

Dropair Pro6x

Daikin HBS Solution Description



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Version: 1.2

The Dropair Pro6X adapter adopts Cortex-M3 core and directly connects to the P1/P2 terminal of the DAIKIN thermostat through HBS protocol. It is free of programming and debugging, and communicates with the closed-loop system of the Daikin air conditioner, perfectly achieving the balance between comfort and energy saving.

Pro6X currently supports Nest thermostat, Ecobee, Honeywell, Control4 and other AC24V series American standard thermostats, and Lutron and other series thermostats with Modbus communications. For the control of ordinary chilling water FCU, 0-10V DC brushless motor and 0-10V adjustable valve's actuator, please refer related documents.

Industry pain points

Controlling Daikin system through central control gateway products such as CoolMaster has the following pain points:

1. Single temperature point

The temperature point is either set in a third-party thermostat or in the Daikin system, and cannot be considered comprehensively according to the actual application scenario.

2. Single target temperature

The target temperature on the Daikin thermostat can only be set to a few fixed values, which limits the inverter control of the Daikin air conditioner. According to the difference between the room temperature and the target temperature, Daikin has the most advantageous function of vector inverter control of the refrigerant and compressor, and the adjustment of the operating power according to the actual load will be castrated.

3. Inaccurate room temperature control

Generally, the Daikin thermostat will be placed near the air return of the air conditioner. There will be a temperature difference between the temperature of the air return and the temperature of the third-part thermostat position. For example, in summer when it is cooling, the temperature set by a third-party thermostat is 24 degrees, but the actual room temperature may

be reduced to 22 degrees, causing the room temperature to be too low, which wastes energy and easily causes a cold.

4. Complex installations and debugging

There is a single point of failure for the gateway of the BUS solution. If one gateway fails, all air conditioners cannot be controlled. At the same time, initialization requires addressing settings, and the technical threshold is high.

5. Can't work together with in-floor heating and ventilation system

Because there is no centralized control logic processing, it will appear that as soon as the air conditioner is turned on, the ventilation system will be turned on; or when the air conditioner is turned on for heating, the in-floor heating will also be turned on; even the in-floor heating will only be used for warming the house.

Core features

Based on the HBS communication protocol, the Dropair Pro6X adapter optimizes algorithms, centrally processes multiple

device control logics, responds to control commands in seconds, stable and reliable, and the core implementation:

1. Comprehensive judgment of temperature control

To maintain the advantages of Daikin's closed-loop control system, the inverter function of vector refrigerant supply is not affected.

2. The setting temperature of Daikin panel changes dynamically

Using the actual measured indoor temperature of the Daikin panel as a reference, dynamically adjust the Daikin set temperature value according to the third-party set temperature, give full play to the Daikin inverter advantage, and make the time to reach the target temperature shorter and the system more energy efficient.

3. Daikin accurately executes external control requirements

Within the scope of the Daikin system, the control requirements of the third-party thermostat will be accurately executed unconditionally.

4. Work together with ventilation and in-floor heating

The adapter handles the control logic of different devices in a unified manner. Air conditioning, in-floor heating, and ventilation can be used individually or in combination. Air conditioning heating and floor heating can also be used independently or in combination, which maximizes the use of the original system. , And support customer personalized control.

Other features

1. The status is synchronized in real time, even if you manually change the Daikin thermostat, it will be automatically restored;
2. Wired control solution, cancel Daikin infrared receiver, lower purchase cost;
3. The stability performance is improved, and there is no longer the problem of control failure due to the change of the adapter position;

4. The mode is switched without any sense, there will no longer be a DiDi sound when switching, and the indoor unit can keep the fan mode running;

5. The wind deflector can be fixed, and after being adjusted by the original thermostat, the position is maintained and will not be forcibly reset;

6. A variety of plug-ins are optional, such as the humidification and dehumidification function of the greenhouse balance model can be enabled through the optional plug-in;

7. Free from programming and debugging, just connect the power and connect, convenient installation and low maintenance costs, no single point of failure risk;

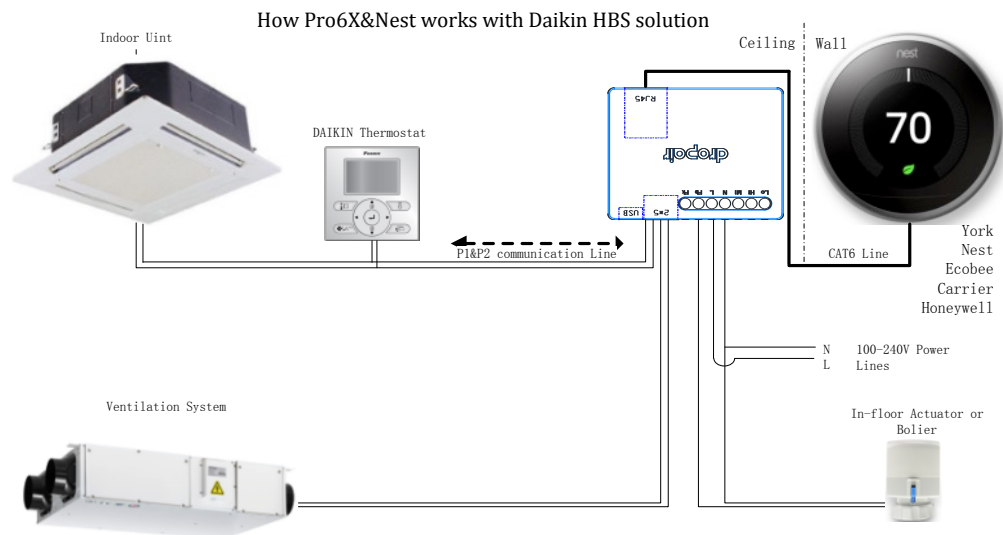
8. The adapter is small and can be placed in boxes after Nest thermostat. When In-floor heating and air conditioning thermostat are together, or there can get a power supply near the Daikin thermostat, there is no need to change the line.

About Lutron

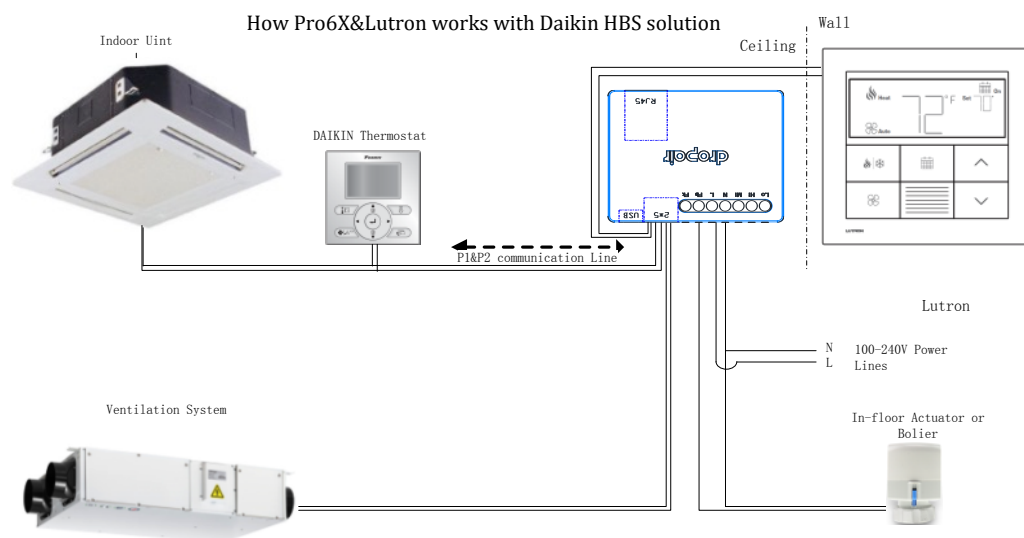
Due to the complete and transparent transmission of data between Lutron Paladin thermostat and the adapter, the set temperature of the Daikin panel during cooling and heating maintains a dynamic linear relationship with the Lutron panel, and Daikin maintains the operating characteristics of the original system to prevent room overheating. Or if the air conditioner stops working before the set temperature is reached, ensure that Lutron can accurately control the room temperature.

System topology

Nest+Pro6X+Daikin



Lutron+Pro6X+Daikin



Technical Description

Part Number	Pro6X	Input Power	100-240V, 3A 50/60Hz
Item Weight	80g	Output Power	AC24V, 60Hz
Product Dimensions L x W x H(mm)	67.5 x 54 x 24.5	Indicator color	Red, Green, Blue
Color	White	Type of Bulb	LED
Material	ABS+PC FR3010	No-load Power	1.0W
Shape	Cuboids	Warranty	1-year limited warranty