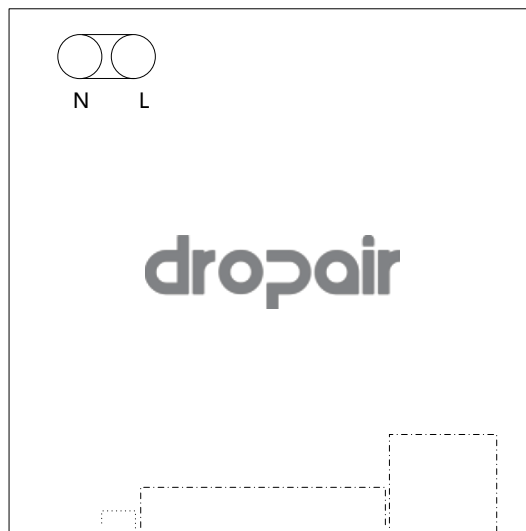


Dropair Mini6 Series Smart Thermostat Adapter Installation and Service Manual

Mini6 | Mini6S



Last updated: Jun 15, 2026

Version: V7.3.2

Important Information

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In this manual, Mitsubishi Electric is sometimes abbreviated as ME. An air conditioner is sometimes abbreviated as AC. A remote controller is abbreviated as RC. Mitsubishi Heavy Industry is abbreviated as MH. O General and Fujitsu are abbreviated as OG.

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1. General Information

1.1 Safety and Installation Notices

Read this section before installation. Incorrect installation may cause electric shock, equipment damage, or system malfunction.

1. Verify the adapter label before installation. The adapter firmware and cable set must match the target air-conditioner brand and interface. Firmware and cables are not interchangeable across all brands or models.
2. If a dedicated cable is supplied, check the cable label and confirm that it matches the target air conditioner before connection.
3. Keep the adapter and indoor unit powered off until all wiring has been completed and verified.
4. The setpoint displayed on the Nest thermostat and the original remote controller may differ. This is expected behavior caused by the Nest control algorithm and does not affect room-temperature control.
5. Test the original remote controller before installation to confirm that the air-conditioning system is operating normally.
6. Use the RJ45 connector only for a compatible 24 VAC smart thermostat. Do not connect it to Ethernet, network equipment, or unrelated devices. Incorrect connection may damage the adapter or connected equipment.
7. The adapter connects to the indoor unit through the manufacturer-supported control interface. It does not modify the air conditioner internally or bypass the original control system.
8. For warranty or service visits, restore the original remote controller and wiring configuration if required by the equipment supplier. After service has been completed, reinstall the Dropair adapter according to this manual.
9. The adapter is configured for specific air-conditioner interfaces. For compatibility confirmation, special requirements, or technical support, contact Dropair through the official support channels listed in this manual.

1.2 Product Compatibility

The Mini6 Series includes three models: Mini6 and Mini6S. Minimum Requirements - the following must be in place for the adapter to be compatible:

Brand	Installation Conditions	Connection	Adapter
LG	Indoor unit equipped with a CN-CC connector	4-wire	Mini6
LG	Equipped with 3-wire remote controller	2-wire	Mini6S
Mitsubishi Electric	Indoor unit equipped with CN90 connector	4-wire	Mini6
Mitsubishi Electric	Indoor unit equipped with CN105 connector	4-wire	Mini6S
Mitsubishi Electric	Equipped with 2-wire remote controller	2-wire	Mini6S
Daikin	Equipped with 2-wire remote controller	2-wire	Mini6S
Daikin	QATQ package series with CN-WIR	2-wire	Mini6S
Daikin	Indoor unit equipped with a CN2 connector	4-wire	Mini6
Daikin	Wall mounted series equipped with S403/S21	4-wire	Mini6S
Hitachi	Equipped with 2-wire remote controller	2-wire	Mini6S
Hitachi	Indoor unit equipped with X940/CN7 connector	4-wire	Mini6
Hisense	Equipped with 2-wire remote controller	2-wire	Mini6S
Hisense	Indoor unit equipped with X940/CN7 connector	4-wire	Mini6
York VRF	Equipped with 2-wire remote controller	2-wire	Mini6S
York	Indoor unit equipped with CN10/CN7/CN6	4-wire	Mini6
Carrier	Indoor unit equipped with CN10A /CN10/CN15	4-Wire	Mini6
Carrier	Equipped with 2-wire remote controller	2-wire	Mini6S
Midea	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
Bosch/Vaillant	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
Super General	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
Westinghouse	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
System air/Clivet	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
SKM	Indoor unit equipped with CN10	4-wire	Mini6
Cooper Hunter	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
Lennox	Indoor unit equipped with CN10A /CN10/CN15	4-wire	Mini6
Lennox	Equipped with 2-wire remote controller	2-wires	Mini6S
Trane	Equipped with CN10A /CN10/CN15/CN29	4-wire	Mini6
Trane	Equipped with 2-wire remote controller	2-wires	Mini6S
Gree	Equipped with 2-wire remote controller	2-wire	Mini6S
Samsung	Indoor unit equipped with CN501/CN500/CN91	4-wire	Mini6
Samsung	Equipped with 2-wire remote controller	2-wire	Mini6S
Toshiba	Remote controller Equipped with 11P-CN2	4-wire	Mini6

Toshiba	Equipped with 2-wire remote controller	2-wire	Mini6S
Chigo	Indoor unit equipped with a CN23 connector	4-wire	Mini6
Panasonic	Equipped with 2-wire remote controller	2-wire	Mini6S
Panasonic	Series with CN10A/CN10/CN15/CN-DISP	4-wire	Mini6
Mitsubishi Heavy	Equipped with 2-wire remote controller	2-wire	Mini6S
Haier	Equipped with 2-wire remote controller	2-wire	Mini6S
O General/Fujitsu	Wall Mounted type with CN6	4-wire	Mini6S
O General/Fujitsu	Equipped with 3-wire remote controller	2-wire	Mini6S
O General/Fujitsu	Series with CN13, CN18, CN48	4-wire	Mini6

Some less common brands are not listed in this manual but may still be supported. Contact Dropair support to confirm compatibility before installation.

Thermostat Type	Brand
24 VAC Thermostat	Nest Learning Thermostat, Ecobee, Honeywell Lyric, Control4 Aprilaire thermostat, Tuya, McoHome, Moorgen, HDL, Aqara
220 VAC Thermostat	Heatmiser, Tuya, Orvibo, need to add iPanel between adapter and the thermostat
RS485 Thermostat	Lutron Palladiom

Product requirement:

- Smart Thermostat
- Dropair adapter
- An air conditioner that can be controlled by a Dropair adapter

Connections

- 100~240 VAC Power supply Connection by L and N
- 568B RJ45 connector connects between the adapter and the smart thermostat. An RJ45 connector is required only on the adapter side.
- Connection between the air conditioner and the adapter. If cable is needed, it will be offered.

Product Compatibility Check

Use the following checklist to confirm whether the air conditioner can be controlled by a Dropair adapter.

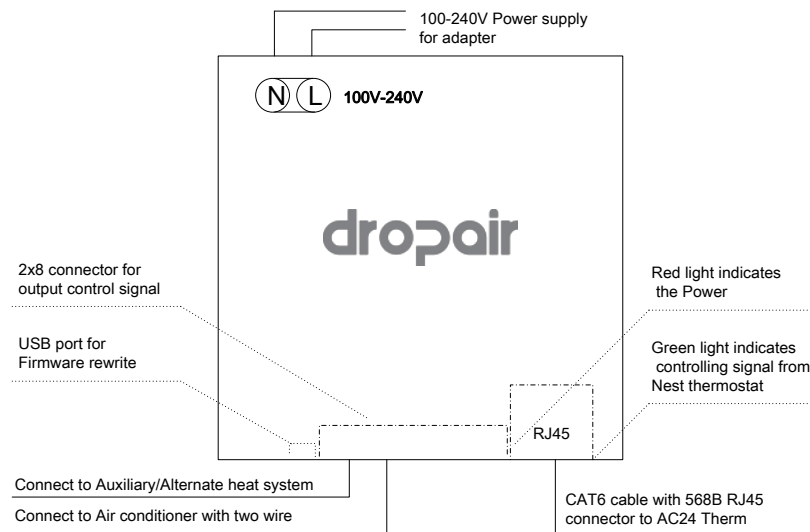
1. Identify the system type. If the indoor unit is controlled by a 100-240 V thermostat, it is typically a chilled-water system and requires a Dropair Pro Series adapter. If the indoor unit is controlled by a 2- to 4-wire low-voltage DC controller, it is typically a refrigerant system and requires further compatibility confirmation.
2. For refrigerant systems, confirm the brand, indoor-unit model, and available control interface before selecting the adapter.
3. After compatibility is confirmed, check whether the original remote-controller cable can be replaced with a CAT6/CAT5 cable. If it cannot be replaced, use the Primary/Secondary Adapter solution.
4. Confirm that a suitable power supply can be provided for the adapter.
5. If compatibility is uncertain, send Dropair the original remote-controller photo, wiring diagram, indoor-unit model number, and PCB photos for confirmation.

2 Technical Specifications

2.1 Mini6 / Mini6S Specifications

Part Number	Mini6/Mini6S	Rated Input	100-240V, 50/60Hz
Item Weight	52g	Rated Output	24 VACV, 60Hz, 2.4VA, 0.1A Max
Product Dimensions L x W x H	54x54 x 24.5 mm	Indicator color	Red, Green, Blue
Color	White	Type of Bulb	LED
Material	ABS+PC FR3010	No-load Power Consumption	1.8W
Shape	Cuboids	Warranty	2-year limited warranty

2.2 Mini6 Series Interfaces

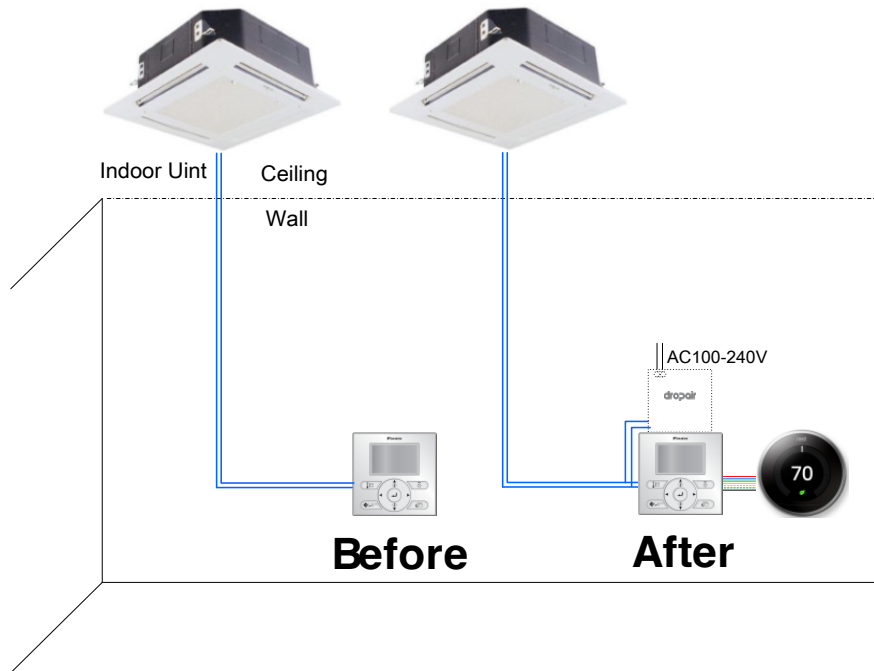


Mini6 and Mini6S differ mainly in LED placement. On Mini6S, the red and green LEDs are located beside the RJ45 port. On Mini6, the LEDs are located beside the USB port.

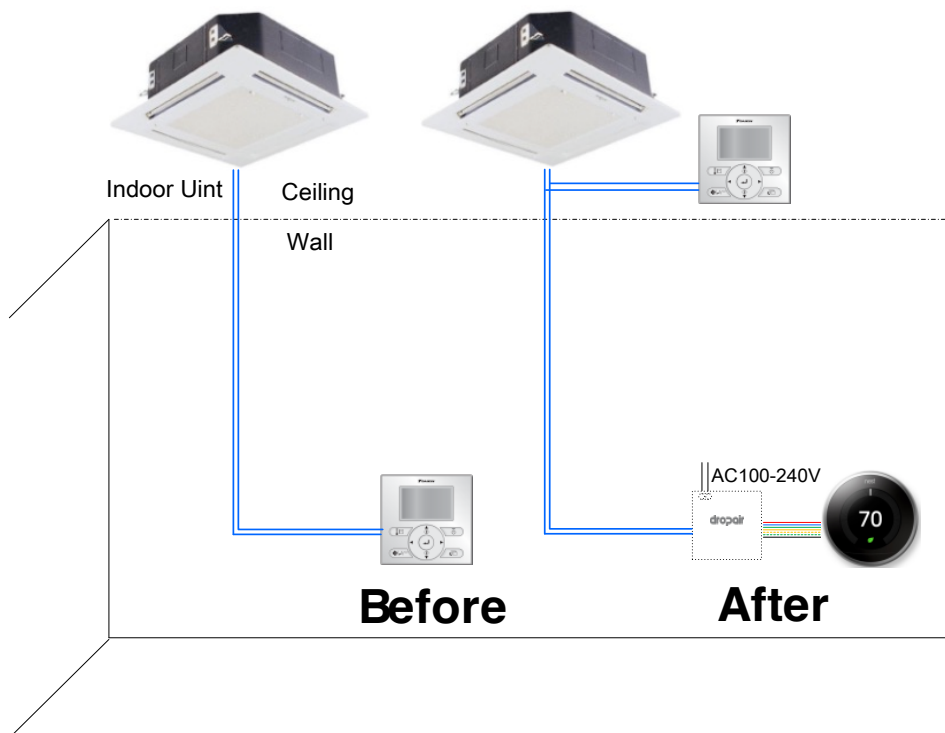
3 Installation and Setup

3.1 Installation Scenarios

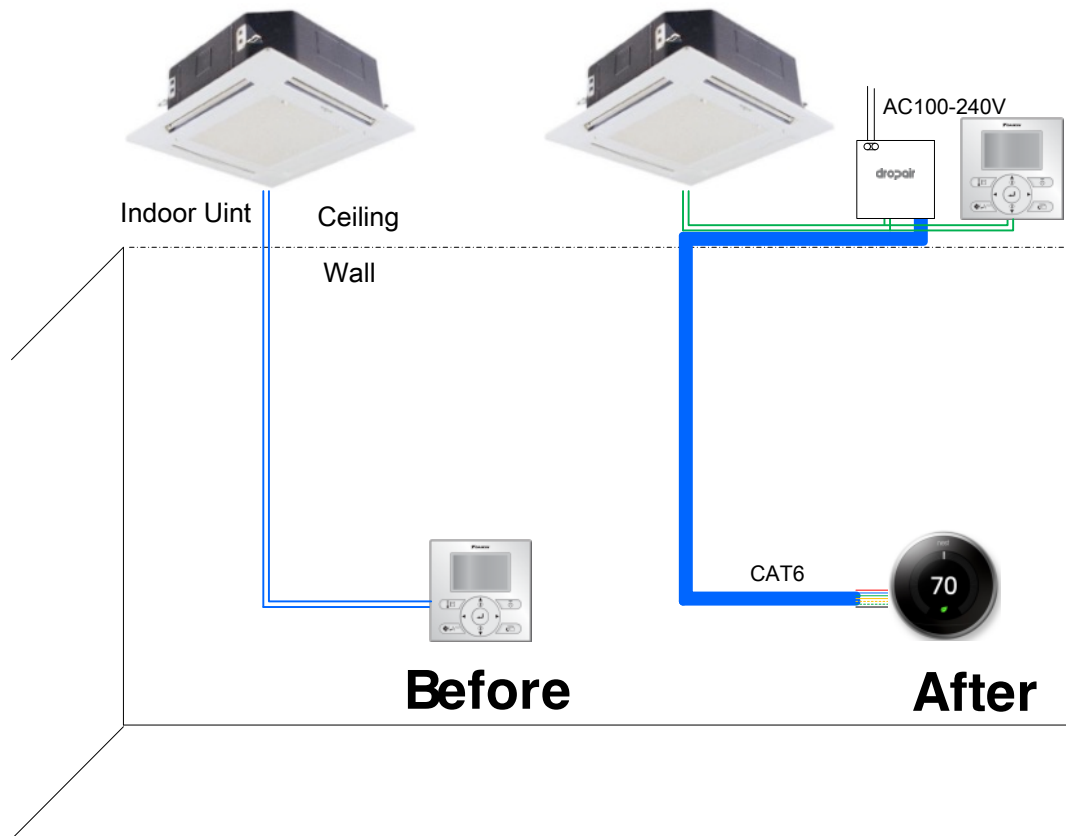
When power is available near the smart thermostat, the adapter may be installed behind or near the thermostat for a clean wall-mounted installation.



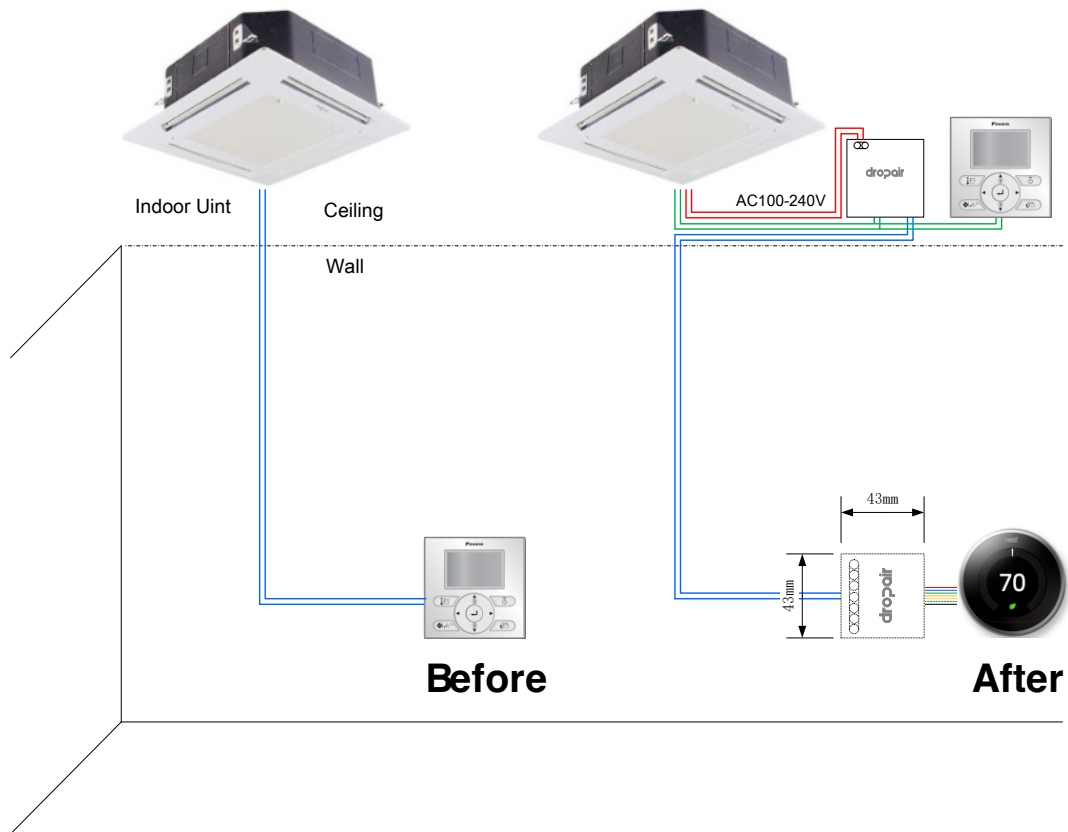
For a cleaner appearance, the original remote controller may be relocated to the ceiling or service space, leaving only the smart thermostat visible on the wall. The adapter can be installed behind or beside the smart thermostat.



If the indoor-unit communication cable can be replaced with CAT6/CAT5 cable, the original remote controller can be hidden in the ceiling or service space. This is the recommended installation method for most projects.



If the cable cannot be replaced and power is not available near the smart thermostat, use the Primary/Secondary Adapter solution. This method is intended for difficult retrofit conditions.



3.2 Installation Overview

A standard Dropair adapter installation follows the steps below. Detailed instructions are provided in the following sections.

1. Confirm compatibility.
2. Test the air conditioner with the original remote controller.
3. Turn off the power to the indoor unit.
4. Wire the power cable to the adapter.
5. Connect to the indoor unit.
6. Connect to the smart thermostat.
7. Switch the power back on.
8. Test the adapter and smart thermostat.

3.3 Installation Process

3.3.1 Tools and Materials

Prepare the following tools and accessories before installation:

1. Screwdriver suitable for terminal wiring.

2. Two-core power-supply cable for the adapter.

3. CAT6/CAT5 cable for connection between the adapter and the smart thermostat. Terminate one end with an RJ45 connector. For Nest installations, use solid-core cable where possible.

3.3.2 Step 1 - Confirm Product Compatibility

See page 3 for details.

3.3.3 Step 2 - Test the Existing Remote Controller

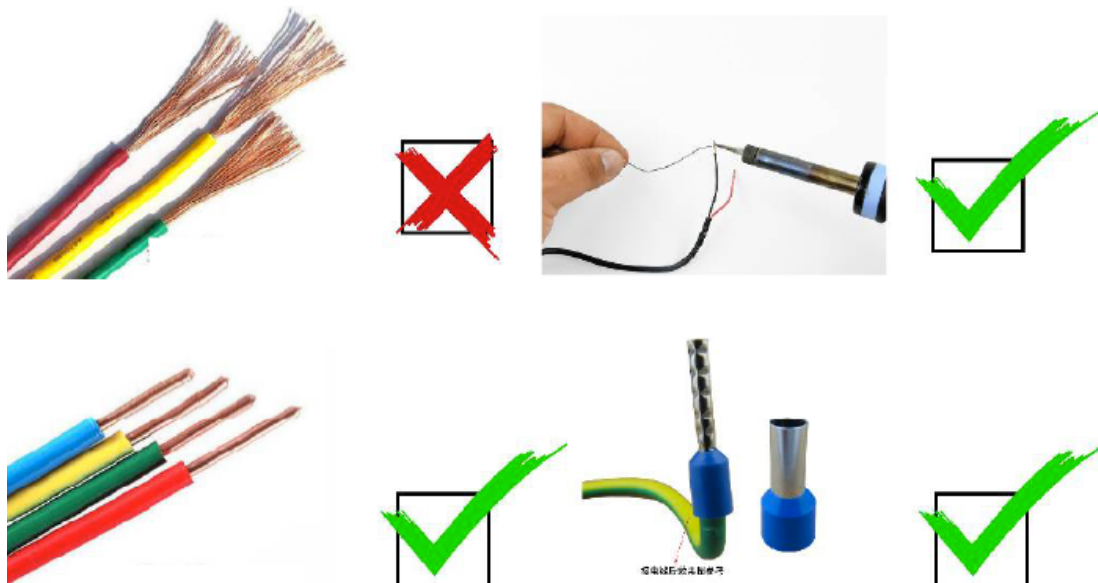
Turn on the original remote controller and confirm that the air-conditioning system operates normally. Do not skip this step.

3.3.4 Step 3 - Turn Off Power to the Indoor Unit

Locate the electrical panel and identify the breaker supplying the indoor unit. Turn off the breaker before wiring. If the correct circuit cannot be identified, turn off the main breaker only after obtaining permission from the customer. Confirm that power is off by attempting to activate the original remote controller.

3.3.5 Step 4 - Connect Power to the Adapter

Connect the power cable to the L and N 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 the tubular terminal, as shown in the following figure. When you screw, the torque must not exceed 0.4 N.m.



The adapter includes an internal 24 VAC power supply for compatible smart thermostats. In Nest installations, taking adapter power from the indoor unit may cause EMC interference in some cases. If the Nest thermostat fails to output a control signal and cannot start the air conditioner, use an additional transformer or an alternative power source as described in the EMC section.

Avoid taking adapter power directly from the indoor unit when possible. Larger-capacity systems may produce stronger EMC noise. For best stability, power the adapter from a separate branch circuit such as a lighting or outlet circuit.

For EMC diagnosis and mitigation, refer to the EMC Interference section.

3.3.6 Step 5 - Connect to the HVAC Equipment

Remote Controller

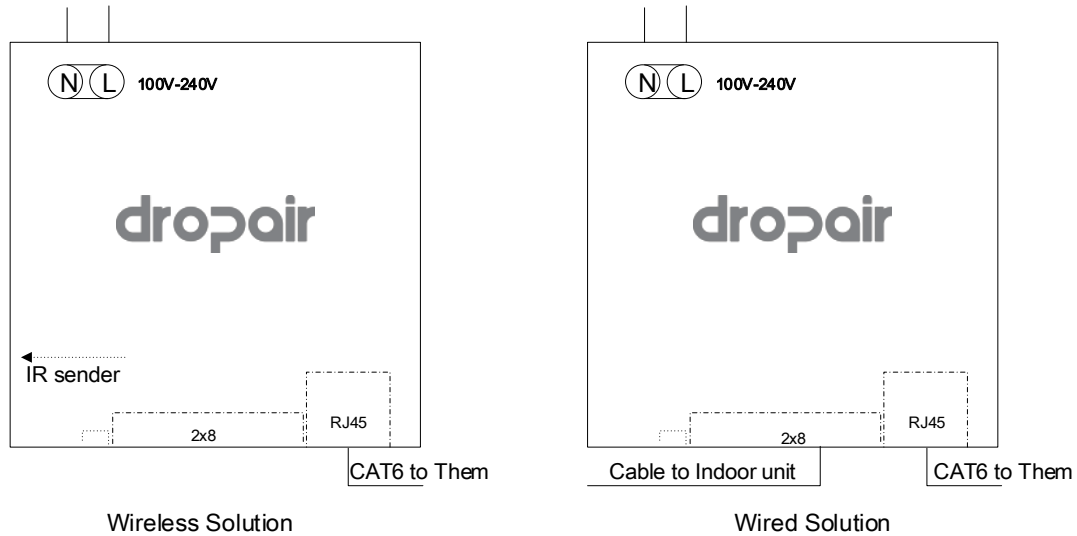
If the indoor unit has an original remote controller, do not remove it unless the wiring diagram specifically requires removal, because the adapter uses the same PCB connector. Follow the applicable wiring diagram exactly.

The adapter synchronizes the smart-thermostat state to the original remote controller. If the original remote controller is changed manually, it will return to the smart-thermostat state. The indoor unit, therefore follows the smart thermostat.

If the original remote controller should not remain visible on the wall, it may be relocated to the ceiling or another service space. After the smart thermostat is connected, the original remote controller functions as an actuator and status monitor. It can still display indoor-unit operating status and fault codes while maintaining the original closed-loop control architecture.

Wired and IR Solutions

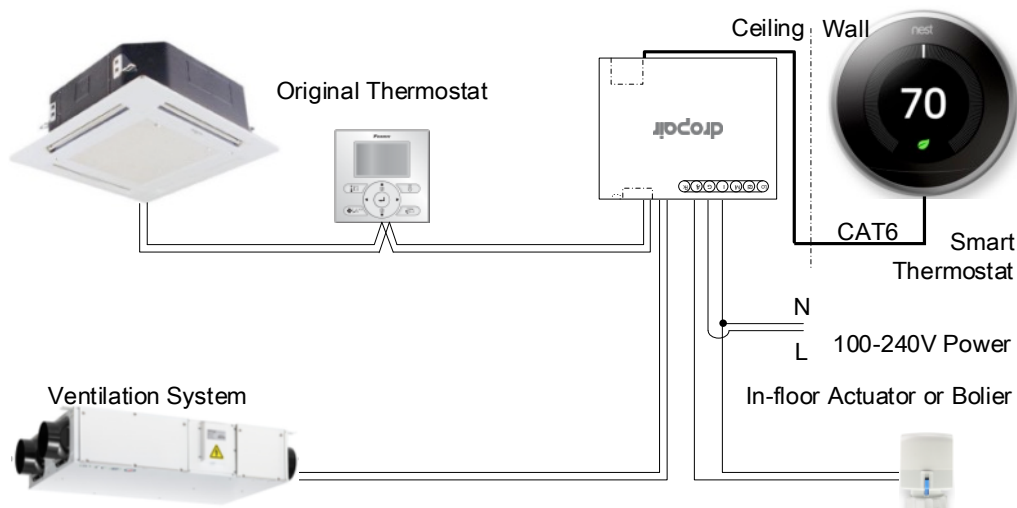
Two connection methods are available: wired connection and IR control. Use the wired connection whenever site conditions allow.



The Mini6 IR transmitter is located behind the red-dot area of the housing. For IR control, position the transmitter side facing the receiver window of the original remote controller within 5 cm. Keep the path between the transmitter and receiver unobstructed.

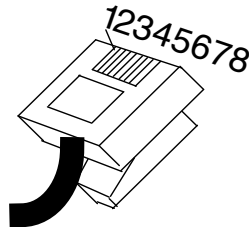
All-in-One Multi-System Control

In addition to air conditioners, the Dropair adapter can also control ventilation, floor-heating actuators, or boilers in selected system configurations. For multi-equipment projects, contact Dropair for a dedicated installation guide.



3.3.7 Step 6 - Connect to the Smart Thermostat

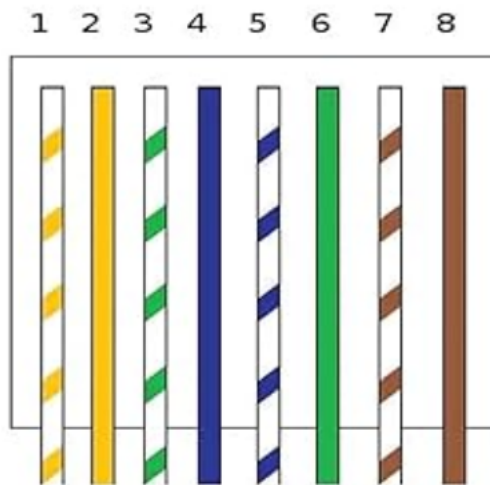
Connect the adapter to a compatible 24 VAC smart thermostat, such as Nest, Ecobee, or Honeywell Lyric, using CAT6/CAT5 cable. Terminate the RJ45 connector according to the T568B standard.



Caution: Use solid-core conductors for all eight CAT6/CAT5 cores. If stranded conductors are used, crimp 0.25 mm² ferrules before termination.

CAT6/CAT5 color definition:

RJ45 Connector



T-568B

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

3.3.8 Step 7 - Switch Power Back On

The adapter has two standard LED indicators.

Red LED: 24 VAC power status. If the red LED is off, check the adapter power supply. If the red LED is blinking, power off the adapter; the power module may be damaged, and the adapter may need replacement.

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

Some adapters with wired connections have blue indicators. It indicates the indoor unit's working state.

3.3.9 Step 8 - Test adapter and smart thermostat

When the adapter is supplied with power, the red light will be on, and the green light will blink. If it is the wired connection, connect the cable to the PCB or the original remote controller. Before connecting the RJ45 connector, you can manually turn on the original remote controller. If there is no problem, the original remote controller will be turned off after a few seconds. It means the adapter can properly communicate with the indoor unit. The Gree air conditioner cannot use this testing method. It must use the smart thermostat to test.

Refer to the installation guide for a thermostat to fix the thermostat on the wall and finish the thermostat initialization settings. If the air conditioner can be controlled now, Congratulations!

When using a Nest Learning Thermostat, test low, medium, and high fan speeds. If any fan speed does not work, check the RJ45 termination and CAT6/CAT5 cable. Re-terminate the connector or replace the cable if necessary.

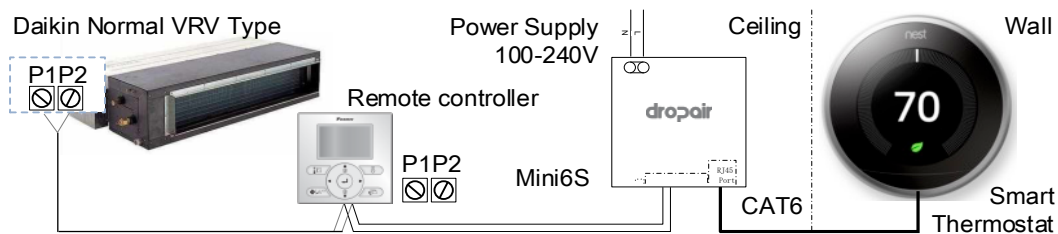
4 Air-Conditioner Wiring Diagrams

4.1 Daikin

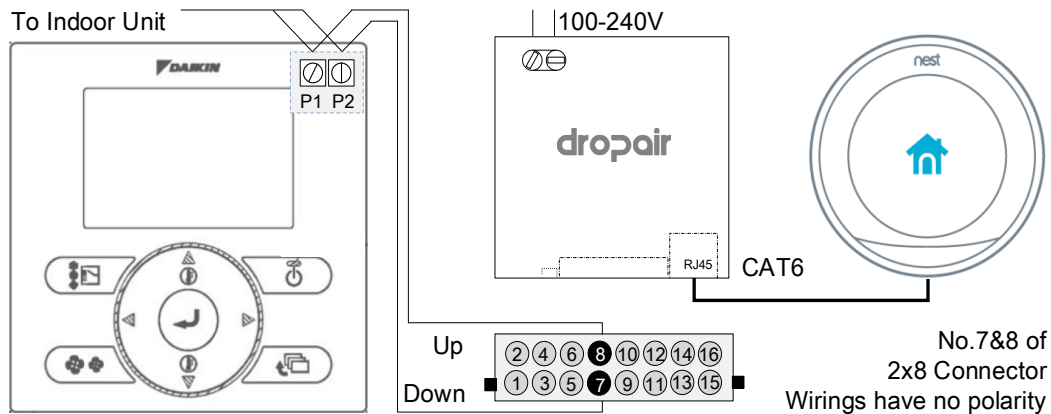
Dropair adapters support most Daikin air-conditioner models. Select the applicable wiring solution according to the indoor-unit model and control interface.

4.1.1 DK-P1P2 solution with RC

If the indoor unit uses the 2-wire remote controller through P1 and P2 terminals, this solution can be used.

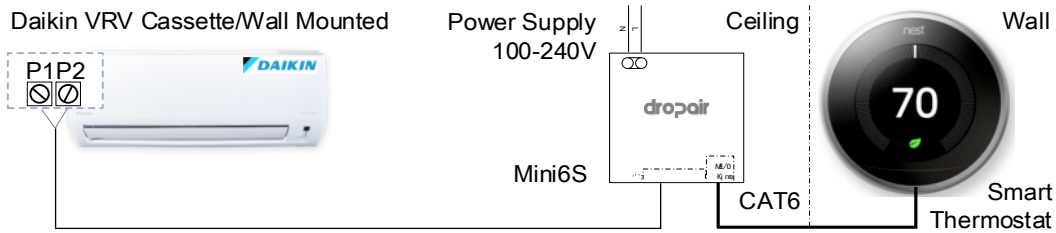


The cable coming from the No.7 and No.8 ports of the adapter is connected to the P1 and P2 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



4.1.2 DK-P1P2 solution without RC

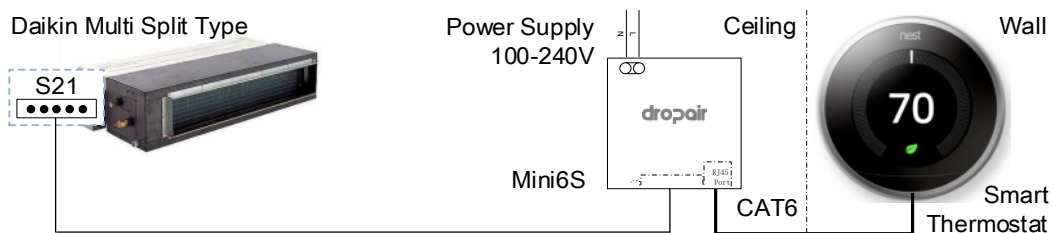
Some Daikin indoor units do not have wired remote controllers, such as wall-mounted and cassette types. These types of indoor units sometimes only use wireless remote controllers. If there are P1 and P2 connectors on the indoor unit, this solution can be used.



4.1.3 DK-S21 solution for multi-split types

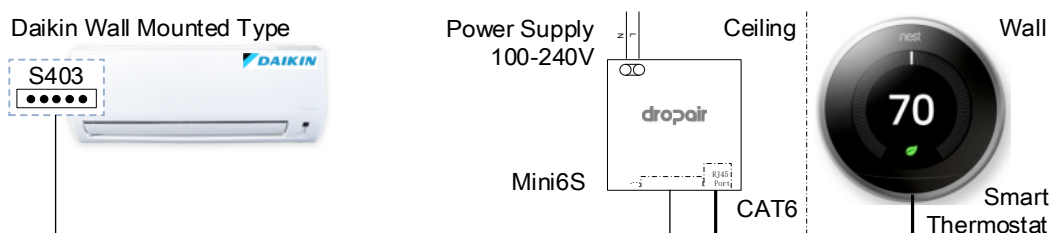
The indoor units' models are CTX, FDX, FVX, FFQ FTX series, etc. The remote controller connects with a 4-wire cable to the indoor unit. The model will be such as BRC944C1.

This solution is connected to the S21 socket of the indoor unit PCB board which the wired remote controller was used before. So, the Daikin remote controller needs to be moved.



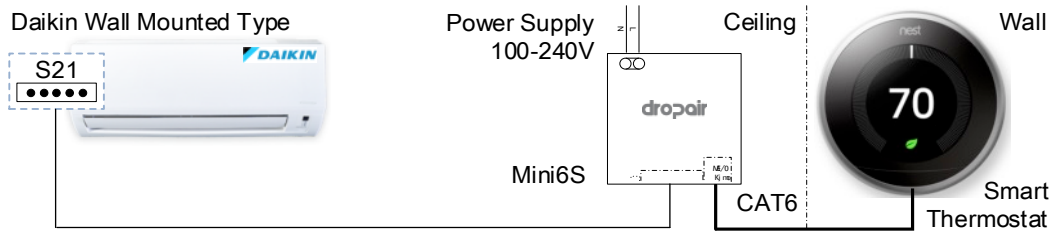
4.1.4 DK-S403 solution for split wall-mounted types

For the split wall-mounted types of indoor units, if there are no P1 and P2 connectors, no wired remote controller. However, the S403 socket will be found on the indoor unit PCB board. For these wall-mounted split Daikin models, this solution can be used.



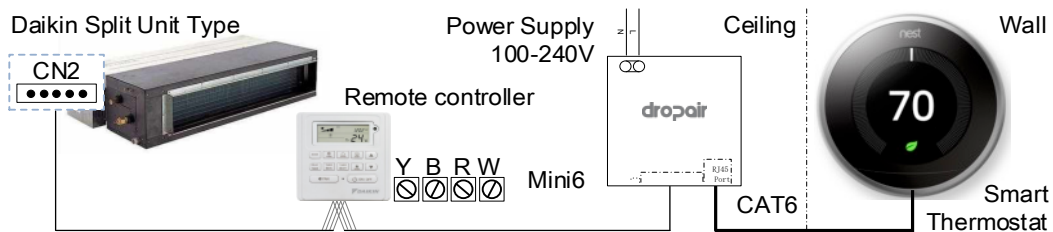
4.1.5 DK-S21 solution for split wall-mounted types

For the split wall-mounted types of indoor units, if there are no P1 and P2 connectors or wired remote controllers, the S21 socket can be found on the PCB board. For these wall-mounted split Daikin models, this solution can be used.

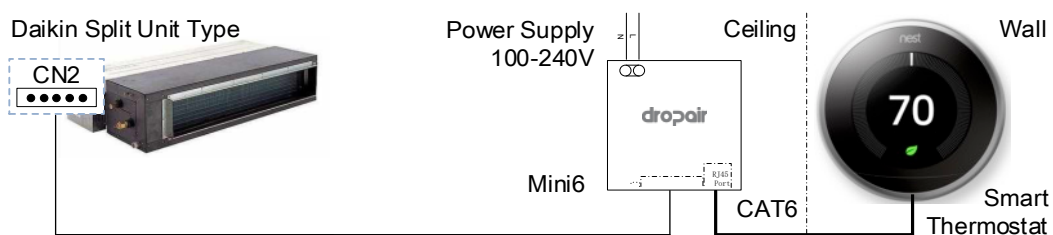


4.1.6 DK-CN2 solution for split unit types

The indoor units' models will be FDMRN, FDM, FDYM, FDB, and FDYB series etc. The remote controllers' models will be BRC51A, BRC51B, BRC51C, and BRC51D66. This solution can be used. There is a 4-wire cable from the indoor unit to the remote controller. The adapter connects with the 4-pin blue connector of the remote controller by the supplied cable.



For the thermostat of BRC51C, the control cable of the indoor unit is also connected to the same blue terminal, and the adapter's cable will be connected in parallel with the original cable. Or you can remove the remote controller and connect the adapter's supplied cable to the indoor unit's cable directly.

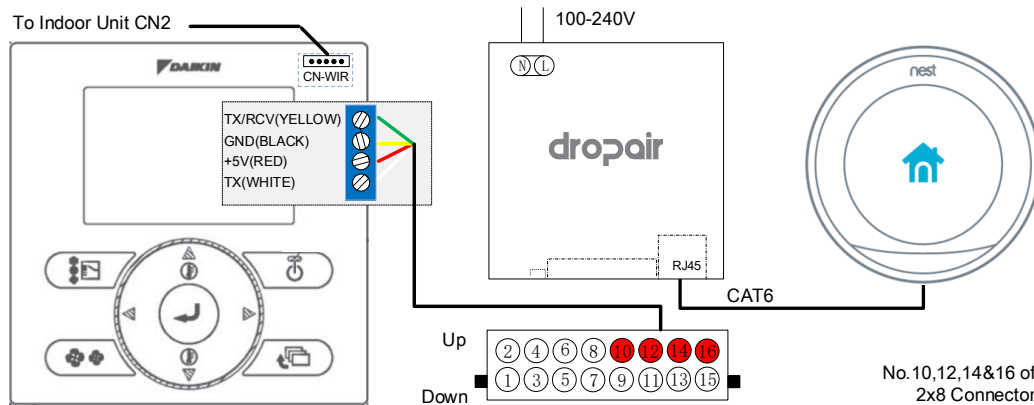


Please connect the wires of the corresponding colors to the corresponding terminals according to the table below.

Terminals of Daikin RC	Wires of the adapter	Wires of the adapter
	Gray cable	black cable
YELLOW	Green	Yellow

BLACK	Yellow	Black
RED	Red	Red
WHITE	White	White

The cables coming from No.10, 12, 14, and 16 ports of the adapter are connected to the blue terminals of the remote controller.

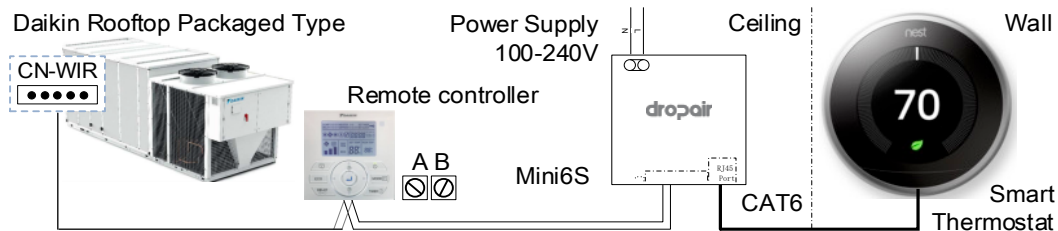


Note:

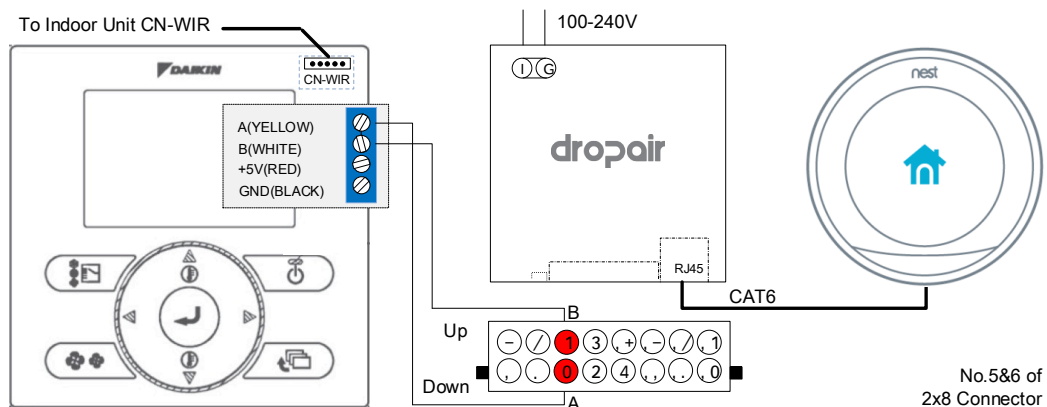
1. When the adapter has been connected and powered on, the remote controller's state will not change anymore. Just check the state of the indoor unit
2. Because of the compressor protection function, after the smart thermostat starts cooling, it will start the fan first, and the compressor may have a delay. The longest time may be about 4 minutes. This is a normal phenomenon.

4.1.7 DK-CNWIR solution for rooftop packaged types

Daikin UATQ rooftop packaged series can use this solution. There have 4-wire cable from the packaged unit to the wired remote controller. The wired remote controller model may be BRC51D65. Dropair Mini6S adapter can be used for this type. Typical models include UATQ-CGXY1, UATQ60C, UATQ90C, UATQ120C, UATQ150C, UATQ180C, UATQ240C, and UATQ300C.



The blue terminal has 4 connectors, the Dropair adapter only needs to connect to A and B. The order of the AB wires cannot be reversed.



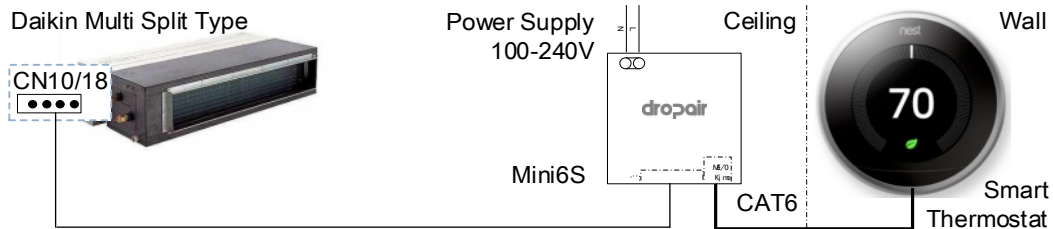
Note:

1. The indoor unit On/Off, mode, and fan speed state still cannot sync when the adapter begins to control the indoor unit. Only the compressor On/Off state will sync to the remote controller.
2. Because of the compressor protection function, after the smart thermostat starts cooling, it will start the fan first, and the compressor may have a delay. The longest time may be around 4 minutes. This is a normal phenomenon.

4.1.8 DK-INA solution for India types

This solution is connected to the CN10 or CN18 socket of the indoor unit PCB board which the wired

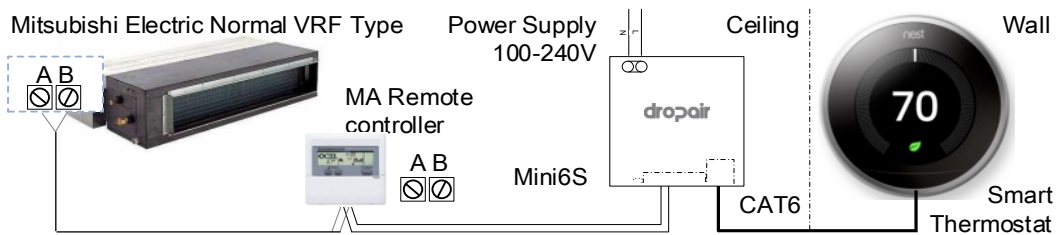
remote controller was used before. So the Daikin remote controller needs to be moved before connecting to the adapter.



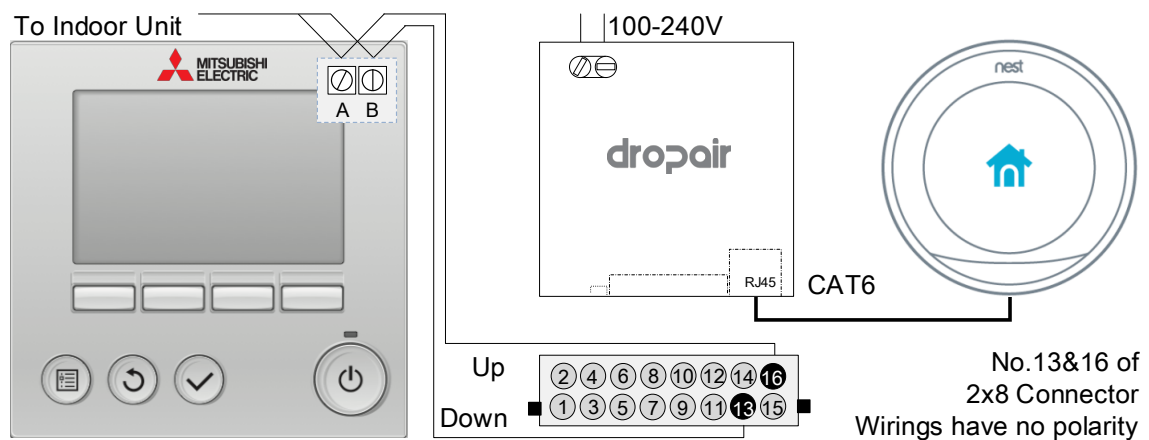
4.2 Mitsubishi Electric

4.2.1 ME-AB solution with MA RC

Almost all the Mitsubishi Electric air conditioners that relate to a wired MA remote controller can use this solution.

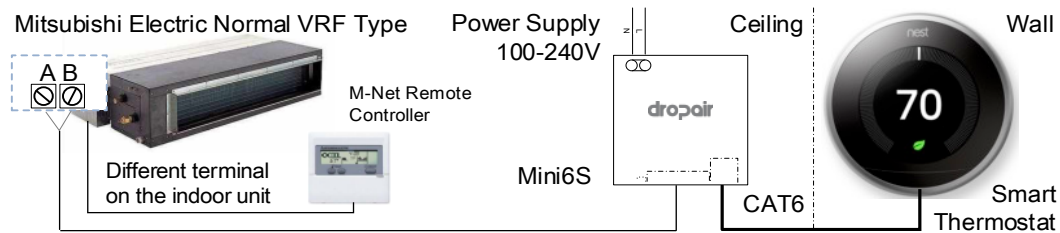


The cable coming from the No.13 and No.16 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



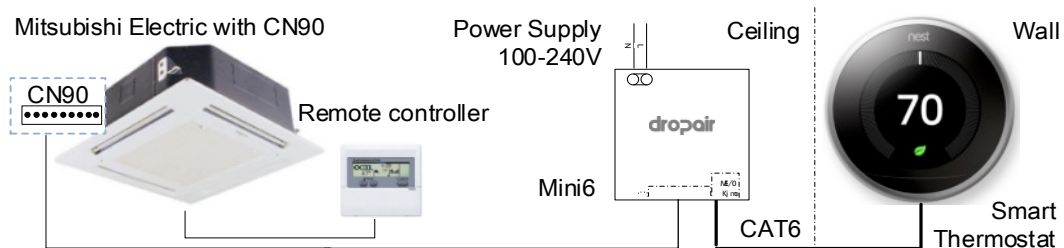
4.2.2 ME-AB solution with M-NET RC

If the indoor unit uses the PAR-F27MEA/PAR-F25MEA etc. Network (M-NET) remote controller, the solution should be used. The two communication wires cannot connect directly with the Mitsubishi remote controller. They need to be connected to the A and B remote controller terminals of the indoor unit.



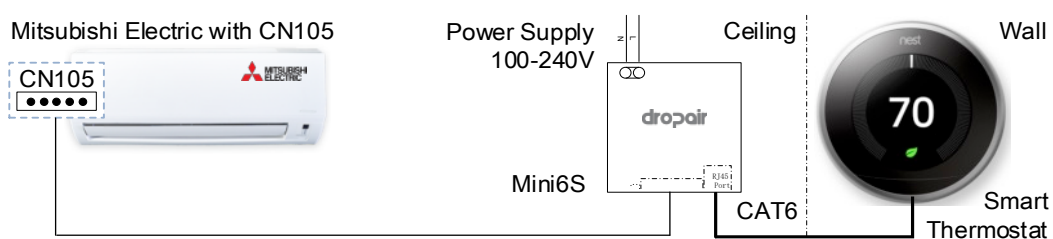
4.2.3 ME-CN90 solution

If there is a CN90 socket on the indoor unit PCB board, the solution can be used. Typical models include PE-GAK, PEFY, PFFY, PLEF, PEY, PEV, PEA, PLY, PLV, PCA, PCY, PKA, MLZ, MEXZ, PEAD etc.



4.2.4 ME-CN105 solution

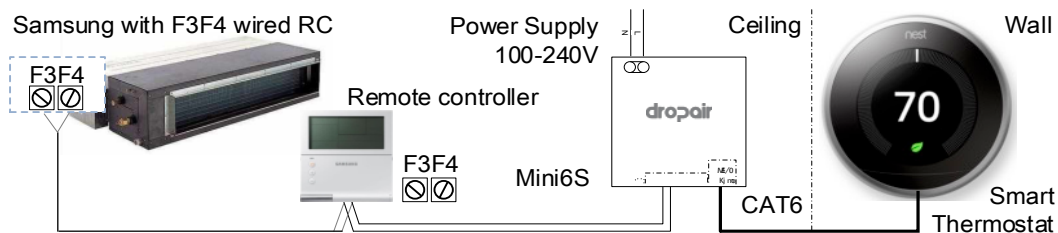
If there is a CN105 socket on the indoor unit PCB board, the solution can be used. It is used for wall-mounted indoor units usually.



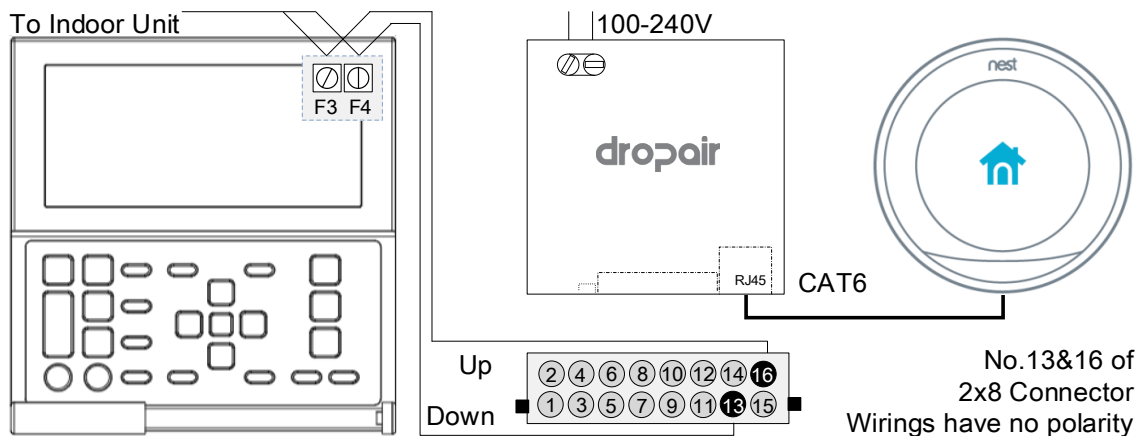
4.3 Samsung

4.3.1 SS-F3F4 solution with RC

The Samsung air conditioner which relates to a 2-wire remote controller by F3 and F4 terminals can use this solution. The indoor unit with a 4-wire remote controller which uses the V1, V2, F1, and F2 cannot use this solution.

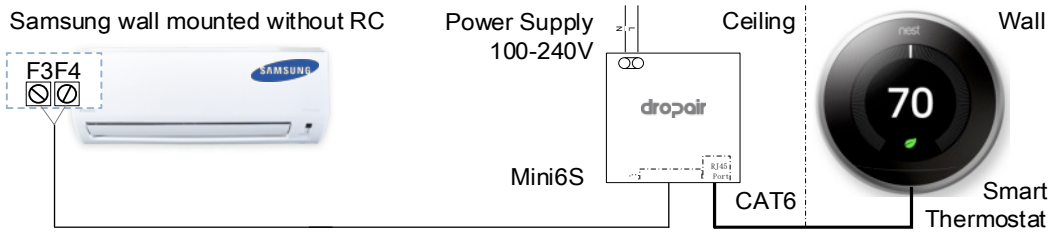


The cable coming from the No.13 and No.16 ports of the adapter is connected to the F3 and F4 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



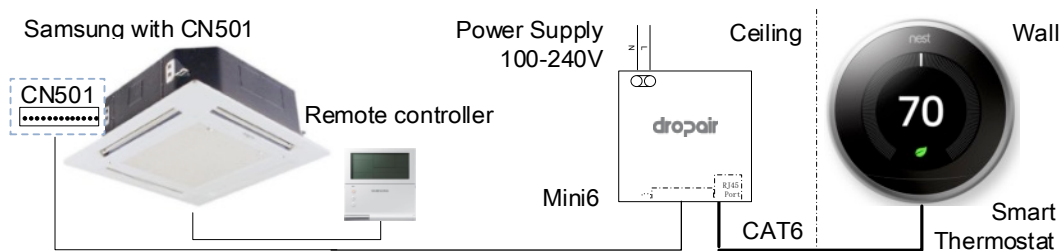
4.3.2 SS-F3F4 solution without RC

This solution can also be used for the air conditioner which has the F3 and F4 terminals but does not have the wired remote controller. These Cassette or Wall mounted types of indoor units only use the wireless remote controller usually before.



4.3.3 SS-CN501 solution

If there is a CN501 socket on the indoor unit PCB board, the solution can be used.

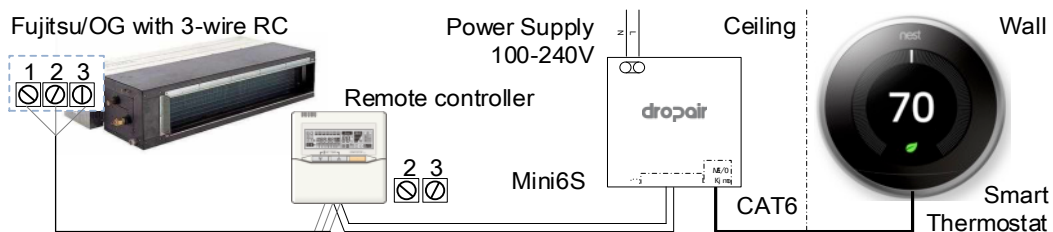


4.4 Fujitsu/O General

In this manual, O General is sometimes abbreviated as OG. The Fujitsu is the same as OG. Sometimes only OG has been mentioned.

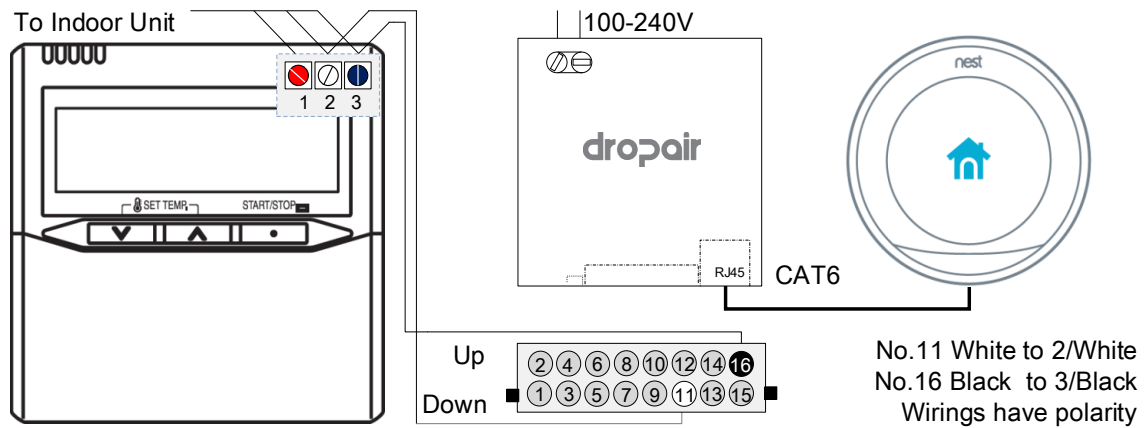
4.4.1 OG-BW solution

Almost all the FUJITSU/OG air conditioners that support a 3-wire remote controller can use this solution.



The original remote controller connects with the indoor unit as usual with Red, White, and Black 3 wires.

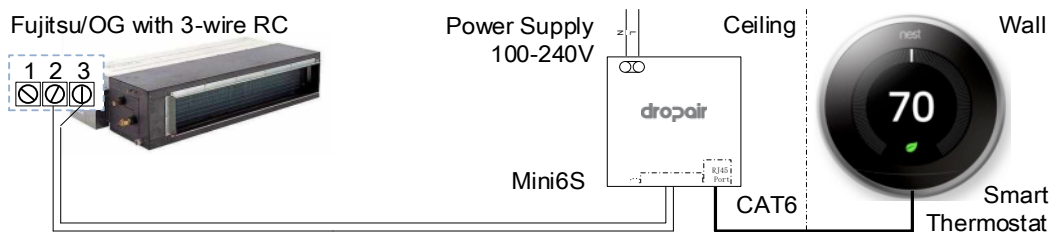
The adapter's white wire connects with the white one, black wire connects with the black one. For this model, although the remote controller can be removed, but suggest you keep the remote controller.



Warning: Please double-check the connection before powering on. If the wires have been connected reversely, or the adapter's black wire connects to the remote controller's red wire, the adapter will be damaged.

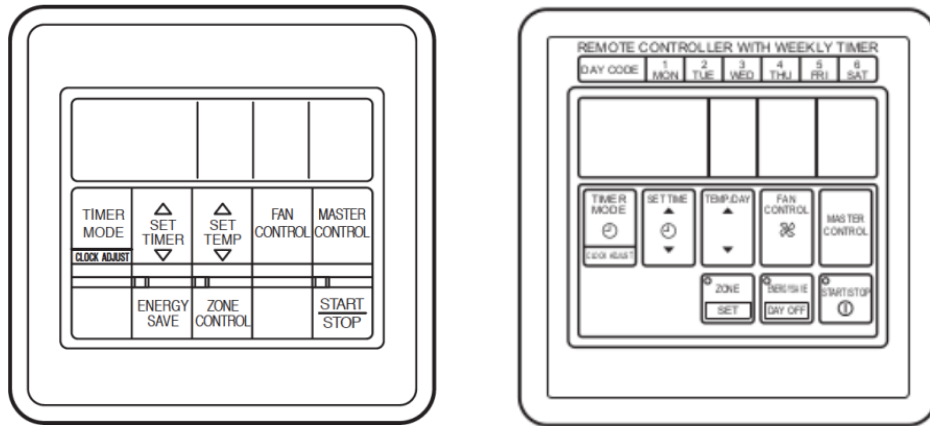
The remote controller's three terminals are marked as 1, 2, and 3. Terminal 1 connects the red wire, Terminal 2 connects the white wire, and Terminal 3 connects the black wire.

In some situations, the adapter and the indoor unit need to be connected in this way. The remote controller must be removed. Or the indoor unit does not have a remote controller.



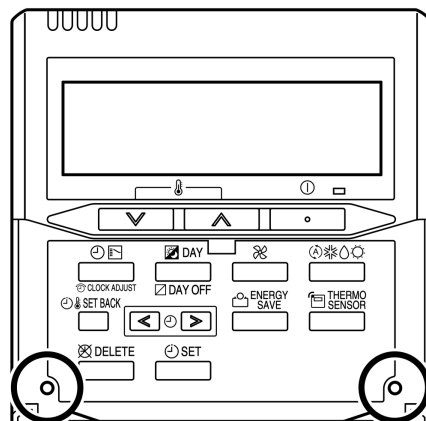
Situation 1:

If the indoor unit uses the EZ series wired remote controller which is like figure below, the original remote controller needs to be removed:

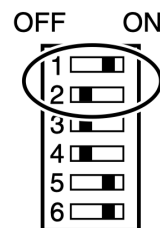


Situation 2:

If the indoor unit uses the EZ series wired remote controller which is like the figure below (There are two missing buttons in the lower right corner), the original remote controller's DIP Switch needs to keep the 1 and 2 to OFF. You can connect the adapter without the original remote controller.



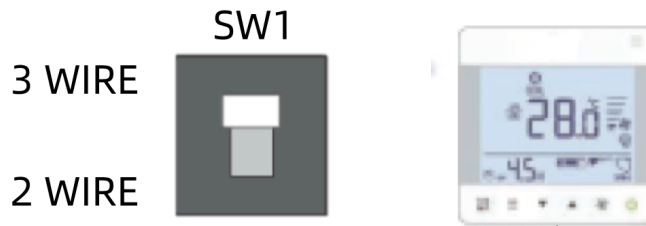
Remote controller



DIP Switch

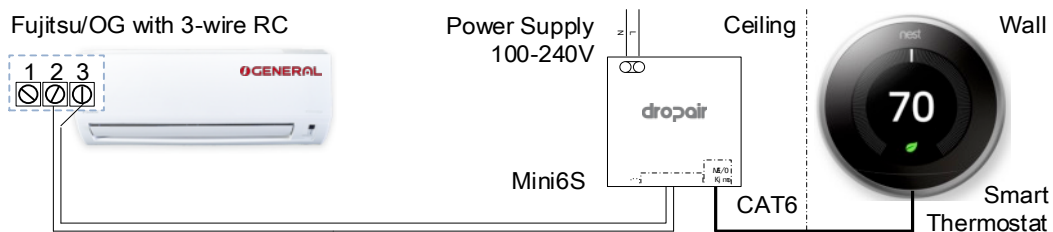
Situation 3:

The OG-BW solution is only compatible with 3-wire protocol indoor units equipped with a 3-wire remote controller. If the indoor unit connects the remote controller with 2 wires, the indoor unit has three red, white, and black wires connected to the terminal. The original remote controller needs to be removed, and the SW1 switch needs to be changed to 3 WIRES. The 2 wires remote controller looks like below. If there isn't the SW1, the solution cannot be used. You can check if there is a CN48 socket on the board.



Situation 4:

Some types of indoor units do not have remote controllers such as the cassette and wall-mounted types, but there is the RWB communication terminal. These types can use this solution.

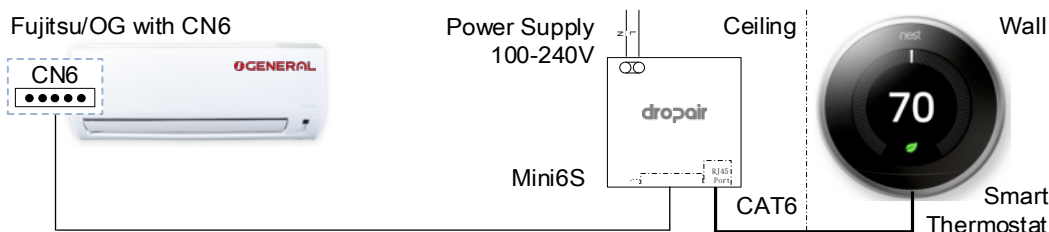


The typical model of the wall-mounted indoor unit which can use this solution is:

ASGA18FUTA-U, ASGA24FUTA-U, ASGA30FUTA-U, ASGA36FUTA-U, ASGA18FUTB-U, ASGA24FUTB-U, ASGA30FETA-U, ASGA36FETA-U, ASGU18FMTB-U, ASGU24FMTB-U.

4.4.2 OG-CN6 solution

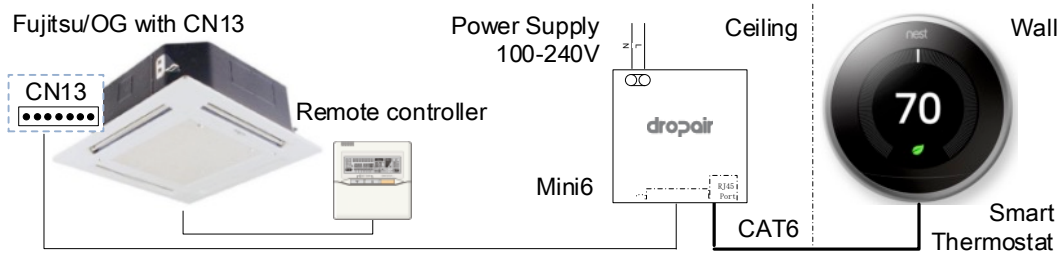
If there is a CN6 socket in the split wall mounted on the indoor unit PCB board, the solution can be used.



The cable that is connecting to CN6 will be offered with a Mini6S adapter. The cable is a 4-wire cable.

4.4.3 OG-CN13 solution

If there is a CN13/CN18 socket on the indoor unit PCB board, the solution can be used.

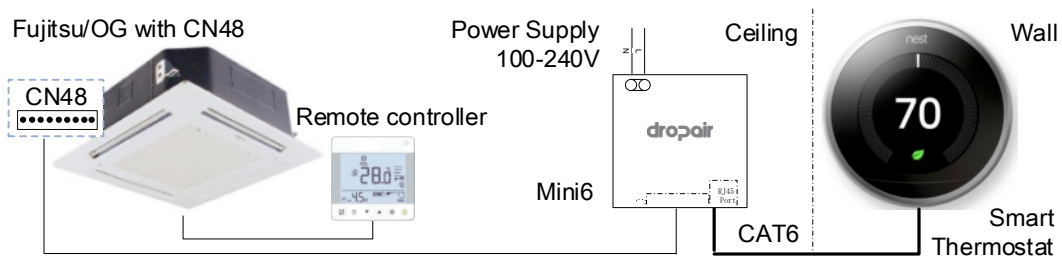


4.4.4 OG-CN48 solution

If there is a CN48 socket on the indoor unit PCB board, the solution can be used. The new model indoor unit which uses using 2-wired original remote controller has the 9PIN CN48 socket. The typical indoor unit models are:

ARGG18CLTA-U, ARGG24CLTA-U, ARGG30CLTA-U, ARGG36CMTA-U, ARGG48CMTA-U, ARGG60CMTA-U.

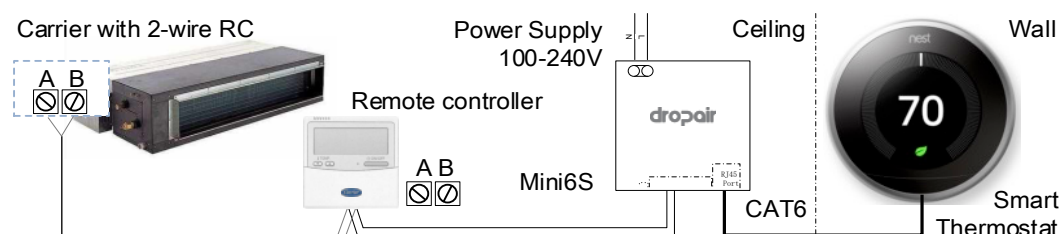
The Mini6 adapter hardware for OG-CN48 is special. It can only be used for OG-CN48. And normal Mini6 also cannot be used for OG-CN48



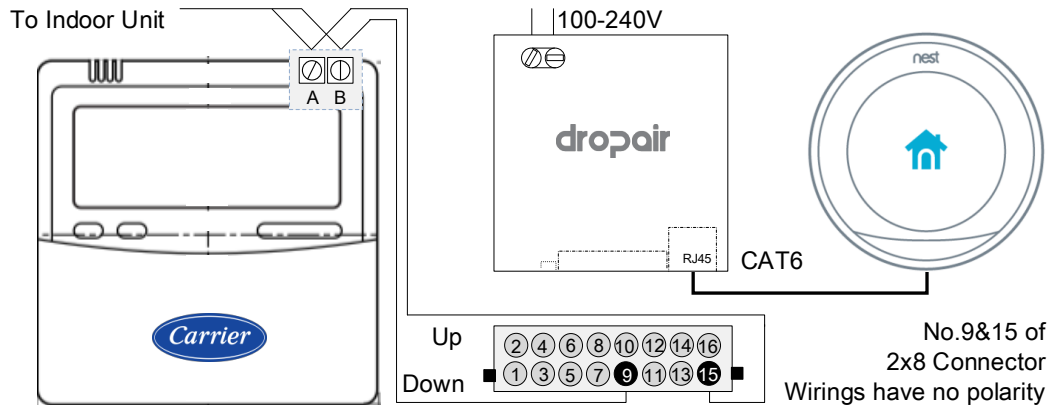
4.5 Carrier

4.5.1 CR-AB solution

If the Carrier indoor unit uses the 2-wire remote controller, this solution can be used.



The cable coming from the No.9 and No.15 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

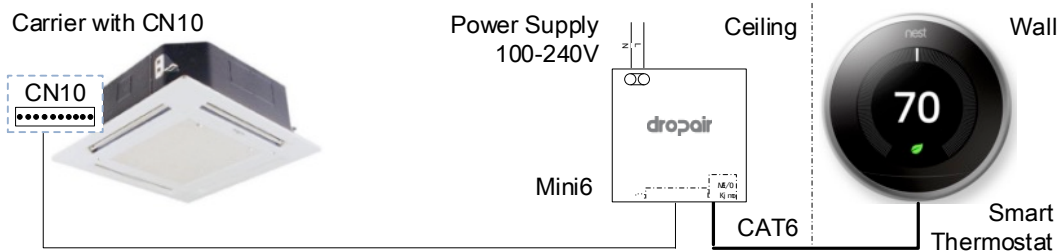


4.5.2 CR-CN10 solution

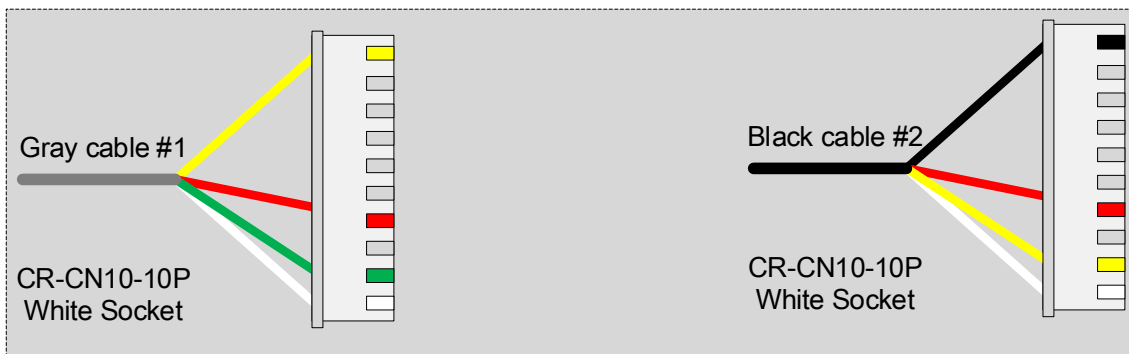
If there is a CN10/CN10A socket on the indoor unit PCB board, the solution can be used. Because the original wired remote controller uses the same socket, the wired remote controller should be removed.

If there is a yellow CN10 and white CN15 socket at the same time and the original remote controller is connecting to the CN15, you need to be connected to the CN15. Do not try to connect to the CN10, or it will damage the indoor unit PCB board.

If only has yellow CN10 socket, please skip to the 4.9 Midea and know how to connect,



Cable label: CR-CN10-10P



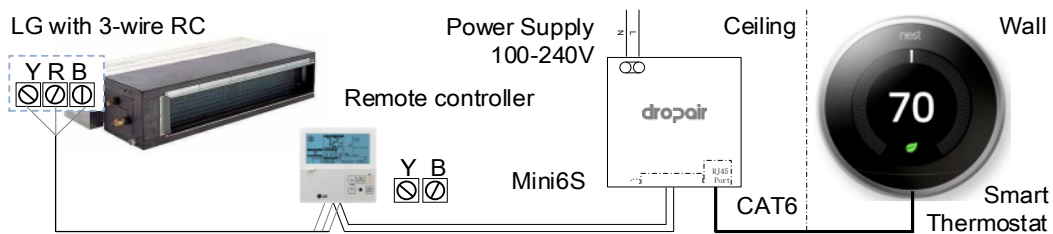
4.6 LG

LG's new model indoor units support connecting two LG wired remote controllers, one is the master, and the other is the slave. You can choose the wired or IR solution based on your needs.

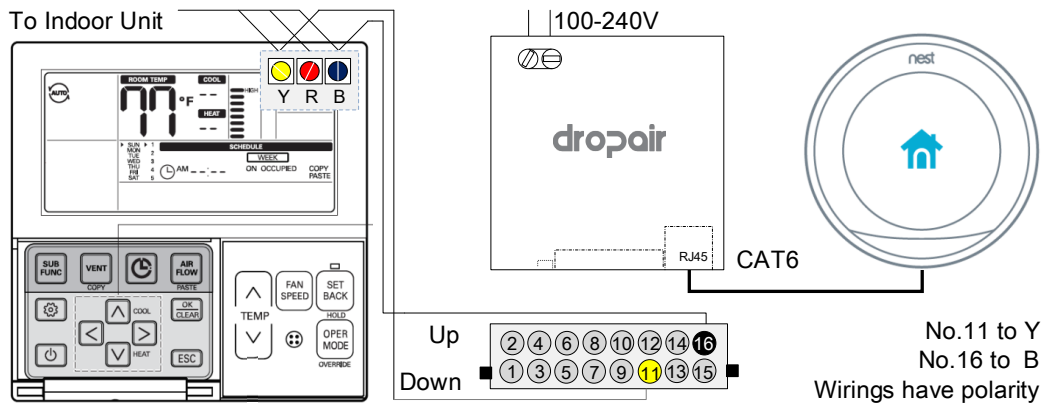
The old model of the indoor units do not support the connection of two LG thermostats. You can only choose the IR solution.

4.6.1 LG-RB solution

The indoor unit, which uses the 3-wire remote controller, can use this solution.

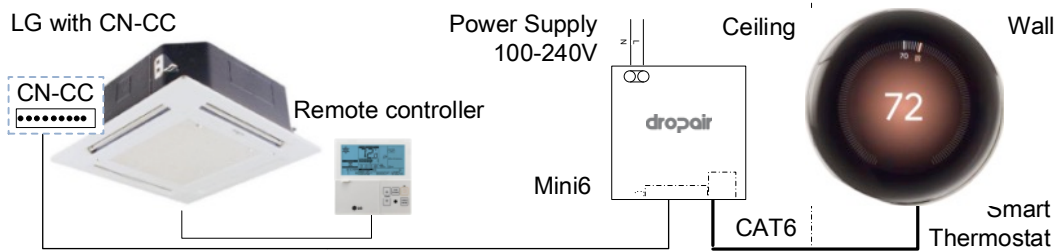


The No. 11 wire connects to the yellow terminal, and the No.16 wire connects to the Black terminal.



4.6.2 LG-CNCC solution

An LG indoor unit equipped with a CN-CC connector can use this solution.

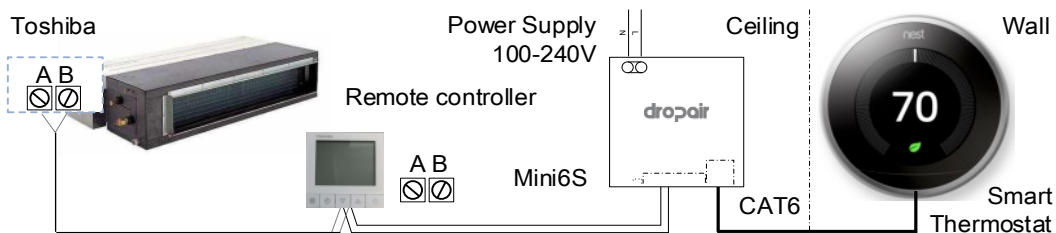


4.7 Toshiba

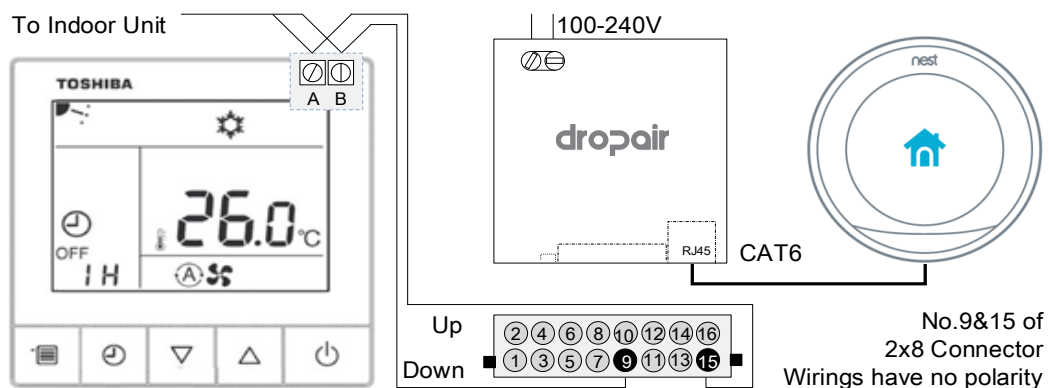
All the Toshiba solutions are connected directly to the original remote controller. There is no need to reach the indoor unit.

4.7.1 TS-AB solution

This solution is used for the Toshiba indoor unit which uses the 2-wire remote controller.

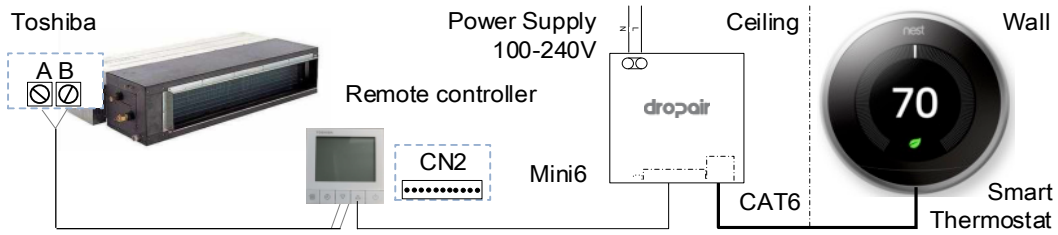


The cable coming from the No.9 and No.15 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

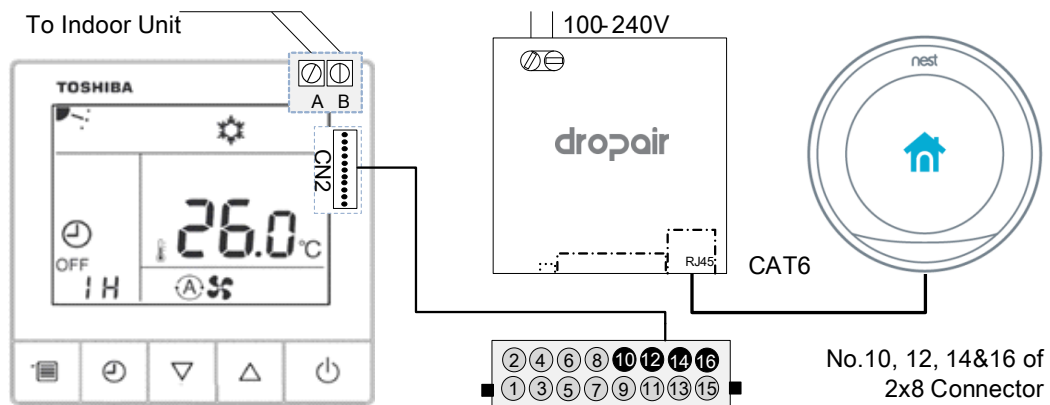


4.7.2 TS-CN2 solution

If the Toshiba remote controller mode is RBC-ASC11E or RBC-ASCU11, it will have an 11Pin CN2 socket on the back. It can use this solution.



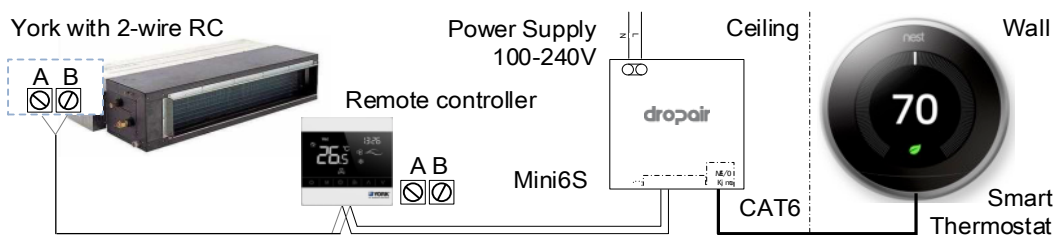
The Toshiba remote controller connects with the adapter with the supplied cable. Simply plug in and connect.



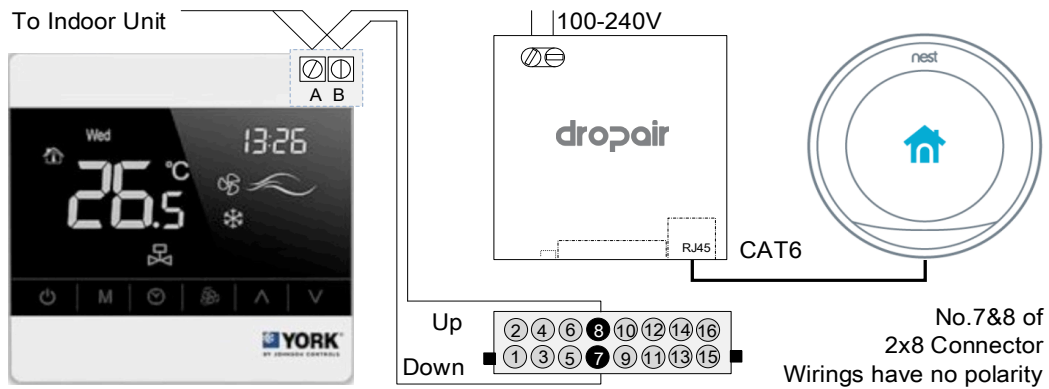
4.8 York

4.8.1 YK-AB for VRF series

If the indoor unit is using the 2-wire remote controller, it is the York VRF series. The 2-wire solution can be used.

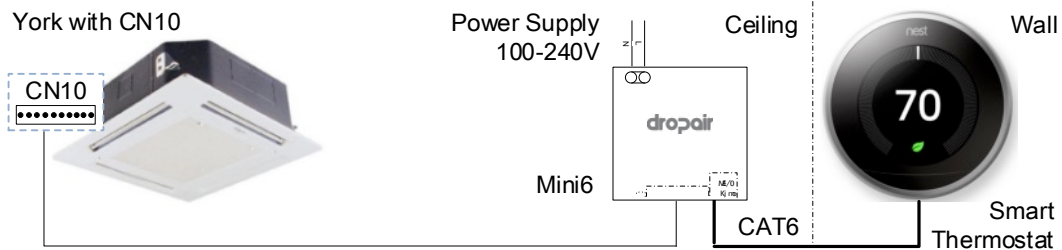


The cable coming from the No.7 and No.8 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

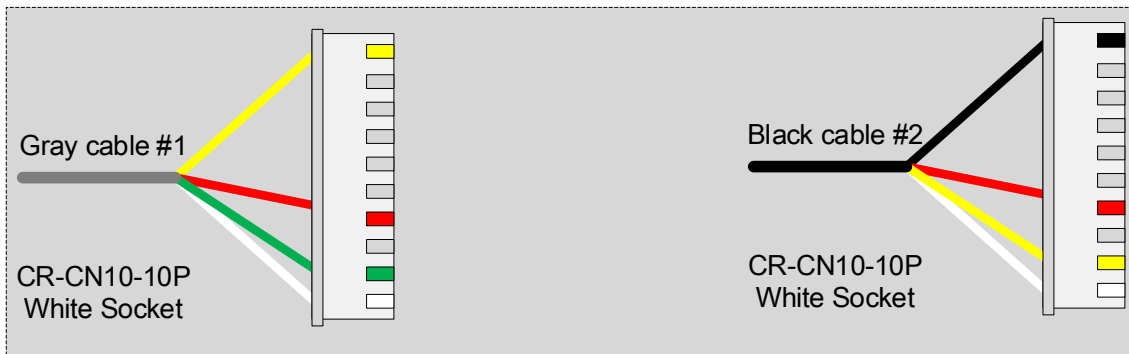


4.8.2 YK-CN10 solution

If there is a CN10 socket on the indoor unit PCB board, the solution can be used. Because the original wired remote controller uses the same socket, the wired remote controller should be removed.

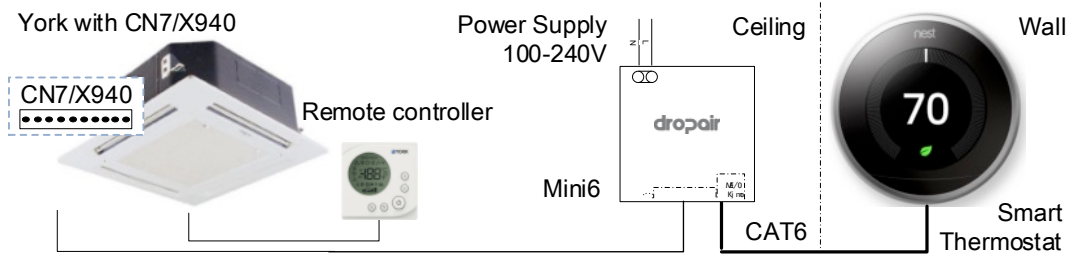


Cable label: CR-CN10-10P

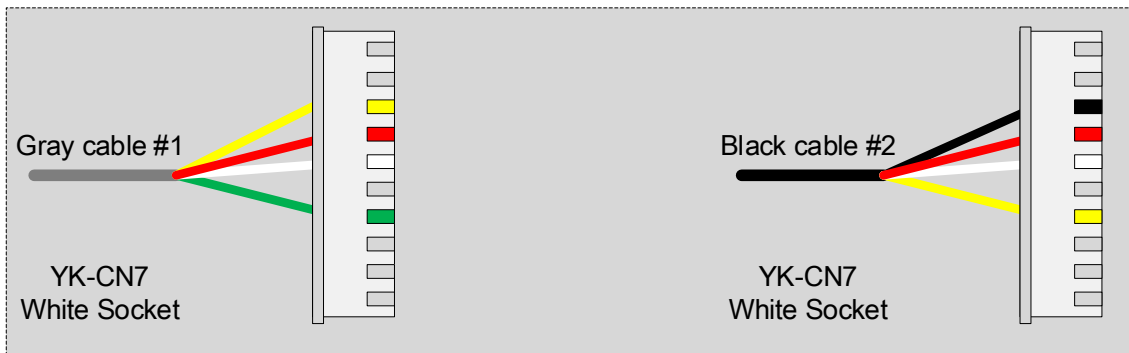


4.8.3 YK-CN7 solution

If the York wired remote controller's screen is round and there is a 4-wired cable connected to the indoor unit. The CN7 or X940 socket on the PCB board can be used for this solution. The typical indoor unit model will be YGFN, YEFN, YKGN, YKFN, YGKN, YGJN, YFGN, YFFN, YAGN, YGGN, YAKN, YEKN, YGKN, YAJN, YEJN, YGJN series indoor unit.



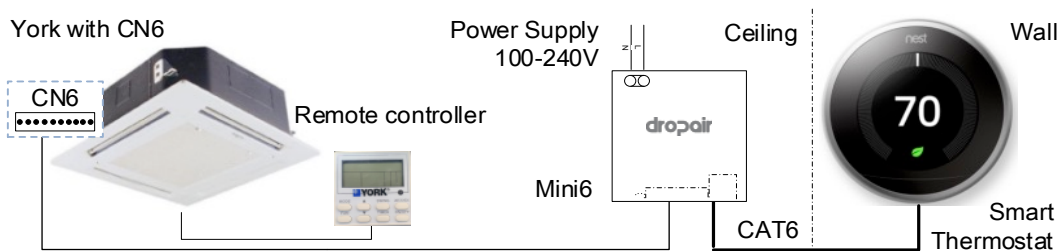
Cable label: YK-CN7.



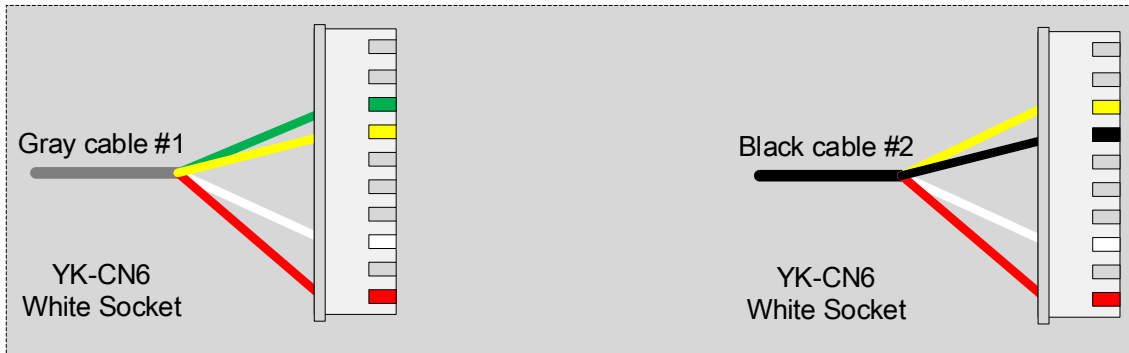
Note: Cable CR-CN10-10P can be changed to YK-CN7. Please make a new label for the cable after you change it.

4.8.4 YK-CN6 solution

If the York wired remote controller looks like the picture in the figure below and there is a 5-wire cable connected to the indoor unit. The CN6 socket on the PCB board can be used for this solution. The typical model is NTH-END-FF-02, Model NO : YE7LD30FC7AA41-G2.



Cable label: YK-CN6.



Note: Cable CR-CN10-10P can be changed to YK-CN6. Please make a new label for the cable after you change.

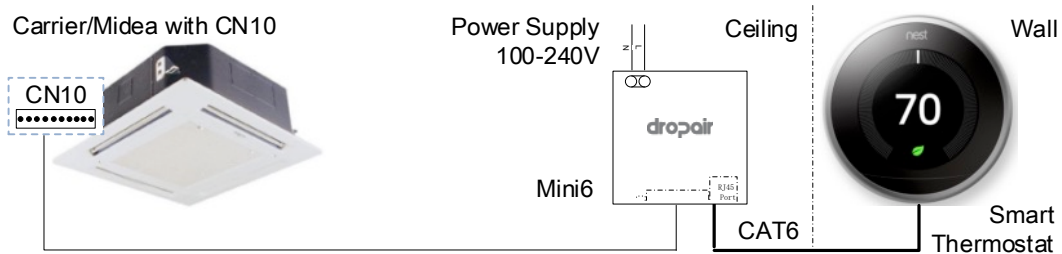
4.8.5 YK-SIR solution

Please refer to 4.19 universal chapter.

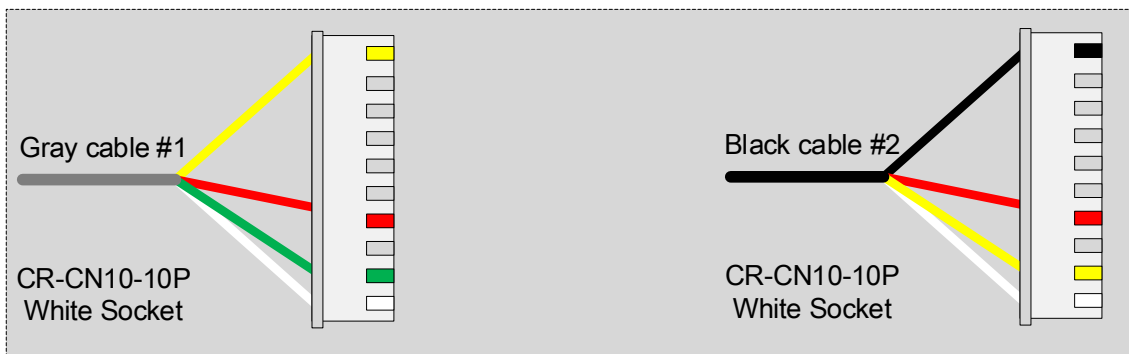
4.9 Midea

4.9.1 MD-CN10 solution

If there is a CN10/CN10A socket on the indoor unit PCB board, the solution can be used. Because the original wired remote controller uses the same socket, the wired remote controller should be removed.



Cable label: CR-CN10-10P



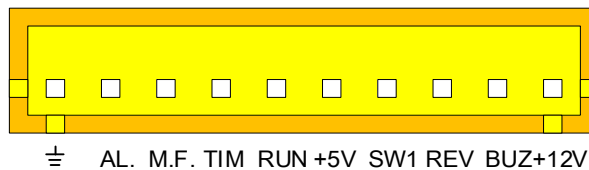
These brands such as Super General, System Air, Lennox, Cooper Hunter, Vaillant, Bosch, ECOX,

SURREY, and SKM, which has the CN10 /CN10A socket can all use this solution.

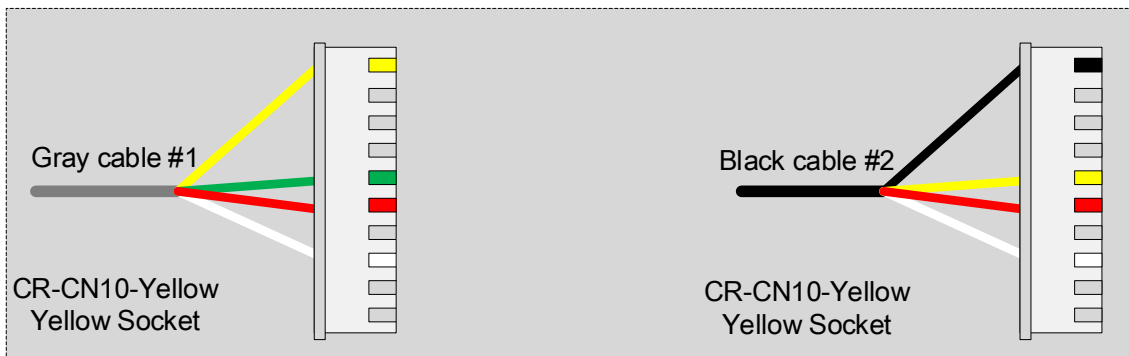
Caution:

If there are both yellow CN10 and white CN15 sockets at the same time, please connect to the white CN15.

If there is only the CN10 socket but the color is yellow, and the footprint is like this:



Please use the CR-CN10-Yellow cable.



Note: Cable CR-CN10-10P can be changed to CR-CN10-Yellow. Please make a new label for the cable after you change it. When you need to change the wire port, please use pointed tweezers or knife tips to push the tongue of the metal terminal slightly and pull off the terminal at the same time.

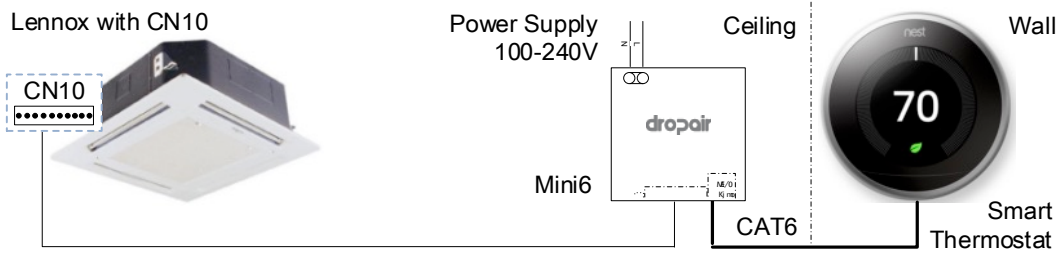
Please refer to this video to learn how to change the cable:

https://youtu.be/YjL_kVS5Bb0?si=sVvzdgOPxnhTzQAQ

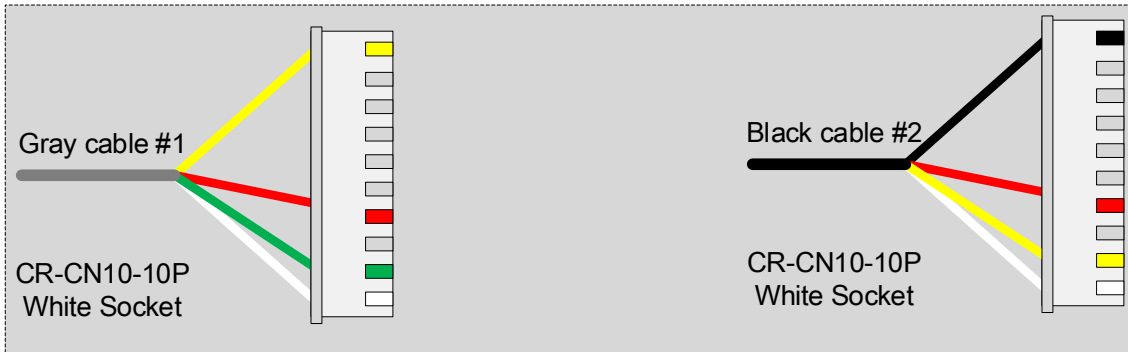
4.10 Lennox

4.10.1 LN-CN10 solution

If there is a CN10 socket on the indoor unit PCB board, the solution can be used. Because the original wired remote controller uses the same socket, the wired remote controller should be removed. The typical indoor unit models are: 4MCDUA18TB, 4MCDUA24TB, 4MCDUA30TB, 4MCDUA36TB, 4MCDUA36TD, 4MCDUA48TD, 4MCDUA60TD.

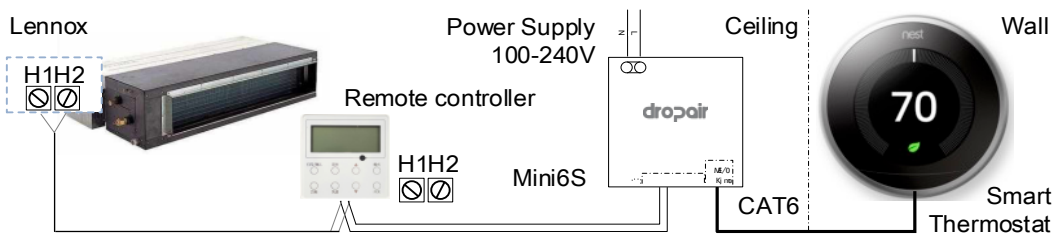


Cable label: CR-CN10-10P

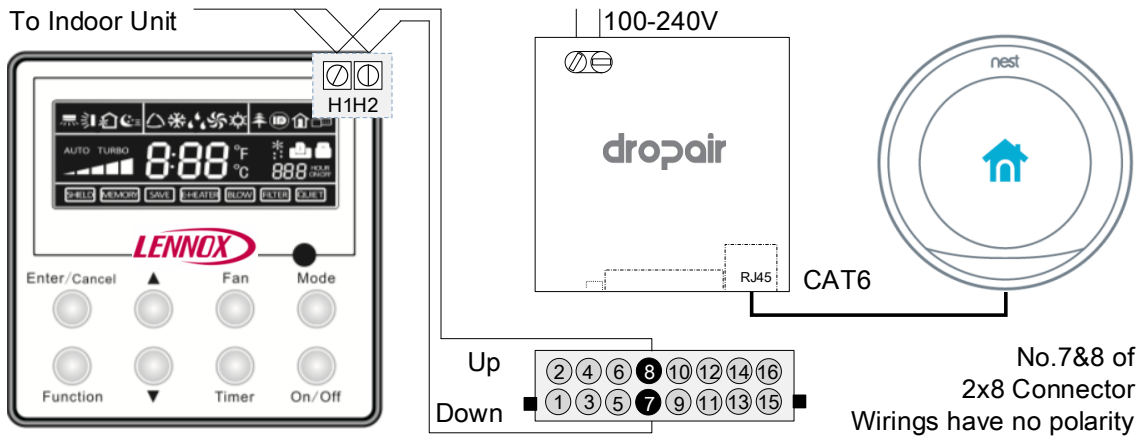


4.10.2 LN-H1H2 solution

If the indoor unit has a 2-wire remote controller, this solution can be used.



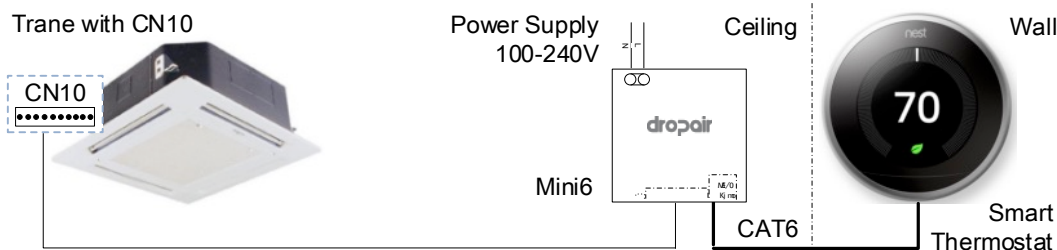
The cable coming from the No.7 and 8 ports of the adapter is connected to the H1 and H2 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



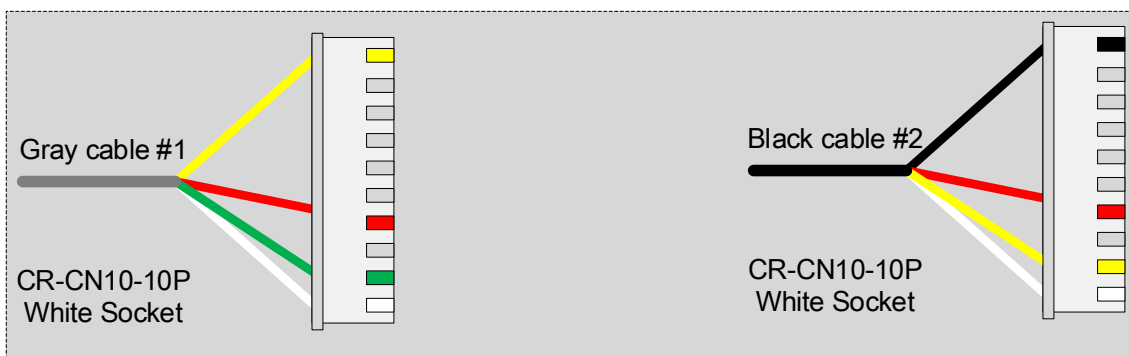
4.11 Trane

4.11.1 TR-CN10 solution

If there is a CN10 socket on the indoor unit PCB board, the solution can be used. Because the original wired remote controller uses the same socket, the wired remote controller should be removed. The typical indoor unit models are: 4MCDUA18TB, 4MCDUA24TB, 4MCDUA30TB, 4MCDUA36TB, 4MCDUA36TD, 4MCDUA48TD, 4MCDUA60TD.



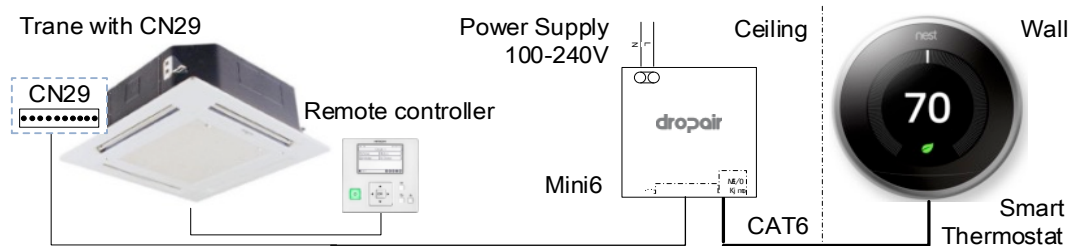
Cable label: CR-CN10-10P



If the Trane indoor unit is FCU, the Pro series adapters can be used for them.

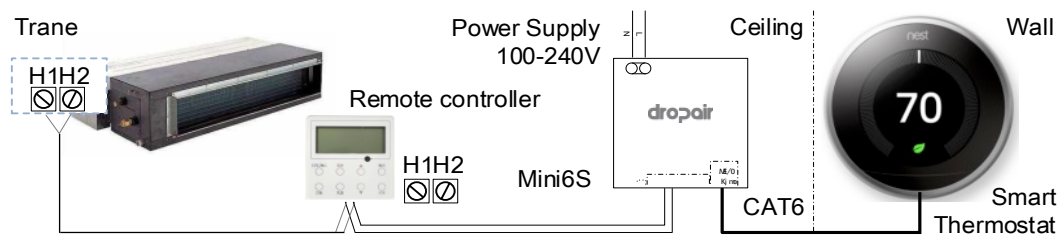
4.11.2 TR-CN29 solution

If there is a CN29 socket on the indoor unit PCB board, the solution can be used.

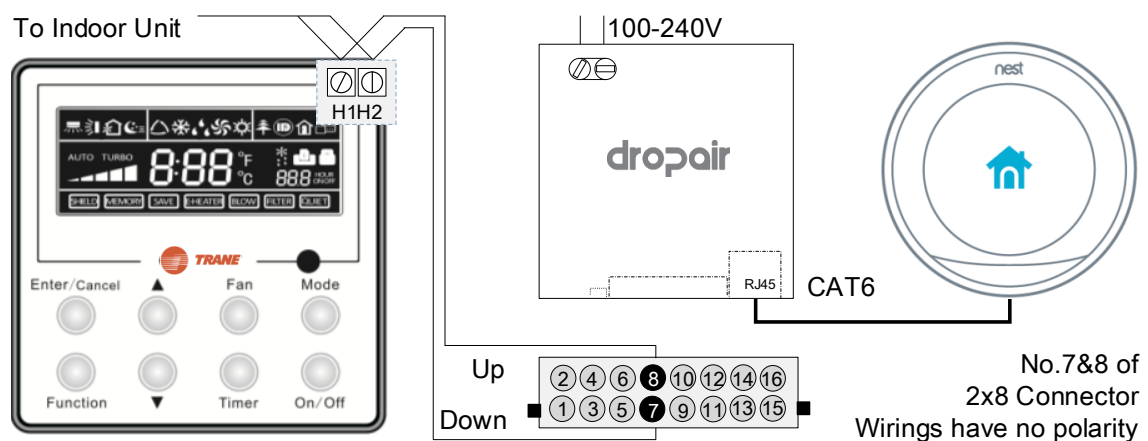


4.11.3 TR-H1H2 solution

If the indoor unit has a 2-wire remote controller, this solution can be used.



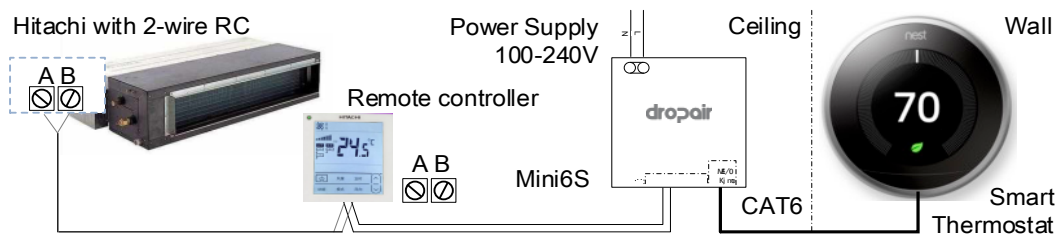
The cable coming from the No.7 and 8 ports of the adapter is connected to the H1 and H2 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



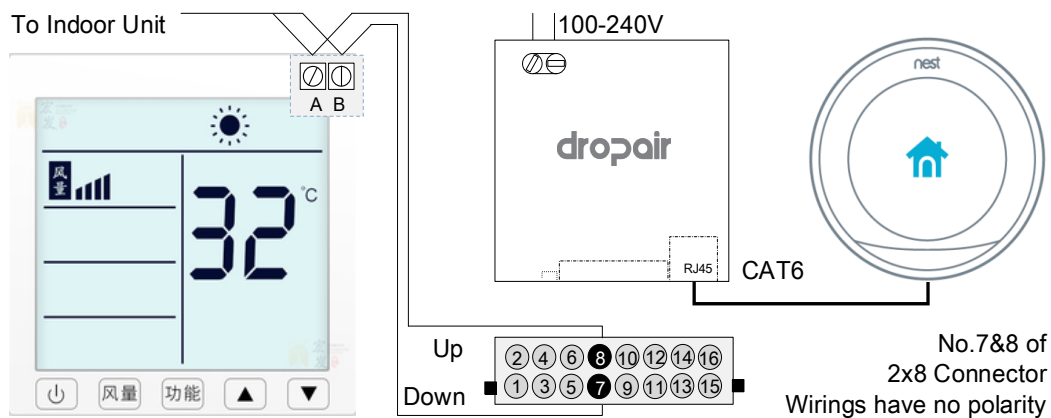
4.12 Hitachi

4.12.1 HT-AB solution

If the indoor unit uses the 2-wire remote controller, this solution can be used. But for some very old models, indoor units cannot support connecting two wired remote controllers. They cannot use this solution. They can try the universal IR solution with the PC-P1H8Q controller which has the IR receiver function.

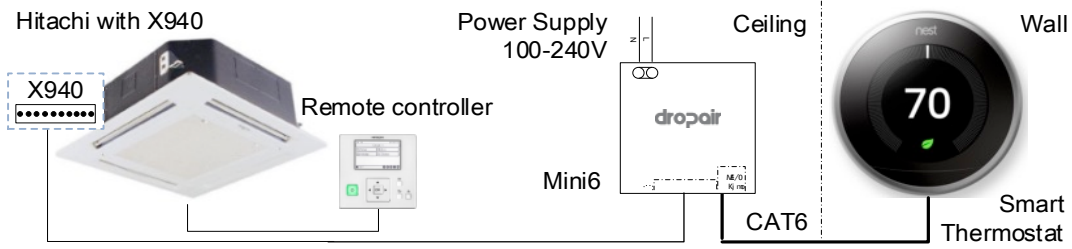


The cable coming from No.7 and 8 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

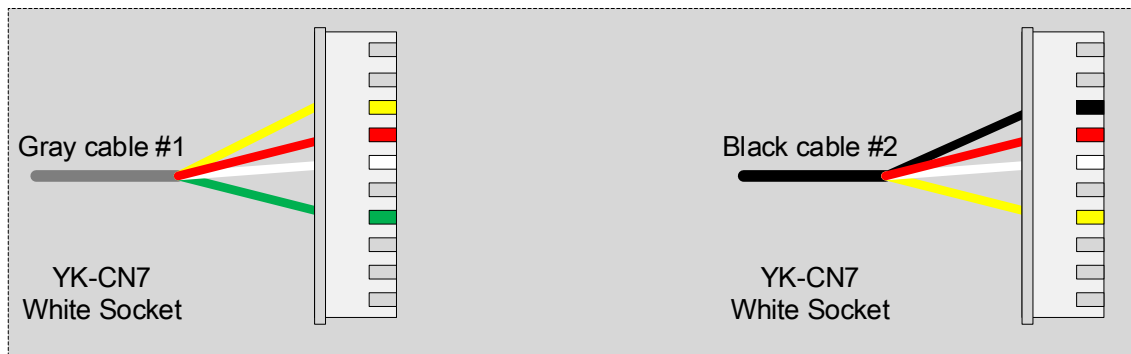


4.12.2 HT-X940 solution

If the Hitachi wired remote controller has a 4-wire cable connected to the indoor unit, the X940 socket on the PCB board can be used for this solution.



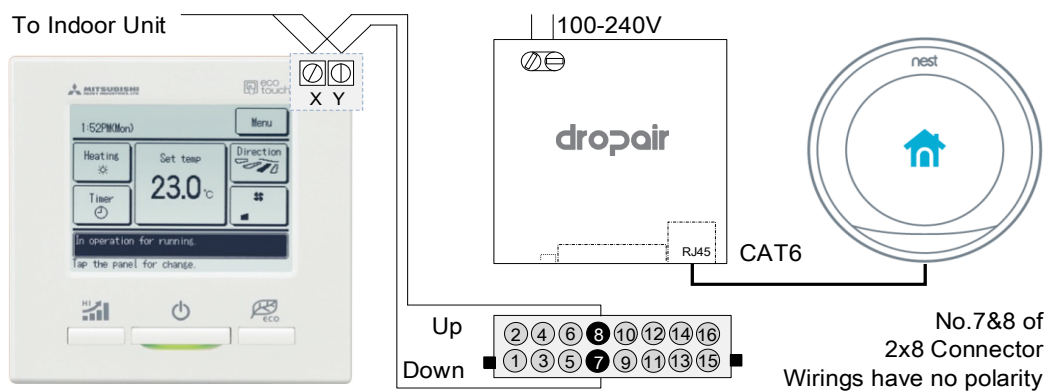
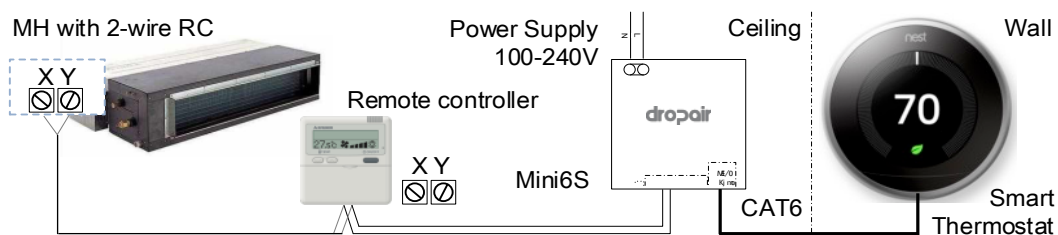
Cable label: YK-CN7-10P



4.13 Mitsubishi Heavy Industry

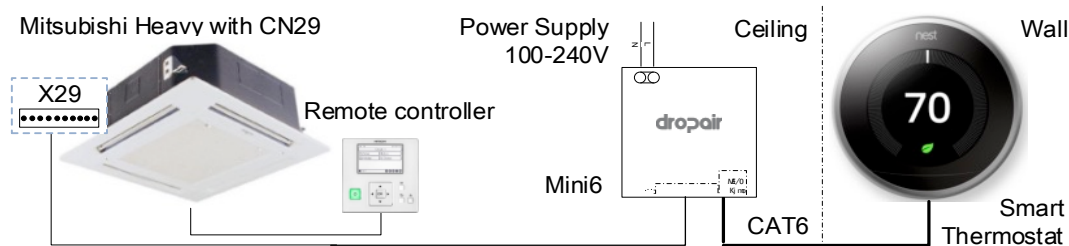
4.13.1 MH-XY solution

This solution can be used if the indoor unit has a 2-wire remote controller.



4.13.2 MH-CN29 solution

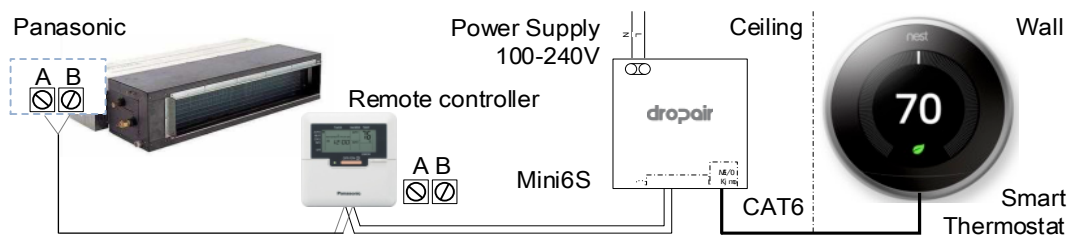
The solution can be used if there is a CN29 socket on the indoor unit PCB board.



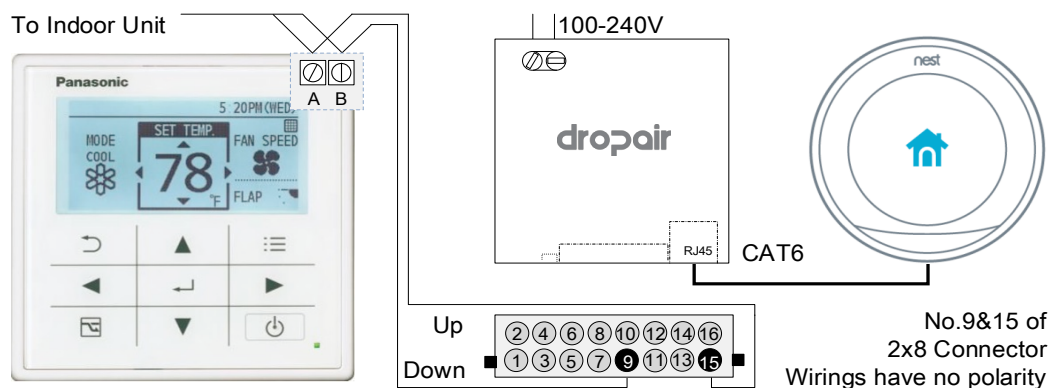
4.14 Panasonic

4.14.1 PS-AB solution

If the indoor unit has a 2-wire remote controller, this solution can be used.



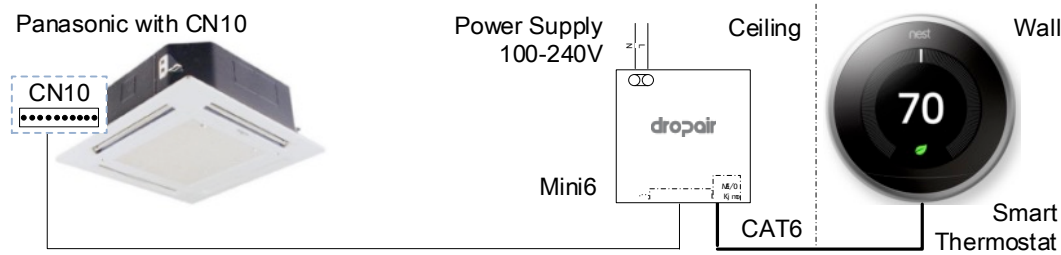
The cable coming from the adapter's No.9 and 15 ports is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



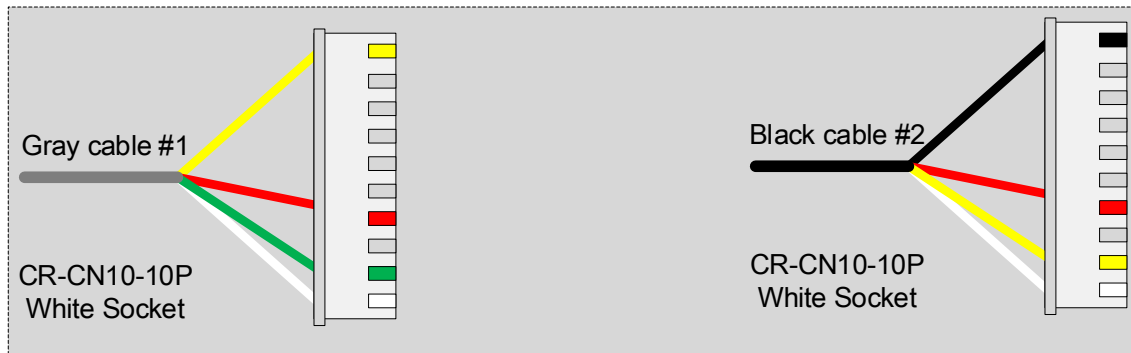
4.14.2 PS-CN10 solution

The solution can be used if there is a CN10/CN10A socket on the indoor unit PCB board. The wired remote controller should be removed because the original wired remote controller uses the same

socket.

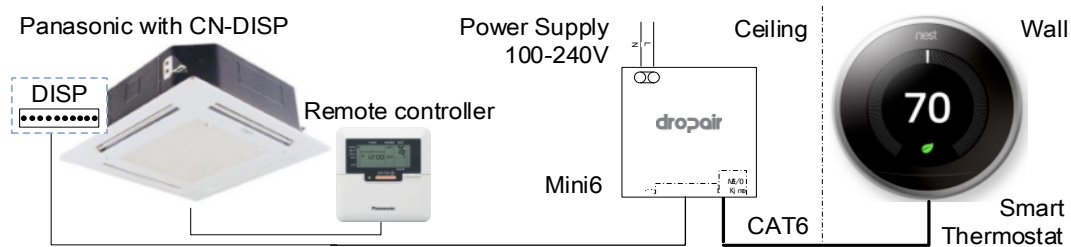


Cable label: CR-CN10-10P



4.14.3 PS-CNDISP solution

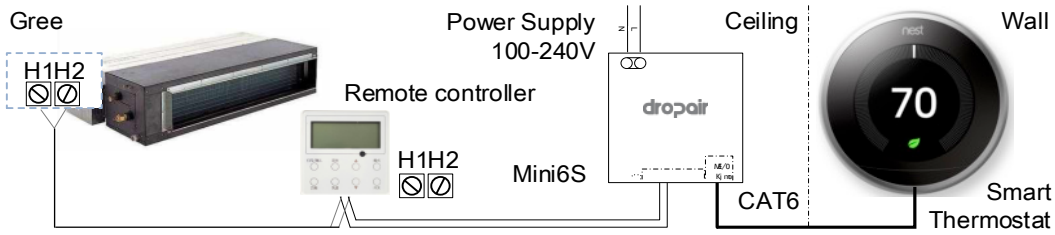
The solution can be used if there is a CN-DISP socket on the indoor unit PCB board. The typical indoor unit model is CS-D43DD2H5.



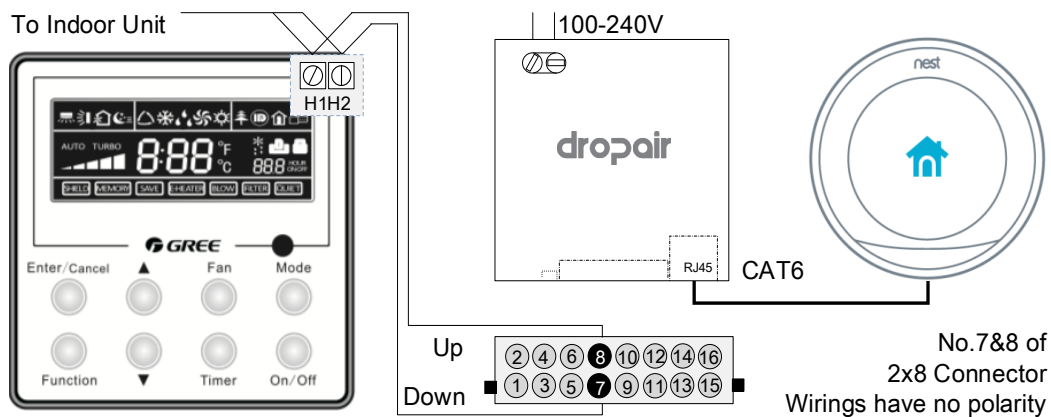
4.15 Gree

4.15.1 GR-H1H2 solution

This solution can be used if the indoor unit has a 2-wire remote controller.

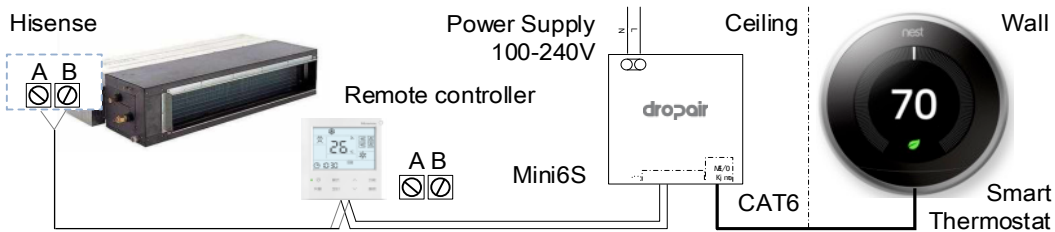


The cable coming from the No.7 and No.8 ports of the adapter is connected to the H1 and H2 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

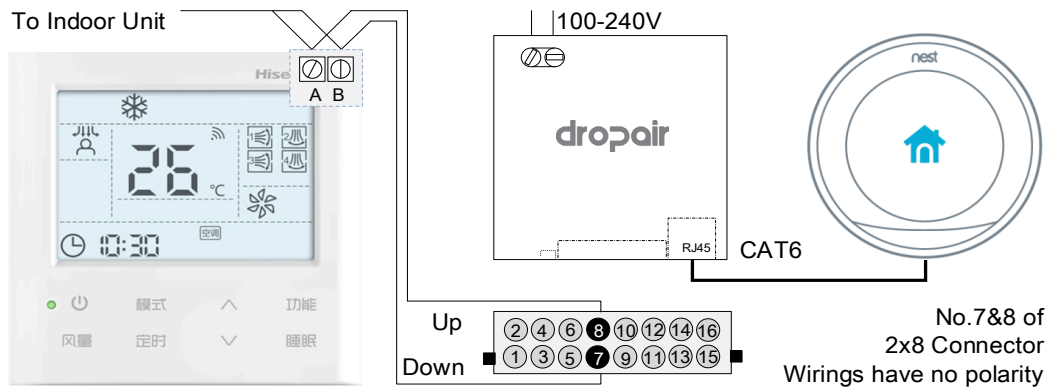


4.16 Hisense

4.16.1 HS-AB solution

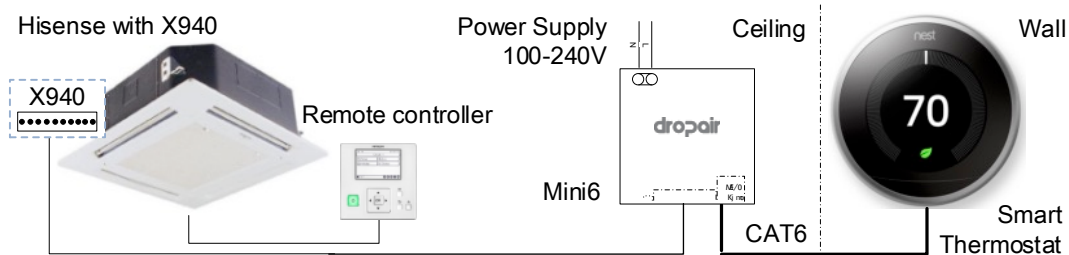


The cable coming from the No.7 and 8 ports of the adapter is connected to the A and B terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.

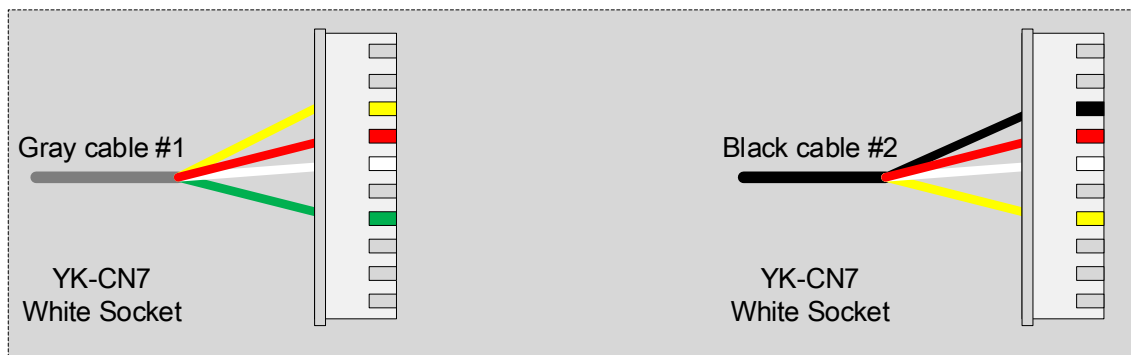


4.16.2 HS-X940 solution

If the Hisense wired remote controller has 4-wire cable connects to the indoor unit, the CN7/X940 socket on the PCB board can be used for this solution.



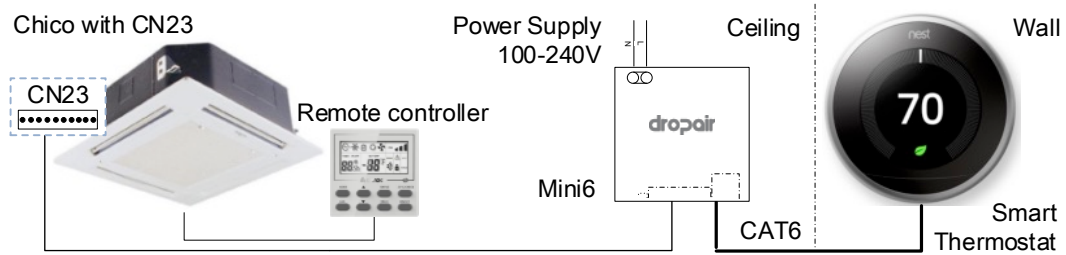
Cable label: YK-CN7-10P



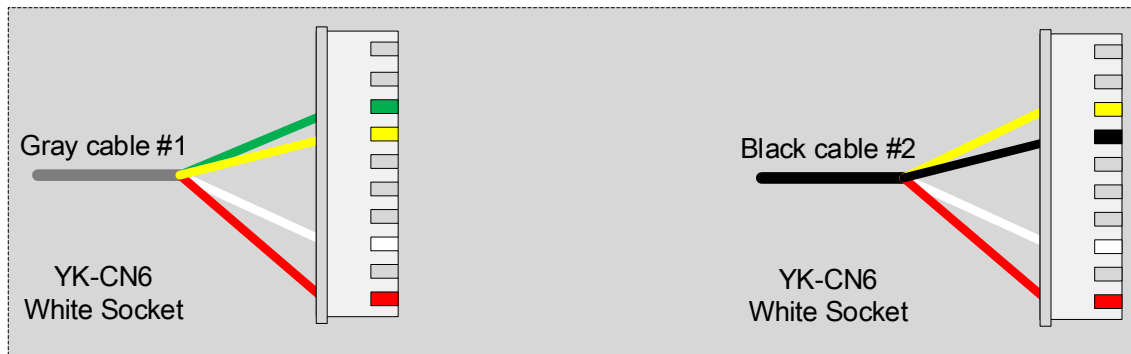
4.17 Chigo

4.17.1 CN-CN23 solution

If there is a CN23/10Pin socket on the indoor unit, the solution can be used. The original wired controller uses the 5-wire or 3-wire cable that connects to the indoor unit.



Cable label: YK-CN6.

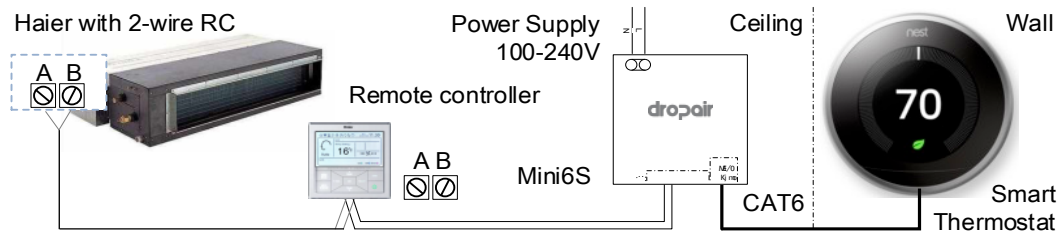


Note: Cable CR-CN10-10P can be changed to YK-CN6. Please make a new label for the cable after you change.

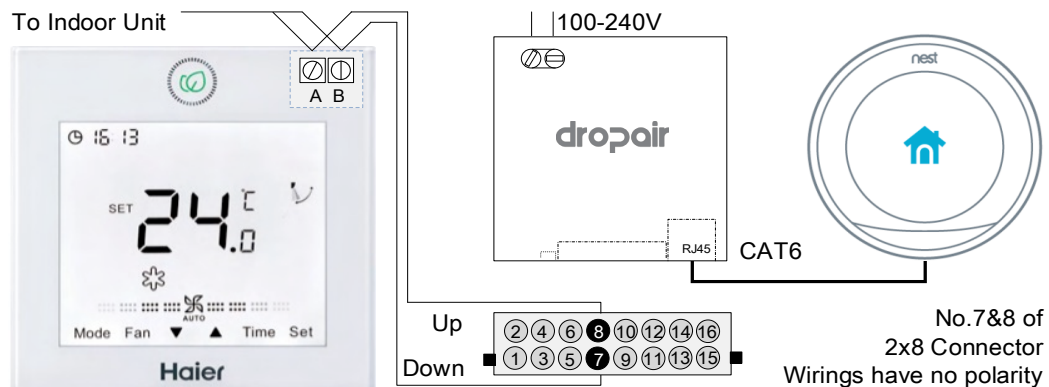
4.18 Haier

4.18.1 MH-AB solution

If the indoor unit has a 2-wire remote controller, this solution can be used.

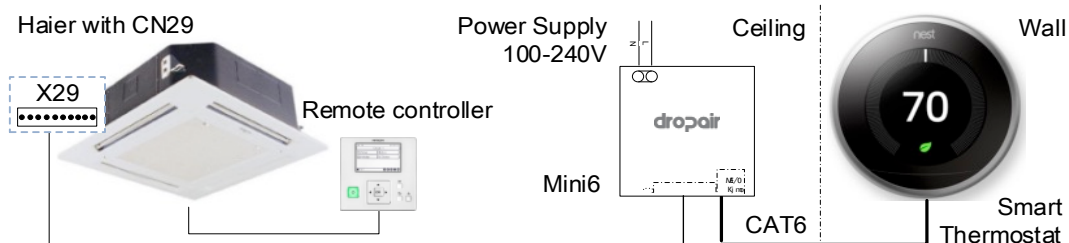


The cable coming from the No.7 and 8 ports of the adapter is connected to the P1 and P2 terminals of the remote controller together with the original communication cable. The two-wire connection is non-polarized.



4.18.2 HR-CN29 solution

If there is a CN29 socket on the indoor unit PCB board, the solution can be used.



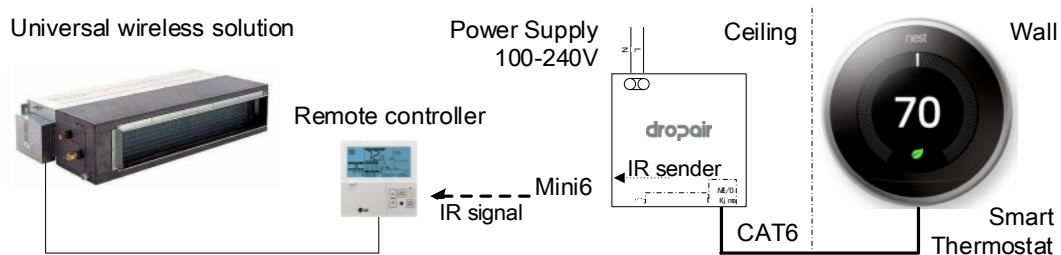
4.19 Wireless IR solution

If the Air conditioner has an IR function, such as a wired remote controller with an IR receiver or the

indoor unit has installed IR receiver accessories. Normally, the indoor unit is the cassette type, wall-mounted type, or floor stand type; it do not have a remote controller, IR solution can be used.

4.19.1 IR Solution 1

If the wired remote controller has the IR function or the indoor unit has installed IR receiver accessories, just need to stick the adapter and the remote controller or the receiver accessories together using the double-sided adhesive tape.

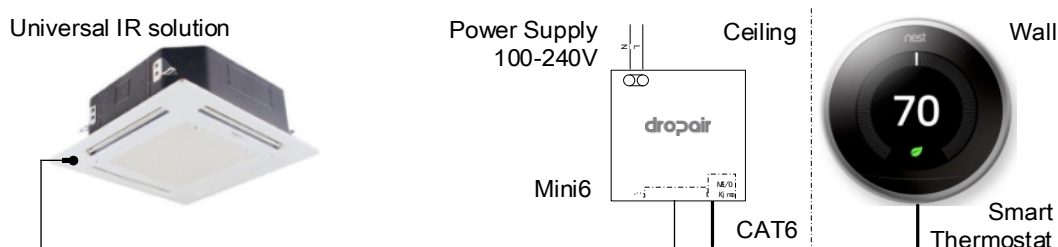


4.19.2 IR Solution 2

For the cassette type, wall mounted type, floor stand type indoor unit, if the adapter sticks on the cover of the indoor unit near the receiver window, it will not look good.

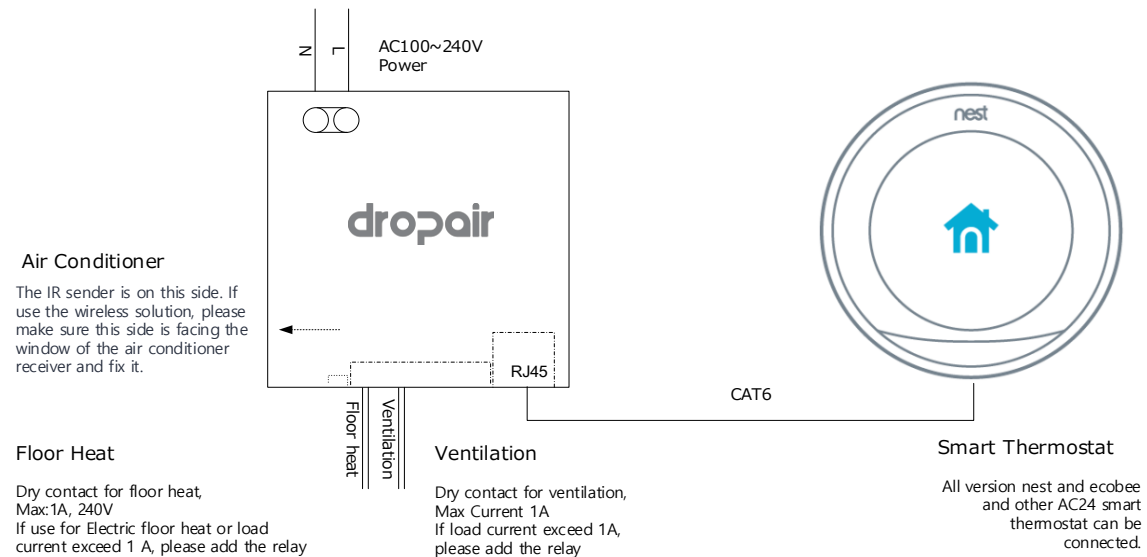
So using the extended IR sender to stick on the receiver window of the indoor unit will be the best choice. The adapter can be hidden in the ceiling or anywhere it cannot be seen. The extended IR sender is the optional accessory.

Mention: If the Mini6 is used for Multi equipment, such as air conditioner and floor heat or air conditioner and ventilation, this solution cannot be used. This solution can only be used for a single air conditioner control solution.



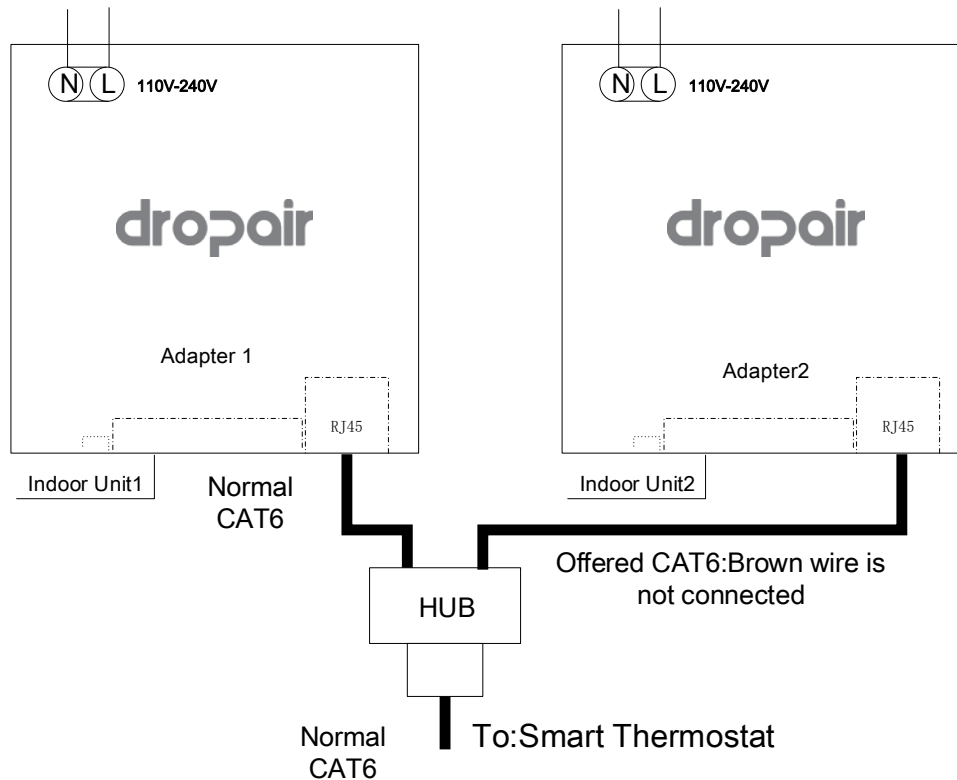
5 Multi-Equipment Wiring Diagram

Follow the adapter labels when connecting multiple equipment types. If any wiring detail is unclear, contact Dropair before proceeding.



6 One Smart Thermostat with Multiple Adapters

Dropair provides the hub cable for connection to the second adapter. If making the cable on site, do not connect the brown wire to the RJ45 jack. The CAT6/CAT5 cables to the first adapter and to the smart thermostat use the standard T568B pinout.



7 Smart Thermostat Wiring Diagrams

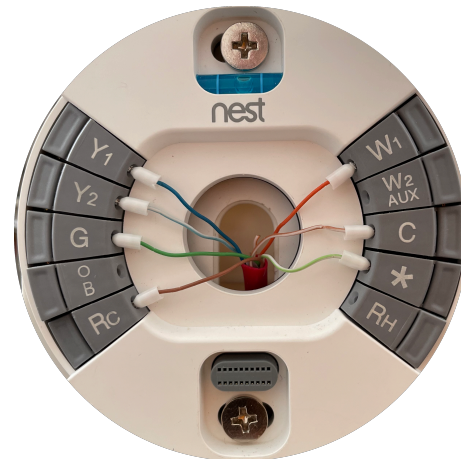
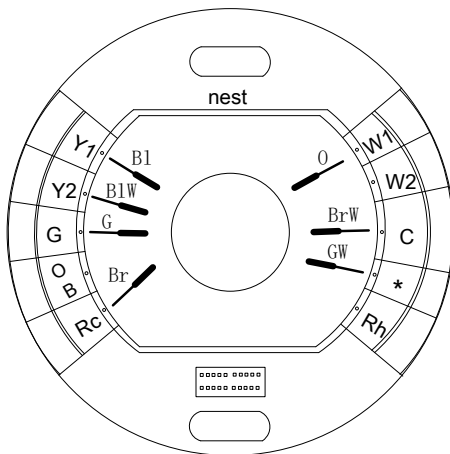
The following table defines wire-color abbreviations used in the wiring diagrams.

Color	Orange, White	Orange	Green, White	Blue	Blue, White	Green	Brown, White	Brown
Abbr.	OrW	Or	GW	Bl	BIW	G	BrW	Br

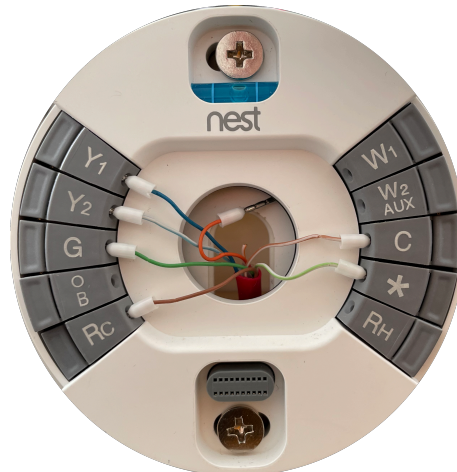
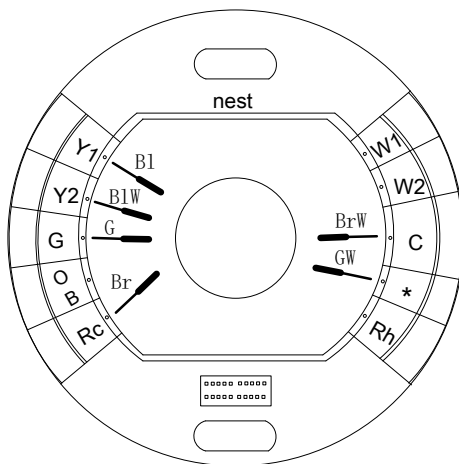
7.1 Nest Learning Thermostat

7.1.1 Configure for 3-fan speed

For Cooling and Heating Air Conditioners



For cooling-only systems, the W1 wire does not need to be connected.



This connection method is commonly used in Middle East installations where the air conditioner does not provide heating.

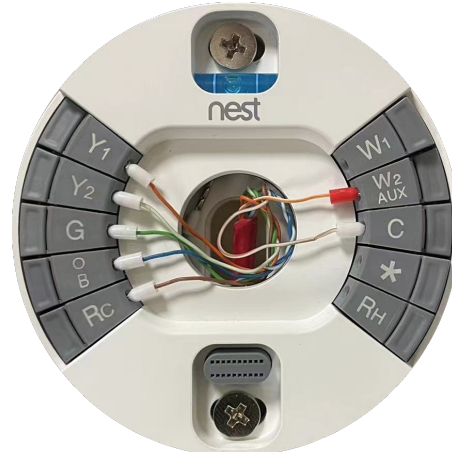
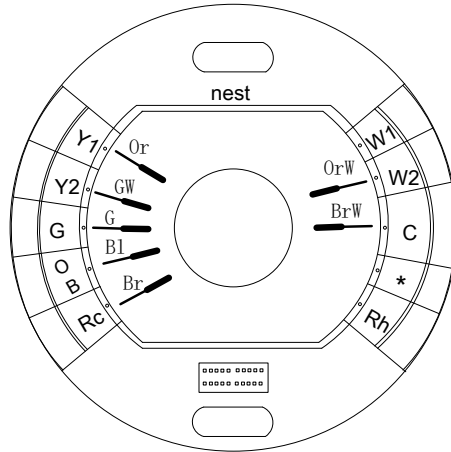
During thermostat initialization, set * to G3 and Y2 to G2.

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

7.1.2 Air Conditioner + Auxiliary/Alternate Heat

If you have the Auxiliary or Alternate Heat system and want to mainly use the AC heat pump for heating. When the outside

temperature gets low, you need nest to use the Auxiliary or Alternate Heat system for warm you house automatically. You can order the sec. heat plus for Mini6S to support these.



Terminal	Definition
Y2	Cool/Heat stage2
OB	O
W2	Dual Fuel: Alternate Heat Single Fuel: Auxiliary Heat

For this solution, AC will work with two auto fan speed. The nest thermostat decides fan speed; you cannot change the fan speed.

Just connect your Auxiliary/Alternate Heat system control wire to the offered wire from Mini6S which labeled "Sec. heat". The adapter output the on/off single to control the Auxiliary/Alternate Heat system.

When the nest works on cool/heat stage2, the AC will run high fan speed. If you want cool/heat stage2 works at medium fan speed, just change the Y2 wire from Green White to Blue White.

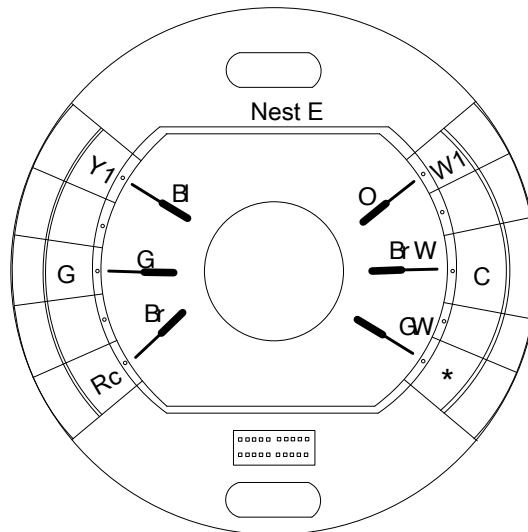
If you do not order the Auxiliary/Alternate Heat function plus, but you still want to heat pump work base the weather. Just do not connect W2 and enjoy it.

What's the difference between the Auxiliary Heat and Alternate heating?

Key Point	Auxiliary Heat	Alternate Heat
Air handler fan (low speed)	must on	can be set on or off

Work condition	Always or use below 0°F ~ 90°F (-18.0°C ~ 32.0°C)	Always or use below 10°F ~ 50°F (-12°C ~ 10°C) or Never
Heat Pump work condition	-25°F ~ 32°F (-31.5°C ~ 0.0°C)	cannot be set
Work together with heat pump	can	can not
Nest Sense Setting	can	can not
Heat Pump Stage	Cool Stage1/2 Heat Stage1/2 (Auto two fan speed)	Cool Stage1/2 Heat Stage1/2 (Auto two fan speed)
Heat Pump Inverter	Dynamic target temperature balance setting in the original remote controller base the room temperature and the cool/heat state	

7.1.3 Nest Thermostat



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

For cooling-only systems, do not connect the W1 wire.

7.1.4 Safety and Installation Notices

For this solution, it can let the inverter wall-mounted air conditioner work in full inverter state. The compressor will not be shut down after the smart thermostat finishes the cooling state. The compressor will run at low capacity to maintain the current room temperature. This function will help you feel more comfortable and more saving energy. If you need to use this function, pay attention to one key point:

Set the fan always on after cooling. If you use the nest, please go through this path: settings-fan-schedule.

If you miss the important setting, do not worry. You can change the terminals' definition 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.

The CAT cable terminal needs to strip 0.8cm.



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.



7.2 Ecobee Thermostat

7.2.1 Configure for 3 fan speed

Configure Ecobee from the welcome page during initial setup. To change terminal configuration after setup, go to: Main Menu > Installation Settings > Equipment > Reconfigure Equipment.

Are you a homeowner or a pro?

A pro will be allowed more flexibility in set-up configuration that may also damage equipment. Please be sure you are aware of the risks before finalizing installation.

Caution

Wiring as a PRO allows configurations that may damage your equipment if done incorrectly.

If you would like to contact a pro for installation, please proceed to [Ecobee.com/find-a-pro](https://ecobee.com/find-a-pro)

Enter your unique PIN to link this thermostat to your company.

1	2	3
4	5	6
7	8	9
0		

We have detected a wire connected to the Rc terminal, but not the Rh terminal. Is this correct?

Previously you indicated only the Rc terminal has a wire connected.

Select your fan system to confirm your wiring.

Single-speed and variable speed fan has one G wire.

Multi-speed fan has multiple G wires.

Multi-speed fan and pipe sensor has multiple G wires and sensor wires(S1 and S2)

We have detected wiring in the following terminals.

Rc	Rh
G	C
Y1	W1
Y2 G	W2 G3
O/B	PEK

Note that the yellow highlighted terminals are Multi-Purpose Terminals.

Is this wiring correct?

Configure the wire used in the multi-purpose terminals

Please select:

Y2	G2
W2	G3

Please confirm the wires connected to the terminal.

Back Next

Do you have any accessory installed?

No accessory installed
Humidifier
Dehumidifier
Ventilator

Back Next

Do you prefer Fahrenheit(F) or Celsius(C)

F
C

Back Next

The 3-speed fan configuration is complete. If the air conditioner supports heating and the W1 wire is connected, select "4-pipe coil unit" to complete setup.

What type of fan coil does your building have?

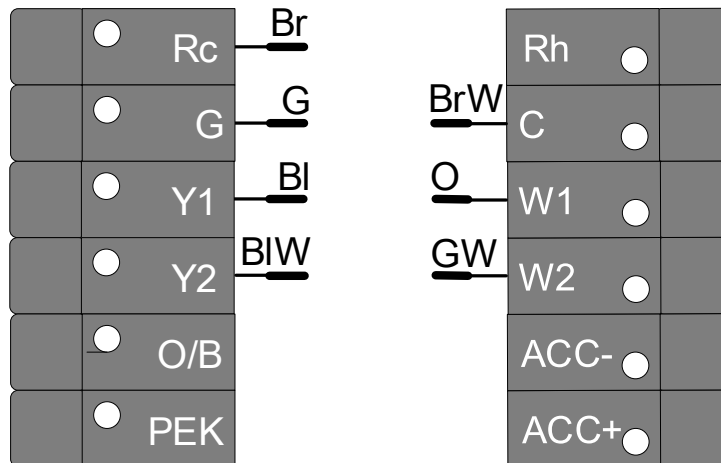
2 pipe fan coil unit
4 pipe fan coil unit

2 pipe fan coil units are often found in buildings that alternate heating and cooling as seasons change.
4 pipe fan coil units are often found in buildings that offer heating and cooling all year long.

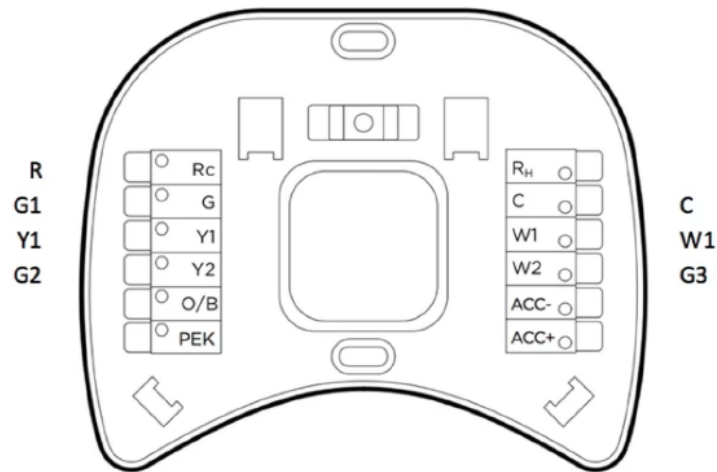
Back Next

7.2.2 For Cooling and Heating Air Conditioners

Connect the CAT6 cable to the Ecobee base just like this. Only 7 of the wires need to be connected.



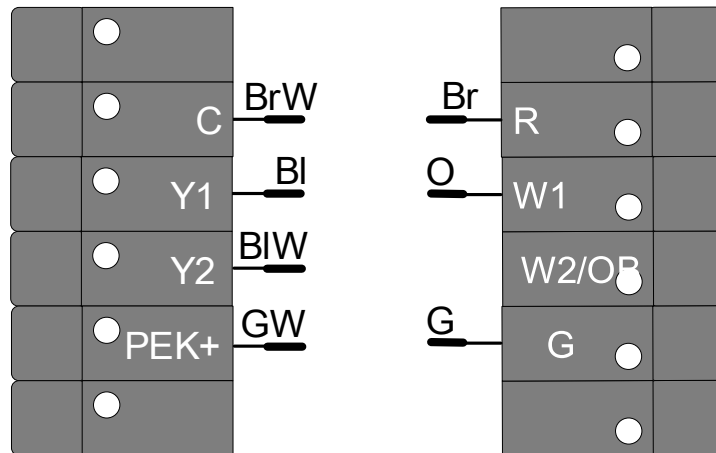
The W1, W2, and Y2 terminal definitions are listed below.



Terminal	Definition
W2	G3
Y2	G2
W1	Fan Coil Heat

If the air conditioner doesn't have the heat function, the W1 wire does not needs to be connected.

7.2.3 For Ecobee Smart thermostat Enhanced



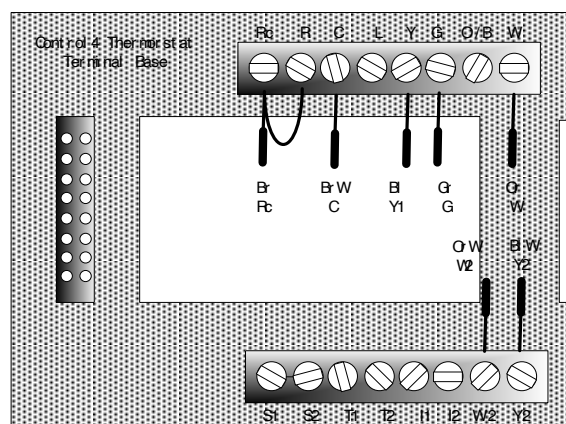
Use the following terminal definitions.

Terminal	Definition
PEK+	G3
Y2	G2
W1	Heat

If the air conditioner doesn't have the heat function, the W1 wire does not need to be connected.

7.2.4 Other North American Standard Smart Thermostats

Compatible 24 VAC smart thermostats include Control4 Aprilaire, Honeywell Lyric, Crestron CHV-TSTAT, CHV-THSTAT, and similar models.



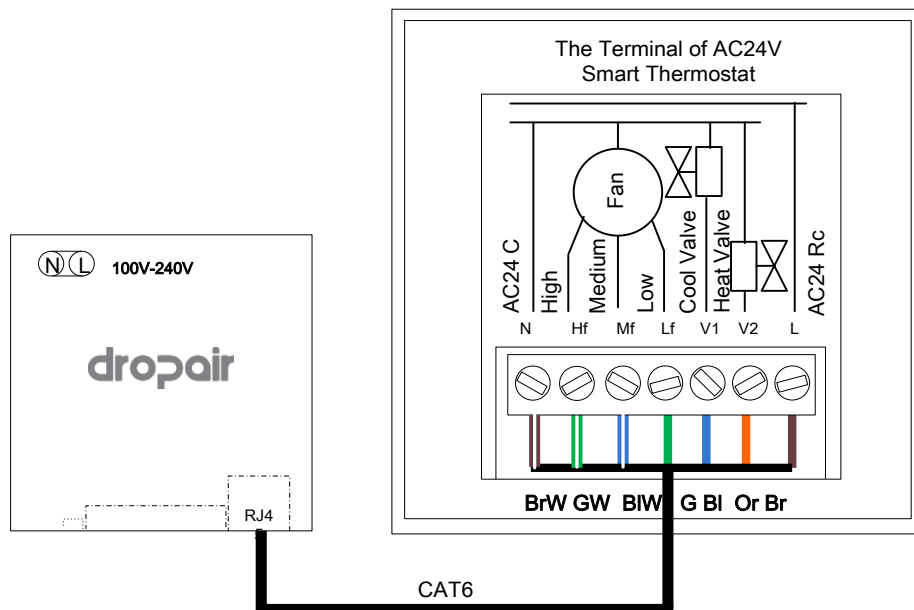
Control4 thermostat working with Dropair adapter allows two automatic fan speeds. If you only want to

run at a single speed, Y2 and W2 do not need to be connected.

7.3 24 VAC Smart Thermostat

7.3.1 Standard Connection

For a standard 24 VAC smart thermostat, follow the wiring diagram below. Tuya 24 VAC thermostats can be connected in this way.

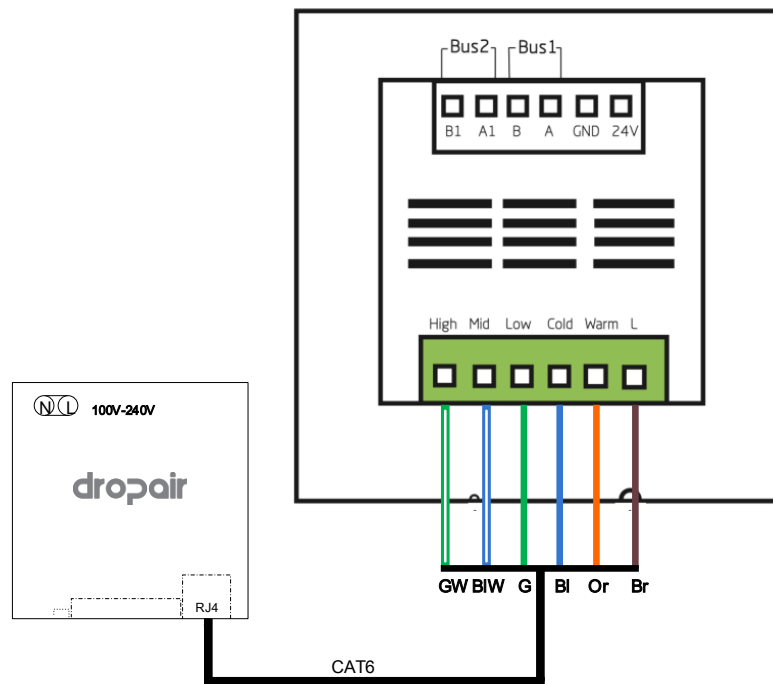


Color	Orange	Green White	Blue	Blue White	Green	Brown White	Brown
Smart Them.	Heat Valve	High	Cool Valve	Med	Low	AC 24 C	24 VAC Rc

If the air conditioner only needs to cool, the orange wire does not need to be connected, so just use 2 2-pipe type smart thermostats, if your air conditioner is both cool and heat, you need to use the 4-pipe type smart thermostat.

7.3.2 24 VAC Smart Thermostat for Compatible Motor Control

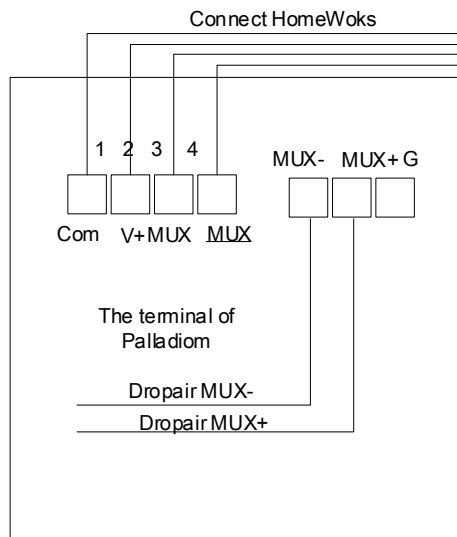
If the smart thermostat is a normal 24 VAC smart thermostat, it can be compatible with any voltage fan motor. Please connect them like this diagram. Moorgen 24 VAC thermostat can connect this way.



If the air conditioner only needs to cool, the orange wire does not need to be connected, so just use a 2-pipe type smart thermostat. If your air conditioner can run both cool and heat, you need to use the 4-pipe type smart thermostat.

7.4 Lutron Palladiom

Mini6S or Pro6X can be used with the Lutron Palladiom thermostat through an RS485 connector.



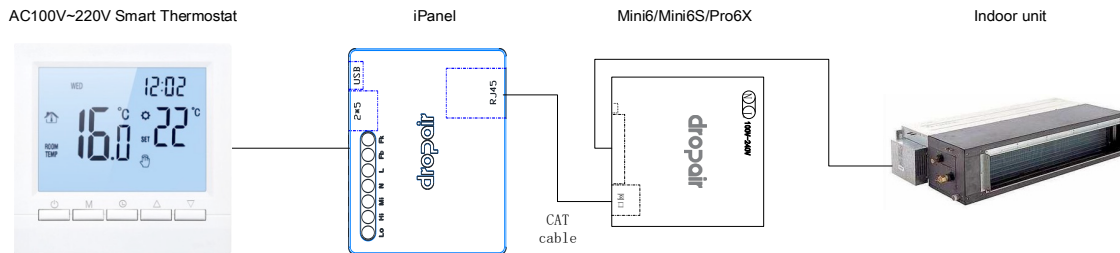
Necessary thermostat settings: EC set to 01, CO set to 01.

If you configure the Lutron Palladiom from the Homeworks interface, please select the SMC55.

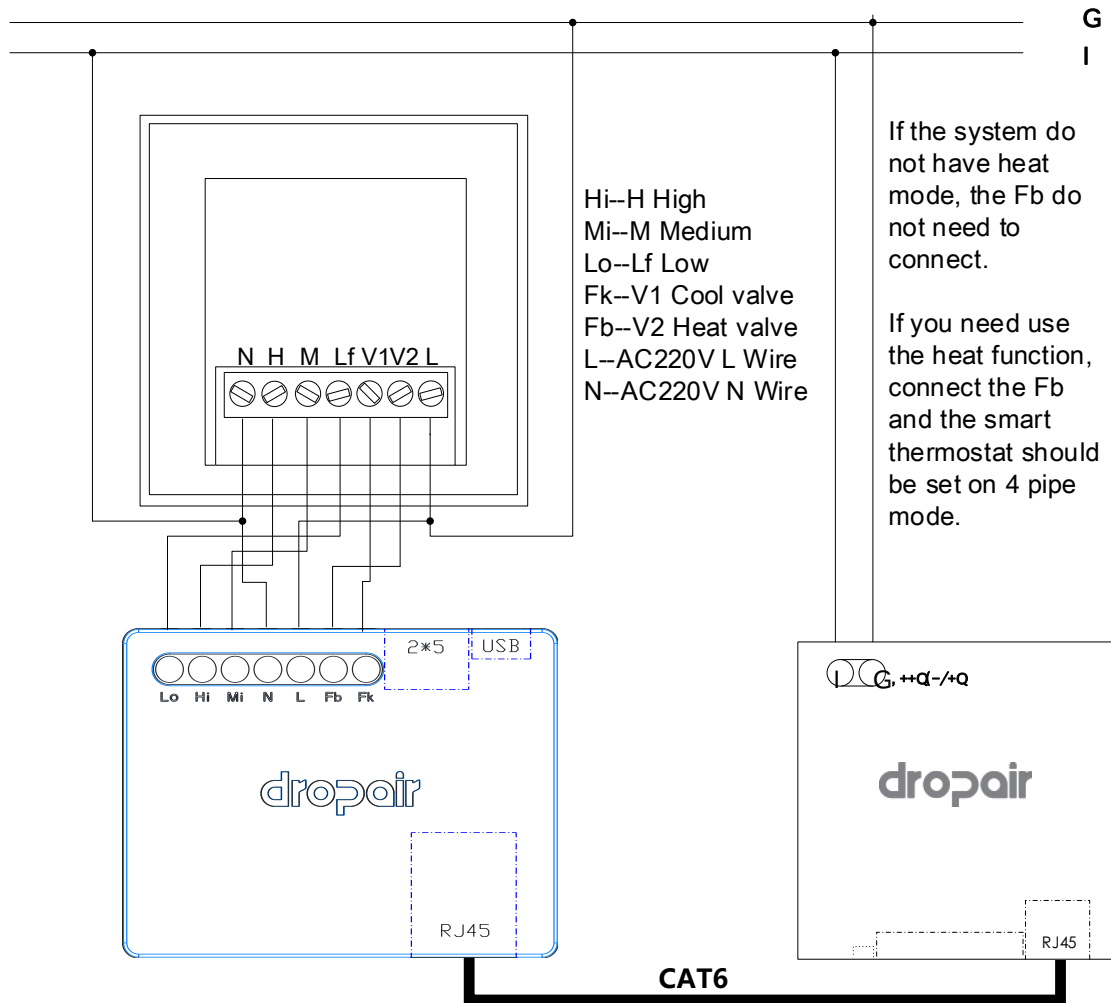
7.5 220 VAC Smart Thermostat

Orvibo and McoHome 220 VAC smart thermostats require an iPanel between the Mini6/Pro6X adapter and the thermostat. Use CAT6/CAT5 cable to connect the iPanel to the Mini6/Pro6X.

The general wiring diagram is shown below.

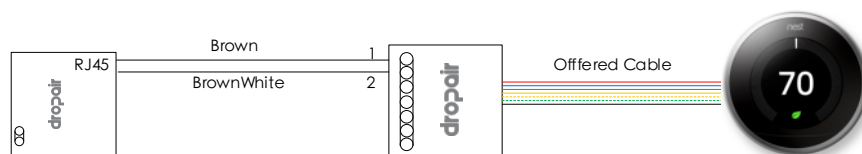


The iPanel is installed between the 220 VAC smart thermostat and the Dropair Mini6/Mini6S/Pro6X adapter.



7.6 Master-slaver Adapter Solution

The existing air conditioner signal wiring can be retained. By using a master-slave adapter configuration, the adapter can be installed with no modification required.



8 Troubleshooting

1. Set the nest to OFF mode. Manually turn on the original remote controller and observe whether a bright blue light is on (Blue light for wired connection only). After a few seconds, the original

remote controller is automatically turned off; the blue light will be off or become weak. The blue light is on the right side of the RJ45 network port. If the original remote controller cannot be turned off, check the position of the IR solution, and check if the two terminal connectors are firmly connected to the wired connection. Another reason may be the firmware does not match this air conditioner.

2. Observe whether the adapter's green indicator is flashing when the nest mode is set to off. When the Nest starts cooling, whether the adapter's green indicator is always on. If the nest is in cooling mode, the adapter's green light is not always on, suggest you try to change the RJ45 connector or CAT6 cable.
3. Confirm the network cable you are using. Each of the 8 cores is a single-strand or multiple soft, thin threads.
4. If the nest always restarts. Is it found that when the cooling is just started, then the screen is black, and then the next time it is cooled, restart again? It is because of the CAT6, not the single core.
5. Be careful not to remove the original remote controller (except Carrier or Midea) when using the nest. And make sure that no fault code appears, if any fault code appears, try to power off the indoor unit and restart it.
6. If the issue cannot be resolved on site, contact Dropair technical support.

9 EMC Interference and Mitigation

If the power supply for the adapter comes from the indoor unit L and N power terminal. The large-capacity machine produces EMC interference when it is working, especially when starting and stopping, which interferes with the power supply of the adapter and then affects the output of the nest control signal. Nest thermostat will no longer output correct control signals during work states such as Cooling/Fan or Heating. It will recover by restarting the Nest thermostat or pulling out the Nest display from the Nest base.

EMC interference may be indicated by the following symptoms:

1. The adapter's green indicator light is on when the nest is in OFF mode, or Cool/Heat model without fan on, or Cooling/heating.
2. The adapter's green indicator light blinks when the nest is working, such as cooling, fan on, or heating.
3. If the site is using the cable solution, the communication between the adapter and the indoor unit is normal. If you manually turn on/off the original remote controller, the original remote controller will soon be turned off/on automatically.
4. You can plug off the nest display and then put it back. Or you restart the nest thermostat through the menu: Settings—Reset—Restart. The problem will be resolved temporarily. If you plug off and plug on the RJ45 connector it will be recovered too because this action also lets the nest thermostat restart.

If the problem is confirmed to be the EMC interference. Do not try to change the adapter and cable, or nest thermostat. If you do like this, the problem will appear again the a few days.

EMC interference can be site-specific. Apply the following mitigation steps in order.

Plan A - Use a Separate Power Source

Change the power supply source of the adapter from the indoor unit. You can try to get the adapter's power supply from another circuit breaker or circuit different from the indoor unit's power supply. The principle is to stay away from the power supply of the air conditioner, to reduce the interference of air conditioner EMC power. Because most of the indoor unit power comes from the outdoor unit, the power will get the EMC interference strongly.

Plan B - Add an Isolation Transformer

If you also cannot get the EMC filter and anti-static Magnetic Ring Clip Core Connector. You can use plan D. It just needs to add a transformer.

