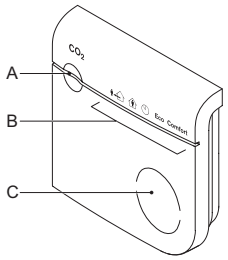
Installation and Operation instructions

VMS-02C05



A: Status LED B: Mode LEDs C: Touch button

1 About this manual

1.1 About the device

The VMS-02C05 is a user control and CO_2 sensor for a ventilation system. The device communicates information about ventilation speed request and system status via wireless communications with the central control device.

1.2 How to use this manual

This manual is intended as a reference book by which qualified installers can install the VMS-02C05 (henceforth called "device") and users can use the device for its intended purpose. Make sure you have read and understood the manual before you install and/or use the device.

1.3 Original instructions

The original instructions for this manual have been written in English. Other language versions of this manual are a translation of the original instructions.

1.4 Admonitions

WARNING 'Warning' identifies a hazard that could lead to personal injury, including death.

NOTE 'Note' is used to highlight additional information.

2 Safety

2.1 Directives

The device meets the following EC directives:

- EMC directive: 2004/108/EC
- Low voltage directive: 2006/95/EC
- RTTE directive: 1999/5/EC
- RoHS directive: 2002/95/EC
- WEEE directive: 2002/96/EC

2.2 Signs on the unit

Caution. Check the instructions for use for important cautionary.

Danger: risk of electric shock.

IEC 61140 protection Class II (double insulated)

CE marking of conformity

Use of the device may not be legal in every member state.

Dispose according to European Community Directive 2002/96/EC (WEEE).

2.3 General safety instructions

This product was designed and manufactured to ensure maximum safety during installation, operation and service. Always read these safety instructions before installing, maintaining or servicing the product, and strictly comply with these instructions. Parts of the device carry mains power, which is a potential lethal voltage. Disconnect power at supply line, circuit breaker or fuse before installing, servicing or removing the device. The device is designed for indoor use only. Do not expose the device to rain or moisture, to avoid short circuit. Short circuit may cause fire or electric shock hazard. Operate the device between 0°C and 40°C.
For cleaning of the device use a soft damp cloth only. Never use any abrasive or chemical cleaner.
Do not paint the device.

3 Description

3.1 Intended use

The device is designed for following purposes:

1 To set the level of ventilation through the fan speed, based on user input or measured CO_2 level.
2 To set parameters for the ventilation control.

Every other or further use is not in conformance with the intended use.

3.2 Working principle

The device communicates with the control device using wireless communications, in order to control the ventilation. Via the button and LEDs you can read and set the mode of control that the ventilation system currently is in. When in Eco mode or Comfort mode, the device requests the level of ventilation based on the amount of CO_2 in the air.

3.2.1 Ventilation speeds and modes

The ventilation system runs in one of the following modes. In each of these modes, the control device sets the ventilation system to a configured level of ventilation.

• Away mode:		Low fan speed
• Home mode:		Medium fan speed
• Timer mode:		High fan speed, for a restricted duration.
• Auto mode:	**Auto Eco**	(ECONOMIC mode) Between Low fan speed and High fan speed, based on measured values.
	Auto Comfort	Between Low fan speed and High fan speed, based on measured values

The control device drives the fan based on the highest of values sent by the bound wireless sensor(s).
When you start the timer mode from this device, the ventilation will be active for 30 minutes.

3.2.2 CO_2 setpoint

The device continuously measures the level of CO_2 in the air and compares the measured value to a configured setpoint value. The device controls the ventilation accordingly to keep the measured CO_2 level below the requested level. When in Comfort mode, the requested level is equal to the configured value. In Eco mode, the requested level is 250 ppm above the configured value.

NOTE The device stores the configured fan speed values in the control device, and requests them from there.
The device stores the CO_2 setpoint itself, and does not communicate this with any other device.

3.3 Visual signals

	Status LED			Mode LEDs				
							Eco	Comfort
Startup								
	White	Continuous		On	On	On	On	On
System status								
	Green	Continuous	<800ppm					
	Yellow	Continuous	800-1900 ppm					
	Red	Continuous	>1900ppm					
		1 flash	Com. error					
		2 flashes	Filter dirty					
		3 flashes	Fan error					
		4 flashes	CO_2 sensor error					
		5 flashes	Low battery					
Selecting								
Away mode	Off			•				
Home mode					•			
Timer mode						•		
Eco mode (Auto)							•	
Comfort mode (Auto)								•

4 Operation

4.1 Show status

1 Tap the button.
The Status LED and Mode LEDs show the status of the system.

4.2 Set mode

From the status screen:

1 Tap the button. The mode LEDs show the next selection.
2 If needed, tap the button within 2 seconds, until the selection shows the required mode.
3 Wait 2 seconds. The device applies the requested mode.
The Status LED and Mode LEDs show the status of the system.

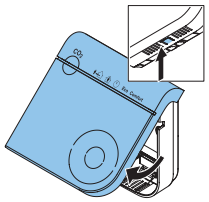
5 Installation

5.1 Preparation

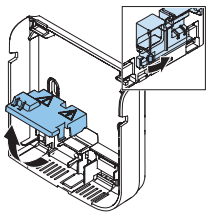
DANGER
Disconnect power at supply line, circuit breaker or fuse before installing the device.

NOTE
Do not place the device in a metal casing.

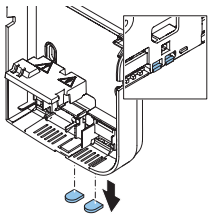
1. Press the clip and pull the top section from the bottom section.



2 Open the safety cover. Use a small flat-tip screw driver to loosen the clip.



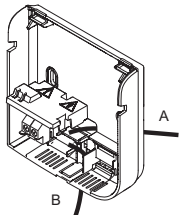
When you do not place the device on a flush mounted wall box:
1 Prepare the wall, if needed. Use the mounting plate as a template.
2 Remove the break-out plastic from the cable entrance of the housing.



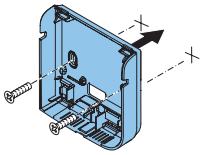
5.2 Installation procedure

DANGER
Make sure that the power supply is disabled.

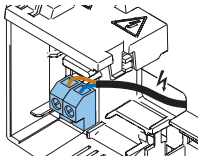
1 Lead the power cable through the back hole (A) or cable entrance (B).



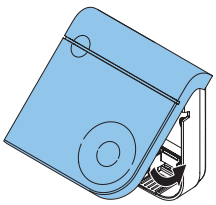
2 Place the bottom section of the device.
3 Fasten the bottom section using the screws.



4 Connect the power cable in the screw terminals.



5 Place the top section of the device onto the bottom section.
a. Place the clips.
b. Close and press until it clicks.



5.3 Commissioning

1 Enable the 230V power supply.
All LEDs are ON for 3 seconds.
2 Wait until the status LED shows the binding mode.
If the device shows another indication, the device is already bound. See 6.2 on how to bind the device again.
3 Make sure the fan box is in binding mode
4 Tap the button. The device tries to bind to the control device.
It shows the result on the status LED.
When the communication failed, make sure that the control device is in binding mode, and retry.

6 Configuration

			Status LED	Mode LEDs				
							Eco	Comfort
	Configuration							
Step 1	Low fan speed	Off		•				
	Medium fan speed				•			
	High fan speed					•		
	CO_2 setpoint						•	
	Binding							•
Step 2	Value	Blue/red	Low fan speed	Off	10%	20%	30%	40%
		Blue/green	Medium fan speed	30%	40%	50%	60%	70%
		Red/green/blue	High fan speed	60%	70%	80%	90%	100%
		Blue flashing	CO_2 setpoint	700 ppm	800 ppm	900 ppm	1000 ppm	1100 ppm
		Red/green	Binding					

6.1 Configure settings

From the status screen (see 4.1):
1 Tap the button. The mode LEDs show the next selection.
2 If needed, tap the button within 2 seconds, until the selection shows the item to configure.
3 Press and hold the button until the Status LED starts flashing white.
4 Release the button. The status LED shows the item selected, and the Mode LEDs show its current value.
5 If needed, tap the button within 10 seconds, until the Mode LEDs show the value to set.

NOTE When setting the fan speeds, make sure that the medium fan speed is between the low fan speed and the high fan speed.

6 Wait 10 seconds. The device applies the configured value.
The Status LED and Mode LEDs show the status of the system.

6.2 Bind the device again

From the status screen:
1 Tap the button.
The mode LEDs show the next selection.
2 If needed, tap the button within 2 seconds, until the selection shows the 5th LED.
3 Press and hold the button until the Status LED starts flashing white.
4 Release the button. The status LED shows the binding mode.
5 Tap the button.
The device will try to bind to the control device.
It shows the result on the status LED.

6.3 Perform a factory reset

From the status screen:
1 Tap the button.
The mode LEDs show the next selection.
2 If needed, tap the button within 2 seconds, until the selection shows the 5th LED
3 Press and hold the button until the Status LED starts flashing white.
4 Release the button.
The status LED shows the binding mode.
5 Press and hold the button for 10 seconds.
The status LED shows white.
6 Release the button.
The device releases its binding, resets the configured CO_2 level to the default value, and restarts.
The device will return to the binding mode.

7 Technical data

7.1 Dimensions

Overall dimensions (h x w x d):	100 x 100 x 25 mm
Weight:	± 125g

7.2 Ambient conditions

Operating Temperature Range:	0 to 40 °C
Shipping & Storage Temperature Range:	-20 to 55°C
Relative Humidity:	0 - 90%, non-condensing
Ingress protection (IEC60529):	IP30

7.3 Electrical specification

Mains Power Source:	195 - 253 VAC, 50Hz.
Maximum power consumption:	4VA
Wire diameter:	0.25 to 2.5 mm^2

7.4 Wireless connection specifications

Communication frequency:	868.3 MHz
Output power:	at least 0 dBm You are not allowed to use the device outside of Europe.

7.5 CO_2 measurement specifications

Optimal measurement range:	400 to 2000 PPM
Measurement accuracy (within optimum range, >10min after powerup):	40 PPM + 2% of reading at 20°C
Stabilization period after power-up:	2 minutes