



DOMEKT

Series Air Handling Units with C4 PLUS Controller

Electrical Installation and Operation Manual

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1. INSTALLATION MANUAL

Installation works can be performed only by the specialists that have required qualification. During installation following requirements must be fulfilled.



It is recommended to lay control cables separately from power cables in a distance no less than 20 cm.

1.1. Electric Power Supply Connection

Air handling unit voltage is 230V AC; 50 Hz , therefore it is necessary to install the socket with grounding of corresponding capacity (see wiring diagram). Electric power supply cable type is indicated in electric diagram.



Unit must be connected to the stationary installation by solid cable through 10A circuit breaker with maximum 30mA current leakage relay.



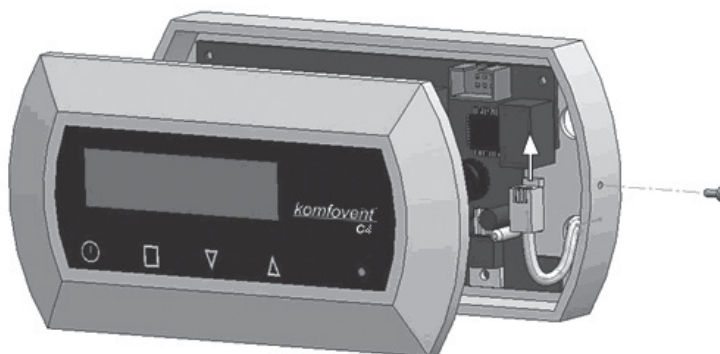
Before connecting unit to the electrical power supply, it is necessary to check whether earthing has been installed properly in conformance with electric safety requirements.

1.2. Control Panel Installation

- Control panel must be installed in the room under given following conditions:
 - ambient temperature 0°C ... 40°C;
 - relative humidity limits 20% ... 80%;
 - protection must be ensured from accidentally vertically falling water drops (IP X2).
- Installation height must be not less than 0,6m from the ground.
- Control panel connection is projected through the hole in its backside (see 1.2 Picture).
- Control panel is fixed after screwing two holes on the fastening surface.

1.2 Picture

Control Panel Connection



The length of cable connecting control panel and air handling unit can not exceed 150 m. Electric power supply cable type is indicated in wiring diagram.

1.3. Kitchen Hood Connection

Air handling units KOMFOVENT DOMEKT REGO 200VE have possibility of kitchen hood connection (in the functional diagram it is marked by KH). After fishing the cable through the rubber gasket, (located in the wall) it has to be connected to connection box J11.



Connector connection is performed strictly according to numeration given in wiring diagram, or adequate markings (see wiring diagram).



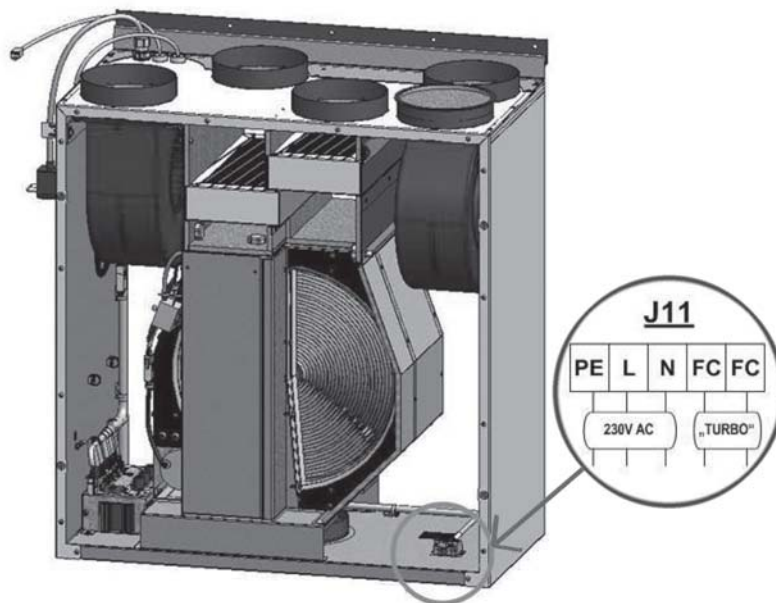
When disconnecting unit sections, do not pull by connecting wires and cables!



Before starting any operations inside the unit, make sure that the unit is switched off and the power supply voltage is shut off.

1.3 Picture

Kitchen Hood Connection

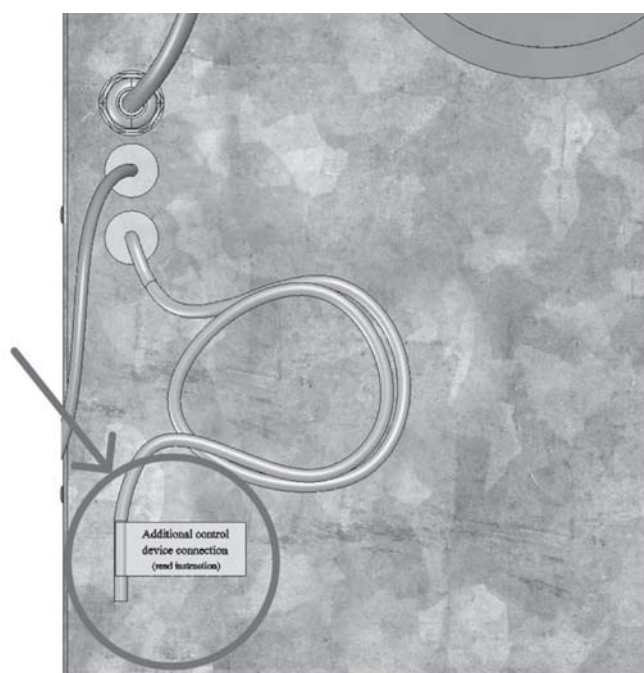


1.4. Control Contacts Connection

Air handling units with the C4 controller have the connection of additional device (switch, sensor, timer, button etc). For this function external cable is brought out from the unit (see 1.4 Picture). Detailed description of connection possibilities is provided in chapter 2.6.

1.4 Picture

Connection of additional control device



2. OPERATION MANUAL

2.1. Unit Control

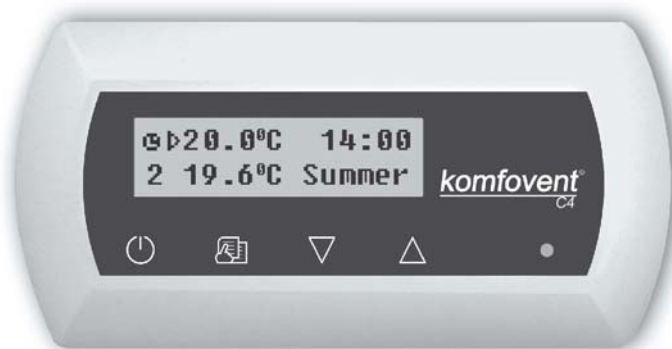
Air handling units control system ensures control of the physical processes that are taking place inside the air handling unit. Control system consists of:

- controller board;
- fuses, power and intermediate control boards, which are installed inside the unit;
- control panel, which can be installed in the convenient place for the user;
- air damper actuators;
- pressure and temperature sensors.

Control panel (2.1 Picture) is designed for remote air handling unit control, setting and display of controller parameters. Control panel LCD display with backlight allows monitoring various parameters and text messages. Controller light signals indicate unit operation modes and failures. Air temperature, ventilation intensity, operation modes and other parameters are set by the touch sensitive buttons.

2.1 Picture

General View of the Control Panel



Touch sensitive buttons located on the panel mean:



start up and shut down of the air handling unit / return to previous menu window;



entry to parameters change menu / set parameters confirmation;



navigation in the menu / parameters value change.

2.2. Switching on the Unit

After connecting the unit to the electrical power supply, on the control panel LCD displays start-up window, this is shown in the Picture 2.3.

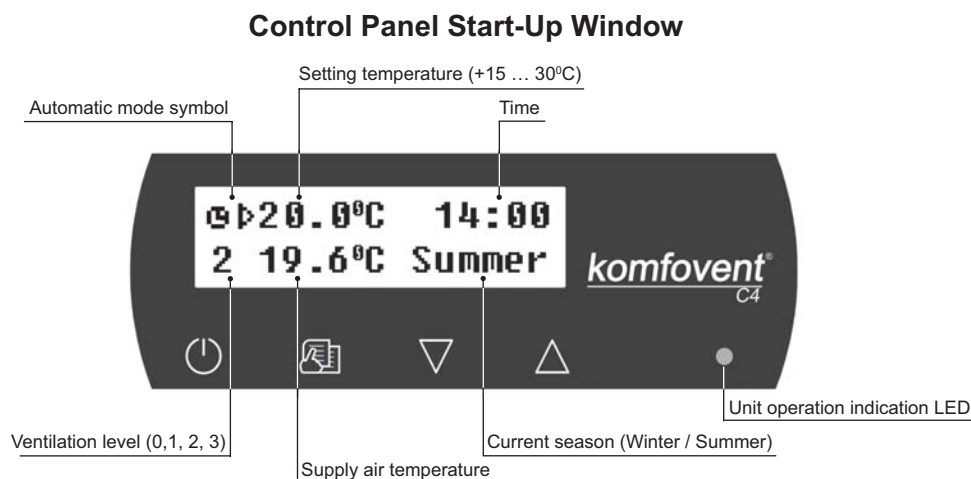
Unit is switched on (off) by touching and holding  button for 4 seconds till sound confirms the action. Unit operation is indicated in the control panel by ventilation intensity and LED signals (see further).

2.3. Control Panel Indication

Data is presented to the user on the control panel LCD display by numbers and text messages, also by two colour LED signals.

Controller display start-up window is shown in the 2.3 Picture.

2.3 Picture





Light Diode Indication:



1. No LED signal indication on the panel – **unit has been switched off.**
2. LED shines steady green and text message is shown – **unit is switched on.**
3. Automatic mode symbol is shown on the panel, while green LED shines – **unit is operating in automatic mode according to weekly schedule.**
4. LED blinks red and green and text message is shown – see 2.9 chapter.
5. LED shines steady red and text message is shown – **emergency unit shut down** (see 2.9 chapter).
6. Nothing is showing on the control panel - **unit does not have electric power supply.**

Note: By pressing any button on the panel automatically switching on the display backlight. Backlight is off after 30 seconds when no buttons are pressed.

2.4. Quick Ventilation Level Switchover

Three ventilation levels are projected in the unit. Each of them has its intensity (more detailed settings see in the next chapter). There is possibility to switch ventilation level quickly from start-up window (2.3 Picture).








To increase ventilation intensity: touch and hold  and at the same moment increase ventilation intensity by touching  button.

To decrease ventilation intensity: touch and hold  and at same moment decrease ventilation intensity by touching  button.



If ventilation intensity is changed using quick switchover and unit is operating according to weekly schedule, operation mode automatically is changed to manual mode.

2.5. Unit Programmable Settings

By soft touching  button the parameters menu is entered. Menu window is selected by buttons ,  (see further description). When menu window is selected, touch  for selecting desirable parameters and select the value with , . To confirm the changes touch .


To return to previous menu or to start-up window touch  button.

Note: If touch sensitive buttons are inactive for 1 minute, start-up window is shown.

1. Unit operation modes setting

Two unit operation modes are possible: manual and automatic. In manual mode unit operates continuously by set ventilation intensity. In automatic mode unit works according to weekly schedule (see further weekly schedule setting).

Mode :
→Manual Auto

Note: If automatic operating mode is selected, there is a symbol  in the start-up window.

2. Setting ventilation level

Air handling units with AC-type fans have three ventilation levels, each of which can be set for manual and automatic operation mode.

To set the ventilation level in manual mode, select menu window:

Ventilation: 1

- 1 – minimum ventilation intensity level
- 2 – normal ventilation intensity level
- 3 – maximum ventilation intensity level

Normal (second) intensity level of ventilation for the supply air and separately for the exhaust air fan can be adjusted in three steps according to a specific ventilation system design:

Ventilation: 2
Supp III Exh II

- I – minimum value
- II – medium value
- III – maximum value

Ventilation equipment with the EC type fan also has three levels of ventilation. Fan intensity for every of the free levels can be attributed separately for the supplied and exhausted air from 20 to 100%, in 1% steps.

Ventilation: 2
Supp .50% Exh .40%



Intensity potentiometers on the automation box inside the air handling unit are not used, their settings have no effect for the unit control when a control panel with touch-sensitive buttons is connected.

3. Activation of the OVR function

Air handling units have the OVR function, which detailed description can be found in chapter 2.6. The OVR function can be activated in two ways:

1. By the external control device. Connection is described in chapter 1.4. After interconnecting (short-circuiting) the FC contacts (see the electrical diagram), the unit will operate in the selected OVR mode and after disconnection it will return to the previous operation mode.

2. By control panel. In this case there is no need for additional connections to external control devices, the function is activated from the panel, and the unit will operate in the chosen OVR mode until the internal timer is active (from 1 to 90 minutes):

"OVR" function:
Off 30min.

"On" - OVR function on.

"Off" - function off.

If the OVR function is active, the start-up window of the remote panel shows the 4th ventilation level. When this function is active, the intensities of the supplied air and separately for the exhausted air fans can be adjusted in the menu window „Ventilation“ from 20 to 100% (EC fans only).

4. Setting temperature value

Air handling unit maintains the user-defined temperature. The temperature setting is selected on the menu window:

Setting temp.:
▷20.0°C



Intensity potentiometer on the automation box inside the air handling unit is not used, its settings have no effect for the unit control when a control panel with touch-sensitive buttons is connected.

5. Setpoint sliding

The setpoint can be shifted from -9 to +9°C from the temperature set value at specified by user time period. To set setpoint sliding select menu window:

Setpoint sliding
0°C 00:00 00:00

6. Season setting

For the air handling unit operating in most economical mode, summer and winter seasons have been provided.

- By setting "Winter" season, the heater operation is permitted.
- By setting "Summer" season, the heater operation is not permitted.

To set season select menu window:

Season:
→Summer Winter

Note: If air temperature during summer season is insufficient, air handling unit can be preset and for "Winter" season mode, its energy expenditures will be minimal.

7. Day and time setting

For the unit proper operation in automatic mode according to preset weekly schedule the day of the week and time should be set:

Day / Time
Mo 00:00

Days notation:

Mo – Monday

Tu – Tuesday

We – Wednesday

Th – Thursday

Fr – Friday

Sa – Saturday

Su – Sunday

8. Weekly schedule setting

Two ways for weekly schedule setting have been projected:

- “1-5/6,7” - simplified schedule setting option: one schedule for all work days and the other for weekend operation;
- “1-7” - weekly schedule setting option: different operation schedule for each day.

Schedule:
→1-5/6,7 1-7



There is one operation schedule with two setting options.

After selecting program for each day of the week “1-7” schedule setting window is introduced:

Mo	00:00	00:00
N1	→0	1 2 3

Each day of the week has 3 events: N1, N2, N3. Settings start from Monday (Mo). When the event of the day is selected, event start and end time is set and ventilation intensity level (0, 1, 2, 3) is assigned.

Before selecting work days and weekend operation mode schedule “1-5/6,7” menu window is introduced:

1-5	00:00	00:00
N1	→0	1 2 3

After event (N1, N2, N3) is selected for work days “1-5”, each event start and end time and ventilation intensity is set the same way. The same way three unit operating events are set for the weekend:

6, 7	00:00	00:00
N1	→0	1 2 3

Note: Every event start and end time is set from 0:00 to 24:00 h.

For instance:

Monday:

N1 from 00:00 to 07:00 2 ventilation level

N2 from 10:00 to 20:00 1 ventilation level

N3 from 20:00 to 24:00 3 ventilation level



9. Language setting

Language selection menu has been projected on the control panel. To set language the last menu window should be selected:

Language :
English







10. Menu locking

The PIN code is provided to lock entering to the parameters setting menu. If the menu is locked, only main parameters can be reviewed also the unit may be switched on or off.

To enter the PIN code, touch  +  and hold for 4 seconds till corresponding window appears:

PIN:
000

To enter the PIN code follow these steps:

1. Touch  or  to enter the first digit.
2. Touch  to go to the second digit.
3. Repeat the steps above to enter the second and the third digits.
4. After third digit is entered touch  to confirm the code.
5. Touch  and  and hold for 4 seconds to save the code into controller memory.



The menu can be unlocked only with the PIN code. If the code is forgotten, contact local service team.

2.6. OVR function

OVR (Override) function is intended for remote unit control by an additional external device. After the activation of this function the current mode of operation will be ignored and the unit will operate at a set intensity.

Applications of the OVR function:

- **Maintenance of CO₂ quantity in room** – by adding an additional CO₂ sensor (with relay), the main user-set ventilation rate at higher CO₂ will be switched to the maximum intensity until the room is ventilated, and then again will return to the user-defined intensity.
- **Maintaining relative humidity in the room** – after contacting the external relative humidity sensor (with relay), automatically switching to maximum or different set ventilation intensity the humidity level desired by the user will be maintained.
- **Ventilation on demand** – when the motion sensor is connected to the control contacts, ventilation will be adjusted according to demand, i.e. if people are indoors, ventilation will be carried out according to the set OVR intensity and if there's nobody in the room - the unit will operate according to the main user intensity, for example, the minimum.
- **Ventilation with additional air extraction** – connection of additional extracting device, for example, a kitchen hood or other extraction device without a separate fan, is intended, thus the air extraction is carried out by the unit itself. After the activation of the function the supply and exhaust air fans start operating at maximum intensity.

- **Negative pressure compensation** – intended for systems where air extraction can be carried out in a separate air extraction fan. Thus, for the compensation of negative pressure in room, the OVR function can be activated by separate control contacts. After the activation of the function the exhaust air fans start operating at maximum intensity and the exhaust air fan goes off.

Note: To make this function work, namely to stop the exhaust air fan in the OVR mode, the jumper No 4 on the automation box should be ON (2.7. Picture).

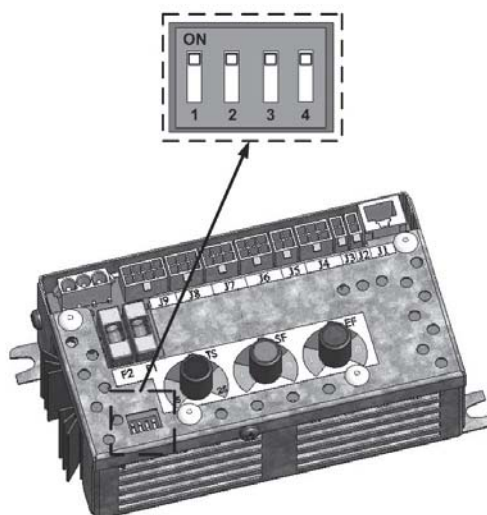
2.7. Configuration of automation functions

Switches (2.7. Picture) on the automatic box can be used for the selection of heat exchanger type, heater and fan, and the OVR function mode. Settings take effect only after rebooting the power supply.

Switch No.	ON	OFF
1	Rotary heat exchanger	Plate heat exchanger
2	Water heater	Electric heater
3	EC fans	AC fans
4	OVR mode when the exhaust air fan is off	Usual OVR mode

2.7 Picture

Automation configuration switches



2.8. Troubleshooting

If the unit is inoperative:

- Make sure the feeding cable is plugged into an electrical outlet.
- Check all safety fuses of the automatic control block. In case of need, replace the faulty fuses with the new ones of the same electric parameters (fuses parameters are in wiring diagram).
- Make sure there is no failure message in the control panel. If there is a problem, you must first remove it. To remove the problem, follow the table 2.8 describing failures.
- If nothing is shown on the control panel, check the cable that connects the remote panel to the unit.

If air flow is reduced:

- Check set ventilation intensity level (see chapter 2.5.).
- Check air filters' condition. If needed, replace with the new ones.
- Check supply/exhaust air diffusers adjustment.
- Check for clogging outside air intake grille.
- Check if system ducting is not damaged and there are no extraneous things inside.

If supplied air is too cold:

- Check temperature setting (see chapter 2.5.).
- Check if „Winter“ mode is set on the panel.
- Check if there is no failure indication on the control panel (see table 2.8.).
- Check fuse F2 located on the automatic box.




If the unit has been stopped and there is red light diode signal on the controller, and text message is shown meaning failure, failure needs to be eliminated!



Before starting any operations inside the unit, make sure that the unit is switched off and the power supply voltage is shut off.

After failure has been eliminated and power supply connected, text message appears about previous failure. If

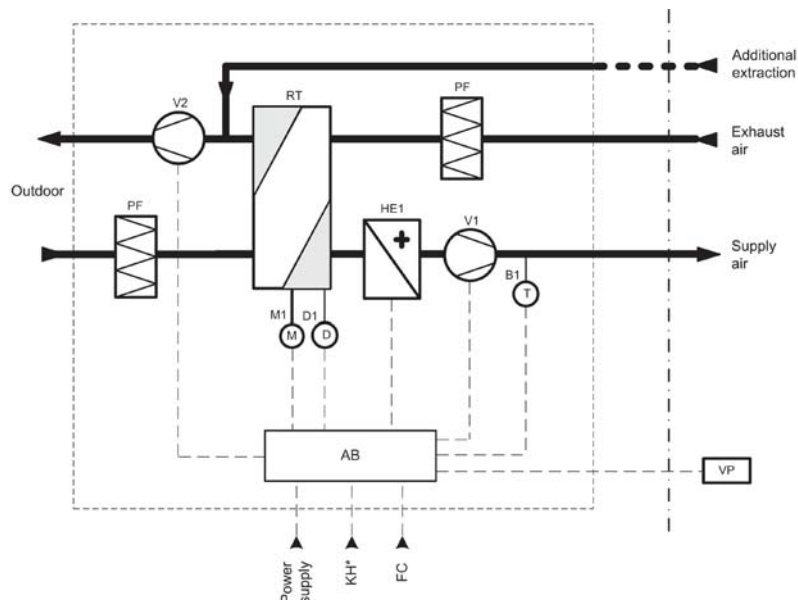
there are no more failures, unit is switched on by pressing  button; unit continues operating by preset mode. However if the failure has not been eliminated, unit either starts operating and after some time it stops again, or it does not operate and failure message is indicated.

2.8 Table

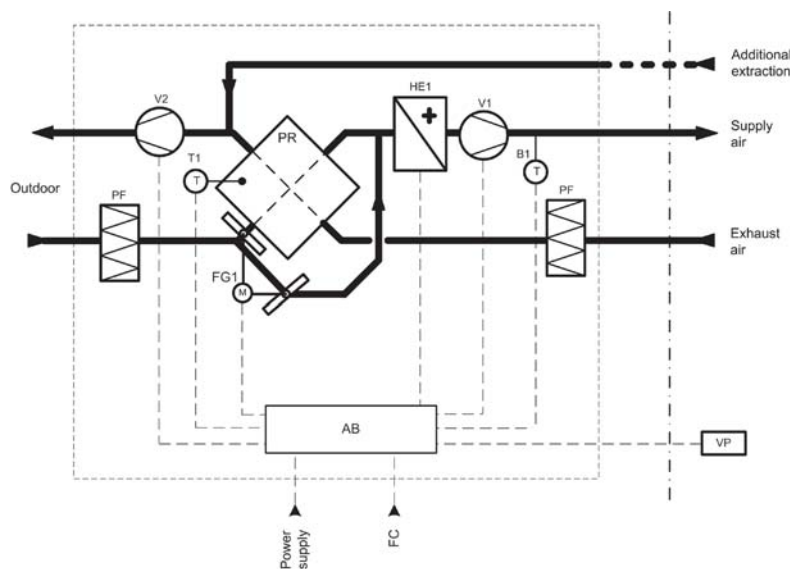
Failures indicated on the control panel, possible reasons and it elimination

Message	LED	Protection tripping description	Possible Failure Cause	Failure Elimination
Service time	Red and green blinking	Depending on the intensity of unit operation, at a certain time a periodic inspection message appears on the control panel.	-	After disconnecting the unit from power supply, it is necessary to carry out periodic inspection of the unit, i.e. to check the air filter clogging and the condition of the heat exchanger, the heater and fans.
Low supply air temperature	Red light	If the supply air temperature falls below the permitted value: +5°C, unit will stop operating with 10 min. delay.	Malfunction of the heat exchanger and/or heater.	Check temperature and season settings. Check the heat exchanger and heater operation.
Supply air overheating	Red light	If the supply air temperature is above the permitted value: +45°C, unit will stop operating with 10 min. delay.	Malfunction of the heat exchanger and/or heater.	Check temperature and season settings. Check the heat exchanger and heater operation.
Heater off	Red and green blinking	Unit with electric heater has protection from overheating at 90°C, which can be activated if the heater blow-cooling is insufficient. Unit operation is not terminated.	Heater is disconnected due to low air flow.	When heater cools down, protection restores automatically. It is recommended to increase ventilation intensity level.
Electric heater overheating	Red light	Unit with electric heater has emergency protection from overheating at 120°C, which can be activated in case of the heater failure. Unit operation is terminated.	Electric heater overheating protection is on.	It is possible to restore emergency overheating protection with button "RESET" (located on the heater), only if before heater overheating cause has been clarified and eliminated.
Return water low temperature	Red light	In the unit with water heater, when the water temperature falls below the permitted value of +9°C, the unit will stop operating.	Failure of the hot water preparation and supply function in the heating system.	Check circulation pump and heating system condition, heating valve actuator performance.
Frost possibility	Red light	In the unit with plate heat exchanger, if the freezing protection of the heat exchanger is activated and is not restored in 10 min, the unit will stop operating.	Temperature of the air passing through plate heat exchanger, dropped lower allowable level.	Check by-pass damper condition and actuator performance. It is recommended to decrease ventilation level.
Rotor stopping	Red light	When there is no signal from the rotor's rotation sensor, if the "Winter" season is set, the unit will stop operating in 2 min.	The belt is broken, failure of the rotor motor or rotor sensor.	Check rotor drive and rotation sensor condition.
Rotor stopping	Red and green blinking	When there is no signal from the rotor's rotation sensor, if the "Summer" season is set, the warning message appears in 2 min. on the control panel. The unit operation is not terminated.	The belt is broken, failure of the rotor motor or rotor sensor.	Check rotor drive and rotation sensor condition.
B1 sensor failure	Red light	When temperature exceeds the maximum permitted limits: -30°C...+75°C, the unit stops operating immediately.	Supply air temperature sensor is not connected or broken down.	It is necessary to check sensor connections or change the sensor.

Functional Diagram DOMEKT REGO



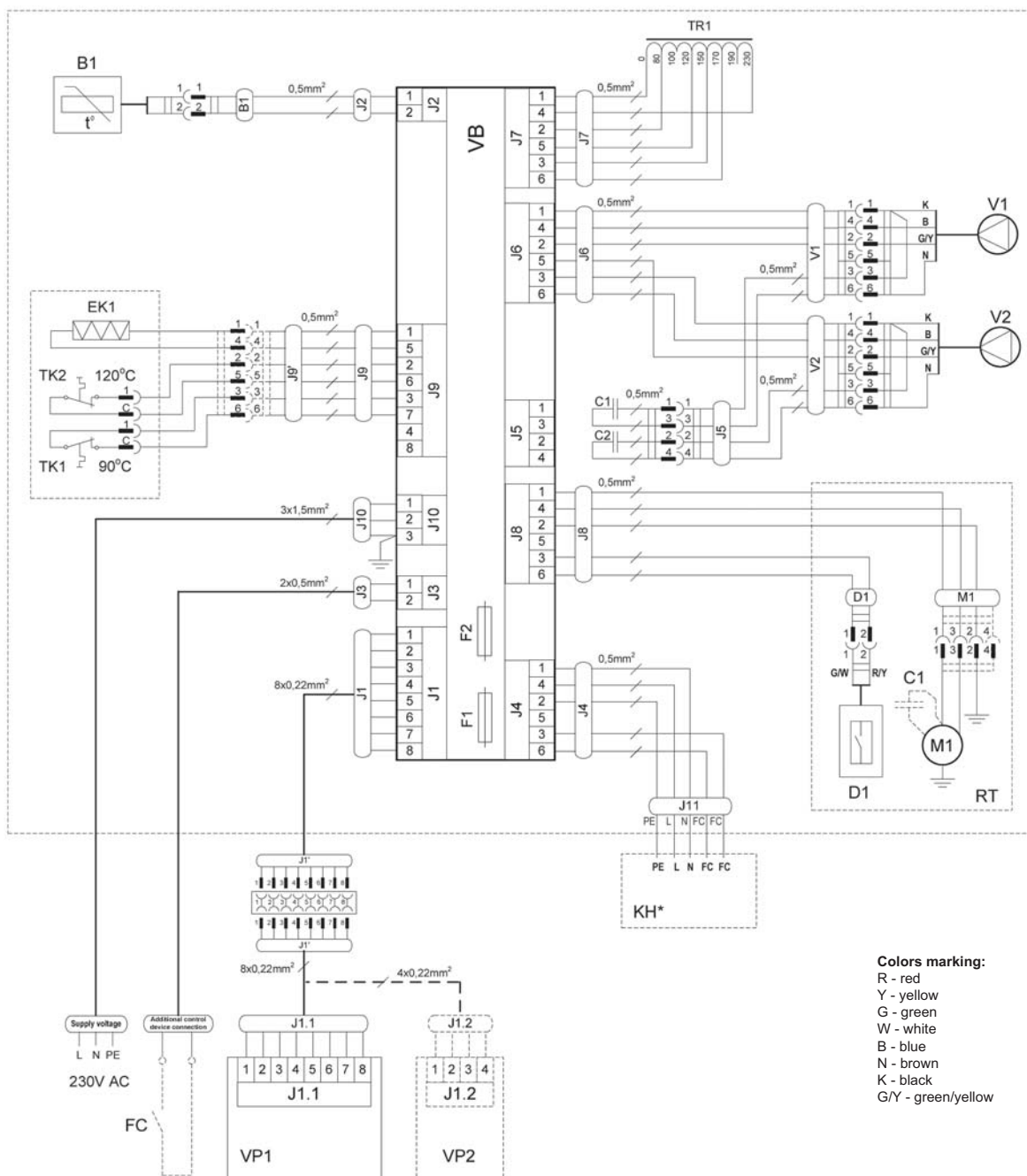
Functional Diagram DOMEKT RECU



AB	Control box	PF	Air filter
B1	Supply air temperature sensor	PR	Plate heat exchanger
D1	Rotor rotation sensor	RT	Rotary heat exchanger
FC	External forcing contacts connection	T1	Heat exchanger safety sensor
FG1	By-pass damper actuator	V1	Supply air fan
HE1	Electric heater	V2	Exhaust air fan
KH*	Kitchen hood connection	VP	Control panel
M1	Motor of rotary heat exchanger		

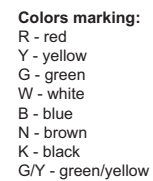
* Intended for REGO 200VE air handling unit only.

DOMEKT REGO 200VE/400VE/250PE/400PE Wiring Diagram



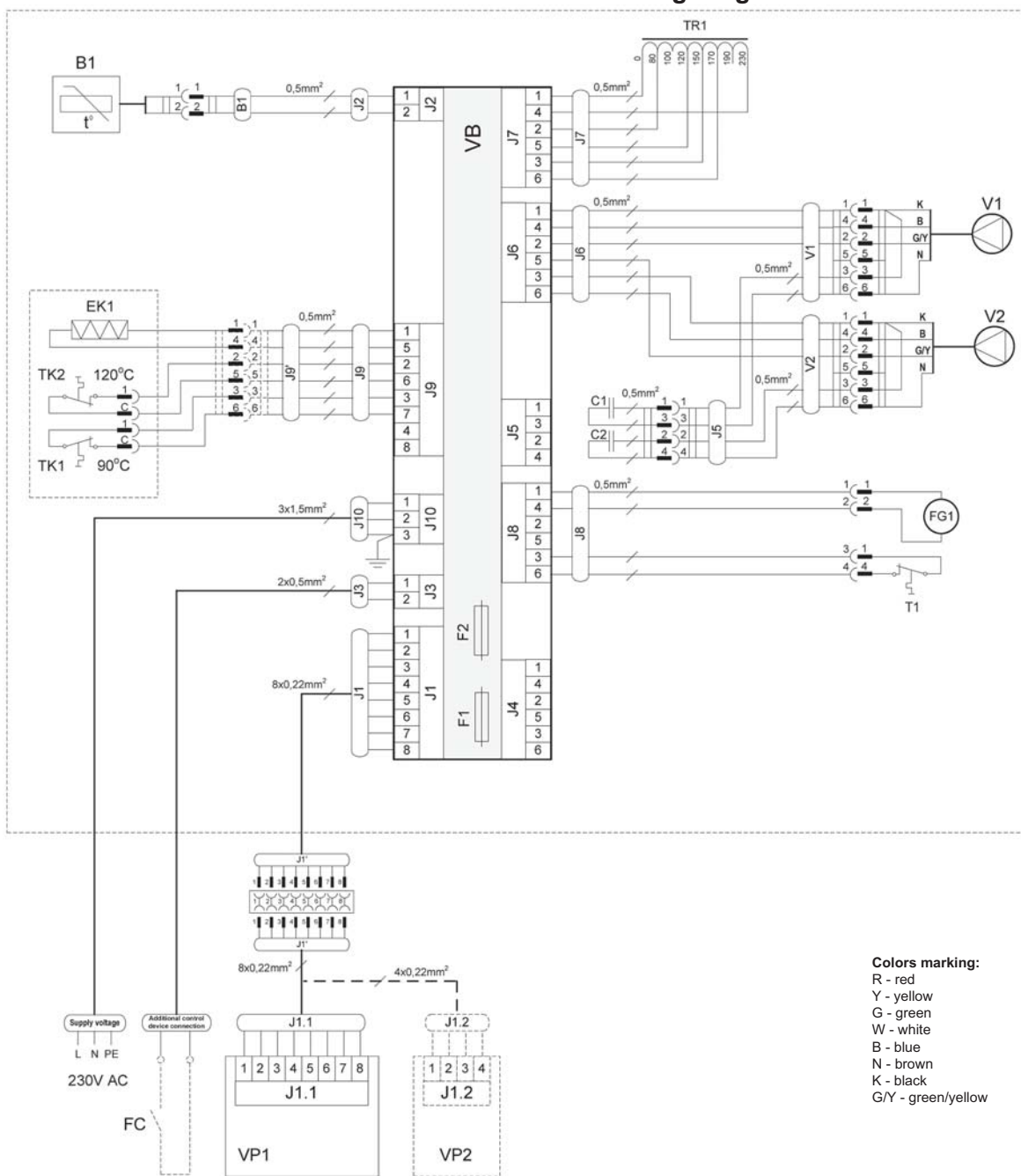
B1	Supply air temperature sensor	TK1	Safety thermostat from overheating 90°C
D1	Rotor rotation sensor	TK2	Thermostat from overheating 120°C with manual RESET
EK1	Electric heater 1kW	TR1	Autotransformer 1A
F1	Fuse T 4A	V1	Supply air fan
F2	Fuse F 6,3A	V2	Exhaust air fan
FC	External forcing contacts connection	VB	Control board
KH*	Kitchen hood (* connection intended for REGO 200VE only)	VP1	Control panel
M1	Motor of rotary heat exchanger	VP2	Control panel with touch-sensitive buttons
RT	Rotary heat exchanger		

DOMEKT REGO 200VE/400VE/250PE/400PE-EC/600HE-EC Wiring Diagram



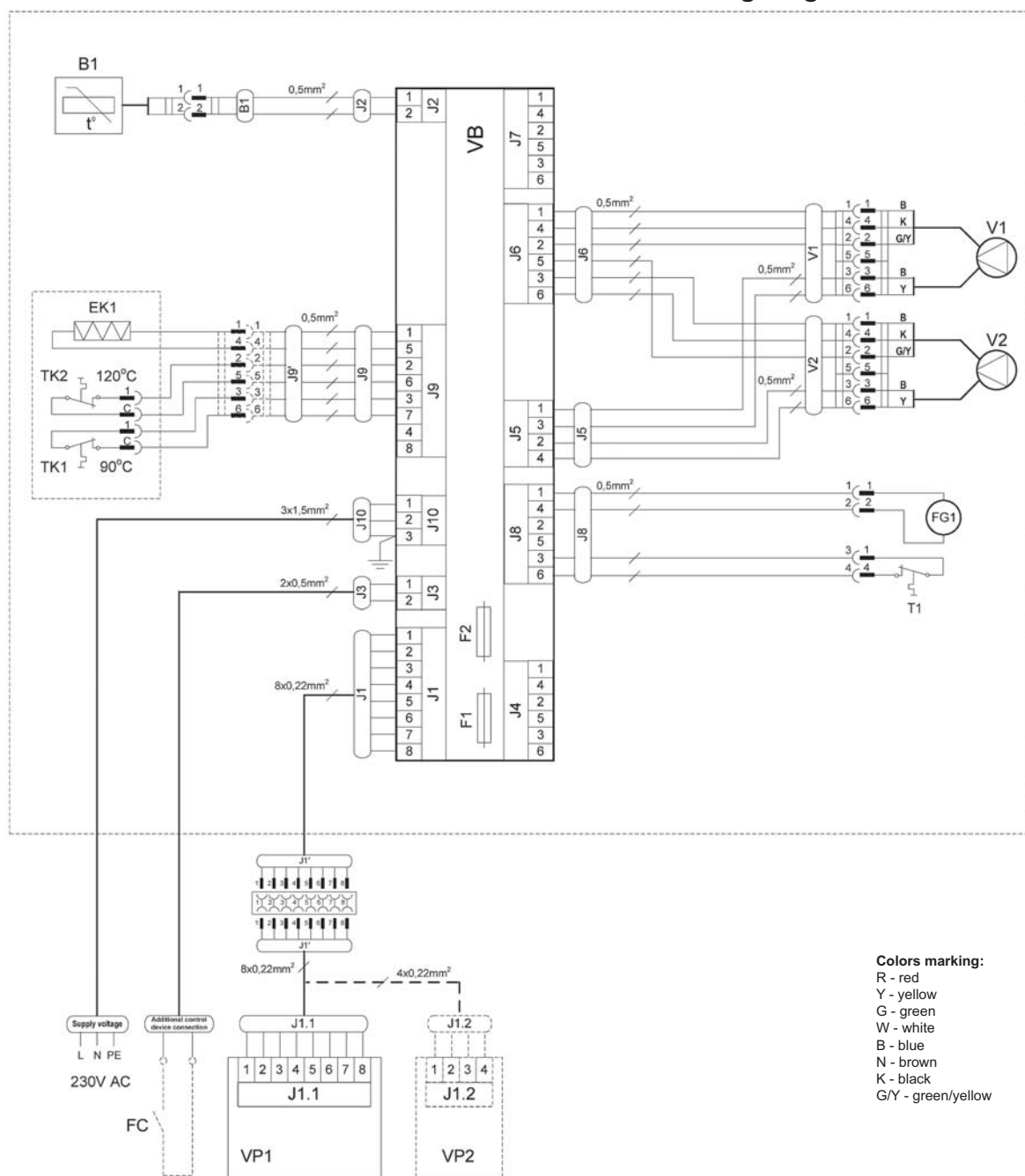
B1	Supply air temperature sensor	RT	Rotary heat exchanger
D1	Rotor rotation sensor	TK1	Safety thermostat from overheating 90°C
EK1	Electric heater 1kW	TK2	Thermostat from overheating 120°C with manual RESET
F1	Fuse T 4A	V1	Supply air fan
F2	Fuse F 6,3A	V2	Exhaust air fan
FC	External forcing contacts connection	VB	Control board
KH*	Kitchen hood (*connection intended for REGO 200VE only)	VP1	Control panel
M1	Motor of rotary heat exchanger	VP2	Control panel with touch-sensitive buttons

DOMEKT RECU 350VE/500PE Wiring Diagram



B1	Supply air temperature sensor	TK2	Thermostat from overheating 120°C with manual RESET
T1	Thermostat 0°C	TR1	Autotransformer 1A
EK1	Electric heater 1kW	V1	Supply air fan
F1	Fuse T 4A	V2	Exhaust air fan
F2	Fuse F 6,3A	VB	Control board
FC	External forcing contacts connection	VP1	Control panel
FG1	By-pass damper actuator	VP2	Control panel with touch-sensitive buttons
TK1	Safety thermostat from overheating 90°C		

DOMEKT RECU 300VE/450VE/500PE-EC Wiring Diagram



B1	Supply air temperature sensor	TK1	Safety thermostat from overheating 90°C
T1	Thermostat 0°C	TK2	Thermostat from overheating 120°C with manual RESET
EK1	Electric heater 1kW	V1	Supply air fan
F1	Fuse T 4A	V2	Exhaust air fan
F2	Fuse F 6,3A	VB	Control board
FC	External forcing contacts connection	VP1	Control panel
FG1	By-pass damper actuator	VP2	Control panel with touch-sensitive buttons



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