SPD-AIR_S2-B
MODBUS Split Airconditioner Controller

1. Production introduction

SPD-AIR_S2-B is a universal air conditioning controller with MODBUS interface. With a learning function, it can learn the control code of the air conditioner remote control, thereby controlling the air conditioner instead of the remote control; with a batch download and batch import function, it can learn the instructions of an air conditioner remote control, and batch recall through the configuration software. Measure and batch download, saving operating time; with remote control and automatic control functions, which can be selected according to needs; with built-in temperature and humidity sensor, and can display temperature and humidity through LCD; SPD-AIR_S2-B has RS485 interface support MODBUS-RTU protocol, PLC, microcontroller control system, force control, Kingview, Kunlun Tongtai and other configuration software that support this protocol can automatically control most cabinet or wall-mounted air conditioners through SPD-AIR_S2-B .

2. Features

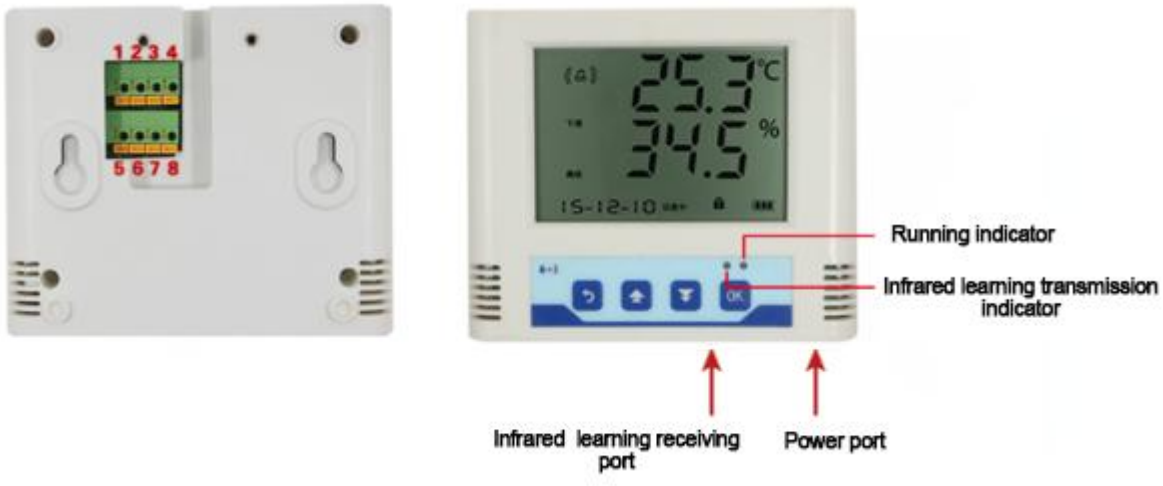
- 99.9% of air conditioner remote controls can be learned through our supporting software.
- Can learn 23 groups of key functions.
- With 485 interface, the air conditioner can be controlled through MODBUS-RTU protocol instead of the remote control.
- Download the learning code for batch testing.
- The ModBus communication address and baud rate can be set.
- SPD-AIR_S2-B equipment adopts a wide voltage power supply, DC 10~30V.
- The communication distance of 485 communication line can reach up to 1000 meters.
- Remotely collect the temperature where the air conditioning controller is located.
- Remote timer to switch air conditioner on and off.
- Automatically switch the air conditioner on and off according to the set lower temperature limit and upper limit value.
- Control failure alarm and relay output.

- Over-temperature, low-temperature alarm and relay output.
- The device is equipped with a power-down protection function, and the set parameters are saved when the power is turned off.
- Configure the air conditioner's self-start function when the air conditioner is powered on. After the air conditioner is powered off and powered on again, the device will automatically send the "custom channel 20" command.
- Supports external infrared probe, infrared emission extension line up to 5 meters.
- Supports detection of air conditioner operating status.

3. Specification

Model number	SPD-AIR_S2-B
Power supply	DC 10-30V
Power consumption	0.3W
Working environment	-20℃~+60℃，0%RH~80%RH
Communication	RS485 output; MODBUS-RTU protoco; baud rate:2400、4800、9600 optional
Infrared interface	Can learn 99% of remote controls and successfully control the air conditioner
Dimension	122*102*36mm

4. Instructions



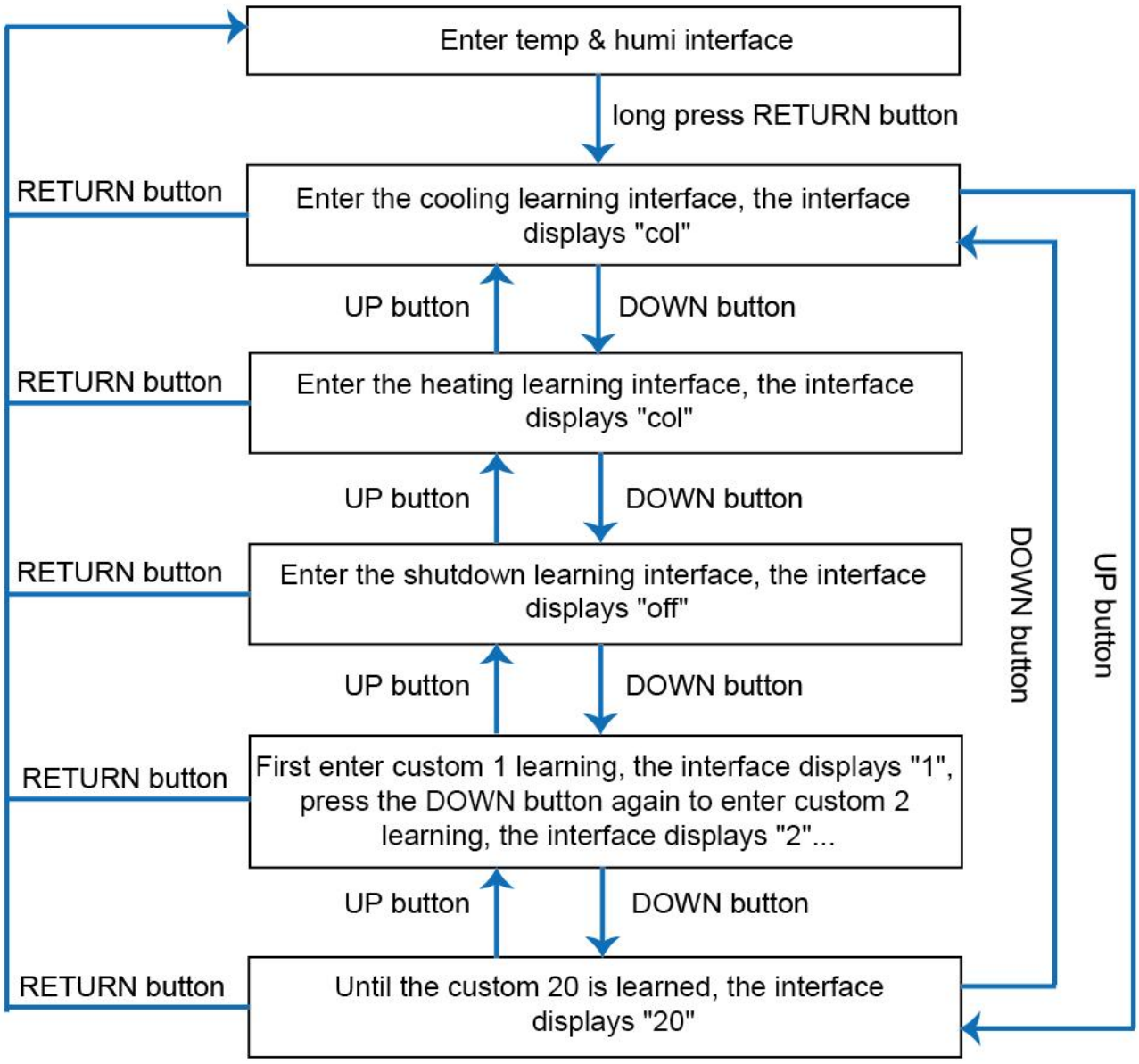
4.1 Interface definition

Interface No.	Definition	Remark
1	DC Power +	The 2 ports are for power supply DC10~30V
2	DC Power -	
3	Infrared transmitter probe +	Connect infrared transmitter probe yellow wire
4	Infrared transmitter probe -	Connect infrared transmitter probe blue wire
5	RS485 A (RS485+)	Connect RS485 cable
6	RS485 B (RS485-)	
7	Current transformer +	Connect current transformer (optional)
8	Current transformer -	
DC Power port	DC Power port	Optional： Power cable connection by terminal block (1 &2), or DC power port
Infrared learning receiving port		When the device is in the learning state, align the Aircon remote controller’s infrared transmitting port with the infrared learning receiving port.

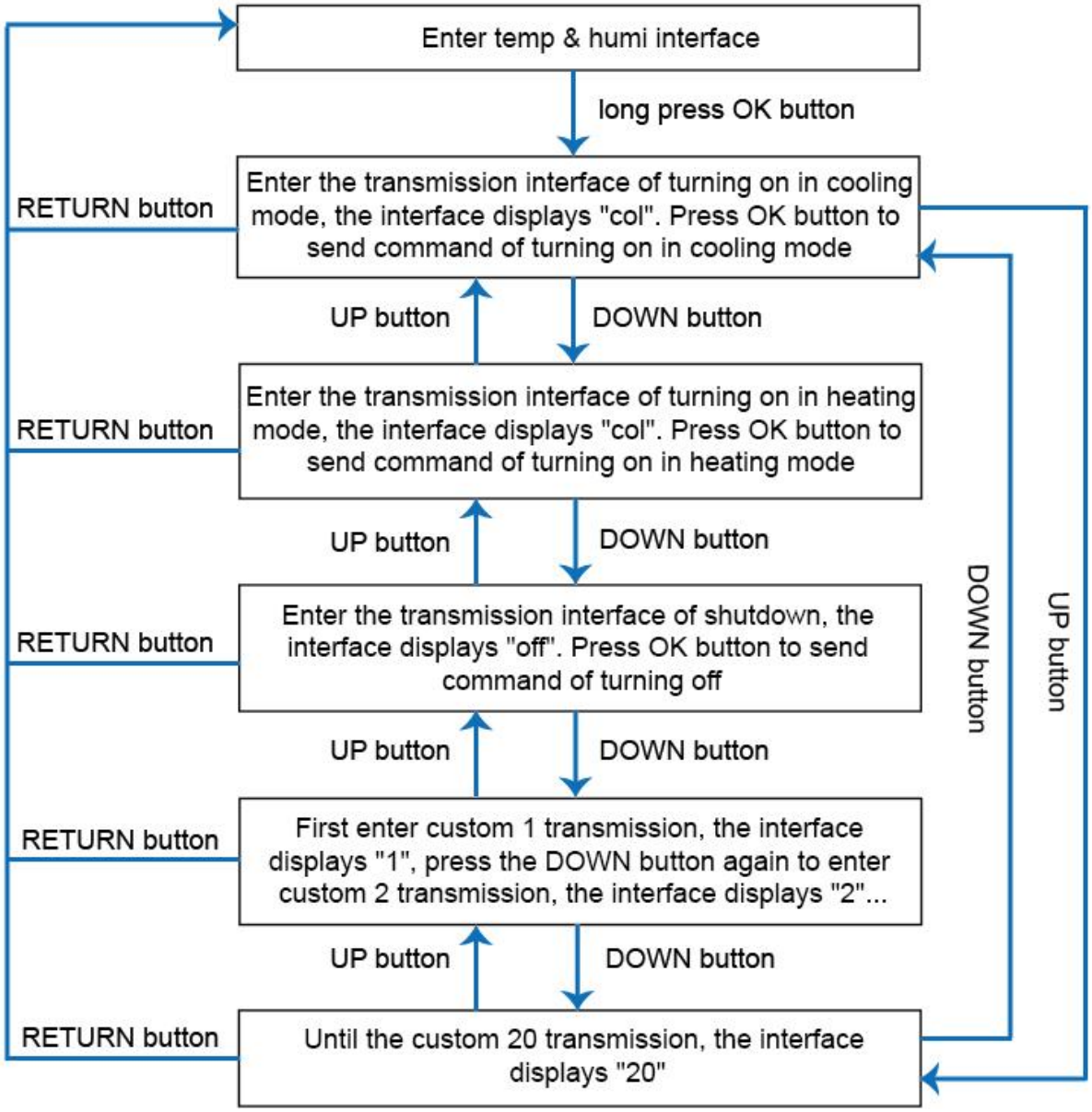
4.2 Learning process through device button

4.2.1 Learning & Transmitting flow

Learning Flow



Transmission Flow



a. OFF learning & transmission

- Long press device “RETURN” button, then press “DOWN” button till “OFF” display. The "infrared learning transmission indicator" of the device will flash once every second and continue to flash for 20S. User must finish the leaning process within 20S.
- Turn on the remote control, and align its infrared transmitter with the device "infrared learning receiving port" within 5CM, turn off the remote control. Then press device”OK” button. If the learning process is successful, the device "infrared learning transmission indicator" will flash 5 times quickly and the buzzer will sound once. Otherwise, learning fails and please go to device SPD-AIR_S2-B "OFF" interface again and repeat above operation.
- If the learning is successful, point the infrared transmitter of the SPD-AIR_S2-B device at the air conditioner, turn on air conditioner with remote control, then go to device “OFF” display ((long press “OK” button and press “DOWN” button till to “OFF”), press “OK” button, device “ infrared learning transmission indicator” will flash and air conditioner is turned off.

b. CODE “01”, “02”, “03” learning & transmission

- “01”, “02”, “03” stands for turning on with strong / medium / weak cooling

01= turn on with strong cooling, for example 18℃

02= turn on with medium cooling, for example 22℃

03= turn on with weak cooling, for example 25℃

- Learning “01” code: Long press device “RETURN” button, then press “DOWN” button till “01” display. The "infrared learning transmission indicator" of the device will flash once every second and continue to flash for 20S. User must finish the leaning process within 20S.
- Set remote control to 18℃ at cooling mode, then turn off remote control.
- Align remote control infrared transmitter with the device "infrared learning receiving port" within 5CM, turn on the remote control. Then press device”OK” button. If the learning process is successful, the device "infrared learning transmission indicator" will flash 5 times quickly and the buzzer will sound once. Otherwise, learning fails and please go to device SPD-AIR_S2-B "OFF" interface again and repeat above operation.
- If the learning is successful, point the infrared transmitter of the SPD-AIR_S2-B device at the air conditioner (air conditioner is turned off), then go to device “01” display (long press “OK” button and press “DOWN” button till to “01”), press “OK” button, device “ infrared learning transmission indicator” will flash and air conditioner is turned on with 18℃ at cooling mode.

Align remote control with device

- Same process to lean code “02” and “03”