CO_2 ZoneControl

Description

CO_2 ZoneControl is an innovative solution for demand-driven and zoned ventilation, based on the measured CO_2 value in specific zones. To create these zones within the home, two air dampers must be installed on two separate main supply air ducts (see chapter “dimensional drawings and connections”).
This allows the airflow in the two different zones to be regulated individually. These zones are typically referred to as the day and night zones, corresponding to the living area and the bedrooms. By installing at least one CO_2 RF switch in each zone, CO_2 ZoneControl can determine how much ventilation airflow is needed in that particular zone.
In this way, CO_2 ZoneControl and the ventilation unit operate fully automatically, with the aim of maintaining indoor air quality in an energy-efficient manner.

The CO_2 ZoneControl is supplied as standard with:

- 2 x zone dampers:
  - connection: DN160 male with rubber seal
  - plastic housing and damper
  - stepper motor for adjusting damper position (in both master and slave damper)
  - electronic compartment with PCB (master damper)
  - wireless RF communication with the CO_2 RF switch and ventilation unit
  - push buttons and LED on the PCB for commissioning and error indication
  - power supply (master damper) via 5V power adapter, cable length 1.5 m (factory connected)
  - power supply (slave damper) via 24V from the master damper, cable length 1.5 m (factory connected)

- 2 x CO_2 RF switches:
  - flush wall mounting (screw fixation)
  - dimensions (L x W x D): 83 x 83 x 8 mm for the design frame and 55 x 55 x 7 mm for the cover plate
  - plastic housing
  - wireless RF communication with the zone damper and the ventilation unit
  - capacitive touch control area
  - 3 ventilation levels + 2 “auto modes” with LED lighting
  - status LED (lights up after operation) indicating, among other things, CO_2 level and error codes
  - power supply via external source (1 x 230V + N)

The CO_2 ZoneControl can only be used in combination with a Vasco ventilation unit of the type:
- 225 Compact (LE)
- 275 / 350 / 425 / 500 Boost (H)

Technical specifications

Zone dampers

Connections	DN 160 male
Material	Polypropylene (PP)
Supply voltage	5V
Maximum power consumption	5W
RF frequency	868,3 Mhz
Maximum relative humidity	0 - 90 % (non-condensing)
Min/Max ambient temperature	0 - 40 °C
Electrical safety class	Class III

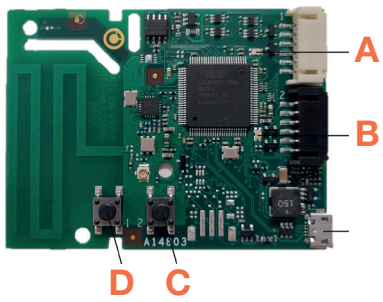
CO_2 RF switch

Connections	Flush wall mounting
Material	Polycarbonate (PC) and plastic (ABS)
Measurement range	400 - 2000 ppm
Measurement tolerance	40 ppm + 2 % of measured value at 20 °C
Supply voltage	230V AC
Maximum power consumption	1,2W
RF frequency	868,3 Mhz
Maximum relative humidity	0 - 90 % (non-condensing)
Min/Max ambient temperature	0 - 40 °C
Electrical safety class	Class II
IP rating	IP21

Symbol	Function	Description
	**Away**	Ventilation at level 1 (default 25%) of the ventilation unit.
	**Home**	Ventilation at level 2 (default 50%) of the ventilation unit.
	**Timer**	Activates the maximum preset airflow for 30 minutes.
Eco	**Auto Eco**	The ventilation unit and zone damper are modulated so that the CO_2 level in the corresponding zone/room is 250 ppm higher (i.e. 1050 ppm) than in Auto Comfort mode.
Comfort	**Auto Comfort**	The ventilation unit and zone damper are modulated to maintain a CO_2 level of 800 ppm in the corresponding zone/room.

Error codes + LED feedback

Zone dampers

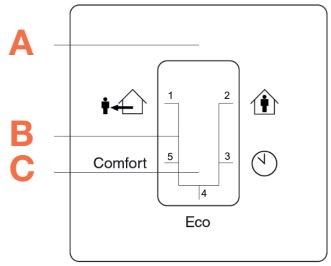


LED indication*	Status CO_2 ZoneControl
1 x green	Normal operation
3 x green	CO_2 detection active
4 x green	Timer mode active
1 x red	Stepper motor error
2 x red	RF communication error with ventilation unit
3 x red	RF communication error with zone damper
4 x red	Not connected to a ventilation unit
5 x red	Not connected to a CO_2 RF switch
6 x red	Ventilation unit error

*Depending on the status (ventilation system or zone), both LEDs may light up or only the LED of the corresponding zone.

A: LED zone 1 / **B**: LED zone 2 / **C**: menu button zone 1 / **D**: menu button zone 2

CO_2 RF switch



Status LED indication	Status CO_2 RF switch
Green	CO_2 < 800 ppm
Yellow	800 ppm < CO_2 < 1900 ppm
Red	CO_2 > 1900 ppm
1 x red	RF communication error
2 x red	Dirty filter warning
3 x red	Ventilation unit error
4 x red	CO_2 RF switch error

A: status LED / **B**: mode LED / **C**: control area

Reduction Factors

If the CO_2 ZoneControl system is applied, the following reduction factors are possible.

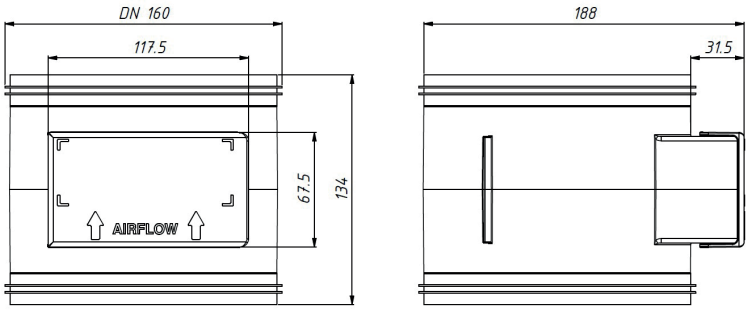
Belgium (in accordance with EPB regulations)
$f_{(}reduc,heat_{)}$ = 0.53
This applies when one CO_2 RF switch is installed in the main living room and one CO_2 RF switch is installed in the main bedroom.
With the addition of extra CO_2 (or RH) RF switches, a lower reduction factor can be achieved.

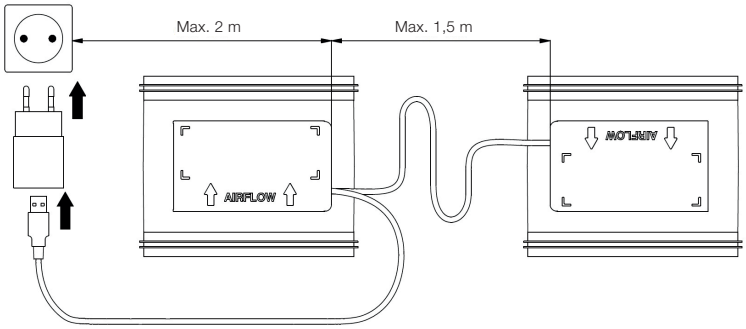
Netherlands (in accordance with NTA 8800)
$f_{(}ctrl_{)}$ = 0.44 for both ground-bound and non-ground-bound dwellings.
System variant D.5A, where one CO_2 RF switch is installed in the main living room and one in the main bedroom.
With the addition of extra CO_2 RF switches, a lower reduction factor can be achieved.

For more detailed information, please refer to the BCRG equivalence statement.

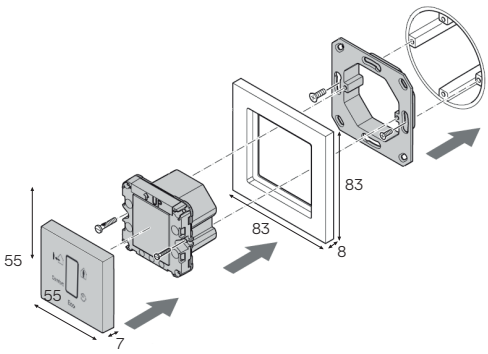
Dimensional drawings and connections

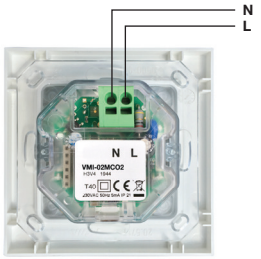
Zone damper



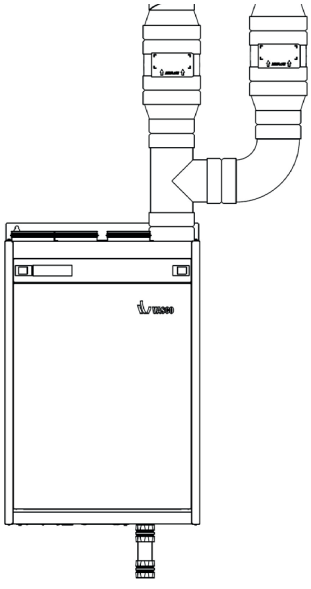


CO_2 RF switch

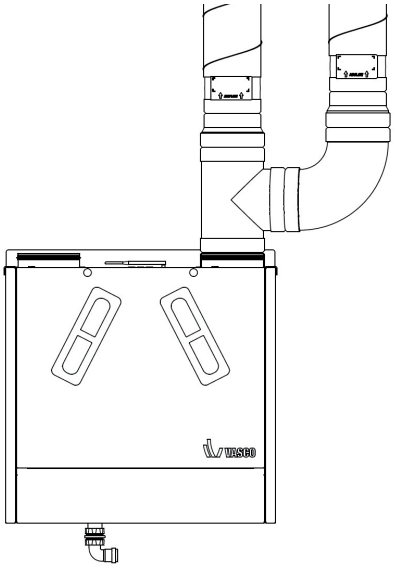




T-piece connection:

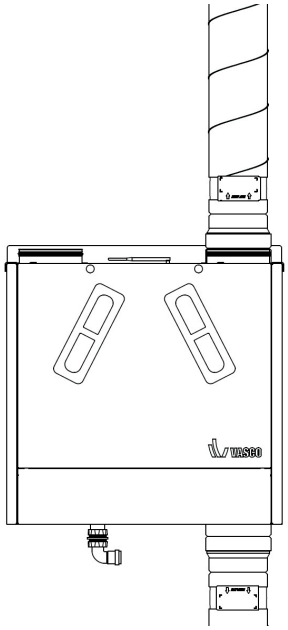


225 Compact (LE)



275 / 350 / 425 / 500 Boost (H)

Top and bottom connection:



275 / 350 / 425 / 500 Boost (H)