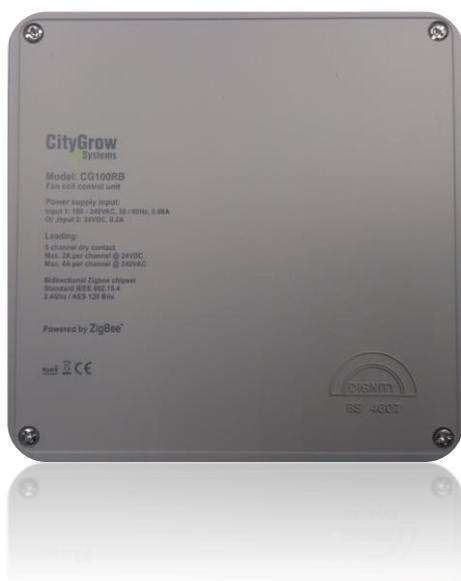# CG401S5-FCU
CG401S5V1-FCU

FAN COIL UNIT (FCU) CONTROLLER

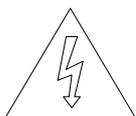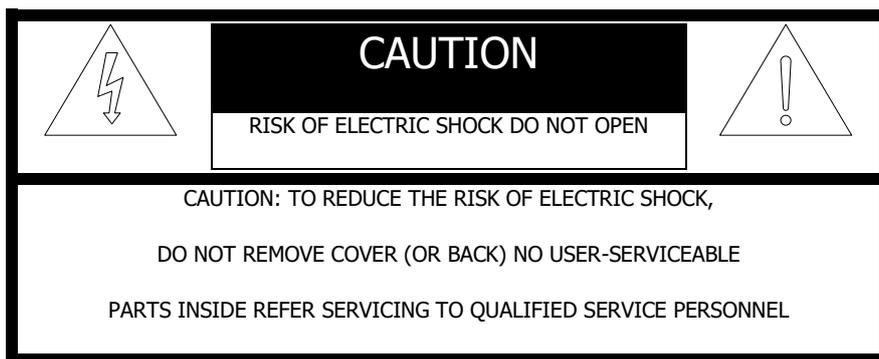# USER MANUAL

VERSION 1.2

24 FEBRUARY, 2020

Disclaimers and Copyright

⚡	CAUTION	⚠
	RISK OF ELECTRIC SHOCK DO NOT OPEN	

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,

DO NOT REMOVE COVER (OR BACK) NO USER-SERVICEABLE

PARTS INSIDE REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
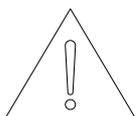
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS
READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards.

There are, however, some installation and operation precautions which you should be particularly aware of.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. If the provided plug does not fit into your outlet, consult an electrician for replacement of the outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
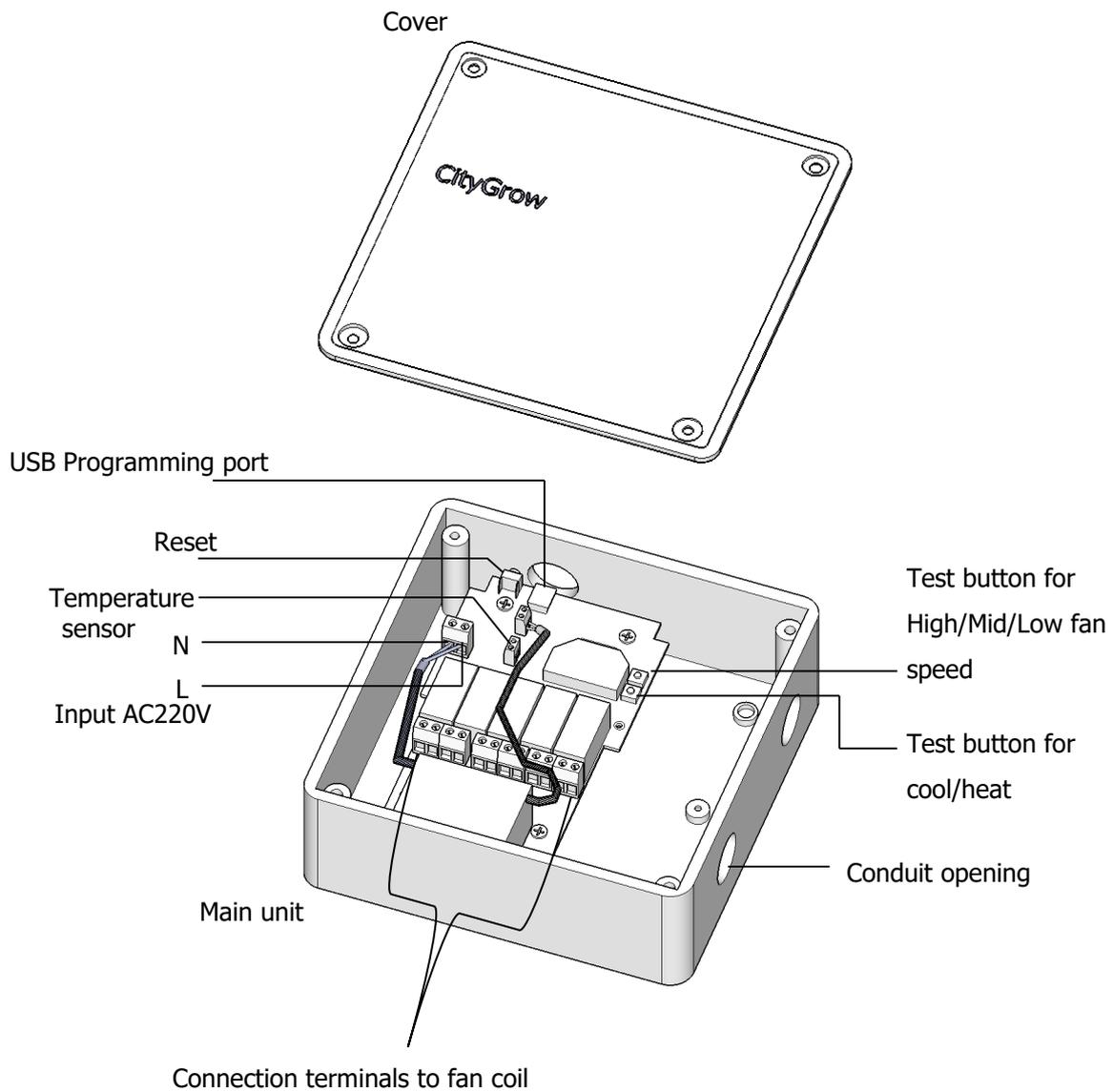
Table of content

1. Introduction

Thank you for choosing CityGrow's product. CG401S5-FCU Fan Coil Unit (FCU) Controller is highly-functional, user-friendly and installation-friendly. The CG401S5-FCU and CG401S5V1-FCU are specially designed for featuring FCU control in CityGrow's automation system.

Description

1. ZigBee wireless remote control.

2. Based on IEEE 802.15.4.

3. 2.4GHz radio frequency.

4. Inbuilt 5 independent contacts for High/Mid/Low and Cool/Heat control.

5. CG401S5-FCU, without sensor, compatible with CG100HTH Thermostat.

6. CG401S5V1-FCU inbuilt temperature sensor, compatible with CG100HTHV1 Thermostat.

7. Openings for direct insertion of conduits, ideal for on-site installation.

8. Can include FCU control function in scene control.

9. Enclosure by BS4607 cabinet.

10. With CG102BS-R Base Station, all devices support iOS/Android App control.

11. Powered by CG101AD Mini Power Supply. (Included)

12. Easy to install.

2. Understanding the product

Cover

USB Programming port

Reset

Temperature sensor

N

L

Input AC220V

Main unit

Test button for High/Mid/Low fan speed

Test button for cool/heat

Conduit opening

Connection terminals to fan coil

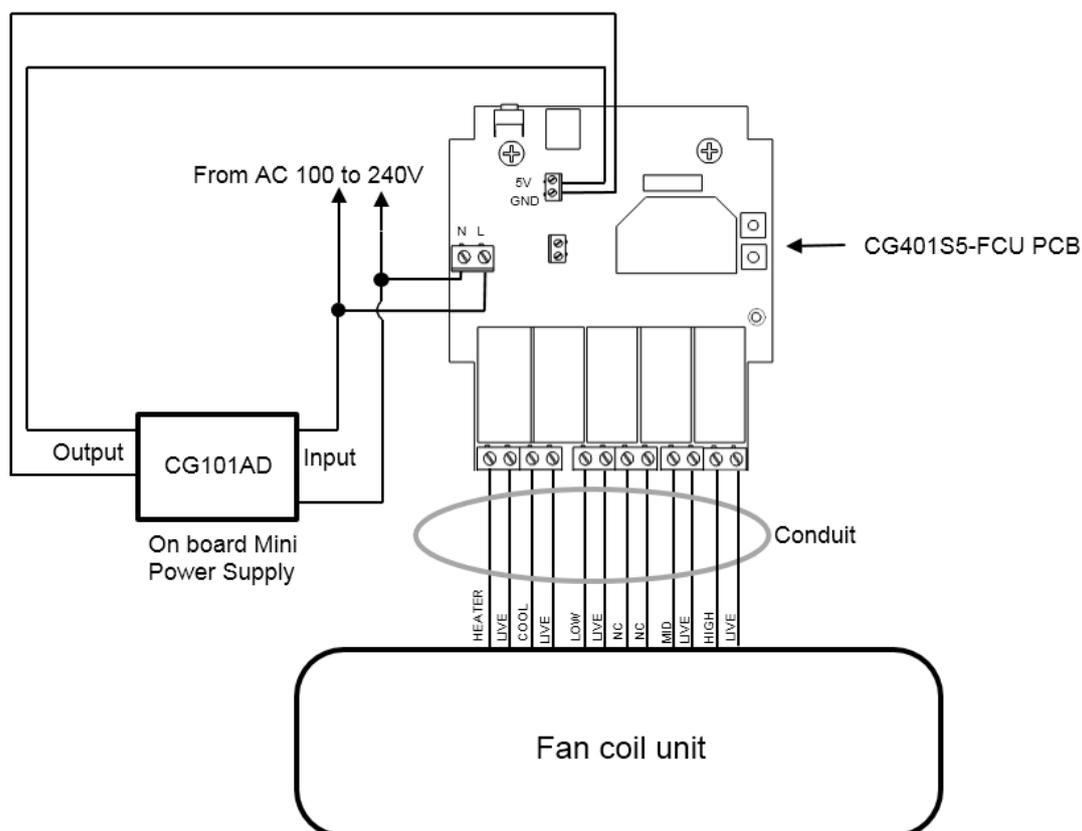| Pin number	Description
1, 2	Relay output for HEAT
3, 4	Relay output for COOL
5, 6	Relay output for FAN SPEED LOW
7,8	NC
9,10	Relay output for FAN SPEED MID
11,12	Relay output for FAN SPEED HIGH

3. Dimensions

152mm

152mm

CityGrow

56mm
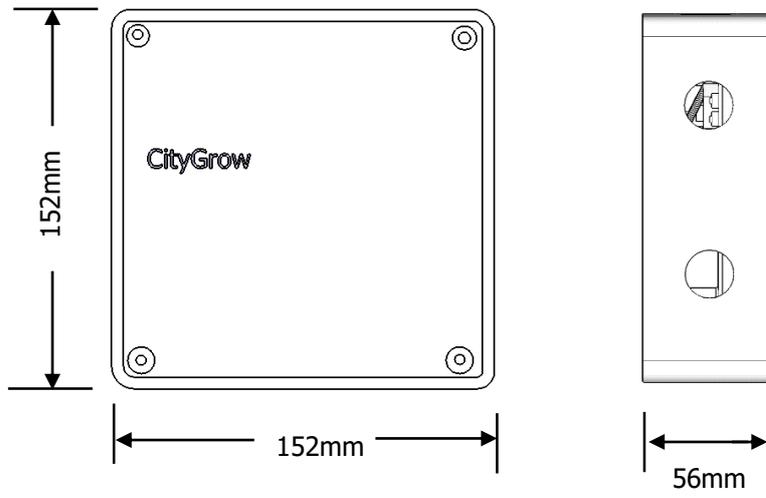
4. Wiring

Before getting started

⚠ WARNING! It must be installed by a qualified electrician in accordance with all applicable regulations and building codes. Improper wiring can result in personal injury or damage to control units or other equipment. Always turn off circuit breaker or remove main fuse from power line before doing any work. To avoid overheating and possible damage to equipment.

⚠ WARNING! Do not operate when any lamps removed or burned out; replace any burned out lamps immediately; use only transformers that incorporate thermal protection or fused primary windings. ! This product is designed for residential and commercial use, for indoor use only.

⚠ WARNING! Install in accordance to all national and local electrical codes.

⚠ IMPORTANT! CityGrow® is not liable for any damage incurred with the misuse of the product.

⚠ IMPORTANT! Pre-setup can only be done by a professional technician or manufacturer agent.

5. Installation

Please follow the instructions to install the product.

STEP 1: **IMPORTANT!** Turn off main power at the main switch board.
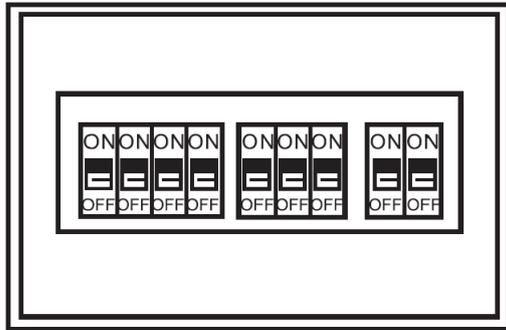
STEP 2: Select a location for installation which is nearby the fan coil unit (FCU).
Mount the CG401S5-FCU on the location and route the conduits.

Fan coil unit

Cool, Heat, High, Mid, Low control wires from the fan coil unit

AC220V input

Conduit

Fan Coil Control
Switch Module
CG401S5-FCU

AC220V is
connected

Cool, Heat, High, Mid,
Low control wires from
the fan coil unit
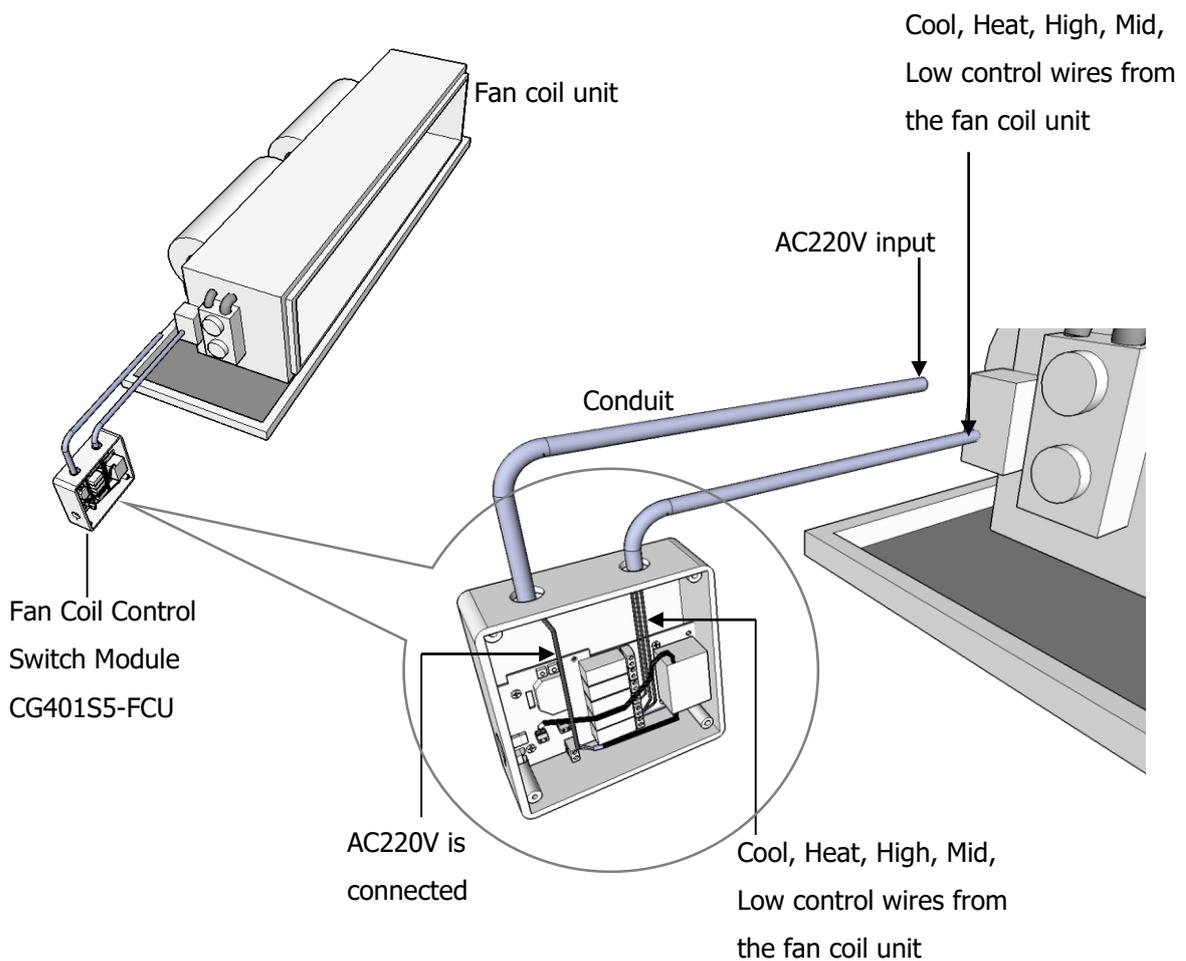
STEP 3: Connect the wires from the FCU to the CG401S5-FCU following the below diagram.

Connection terminals to fan coil

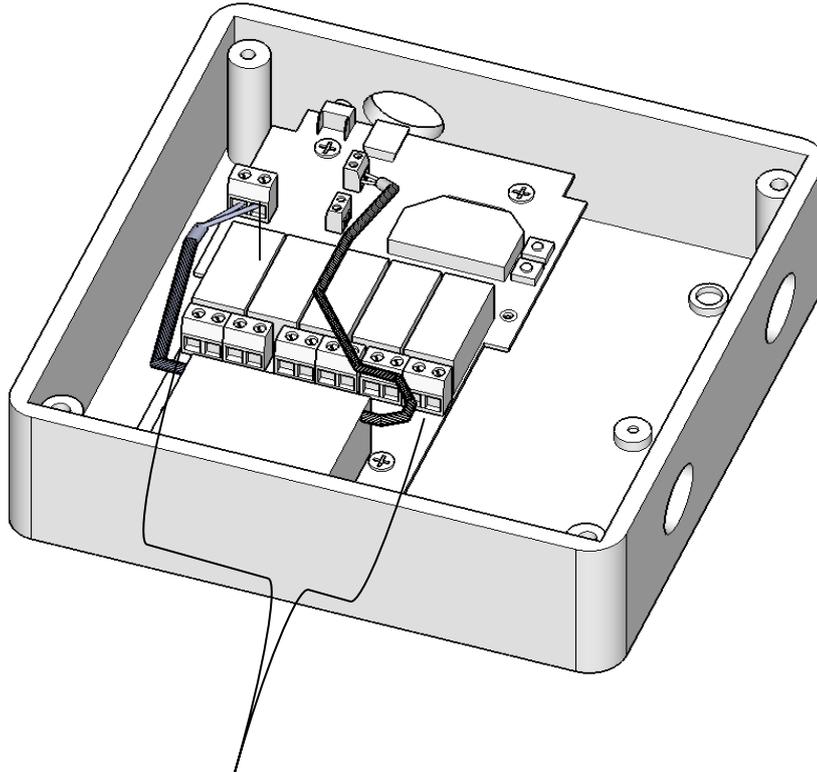| Pin number	Description
1, 2	Relay output for HEAT
3, 4	Relay output for COOL
5, 6	Relay output for FAN SPEED LOW
7,8	NC
9,10	Relay output for FAN SPEED MID
11,12	Relay output for FAN SPEED HIGH

Step 4: Fasten the screws of all wire connectors and secure the in and out wires properly.

Place the wire cover back to the module.

Step 5: Turn the main power on at the main switch board again.
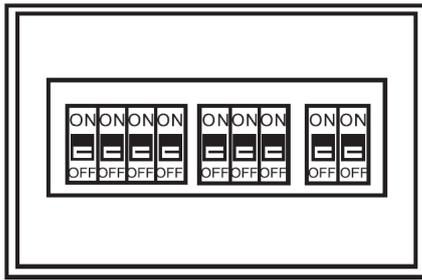
Step 6: The module is now powered up. Pressing the test button to test the module.

Test button for
High/Mid/Low fan
speed

Test button for
cool/heat
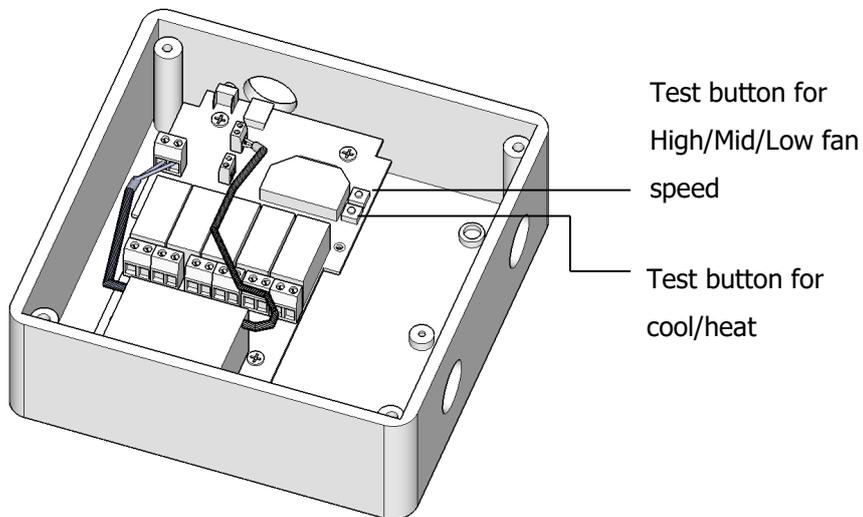
Step 7: Place the top cover back to the module and fasten the screws to complete
the installation.

6. Application notes

CG401S5-FCU is a wireless fan coil unit controller which is able to receive signal wirelessly from CityGrow's control plate products or thermostat. Long distance cable wiring is not required.

6.1. Control a single FCU with a CG100HTH Thermostat

The signal will be sent wirelessly to the CG401S5-FCU, to control the fan speed (high, low or mid), ON/OFF and Cool/Heat mode.

CG100HTH
Thermostat

+

CG401S5-FCU
Fan Coil Control Switch Module

Option A: Control CG401S5-FCU through inbuilt temperature sensor in CG100HTH Thermostat

Option B: Control with CG100HTHV1 Thermostat through an inbuilt temperature sensor inside the CG401S5V1-FCU

6.1.1. Pairing procedures

Following the instructions below to pair the CG100HTH Thermostat and CG410S5-FCU Fan Coil Unit (FCU) Controller.

1. Power-up the CG401S5-FCU by connecting Live and Neutral to the corresponding terminals. Connect the CG101UT5 cable from CG401S5-FCU to CG100HTH. Please note that you do not need to connect power to CG100HTH, as the CG101UT5 cable will supply power to CG100HTH from CG401S5-FCU.
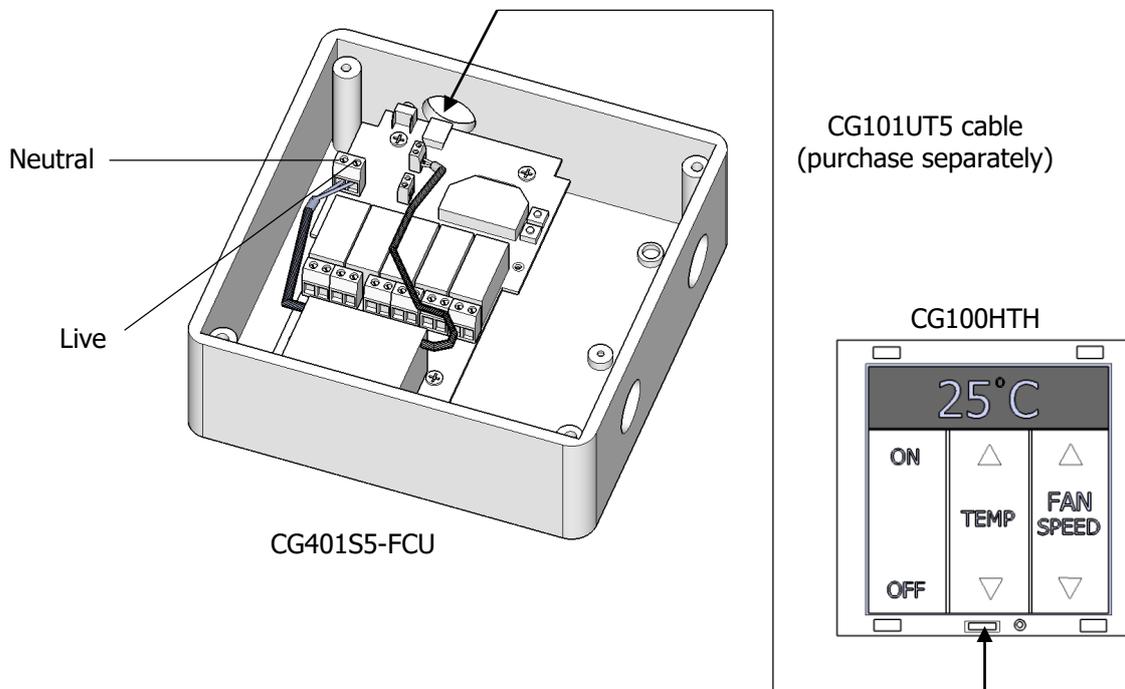

2. Hold the "OFF" button of the CG100HTH.
3. Keep holding the "OFF" button, and then press and release the reset button of the CG100HTH.
4. Keep holding the "OFF" button until the 7-segment LED display of the CG100HTH shows "ok", and that means the pairing process is completed.
5. If the display does not show "ok" within 2 seconds, which means the pair process is failed. Please check the power of the CG401S5-FCU and check the CG101UT5 cable. Repeat step 1 – 5 to retry again.

6.2. Control a single FCU with multiple CG100HTHV1 Thermostats

The signal will be sent wirelessly to the CG401S5V1-FCU, to control the fan speed (high, low or mid), ON/OFF and Cool/Heat mode.

Notes: A single CG401S5-FCU can be controlled by up to 8 units of CG100HTH Thermostat.

| CG100HTHV1 Thermostat | CG100HTHV1 Thermostat | CG100HTHV1 Thermostat | CG401S5V1-FCU Fan Coil Control Switch Module |
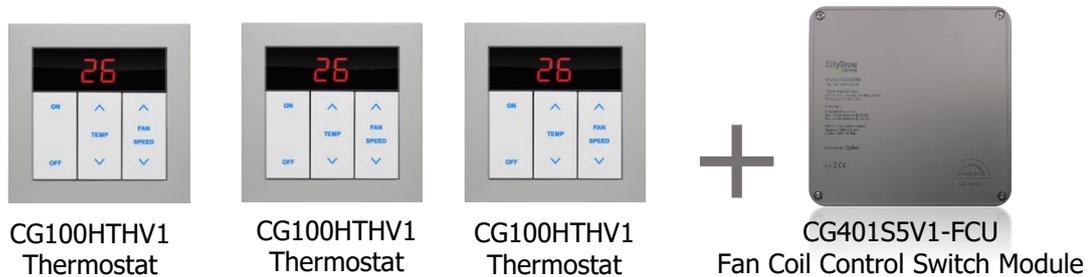
To control the Fan Coil Unit (FCU) Controller with multiple CG100HTHV1 Thermostats, ONLY CG401S5V1-FCU Fan Coil Unit (FCU) Controller with inbuilt temperature sensor is applicable.

6.2.1. Pairing procedures

Referring to section 6.1.1, repeat step 1 to step 5 to bind the rest of the CG100HTHV1 Thermostat.

6.3. Control multiple FCUs with a single CG100HTH Thermostat

The signal will be sent wirelessly to the CG401S5-FCU, to control the fan speed (high, low or mid), ON/OFF and Cool/Heat mode.

CG100HTH Thermostat

CG401S5-FCU Fan Coil Control Switch Module

Option A: Control CG401S5-FCU through inbuilt temperature sensor in CG100HTH Thermostat

Option B: Control with CG100HTHV1 Thermostat through an inbuilt temperature sensor inside the CG401S5V1-FCU

6.3.1. Pairing procedures

Referring to section 6.1.1, repeat step 1 to step 5 to bind the rest of the CG401S5-FCU.

7. Adding the product to your Home Wireless ZigBee Network

STEP 1

Plug the CG101UTU cable into the USB program port of the product, and then plug the other end of the CG101UTU cable into the mini USB end of the CG101UTC cable.

STEP 2

Plug the CG101UTC cable into the USB port of a PC that is installed with CityGrow's HomeNET Planner 2 Software.

STEP 3

Refer to the user manual of "HomeNET Planner 2" Software to program and set the address of the product.

8. Specification

Item	Description
Power supply	100-240VAC, 50/60Hz @ 80mA
Loads	5 dry contacts Maximum 2A per channel @24VDC, or Maximum 4A per channel @240VAC
RF frequency	2.4GHZ
Remote control distance (M, line of sight)	100M
Operating temperature	0°C to 50°C
Operating humidity	5% to 95% non-condensing
Unit Dimension L x W x D (mm)	152 x 152 x 56mm
Storage	-20°C to 70°C