

● Home Management

In the "Royal Service App," users can manage devices in groups through the "home settings". Home members can share devices as "Single Device" or "Home Device."

Use the Home management function to:

- I. Switch, add, and remove "home"
- II. Manage rooms easily.
- III. Manage home members.
- IV. To establish a home, refer to Figures 69-72.
- V. To delete a member, only the home creator can do so.
- VI. Create an APP account for the home and share devices by setting the permissions of "ordinary member" or "administrator" for the shared person.
- VII. Add members by inviting them through by sharing and copying the invite code. Fig. 73-76.
- VIII. Home administrators can modify a member's name and remove them from the home.

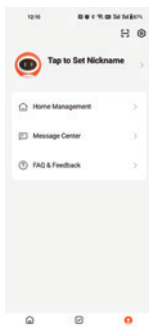


Fig.69

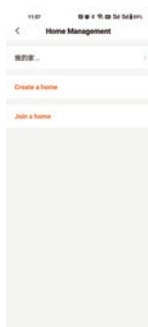


Fig.70

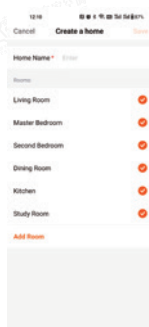


Fig.71

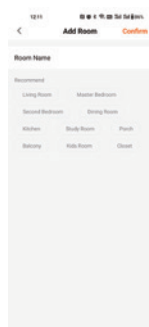


Fig.72



Fig.73

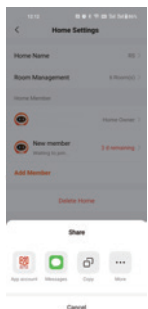


Fig.74

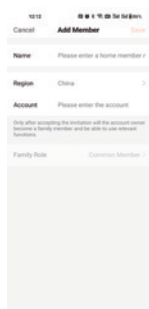


Fig.75

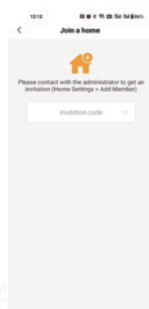


Fig.76

● Room Management

In the "Royal Service App," users can manage devices in groups using the "Room management".

In "Home Management," enter "Room Management" to enter "Room setting", manage rooms in the home, including adding/deleting rooms, changing names, sorting, and managing devices, as shown in Figures 77-80.



Fig.77

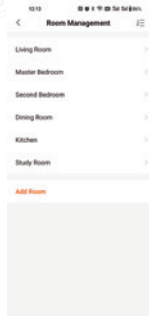


Fig.78

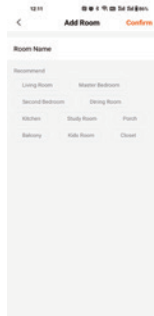


Fig.79

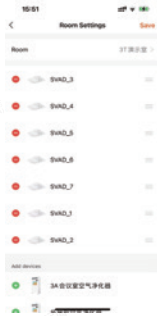


Fig.80

● Message Center

The message center displays device information, alarms (failure and other information), and notifications, as shown in Figures 81-84.

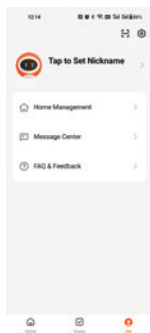


Fig.81

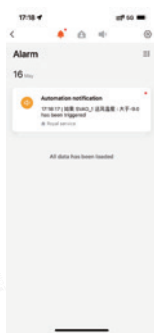


Fig.82

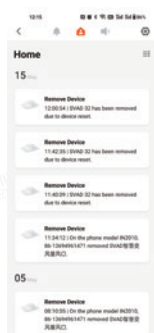


Fig.83

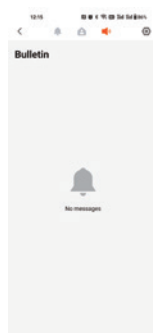
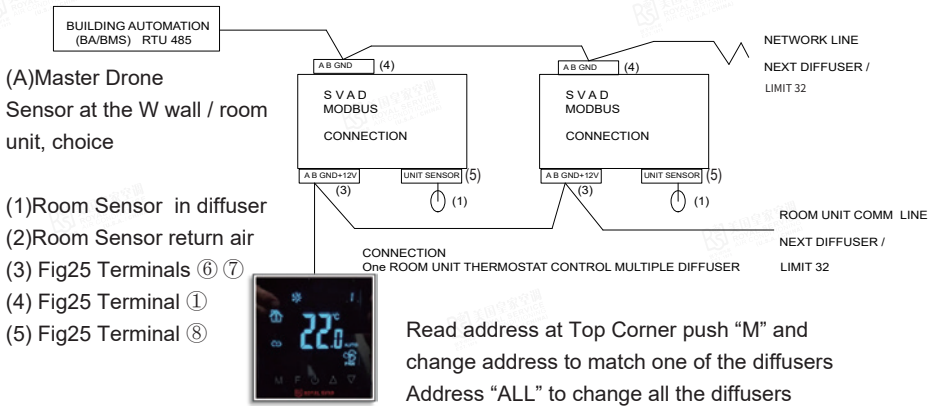


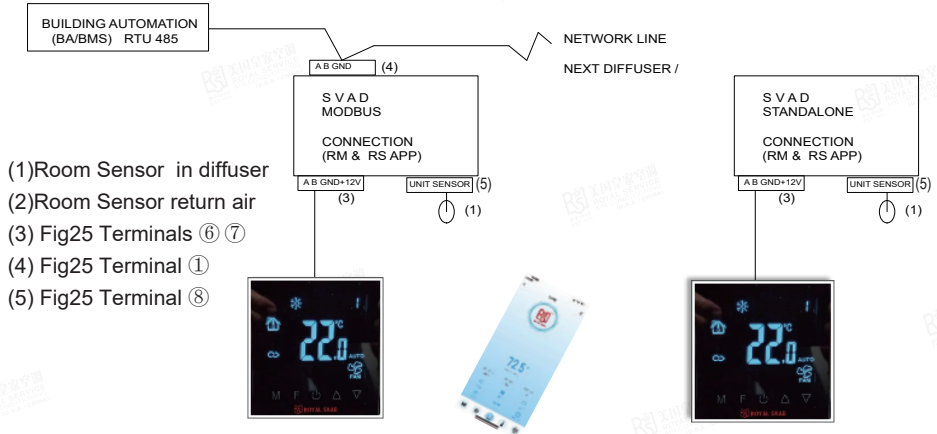
Fig.84

5. Communication wiring diagram:

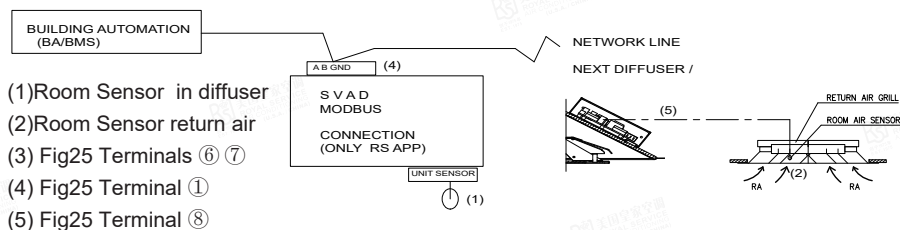
5.1 Version 2 Incorporated Standard BA/BMS system with RTU 485 Modbus connection to one or multiple diffusers. APP is standard sensor is in the diffuser .Optional Room unit



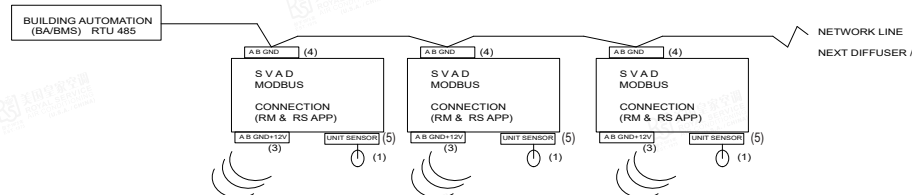
5.2 Version 2 Incorporated Standard BA/BMS system with RTU 485 Modbus connection to one and one stand alone diffusers. APP is standard sensor is in the diffuser W/Optional Room unit



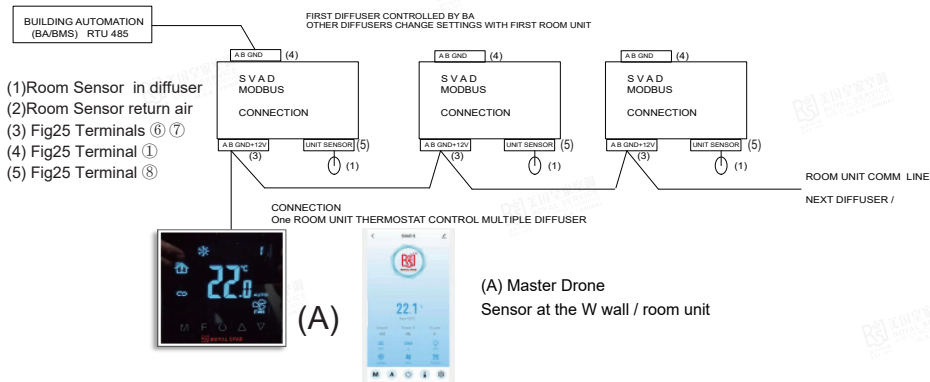
5.3 BA/BMS only control / Version 2 Incorporated Standard BA/BMS system with Modbus connection to one or multiple diffusers. BA/BMS make connection. sensor is in the diffuser



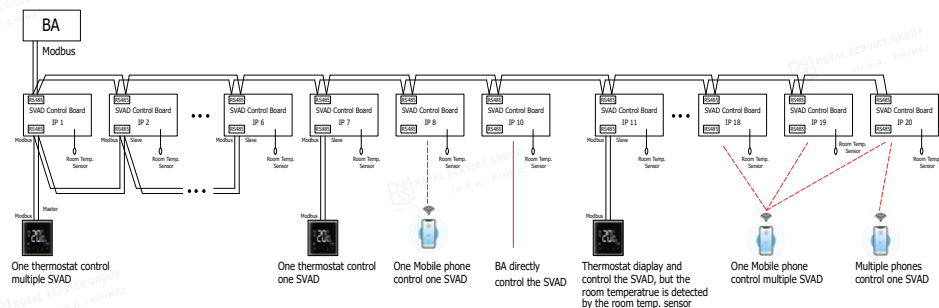
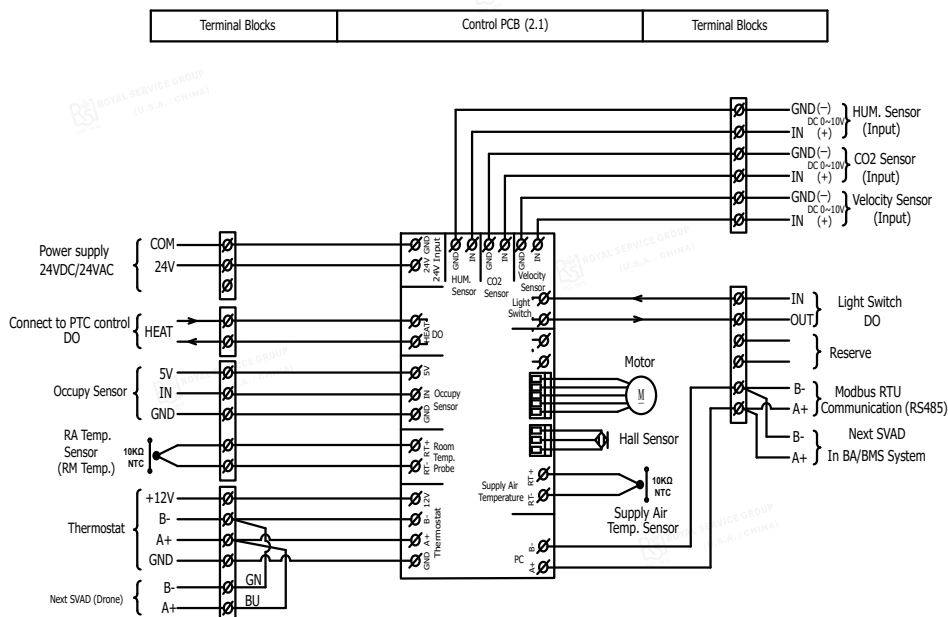
5.4 BA/BMS Control and One APP control more then one diffuser Sensor inside SVAD diffuser



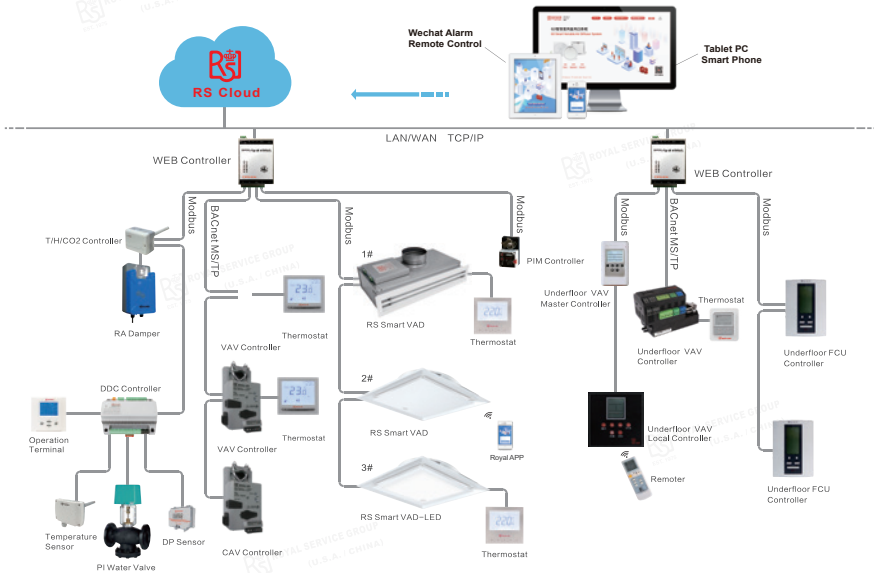
5.5 BA/BMS Control one unit, and room control address other diffuser Save additional BA/BMS to diffuser if needed.



MASTER Drone connection With
 Modbus grouping

**>> Network control/Group control /one control one/mobile phone APP control.****Shown below are multiple different application connection possibilities.****Connection Diagram85****>> Wiring diagram86****Wiring Diagram 86**

G3 Third generation variable air volume system



RS Demonstration System Network Architecture

G3 Diagram 87

>> Fault diagnosis and solutions

Thermostat Fault Codes and Diagnostics:

Error Code	Error Description	Solution
ER1	Room Temperature Sensor Error	The room temperature sensor currently selected by the SAVD is not connected / or poor connection.
ER 2	Supply Air Temperature Sensor Error in Automatic Mode	The supply air temperature sensor is not connected/ or poor connection.
ER 3	Communication Failure Error Between Thermostat and Control Board	The communication connector between the thermostat and the control board is in poor contact
ER9	CO2 alarm concentration exceeds the limit standard	When the sensed CO ₂ concentration exceeds 1000 ppm.
ER10	Motor Stuck Error	The obstacle of actuator or damper blocking the operation

The following are some possible faults, possible fault causes and corresponding solutions of the Royal SVAD

NO.	Error State	Error Reasons	Solutions
1	SVAD shows no sign of power on	1. Power supply problems; 2. Power board failure.	1. Check whether the condition of the power supply is normal or whether the power wiring is correct. Connect the power supply correctly. 2. If the power supply is normal, but the indicator light on the power board or the power indicator light on the control board is not on, it means that the power board is faulty. Replace the air or power board.
2	Thermostat show nothing	1. Diffuser power failure; 2. There is a problem with the connection cable or wiring between the thermostat and the control board; 3. Faulty connection between the base of the thermostat and the panel part; 4. Thermostat failure.	1. Verify the power supply to the diffuser, the power supply board, and the control board. Depending on the identified issue, conduct necessary repairs or replace the faulty components. 2. If the power supply at the diffuser's terminal is normal, inspect the cable connecting the thermostat and the diffuser. Ensure that the wiring at both ends of the cable is correctly connected. If any issues are found, resolve them accordingly. 3. It's possible that the connection cable between the thermostat's base and the panel is unplugged or there could be issues with the cable or the terminals at either end, resulting in a connection failure between the thermostat's base and the panel. Please perform a thorough check and proceed with the necessary repairs or replace the diffuser or relevant components, as needed. 4. If the wiring is also normal, it means that the thermostat itself is faulty. It may be the thermostat base part or the panel part. Therefore, both of them should be checked. Please replace the thermostat.

NO.	Error State	Error Reasons	Solutions
3	Remote control show nothing	<ol style="list-style-type: none"> 1. The batteries in the remote control are low; 2. Remote control power failure; 3. Remote control failure. 	<ol style="list-style-type: none"> 1. If it is the battery power in the remote control, please charge the battery in time. If, after charging for a long time, the battery power still cannot be charged up, it means that the battery has been unable to charge, please replace the battery or the remote control; 2. Check whether the power supply of the remote control is connected and whether the power supply is faulty; if the power supply is faulty, please replace the power supply; 3. If the battery is fine, the remote controller itself should be faulty, please replace the remote controller.
4	The battery symbol on the remote is	Low battery alarm in the remote control.	Low battery alarm in the remote control.
5	Low battery alarm in the remote control.	<p>Room temperature sensor alarm</p> <ol style="list-style-type: none"> 1. The jumper selection of the indoor temperature sensor on the control board is wrong; 2. Thermostat failure; 3. Connection problem between the indoor temperature sensor and the control board; 4. Indoor temperature sensor failure; 5. Control board failure. 	<ol style="list-style-type: none"> 1. An ER1 error may occur if the room temperature sensor selection jumper on the control board is set to the thermostat ("disabled"), yet this SVAD is not connected to a thermostat, but rather, it utilizes the temperature sensor on the control board to measure indoor temperature. Conversely, if the jumper selects the temperature sensor on the control board ("enable"), but the SVAD isn't connected to the indoor temperature sensor on the control board and instead is connected to a thermostat, an ER1 error may also occur. In either case, please correct the position of the jumper. 2. If the control board is configured with a wall-mounted thermostat, and the indoor temperature sensor selection jumper on the control board is set to the temperature sensor on the thermostat ("disabled"), this signifies a fault with the thermostat's temperature sensor. Please replace the thermostat.

NO.	Error State	Error Reasons	Solutions
5	Low battery alarm in the remote control.	<p>Room temperature sensor alarm</p> <ol style="list-style-type: none"> 1. The jumper selection of the indoor temperature sensor on the control board is wrong; 2. Thermostat failure; 3. Connection problem between the indoor temperature sensor and the control board; 4. Indoor temperature sensor failure; 5. Control board failure. 	<ol style="list-style-type: none"> 3. If the control board isn't configured with a wall-mounted thermostat, and the room temperature sensor jumper on the control board select "Enable", a connection issue may exist between the room temperature sensor and the control board. Please (3)verify whether the wiring terminal connected to the indoor temperature sensor on the control board is loose. If there's no issue with this connection and the room temperature sensor is functioning correctly, (2)the control board may be the issue. In such a case, please replace the control board or the air diffuser.
6	Display Error code ER2	<p>Supply air temperature sensor error in automatic mode</p> <ol style="list-style-type: none"> 1. The connection problem between the supply air temperature sensor and the control board; 2. The supply air temperature sensor is faulty; 3. Control board failure. 	<ol style="list-style-type: none"> 1. There may be a (3)connection problem between the temperature sensor and the (2)control board. Please check whether the wiring terminal connected to the (5)air supply temperature sensor on the temperature control board is loose? 2. If there is no problem with the connection between the supply air temperature sensor and the control board, then there may be a problem with the supply air temperature sensor. Please replace the supply air temperature sensor or replace the diffuser. 3. If there is no problem with the connection between the supply air temperature sensor and the control board, and there is no problem with the supply air temperature sensor itself, then the problem is with the control board. Please replace the control board or replace the diffuser. 4. In cooling or heating mode, the ER2 fault code will not be displayed even if the supply air temperature sensor is faulty. This state does not use the sensor.

NO.	Error State	Error Reasons	Solutions
7	Display Error code ER3	<p>485 communication failure alarm</p> <ol style="list-style-type: none"> 1. The wiring of the communication signal line between the thermostat or the remote control connection board and the control board is wrong; 2. The connection terminals at both ends of the communication signal line between the thermostat or remote control connection board and the control board are faulty; 3. The communication signal line between the thermostat or remote control connection board and the control board is faulty; 4. The base part of the thermostat is faulty; 5. Faulty connection between the base of the thermostat and the panel part; 6. The remote control connection board is faulty; 7. Remote control failure; 8. The models of the remote control and the control panel do not 	<ol style="list-style-type: none"> 1. Ensure the A+ and B- communication signal lines between the thermostat or the remote control board and the control board are correctly aligned. Correct if necessary. 2. Inspect for potential looseness or poor connection at the terminals of the communication signal line. Repair or replace necessary components as appropriate. 3. Check the integrity of the communication signal line between the thermostat or remote control board and the control board. Undertake repair or replacement as necessary. 4. For models featuring a thermostat, check the connection of the base to the communication cable. If a fault is identified, please proceed with thermostat replacement. 5. Confirm the connectivity between the thermostat base and the panel, including terminals or cables at both ends. If discrepancies are noted, consider thermostat replacement. 6. When the address code selected on the thermostat or remote control is an address code not used on the SVAD it is connected to, the ER3 fault code will appear. Please set the address code on the thermostat or remote control to "All" or the address code of the connected SVAD. 7. For remote-controlled variants, examine the remote control board. If no issues with the wiring are identified but the problem persists, consider replacing the board or the diffuser. 8. In the absence of the aforementioned issues, the control board may be at fault. Consider replacing the control board or diffuser. 9. Compatibility between the control board and remote control board is crucial. In case of different models or versions, an ER3 fault code may appear. In this scenario, replace with compatible units or consider air diffuser replacement.

NO.	Error State	Error Reasons	Solutions
8	Display Error code ER4 Version 2.1	<p>Wireless data transmission alarm between remote control and air diffuser</p> <ol style="list-style-type: none"> 1. The distance between the remote control and the diffuser is too far or there is interference between the wireless communication; 2. The battery of the remote control is low; 3. The remote control and the remote control connection board are not paired or the code is not successful; 4. The model or version of the remote control and the remote control connection board do not match; 5. The remote control itself is faulty; 6. The communication antenna on the connection board of the remote control is loose or in poor contact; 7. The remote control connection board itself is faulty; 8. The communication antenna on the remote control connection board is interfered or shielded due to the installation position and other reasons; 9. Network interference;- match. 	<ol style="list-style-type: none"> 1. Due to distance, interference, obstruction or shielding, the wireless communication between the remote control and the air diffuser remote control connection board is blocked. Approach the air diffuser, or adjust the direction of the remote control, or avoid obstacles between the remote control and the air diffuser; 2. If the battery symbol on the remote control is also flashing, it means that the battery power of the remote control is low. Please plug in the remote control to charge the battery or replace the battery or remote control. 3. If the remote control and the remote control connection board on the air diffuser have not been coded or coded successfully before use, the ER4 fault code will also appear. Please check the code again. 4. The remote control and the remote control connection board have different models or versions. If different models or versions of the remote control and the remote control connection board are used together, they are not compatible, and the ER4 fault code will also appear. Please replace the control board and remote control connection board with a suitable model or version or replace the air diffuser. 5. It's also possible that the remote itself is malfunctioning. Please replace the remote control. 6. If the communication antenna on the remote control connection board is loose or in poor contact, it will also cause poor communication between the remote control and the remote control connection board, and an ER4 fault alarm will occur. Please check and correct.

NO.	Error State	Error Reasons	Solutions
8	Display Error code ER4 Version 2.1		<p>7. If the communication module of the remote control connection board fails, it will also cause poor communication between the remote control and the remote control connection board, and an ER4 fault alarm will appear. Please replace the remote control connection board or replace the air diffuser.</p> <p>8. When ER4 fault codes are present away from the ceiling-mounted air diffuser, but not in its proximity, this suggests potential communication disruptions related to the diffuser's installation. To mitigate this, it is recommended that the antenna on the remote control connection board be securely connected and properly affixed to the interior surface of the air diffuser's casing.</p> <p>9. For networked air diffuser, if the workstation or the upper computer fails, it will also affect the control of the diffuser, causing this failure phenomenon. In this case, the automatic control system itself or other air diffuser may also have different problems, please check the entire automatic control system.</p>
9	Display Error code ER5 Version 2.1	Remote control wireless module alarm	The wireless communication module of the remote control is in bad contact or damaged. Replace the remote.
10	Display Error code ER10	<p>Motor operation failure or damper operation stuck failure</p> <ol style="list-style-type: none"> 1. Hall sensor failure; 2. Malfunction of the magnet base; 3. Reason for travel; 4. Failure of the actuator; 5. Reason for installation. 	<ol style="list-style-type: none"> 1. If, (4)after each power-on or start (On), the damper ceases movement within a few seconds and the diffuser reports an ER10 fault code, there could be issues with the Hall sensor or its connection to the control board. Other issues may involve a loose magnet base, or missing magnets. Please reinsert the relevant plug or consider replacing the air diffuser. 2. Open panel check wire sensor.

NO.	Error State	Error Reasons	Solutions
10	Display Error code ER10	<p>Motor operation failure or damper operation stuck failure</p> <ol style="list-style-type: none"> 1. Hall sensor failure; 2. Malfunction of the magnet base; 3. Reason for travel; 4. Failure of the actuator; 5. Reason for installation. 	<p>3. If the ER10 fault code appears when the damper moves near its maximum position (fully open), and it's normal at the beginning of operation and zero point reset operation, it could be due to an incorrect damper travel setting. To verify, enter the setting mode of the thermostat or remote control, and check the damper travel setting (step 5 in setting mode). If the setting exceeds the damper travel value of the model, correct it. If the damper travel setting is accurate, the issue could be installation-related. If not installation-related, consider replacing the air diffuser.</p> <p>4. An ER10 fault code appearing near the maximum damper position (fully open) after a diffuser zero point reset may indicate that the damper cannot fully close, thus affecting the zero position of the reset. This scenario might mean that the damper has reached its maximum open position before completing its original damper travel. Investigate the cause, and if it remains unresolved, consider replacing the SVAD.</p> <p>5. If the damper ceases to operate when fully open or closed during a zero point reset, or if it stops moving during operation after an initially normal reset, resulting in an ER10 fault code, the damper actuator may be at fault. In this case, consider replacing the diffuser.</p> <p>6. Improper installation could damage the motor, motor cable, Hall sensor cable, or actuator, causing poor diffuser operation and triggering an ER10 fault code. Check the installation. If improving the installation doesn't resolve the issue, consider replacing the air diffuser.</p> <p>6. During transportation or installation, if the diffuser actuator is pulled directly, it can result in actuator displacement or deformation, causing poor diffuser operation and an ER10 fault code. In such cases, diffuser parts may be loose, displaced, or deformed, warranting replacement of the air diffuser.</p>