unit)                                                             | 3.3V DC <sup>[5]</sup>                       | Standard |
| 17                   | CN8           | EEV drive port                                                                                | 12V DC <sup>[5]</sup>                        | Standard |
| 18                   | CN30          | Display panel connection                                                                      | 12V DC                                       | Standard |
| 19                   | CN55          | Remote control ON/OFF port                                                                    | Note 5                                       | Standard |
| 20, 21               | CN6(X1X2,PQE) | X1 X2 communication port(with wire controller);<br>P Q communication port(with ODU by RS-485) | X1 X2:18V DC ;<br>P,E or Q,E:<br>2.5-2.7V DC | Standard |
| 22                   | CN2(D1D2)     | D1 D2 communication port(with Central controller or group controller)                         | D1,E or D2,E<br>2.5 - 2.7V DC                | Standard |
| 23                   | CN10(M1M2)    | M1 M2 communication port(with ODU by HyperLink)                                               | 24V DC                                       | Standard |

Notes:

- Standard:** The model has this function, the customers can connect corresponding device through this port, such as water pump and hotel key card etc.  
**Customized:** This function needs to be customized before leaving the factory.  
**Reserved:** This port can not be used.
- When repairing, PQ connects after-sales tooling
- PQ and M1M2 communication ports both are used for indoor and outdoor communication, and only one of them can be used at a time. Meanwhile, be sure to connect the same communication ports (PQ to PQ; M1M2 to M1M2) in case of damage of the main control board.
- D1D2 communication ports are used for group control communication. When connecting the group controller, the D1D2 port of the indoor units that are to be group controlled must be connected in daisy chain, and the group controller must be connected to the X1X2 port of one of the indoor units in the group control, and set to group control mode. In addition, D1D2 communication ports can also be connected to the central controller.
- Refer to Table 3.2 for voltage test instructions of some ports.

## 2 Indoor unit settings

### 2.1 Parameter settings

Taking KJR-86S/BK as an example, the parameters can be set in the power-on or power-off state.

① Hold "⏏" and "≡" for 3 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 "v" to switch the parameter code and press "⏏" to enter Parameter value setting interface. Then press "^" and "v" to change Parameter value and press "⏏" to save changes. (For example "CC" to "C03" to "01")

#### b) Indoor unit Parameter Settings (Nxx)

When display "CC", press "v", then the indoor unit number will be displayed ("n00-n63" is displayed, and the last two digits are the indoor unit addresses). Press the "⏏" to enter the indoor unit parameter setting interface, and "n00" will be displayed. Use "^" and "v" to adjust to "Nxx" and press the "⏏" to confirm. Finally, press "^" and "v" to change Parameter value and press "⏏" to save changes. (For example "CC" to "n03" to "N25" to "01").

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.

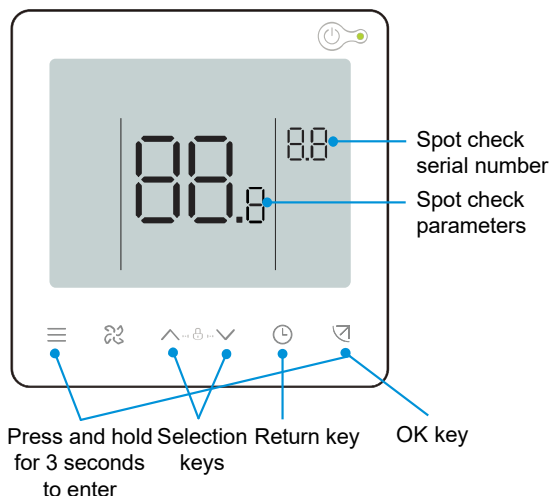


Table 4.1: Wired controller Parameter Settings

| Parameter Code | Parameter Name                                                   | Parameter Range                                                                   | Default Value | Remarks                                                                                                                                                                                                                                                                                                           |
|----------------|------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C00            | Main and secondary wired controller setting                      | 0 indicates the main wired controller<br>1 indicates a secondary wired controller | 0             | If two wired controllers control one IDU, addresses for two wired controllers must be different. You are not allowed to set IDU 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<br>01: Cooling Only                                       | 00            | Heating mode is not available in cooling only setting                                                                                                                                                                                                                                                             |
| C02            | Auto restart function setting for the wired controller           | 00: No<br>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<br>01: 1200h,<br>02: 2500h<br>03: 5000h<br>04: 10000h                                                                                                                                                                                                                             |
| C04            | Settings for infrared receiver of wired controller               | 00: Disable<br>01: Enable                                                         | 01            | When "Disable the infrared receiver of the wired controller" is on, the wired controller cannot receive remote control signal.                                                                                                                                                                                    |

Table 4.1: Wired controller Parameter Settings(continues)

| Parameter Code | Parameter Name                                     | Parameter Range                                          | Default Value                     | Remarks                                                                                                              |
|----------------|----------------------------------------------------|----------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| C05            | Whether indoor ambient temperature is displayed    | 00: No<br>01: Yes                                        | 00                                | Common IDU, V8 AHU-kit, and V8 FAPU :<br>T1_modify is displayed. V6 FAPU and V6 AHU-kit:<br>Subject to the unit type |
| C06            | LED indicator of wired controller                  | 00: Off<br>01: On                                        | 01                                | When it is on, LED indicator shows the on/off state of the indoor unit. When it is off, LED indicator is off.        |
| C07            | Wired controller Follow Me temperature calibration | Celsius: -5.0 to 5.0<br>Fahrenheit: -9.0 to 9.0          | Celsius: -1.0<br>Fahrenheit: -2.0 | Note: Accuracy is 0.5°C or 1°F                                                                                       |
| C08            | Minimum cooling temperature                        | Common V8 IDU 16°C to 30°C                               | 16°C                              |                                                                                                                      |
|                |                                                    | Common V6 IDU (including V6 AC FAPU) 17°C to 30°C        | 17°C                              |                                                                                                                      |
|                |                                                    | V8 FAPU (Supply air temperature control) 13°C to 30°C    | 13°C                              |                                                                                                                      |
|                |                                                    | V8 FAPU (Room temperature control) 16°C to 30°C          | 16°C                              |                                                                                                                      |
|                |                                                    | V6 DC FAPU 13°C to 30°C                                  | 13°C                              |                                                                                                                      |
|                |                                                    | V8 AHU kit (Supply air temperature control) 10°C to 30°C | 10°C                              |                                                                                                                      |
|                |                                                    | V8 AHU kit (Return air temperature control) 16°C to 30°C | 16°C                              |                                                                                                                      |
|                |                                                    | V6 AHU kit (Supply air temperature control) 10°C to 30°C | 10°C                              |                                                                                                                      |
|                |                                                    | V6 AHU kit (Return air temperature control) 17°C to 30°C | 17°C                              |                                                                                                                      |

Table 4.1: Wired controller Parameter Settings(continues)

| Parameter Code | Parameter Name              | Parameter Range                                          | Default Value | Remarks                                                                       |
|----------------|-----------------------------|----------------------------------------------------------|---------------|-------------------------------------------------------------------------------|
| C09            | Maximum cooling temperature | Common V8 IDU<br>16°C to 30°C                            | 30°C          | The setting is valid only when the wired controller is connected to a V8 IDU. |
|                |                             | Common V6 IDU (including V6 AC FAPU)<br>N/A              | N/A           |                                                                               |
|                |                             | V8 FAPU (Supply air temperature control) 13°C to 30°C    | 30°C          |                                                                               |
|                |                             | V8 FAPU (Room temperature control) 16°C to 30°C          | 30°C          |                                                                               |
|                |                             | V6 DC FAPU<br>N/A                                        | N/A           |                                                                               |
|                |                             | V8 AHU kit (Supply air temperature control) 10°C to 30°C | 30°C          |                                                                               |
|                |                             | V8 AHU kit (Return air temperature control) 16°C to 30°C | 30°C          |                                                                               |
|                |                             | V6 AHU kit (Supply air temperature control)<br>N/A       | N/A           |                                                                               |
|                |                             | V6 AHU kit (Return air temperature control)<br>N/A       | N/A           |                                                                               |
| C10            | Minimum heating temperature | Common V8 IDU<br>16°C to 30°C                            | 16°C          | The setting is valid only when the wired controller is connected to a V8 IDU. |
|                |                             | Common V6 IDU (including V6 AC FAPU)<br>N/A              | N/A           |                                                                               |
|                |                             | V8 FAPU (Supply air temperature control) 13°C to 30°C    | 13°C          |                                                                               |
|                |                             | V8 FAPU (Room Temperature control) 16°C to 30°C          | 16°C          |                                                                               |
|                |                             | V6 DC FAPU<br>N/A                                        | N/A           |                                                                               |
|                |                             | V8 AHU kit (Supply air temperature control) 10°C to 30°C | 10°C          |                                                                               |
|                |                             | V8 AHU kit (Return air temperature control) 16°C to 30°C | 16°C          |                                                                               |
|                |                             | V6 AHU kit (Supply air temperature control)<br>N/A       | N/A           |                                                                               |
|                |                             | V6 AHU kit (Return air temperature control)<br>N/A       | N/A           |                                                                               |

Table 4.1: Wired controller Parameter Settings(continues)

| Parameter Code | Parameter Name                              | Parameter Range                                          | Default Value | Remarks                                                                                                                                                                                                                                                            |
|----------------|---------------------------------------------|----------------------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C11            | Maximum heating temperature                 | Common V8 IDU 16°C to 30°C                               | 30°C          |                                                                                                                                                                                                                                                                    |
|                |                                             | Common V6 IDU (including V6 AC FAPU)<br>N/A              | N/A           |                                                                                                                                                                                                                                                                    |
|                |                                             | V8 FAPU (Supply air temperature control) 13°C to 30°C    | 30°C          |                                                                                                                                                                                                                                                                    |
|                |                                             | V8 FAPU (Room temperature control) 16°C to 30°C          | 30°C          |                                                                                                                                                                                                                                                                    |
|                |                                             | V6 DC FAPU<br>N/A                                        | N/A           |                                                                                                                                                                                                                                                                    |
|                |                                             | V8 AHU kit (Supply air temperature control) 10°C to 30°C | 30°C          |                                                                                                                                                                                                                                                                    |
|                |                                             | V8 AHU kit (Return air temperature control) 16°C to 30°C | 30°C          |                                                                                                                                                                                                                                                                    |
|                |                                             | V6 AHU kit (Supply air temperature control)<br>N/A       | N/A           |                                                                                                                                                                                                                                                                    |
|                |                                             | V6 AHU kit (Return air temperature control)<br>N/A       | N/A           |                                                                                                                                                                                                                                                                    |
|                |                                             | Common V8 IDU 16°C to 30°C                               | 30°C          |                                                                                                                                                                                                                                                                    |
| C12            | Set to display 0.5°C                        | 00/01                                                    | 01            | 00: Without 0.5°C display<br>01: With 0.5°C display                                                                                                                                                                                                                |
| C13            | Wired controller button light setting       | 00/01                                                    | 01            | 00: Off<br>01: On                                                                                                                                                                                                                                                  |
| C14            | One click to deliver IDU Parameter settings |                                                          | 01            | The latest configuration parameters stored in the wired controller will be changed after power on for two hours or after configuration parameters of wired controller are changed.<br>Note: 1: Applicable to one-to-one scenario<br>2: Only for 2nd generation IDU |
| C15            | Buzzer of the wired controller rings        | 00/01                                                    | 01            | 00: No<br>01: Yes                                                                                                                                                                                                                                                  |
| C16            | Backlight on time                           | 00/01/02                                                 | 00            | 00: 15s<br>01: 30s<br>02: 60s                                                                                                                                                                                                                                      |



Table 4.1: Wired controller Parameter Settings(continues)

| Parameter Code | Parameter Name                                                    | Parameter Range     | Default Value | Remarks                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|-------------------------------------------------------------------|---------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C17            | Whether energy efficiency attenuation is displayed when power off | 00/01               | 00            | 00: Disable<br>01: Enable<br>The setting is valid only when the wired controller is connected to a V8 IDU.                                                                                                                                                                                                                                                                                                         |
| C18            | Whether IDU filter blockage is displayed when power off           | 00/01               | 00            | 00: Disable<br>01: Enable<br>The setting is valid only when the wired controller is connected to a V8 IDU.                                                                                                                                                                                                                                                                                                         |
| C19            | T1 temperature selection                                          | F0/F1/F2/F3/...#IDU | F1            | Only for the V8 FAPU, the value of C19 parameter cannot be set and T1 value is fixed to F1. For other models, the value of this parameter can be set.<br>F0: IDU T1 temperature sensor<br>F1: Follow Me T1 temperature sensor embedded in the wired controller<br>(Note: The secondary wired controller does not respond to Follow Me)<br>F2: Second temperature sensor (reserved)<br>F3: Ground sensor (reserved) |
| C20            | Swing motor direction setting                                     | 00/01               | 00            | The setting is valid only when the wired controller is connected to a common V8 IDU.                                                                                                                                                                                                                                                                                                                               |

Table 4.2: Indoor unit Parameter Settings

| Parameter Code | Parameter Name                                                                       | Parameter Range                                                              | Default Value | Remarks                                                                                                                                                           |
|----------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N00            | Static pressure of IDU                                                               | IDU static pressure level:<br>00/01/02/03/<br>04/05/06/07/08/<br>09/~ /19/FF | FF            | The IDU sets the selected corresponding static pressure (FF-there may be different default values for different series of indoor units)                           |
| N01            | Power failure memory function setting for the IDU                                    | 00/01                                                                        | 01            | 00: No<br>01: Yes                                                                                                                                                 |
| N02            | IDU up/down swing setting                                                            | 00/01/02/03/04                                                               | 01            | 00: None<br>01: Available<br>02/03: Reserved<br>04: Q4/Qmin four air vents<br>Note: The IDU can automatically identify up/down swing, so this function is invalid |
| N03            | IDU left/right swing setting                                                         | 00/01                                                                        | 01            | 00: None<br>01: Available<br>Note: The IDU can automatically identify up/down swing, so this function is invalid                                                  |
| N04            | Infrared receiver of IDU display box                                                 | 00/01                                                                        | 00            | 00: Yes<br>01: No                                                                                                                                                 |
| N05            | Buzzer of the IDU rings                                                              | 00/01/02                                                                     | 02            | 00: No<br>01: Yes<br>02: Only the display box rings.                                                                                                              |
| N06            | Light (display panel) setting                                                        | 00/01                                                                        | 01            | 00: Off<br>01: On                                                                                                                                                 |
| N07            | Temperature unit                                                                     | 00/01                                                                        | 00            | 00: Celsius<br>01: Fahrenheit                                                                                                                                     |
| N08            | Mode changeover time interval in the auto mode (min)                                 | 00/01/02/03                                                                  | 00            | 00: 15min<br>01: 30min<br>02: 60min<br>03: 90min                                                                                                                  |
| N09            | Heating and cooling temperature difference setting in auto mode                      | 00/01/02/03/04/<br>05/06/07/08                                               | 00            | 00: 0°C; 01: 1°C; 02: 2°C;<br>03: 3°C; 04: 4°C; 05: 5°C;<br>06: 6°C; 07: 7°C; 08: 8°C                                                                             |
| N11            | Set outdoor temperature for auxiliary heat source/alternative heat source to turn on | Celsius: -25°C to 20°C<br>Fahrenheit: -13°F to 68°F                          | 0°C           | Note: Accuracy is 1°C or 1°F                                                                                                                                      |
| N12            | Indoor temperature when auxiliary heater is on                                       | 10°C to 30°C                                                                 | 24°C          | (Accuracy is 1°C)                                                                                                                                                 |

Table 4.2: Indoor unit Parameter Settings(continues)

| Parameter Code | Parameter Name                                                                         | Parameter Range            | Default Value | Remarks                                                                                                                                                                     |
|----------------|----------------------------------------------------------------------------------------|----------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N13            | T1 temperature difference for auxiliary heat source/alternative heat source to turn on | 0-7                        | 3             | 0-7 indicates 0 - 7°C (The value is accurate to 1°C or 1°F.)                                                                                                                |
| N14            | T1 temperature difference when auxiliary heat source/alternative heat source is off    | 0-10                       | 5             | 0-10 indicates -4 - 6°C(The value is accurate to 1°C or 1°F.)                                                                                                               |
| N15            | Auxiliary heater used alone                                                            | 00/01                      | 00            | 00: No<br>01: Yes                                                                                                                                                           |
| N16            | Auxiliary heater on/off                                                                | 00/01/02                   | 00            | 00: Auto<br>01: Forced on<br>02: Forced off                                                                                                                                 |
| N17            | IDU cold draft prevention temperature settings                                         | 00/01/02/03/04             | 00            | Common IDU:<br>0: 15; 1: 20; 2: 24; 3: 26; 04: Anti-cold wind disabled<br>Fan coil unit: 00: 32°C; 01: 34°C; 02: 36°C; 03: 38°C;<br>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<br>01: Speed 1<br>02: Speed 2<br>03: Speed 3<br>04: Speed 4<br>05: Speed 5<br>06: Speed 6<br>07: Speed 7<br>14: Fan speed before going to standby mode |
| N19            | Standby fan speed range in dry mode                                                    | 00/01/02/03                | 01            | 00: Fan off<br>01: L1<br>02: L2<br>03: Speed 1                                                                                                                              |
| N20            | Fan speed setting in heating standby mode                                              | 0/1/14                     | 0             | 0: Termal<br>1: Speed 1<br>14: Fixed to Speed 1                                                                                                                             |
| N21            | Time to stop the fan of IDU (Termal)                                                   | 01/02/03/04                | 01            | 00: Fan shutdown<br>01: 4min<br>02: 8min<br>03: 12min<br>04: 16min(stop the fan for Xmin; open the fan at speed 1 for 1min to detect the actual T1 temperature)             |

Table 4.2: Indoor unit Parameter Settings(continues)

| Parameter Code | Parameter Name                               | Parameter Range | Default Value | Remarks                                                                                         |
|----------------|----------------------------------------------|-----------------|---------------|-------------------------------------------------------------------------------------------------|
| N22            | EEV opening selection during heating standby | 00/01/02/14     | 14            | 00: 56P<br>01: 72P<br>02: 0P<br>14: Auto regulation                                             |
| N23            | Cooling return difference temperature        | 00/01/02/03/04  | 00            | 00: 1°C<br>01: 2°C<br>02: 0.5°C<br>03: 1.5°C<br>04: 2.5°C                                       |
| N24            | Heating return difference temperature        | 00/01/02/03/04  | 00            | 00: 1°C<br>01: 2°C<br>02: 0.5°C<br>03: 1.5°C<br>04: 2.5°C                                       |
| N25            | IDU heating mode temperature compensation    | 00/01/02/03/04  | 00            | 00: 6°C<br>01: 2°C<br>02: 4°C<br>03: 8°C<br>04: 0°C                                             |
| N26            | IDU cooling mode temperature compensation    | 00/01/02/03/04  | 00            | 00: 0°C<br>01: 1°C<br>02: 2°C<br>03: 3°C<br>04: -1°C                                            |
| N27            | Maximum indoor temperature drop in dry mode  | 00/01/02/03/04  | 01            | 00: 03°C<br>01: 04°C<br>02: 05°C<br>03: 06°C<br>04: 07°C                                        |
| N30            | Constant air flow setting                    | 00/01           | 01            | 00: Constant speed<br>01: Constant air flow                                                     |
| N31            | High ceiling setting                         | 00/01/02        | 00            | 00: $H \leq 3m$ ;<br>01: $3 < H \leq 4m$ ;<br>02: $4 < H \leq 4.5m$<br>(H: IDU Mounting height) |
| N32            | Q4/Q4C air outlet 1 setting                  | 00/01           | 00            | 00 - Free control<br>01 - Off                                                                   |
| N33            | Q4/Q4C air outlet 2 setting                  | 00/01           | 00            | 00 - Free control<br>01 - Off                                                                   |
| N34            | Q4/Q4C air outlet 3 setting                  | 00/01           | 00            | 00 - Free control<br>01 - Off                                                                   |

Table 4.2: Indoor unit Parameter Settings(continues)

| Parameter Code | Parameter Name                                                                                      | Parameter Range | Default Value | Remarks                                                                                                                                                                                      |
|----------------|-----------------------------------------------------------------------------------------------------|-----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N35            | Q4/Q4C air outlet 4 setting                                                                         | 00/01           | 00            | 00 - Free control<br>01 - Off                                                                                                                                                                |
| N37            | One-to-more of wired controller enabled                                                             | 00/01           | 00            | 00: No<br>01: Yes                                                                                                                                                                            |
| N38            | Remote On/Off port logic of the IDU                                                                 | 00/01           | 00            | 00: Remote off (closed);<br>01: Remote off (open)<br>Note: When powered off remotely, the digital display of wired controller of V8 displays d6, while that of V6 does not display this code |
| N39            | Remote OFF delay settings                                                                           | 00/01/.../06    | 00            | 00 - No delay<br>01 - 1min delay<br>02 - 2min<br>03- 3min<br>04- 4min<br>05- 5min<br>06- 10min                                                                                               |
| N40            | Alarm port logic                                                                                    | 00/01           | 00            | 00: Alarm when closed<br>01: Alarm when open                                                                                                                                                 |
| N41            | Powerful operation                                                                                  | 00/01           | 00            | 00: Off<br>01: On (Rapid cooling/Rapid heating)                                                                                                                                              |
| N42            | Sterilization function                                                                              | 00/01           | 00            | 00: No sterilization function (default)<br>01: Sterilization                                                                                                                                 |
| N43            | Sterilization setting                                                                               | 00/01/02        | 00            | 00: Auto on<br>01: Forced on<br>02: Forced off                                                                                                                                               |
| N44            | Silent mode setting                                                                                 | 00/01           | 00            | 00: Off<br>01: On                                                                                                                                                                            |
| N45            | ECO                                                                                                 | 00/01           | 00            | 00: Off<br>01: On                                                                                                                                                                            |
| N46            | Drying time at self-cleaning                                                                        | 0/1/2/3         | 0             | 0: 10 min<br>1: 20 min<br>2: 30 min<br>3: 40 min                                                                                                                                             |
| N47            | Mildew-proof fan operation duration (power off in cooling/dry mode, except power off due to faults) | 00/01/02/03     | 00            | 00 - 40s<br>01 - 120s<br>02 - 300s<br>03 - 600s                                                                                                                                              |
| N48            | Dirt proof for ceiling                                                                              | 00/01           | 00            | 00: Invalid<br>01: Valid                                                                                                                                                                     |

Table 4.2: Indoor unit Parameter Settings(continues)

| Parameter Code | Parameter Name                                          | Parameter Range      | Default Value | Remarks                                                                                                                |
|----------------|---------------------------------------------------------|----------------------|---------------|------------------------------------------------------------------------------------------------------------------------|
| N49            | Condensation proof                                      | 00/01                | 00            | 00: Invalid<br>01: Valid                                                                                               |
| N50            | Human Detect Sensor                                     | 00/01/02             | 01            | 00: Invalid<br>01: Used to adjust the set temperature when unattended<br>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<br>01: 30 min<br>02: 45 min<br>03: 60 min<br>04: 90 min<br>05: 120 min                                      |
| N52            | Setting maximum temperature adjustment when unattended  | 00/01/02/03          | 03            | 00: 1°C<br>01: 2°C<br>02: 3°C<br>03: 4°C                                                                               |
| N53            | Stop delay when unattended                              | 00/01/02/03/04/05    | 01            | 00: 15 min<br>01: 30 min<br>02: 45 min<br>03: 60 min<br>04: 90 min<br>05: 120 min                                      |
| N54            | MDV ETA function setting                                | 00/01                | 01            | 00: Off<br>01: On                                                                                                      |
| N55            | Energy rating of cooling MDV ETA                        | 00/01/02             | 00            | 00: Level 1<br>01: Level 2<br>02: Level 3                                                                              |
| N56            | Energy rating of heating MDV ETA                        | 00/01/02             | 00            | 00: Level 1<br>01: Level 2<br>02: Level 3                                                                              |
| N57            | On-site air flow adjustment factor                      | 00/01/02/03/04/05/06 | 00            | 00: 1<br>01: 1.05<br>02: 1.1<br>03: 1.15<br>04: 0.95<br>05: 0.9<br>06: 0.85                                            |
| N58            | Initial static pressure detection                       | 00/01                | 00            | 00: Not reset<br>01: Reset                                                                                             |
| N59            | Filter ending - initial static pressure setting         | 00/01/.../19         | 00            | 00-10Pa/ 01-20Pa/<br>02~19-30Pa ~200Pa                                                                                 |

Table 4.2: Indoor 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            | 00: 5°C<br>01: 0°C<br>02: (-5)°C                                                                                           |
| N61            | Fresh air dry contact 1                                            | 00/01                           | 00            | 00: Disconnected<br>01: Connected<br>Note: Applicable to FAPU only                                                         |
| N62            | Fresh air dry contact 2                                            | 00/01                           | 00            | 00: Disconnected<br>01: Connected<br>Note: Applicable to FAPU only                                                         |
| N63            | Fresh air dry contact 3                                            | 00/01                           | 00            | 00: Disconnected<br>01: Connected<br>Note: Applicable to FAPU only                                                         |
| N64            | Whether to open valve when the fan coil unit works in heating mode | 00/01                           | 00            | 00: Open the valve in heating mode;<br>01: Do not open the valve in heating mode<br>Note: Applicable to fan coil unit only |
| N65            | Fan coil unit's anti-hot wind temperature setting in cooling mode  | 01/02/03/04                     | 00            | 00: 0°C<br>01: -2°C<br>02: -4°C<br>03: -6°C<br>04: Invalid anti-hot wind<br>Note: Applicable to fan coil unit only         |
| N66            | Auto Dry Function                                                  | 00/01                           | 00            | 00: Invalid(default)<br>01: Valid<br>Note: Only applicable to operations in Cool or Auto mode                              |
| N67            | Auto Dry Target relative humidity                                  | 40%/41%/42%/...<br>.../7 65% 0% | 65%           |                                                                                                                            |
| N68            | Refrigerant leakage fault reset                                    | 00/01                           | 00            | 00: Not reset;<br>01: reset                                                                                                |
| N69            | Target humidity for third-party dehumidifiers                      | 35%/36%/37%/...<br>/75%         | 65%           |                                                                                                                            |
| N70            | Target humidity for third-party humidifiers                        | 35%/36%/37%/...<br>/75%         | 65%           |                                                                                                                            |
| N71            | IDU control type                                                   | 01/02                           | 01            | Valid to V8 FAPU.<br>01: Supply air temperature control<br>02: Room temperature control                                    |
| N72            | Minimum temperature settings of cooling operating range            | 00/01/02/03/04/<br>05/06/07     | 00            | Valid to V8 FAPU.                                                                                                          |
| N73            | Maximum temperature settings of heating operating range            | 00/01/02/03/04/<br>05/06/07     | 00            | Valid to V8 FAPU.                                                                                                          |

Table 4.2: Indoor unit Parameter Settings(continues)

| Parameter Code | Parameter Name                                              | Parameter Range | Default Value | Remarks                                                                                                                                                                                                                                                                                                       |
|----------------|-------------------------------------------------------------|-----------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| N74            | Anti-cold wind temperature setting of special IDUs          | 00/01/02/03/04  | 00            | 00/01/02/03: corresponds to different values;<br>04: Anti-cold wind disabled                                                                                                                                                                                                                                  |
| N75            | IDU operating mode setting if the IDU is shut down remotely | 00/01           | 00            | 00: After the remote shutdown signal is canceled, the IDU runs in the preset mode or based on the command that is received during shutdown period. The preset mode is the mode set before the remote shutdown signal is triggered.<br>01: After the remote shutdown signal is canceled, the IDU is shut down. |

Notes:

If use other controllers, parameter settings need refer to the corresponding manual.

## 2.2 Indoor unit parameter query

### Taking KJR-86S/BK as an example

- ①Hold "≡" and "∧" for 2 seconds to enter the query interface, "u00-u03" indicates ODUs, "n00-n63" indicates IDUs (the last two digits are the ODU or IDU addresses), and "CC" indicates the wired controller. Press "∧" and "∨" to switch the IDU code (For example n02), then press "↩" to enter the parameter query page.
- ②In the parameter query page, use "∧" and "∨" to query parameters, and the parameters can be queried cyclically.
- ③The 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.
- ④Press "⌚" to exit the query page. The parameter query page automatically closes if no button is pressed within the next 60 seconds.

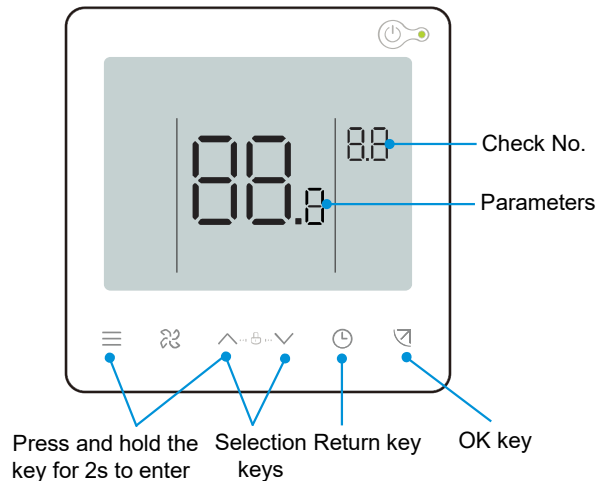


Table 4.3: Indoor unit parameters check list

| Check No. | Parameters                                                                                                                        | Remarks                        |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 1         | IDU and ODU communication address <sup>1</sup>                                                                                    | 0 - 63                         |
| 2         | Capacity of indoor unit                                                                                                           | Unit: HP                       |
| 3         | Actual set temperature Ts                                                                                                         | Unit:℃                         |
| 4         | Set temperature of the unit that is operating currently, Ts (Remarks: The temperature displayed is the actual set temperature Ts) | Unit:℃                         |
| 5         | Actual T1 indoor temperature                                                                                                      | Actual value = value displayed |
| 6         | Modified indoor temperature T1_modify                                                                                             | Actual value = value displayed |
| 7         | T2 heat exchanger intermediate temperature                                                                                        | Actual value = value displayed |
| 8         | T2A heat exchanger liquid pipe temperature                                                                                        | Actual value = value displayed |
| 9         | T2B heat exchanger gas pipe temperature                                                                                           | Actual value = value displayed |
| 10        | Actual set humidity RHs                                                                                                           | Actual value = value displayed |



| Check No. | Parameters                         | Remarks                          |
|-----------|------------------------------------|----------------------------------|
| 11        | Actual RH indoor humidity          | Actual value = value displayed   |
| 12        | [— — —] is displayed               |                                  |
| 13        | Air discharge pipe temperature     | Actual value = value displayed   |
| 14        | Compressor discharge temperature   | Actual value = value displayed   |
| 15        | Target superheat                   | Actual value = value displayed   |
| 16        | EEV opening (actual opening/8)     | Actual value/8 = value 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        | Fan drive version No.              |                                  |
| 21        | [— — —] is displayed               |                                  |

Notes:

1. For indoor units, the communication address and network address are the same and are routinely referred to simply as the unit's "address".
2. If use other controllers, please refer to the corresponding manual.

## 2.3 Function Descriptions

### 2.3.1 Power failure memory function

The power failure memory function can be used to ensure that, in the event of a power outage, the indoor 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. Indoor units with this function disabled go into standby once the power returns following a power outage.

### 2.3.2 Heating mode temperature compensation setting

Since indoor 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 indoor 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.

### 2.3.3 Cooling mode temperature compensation setting

With cooling mode temperature compensation, in cooling mode the indoor 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

### 3.1 Temperature Compensation Control

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

### 3.2 EEV Control

When the IDU is powered on again or the ODU is stopped, the system automatically enters initialization mode. After initialization is completed, the system enters the normal start mode. The IDU EEV uses superheat degree control in cooling mode and uses supercool degree control in heating mode. If the IDU receives a protection control or special control command, this command is executed in priority.

#### ● Superheat Degree Control in Cooling Mode

During cooling (dry), the IDU calculates the difference between the heat exchanger gas pipe temperature (T2B) and the heat exchanger liquid pipe temperature (T2A) detected by the temperature sensors and write this difference as the current superheat degree (SH). By comparing the current superheat degree (SH) with the set superheat degree (SHS), the opening adjustment trend of the EEV can be decided.

$$SH = T2B - T2A$$

- ◆ When  $SH > SHS$ , the EEV opening increases
- ◆ When  $SH = SHS$ , the EEV opening unchanged
- ◆ When  $SH < SHS$ , the EEV opening decreases

#### ● Supercool Degree Control in Heating Mode

During heating, the IDU calculates the difference between the High pressure equivalent saturation temperature (Tc) and the heat exchanger liquid pipe temperature (T2A) detected by temperature sensors and write this difference as the current supercool degree (SC). By comparing the current supercool degree (SC) with the set supercool degree (SCS), the opening adjustment trend of the EEV can be determined.

$$SC = \max(T1 + 6, Tc_{\max} - 2) - T2A$$

- ◆ When  $SC > SCS$ , the EEV opening increases
- ◆ When  $SC = SCS$ , the EEV opening unchanged
- ◆ When  $SC < SCS$ , the EEV opening decreases

#### ● EEV Operating in other Situations

The EEV decides its operating opening based on the IDU operating mode, IDU working mode, and ODU working mode. For details, see the following table:

| IDU Status | Cooling Mode      |             | Heating Mode      |             |
|------------|-------------------|-------------|-------------------|-------------|
|            | ODU Operating     | ODU Stopped | ODU Operating     | ODU Stopped |
| Operating  | Superheat control | B PLS       | Supercool control | D PLS       |
| Standby    | A PLS             |             | C PLS             |             |
| Off        |                   |             |                   |             |
| Fault      |                   |             |                   |             |

Note:

1. PLS indicates the unit of pulses regarding the EEV opening.
2. The values of A,B,C and D are depend on IDUs' series.

## 3.3 Start and Stop Control

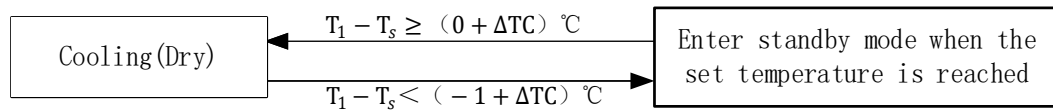
Indoor Unit judges the operation state according to the temperature compensation value ( $\Delta TC$ ) and the difference value between detected indoor temperature ( $T_1$ ) and set temperature ( $T_s$ ).

When the indoor temperature reaches the set one, Indoor Unit shut down; when the indoor temperature exceeds the set one, Indoor Unit start running.

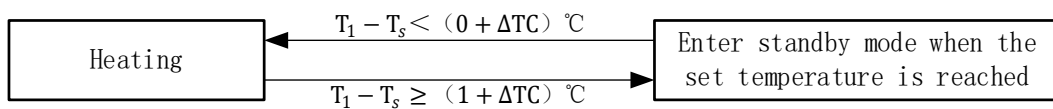
### ● Objective

1. Ensure comfort. When the indoor temperature of indoor return air reaches the temperature range set by the user, if the IDU fails to shut down, the room temperature will deviate from the expected value of the user and reduce the comfort of the room.
2. Energy saving. When the temperature of the return air reaches the temperature range set by the user, if the IDU fails to shut down, the air conditioning system will continue to operate inefficiently under the condition of low indoor load, with low energy efficiency and no energy saving.
3. The use of temperature compensation values is to solve the problem of differences in the distribution of the room temperature field. The room due to structural differences, room heat source distribution differences, solar radiation, hot air uplift, cold air sink and other factors will cause the temperature detected by the indoor unit's own return air temperature sensor( $T_1$ ) and the user's human activity area temperature deviation, temperature compensation value( $\Delta TC$ ) is used to repair this deviation
4. Ensure compressor reliability. The control will prevent frequent start/stop and the temperature compensation in the temperature shutdown control will inhibit frequent opening and closing of the air conditioning system, extending the service life of the air conditioning system;

### ● Cooling (Dry)



### ● Heating



Note:

The temperature compensation value ( $\Delta TC$ ) of cooling and heating operation can be found in the specifications of each model. For details, please contact local technical support personnel

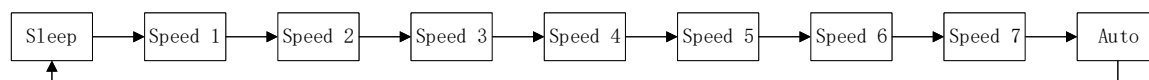
## 3.4 Fan Control

### 3.4.1 Fan speeds control

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

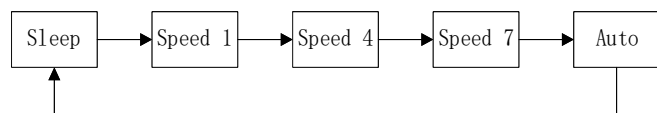
#### ● Seven-speeds

When the Indoor Unit detects seven wind speeds the wind speed is set as follows.



#### ● Three-speeds

When the Indoor Unit detects only three wind speeds the wind speed is set as follows.



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

#### ● Fan control in different situations

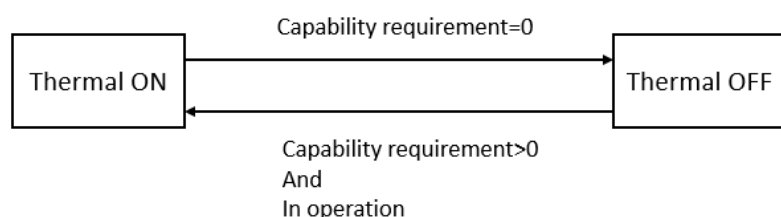
|                        | IDU Status | Cooling Mode | Dry Mode | Heating Mode | Fan Mode  | Speed Switch |
|------------------------|------------|--------------|----------|--------------|-----------|--------------|
| Operating in Set Speed | Operating  | Set speed    | Speed 1  | Set speed    | Set 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  |              |

|                     | IDU 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 IDU in the standby state heating mode will run fan periodically at speed 1 for one minute (the period can be set by controle)

### 3.4.2 Auto fan control mode

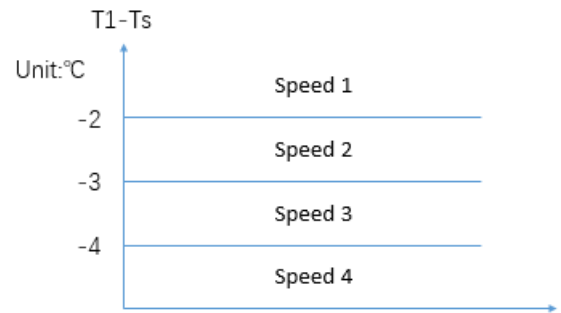
1. When set auto fan control in cooling or heating mode. After operation in the initial speed for a period of time, when Thermal ON, IDUs enter the auto mode and the fan speed will be changed every 2 minutes or when Ts change.
2. When Thermal OFF, IDUs enter the standby mode. When Thermal ON, IDUs enters the initial fan speed again.
3. The default speed is speed 1 when IDUs are set auto fan mode in Air supply only mode.



## ● Determine the initial fan speed of auto fan control

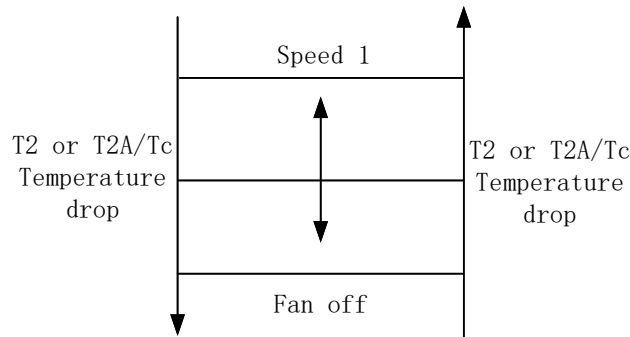
The initial fan speed is determined according to the difference between ambient indoor temperature ( $T_1$ ) and set temperature ( $T_s$ ), and it updates in the following situations:

- 1) The first time enter this mode
- 2)  $T_s$  is changed
- 3) When switching between normal operation and silent operation



### 3.4.3 Anti-cold Air Control

This function only be used in heating mode, fan speed is changed according to value changes of the heat exchanger intermediate temperature ( $T_2$ ) of the heat exchanger liquid pipe temperature ( $T_{2A}$ ) and High pressure equivalent saturation temperature ( $T_c$ ). While in anti-cold air mode, set temperature ( $T_s$ ) is displayed normally. Anti-cold air control is valid during the oil return or defrosting period. If the IDU is turned off, the fan is turned off as well.



Note: The switching temperature of the heat exchanger intermediate temperature ( $T_2$ ), the heat exchanger liquid pipe temperature ( $T_{2A}$ ) and the condensing temperature ( $T_c$ ) is determined by  $T_{fanoff}$ .

$T_{fanoff}$  is the switch temperature point between Breeze and Fan off can be adjusted by controller.

### 3.4.4 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 Thermal 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").

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

## 3.5 Swing control

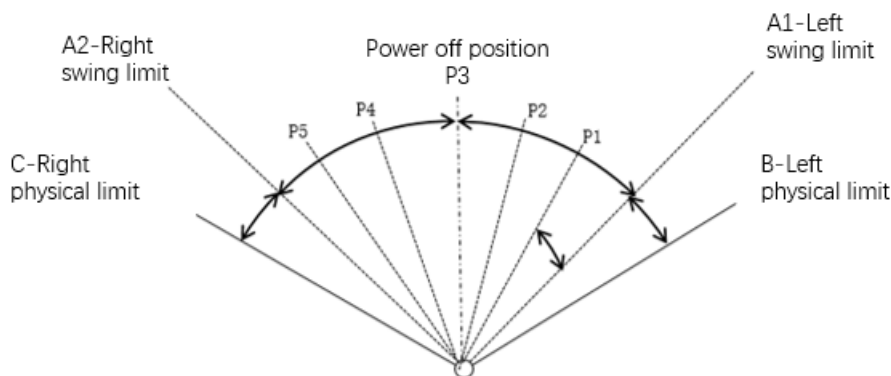
### 3.5.1 Horizontal swing control

#### ● Angle range of horizontal swing

Table 6.1: Angle range of horizontal swing

|                  | heating   | cooling   |
|------------------|-----------|-----------|
| adjustable range | A1+A2     | A1+A2     |
| shutdown angle   | A1+B/A2+C | A1+B/A2+C |

Figure 6.1 Horizontal swing angle



**A1:** Starting angle or power-on reset position (Swing from the left)

**A2:** Starting angle or power-on reset position (Swing from the right)

**B:** Angle limit of left end structure

**C:** Angle limit of right end structure

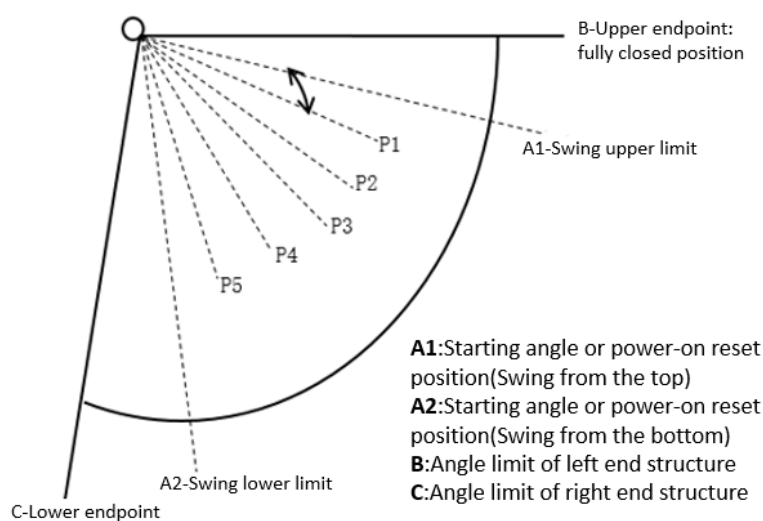
### 3.5.2 Vertical swing control

Different IDU 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 IDU series.

For details, please refer to Table 6.3, Table 6.4 and Figure 6.2.

Figure 6.2 Vertical swing control



**A1:** Starting angle or power-on reset position (Swing from the top)

**A2:** Starting angle or power-on reset position (Swing from the bottom)

**B:** Angle limit of left end structure

**C:** Angle limit of right end structure

## 3.6 Operation mode control

### ● Outdoor Unit is Heat Pump

①When the mode is set by ODU to VIP priority, Voting priority, Capability requirements priority, Cooling priority, heating priority, the Indoor Unit can be set to cooling, heating, dehumidification, ventilation modes. When the IDU set mode different from the mode of ODU, the indoor unit will enters the standby mode, and the "No permission" displays in the upper left corner of the controller.

②When the mode is set by ODU to **changeover**, VIP IDU can be set to cooling, heating, dehumidification, ventilation modes, while non-VIP IDUS can only follow the operation mode of VIP's.

### ● Outdoor Unit is Heat Recovery

①When the ODU is Heat recovery, VIP IDUs and others can have different modes such as automatic, cooling, heating, dehumidification and ventilation mode.

②**Auto mode** is only available to Heat Recovery ODU. In auto mode, user should set the Tsc(cooling setting temperature) and Tsh(heating setting temperature), which should meet the following conditions  $Tsc \geq Tsh$ . The setting steps are as follows.

<1>when enter the auto mode, the mode icon **Auto** and **Cool** (or **Auto** and **Heat**) will flash at the same time

<2> Press "^" and "v" to switch mode (Cool or Heat) and press "↵" to enter temperature setting interface (In Cool is Tsc, and Tsh in Heat). Then press "^" and "v" to change value and press "↵" to save changes.

<3>In auto mode, Icons **Auto** and **Cool** light up during cooling operation, when Icons **Auto** and **Heat** light up during heating operation.

<4>The heating mode and cooling mode are switched according to the following 3 conditions.

I The setting temperature **Tsc=Tsh**

When the return air temperature  $T1 > Tsc + 2^{\circ}\text{C}$ , the IDU will run the **cooling mode**.

When the return air temperature  $T1 < Tsh - 2^{\circ}\text{C}$ , the IDU will run the **heating mode**.

II The setting temperature **Tsc > Tsh, and Tsc-Tsh < 3^{\circ}\text{C}**

When the return air temperature  $T1 > Tsc + 1.5^{\circ}\text{C}$ , the IDU will run the **cooling mode**.

When the return air temperature  $T1 < Tsh - 1.5^{\circ}\text{C}$ , the IDU will run the **heating mode**.

III The setting temperature **Tsc > Tsh, and Tsc-Tsh ≥ 3^{\circ}\text{C}**

When the return air temperature  $T1 > Tsc$ , the IDU will run the **cooling mode**.

When the return air temperature  $T1 < Tsh$ , the IDU will run the **heating mode**.

### ● Set Temperature Display

1) When switching between cooling, heating or auto modes, if temperature Ts is not reset, the temperature after switching is the same as the temperature before switching.

2) In auto mode, switching between cooling and heating mode takes some time. The time can be set through the controller.



## Indoor Units



### 3.7 Controlling the Condensate Water Pump and Water Level Switch

- 1) When the IDU is powered on the first time, the water pump is forced to operate for 5 minutes.
- 2) When the IDU and ODU are in cooling, dehumidification and self-cleaning mode, the water pump starts immediately and operates continuously. After this mode is stopped (stop or mode switch), the water pump turns off five minutes later.
- 3) If the water level rises, causing the water level switch to be disconnected, the condensate water pump immediately starts and operates. Five minutes later, if the water level drops to lower than the alarm level, the system restores operation based on the originally set mode. Otherwise, the IDU and water pump stop operating, and a water level alarm is reported. When the water level switch is connected again, the protection is released, and the system restores operation based on the mode that was originally set.

Note:

This function is reserved for the unit models without drainage pumps and water level switches and it is disabled by default.

### 3.8 Anti-freeze Control

The IDU will close Electronic expansion valve, and the wind shift into speed 1.

Condition:

A) Entry conditions: Coil temperature  $\leq$  A continuous T1 or coil temperature  $\leq$  B continuous T2, and in any mode of forced cooling, cooling, dehumidification, self-cleaning(Except for the second stage);

B) Exit condition: coil temperature  $\geq$  C continuous T3, and not in any mode of forced cooling, cooling, dehumidification, or at the second stage of self-cleaning mode;

### 3.9 Alarm control

Both IDU'S main control board and 1# Expansion board (Optional) have ALARM port, and can be used simultaneously.

#### ● Setting positive or negative logic

##### ① Port on IDU'S main control board

The positive and negative logic of the IDU main control board is set by the wired controller or central controller. (N40)

##### ② Port on 1# Expansion board (Optional)

The positive and negative logic of the 1# expansion board is set by the S2-1/S2-2/S2-3 DIP switch on the 1# expansion board.

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

| Outdoor unit Set                | Port status              | Functional interpretation |
|---------------------------------|--------------------------|---------------------------|
| Set to Positive logic (Default) | The port is connected    | outputs alarm signals     |
| Set to negative logic           | The port is disconnected | outputs alarm signals     |

### 3.10 Remote on/off control

Both IDU'S main control board and 1# Expansion board (Optional) have remote on/off control port

#### ● Remote on/off control port selection

##### ① Port on IDU'S main control board

Port CN55 connects the passive switch signal

Note:

The port on the main board will be disabled when the port on the expansion board is enabled

##### ② Port on 1# Expansion board (Optional)

Port CN7 connects the 220V switch signal. For detail refer to Expansion board manual

#### ● Setting positive or negative logic

##### ① Port on IDU'S main control board

The positive and negative logic of the IDU main control board is set by the wired controller or central controller. (N38)

##### ② Port on 1# Expansion board (Optional)

The positive and negative logic of the 1# expansion board is set by the S4-1 DIP switch on the 1# expansion board.

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

| Outdoor unit                    | 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 indoor unit remains off. |
|                                 |                                            | Remote OFF control       | Direct shutdown without delay, the controller can send commands normally, but the indoor 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 indoor unit remains off. |
|                                 |                                            | Remote OFF control       | Direct shutdown without delay, the controller can send commands normally, but the indoor unit remains off.  |

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

## Indoor Units



### 3.11 Dry mode control

There is a difference between the control with humidity sensor and the control without humidity sensor, when the humidity sensor is damaged, the indoor unit automatically switches to the state without humidity sensor.

#### ● Without humidity sensor

**Related settings:** ①The temperature of dry mode;②Maximum indoor temperature drop in dry mode (N27);③Standby fan speed in dry mode(N19)

**Enter Standby:** When  $T_s - T_1 > \Delta T$ , the IDU will Enter Dry standby mode.

**Fan speed (operation):** Automatic adjustment, cannot be set.

**Fan speed (Standby):** Can be set by controller (N19)

#### ● With humidity sensor(customized)

**Related settings:** ①The temperature and humidity of dry mode;②Maximum indoor temperature drop in dry mode;③Standby fan speed in dry mode

**Enter Standby:** When  $T_s - T_1 > \Delta T$  or actual humidity is lower than the set humidity 5%, the IDU will Enter Dry standby mode.

**Fan speed (operation):** Automatic adjustment, cannot be set

**Fan speed (Standby):** Can be set by controller (N19)

Note:

1.  $T_s$ : Dehumidification setting temperature
2.  $T_1$ : IDU air return temperature
3.  $\Delta T$ : Maximum indoor temperature drop, can be set(N27)

#### ● Auto dry function

**Prerequisites for function:**①Only IDU with humidity sensor (customized) can use this function.

②Need to enter the IDU parameter setting menu to enable this function (N66).

**Entry method:** Cooling or Auto mode.

**Operation Logic:** Priority cooling, when the room temperature reaches the set temperature, automatically switch to dry mode, to approximate the purpose of dual control of temperature and humidity.

Note:

1. For Auto Dry Target relative humidity, the Default value is 65% and can be set (N67).

## 4 Errors and operation code

### 4.1 Error Code Table

Table 7.1: Error code

| Error code | Content                                                            | Error code | Content                                                                        |
|------------|--------------------------------------------------------------------|------------|--------------------------------------------------------------------------------|
| A01        | Emergency stop                                                     | E81        | TA (outlet air temperature sensor) short-circuits or cuts off                  |
| A51        | Outdoor unit fault                                                 | F01        | T2A (heat exchanger liquid pipe temperature sensor) short-circuits or cuts off |
| b36        | Water level switch alarm                                           | F11        | T2 (heat exchanger middle temperature sensor) short-circuits or cuts off       |
| C21        | Abnormal communication between the IDU and ODU                     | F21        | T2B (heat exchanger gas pipe temperature sensor) short-circuits or cuts off    |
| C51        | Abnormal communication between the IDU and wired controller        | U12        | Capacity(HP) code not set                                                      |
| E21        | T0 (fresh inlet air temperature sensor) short-circuits or cuts off | U38        | Address code not detected                                                      |
| E24        | T1 (IDU return air temperature sensor) short-circuits or cuts off  |            |                                                                                |

## 5 Troubleshooting

### Warning

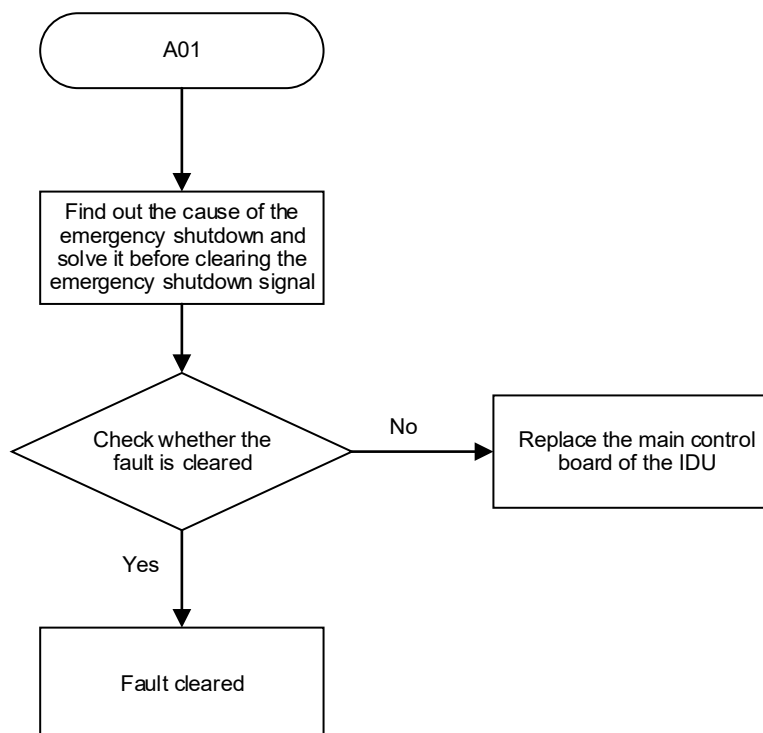


- All electrical work must be carried out by competent and suitably qualified, certified and accredited professionals and in accordance with all applicable legislation (all national, local and other laws, standards, codes, rules, regulations and other legislation that apply in a given situation).
- Power-off the unit before connecting or disconnecting any connections or wiring, otherwise electric shock (which can cause physical injury or death) may occur or damage to components may occur.

## 5.1.1 A01 – Emergency shutdown

| Error display  | Digital display                                                                                                                                 | Display position                         |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                |                                                                | Panel, display box, and wired controller |
| Error impact   | The faulty IDU and other IDUs of the same system: stop running, displaying code "A01" (V6 platform indoor unit displays "A0" code)              |                                          |
|                | ODU of the same system: stop running, displaying code "A01" (V6 platform outdoor unit displays "A0" code)                                       |                                          |
| Error trigger  | When the IDU receives an emergency shutdown signal from the ODU                                                                                 |                                          |
| Error recovery | After troubleshooting, power on again                                                                                                           |                                          |
| Possible cause | <ul style="list-style-type: none"> <li>■ An emergency shutdown signal is received.</li> <li>■ The IDU main control board is damaged.</li> </ul> |                                          |

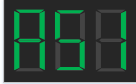
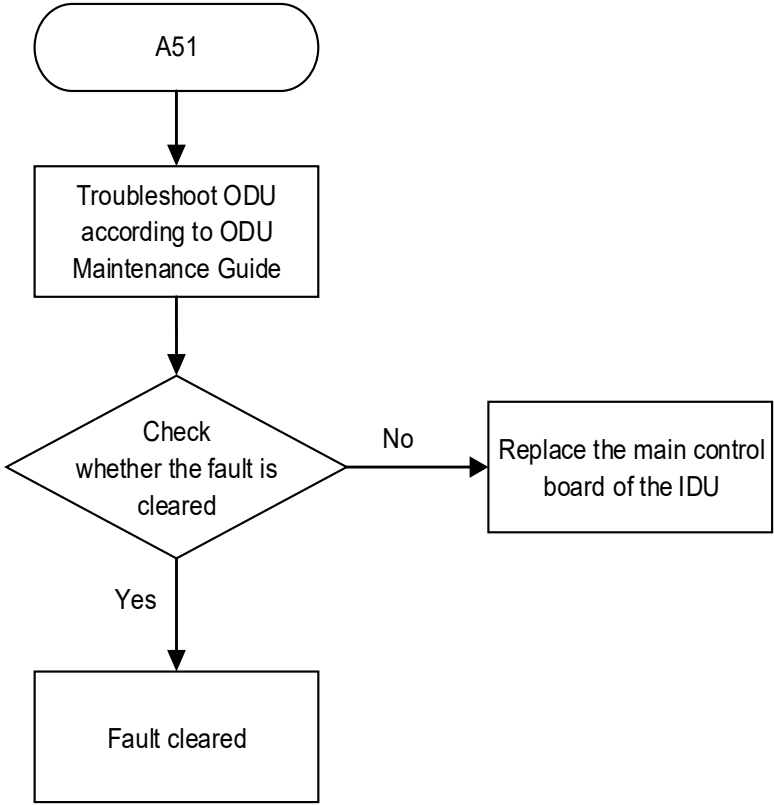
### Troubleshooting



Note:

1. Emergency shutdown is usually caused by the outdoor unit receiving an emergency shutdown command sent by the central controller or external reasons. For detailed handling instructions, please refer to the corresponding outdoor unit troubleshooting manual.

**5.1.2 A51 - ODU fault**

| Error display   | Digital display                                                                                                                                                                                                                                                                                                                                          | Display position                         |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                 |                                                                                                                                                                                                                                                                         | Panel, display box, and wired controller |
| Error impact    | The faulty IDU and other IDUs of the same system: The fan continues running, the EEV is closed, and code "A51" is displayed (V6 platform IDU displays the code "Ed")                                                                                                                                                                                     |                                          |
|                 | ODU of the same system: <ul style="list-style-type: none"> <li>■ stops.</li> <li>■ The displayed code depends on the error type of the ODU. For the meaning of the code, please refer to the error table specific to the model of the ODU.</li> </ul>                                                                                                    |                                          |
| Error trigger   | Duration of ODU error ≥ 10 minutes                                                                                                                                                                                                                                                                                                                       |                                          |
| Error recovery  | Automatic recovery                                                                                                                                                                                                                                                                                                                                       |                                          |
| Possible cause  | <ul style="list-style-type: none"> <li>■ The ODU error is transmitted to the IDU.</li> <li>■ The IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                           |                                          |
| Troubleshooting |  <pre> graph TD     A51([A51]) --&gt; B[Troubleshoot ODU according to ODU Maintenance Guide]     B --&gt; C{Check whether the fault is cleared}     C -- No --&gt; D[Replace the main control board of the IDU]     C -- Yes --&gt; E[Fault cleared]           </pre> |                                          |

## 5.1.3 b36 - Water level switch alarm error

| Error display   | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Display position                         |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Panel, display box, and wired controller |
| Error impact    | The faulty IDU stops. Other IDUs of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                          |
|                 | ODU of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
| Error trigger   | The water level switch alarm is triggered when the floater of the water level switch rises to the warning water level and lasts for 5 min.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |
| Error recovery  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                          |
| Possible cause  | <ul style="list-style-type: none"> <li>■ The drain pump/water level switch is damaged.</li> <li>■ Water level switch float is stuck by a foreign object</li> <li>■ The water level switch plug or short-circuit plug to the WATER port of the IDU main control board is loose.</li> <li>■ Non-standard installation results in abnormal drainage: The drain pipe is blocked; the improperly sloped drain pipe causes the condensate water to flow backwards; and the lift of the drain pipe exceeds the allowable value.</li> <li>■ The IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |
| Troubleshooting | <pre> graph LR     b36[b36] --&gt; C1[Cause 1: The water pump suction or discharge is blocked by dirt]     b36 --&gt; C2[Cause 2: The water level switch plug or short-circuit plug to the WATER port of the IDU main control board is loose (1)]     b36 --&gt; C3[Cause 3: The water level switch is damaged (2)]     b36 --&gt; C4[Cause 4: The water level switch floater is clogged]     b36 --&gt; C5[Cause 5: The pump outlet does not discharge water or discharge flow is very small (3)]     b36 --&gt; C6[Cause 6: Non-standard installation results in abnormal drainage (4)]     b36 --&gt; C7[Cause 7: Connect the short-circuit plug to the WATER port of the main control board. If the error persists, it can be determined that the main control board is damaged]     C1 --&gt; S1[Remove dirt and clean the drainage pan and drain pipe]     C2 --&gt; S2[Reconnect the loose plug]     C3 --&gt; S3[Replace the water level switch]     C4 --&gt; S4[Move the floater to remove impurities and reset the floater switch]     C5 --&gt; S5[Take measures according to Note (3)]     C6 --&gt; S6[Take measures according to Note (4)]     C7 --&gt; S7[Replace the main control board of the IDU]                     </pre> |                                          |

**Note:**

1. The plug attached to the WATER port of the main control board corresponds to the following two cases:
  - a. The factory default of IDUs without a water level switch uses a short-circuit plug to seal the WATER port.
  - b. IDUs with a water level switch use a water level switch plug to seal the WATER port.
2. Use a multimeter to measure the resistance between the pins corresponding to the two wires of the water level switch plug.
  - 1) After the floater of the water level switch is moved upwards to the highest position, the water level switch is in a short-circuited state, and the resistance value is infinite.
  - 2) After the floater of the water level switch is moved downwards to the lowest position, the water level switch is closed, and the resistance value is less than 1  $\Omega$ . If the detected resistance value does not meet the above values, the water level switch is damaged.
3. Possible causes and solutions for the situation where the pump outlet does not discharge water or the discharge flow is very small:
  - 1) The water pump plug to the PUMP port in the IDU main control board is loose. Reconnect it firmly.
  - 2) The drain pump suction impeller is clogged. Remove the debris causing the clog to make the pump continue running.
  - 3) If the error cannot be cleared after implementing solutions for causes 1) and 2), the drain pump body is damaged. Replace the drain pump.
4. Possible causes and solutions for abnormal drainage due to non-standard installation:
  - 1) If the drain pipe is blocked, remove the debris and clean the drainage pan and the drain pipe of the IDU.
  - 2) If the drain pipe is improperly installed, which causes the condensate water to flow backward, tilt the IDU to the drainage side by a certain gradient (inclination  $\geq 1\%$ ). The centralized drain pipe must be lower than the drainage outlet of the unit. Air outlets must be placed at the highest horizontal pipeline (see Installation and Operation Manual of IDUs).
  - 3) If the lift of the drain pipe exceeds the allowable value, reduce the vertical height of the drain pipe or replace the drain pump with the one which has a higher lift.

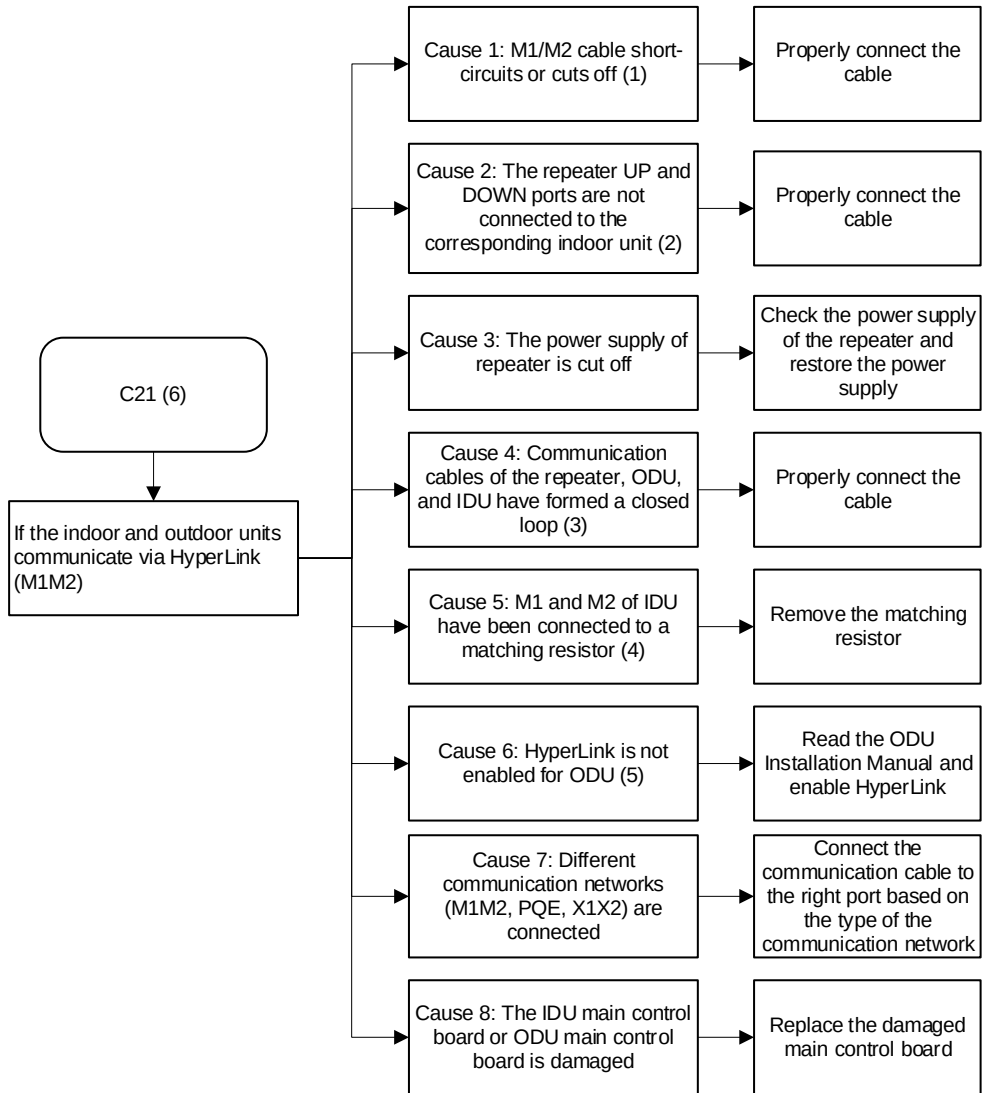


## 5.1.4 C21 - Abnormal communication between IDU and ODU

| Error display   | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Display position                         |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Panel, display box, and wired controller |
| Error impact    | Faulty IDU: The fan continues running, and the EEV is closed. Other IDUs of the same system: The fan continues running, the EEV is closed, and error code "A51" is displayed (V6 platform IDU displays the code "Ed"). Meaning of the code: ODU fault                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                          |
|                 | ODU of the same system: <ul style="list-style-type: none"> <li>■ stops.</li> <li>■ Error code "C26" is displayed (V6 platform ODU displays the code "H7"). Meaning of the code: IDU qty decrease fault</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                          |
| Error trigger   | If the IDU has not received any communication signal from ODU for 2 min                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                          |
| Error recovery  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |
| Possible cause  | See the Troubleshooting section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |
| Troubleshooting | ■ If the indoor and outdoor units communicate via RS-485(PQE/PQ): <div style="text-align: center; margin-top: 20px;"> <pre> graph TD     C21[C21 (6)] --&gt; Start[If the indoor and outdoor units communicate via RS-485 (PQE/PQ)]     Start --&gt; C1[Cause 1: P/Q/E communication cable short-circuits or cuts off (1)]     Start --&gt; C2[Cause 2: Communication cables are not connected in a series]     Start --&gt; C3[Cause 3: Cable P or Q is connected to port E]     Start --&gt; C4[Cause 4: The communication cable does not have a shield layer]     Start --&gt; C5[Cause 5: Interfered by strong-current power cables (over 220 V)]     Start --&gt; C6[Cause 6: Interfered by electromagnetic radiation source (transformer/high-power fluorescent lamp, etc.)]     Start --&gt; C7[Cause 7: Different communication networks (M1M2, PQE, X1X2) are connected]     Start --&gt; C8[Cause 8: The IDU main control board or ODU main control board is damaged]     C1 --&gt; S1[Properly connect the cable]     C2 --&gt; S2[Connect the cables in a series]     C3 --&gt; S3[Connect P/Q/E to the right port]     C4 --&gt; S4[Use shielded cables]     C5 --&gt; S5[Separate the communication cable from the strong-current power cable]     C6 --&gt; S6[Eliminate sources of interference or add one more shield to the cable]     C7 --&gt; S7[Connect the communication cable to the right port based on the type of the communication network]     C8 --&gt; S8[Replace the damaged main control board]           </pre> </div> |                                          |
|                 | Note 1: If you measure the resistance between ports P, Q, and E of the IDU main control board, normally the resistance between P and Q is 120 Ω, the resistance between P and E is infinite, and the resistance between Q and E is infinite.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |

### Troubleshooting

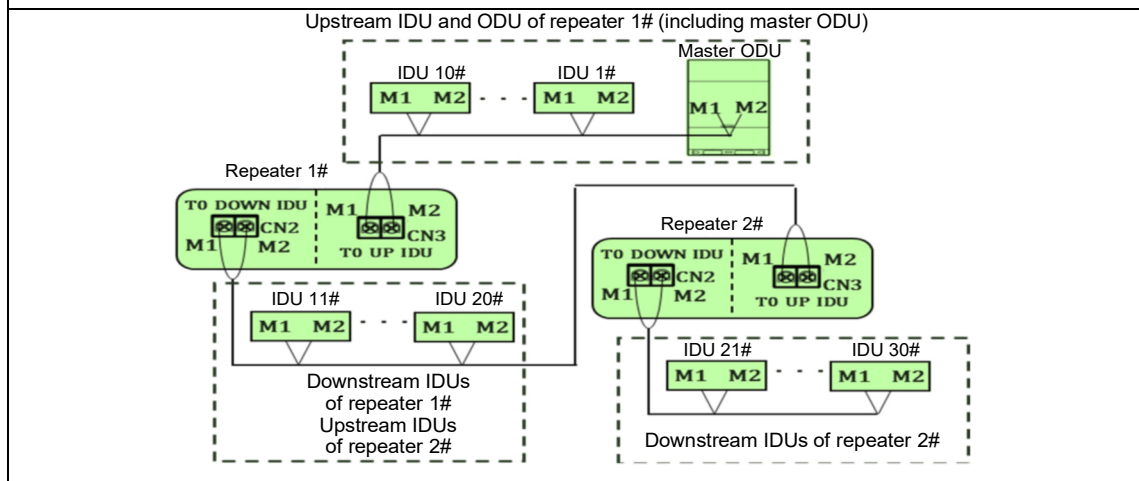
#### ■ If the indoor and outdoor units communicate via HyperLink (M1M2):



#### Note:

1. If you measure the resistance between terminal blocks M1 and M2 of the IDU main control board, normally this resistance is greater than 1 MΩ.
2. Figure 1 shows the schematic diagram of HyperLink communication line connection. The connection of repeater wires must comply with the following requirements. Otherwise, an IDU communication fault may occur.

Figure 1 Schematic diagram of HyperLink communication cable connection



- 1) The UP communication port of 1# repeater is connected to the communication port of 10# IDU, and the DOWN communication port of 1# repeater is connected to the communication port of 11# IDU.
- 2) The UP communication port of 2# repeater is connected to the communication port of 20# IDU, and the DOWN communication port of 2# repeater is connected to the communication port of 21# IDU.
- 3) For each repeater added, 10 IDUs and 200 m communication distance can be added. A refrigerant system allows the addition of a maximum of 2 repeaters and can connect to up to 30 IDUs. If more than 30 IDUs are connected, please allocate separate refrigerant systems.

3. If communication cables connecting the communication ports of the repeater, IDU and ODU form a closed loop, it will cause a communication fault.

4. RS-485 communication cables must be connected hand in hand. If communication is unstable, a matching resistor needs to be added to the last IDU on the PQ (in the accessory bag of the ODU). However, a matching resistor should not be added between M1 and M2. Otherwise, a communication fault may occur.

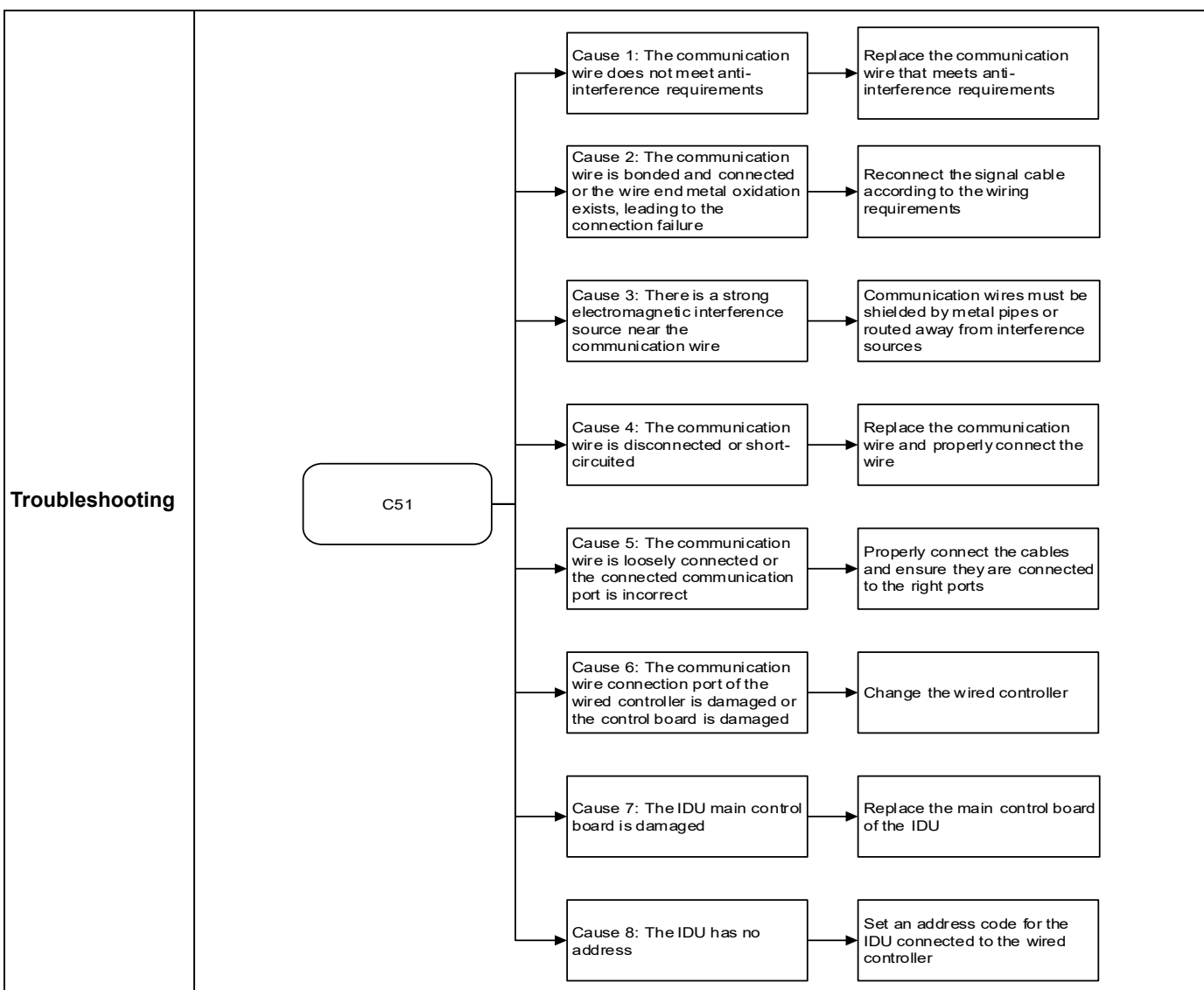
5. To select the communication mode HyperLink (M1M2), users must go to the ODU menu item to change the mode (For the setting method, refer to the ODU Installation Manual). Otherwise, communication faults may occur.

6. The V8 platform ODU typically uses the V8 communication protocol. If there are any IDUs that use a non-V8 platform, users must go to the ODU menu item to change the communication protocol (Please refer to the ODU Installation Manual for setup instructions). Otherwise, these IDUs will display communication fault codes (For the code number, please refer to the IDU wiring nameplate).

### 5.1.5 C51: communication exception between the IDU and wired controller

Note: The error code C51 can be triggered either at the IDU side or the wired controller side.

| Fault Display  | LED display                                                                                                                                                                                                                                                                                                                                                                                                                                            | Display position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                                                                                                                                                                                                                                                                                                                                                                       | <p>If a powered-on IDU does not receive any message from the wired controller: 1) Wired controller: "C51" is displayed; 2) Panel or display box: The LED display and the error code bit on the inspection interface are displayed normally.</p> <p>If a powered-on IDU receives any message from the wired controller: 1) Wired controller: "C51" is displayed; 2) Panel or display box: The LED display is normal, and "C51" is displayed in the error code bit on the inspection interface.</p> |
| Fault Impact   | <ul style="list-style-type: none"> <li>■ Triggered at the IDU side: The faulty IDU and other IDUs of the same system operate normally.</li> <li>■ Triggered at the wired controller side: The wired controller is unavailable.</li> </ul>                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                | ODU of the same system operates normally.                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Fault Trigger  | <ul style="list-style-type: none"> <li>■ Triggered at the IDU side: The IDU main control board experiences a two-minute communication interruption with the wired controller.</li> <li>■ Triggered at the wired controller side: The wired controller has not received any reply from the IDU main control board for one continuous minute.</li> </ul>                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Fault Recovery | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Possible Cause | <ul style="list-style-type: none"> <li>■ The wired controller is damaged.</li> <li>■ The IDU main control board is damaged.</li> <li>■ Communication wires are loose or the communication port is faulty.</li> <li>■ Communication wires have short-circuited or been cut off.</li> <li>■ The communication wire does not meet anti-interference requirements or is affected by strong-current interference.</li> <li>■ IDU has no address.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



**5.1.6 E21, E24, E81 - T0 (fresh inlet air temperature sensor) short-circuits or cuts off, T1 (IDU return air temperature sensor) short-circuits or cuts off, and TA (outlet air temperature sensor) short-circuits or cuts off**

| Error display          | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  | Display position                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------|
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  | Panel, display box, and wired controller |
| <b>Error impact</b>    | The faulty IDU stops. Other IDUs of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                          |
|                        | ODU of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |                                          |
| <b>Error trigger</b>   | When detecting that the temperature sensor short-circuits or cuts off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |                                          |
| <b>Error recovery</b>  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |                                          |
| <b>Possible cause</b>  | <ul style="list-style-type: none"> <li>■ The temperature sensor is damaged.</li> <li>■ The sensor plug to the T0/T1/TA port in the IDU main control board is loose.</li> <li>■ The IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  |                                          |
| <b>Troubleshooting</b> | <div style="text-align: center;"> <pre> graph TD     Start([E21/E24/E81 (1)]) --&gt; D1{Is the temperature sensor plug connecting to the IDU main control board loose?}     D1 -- Yes --&gt; A1[Reconnect the plug tightly]     D1 -- No --&gt; D2{Is the temperature sensor resistance abnormal (2)?}     D2 -- Yes --&gt; A2[Replace the temperature sensor]     D2 -- No --&gt; A3[Replace the main control board of the IDU]                     </pre> </div> <p><b>Note:</b></p> <p>1) The E21/E24/E81 code respectively corresponds to the T0/T1/TA temperature sensor. Check the wiring nameplate to find the sensor port on the main control board.</p> <p>2) Measure the resistance between two pins of the sensor plug with a multimeter. A resistance value close to 0 indicates a short circuit has occurred in the temperature sensor, and a resistance value close to infinity indicates an open circuit in the temperature sensor.</p> <p>3) When the AHU kit is set to return air temperature control, it is able to determine if the T1 sensor is short-circuited or open-circuited, but it is not able to determine if the T0 or TA sensors are short-circuited or open-circuited.</p> |  |  |                                          |

|  |                                                                                                                                                                                                                                                                                                                                                                         |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>When the AHU kit is set to supply air temperature control, it is able to determine if the T0 or TA sensors are short-circuited or open-circuited, but it is not able to determine if the T1 sensor is short-circuited or open-circuited.</p> <p>4) Only the master unit needs to be connected to the T1/T0/TA sensors when the AHU kit is installed in parallel.</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**5.1.7 F01, F11, F21 - T2A (heat exchanger liquid pipe temperature sensor) short-circuits or cuts off, T2 (heat exchanger middle temperature sensor) short-circuits or cuts off, and T2B (heat exchanger gas pipe temperature sensor) short-circuits or cuts off**

| Error display          | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  | Display position                         |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------|
|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |  | Panel, display box, and wired controller |
| <b>Error impact</b>    | The faulty IDU stops. Other IDUs of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |                                          |
|                        | ODU of the same system: operate normally.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |                                          |
| <b>Error trigger</b>   | When detecting that the temperature sensor short-circuits or cuts off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                          |
| <b>Error recovery</b>  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                          |
| <b>Possible cause</b>  | <ul style="list-style-type: none"> <li>■ The temperature sensor is damaged.</li> <li>■ The sensor plug connecting to the T2A/T2/T2B port in the IDU main control board is loose.</li> <li>■ The IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |                                          |
| <b>Troubleshooting</b> | <div style="text-align: center;"> <pre> graph TD     Start([F01/F11/F21 (1)]) --&gt; D1{Is the temperature sensor plug connecting to the IDU main control board getting loose?}     D1 -- Yes --&gt; A1[Reconnect the plug tightly]     D1 -- No --&gt; D2{Is the temperature sensor resistance abnormal (2)?}     D2 -- Yes --&gt; A2[Replace the temperature sensor]     D2 -- No --&gt; A3[Replace the main control board of the IDU]                     </pre> </div> <p>Note:</p> <p>1) The F01/F11/F21 codes respectively correspond to T2A/T2/T2B temperature sensors. Check the wiring nameplate to find the sensor port on the main control board.</p> <p>2) Measure the resistance between two pins of the sensor plug with a multimeter. A resistance value close to 0 indicates a short circuit has occurred in the temperature sensor, and a resistance value close to infinity indicates an open circuit in the temperature sensor.</p> <p>3) If only the master unit is connected to the T2A/T2/T2B temperature sensors in the parallel control of the AHU kit, then only the master unit can detect the F01/F11/F21 faults, and the slave units cannot detect them.</p> |  |  |                                          |



## 5.1.8 U12 - Capacity(HP) code not set

| Error display   | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Display position                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Panel, display box, and wired controller |
| Error impact    | 1) The faulty IDU stops running.<br>2) Other IDUs of the same system: <ul style="list-style-type: none"> <li>■ If the address for the faulty IDU has been set, other IDUs will operate normally.</li> <li>■ If the address of the faulty IDU was not set, other IDUs will display error code "A51"-ODU fault.</li> </ul>                                                                                                                                                                                                                          |                                          |
|                 | ODU of the same system: <ul style="list-style-type: none"> <li>■ If the address for the faulty IDU has been set, the ODU will operate normally.</li> <li>■ If the address of the faulty IDU was not set, the ODU will display the error code "C26" -number of IDUs reduced.</li> </ul>                                                                                                                                                                                                                                                            |                                          |
| Error trigger   | When detecting that the capacity(HP) code for IDU main control board has not been set                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |
| Error recovery  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                          |
| Possible cause  | <ul style="list-style-type: none"> <li>■ The capacity(HP) code has not been set after replacing the IDU main control board.</li> <li>■ The new IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |                                          |
| Troubleshooting | <div data-bbox="625 846 1337 1550"> <pre> graph TD     U12([U12]) --&gt; Step[Use the dedicated tooling (1) to set the capacity(HP) code for the main control board of IDU, and power on the unit again]     Step --&gt; Decision{Is the fault cleared?}     Decision -- Yes --&gt; End([Fault cleared])     Decision -- No --&gt; Replace[Replace the main control board of the IDU]                     </pre> </div> <p>Note 1: For specialized tooling and instructions, please contact your local dealer or technical support personnel.</p> |                                          |

## 5.1.9 U38 - Address code not detected

| Error display   | Digital display                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Display position                         |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Panel, display box, and wired controller |
| Error impact    | 1) The faulty IDU stops running.<br>2) Other IDUs of the same system: The fan continues running, the EEV is closed, and ODU error code "A51" is displayed (V6 platform IDU displays the code "Ed").                                                                                                                                                                                                                                                                                                                                                                                |                                          |
|                 | ODU of the same system: Otherwise, the ODU will display the error code "C26" (number of IDUs reduced) (V6 platform ODU displays the code "H7")                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                          |
| Error trigger   | When detecting that the address code for IDU main control board has not been set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                          |
| Error recovery  | Automatic recovery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          |
| Possible cause  | <ul style="list-style-type: none"> <li>■ The address code has not been set after replacing the IDU main control board.</li> <li>■ The new IDU main control board is damaged.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            |                                          |
| Troubleshooting | <div data-bbox="545 721 1251 1426"> <pre> graph TD     U38([U38]) --&gt; Step1[Use the remote controller or wired controller (1) to set the address code for the main control board of IDU, and power on the unit again]     Step1 --&gt; Decision{Is the fault cleared?}     Decision -- No --&gt; Step2[Replace the main control board of the IDU]     Decision -- Yes --&gt; Step3[Fault cleared]                     </pre> </div> <p>Note 1: For instructions on how to set up addresses for a remote controller or a wired controller, please refer to relevant manuals.</p> |                                          |

## 6 Appendix

### 6.1 Temperature Sensor Resistance Characteristics

Table 9.1: Indoor temperature sensors resistance characteristics

R25=10K  $\Omega$   $\pm$  3%    B25/50=4100K  $\pm$  3%

| Temperature<br>(°C) | Resistance<br>min(k $\Omega$ ) | Resistance<br>Normal(k $\Omega$ ) | Resistance<br>max(k $\Omega$ ) | Temperature<br>(°C) | Resistance<br>min(k $\Omega$ ) | Resistance<br>Normal(k $\Omega$ ) | Resistance<br>max(k $\Omega$ ) |
|---------------------|--------------------------------|-----------------------------------|--------------------------------|---------------------|--------------------------------|-----------------------------------|--------------------------------|
| -40                 | 336.854                        | 383.315                           | 433.108                        | 0                   | 32.44                          | 34.596                            | 36.857                         |
| -39                 | 315.212                        | 358.094                           | 404.038                        | 1                   | 30.81                          | 32.807                            | 34.898                         |
| -38                 | 295.088                        | 334.677                           | 377.080                        | 2                   | 29.271                         | 31.12                             | 33.055                         |
| -37                 | 276.365                        | 312.924                           | 352.071                        | 3                   | 27.815                         | 29.528                            | 31.317                         |
| -36                 | 258.939                        | 292.709                           | 328.859                        | 4                   | 26.44                          | 28.026                            | 29.681                         |
| -35                 | 242.714                        | 273.916                           | 307.306                        | 5                   | 25.14                          | 26.608                            | 28.138                         |
| -34                 | 227.599                        | 256.435                           | 287.285                        | 6                   | 23.909                         | 25.268                            | 26.682                         |
| -33                 | 213.514                        | 240.170                           | 268.678                        | 7                   | 22.745                         | 24.003                            | 25.31                          |
| -32                 | 200.382                        | 225.029                           | 251.380                        | 8                   | 21.644                         | 22.808                            | 24.016                         |
| -31                 | 188.133                        | 210.929                           | 235.291                        | 9                   | 20.601                         | 21.678                            | 22.794                         |
| -30                 | 176.705                        | 197.792                           | 220.320                        | 10                  | 19.614                         | 20.61                             | 21.641                         |
| -29                 | 166.037                        | 185.547                           | 206.384                        | 11                  | 18.68                          | 19.601                            | 20.553                         |
| -28                 | 156.075                        | 174.131                           | 193.407                        | 12                  | 17.794                         | 18.646                            | 19.525                         |
| -27                 | 146.768                        | 163.481                           | 181.317                        | 13                  | 16.955                         | 17.743                            | 18.554                         |
| -26                 | 138.071                        | 153.543                           | 170.049                        | 14                  | 16.16                          | 16.888                            | 17.636                         |
| -25                 | 129.939                        | 144.266                           | 159.543                        | 15                  | 15.406                         | 16.079                            | 16.769                         |
| -24                 | 122.333                        | 135.601                           | 149.745                        | 16                  | 14.691                         | 15.313                            | 15.949                         |
| -23                 | 115.216                        | 127.507                           | 140.602                        | 17                  | 14.014                         | 14.588                            | 15.174                         |
| -22                 | 108.555                        | 119.941                           | 132.067                        | 18                  | 13.372                         | 13.902                            | 14.442                         |
| -21                 | 102.318                        | 112.867                           | 124.098                        | 19                  | 12.762                         | 13.251                            | 13.748                         |
| -20                 | 96.92                          | 106.732                           | 116.539                        | 20                  | 12.183                         | 12.635                            | 13.093                         |
| -19                 | 91.451                         | 100.552                           | 110.231                        | 21                  | 11.634                         | 12.05                             | 12.471                         |
| -18                 | 86.328                         | 94.769                            | 103.743                        | 22                  | 11.112                         | 11.496                            | 11.883                         |
| -17                 | 81.525                         | 89.353                            | 97.673                         | 23                  | 10.617                         | 10.971                            | 11.327                         |
| -16                 | 77.017                         | 84.278                            | 91.99                          | 24                  | 10.147                         | 10.473                            | 10.8                           |
| -15                 | 72.788                         | 79.521                            | 86.669                         | 25                  | 9.7                            | 10                                | 10.3                           |
| -14                 | 68.815                         | 75.059                            | 81.684                         | 26                  | 9.255                          | 9.551                             | 9.848                          |
| -13                 | 65.083                         | 70.873                            | 77.013                         | 27                  | 8.834                          | 9.125                             | 9.418                          |
| -12                 | 61.574                         | 66.943                            | 72.632                         | 28                  | 8.434                          | 8.721                             | 9.01                           |
| -11                 | 58.274                         | 63.252                            | 68.523                         | 29                  | 8.055                          | 8.337                             | 8.621                          |
| -10                 | 55.169                         | 59.784                            | 64.668                         | 30                  | 7.695                          | 7.972                             | 8.252                          |
| -9                  | 52.246                         | 56.524                            | 61.048                         | 31                  | 7.353                          | 7.625                             | 7.9                            |
| -8                  | 49.492                         | 53.458                            | 57.649                         | 32                  | 7.029                          | 7.296                             | 7.566                          |
| -7                  | 46.899                         | 50.575                            | 54.456                         | 33                  | 6.721                          | 6.982                             | 7.247                          |
| -6                  | 44.455                         | 47.862                            | 51.456                         | 34                  | 6.428                          | 6.684                             | 6.944                          |
| -5                  | 42.15                          | 45.308                            | 48.636                         | 35                  | 6.15                           | 6.401                             | 6.656                          |
| -4                  | 39.977                         | 42.903                            | 45.984                         | 36                  | 5.886                          | 6.131                             | 6.381                          |
| -3                  | 37.927                         | 40.638                            | 43.49                          | 37                  | 5.634                          | 5.874                             | 6.119                          |
| -2                  | 35.992                         | 38.504                            | 41.144                         | 38                  | 5.395                          | 5.63                              | 5.87                           |
| -1                  | 34.165                         | 36.492                            | 38.935                         | 39                  | 5.167                          | 5.397                             | 5.631                          |

Table 9.1: Indoor temperature sensors resistance characteristics(continues)

| Temperature<br>(°C) | Resistance<br>min(kΩ) | Resistance<br>Normal(kΩ) | Resistance<br>max(kΩ) | Temperature<br>(°C) | Resistance<br>min(kΩ) | Resistance<br>Normal(kΩ) | Resistance<br>max(kΩ) |
|---------------------|-----------------------|--------------------------|-----------------------|---------------------|-----------------------|--------------------------|-----------------------|
| 40                  | 4.951                 | 5.175                    | 5.404                 | 80                  | 1.07                  | 1.151                    | 1.235                 |
| 41                  | 4.745                 | 4.964                    | 5.188                 | 81                  | 1.034                 | 1.113                    | 1.195                 |
| 42                  | 4.549                 | 4.763                    | 4.982                 | 82                  | 0.999                 | 1.076                    | 1.156                 |
| 43                  | 4.362                 | 4.571                    | 4.785                 | 83                  | 0.966                 | 1.041                    | 1.118                 |
| 44                  | 4.183                 | 4.387                    | 4.596                 | 84                  | 0.934                 | 1.007                    | 1.082                 |
| 45                  | 4.014                 | 4.213                    | 4.417                 | 85                  | 0.903                 | 0.974                    | 1.047                 |
| 46                  | 3.851                 | 4.046                    | 4.246                 | 86                  | 0.874                 | 0.942                    | 1.014                 |
| 47                  | 3.697                 | 3.887                    | 4.082                 | 87                  | 0.845                 | 0.912                    | 0.982                 |
| 48                  | 3.55                  | 3.735                    | 3.925                 | 88                  | 0.818                 | 0.883                    | 0.951                 |
| 49                  | 3.409                 | 3.59                     | 3.776                 | 89                  | 0.791                 | 0.855                    | 0.921                 |
| 50                  | 3.274                 | 3.451                    | 3.632                 | 90                  | 0.766                 | 0.828                    | 0.892                 |
| 51                  | 3.146                 | 3.318                    | 3.495                 | 91                  | 0.742                 | 0.802                    | 0.864                 |
| 52                  | 3.023                 | 3.191                    | 3.363                 | 92                  | 0.719                 | 0.777                    | 0.838                 |
| 53                  | 2.905                 | 3.069                    | 3.237                 | 93                  | 0.696                 | 0.753                    | 0.812                 |
| 54                  | 2.793                 | 2.952                    | 3.116                 | 94                  | 0.675                 | 0.73                     | 0.787                 |
| 55                  | 2.685                 | 2.841                    | 3.001                 | 95                  | 0.654                 | 0.708                    | 0.763                 |
| 56                  | 2.582                 | 2.734                    | 2.89                  | 96                  | 0.634                 | 0.686                    | 0.74                  |
| 57                  | 2.484                 | 2.632                    | 2.784                 | 97                  | 0.615                 | 0.666                    | 0.718                 |
| 58                  | 2.39                  | 2.534                    | 2.682                 | 98                  | 0.597                 | 0.646                    | 0.697                 |
| 59                  | 2.299                 | 2.44                     | 2.585                 | 99                  | 0.579                 | 0.627                    | 0.677                 |
| 60                  | 2.213                 | 2.35                     | 2.491                 | 100                 | 0.562                 | 0.609                    | 0.657                 |
| 61                  | 2.13                  | 2.264                    | 2.401                 | 101                 | 0.546                 | 0.591                    | 0.638                 |
| 62                  | 2.051                 | 2.181                    | 2.315                 | 102                 | 0.53                  | 0.574                    | 0.62                  |
| 63                  | 1.975                 | 2.102                    | 2.233                 | 103                 | 0.515                 | 0.558                    | 0.602                 |
| 64                  | 1.903                 | 2.026                    | 2.154                 | 104                 | 0.501                 | 0.542                    | 0.585                 |
| 65                  | 1.833                 | 1.953                    | 2.077                 | 105                 | 0.485                 | 0.527                    | 0.569                 |
| 66                  | 1.766                 | 1.883                    | 2.004                 |                     |                       |                          |                       |
| 67                  | 1.702                 | 1.816                    | 1.934                 |                     |                       |                          |                       |
| 68                  | 1.641                 | 1.752                    | 1.867                 |                     |                       |                          |                       |
| 69                  | 1.582                 | 1.69                     | 1.802                 |                     |                       |                          |                       |
| 70                  | 1.525                 | 1.631                    | 1.74                  |                     |                       |                          |                       |
| 71                  | 1.471                 | 1.574                    | 1.68                  |                     |                       |                          |                       |
| 72                  | 1.419                 | 1.519                    | 1.622                 |                     |                       |                          |                       |
| 73                  | 1.369                 | 1.466                    | 1.567                 |                     |                       |                          |                       |
| 74                  | 1.321                 | 1.416                    | 1.514                 |                     |                       |                          |                       |
| 75                  | 1.275                 | 1.367                    | 1.463                 |                     |                       |                          |                       |
| 76                  | 1.23                  | 1.321                    | 1.414                 |                     |                       |                          |                       |
| 77                  | 1.188                 | 1.276                    | 1.367                 |                     |                       |                          |                       |
| 78                  | 1.147                 | 1.233                    | 1.321                 |                     |                       |                          |                       |
| 79                  | 1.108                 | 1.191                    | 1.277                 |                     |                       |                          |                       |

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