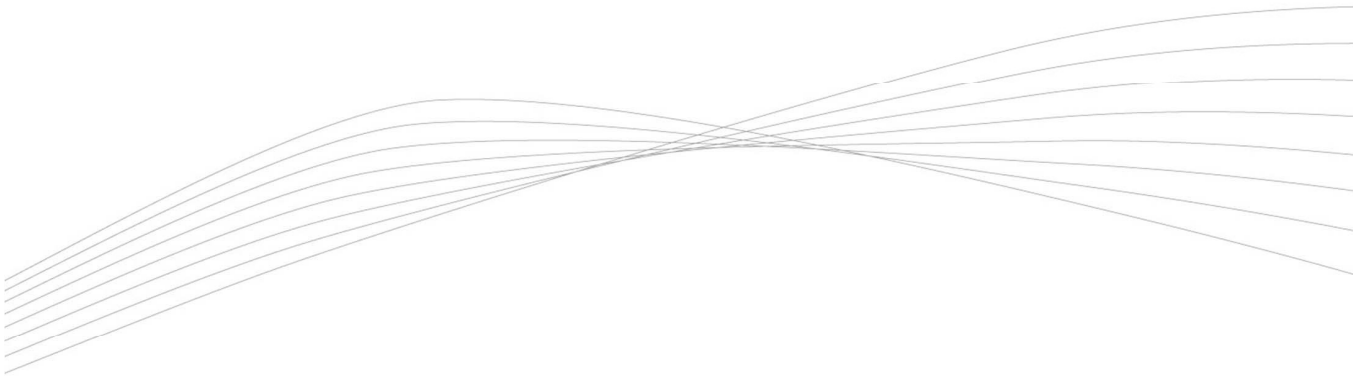
Option Box

Training on Option Box for the ComfoAir Q



Place, date

Peter-Maarten Bijkerk (replace with name of presenter)

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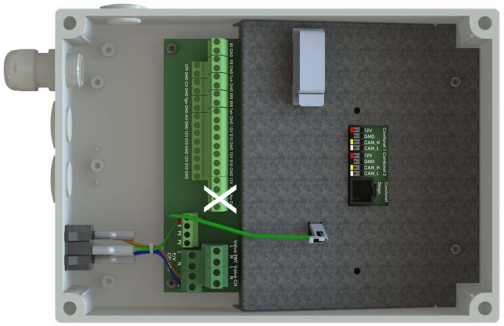
Control and Connectivity Compatibility Overview

The Option Box training module

The presentation gives an overview of

- the product,
- the available connections and how they should be used
- the functions of input / output contacts

Number of slides: ca 25, duration ca 45 minutes



What is the Option Box?

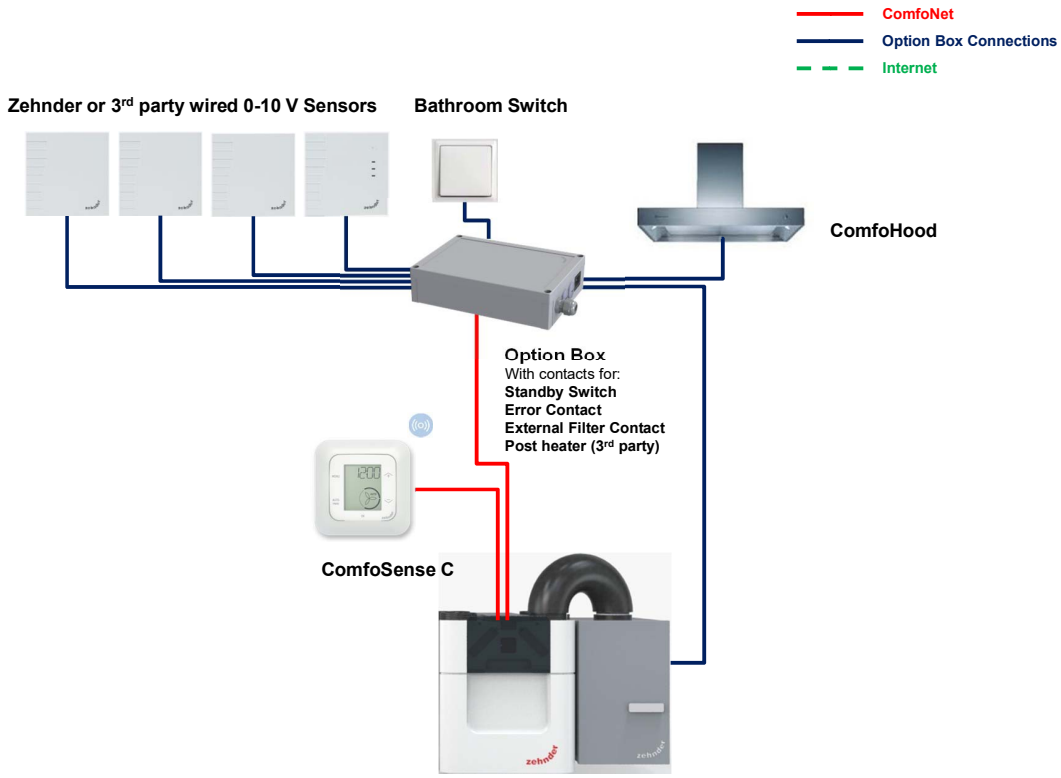
ComfoAir Q ventilation units are equipped with ComfoNet to connect controls, communication devices and other peripherals.

In some scenario’s peripherals will be used that do not (yet) have a ComfoNet connection option. For example:

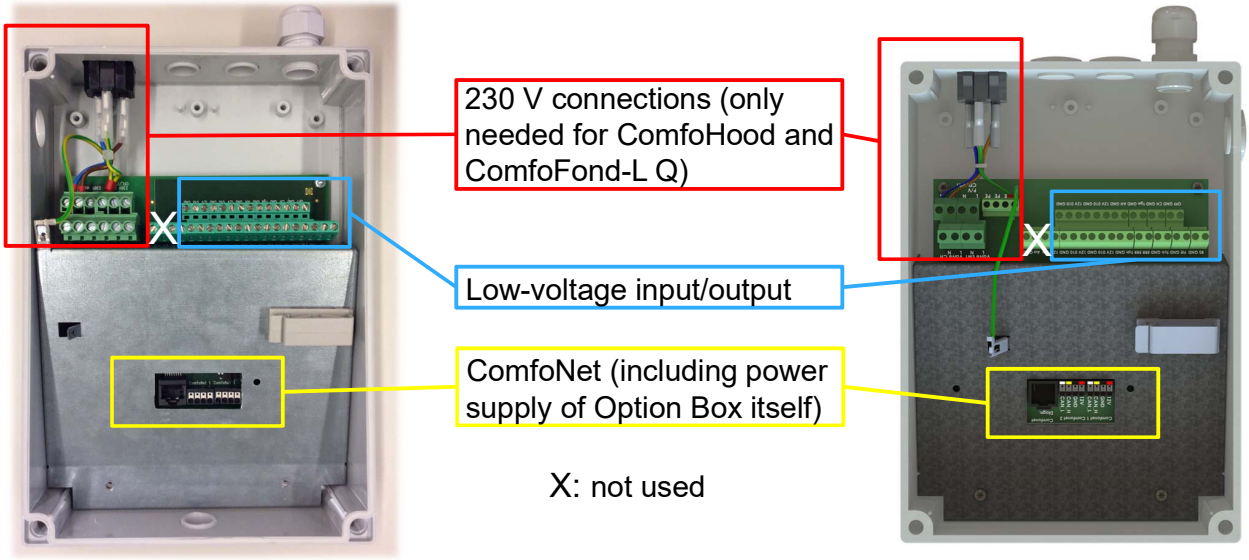
- ComfoFond-L Q
- ComfoHood
- Post-heater (third party)
- StandbySwitch, Error Contact, External Filter Contacts
- Wired CO2- and humidity- and/or other sensors
- Wired bathroom switches.

The Option Box allows using those peripherals. It is very similar to the existing “luxe PCB”. However is a not integrated into the ventilation unit but a separate product.

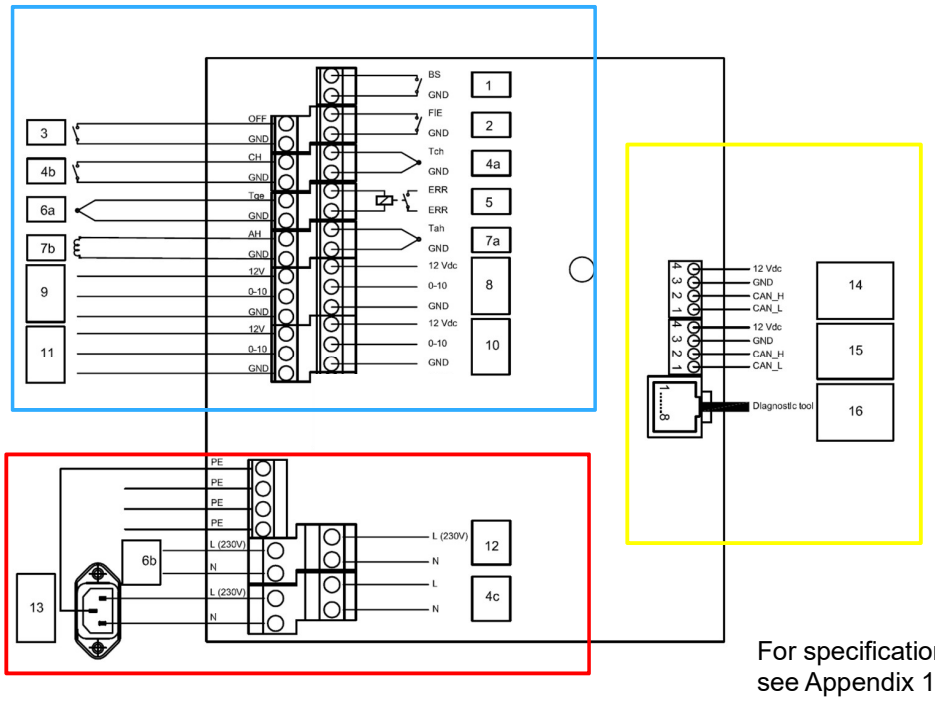
System Configurations – Option Box



Overview of the Option Box - pictures



Overview of the Option Box - Schematics

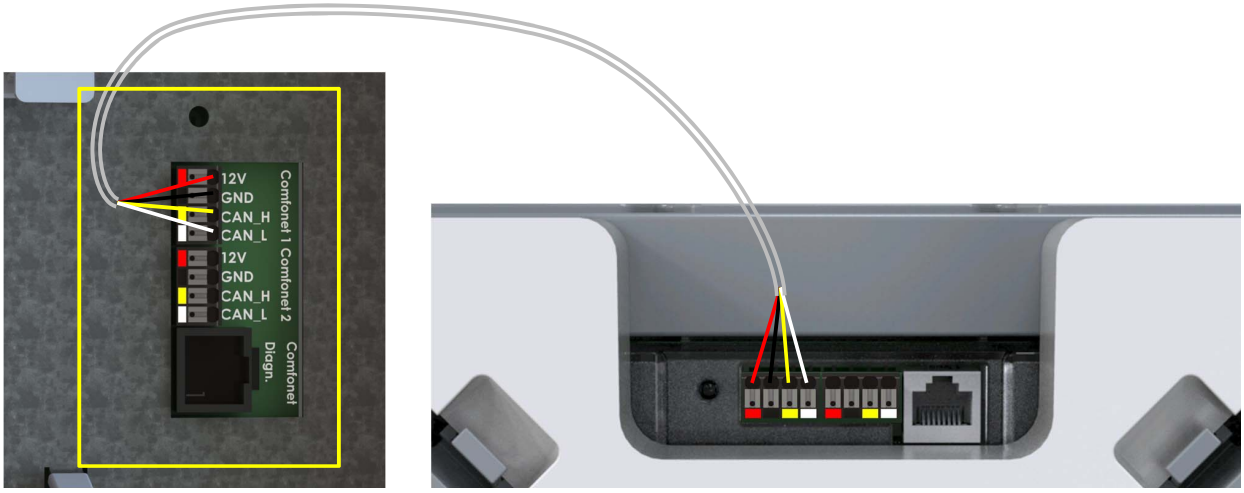


Code	Meaning
1	Bathroom switch
2	External filter error sensor
3	Standby switch
4a	ComfoHood sensor
4b	ComfoHood switch
4c	ComfoHood valve
5	Error contact
6a	ComfoFond-L Q sensor
6b	ComfoFond-L Q pump
7a	Post-heater sensor
7b	Post-heater control
8	Analoge input 3
9	Analoge input 1
10	Analoge input 4
11	Analoge input 2
12	Sub-soil heat exchanger valve
13	Mains power connector
14	ComfoNet connector
15	ComfoNet connector
16	ComfoNet connector

For specifications and power consumption see Appendix 1 and 2

The ComfoNet Connection

- The Option Box is powered by ComfoNet, typically by the ComfoAir Q
- The settings of the Option Box are done via ComfoNet (ComfoAir Q, ComfoControl App)
  → Therefore ComfoNet must always be connected.



The Bathroom Switch function

The Option Box has a potential free contact to which an on/off switch can be connected; the bathroom switch. When it will be closed (switch: on) the boost ventilation of the ComfoAir Q will be activated after a delay period. When the contact will be opened again (switch: off), the boost ventilation will be deactivated after a delay period.

Typical use: to automatically switch to boost when a person is using the bathroom.

The bathroom switch boost function can only be activated and deactivated by the bathroom switch contact itself. However manual input on the ComfoAir Q or other controls may (temporarily) overrule the bathroom switch function.

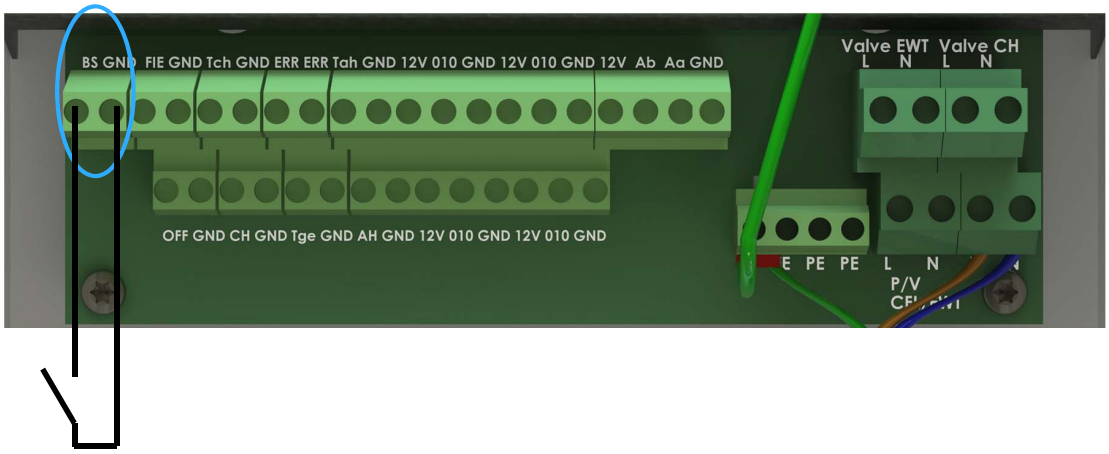
The delay periods can be adjusted in the ComfoAir Q settings (see next slide)

The Bathroom Switch function – delay settings

INSTALLER SETTINGS > OPTION BOX SETTINGS

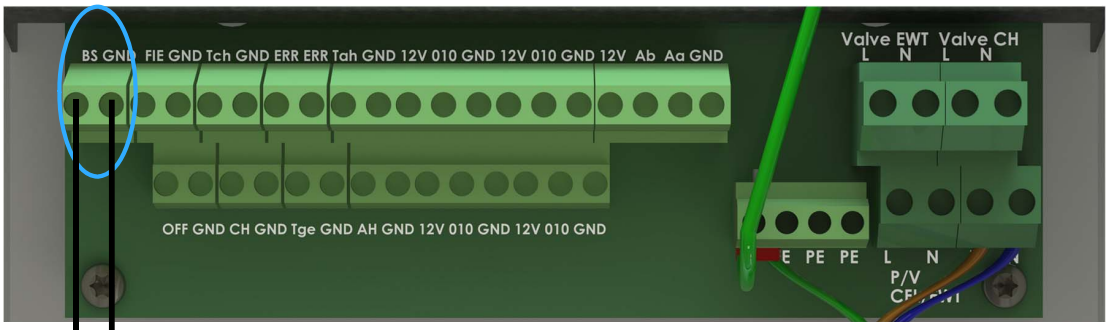
Menu	Function
SWITCH-ON DELAY	To set the time (delay timer) before the air volume will switch to PRESET 3 after closing the bathroom switch contact. (Default: 5 min) If the bathroom switch is stopped within the set time the unit will act like the bathroom switch has never been switched on.
SWITCH-OFF DELAY	To set the time (overrun timer) before the air volume will switch to the normal airflow after opening the bathroom switch contact. (Default: 5 min) ▪ FIXED: set a fixed duration which must elapse before the air volume will switch to the normal airflow; ▪ MIRROR: set the maximum duration which may elapse before the air volume will switch to the normal airflow. The unit will stay in PRESET 3 for the same duration as the time the bathroom switch had been switched on. If the bathroom switch has been switched on longer than the set time, the air volume will switch to the normal airflow when the timer runs out. (default setting)

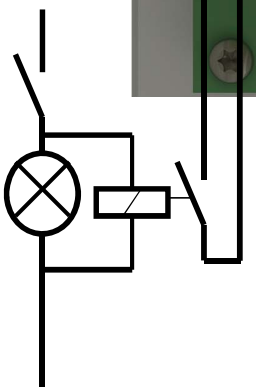
The Bathroom Switch connection option - I



Art no : 659000160

The Bathroom Switch connection option - II

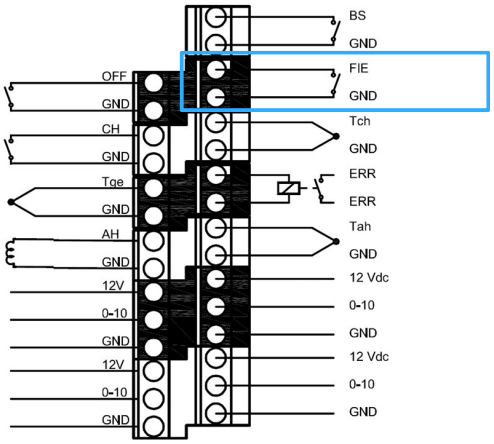




This contact can also be connected over a relay (e.g. in the bathroom light switch).

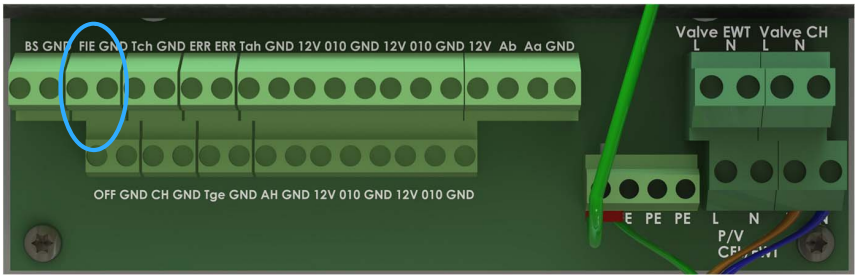
This is a potential free input so do not connect it to 230V!

The external filter contact

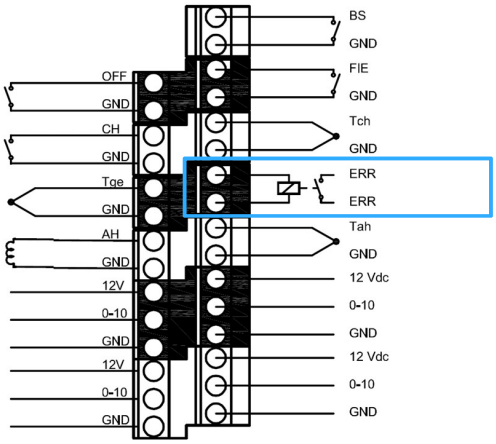


External filter systems that can generate a signal when the filter needs cleaning or replacement can be connected to the Option Box in order to trigger an EXTERNAL FILTER ALARM message on the ComfoAir Q, ComfoSense C, and ComfoControl App.

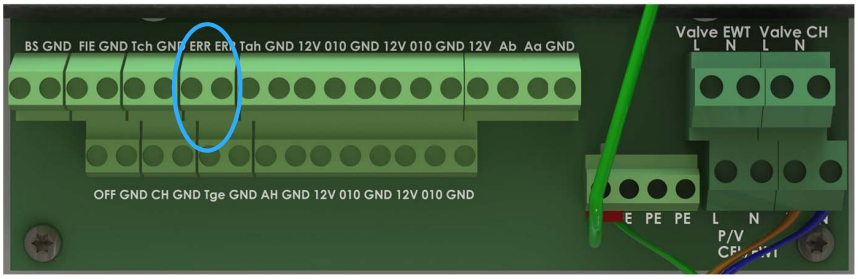
This is a potential free input.



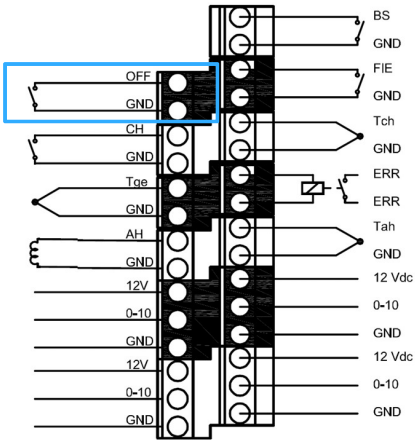
The malfunction / error contact



This is a potential free relay contact that will close when an error occurs within the ventilation system.



The ventilation-off (standby switch) contact

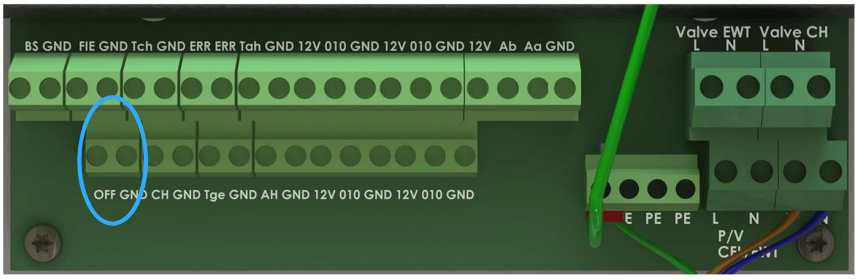


When this contact is closed, the ventilation of the ComfoAir Q will stop. The unit will show an error message (SERVICE MODE).

The intended use for this switch is to connect it to an external (building automation) system that is used to switch-off the ventilation remotely. For example for safety reasons. (e.g. fire in the building or dangerous outdoor air conditions)

Be aware that in your country it may be prohibited to switch-off domestic ventilation, even if no people are present in the building.

This is a potential free input. The ventilation will remain switched-off as long as the contact will be closed.



The analogue input contacts (0-10 V) - I

There are 4 analogue inputs on the Option Box that can be used to:

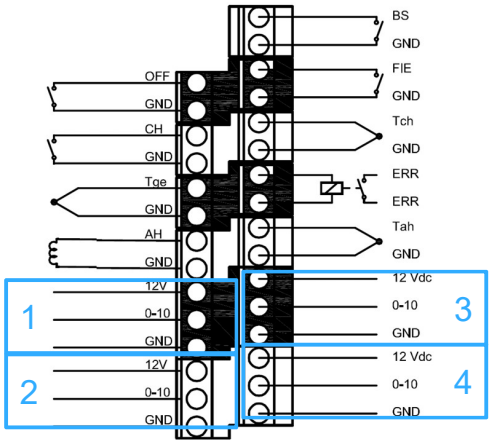
- connect air-quality sensors to create a demand controlled ventilation system,
- steer the ventilation air flow by any other system that can generated a 0-10 V signal.

Typically one or more CO_2 or humidity sensors can be installed in different rooms or zones of the building.

Example: with the help of a humidity sensor the ComfoAir Q could react faster and stronger to undesirable humidity levels in a specific room than based on the built-in humidity sensors. The latter measure humidity of mixed air from all extract air rooms, thus more in a general way than a dedicated room sensor.

The reaction of the ComfoAir Q to the analogue inputs can be adjusted in the Option Box settings in the installer menu.

The analogue input contacts (0-10 V) - II

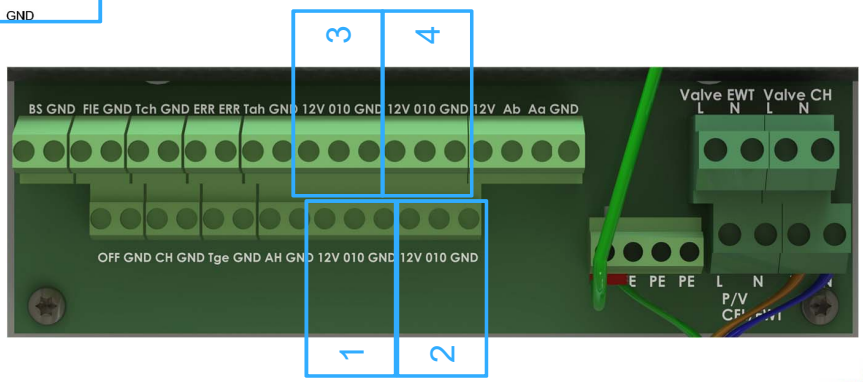


For each sensor a 12 V DC power supply is available.

Connected sensors will be recognized automatically:

- the menu for the connected sensor will become available in the Option Box settings and
- then the analogue input function and priority can be set to activate the sensor and determine the reaction of the ComfoIAir Q to the sensor signal.

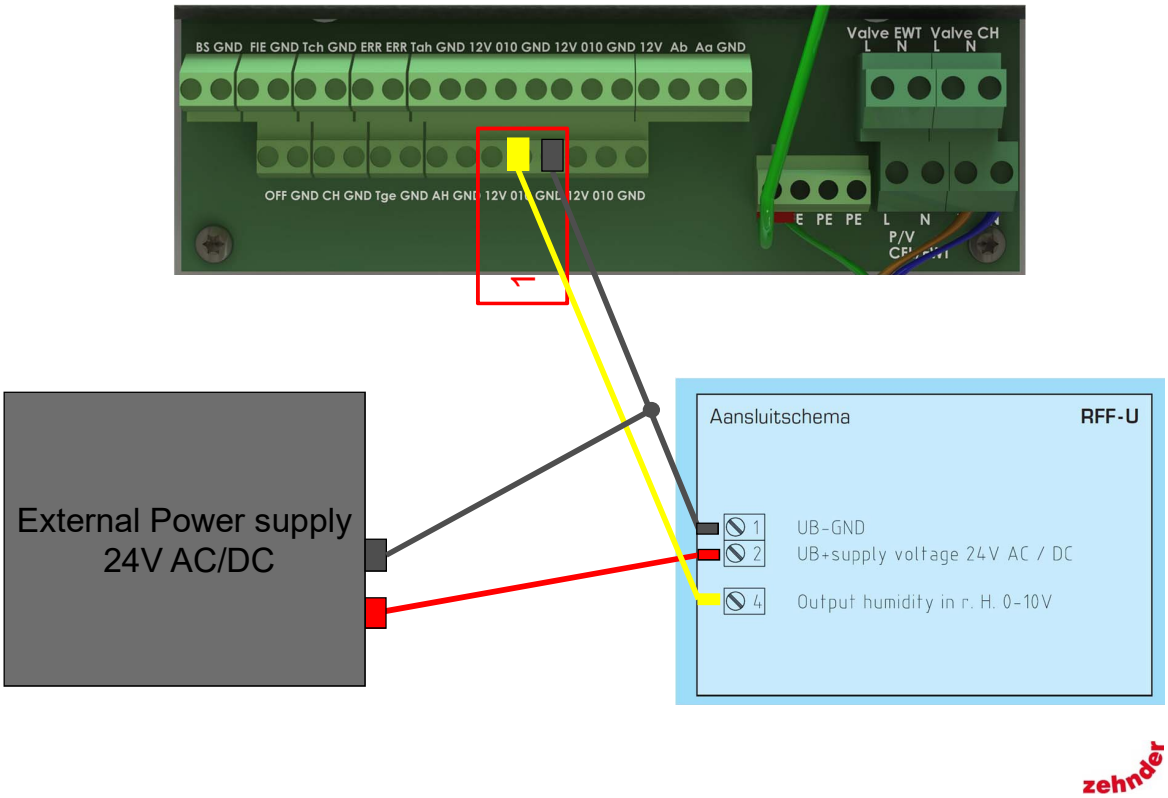
→ By default, analogue inputs will be ignored.



The analogue input contacts (0-10 V) – Option Box settings

Menu item / Subitem	Function
0-10V (1-4)	To set the control options of the 0-10 V input 1-4, (red=default)
INPUT AT 0%	0 V (min: 0 V ; max: 10 V)
INPUT AT 100%	10 V (min: 0 V ; max: 10 V)
METHOD	STEER / CONTROL
CONTROL SETTINGS	
SETPOINT	5 V (min: 0 V; max: 10 V)
PROPORTIONAL BAND	100% (min: 0% ; max: 1000%)
INTEGRAL TIME	300 s (min: 0 s ; max: 1000 s)
0-10V FUNCTION	To set the function of the accessory connected to the 0-10V inputs OFF / FLOW-PROPORTIONAL / FLOW-PRESET (flow preset: airflow will be rounded to preset Away,1,2, or 3)
0-10V PRIORITY	To set the airflow request priority of the accessory connected to the 0-10V inputs ON / AUTO ONLY / OFF

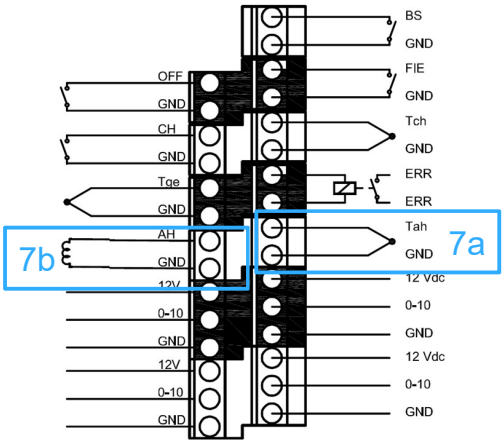
Use of a sensor with external 24 V power supply



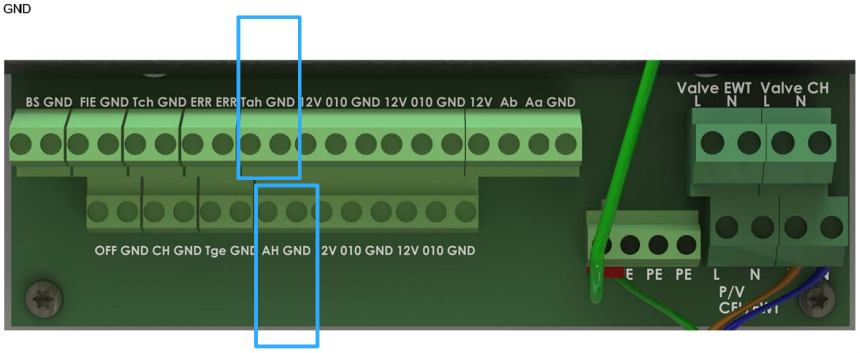
The post-heater

- The ComfoAir Q can steer a third party post-heater with the goal to achieve a room temperature that matches the set temperature profile. The input for the control is the extract air temperature measured inside the ComfoAir Q in combination with a channel temperature sensor.
- Electrical post-heaters that can be steered with an analogue signal (0 -10 V) are supported. Recommended dimension of the post-heater is 500W till max. 2000W. The power to the post-heater must be delivered externally.
- The post heater maybe (temporarily) switched off by the ConfoAir Q for safety reasons if:
  - the channel temperature sensor measures too high temperatures,
  - the fans of the unit are stopped for any given reason.

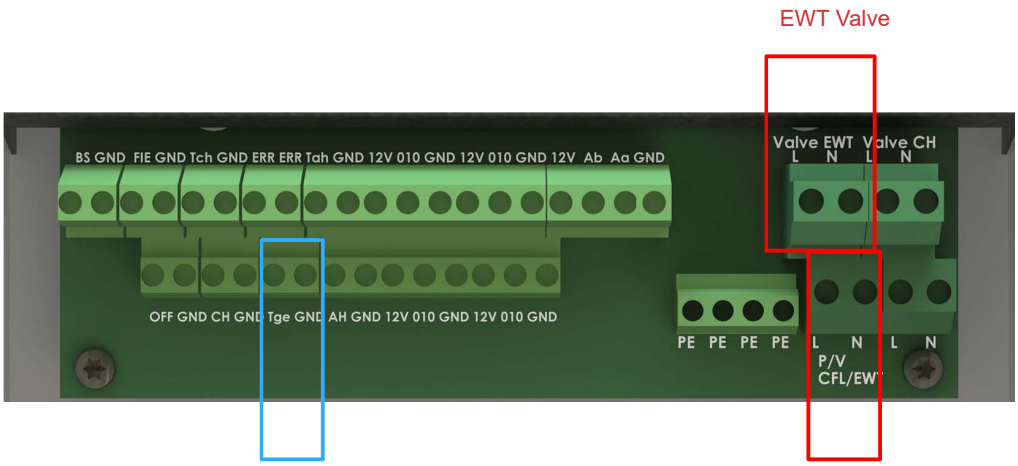
The post-heater - contacts



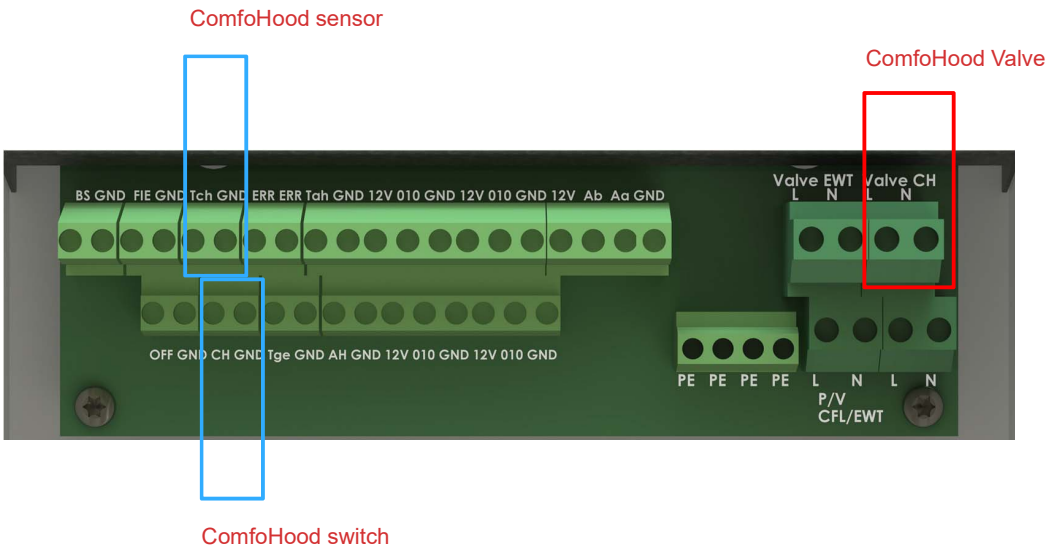
Connectors used:
7a: NTC sensor. Recommended: “Temperature channel sensor post-heater”: Art. No. 677200330
7b: 0-10 V analogue output signal to the post-heater



ComfoFond-L Q



ComfoHood


ComfoHood sensor
ComfoHood Valve
BS GND FIE GND Tch GND ERR ERR Tah GND 12V 010 GND 12V 010 GND 12V Ab Aa GND
Valve EWT
L N
Valve CH
L N
OFF GND CH GND Tge GND AH GND 12V 010 GND 12V 010 GND
PE PE PE PE L N L N
P/V
CFL/EWT
ComfoHood switch

Summary

With the Option Box many devices without ComfoNet (yet) can be connected to the ComfoAir Q system.

Compared to the Luxe Print of ComfoAir 550, there are less connections and the long term goal is to make the Option Box more simple step by step.

Example: ComfoCool Q600 is based on ComfoNet and can be controlled by Display, ComfoSense-C and ComfoControl app instead of CC-Luxe.

Appendix 1 – technical specifications Option Box

		Technical specifications			
Code	Meaning	Interface	Umax	Imax	Lmax-wiring
1	Bathroom switch	Digital	3.3Vdc	1mA	30m
2	External filter error sensor	Digital	3.3Vdc	1mA	30m
3	Standby switch	Digital	3.3Vdc	1mA	30m
4a	ComfoHood sensor	Analog	3.3Vdc	1mA	30m
4b	ComfoHood switch	Digital	3.3Vdc	1mA	30m
4c	ComfoHood valve	230Vac switched	230Vac	4A	30m
5	Error contact	Potential free contact			30m
6a	ComfoFond-L Q sensor	Analog	3.3Vdc	1mA	30m
6b	ComfoFond-L Q pump	230Vac switched	230Vac	<4A	30m
7a	Post-heater sensor	Analog	3.3Vdc	1mA	30m
7b	Post-heater control	0 - 10Vdc output	10Vdc	10mA	30m
8	0-10V input 3	0 - 10Vdc input	12Vdc	37,5mA	30m
9	0-10V input 1	0 - 10Vdc input	12Vdc	37,5mA	30m
10	0-10V input 4	0 - 10Vdc input	12Vdc	37,5mA	30m
11	0-10V input 2	0 - 10Vdc input	12Vdc	37,5mA	30m
	Imax of code 8, 9 ,10 and 11 together: <150mA				
12	Sub-soil heat exchanger valve	230Vac constant	230Vac	4A	30m
13	Mains power connector	±10%, single phase, 50Hz	230Vac	10A	2m
	The mains power is needed to power the 230V functions (code 4c, 6b and 12). All other functions are powered through the ComfoNet. Imax of code 4c, 6b and 12 together: 10A				
14	ComfoNet connector	plug-in	12Vdc	37,5mA	30m
15	ComfoNet connector	plug-in	12Vdc	37,5mA	30m
16	ComfoNet connector	RJ45	12Vdc	37,5mA	30m

Appendix 2 – Power consumption of the Option Box

Option Box, nothing connected: 168mW →	14 mA
Option Box, everything connected except 0-10 V inputs: 900mW:	75 mA
Option Box, all 0-10 V inputs in use: 2480mW →	207 mA
Option Box maximum: 2650mW →	220 mA

With a fully equipped Option Box the ComfoAir Q can supply 180 mA to other devices, sufficient for example:

- 2 ComfoSense C or 2 ComfoSwitch C (or combinations)
- 1 ComfoSense C or ComfoSwitch C and ComfoConnect LAN C

Questions & Answers