COOLAUTOMATION
THE INTERNET OF CLIMATE (IoC)

CoolPlug CooLinkHUB HVAC Bridge

Quick Installation Guide

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Contact information: info@coolautomation.com

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Safety Guidelines, Warnings and Cautions

Read and understand the following guidelines to ensure a safe installation.

Warnings

Failure to follow WARNING may result in injury or death.

This equipment is to be installed by an accredited electrician or equivalent technical person, as per these installation instructions.

Read the installation instructions before connecting the system to the power source.

All electrical work must be performed by a licensed technician, according to local regulations.

Ultimate disposal of this product should be handled according to all national laws and regulations.

Installation of the equipment must comply with local and national electrical legislation for installation of electric equipment.

Do not install the devices outdoors or exposed to direct solar radiation, water, high relative humidity or dust.

Install the equipment only in a restricted access location.

When wall mounting, be sure to fix firmly on a stable surface and in accordance to the instructions below.

When DIN rail mounting, fix the devices properly to the DIN rail following the instructions below.

When mounting on DIN rail inside a metallic cabinet be sure to properly connect to earth.

Unplug power when connecting the wires.

Pay attention to the polarity of power and communication cables when connecting them.

Disconnect power of any bus or communication cable before connecting the system.

Cautions

Failure to follow CAUTION may result in serious injury.

Do not allow children to play with the CoolPlug or CooLinkHUB.

Do not disassemble, modify or repair the CoolPlug or CooLinkHUB, do contact CoolAutomation for support. Unauthorized modifications or repairs may result in electric shock or fire.

Do not expose the CoolPlug or CooLinkHUB to moisture. Water can damage the CoolPlug or CooLinkHUB resulting in an electrical components failure, electric shock or fire.

Do not use flammable materials (e.g. hairspray or insecticide) near the CoolPlug or CooLinkHUB. Do not clean the CoolPlug or CooLinkHUB with organic solvents such as paint thinner.

Use only a dry cloth to wipe if necessary. The maximum voltage that can be directly applied to the CooLinkHUB is 24V DC. Do not apply AC110V or AC220V to the CooLinkHUB or CoolPlug.

DO NOT INSTALL the COOLINKHUB or COOLPLUG IN THE FOLLOWING LOCATIONS:

a) Where mineral oil mist or oil spray or vapor is produced, for example, in a kitchen. Plastic parts may deteriorate and fall off.

b) Where corrosive gas, such as sulfurous acid gas, is produced.

c) Near machinery emitting electromagnetic waves. Electromagnetic waves may disturb or damage the operation of the CooLinkHUB.

d) Where flammable gas may leak, where there is carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled. Operating the CooLinkHUB or CoolPlug in such conditions may cause a fire.

e) In high temperature areas or near any flame.

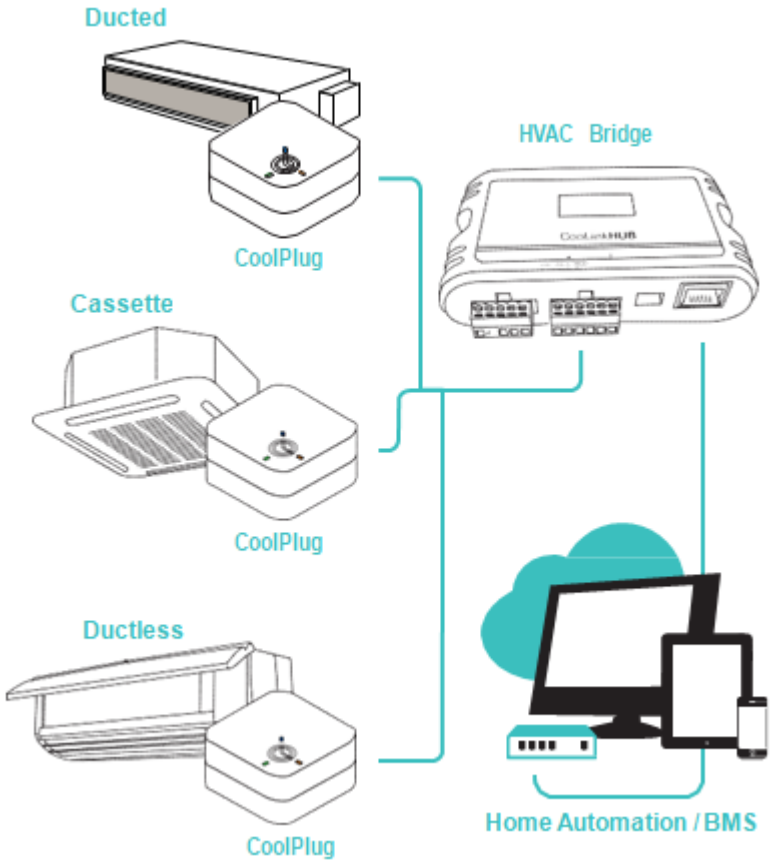
f) In moist areas, or where there is exposure to water.

1. CooLinkHUB + CoolPlug

1.1 System Overview

The CooLinkHUB + CoolPlug is a solution for complete integration of Multi-Split and Mini-Split HVAC units. The CoolPlug - HVAC designated adapter, connects directly to the HVAC indoor unit on one side, and to the CooLinkHUB on the other, via a PBUS Network.

The CooLinkHUB - protocol converter allows integration to any Home Automation system.



1.2 Network Topology

The PBUS is a Cool Automation's proprietary Bus, running on a shielded twisted pair cable (24AWG). The PBUS utilizes free network topology ('star', 'daisy- chain', etc.) No loops allowed.

Up to 10 CoolPlugs can be connected in a single PBUS network.

1.3 CoolPlug Models

CoolPlug models are HVAC manufacturer specific. The letters on the sticker (DK, DKS, etc.) indicate the HVAC manufacturer the CoolPlug relates to.

CoolPlug Model	HVAC Vendor	Cable Type
HVAC DK	Daikin	S21
HVAC DKS	Daikin Siesta Series	Siesta
HVAC PA SA TO	Panasonic | Sanyo | Toshiba	--
HVAC FJ	Fujitsu/General	FJ003
HVAC ME	Mitsubishi Electric	CN105
HVAC MH	Mitsubishi Heavy	--
HVAC HT	Hitachi	--
HVAC LG	LG	LG
HVAC FUT	Fujitsu	--
HVAC GR	GREE	4 units

1.4 What's in the box

1.4.1 CooLinkHUB

- CooLinkHUB Unit
- USB cable
- RS-232 cable
- Power supply
  (Universal or EU – according to SN)

1.4.2 CoolPlug

- CoolPlug Unit
- CoolPlug back plate for adding two magnets
- CoolPlug back plate for adding two stamps
- Two stamps
- Two magnets
- Optional: Terminal cable
  (according to the specific plug model as indicated on the above table.

2. Connecting CoolPlug - Daikin

2.1 DK (Daikin) – S21

1 Connecting the CoolPlug to the Daikin unit

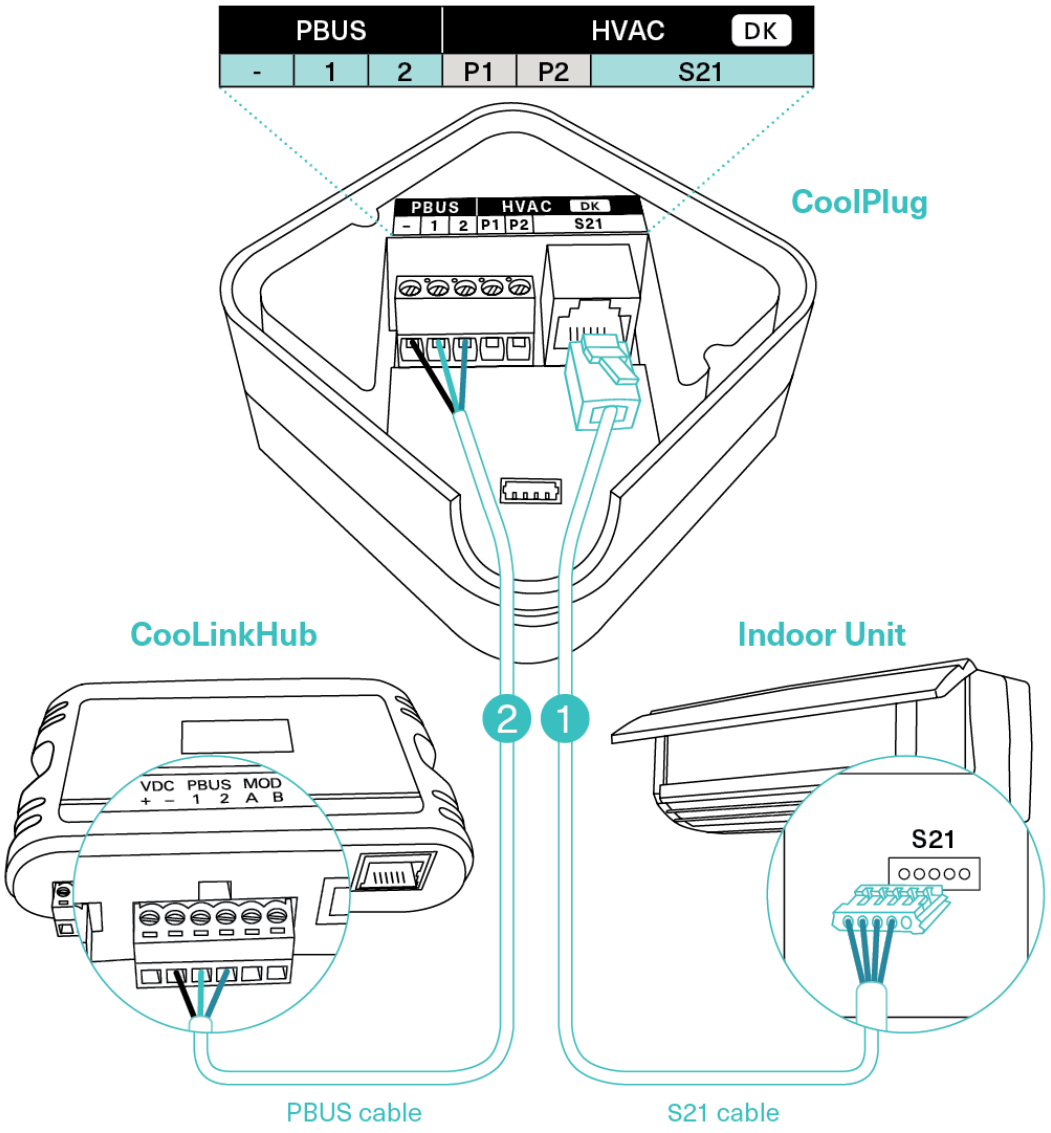
Connect the S21 cable supplied with the CoolPlug, between the CoolPlug RJ-11 connector and the S21 port on the indoor unit's PCB. Consult HVAC manufacturer's installation manual for location of S21 on Control Board.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable between CoolPlug terminals [-], [1] and [2], and CooLinkHUB terminals [VDC-], [1] and [2], respectively.

* See page 5 for system overview, no point-to-point connectivity required.

** Note: if your Daikin Indoor unit does not have S21 connector and has S403 connector, you can use S403 to S21 adaptor, available from your Daikin dealer.



2.2 DK (Daikin) – P1 P2

1 Connecting the CoolPlug to the Daikin unit

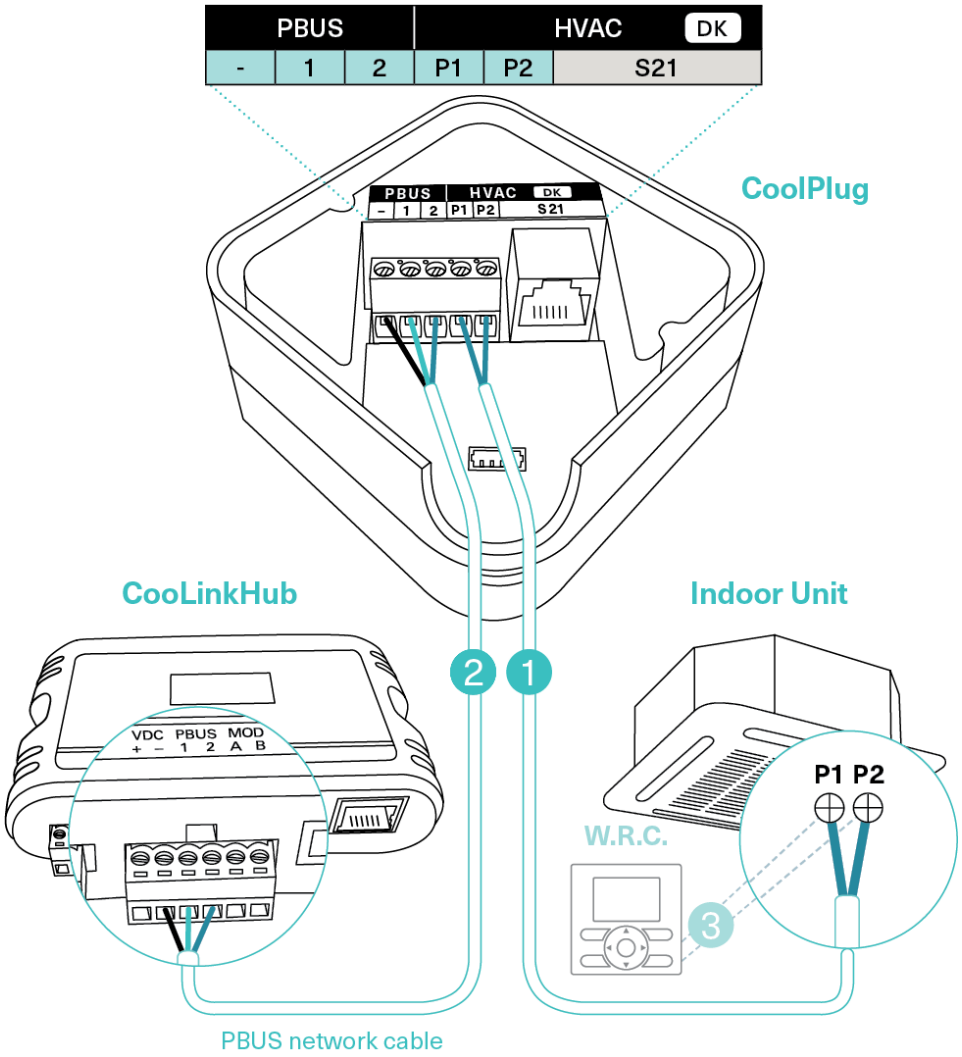
Connect the CoolPlug's [P1], [P2] terminals to the [P1], [P2] terminals on the indoor unit.*

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable coming from the [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug, respectively.

Optional: Connect the Wired Remote Controller (W.R.C.) in parallel mode.

* No Polarity requirements



2.3 DK (Daikin) – Siesta Series

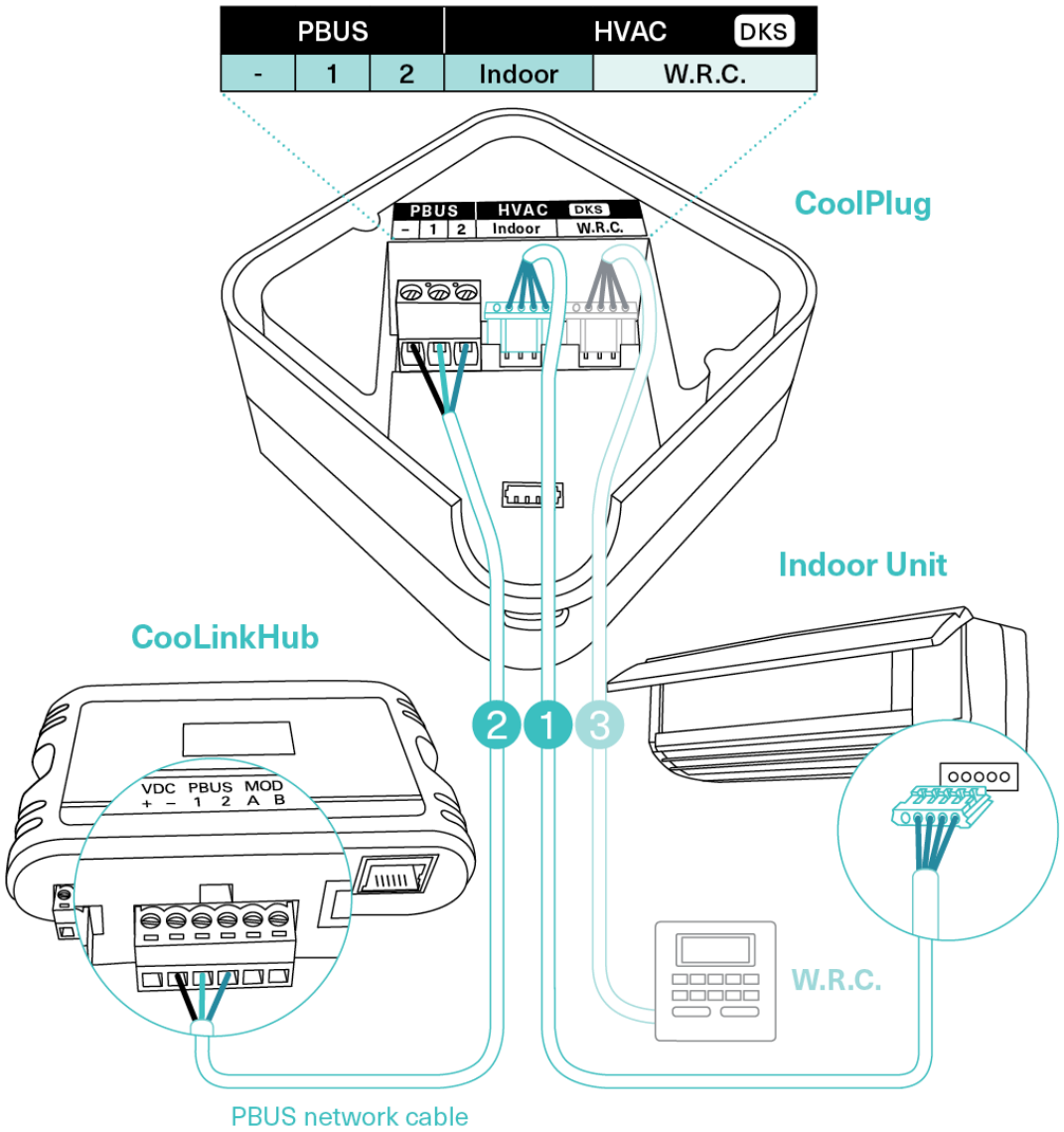
1 Connecting the CoolPlug HVAC Line to the Daikin Siesta Indoor Unit

Connect the cable, supplied with the CoolPlug, to the port labeled “Indoor” on CoolPlug and the corresponding connector on the indoor unit.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using [VDC-], [1] and [2] terminals on the CooLinkHUB, to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the wired remote to the ‘W.R.C’ socket on the CoolPlug. The cable is supplied with the W.R.C.



3. Connecting CoolPlug PN/SA/TO

3.1 Panasonic | Sanyo | Toshiba

1 Connecting the CoolPlug HVAC Line to the PN/SA/TO Indoor Unit

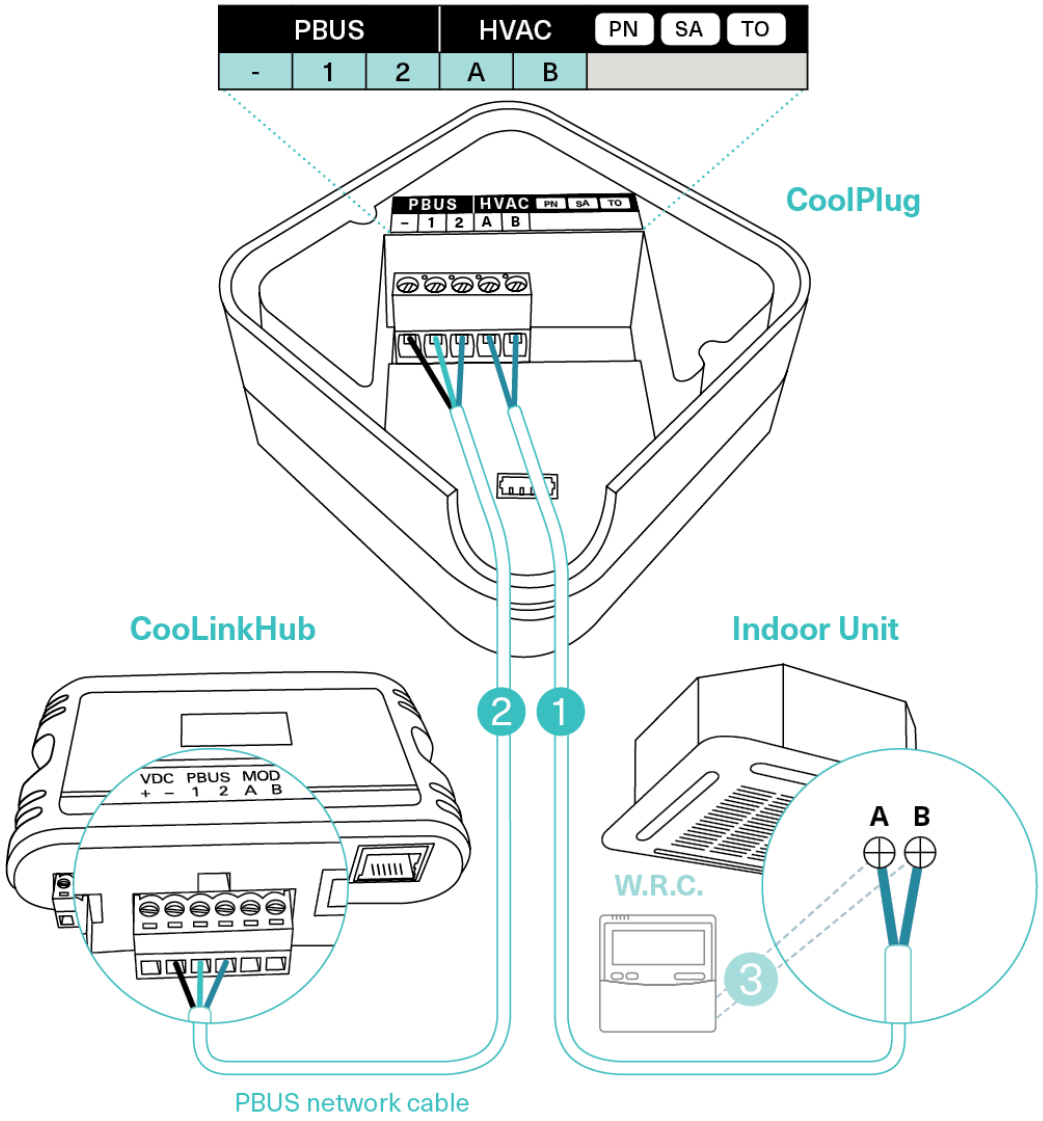
Connect the CoolPlug's [A], [B] terminals to [A], [B] terminals on indoor unit.
* To connect to Panasonic indoor unit, use R1 R2 terminals.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable coming from the [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.).

* No Polarity requirements



4. Connecting CoolPlug FJ

4.1 FJ (Fujitsu/General) - Option 1*

1 Connecting the CoolPlug HVAC Line to the Fujitsu Indoor Unit

Connect the CoolPlug's [W1], [B1], [R1] terminals to corresponding terminals on the indoor unit, keeping the wire colors consistency.

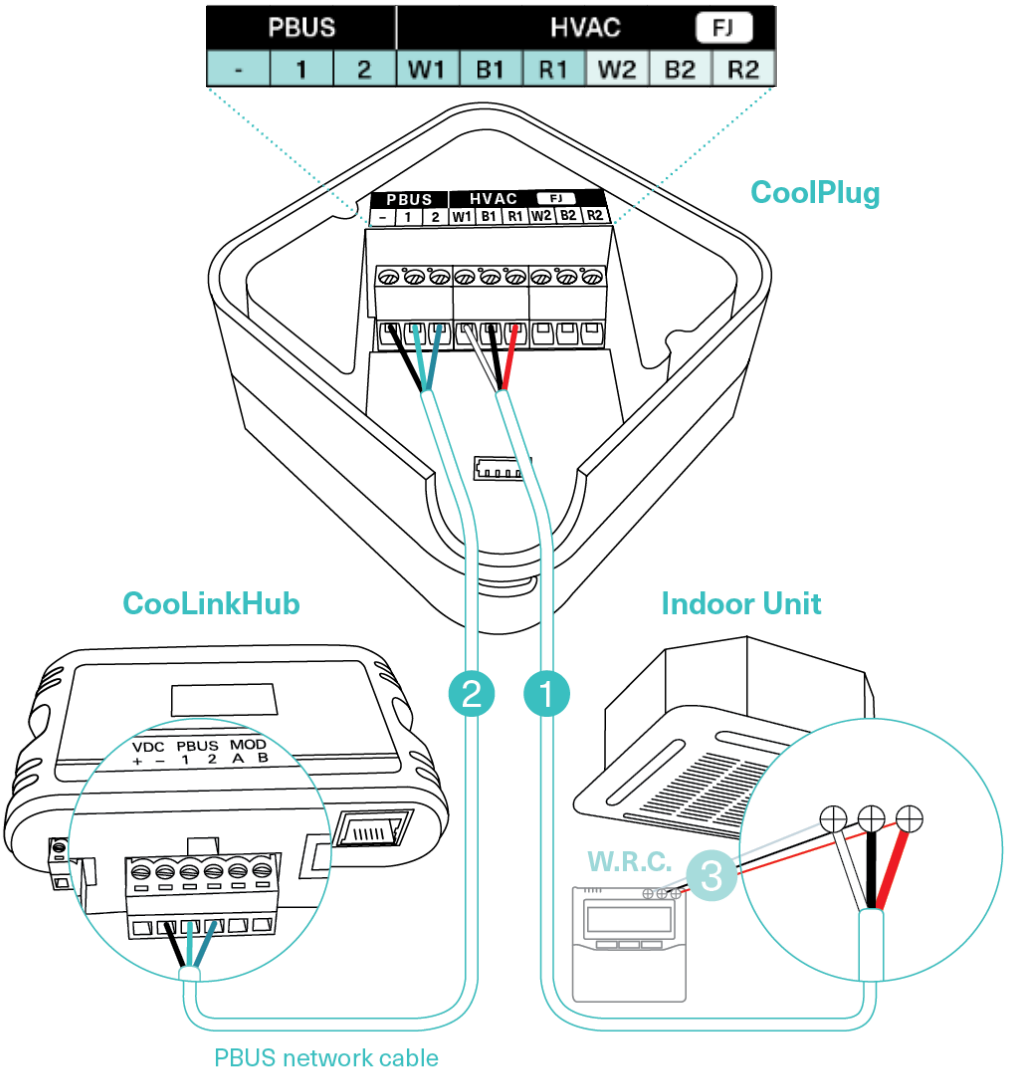
2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using the [VDC-], [1] and [2] terminals on the CooLinkHUB, to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.)

* For indoors that work with APG000 or compatible W.R.C. models.

** Reset power of AC Indoor unit, once the CoolPlug is installed



4.2 FJ (Fujitsu/General) - Option 2*

1 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable coming from the [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug.

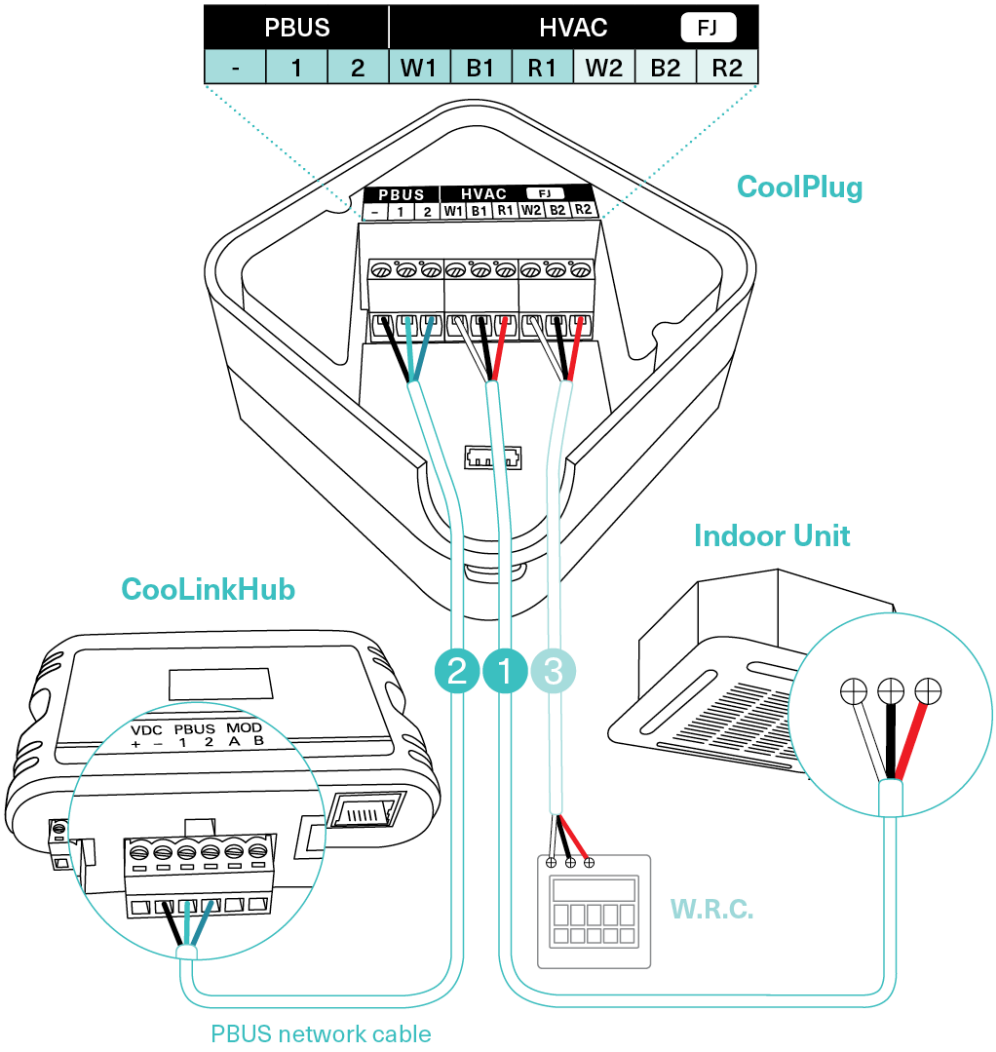
2 Connecting the CoolPlug HVAC Line to the Fujitsu Indoor Unit

Connect the CoolPlug's [W1], [B1], [R1] terminals to indoor unit. Consult HVAC manufacturer's Installation Manual for instructions.

3 Optional: Connect the CoolPlug's [W2], [B2], [R2] terminals to the Fujitsu Wired Remote Controller (W.R.C.)

* For indoors that work with EZ-099 or compatible type wired remote controllers.

** Reset power of AC Indoor unit, once the CoolPlug is installed



4.3 FJ (Fujitsu/General) - Option 3*

1 Connecting the CoolPlug HVAC Line to the Fujitsu Indoor Unit

Connect the CoolPlug's [W1], [B1], [R1] terminals to the corresponding terminals on the indoor unit, keeping the wire colors consistent.

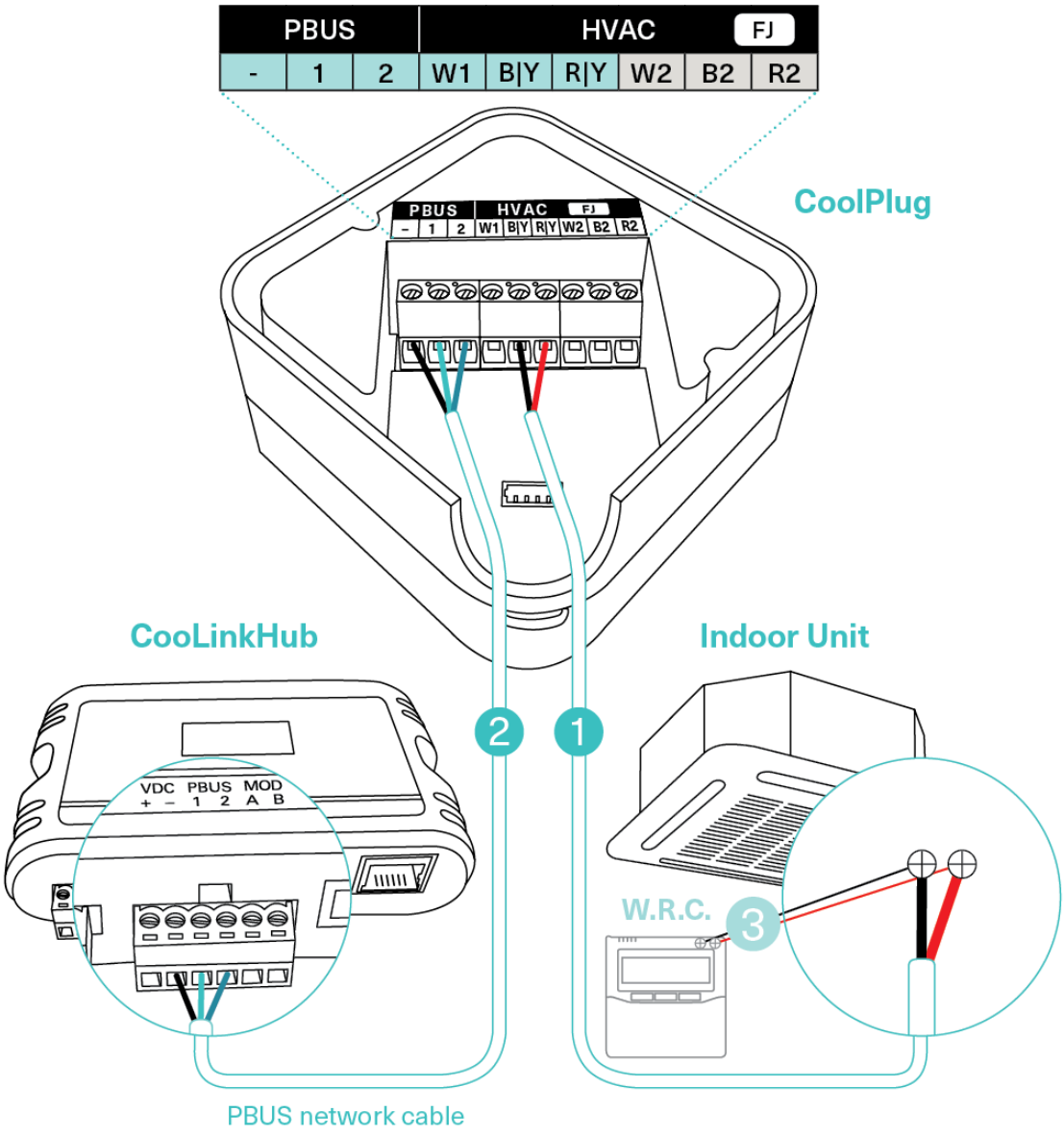
2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using the [VDC-], [1] and [2] terminals on the CooLinkHUB, to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.)

* For indoors that work with 2-wire compatible W.R.C. models.

** Reset power of AC Indoor unit, once the CoolPlug is installed



5. Connecting CoolPlug ME (Mitsubishi Electric)

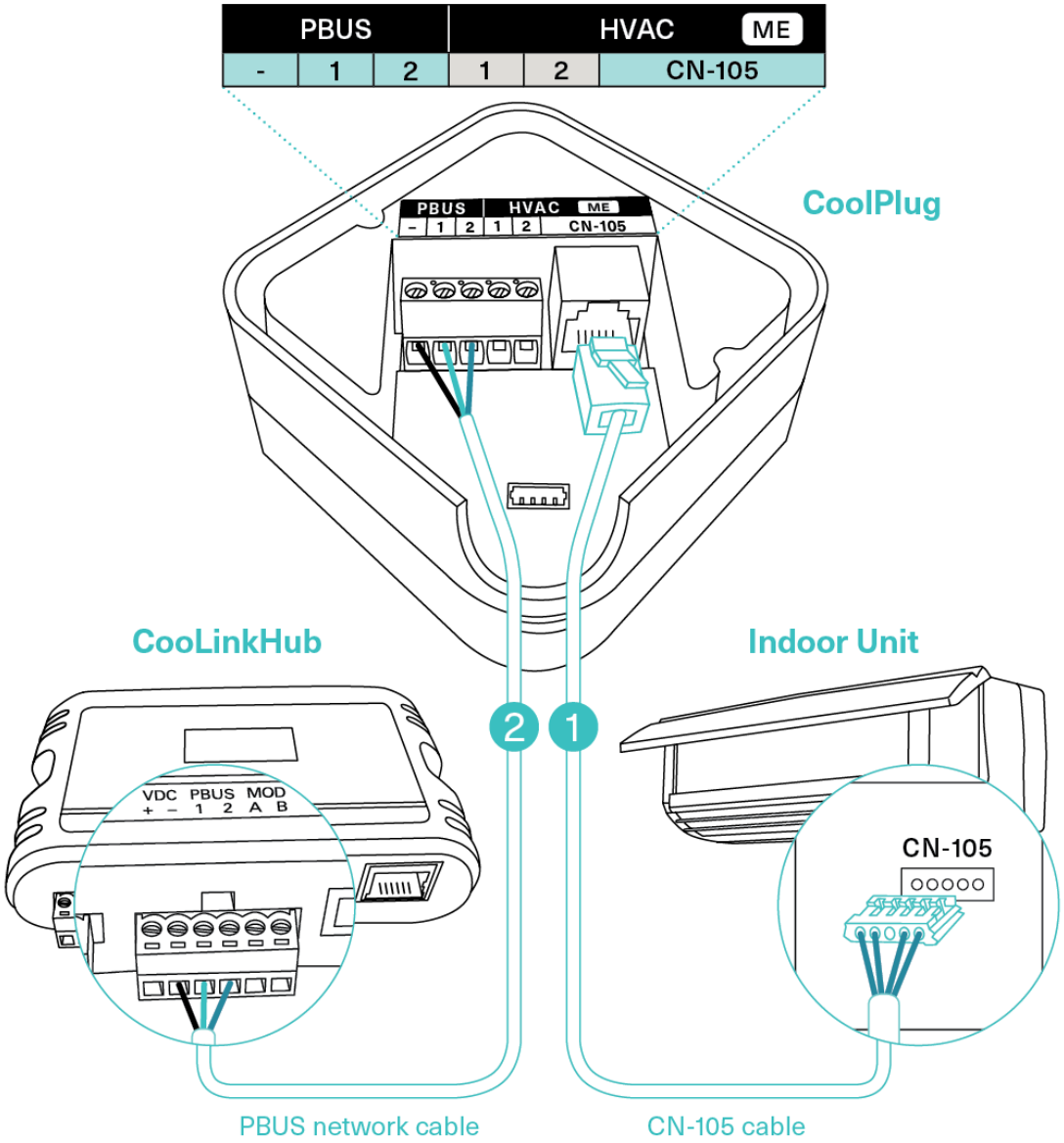
5.1 Option 1 – CN-105

1 Connecting the CoolPlug HVAC Line to the Mitsubishi Indoor Unit

Connect the ME CN-105 cable, supplied with the CoolPlug, between the CoolPlug RJ-11 connector and the CN-105 port on the indoor unit's Control Board. Consult the HVAC manufacturer's installation manual for the location of the CN-105 port on the Control Board.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using the [VDC-], [1] and [2] terminals on the CooLinkHUB, to the corresponding [-], [1] and [2] terminals on the CoolPlug.



5.2 Option 2 – [1] [2]

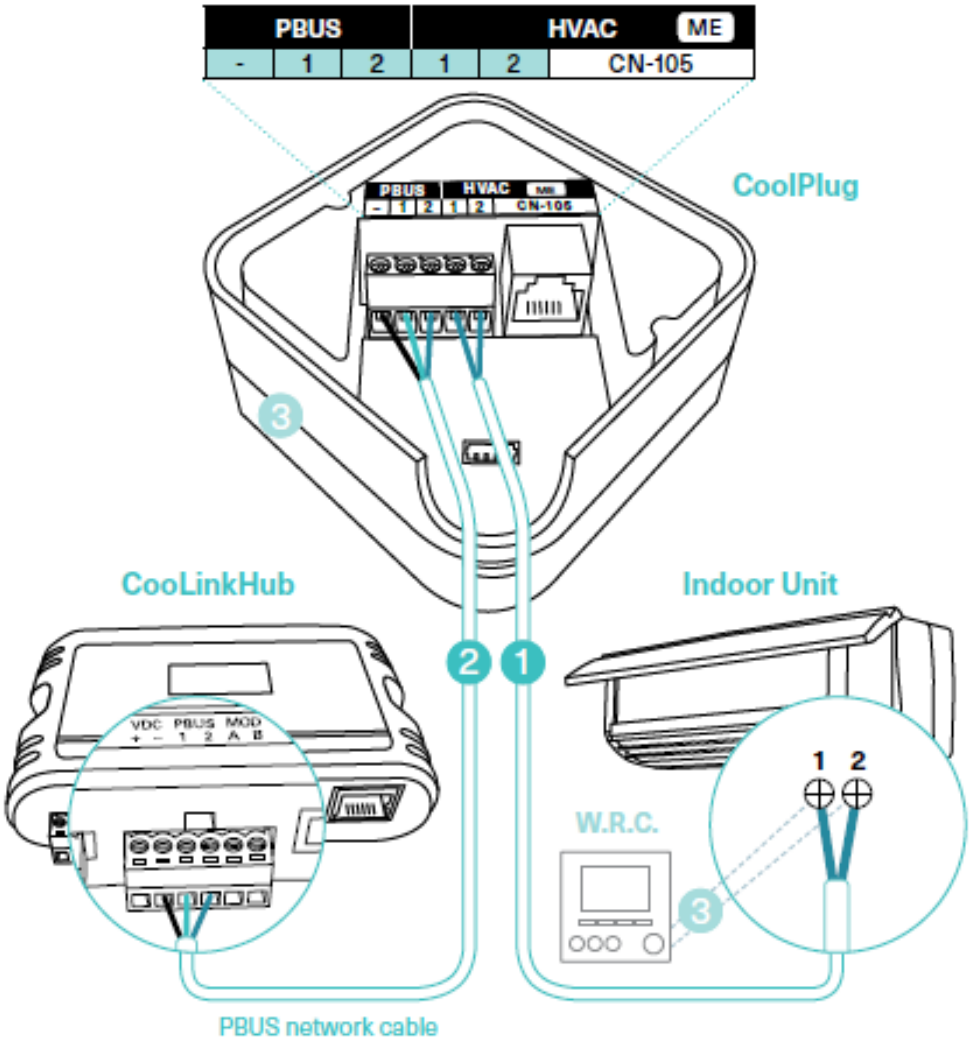
1 Connecting the CoolPlug HVAC Line to the Mitsubishi Indoor Unit

Connect the CoolPlug's HVAC [1], HVAC [2] terminals to [1], [2] terminals on indoor unit. Consult HVAC manufacturer's installation manual for location of [1] and [2].

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using [VDC-], [1] and [2] terminals on the CooLinkHub to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.).



6. Connecting CoolPlug MH (Mitsubishi Heavy)

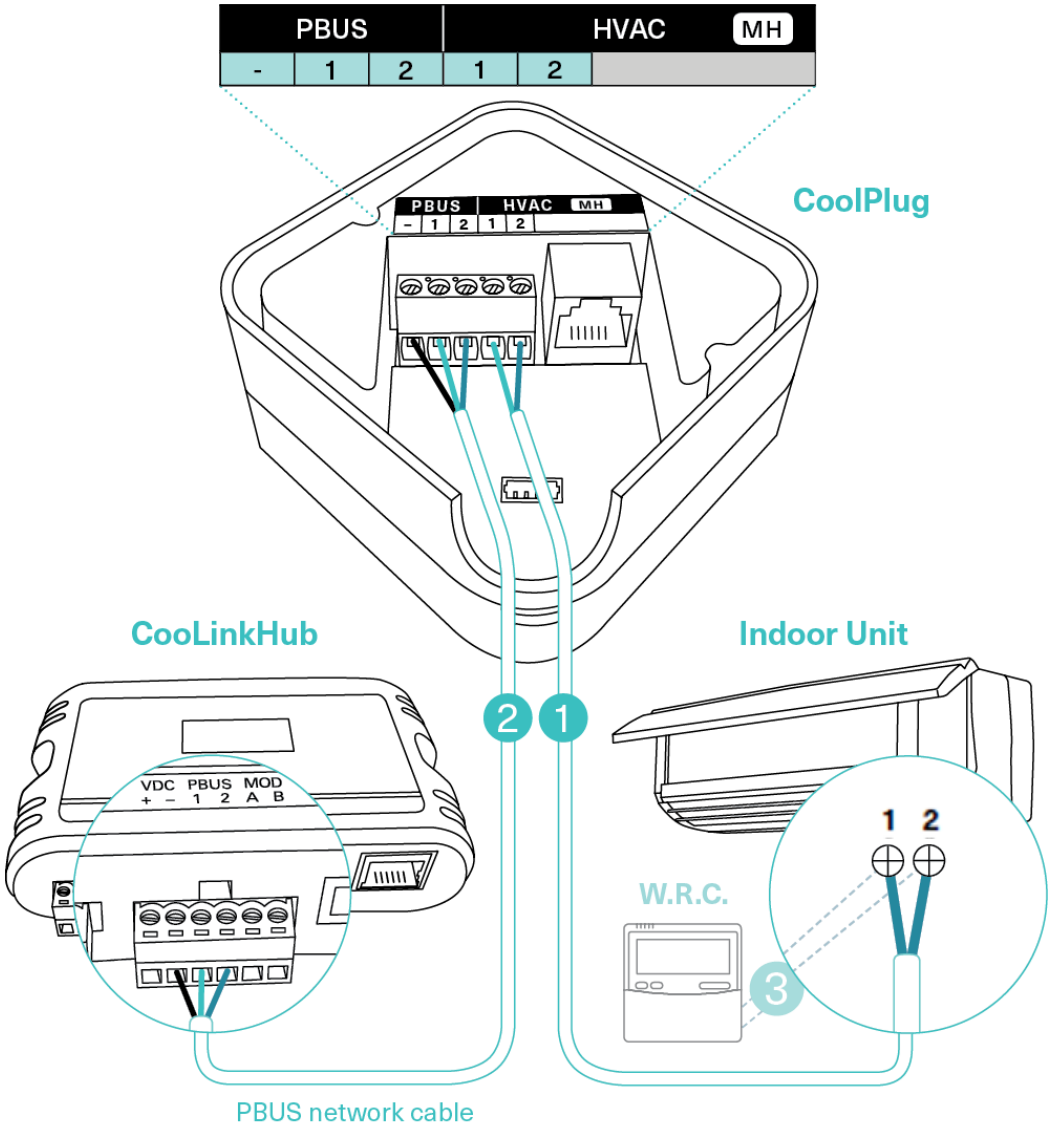
1 Connecting the CoolPlug HVAC Line to the Mitsubishi Indoor Unit

Connect the CoolPlug's HVAC [1], HVAC [2] terminals to the [1], [2] terminals on the indoor unit. Consult the HVAC manufacturer's installation manual for the location of the [1] and [2] terminals.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable, using the [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.).



7. Connecting CoolPlug HT (Hitachi)

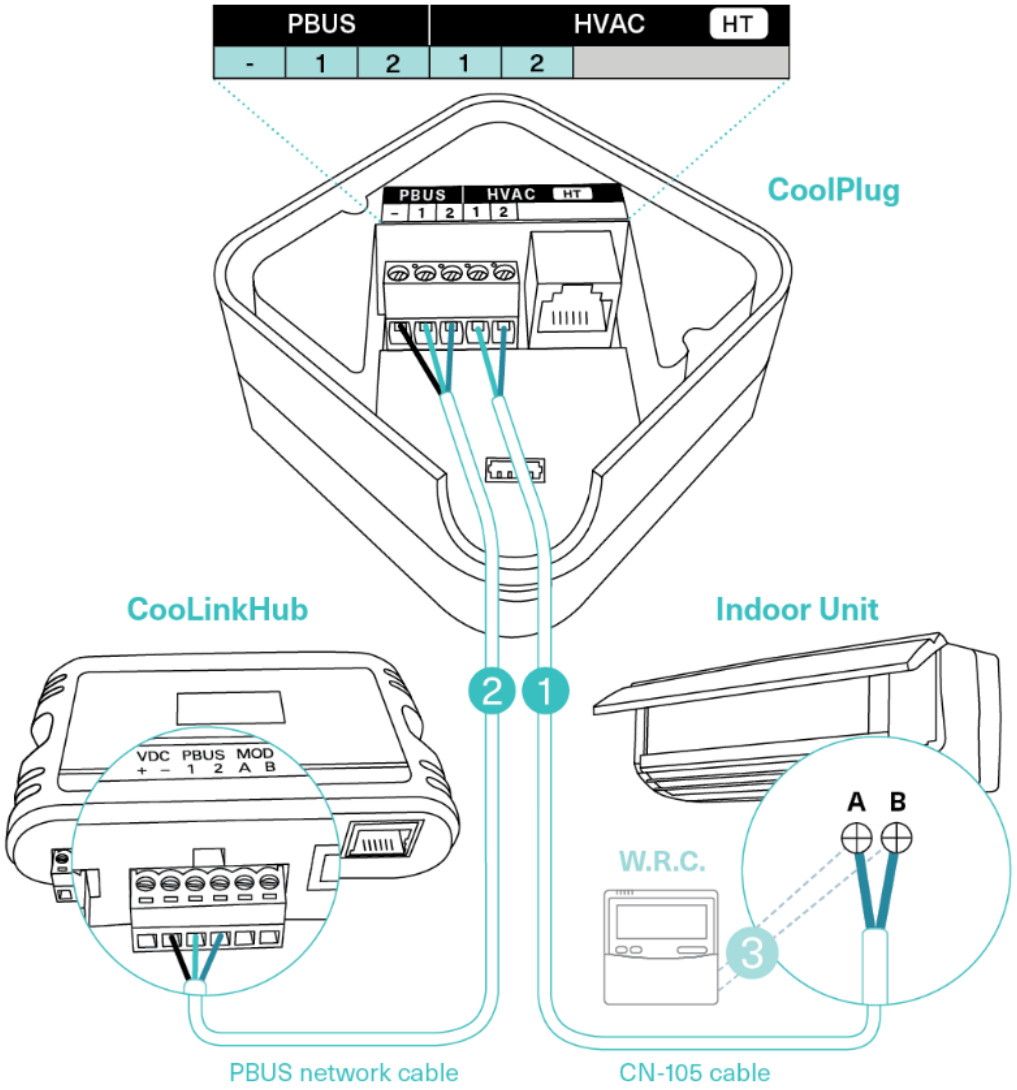
1 Connecting the CoolPlug to the Hitachi unit

Connect the CoolPlug's HVAC [1], [2] terminals to the [A], [B] terminals on the indoor unit.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable coming from the [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug.

3 Optional: Connect the Wired Remote Controller (W.R.C.).



8. Connecting CoolPlug LG (LG)

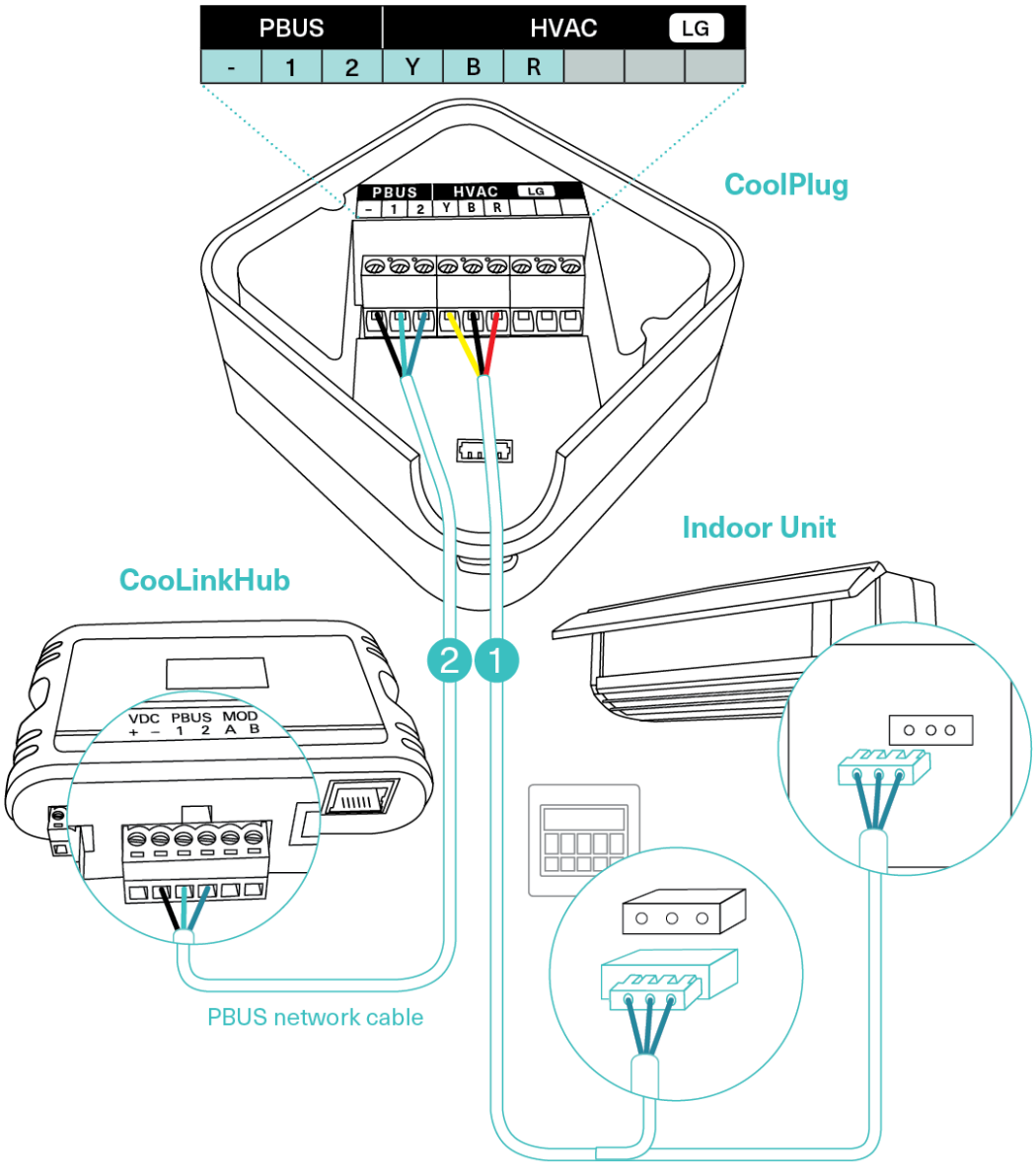
1 Connecting the CoolPlug to the Indoor unit

Connect the cable supplied with the CoolPlug, between the CoolPlug HVAC [Y], [B], [R] terminals and the port on the indoor unit's PCB. Consult the HVAC manufacturer's installation manual.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS cable between CoolPlug terminals [-], [1] and [2], and CooLinkHUB terminals [VDC-], [1] and [2], respectively.

3 Optional: Connect the Wired Remote Controller (W.R.C.) in parallel mode.



9. Connecting CoolPlug Gree (GRTS)

9.1 Gree Option 1

1 Connecting the CoolPlug HVAC Line to the Gree Indoor Unit

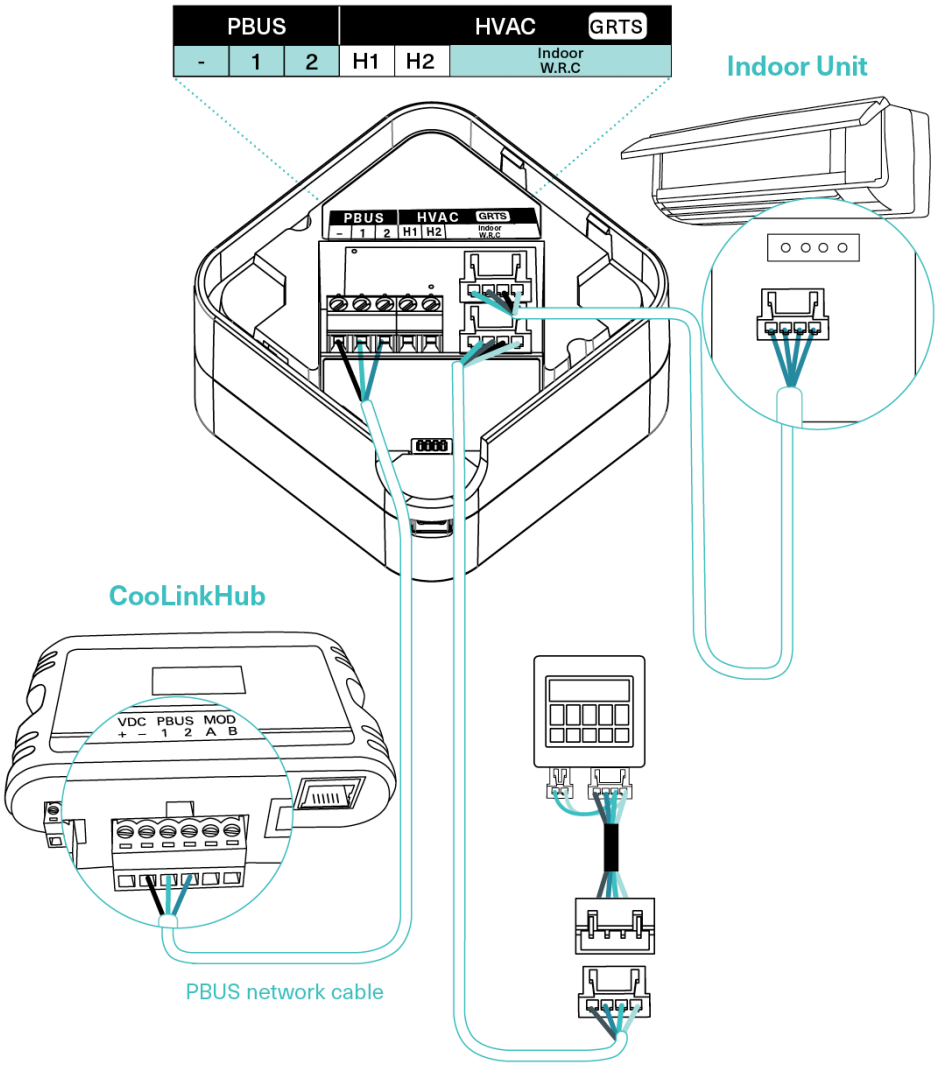
Connect the cable supplied with the CoolPlug, between the CoolPlug Indoor connector and the connector on the indoor unit's PCB. Consult the HVAC manufacturer's Installation manual for the location of the indoor unit connector on the Control Board.

2 Connecting the CoolPlug to the W.R.C.

Connect the short cable (supplied with the CoolPlug) between the 2 W.R.C. ports and the W.R.C. cable to the CoolPlug's W.R.C. port.

3 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of PBUS cable between the CoolPlug terminals [-], [1] and [2], and the CooLinkHUB terminals [VDC-], [1] and [2], respectively.



9.2 Gree Option 2

1 Connecting the CoolPlug HVAC line to the Gree Indoor Unit

Connect the cable supplied with the CoolPlug, between the CoolPlug Indoor connector and the connector on the indoor unit's cable. Consult HVAC manufacturer's Installation manual for location of indoor unit cable.

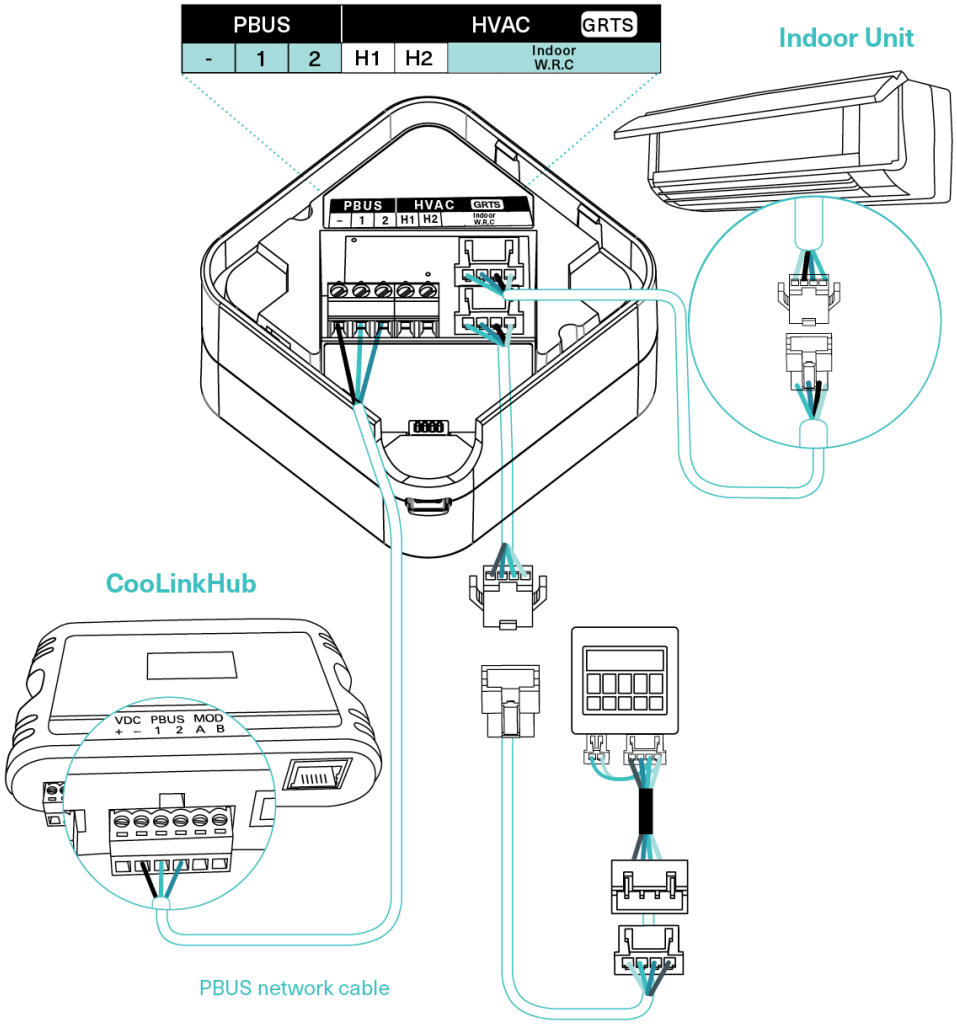
2 Connecting the CoolPlug to the W.R.C.

Connect the short cable (supplied with the CoolPlug) between the 2 W.R.C. ports.

Connect the W.R.C. cable to the connector of the adapter cable supplied with the CoolPlug. Then connect the CoolPlug adapter to the CoolPlug W.R.C. port.

3 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS network cable between CoolPlug terminals [-], [1] and [2], and CooLinkHUB terminals [VDC-], [1] and [2], respectively.



9.3 Gree Option 3 (H1, H2)

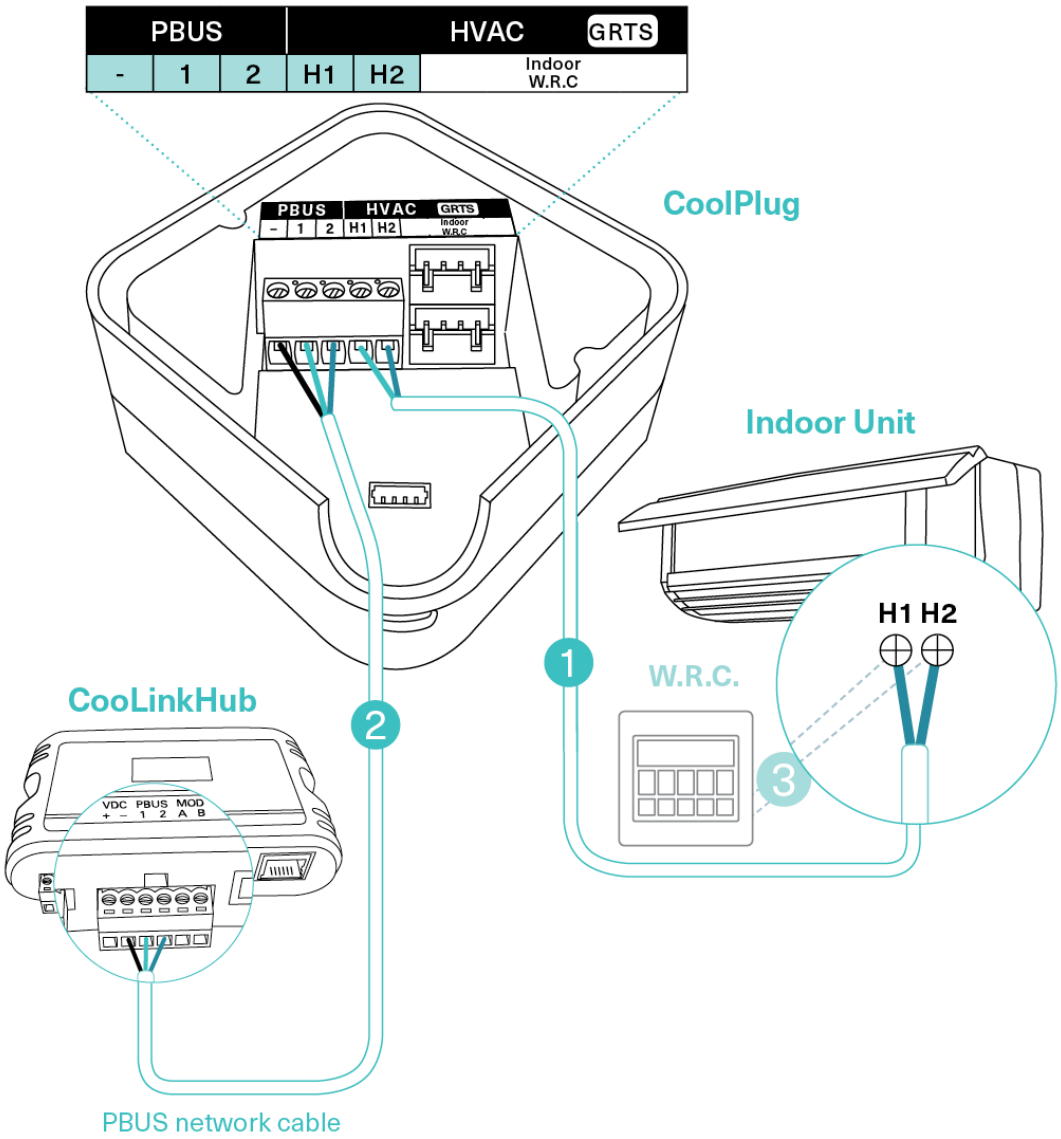
1 Connecting the CoolPlug HVAC line to the Gree Indoor Unit

Connect the CoolPlug's H1, H2 terminals to terminals H1 and H2 on the indoor unit. Consult HVAC manufacturer's Installation manual for location of terminals H1 and H2.

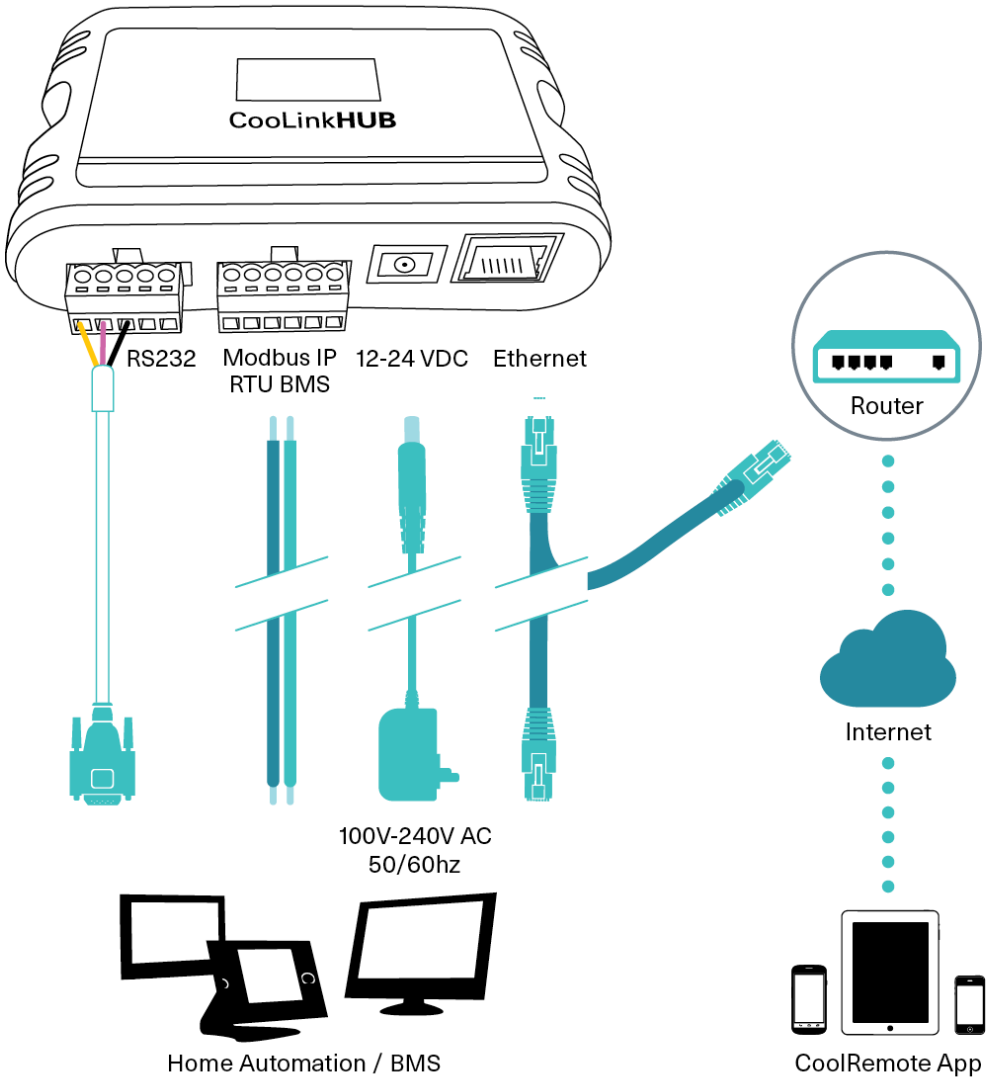
Note: W.R.C. can be connected to H1, H2 in parallel to the CoolPlug connection.

2 Connecting the CoolPlug to the CooLinkHUB

Connect the signal wires of the PBUS network cable, using [VDC-], [1] and [2] terminals on the CooLinkHUB to the corresponding [-], [1] and [2] terminals on the CoolPlug.



10. Connecting Home Automation, BMS & CoolRemote



11. CoolRemote App

Connect the device to the Internet for registration and setup.

Option A – Automatic

1 Scan the QR code from the type label to auto fill-in all the CooLinkHUB details for the CoolRemote App.

2 Register your username (email) and password to remotely control and monitor all your HVAC units.

Option B – Manual

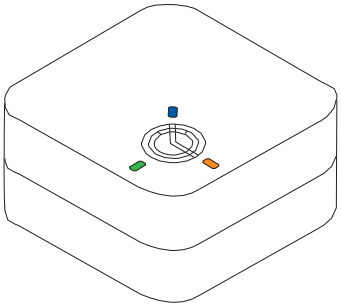
1 Go to: https://coolremote.net/register. Enter the CooLinkHUB SN number and PIN code, printed on the sticker.

2 Register your username (email) and password to remotely control and monitor your HVAC units.

12. CoolPlug Operation

12.1 CoolPlug Indicators

The three LEDs that surround the CoolPlug's push-button provide information about the CoolPlug configuration and status. After applying power to the CoolPlug the Firmware version is displayed by flashing LEDs followed by the operational state of the system.



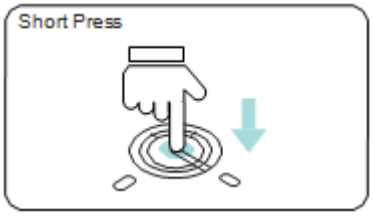
12.2 CoolPlug Normal Operation

In normal operation the blue LED blinks periodically. The green and amber LEDs are not lit.

	Normal operation	Problems	
	LED OFF	LED ON	LED Blinking
Green	HVAC Line OK	HVAC Line not connected	HVAC Line errors
Amber	PBUS OK	PBUS not connected	PBUS errors
Blue	Blinks infrequently twice — HVAC is ON	—	
	Blinks infrequently — HVAC is OFF		

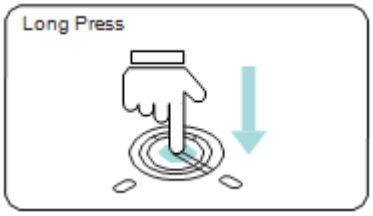
Determining the CoolPlug UID

The CoolPlug UID is flashed after one 'Short' press on the CoolPlug push-button.



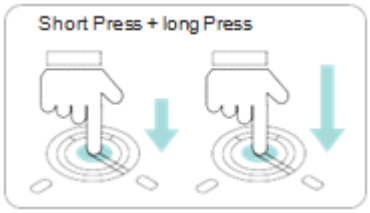
Toggling the HVAC ON/OFF

Toggle the HVAC state ON/OFF with one 'Long' press on the CoolPlug push-button.



Resetting the CoolPlug

Reset the CoolPlug with one 'Short' press followed by one 'Continuous' press on the CoolPlug push-button.



13. Wireless CoolPlug & CooLinkHUB – Installation Guidelines

Important Notes:

1. To successfully pair the CooLinkHUB to the CoolPlug they must be in line-of-sight proximity one to the other (no more than three meters).
2. The CoolPlug is powered from the HVAC terminal. It can also be powered via USB during the setup process (either from a PC or the CooLinkHUB).
3. The CooLinkHUB can connect simultaneously to both wired and wireless CoolPlug units.

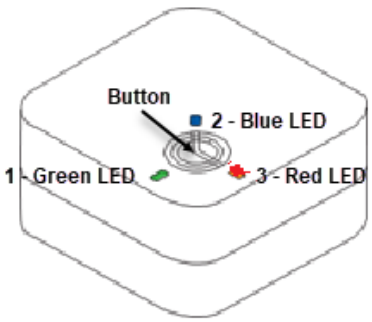
How to pair and connect a CoolPlug with the CooLinkHUB

1. On the CooLinkHUB, press the **OK** button.

2. An Option menu is displayed on the LCD screen.
3. With the up/down arrow buttons, select the **Wireless** option.

4. Press the **OK** button. A new options menu is displayed on the screen.
5. With the arrow buttons select the **Pair** option.

6. On the CoolPlug, press the button **five times (take 1 second between consecutive presses)**. A fast blinking red light is displayed while pairing to the CooLinkHUB.



Note: The Wireless CoolPlug has a Red LED instead of Yellow.

Red LED status indication:

- **Constantly ON** – CoolPlug is not paired.
- **ON with intermittent blink** – Paired but not connected to the CooLinkHUB
- **Fast blinking** – CoolPlug is in Pairing process
- **OFF** – Paired and Connected

7. On the CooLinkHUB, press the **OK** button.

8 When pairing is complete the red LED (# 3 on the image) turns off.

9 When pairing is complete the CoolPlug immediately tries to connect to the CooLinkHUB.

10 Once the connection is successful, the number of connected CoolPlugs is displayed on the screen in L5 GXXX, where XXX denotes a number (in the image below XXX=5).

11 The devices are now paired and connected.

13.1 Rebuilding the wireless mesh network

In some cases, rebuilding the mesh network topology may be required. For example, when changing the position of a number of CoolPlugs.

To ensure the network is built in the most optimal way, follow the reconnection procedure:

To reconnect all paired devices to the wireless network mesh

1 On the CooLinkHUB, press the **OK** button. An options menu is displayed on the screen.

2 With the arrow buttons select the **Wireless** option.

3 Press the **OK** button. A new options menu is displayed on the screen.

4 With the arrow buttons select the **Reconn** option.

5 Press the **OK** button.

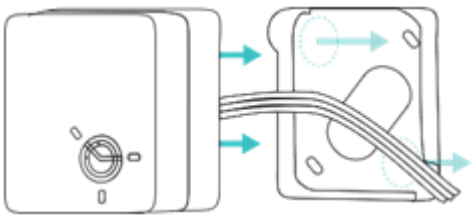
6 Upon successful reconnection, the expected number of CPs is displayed on the screen in L5 GXXX (as in the image below).

Note: To reconnect devices, no actions need to be performed on the CoolPlug devices.

14. Mounting the CoolPlug

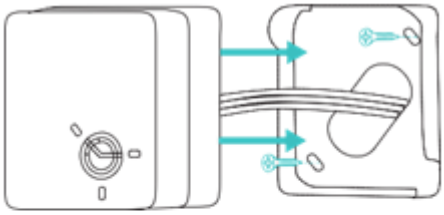
On a Metal Surface

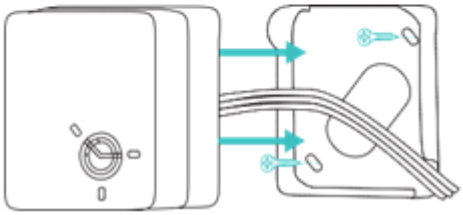
The CoolPlug back plate has two magnets that allow you to mount it on any metal surface.



On the Wall

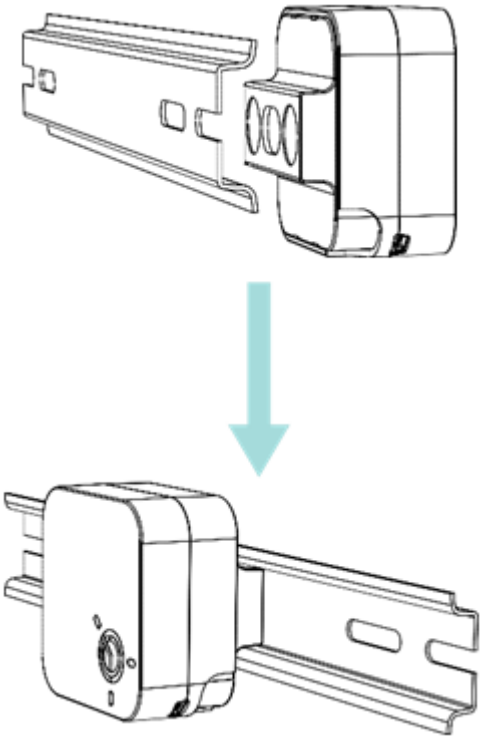
Attach the CoolPlug back plate to the wall using screws as shown. The wires can be fed through the hole in the center of the cover or from the side as shown.





On DIN Rail

Use back plate for DIN rail to attach it to the DIN rail utilizing magnets.



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