

VentPlus CO₂ Monitor & Controller Model: HO202 / HO203 Wi-Fi

1.0 Introduction

VentPlus CO₂ Controller Model **HO202 / HO203 Wi-Fi** is a useful device for homes, offices, gyms, school classrooms, banquet halls, and other enclosed spaces where it is important to maintain carbon dioxide levels within healthy limits.

Outdoor air typically contains about 420 ppm CO₂. In enclosed spaces, CO₂ levels rise as occupants exhale carbon dioxide.

Earlier buildings used ceiling ventilators to admit fresh air. Modern airtight buildings often experience higher indoor CO₂ levels. In a fairly large bedroom with just two people sleeping, CO₂ levels can easily reach 1650 ppm or even higher.

Indoor air quality guidelines generally consider CO₂ levels below 1000 ppm acceptable. Levels above 1500 ppm affect mental alertness and comfort.

VentPlus CO₂ Controller continuously monitors indoor CO₂ levels. When the CO₂ level rises above a preset threshold (say 1000ppm), the device automatically switches on power to a connected fresh-air or exhaust fan. Once the fan starts, fresh air enters the room and the carbon dioxide level gradually decreases. When the CO₂ level falls below a preset lower limit (say 800 ppm), the fan automatically switches off.

This maintains healthy indoor air quality while minimizing air-conditioning energy loss.

The device uses a high-quality NDIR (Non Dispersive Infra Red) CO₂ sensor.

1.1 Effects of Carbon Dioxide Levels on Health

Carbon dioxide is a natural by-product of human metabolism and is continuously produced by the body during breathing. However, when CO₂ concentration in surrounding air rises beyond normal levels, it can affect cognitive performance, comfort, and long-term health.

CO ₂ Level	Air Quality	Typical Effects
400–600 ppm	Excellent	Similar to outdoor air
600–1000 ppm	Good	No noticeable effects
1000–1500 ppm	Moderate	Reduced concentration
1500–2500 ppm	Poor	Drowsiness, slower thinking
2500–4000 ppm	Very Poor	Fatigue, headache, stuffy air
>4000 ppm	Severe	Significant discomfort, possible long-term effects



CO₂ Monitor Front Panel



Wi-Fi relay Front panel

2.0 Keyboard & Settings Menu Structure

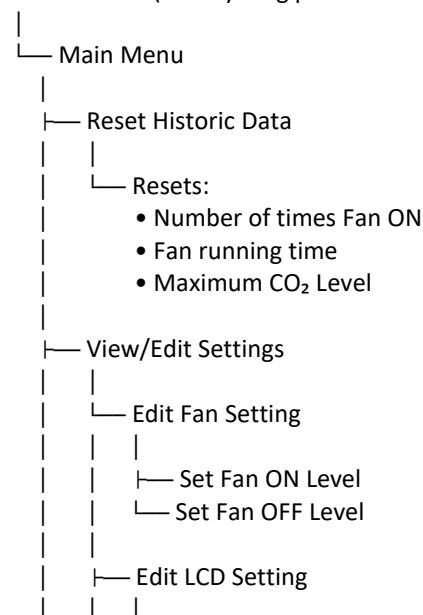
Press and hold the **SEL** key for more than **3 seconds** to enter the settings menu.

Key functions:

- SEL: Select a menu or save a setting
- ESC: Go back to the previous menu
- Up arrow(↑): Increase a value or move cursor up
- Down arrow(↓): Decrease a value or move cursor down

2.1 Menu structure:

Main Screen (Sel key long pressed for 3 seconds)



- └─ Set LCD on/off at night
 - └─ Edit Beeper Setting
 - └─ Set warning beeper on/off
 - └─ Set Beeper on/off level
- └─ View/Edit Wi-Fi Settings
 - └─ Wi-Fi Enable / Disable
 - └─ Wi-Fi relay Enable / Disable
 - └─ Forget Wi-Fi credentials
 - └─ Pair Relay
 - └─ Unpair Relay
- └─ Calibrate CO₂ sensor
 - └─ Place Controller in Fresh Air and Press SEL

The controller waits 20 minutes and then calibrates the sensor assuming a CO₂ level of 420 pm.
- └─ System Information
 - └─ Displays Device Information
- └─ Restore Factory Setting
 - └─ Reset the below parameter to factory defaults and Restarts the controller:
 - Fan on CO₂ level – Default: 1000ppm
 - Fan off CO₂ level – Default: 800ppm
 - Warning beeper on/off CO₂ level – Default: 1500ppm
 - LCD backlight off at night
 - Enable Warning beeper
 - Wi-Fi is enabled
 - Wi-Fi relay is enabled

3.0 Cloud Connectivity and Monitoring

This section explains how to connect the controller to the Internet, pair a Wi-Fi relay, register the device, and view cloud data.

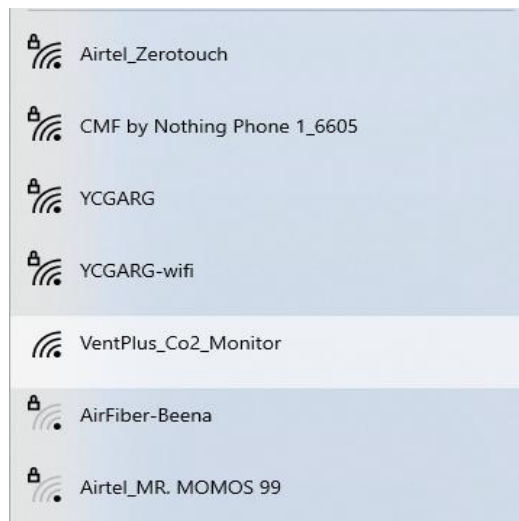
3.1 If Internet access is unavailable

Disable Wi-Fi in the Settings Menu. The CO₂ Controller will not upload CO₂ levels on the cloud and will only display CO₂ level and operate the Local Relay. You can skip section 3 of this manual.

3.2 If Internet access is available

3.2.1 How to connect the VentPlus CO₂ Controller to Internet?

- Turn on CO₂ Controller and Wait until display shows **Enter Wi-Fi credentials**. If it already has some stale credentials in memory and it is trying to connect with those, press ESC key twice.
- Enable Wi-Fi on your mobile phone.
- Open the Wi-Fi settings.
- Select the Wi-Fi network named: **VentPlus_CO₂_monitor**



- Tap **Connect**.
- After connecting to the Monitor Wi-Fi, the configuration page will open automatically in your phone's browser.
- Click Configure Wi-Fi



- Select your Wi-Fi network from the list of available Wi-Fi networks and enter the Wi-Fi password.

Sign in to VentPlus_Co2_Moni...
192.168.4.1

YCGARG-wifi	
YCGARG	
Airtel_Zerotouch	
CMF by Nothing Phone 1_6605	
vikas	
DR-RAKESH-SHARMA	
NETGEAR	
Tenda_882510	

SSID

Password

☐ Show Password

Save

Refresh

- Click **Save** and Wait until **Connected to router** is displayed on the CO₂ Controller screen.

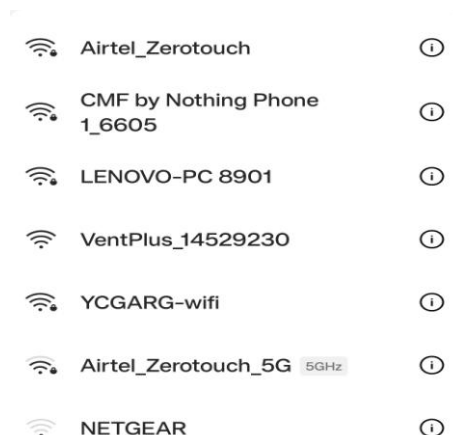
After connection, the Wi-Fi icon becomes solid. The credentials are saved automatically and will be used at the next power-up.

To connect to a different Wi-Fi network, select **Forget Wi-Fi Credentials** in the Settings Menu.

Once you forget Wi-Fi credentials the controller will restart the Wi-Fi setup process automatically and the display will show **Enter Wi-Fi credentials**.

3.2.2 How to configure Wi-Fi relay to connect to a new Internet?

- Power on the Wi-Fi relay and verify that the blue LED is blinking
- Press the small push button switch near the LED till it glows red. Release the switch.
- Enable Wi-Fi on your mobile phone.
- Open the Wi-Fi settings.
- Select the Wi-Fi network named: **VentPlus_<relay_id>**



- Tap **Connect**.

- After connecting to the VentPlus relay Wi-Fi, the configuration page will open automatically in your phone's browser.
- Click on Configure Wi-Fi

Sign in to VentPlus_14529230
 192.168.4.1

WiFiManager

VentPlus_14529230

Configure WiFi

Info

Exit

Update

- Select Your Local Wi-Fi Network from the list of available Wi-Fi networks and enter the Wi-Fi password.

Sign in to VentPlus_14529230
 192.168.4.1

Airtel_Zerotouch	🔒 📶
LENOVO-PC 8901	🔒 📶
<u>YCGARG-wifi</u>	🔒 📶
YCGARG	🔒 📶
NETGEAR	📶

SSID

YCGARG-wifi

Password

.....

☐ Show Password

Relay ID: 14529230

Save

Refresh

- Click **Save** and Wait until the blue LED stops blinking.

Once connected, the Wi-Fi settings are saved automatically. The device will reconnect to the same Wi-Fi network whenever it is powered on.

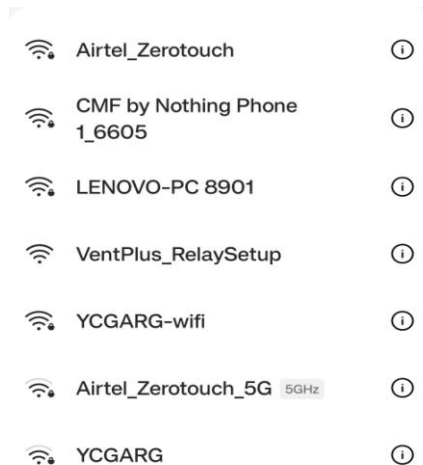
If you want to connect the VentPlus CO₂ Controller to a different Wi-Fi network then to connect to a different Wi-Fi network, press and hold the Reset button until the red LED turns on.

3.2.3 How to Pair Wi-Fi relay with VentPlus CO₂ Controller?

After both devices are connected to the Internet, pair the relay with the Controller. If the Wi-Fi relay is not paired with the CO₂ Controller, the letter "R" on the display will blink.

Select Pair Relay from the Settings Menu and follow the steps below:

- Enable Wi-Fi on your mobile phone.
- Select the Wi-Fi network named: **VentPlus_relay_setup**



- Tap **Connect**.
- After connecting, the configuration page will open automatically in your phone's browser.

Sign in to VentPlus_RelaySetup
www.google.in

Relay ID Setup

Relay ID:

Save

- Enter the **Relay ID** written on Relay box.

Sign in to VentPlus_RelaySetup
www.google.in

Relay ID Setup

Relay ID:

14529230

Save

- Click Save.

Sign in to VentPlus_RelaySetup
www.google.in

Saved!

Relay ID stored.

- Now the controller will automatically pair with the relay. Pairing is complete when the display shows "**Relay Paired**" and the "**R**" indicator becomes solid.
- The Wi-Fi relay is now ready for use.

Important:

Only one relay can be paired with a controller at a time. If you want to pair a different relay, first select **Unpair Relay** and then repeat the pairing process with the new relay. If you don't want to use Wi-Fi relay you can disable it from settings menu.

3.2.4 How to register your e-mail to view CO₂ level data?

- Scan the QR code supplied with the CO₂ Controller or visit the URL: [https://ventplus-CO₂-controller-f89be.web.app/claim](https://ventplus-CO2-controller-f89be.web.app/claim) to start process.

Claim your CO₂ Monitor

Enter your email to take ownership of this device.

DEVICE ID

117

PASSCODE

957521

EMAIL

rnd1.systellar@gmail.com

Continue

- Enter Device ID and Pass code if not already filled.

- Enter your email address and click Continue.

Claim your CO2 Monitor

Sign in to your CO2 Monitor dashboard account to complete the claim.

DEVICE ID

PASSCODE

EMAIL

YOUR CO2 MONITOR DASHBOARD PASSWORD

Enter the password you previously set for the CO2 Monitor dashboard.

Claim Device

- Create your dashboard password and click Claim Device.
- When you click Claim Device, ownership is assigned to your account. A support account (rnd@systellar.in) is added to help us diagnose device issues. If you do not wish to share CO₂ data with our support team, you can remove this rnd@systellar.in from your dashboard at any time.

3.2.5 How to view CO₂ level data from registered e-mail account?

- Visit portal URL: [https://ventplus-CO₂-controller-f89be.web.app](https://ventplus-CO2-controller-f89be.web.app)
- Enter your registered email address and dashboard password, and then click Sign In.

VentPlus CO2 Monitor

Sign in to view your monitors

Sign In

[Forgot password?](#)



4.0 Technical Specifications

S No	Item	Description
1	Measured parameters	1. CO ₂ concentration level in ambient air 2. Temperature 3. Humidity
2	Measurement range and accuracy:	
	CO ₂ concentration level	Range: 400 - 5000ppm. Accuracy: +/- (50 ppm + 5% of the reading) after 10 minutes warm up period
	Temperature	Range: 0 - 50 deg C. Accuracy: +/- 0.2 deg C
	Humidity	Range: 0 - 95% RH. Accuracy: +/- 2% (from 10% to 90% RH), 4% outside this range.
3	Programmable Settings:	Fresh air fan turn on CO ₂ level (Above this the fan output is On) (Default: 1000 ppm)
		Fresh Air fan turn off CO ₂ level (Below this the fan output is off) (Default: 800 ppm)
		Warning beeper on/off level (Default: 1500 ppm)
		Beeper Enable / Disable (Default: Enabled)
		LCD backlight off at NIGHT (Default: Yes)
4	Input power	230V +/- 15% 50 Hz A.C.
5	Output	Relay operated AC supply to power a fresh Air Fan / Exhaust. Max. Current 5A
6	Display:	128×64 backlit graphic LCD (8 rows × ~22 characters) for display of running parameters during operation and setting parameters while modifying the settings
7	Keyboard	4 Keys: ESC, INCR, DECR, SEL (for help in editing Settings). (Some older models have NEXT key also which has the same function as SEL)
8	Co2 Monitor LED indicators	LED_R ON: Output fresh air fan / Exhaust relay on
9	Wi-Fi Relay LED indicators	LED B single blink: Connecting to Wi-Fi
		LED B double blink: Asking for Wi-Fi credentials
		LED B on: No Internet
		LED R single blink: Monitor Unreachable
		LED R double blink: Not Paired with Monitor
		LED G on: Relay ON
		LED G double blink: Updating relay FW
10	Working temperature range	-5 to 50 deg C
11	Working Humidity range	0 ~ 95% RH (No condensation)
12	Microcontroller	ARM-based 32-bit advanced microcontroller

Note: Specifications may change without notice as part of continuous product improvement.

Company Contact Details

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