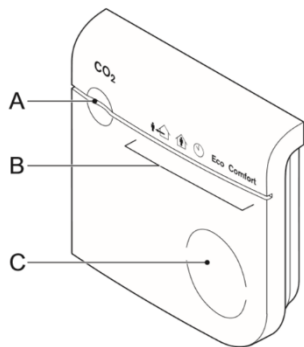


Installation and operation instructions

VMS-47C55 – RF-CO₂ sensor



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

1. How to use this manual

This manual is intended as a reference book by which qualified installers can install the VMS-47C55 (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.

1.1 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 CO₂ level.
2. To set parameters for the ventilation control.

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

1.2 Working principle

The device communicates with the ventilation system using wireless communications, 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 CO₂ in the air.

1.3.1 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.

Mode		Fan speed
Away		Low fan speed
Home		Medium fan speed
Timer		High fan speed, for a restricted duration
Auto	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 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.

1.3.2 CO₂ Setpoint

The device continuously measures the level of CO₂ in the air and compares the measured value to a configured setpoint. The device controls the ventilation accordingly to keep the measured CO₂ 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.

The device stores the configured fan speed values in the ventilation system and requests them from there.

The device stores the CO₂ setpoint itself and does not communicate this with any other device.

1.4 Admonitions



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



'Note' is used to highlight additional information.

2. Content delivery

- RF-Sensor (VMS-47C55) 1
- Battery 1
- Mounting screws 2
- Mounting plugs 2
- Manual 1

3. Safety

The device meets the following EC directives:

- EMC directive: 2014/30/EC
- Low voltage directive: 2014/35/EU
- RTTE directive: 2014/53/EU
- RoHS directive: 2011/65/EU
- WEEE directive: 2012/19/EU

4. Signs on the device



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.



Dispose according to European Community Directive 2012/19/EU (WEEE).

General safety instructions


This device 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.


4. Visual signals

Start up	Status LED	
White	Continuous	
System status		
Green	Continuous	<800 ppm
Yellow	Continuous	800-1900 ppm
Red	Continuous	>1900 ppm
	1 flash	Comm. Error
	3 flashes	Fan error
	4 flashes	CO ₂ sensor error
Mode selection		
	Off	
Mode LED		
	Auto Eco	Auto Comfort
Start up		
On	On	On
Mode selection		
Away	*	
Home		*
Timer		*
Auto Eco		*
Auto Comfort		*

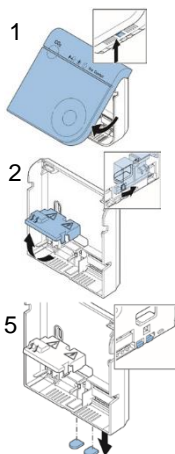
5. Installation

5.1 Preparation


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


 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 screwdriver to loosen the clip.
3. When using screws: Use the mounting plate as a template.
4. When using tape:
 - a. Make sure the surface is smooth, clean, and degreased.
 - b. Remove the foil from the double-sided tape.
5. Remove the breakout plastic from the cable input of the housing.

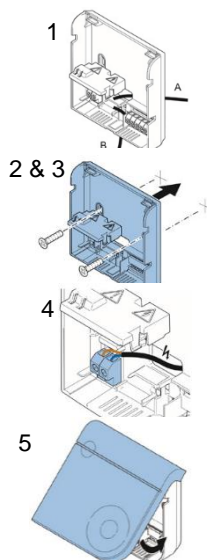


5.2 Installation procedure

 Make sure that the power supply is disabled.

 Recommended position: We advise to place the sensor at 1 to 1.5 m from the ground in a living room.

1. Lead the power cable through the back hole (A) or cable entrances (B).
2. Place the bottom section of the device.
3. Fasten the bottom section using the screws or tape.
4. Connect the power cable in the screw terminals.
5. Connect the 0-10Vdc output cable in the screw terminals (OUT & GND).



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 7.2 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. The status LED indicates whether this has been successful. If the connection failed, make sure that the RF Receiver is in connection mode and try again.

6. Operation

6.1 Show status



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

6.2 Set mode

From status screen (see 6.1)

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 required mode.
3. Wait 2 seconds. The device applies the requested mode. The Status LED and Mode LEDs show the status of the system.


7. Configuration

		Status LED		Mode LEDs				
								
	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					

7.1 Configuration setpoints

From the status screen (see 6.1), use table above.

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.
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.

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

7.2 Bind the device again

From the status screen (see 6.1).

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 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.

7.3 Perform a factory reset

From the status screen (see 6.1).

1. See 7.2 step 1 – 4.
2. Press and hold the button for 10 seconds. The status LED shows white.
3. Release the button. The device releases its binding, resets the configured CO₂ level to the default value, and restarts. The device will return to the binding mode.

8. Technical data

8.1	Dimensions		8.4	Wireless Connection specifications	
	Overall dimensions (h x b x d)	100 x 100 x 28 mm		Communication frequency	868.3 MHz
	Weight	+ 125g		Output power	At least 0 dbm
8.2	Ambient conditions		8.5	CO₂ measurement specifications	
	Operating Temperature Range	0 tot 40 °C		Optimal measurement range	400 tot 2000 ppm
	Shipping & Storage Temperature Range	-20 tot 55 °C		Measurement accuracy (within optimum range, >10min after powerup):	40 ppm +2% of reading at 20 °C
	Relative Humidity	0-90%, non-condensing			
	Ingress protection	IP30		Stabilization period after power-up	2 minutes
8.3	Electrical specification				
	Mains Power Source	230VAC +10%, 50Hz	You are not allowed to use the device outside of Europe		
	Max. power consumption	4VA			
Wire diameter:	0.25 to 2.5 mm ²				