

Dropair Adapter

Pro6S Installation & Service Manual



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Version: 1.2

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General Information

Attention

Please read the following information carefully before you start to install. Improper installation can result in electric shock or damage to the equipment.

1. Please check the label on the adapter and confirm if the adapter model matches your Fan Coil Unit (FCU). The hardware and firmware for different types of FCU are not universal.
2. There has the offered cable, please check the labels and confirm if it matches your smart thermostat.
3. Before installation, the power to adapter needs to be shut down until all connections are complete.
4. Test the existing thermostat to confirm the air conditioner is intact before installation.
5. The connection between the adapter and the indoor unit uses the official standard control interface, which will not change or break anything in the air conditioner. So don't worry about using the Dropair adapter to lose your air conditioner warranty.
6. If the customer worries about that the air conditioner supplier will pick up the third-party equipment for refusing warranty, please remove the Dropair adapter temporarily after you determine that the air conditioner has issue, and then restore the original thermostat to the original condition before request service support. After the air conditioner problem is resolved, restore.
7. Adapter is a customized product. If you have any questions or special requirements, please do not hesitate to connect with us. Facebook/Twitter: @dropairs. Email: dropair.labs@gmail.com.

Compatibility

The Pro6S adapter can control AC motor and the Open/Close AC220/24V valve and 0-10V DC modulation valve.

Minimum Requirements - the following must be in place for Dropair to be compatible:

Model Name	Pipes	Motor	Valve
FCU			Open/Close AC220V Valve
Pro6S	2 or 4	AC Motor	Open/Close AC24V Valve
			0-10V DC Valve (Need option cable)

Connections:

- 7 connections for FCU
- RJ45 connector for smart thermostat

Product Requirements:

- AC24V Smart Thermostat
- AC220V Smart Thermostat + iPanel
- 100-240V power supply
- AC motor FCU

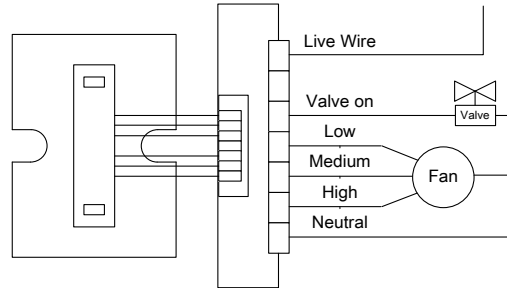
Checking Compatibility - How to tell if Pro6S will work with chiller FCU

Follow the steps below to see if Pro6S can work with chiller FCU.

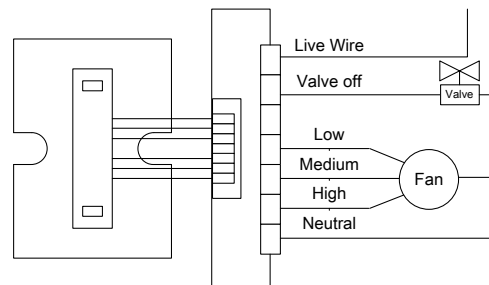
1. Check if the FCU is the chiller water system or refrigerant system. If the indoor unit is controlled by 2-4 wires DC voltage thermostat, you need to use the Mini6/Mini6s adapter. If the FCU is controlled by 100~240V thermostat; it needs next checking to confirm.
2. For the chiller water FCU, you need to check the original thermostat to confirm the valve is the Open/Close AC220/24V valve or 0-10V DC modulation valve.
3. If the motor is the 0-10V DC motor, please use the Pro6X adapter.
4. If the valve is the 0-10V DC modulation valve, you need to check if the original thermostat has the same ports as the adapter. If it is not the same, you need to simply change the purpose of the original cable.
5. Confirm that the FCU motor and valve current ranges are within the adapter load range.

If the original thermostat diagram is one of the 8 types, the Pro6s can be used:

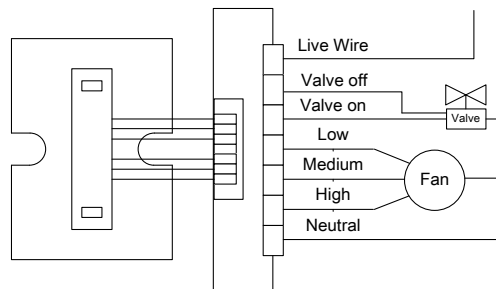
No.1 2-wires normally open valve.



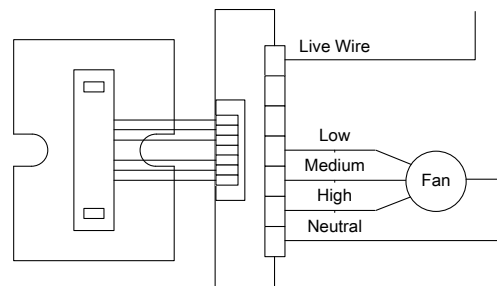
No.2 2-wires normally close valve.



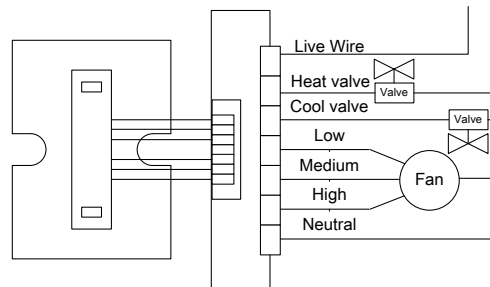
No.3 3-wires open/close valve.



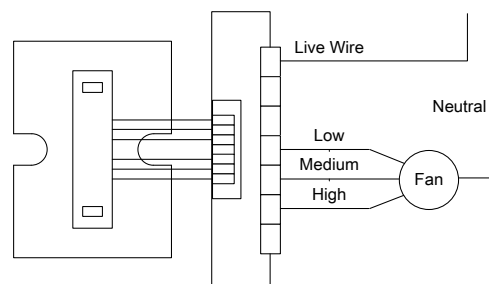
No.4 No valve FCU.



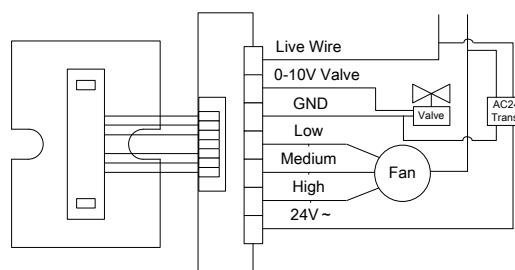
No.5 4-pipes open/close valve.



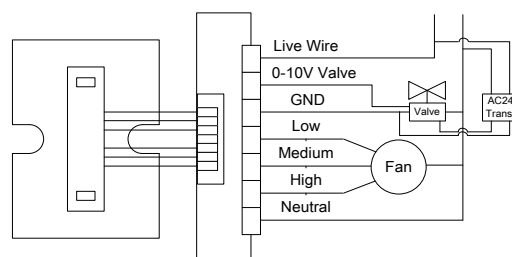
No.6 Single Live Wire Thermostat FCU



No.7 0-10V DC modulating valve, low voltage thermostat.



No.8 0-10V DC modulating valve.



Technical Specification

Model name	Pro6S	Input Voltage	100-240 volts, 50/60Hz
Item Weight	78g	DC Output Voltage	DC 0-10V/20mA
Product Dimensions	43(L)x 43(W) x 28(H) mm	AC Output Voltage	AC24V, 60Hz
Motor	100-240V, 3A	Wattage	1 watts
Valve	100-240V, 1A	Torque	0.4 N.m
Color	White	Type of Bulb	LED
Material	ABS+PC FR3010	Indicator color	Red, Green
Shape	Cuboids	Warranty	2-year limited

Installation & Setup

Installation Overview

Installation of Dropair adapter consists of the basic steps listed below. They are explained in more detail below and on the pages that follow. The first step is to confirm compatibility, is listed here but explained in detail previously in this guide.

1. Confirm compatibility.
2. Test the existing thermostat.
3. Power off the FCU.
4. Wire the control cable to adapter.
5. Connect to the smart thermostat.
6. Switch Power back on.
7. Test **intelligent** thermostat.

Installation Process

Step1 Confirm compatibility

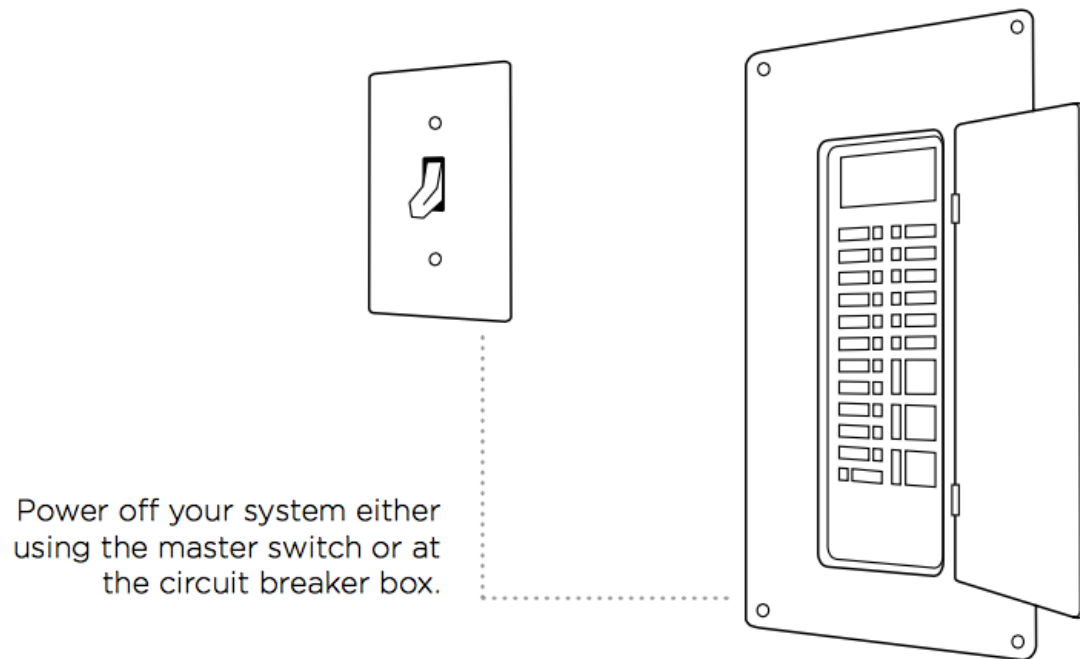
See page 3 for details.

Step2 Test the existing thermostat

Turn on the original thermostat to check that the air conditioner system is intact. After testing.

Step3 Power off the FCU

Locate the electrical panel and identify the breaker that controls the circuit on which the indoor unit is wired. This is to protect yourself and the device. If you can't determine the circuit, turn off the main circuit breaker after getting permission from your customer. Confirm the power is off by attempting to activate the original thermostat.



Step4 Wire the control cable to adapter

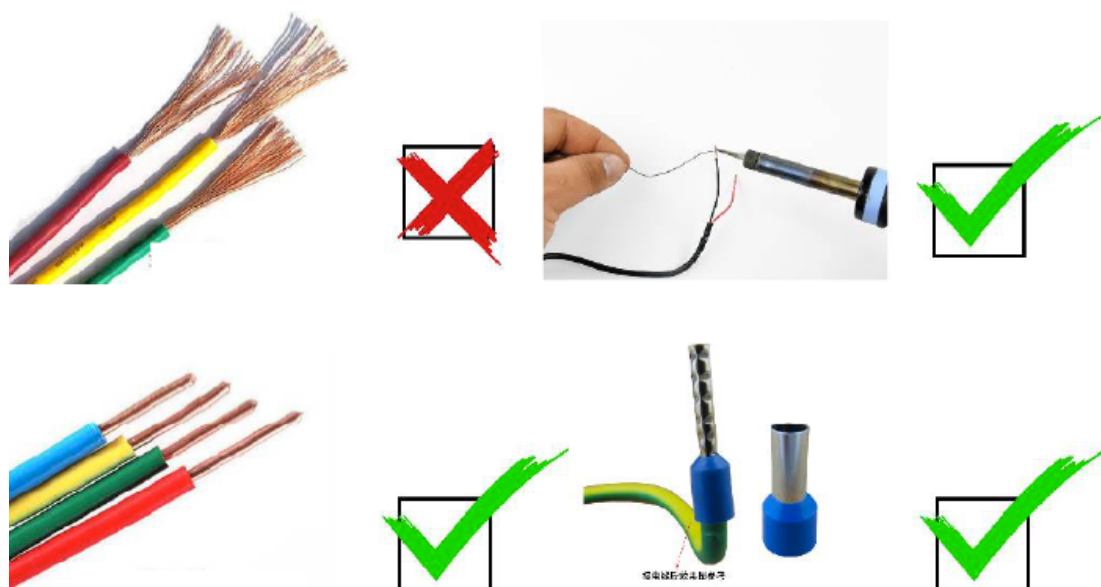
Remove the cover from your old thermostat. Most snap off easily but some of them maybe attached by screws.

Look at the wires coming out of the wall. Take a picture for reference.

Using the old thermostat base as a guide, label each wire going into your old thermostat with the provided stickers.

Connect control cable to adapter's ports. It must be a single strand of hard wire 0.3-1.0 mm² (22-17AWG) or multiple strands of tin or the use of tubular terminal, as shown in the following figure. When you screw, the torque must not exceed 0.4 N.m

The adapter has the AC24 power inside; so do not need the additional transformer.



If you want to control two or more indoor units, you need more Pro6s. One adapter is used for one smart thermostat.

Diagram 1: Connect to the 0-10V DC valve.

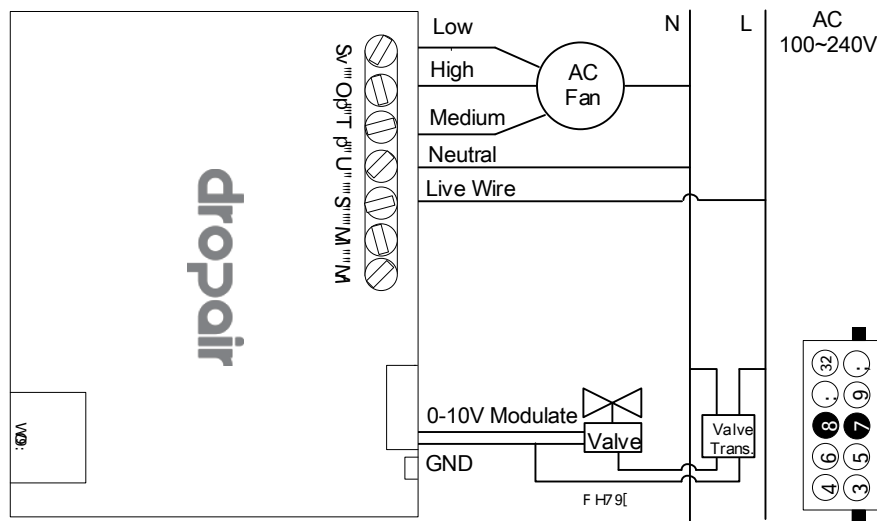


Diagram 2: Connect to 24V AC valve.

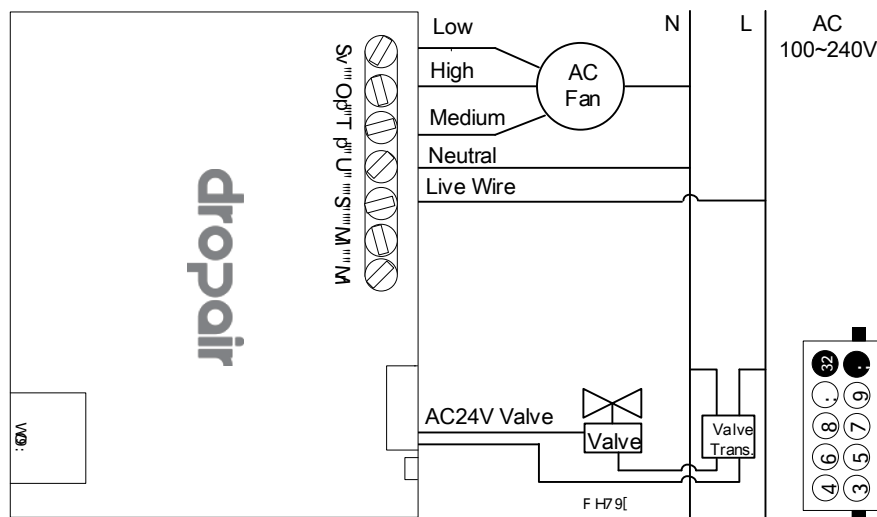


Diagram 3: Connect to 24V 3-wires Open/Close AC valve.

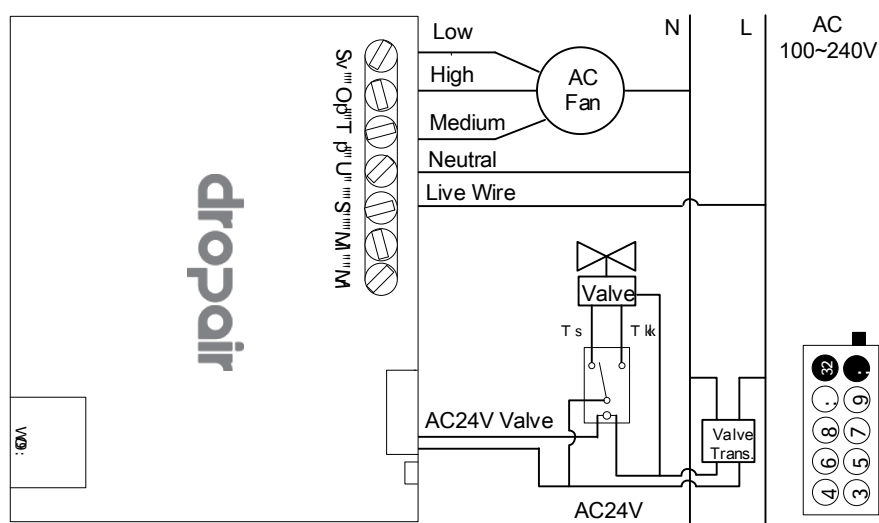


Diagram 4: Connect to 220V 3-wires Open/Close AC valve.

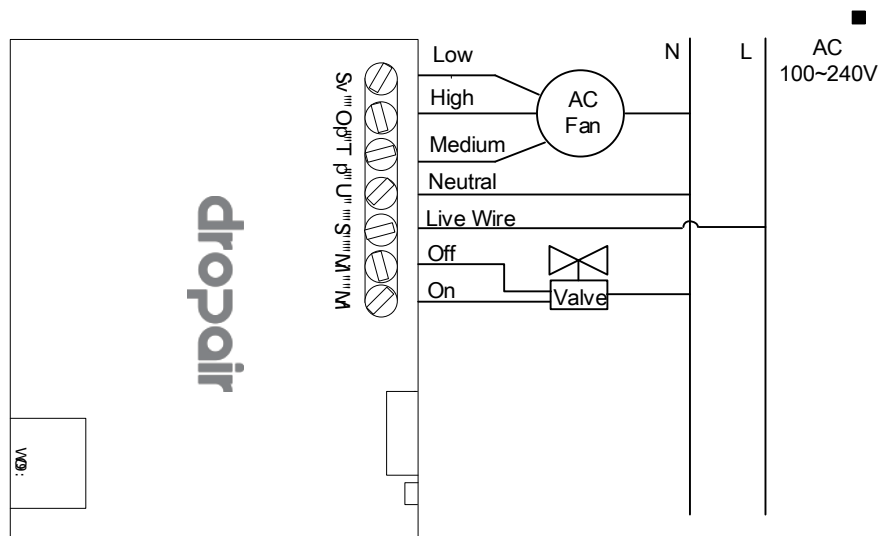


Diagram 5: Connect to 220V normally close AC valve.

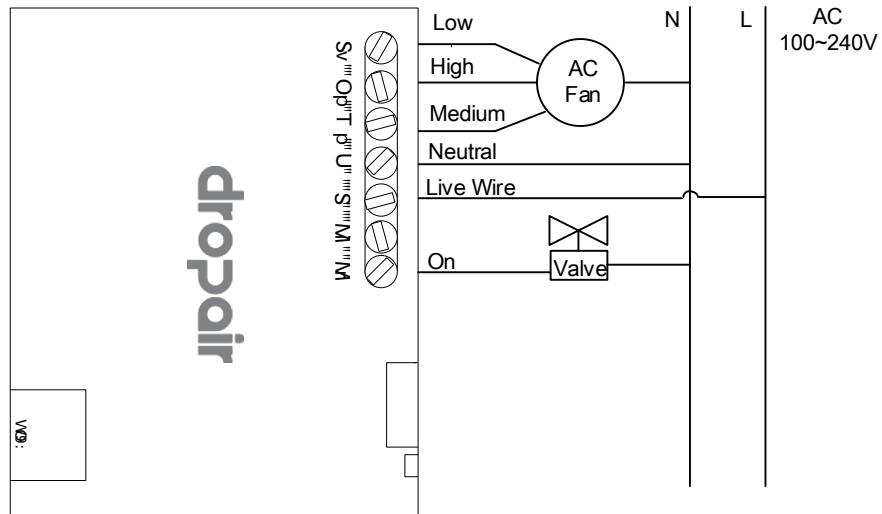


Diagram 6: Connect to 220V normally open AC valve.

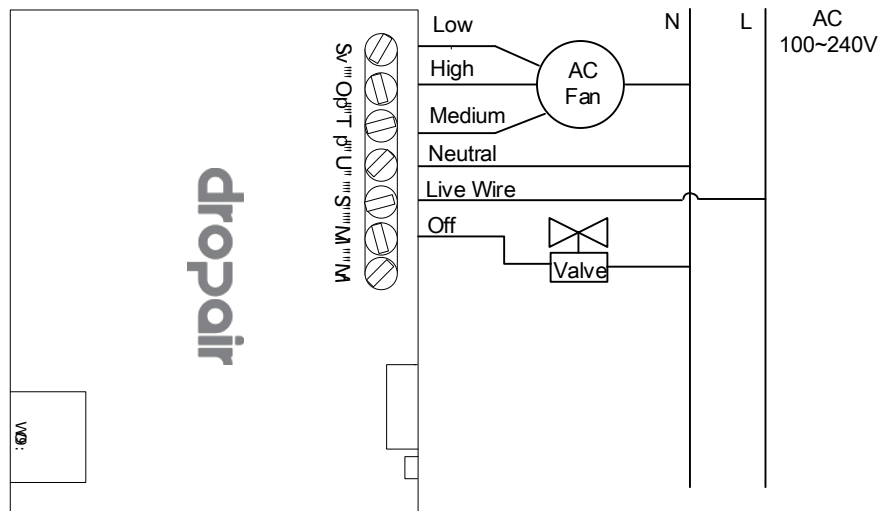


Diagram 7: Connect to 220V 4-pipe heat/cool AC valve.

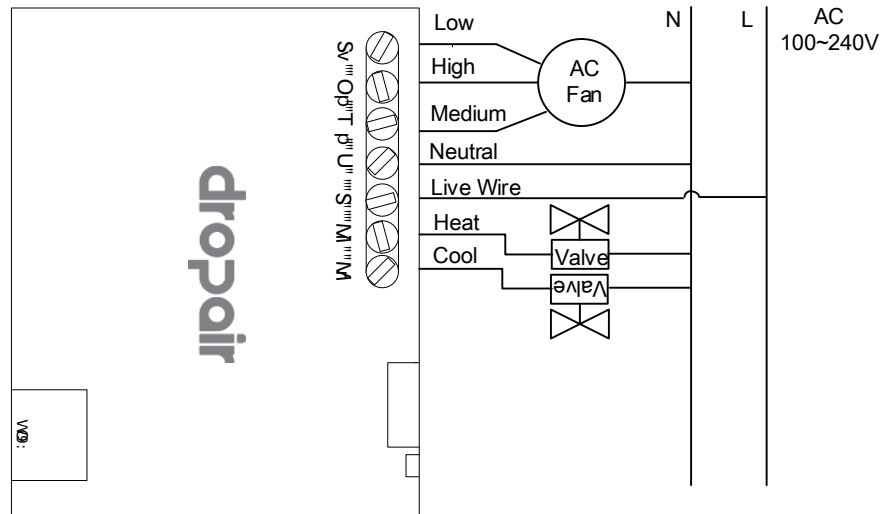


Diagram 8: Connect to compressor dry contact connector.

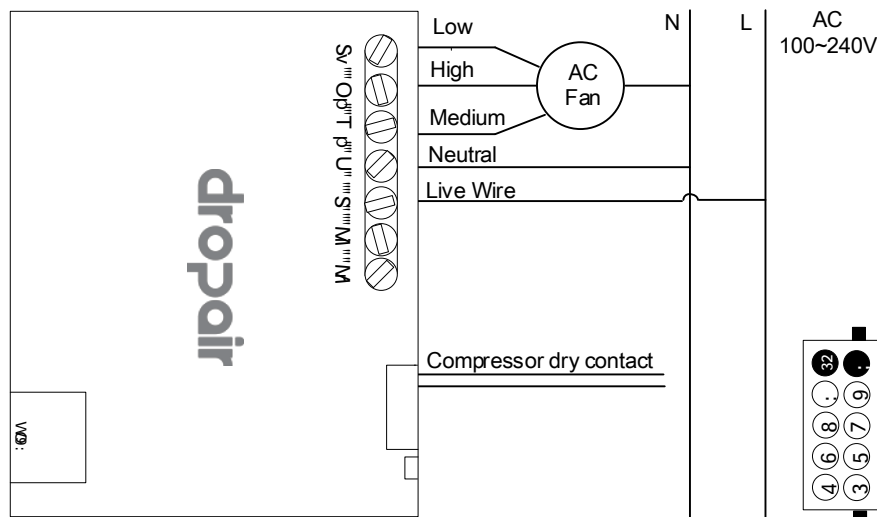
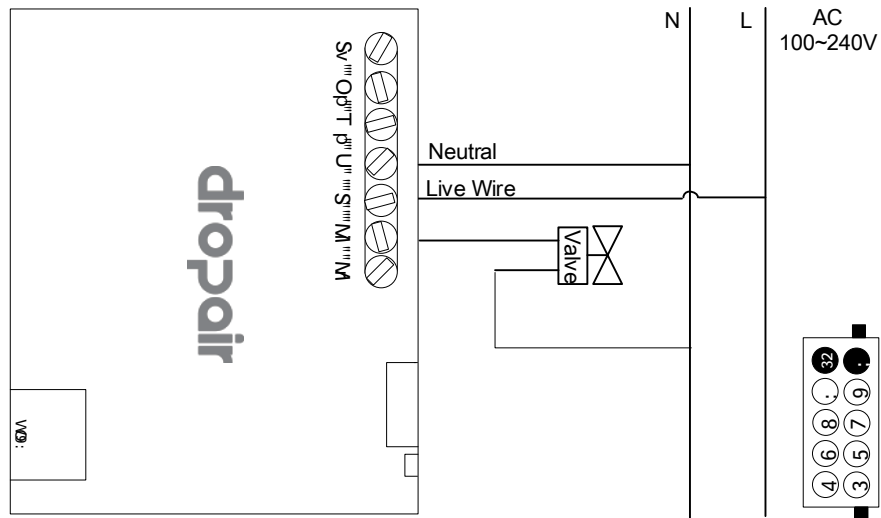
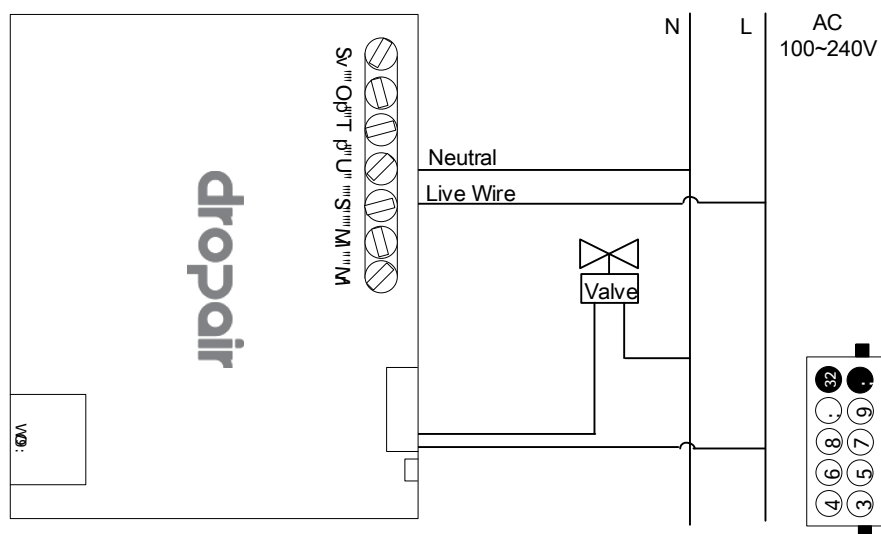


Diagram 9: Connect to AC100~220V Valve #1.



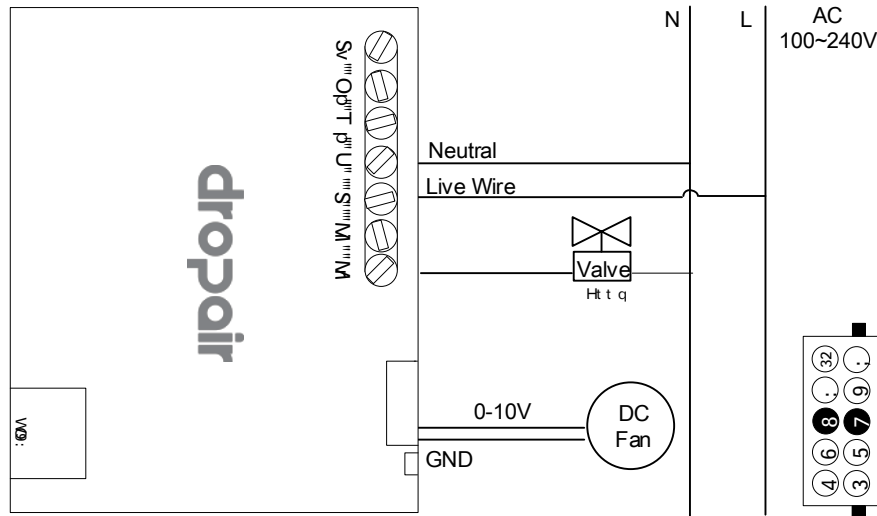
The maximum current of the valve cannot exceed 1A.

Diagram 10: Connect to AC100 ~ 220V Valve #2.



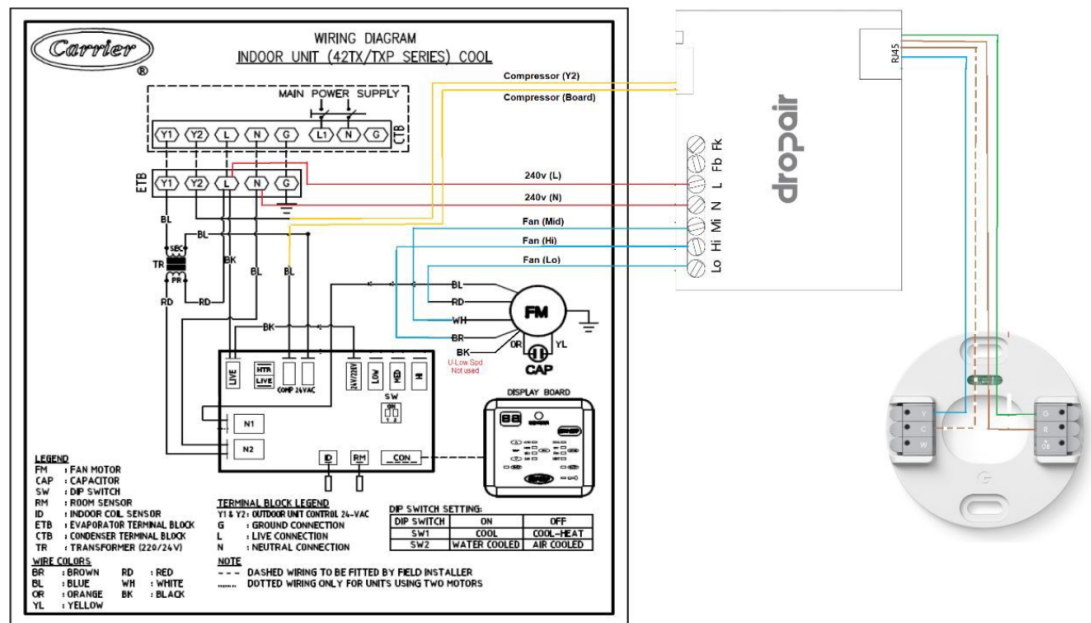
The maximum current of the valve cannot exceed 3A.

Diagram 11: Connect to DC Motor AC valve



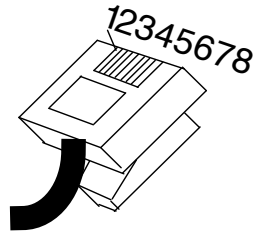
The maximum current of the valve cannot exceed 0.5A.

Diagram 11: Connect to Carrier AC



Step5 Connect to the intelligent thermostat

Connect the adapter to the AC24 smart thermostat, such as Nest Thermostat, Ecobee, and Lyric using the CAT6 cable. The RJ45 connector is 568B standard.



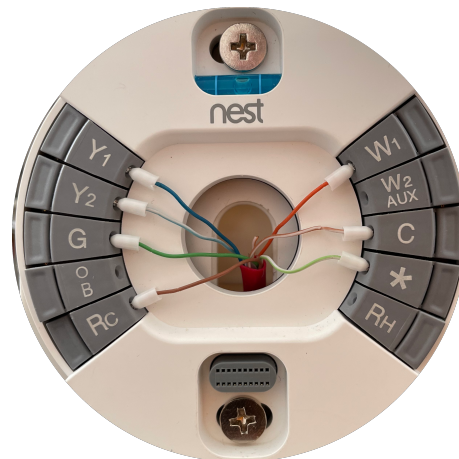
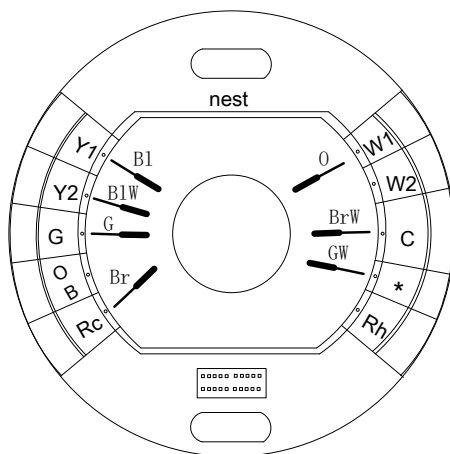
Caution: The CAT6 cable's 8 cores need to be a single wire. If it is a multi-strand wire, please use a cold-pressed terminal (0.25mm²) crimping wire.

CAT6 cable's color definition:

Color	Orange White	Orange	Green White	Blue	Blue White	Green	Brown White	Brown
Abbr.	OrW	Or	GW	Bl	BlW	G	BrW	Br
RJ45	1	2	3	4	5	6	7	8

#1.1 Nest Learning Thermostat 2nd or 3rd

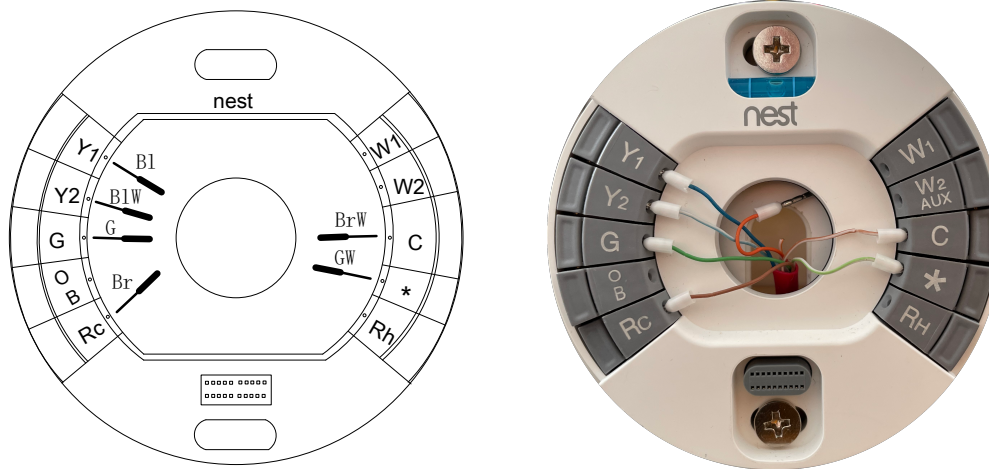
For Cool and Heat AC (Solution A: Three Fan Speed single AC, Recommend)



Set * to G3 and Y2 to G2 when the thermostat is initialized.

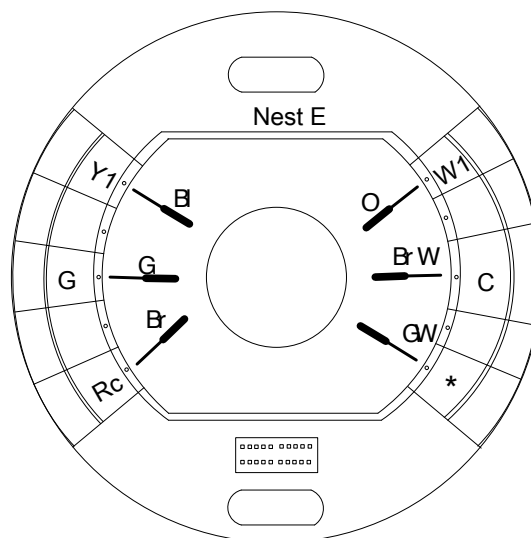
Terminal	Definition
*	G3
Y2	G2
W1	Source: Electric Delivery: Forced air

For cool only AC, W1 wire do not need to connect.



The connection method mostly is used at Middle East where the air condition does not have the heat function.

#1.2 Nest Thermostat/ Nest Thermostat E



Set * to Y2 in summer and if need to using the heating mode set * to W2 in winter to get auto two fan speed.

For cool only AC, do not need to connect the W1 wire.

For Heat only solution, you only need to connect W1, Rc and C.

Attentions

If you miss the important setting, do not worry. You can change the terminals' definitions settings from the menu path: Settings-equipment-continue-pro setup-continue.

You can check @dropairs YouTube channel for the detail operation method.

If the CAT6 cable plugged into the nest base is not single-stranded, please use cold-pressed terminals (as shown in the picture) or tin enamel. Or you will get the error like this.

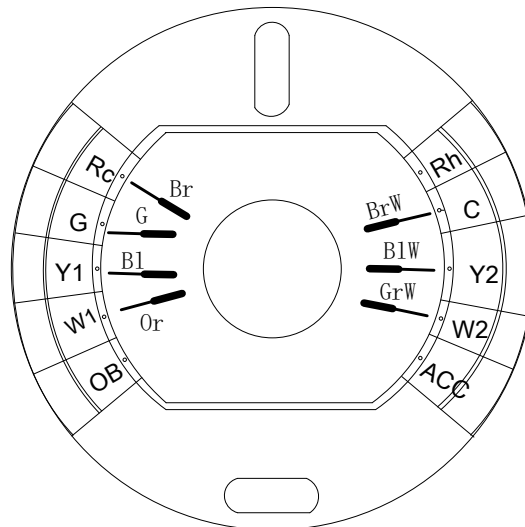


It will be better for use the single wire or cold-pressed terminals or tin enamel for multi wires.

If you cannot do that currently, you can do like this temporary.



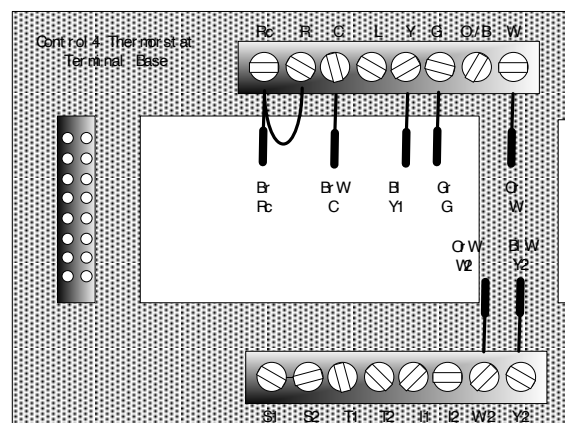
#2 Ecobee Thermostats



Terminal	Definition
W2	G3
Y2	G2
W1	Source: Electric Delivery: Forced air

#3 Other AC24 smart thermostats

The typical other ac24 smart thermostat is Lyric, Crestron CHV-TSTAT and CHV-THSATAT, Control4 Aprilaire thermostats.



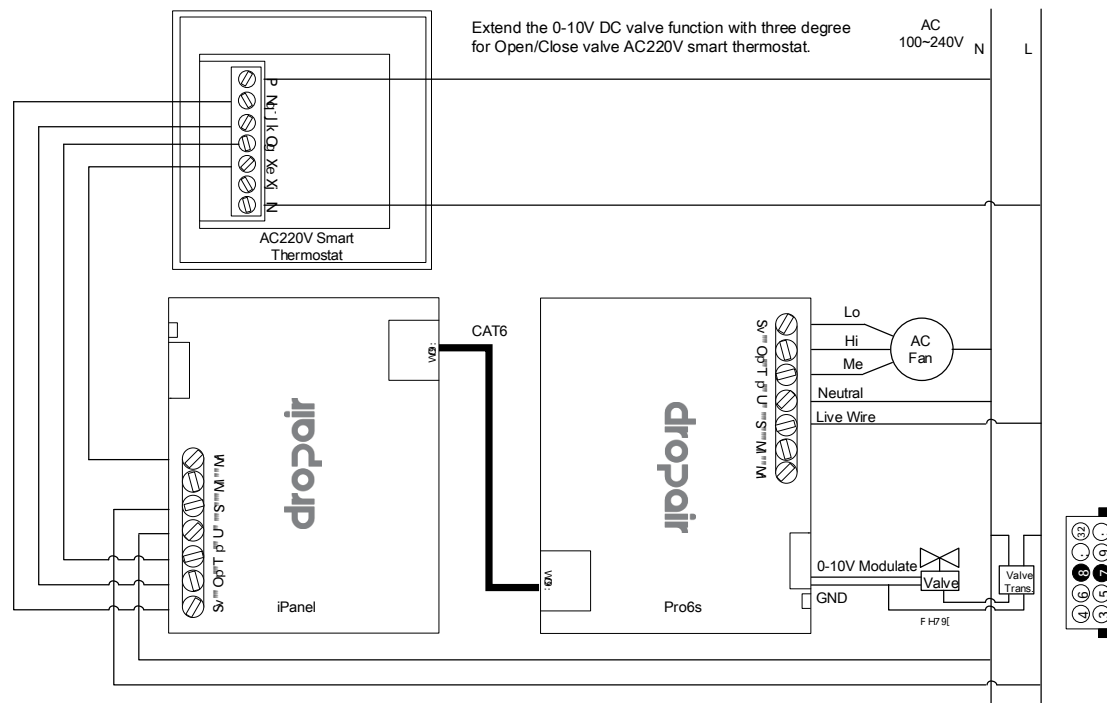
Control4 thermostat working with Dropair adapter allows two automatic fan speeds. If you only want to run at a single speed, Y2 and W2 do not need to be connected.

#4 AC220V smart thermostats

If you want to connect to the AC220V smart thermostat, such as the Tuya, Orvibo, McoHome, Heatmiser etc. You need to order the iPanel plus connect between Pro6S and the AC220V smart thermostat.

Use the CAT6 cable connecting between iPanel and the Pro6S.

Diagram:



Step6 Switch power back on

The adapter always has two normal LED indicate lights.

Red indicates AC24 power light status. If the red light does not run on, please check the power supply of the adapter.

The green led light indicates the status of the nest input signal, flashing indicates no signal input, and long light indicates signal input. If the thermostat works on cooling, fan or heating mode, the green led will light on.

Step7 Test intelligent thermostat



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Refer to the installation guide of thermostat to fix the thermostat on the wall and finish the thermostat initialization settings. If the air condition can be controlled now, Congratulation!

Trouble Shooting

If there has no AC24V output, please check if there has red indicator light. If there has no red indicator light, please check the power supply.

If the intelligent thermostat is in cooling mode, the green light is still blink, not always on, please the check wires which connect with thermostat wire base.