komfovent®

C6.1 / C6.2

ELECTRICAL INSTALLATION AND OPERATION MANUAL

EN

EN

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This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, or to an authorised collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

1. ELECTRICAL INSTALLATION INSTRUCTIONS

The installation can only be performed by qualified personnel. It is necessary to follow the requirements below during the installation.

⚠	It is recommended to lay the control cables separately from the power cables, at a minimum distance of 20 cm.
⚠	The connector connection is performed strictly according to the wiring diagram numbering, or with adequate markings (see the principal wiring diagram of the unit).
⚠	When removing the unit parts, do not pull on the connecting wires and cables!
⚠	Before performing any work inside the equipment, make sure that the air handling is switched off and disconnected from the mains power supply.

1.1. Power supply connection

The unit is designed for a supply voltage of 230 V AC, or 50 Hz; therefore, you must install a socket with an earthing of the corresponding capacity next to it (see the wiring diagram). The power cable type is indicated in the wiring diagram.

⚠	It is recommended to connect AHU to the mains via 16 A automatic circuit breaker with 300 mA current leakage protection (type B or B+).
⚠	The air handling unit is designed to connect only to a neat outlet, with protective grounding meeting all the electrical safety requirements.

1.2. Control panel installation

1. The control panel must be installed in the premises under the following conditions:
   - at an ambient temperature of 0 °C... 40 °C;
   - relative humidity ranging from 20%... 80 %;
   - protection from accidentally falling water drops (IP X0).
2. Control panel connection through the hole in the back or in the bottom.
3. The control panel can be mounted on a flush mounting box or in any other place, simply by screwing it to the surface through the two holes on the fastening surface.
4. The control panel is connected to the controller box. The length of installation cable for the control panel may not exceed 150 m.

⚠	Do not use any other type or size screws but those that are packed together for control panel mounting. Wrong screws may damage electronics board.

Control panel connection

⚠	The cable thicknesses for the panel connection and others are specified in the wiring diagram!
⚠	Remove protective screen tape, before mounting front cover on the control panel!

1.3. Connection of external elements

The air handling unit has external connection terminals in the control box, inside the air handling unit. They are used to connect all the external control elements.

1. Ethernet connection of computer network or Internet
2. Controller panel connection
3. Connection of external elements

Fig. 1.3 a. Controller with the connection terminals

RS485		TG1			DX		AUX				B1		B5		OUTPUTS				S1	
Modbus RTU		Water mixing valve actuator			External DX unit		24V DC; 0-10V output				Supply air temp. sensor		Return water temp. sensor		Common	Heating	Cooling	Alarm	Water pump Max. load 100W	
A	B	0..10V	GND	+24V	0..10V	GND	+24V	0..10V	GND	+24V	NTC 10k		NTC 10k		C	NO	NO	NO	~230V	N
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
NO	NO	NO	NC	C	C	0..10V	GND	+24V	0..10V	GND	+24V	0..10V	GND	+24V	0..10V	GND	+24V	~	~230V	N
Override	Kitchen hood	Fireplace	Fire alarm	Common	Common	Supply air VAV sensor			Exhaust air VAV sensor			Air quality or humidity sensor 1			Air quality or humidity sensor 2			Air damper actuator Max. load 15W		
INPUTS						B6			B7			B8			B9			FG1		

Fig. 1.3 b Connection diagram for external elements

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⚠	The total power of all the external elements, powered from a 24 V voltage, must not exceed 30 W.

1.4. Temperature sensor installation

Supply air temperature sensor B1 (Fig. 1.4 a) must be installed in the duct of supplied air to the premises, past all the additional air heating/cooling equipment (if any). It is recommended to install the sensor in the straight segment of the air duct within the distance of 5 duct diameters in front and after the sensor (Fig. 1.4 c).

⚠	Supply air temperature sensor B1 is not necessary if CAV or DCV airflow control is not enabled (more details in section 2.4.6.5) and internal electrical* or duct mounted air heater or cooler is not used.

⚠	The flat part of sensor must be directed perpendicularly to the airflow for sensing element would be well blown.

The water temperature sensor B5 (Fig. 1.4 b.) is mounted on the return water pipe, by screwing it into the provided hole. The sensor must be thermally insulated!

Supply air temperature sensor B1

Fig. 1.4 a

Water temperature sensor B5

Fig. 1.4 b

Fig. 1.4 c

* exeption R300V unit.

2. OPERATING MANUAL

2.1. Unit control with the control panel

The air handling unit can be operated by one of the following panels (Fig. 2.1).

C6.1 – panel with a touch screen for parameters of air handling unit setting and indication. The panel has integrated thermometer and hygrometer for indoor climate monitoring.
C6.2 – panel with touch-sensitive buttons is intended for main air handling unit parameters setting.

Fig. 2.1. Choice of control panels

2.2. Connecting the unit to local computer network or the Internet

The unit can be controlled not only by the control panel, but also by computer. In such cases, the air handling unit must be connected to a local computer network or to the Internet. The unit is controlled by a computer using a web browser. The air handling unit is connected to the computer network with a CAT5 type cable (RJ45 connector; see Fig. 1.3 a). The total cable length between the unit and the network router must not exceed 100 m.

The IP address can be found and changed on the control panel* (see Advanced settings→Connectivity).

An air handling unit connected to a network router can be controlled by a computer via a wireless connection (Wi-Fi) on the local network. After connecting the unit to the network router, activate the DHCP setting on the panel (see Advanced settings→Connectivity). This will automatically assign the unit a free IP address on the local network (do not use this setting if you connect the computer directly to the unit).

Fig. 2.2 a Example of the unit connection to a local network

* Only on the C6.1 panel (see Fig. 2.1)..

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When connecting the computer directly to the unit, in the network settings of the computer, it is needed to manually assign an IP address the last number of which would be different from the unit's IP address (for example, if the unit's IP address is 192.168.0.60, assign the address 192.168.0.70 to the computer). Also enter the subnet mask: 255.255.0.0.

Fig. 2.2 b. Computer network settings for direct connection to the unit

When connecting the computer directly to the unit with a computer, you will have to enter IP address the Internet browser to point to the user interface of the air handling unit.

You will need to change more settings to control your unit over the Internet using your computer. First, port forwarding must be configured to the IP and port number of the unit 80, according to the instructions of the network router.

Fig. 2.2 c Example of unit connection to a the Internet

When connecting the computer to the internet with, you will have to enter an external router IP address and the port number in the Internet browser to point to the user interface of the air handling unit.

Connect to the C6 control panel interface: enter the user name ***user***, password ***user**** and press CONNECT.

2.3. Unit control with a smartphone

After connecting the air handling unit to a computer network or the Internet, it can be controlled with your smart phone with an iOS or Android operating system. Download and instal "Komfovent Control" app. Connect by scaning QR code on the AHU door.

To download the applet, just search for it in the ***GooglePlay*** or ***iTunes*** stores. If app is used for the first time, You will be prompted to read and accept privacy policy (see Apendix No.1)
Tip: The applet user interface and the control capabilities are fully consistent with the C6.1 control.

* Should you forget a changed password, it can be reset to the initial "user". To do this, you must restore the factory settings for the air handling unit using control panel.

2.4. Control Panel C6.1

Fig. 2.4. C6.1 panel main window

2.4.1. Displayed symbols on the panel

	Fan operation		ECO mode on**. Free heating operation.
	Energy recovery operation		Alarm signal (see the troubleshooting section)
	Air heater operation		Supply air
	Air cooler operation*		Exhaust air
	There is a heating demand, but it is being blocked by the ECO mode**		Outside air temperature
	There is a cooling demand, but it is being blocked by the ECO modes[2]		Air filters
	ECO mode on**. Air flow reduction.		Instant heat recovery of the air handling unit
	ECO mode on**. Free cooling operation.		Instant power consumption of the air handling unit

* The air handling unit has the air cooling function, but it requires the following additional components which should be ordered in advance: DCW duct coil (for water cooling) or DCF duct coil with outdoor DX unit (for DX cooling).

** For more about the ECO mode, read Section 2.4.4.

2.4.2. Review of the parameters

Main unit parameters: air flow, temperature and filter clogging are displayed in the second window, and the energy parameters – energy recovery and power consumption – are displayed in the third panel window.

Tip: For window scrolls, swipe your finger on the screen to the appropriate side.

All other air handling unit parameters are presented in the "Overview" menu item (see Section 2.4.6.1.).

2.4.3. Operation mode selection

There is provided four usual operation and four special operation modes. User can choose one of them from the main panel window by clicking on the center button.

Usual operation modes

	Away. The recommended choice when you are not at home or when there are fewer people inside the premises than usual. The ventilation intensity will be 20%.
	Normal. Recommended when there is the usual number of people inside the premises. The ventilation intensity will be 50%.
	Intensive. The recommended choice when there are more people inside the premises than usual. The ventilation intensity will be 70%.
	Boost. The recommended choice when it is necessary to quickly ventilate the premises. The ventilation will run at its maximum intensity.

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Special operation modes

	Kitchen. Recommended during cooking, when running the kitchen hood. This mode increases the efficiency of the hood, as the air handling unit will increase the air flow to the premises by up to 80%, and the discharge is reduced to a minimum intensity of 20%.
	Fireplace. The recommended choice when lighting a fireplace. This mode improves the suction of the smoke through the chimney, causing a small overpressure in the room, because the unit supplies fresh air at a 60% intensity and removes the air from the premises at a 50% intensity.
	Override. This mode activates the air handling unit at the set intensity of 80%, despite the other mode settings. This mode has the highest priority over the other modes, and will run even after the air handling unit has been turned off.
	Holidays. The recommended choice when leaving home for a longer period of time. The premises will be ventilated periodically in 30 min. cycles (several times a day) at the minimum intensity.

Any special operating modes can be activated in the panel and by using a mobile phone or computer. When you select a special mode, you will need to enter the duration of its operation, after which the air handling unit will return to the previous mode. KITCHEN, FIREPLACE and OVERRIDE modes are set for time range from 1 to 300 min. In HOLIDAY mode, the time interval can be set from 1 day to 90 days, or a specific date can be selected.

> The KITCHEN, FIREPLACE and OVERRIDE special modes can be activated by the external control contacts (Fig. 1.3 b). Modes activation by the contacts has a priority.

The parameters for all eight modes are preset at the factory, but each of them can be modified individually. This requires selecting the desired mode and touching the icon for five seconds. In the window that opens, you can change the air flow, temperature and deactivate the electric heater in the unit:

2.4.4. ECO mode

ECO – an energy-saving mode to minimize the power consumption of the air handling unit. The ECO mode has three-fold operation effects:

- Blocking the electric heater operation in the air handling unit, and blocking of all external air heating/cooling elements.
- Activation of the Free cooling function, which at some point blocks the heat recovery process, if the outdoor coolness has to be used in an energy-efficient way. Cooling with the outdoor air automatically starts if the room air temperature is above a set value, and the outdoor air temperature at that time is lower than that in the room but not below the set min. value. Similarly, in the case of the opposite temperature conditions. Free heating is carried out.
- As the temperature control with heat recovery alone will not be ensured at all times, in the case of an extreme conditions, when the supply air temperature is below the specified minimum value (in winter) or exceeds the maximum value (in summer), the unit will try to maintain the temperature by decreasing the ventilation intensity. If the temperature does not reach the required min./max. limits over a long period of time, the air volume can be reduced to the lowest possible value (20%).

The ECO mode settings are preset at the factory, but the operation mode can be modified. This requires push and hold for five seconds the ECO button in the initial start-up window. In the window that opens, you can change the default settings.

During operation of the ECO function, selecting the “Constant heat recovery” activates the heat recovery as soon as it is possible to return heat or cold from the premises, regardless of the desired temperature. Constant heat recovery will not work in case when free cooling/heating mode is in operation.

2.4.5. AUTO mode

AUTO – an automatic operation mode when the unit is operating and changing the ventilation intensity based on the chosen (pre-set) weekly operating schedule.

> However, if at least one air quality sensor is connected to the air handling unit, the AUTO key will activate the automatic air quality control function. Then, the ventilation intensity is adjusted, not according to the schedule, but according to the current air pollution in the room.

See more details in Section 2.4.6.3.

2.4.6. Menu

The settings menu consists of four points, where you can view the relevant user information, choose the operating schedule, change the settings or turn off the unit.

If to the air handling unit is connected the air quality or humidity sensor, then the “Scheduling” menu item will disappear and instead of it, you will see “Air Quality”. See more details in Section 2.4.6.3.

2.4.6.1. Overview

The user can view the main air handling unit settings in the start-up windows (see Section 2.4.2.). However, all other information related to the operation of the unit, as well as to malfunctions and efficiency states, is provided in a detailed review of the menu item.

Detailed information. All temperature sensor readings, functioning of separate air handling unit elements and other detailed information is available in this menu

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Efficiency and consumption. The menu is used for monitoring the heat exchanger efficiency, energy savings, heat recovery and power consumption in real time.

Energy counters. This menu shows how much energy is recovered by the heat exchanger, as well as the energy consumed by the heater and the entire unit. It also shows the average daily value of the specific power of the air handling unit (SPI).

Alarms. This menu displays messages about existing faults. After the removal of the fault (see Chapter 2.6), these messages can be deleted by selecting Delete. By pressing the "History" button, you can view up to 50 faults in the recorded history.

About device. This menu displays information about AHU type, firmware versions and serial number. By pressing C6 ID line, QR code will be generated, that can be used when connecting via "Komfovent Control" mobile app.

2.4.6.2. Scheduling

The menu item is used for planning the air handling unit operations, according to a weekly program. The user can select one of the four schedules using the arrows at the bottom:

- STAY AT HOME
  Recommended when there are always people in the residential premises and ventilation is always needed.
- WORKING WEEK
  Recommended when people are at work during the daytime, i.e. they are at home only in the morning and evening, and on weekends.
- OFFICE
  Recommended if the unit is installed in an office, and the ventilation is required only during the day and only on weekdays.
- CUSTOM
  Schedule available for an individual user's programming. The program is not set by default.

The schedules are preset at the factory, but each of them can be modified individually, or the user can create his own schedule. To do this, select the preferred schedule and touch the schedule in the centre of the screen for five seconds.

All of the above schedules can have up to four different operation programs. Each program can be made of five events.

To start the program, or the event, click "+" – and to cancel it click "X".

To view the programs (if there are several of them), click on the figures in the bottom of the application bar: 1, 2, 3 or 4.

After adding a new event, first choose the days of the week in the program, then continue to set the operation modes: AWAY, NORMAL, INTENSIVE or BOOST and the operation start and end times.

To disable the air handling unit, you can set the STANDBY mode, or when setting the program's events just make a break at the times when the unit must not operate.

> ⚠ In order for the air handling unit to operate according to the selected weekly schedule, press the AUTO button on the main window (Fig. 2.4).

Factory set schedules

STAY AT HOME

Program No.	Days of the week	Event start time	Event end time	Mode
1	Mo - Su	00:00	08:00	AWAY
		08:00	22:00	NORMAL
		22:00	24:00	AWAY

WORKING WEEK

Program No.	Days of the week	Event start time	Event end time	Mode
1	Mo - Fr	00:00	06:00	AWAY
		06:00	08:00	NORMAL
		08:00	16:00	STANDBY
		16:00	22:00	NORMAL
		22:00	24:00	AWAY
2	Sa	00:00	09:00	AWAY
		09:00	16:00	NORMAL
		16:00	20:00	INTENSIVE
		20:00	23:00	NORMAL
		23:00	24:00	AWAY
3	Su	00:00	09:00	AWAY
		09:00	22:00	NORMAL
		22:00	24:00	AWAY

OFFICE

Program No.	Days of the week	Event start time	Event end time	Mode
1	Mo - Fr	07:00	08:00	AWAY
		08:00	12:00	NORMAL
		12:00	17:00	INTENSIVE
		17:00	18:00	AWAY

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2.4.6.3. Air quality

When the external air quality or humidity sensors are connected to the control terminals, automatically activates the air quality control, and the "Scheduling" menu item is replaced by "Air Quality".

Operation of air handling unit according to the air quality sensors ensures the maximum comfort with the minimum consumption, i.e. the user does not need to plan the schedule because the ventilation intensity is adjusted automatically, depending on indoor air pollution.

> ⚠ To activate the air quality mode, click the AUTO button on the main control panel window (Fig. 2.4).

In the "Air Quality" settings menu item, the user can set the maintained air quality or humidity value, as well as the maintained temperature, and can deactivate the electric heater in the unit, if necessary.

2.4.6.4. Settings

This menu item is used for the user interface basic settings. You can use it to change the menu language, measurement units, time and date, enable panel blocking or turn off control panel sound signal for the alarm messages.

2.4.6.5. Advanced settings

Additional air handling unit settings are provided in a deeper menu screen. To open the advanced settings window, press the "Settings" menu button for five seconds.

Temperature control. The air handling unit has several temperature maintenance methods:

- Supply. The unit provides the air at the user-defined temperature.
- Extract. The unit automatically supplies the air at a temperature so that the set temperature of the extract air is maintained.
- Room. The unit control the ambient temperature, according to the temperature sensor in the panel.
- Balance. The temperature control value of the supply air is automatically set on the basis of the current extract air temperature, i.e. what temperature air will be removed from the premises, the same temperature air will be supplied back.

> ⚠ After selecting the "Balance" mode, the temperature setting will disappear.

Flow control. By default unit operates without airflow control and fans run constant speed which was selected by the user. In case if the airflow control is needed, user can select one of the following:

- CAV – constant air flow control mode. The unit supplies and exhausts a constant air volume set by the user, regardless of the pollution condition of the air filters and the ventilation system changes.

> ⚠ When activating the air handling unit for the first time, the air flow statements may differ from the real flow until the end of the air flow calibration process. The adaptation process may take up to one hour before all the parameters become stable.

When CAV (or DCV) airflow maintenance mode is selected, there is the possibility to correct the delivered and exhaust airflows by +/-30% for actual air quantity developed by device after automatic calibration wouldn't coincide with those set in the control panel.

> ⚠ Correction of airflow may be entered only if operation mode of ventilation device is steady. It is recommended to enter the correction when the ventilation intensity level is not less than 50%

> ⚠ To have a correct airflow control in CAV (or DCV) mode, supply temperature sensor B1 must be installed according instructions stated in 1.4 paragraph.

- VAV – variable air volume control mode. The unit will supply and exhaust the air volume depending on the ventilation needs in different rooms, i.e., the constant pressure in the system will be maintained by the variable air volumes. After selecting the VAV flow control, the user will have to set the pressure maintained by the ventilation system for each of the four modes.

> ⚠ This function requires additional VAV sensors, which must be ordered separately. The connection of the sensor is shown in Fig. 1.3b.

> ⚠ If you select the VAV flow regime, the automatic air quality support will be disabled. The AUTO button will activate the weekly operation schedule.

- DCV – Directly Controlled Volume). The air handling unit will operate similarly as in the CAV mode, but air volumes will be maintained directly in accordance with the values of the B6 and B7 analog input signals of controller. After giving the signal 0... 10 V to the appropriate input, it will be converted according to the current determined air volume. For example, if the maximum air flow of the unit is 500 m^3/h, setpoint in the panel – 250 m^3/h, and the B6 input value – 7 V, the unit will supply constant air volume of 175 m^3/h, i. e., 70 % of the set value. The same applies to the exhaust air only by B7 input.

> ⚠ With special modes (KITCHEN, FIREPLACE, OVERRIDE and HOLIDAYS) the unit will always operate only in the CAV mode, regardless of the selected flow control.

Impurity control. Air quality control is activated by default. In order for the unit to operate in the AUTO mode not according to the air quality, but according to the weekly schedule, this function can be deactivated.

Air quality control is provided with the several sensors. Their types are configured as follows:

CO2 – Carbon dioxide concentration sensor [0...2000 ppm];

VOC – Air quality sensor [0... 100%];

The air quality control will automatically regulate ventilation intensity in the range of 20...70%. If necessary, the range may be adjusted.

If the minimum ventilation intensity is set to 0%, the air handling unit will be allowed to turn off when the air quality in the room meets the required value. However, the unit will turn on for a short time periodically every 2 hours (this is configurable), to check the air quality in a room. If after checking, the air pollution does not exceed the set value, the air handling unit is switched off. However, if after checking the air quality is poor, the air handling unit will continue its operation until the room is ventilated.

Humidity control

If humidity control function is activated, dehumidification of air in the premises is possible. Dehumidification can be realized in a following ways:

- If outdoor humidity is measured by additional humidity sensor, air in the premises can be dehumidified, when outdoor humidity is lower than indoor. Humidity in the premises will be measured by another, additionally connected sensor or by humidity sensor integrated in the control panel. In the settings set sensor type as RH and specify which of the sensors is for outdoor humidity measurement. In the AUTO operation mode, fans will run on minimum speed (see. "Impurity control"), until indoor humidity will be lower than setpoint. In case if premises should be dehumidified and outdoor humidity is lower than indoor, fan speed will be gradually increased and drier air supplied.
- If outdoor humidity sensor is not used, "Humidity control" function works the same way as "Impurity control" function, but instead of air-quality sensor, additionally connected humidity sensor or sensor from the control panel will be used.
- When external DX unit or duct mounted cold water coil is used (activated in the "Control sequence" settings), it is possible to dehumidify additionally by cooling the supply air. In that case, temperature setpoint will be ignored, and colder drier air will be supplied, until indoor humidity setpoint is reached. Before starting cooling devices, dehumidification with outdoor air is also possible, when outdoor humidity sensor is connected and outside air is drier than indoor. Dehumidification with cooling devices is possible in AUTO and in standard ventilation modes.

To use DX unit or duct mounted cold water coil for dehumidification, it is needed to check the "Allow dehumidify with cooling" option (See "Control sequence" settings). Together with this setting, an option to set desired humidity will appear in the adjustment screen of standard ventilation modes.

Fire damper*

parameters for the fire damper system tests can be set. It is possible to select either automatic or manual fire damper test. For automatic test, it is needed to set testing interval, as well as time of the day, when the tests will be performed. During fire damper test, AHU will be stopped for several minutes, fire dampers opened and closed. External fire damper controller will check are al the dampers functioning normally and will give the signal for AHU to restart or will indicate alarm message if something is wrong in the fire damper system.

* Available only if optional fire damper controller is configured and connected. Refer to Fire damper controller manual for more information.

Control sequence

In the "Control sequence" advanced settings you can set up to 3 levels of control, which will control the supply air temperature, i.e. first starts Stage 1, if it is not enough then Stage 2, and then Stage 3. Only the default Stage 1 control is activated in the factory for an electric heater – but you can activate additional heaters/coolers, to coordinate their operating sequences with each other or to completely turn them off.

To activate the additional hot water duct heater, you will need to select the "external coil" and set its type to "hot water". Selecting the "cold water" type of external coil will activate the water cooling control. The external coil control signal is output through the TG1 terminals (Fig. 1.3 b).

> ⚠ After activating the water heater, you must additionally connect the water temperature sensor B5 to the controller terminals.

Selecting "External DX unit" as a controllable feature will activate the control of external outdoor DX unit. The control signal is output through the controller terminals DX (Fig. 1.3 b).

The devices with the counterflow heat exchanger have the automatic protection against the icing which turns on the primary electric heater in case of the low outside temperature and high humidity in the room. This heater uses alternating power which depends on the outside air temperature, the humidity level in the room (humidity ratio in g/kg). and the actual air quantity in the ventilation device. The integrated primary electric heater operates on demand only as much as needed and as long as needed. When the inside humidity is low the heater may stay off even in the case of low outside temperatures.

Protections against icing:

- **On** – preset automatic protection with the integrated primary electric heater.
- **Off** – the protection may be turned off however the ventilation device will operate only in the specific range of the outside temperatures. As soon as the outside temperatures drop below -4°C the device will turn off after the preset time.
- **Outside heat exchanger** – this option allows activation of protection by outside heat exchanger which is installed in front of ventilation device in the outside air airduct instead of internal integrated protection. The control of the protective outside heat exchanger is provided via 0…10V signal which is sent using AUX terminals 9, 10 of controller.

The humidity of the room:

- Auto – the humidity of the room is set automatically using the humidity sensor in the control panel and/or outside humidity sensors connected to the controller's terminals B8, B9.
- 10…90% - it is possible to set the fixed setting of the room humidity if the control panel is installed in the inappropriate place (or isn't used) and no outside humidity sensors are connected..

> ⚠ In case of entering the incorrect room humidity setting, there is the risk of incorrect operation of the protection against icing and of freezing of the counterflow heat exchanger.

Connectivity. DHCP option automatically assigns afree IP address in the local network (do not use this option if you connect your computer directly to the unit). If DHCP is not used, you can configure your PC network settings for remote use via web browser: IP address and subnet mask.

"Status" line shows connection between AHU and internet:

- **Disconnected** – AHU is not connected to LAN or internet network
- **No internet access** – AHU is connected to LAN network and communicates with router, but internet is not accessible.
- **Connected** – AHU has internet access.

You may also change other network parameters, if necessary: Gateway and BACnet ID.

In the „Modbus RTU" line, it can be selected what device is connected to the terminals 1-2 of the C6 main board. Additional control panel for AHU, building BMS system or external fire damper controller can be used. If mentioned terminals on the board are not used, do not change this setting and leave it as "Panel".

Clean filters calibration. Resets dirty filter timer, after replacing air filters.

Komfovent Control. Here it is possible to reset user password, used for log-in to Komfovent Control app, that controls AHU via smartphone.

Reset settings. Resets all the user settings and restores factory configuration.

2.5. Control Panel C6.2

Fig. 2.5. C6.2 panel view

2.5.1. Operating mode selection

In the control panel C6.2, the user can choose only one of the usual operation modes:

	Away. The recommended choice when you are not at home or when there are fewer people inside the premises than usual. The ventilation intensity will be 20%.
	Normal. Recommended when there is the usual number of people inside the premises. The ventilation intensity will be 50%.
	Intensive. The recommended choice when there are more people inside the premises than usual. The ventilation intensity will be 70%.
	Boost. The recommended choice when it is necessary to quickly ventilate the premises. The ventilation will run at its maximum intensity.

The operation mode parameters are preset at the factory. For the modification of each of the mode parameters, if you have to change the temperatures or the air flows, you must have a connection to a computer network or the Internet (see Sections 2.2, 2.3). Then the modifications can be performed with a smart phone or computer.

For more about the choice of modes, read Section 2.4.3.

2.5.2. „ECO“

An energy-saving mode to minimize the power consumption of the air handling unit. See more details in Section 2.4.4..

2.5.3. AUTO mode

AUTO – automatic operation mode when the unit is operating and changing ventilation intensity based on the chosen (pre-set) weekly operating schedule (for more details, see Section 2.4.6.2). If you connect air quality sensors to the unit, then by pressing AUTO, the ventilation is automatically adjusted according to the current air pollution in the room (see Section 2.4.6.3.).

2.5.4. Warning indicator

The indicator informs the user about dirty air filters or ventilation unit malfunctions.

2.5.5. Reset button

After the failure elimination or replacing the air filters, press the reset button and hold it for 5 seconds to remove the fault message. If the fault message cannot be removed and the unit is not working, then follow the instructions in the troubleshooting tables (Section 2.6.).

2.5.6. Turning the unit on/off

Pressing the OFF button turns off the air handling unit. To activate the unit, press the same on/off button, or choose one of the modes directly.

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2.5.7. Keypad lock

By pressing the keys simultaneously and holding them for 5 sec., the keypad is locked and all keys will become inactive. To unlock the keypad, perform a similar procedure.

2.5.8. Control panel alarm message sound signal enable / disable

When alarm appears, control panel makes a beeping sound. Sound can be temporally switched off by pressing reset button or deleting alarm message.

To disable alarm message sound permanently:

- Press and hold ON/OFF button for 5s. until short beep will be heard and red indication light will be blinking.
- If control panel starts beeping and reset button indicator is lighting red – alarm message sound can be disabled by pressing reset button once.
- If control panel do not beep and reset button indicator is off – alarm message sound can be enabled by pressing reset button once.
- In order to save changes hold ON/OFF button for 5s. until short beep will be heard. To exit without saving changes, press ON/OFF button once.

2.6. Troubleshooting

If the unit is not working:

- Make sure that the unit is connected to the power supply network.
- Check all the automation fuses. If necessary, replace burned out fuses with new fuses that have the same electrical parameters (the fuse types are listed in the principal wiring diagram).
- Make sure there is no fault message or indication in the control panel. If there is a problem, you must first remove the fault. To remove the fault, follow the instructions in the troubleshooting tables.
- If nothing is shown on the control panel, check for damage to the cable that connects the remote panel to the unit.

Table 2.6.1. Alarms displayed in the C6.1 control panel, their possible causes and elimination methods

Code	Notification	Possible cause	Elimination
F1	Low supply air flow	Too high resistance of the ventilation system.	Check the air valves, air filters or ventilation system for clogging.
F2	Low extract air flow		
F3	Return water temperature low	The temperature of the return water in the water heater has dropped below the acceptable limits.	Check the condition of the circulation pump on the heating system, and the mixing valve actuator.
F4	Low supply air temperature	Unlisted or uncontrollable heating unit or insufficient power.	Check the heating unit.
F5	High supply air temperature		
F6	Electric heater overheat	1. Too low airflow with high heating capacity demand 2. Electrical power was disconnected during operation of electrical heater, thus it was not cooled down properly. 3. Incorrect operation of electrical heater	1. a. Check filters and duct system. 1. b. Decrease temperature setpoint. 1. c. Increase ventilation intensity. 2. Check that AHU is connected to power supply. 3. Contact authorized service representative. After cause of the alarm was found and fixed, it is necessary to reset overheating thermostat. Look for a yellow sticker with a word „RESET" inside of the unit, which specifies a place of thermostat switch. According AHU model, reset button can be under black round cover or inside of the electrical heater casing and can be reached through dedicated opening with long and thin tool (for example pencil).
F7	Heat exchanger failure	1. Rotary heat exchanger do not work (only DOMEKT R units). 2. By-pass damper is stuck or does not function properly (only DOMEKT CF units).	1. Check there are no garbage or other objects blocking exchanger rotation. Check rotor belt. 2. Inspect by pass damper and it's actuator. Contact authorized service representative.
F8	Heat exchanger icing	Icing may occur in low outdoor temperatures and in high room humidity. Alarm may also appear if icing protection is turned off and outdoor temperature drops bellow -4°C.	Check the operation and protection system of the initial electric heater. Check settings: Advanced settings->Control sequence->Icing protection.
F9	Internal fire alarm	Risk of fire in the ventilation system.	Check the ventilation system. Find the source of the heat.
F10	External fire alarm	Fire alarm from the building's fire protection system.	Once the fire alarm signal disappears, the unit needs to be restarted immediately from the control panel.
F11 – F22	Temperature sensor(s) failure(s)	Disconnected or faulty temperature sensor(s).	It is necessary to check the sensor connections or to change the sensor.
F23 – F27	Controller failure	Inner main controller failure.	Replace the main controller.
F28-F29	Temperature/humidity sensor failure	No signal from integrated temperature/humidity sensors inside of control panel.	Check control panel wiring and cables. Replace control panel if needed.
F30-F31	Air-quality/humidity sensor failure	For unit operation needed air-quality/humidity sensor not connected or broken.	It is necessary to check the sensor connections or to replace the sensor.
F40	Communication error	1. Wrong settings 2. Not connected or broken external fire damper controller.	1. If fire damper system controller is not used with AHU, disable it in the Settings->Connectivity->Modbus RTU 2. Contact person responsible for fire damper system maintenance or authorized service.
F42-F45	Fire damper failure	Incorrect operation of one or more fire damper actuators	Contact person responsible for fire damper system maintenance or authorized service.
F46-F50	External fire alarm	External fire alarm received from fire damper controller.	Fire alarm can be generated from building fire system, from smoke detectors, thermostats of the damper actuator or etc.

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Code	Notification	Possible cause	Elimination
W1	Clogged air filters	It is time to replace the air handling unit air filters.	Change the filters after turning off the unit. After filter replacement start clean filter calibration.
W2	Service mode	A temporary mode, which can be activated by the service personnel.	The service mode is switched off by simply deleting the alert message.
W3	Water Temperature B5 To Low	Warning that water temperature is lower than needed for heating of supply air.	Check the condition of the circulation pump on the heating system, and the mixing valve actuator.
W4	Humidity sensor failure	One of two humidity sensors not connected or broken. Another connected sensor is used for unit operation.	It is necessary to check the sensor connections, to replace the sensor or in the settings specify, that sensor is not used.
W5	Air impurity sensor failure	One of two air impurity sensors not connected or broken. Another connected sensor is used for unit operation.	It is necessary to check the sensor connections, to replace the sensor or in the settings specify, that sensor is not used.
W6	Low heat exchanger efficiency	1. Message can appear if air is extracted through additional 5-th duct and because of that heat-exchanger efficiency is low (only DOMEKT R units). 2. Supply fan intensity is set much higher than extract fan. 3. AHU doors are not closed properly thus diferent airflows are mixed.	1. If additional extraction is not used, make sure that 5-th duct connection is closed. Check that air damper in the 5-th duct is fully closed. 2. If airflow dis-balance is not necessary, make airflow setting the same. 3. Check that AHU doors are fully closed and it's gaskets are not worn out.

Table 2.6.2. Alarms displayed in the C6.2 control panel, their possible causes and elimination methods

Indication	Operation	Possible cause	Elimination
Red light warning indicator	The unit is operating	Dirty air filters	Change the filters after turning off the unit.
Flashing red warning indicator	The unit is operating	A temporary mode, which can be activated by the service personnel	The service mode is switched off by simply deleting the alert message.
Flashing red warning indicator	The unit is not operating	Critical failure(s) for which the unit is stopped	More details about the fault can be viewed online using the computer or a smart phone.
All panel indicators are flashing	N/A	Damaged or incorrectly connected connection cable between the remote control panel and the unit	Check the control panel connection

⚠ Reset the emergency electric heater overheating protection system using the RESET button, only after clarifying the cause of the overheating and eliminating it.

⚠ Before performing any work inside the equipment, make sure that the machine is switched off and disconnected from the mains power supply.

⚠ Once the failure has been eliminated, activate the power supply and erase the error message. However, if a fault is not eliminated, the device will either start again and then stop, or will not start and the error message will continue to be displayed.

APENDIX NO.1

KOMFOVENT CONTROL Terms of Use and Privacy Notice

1. Introduction

These Terms of Use ("the Terms") govern the use of the KOMFOVENT CONTROL mobile application, operated by KOMFOVENT, UAB ("KOMFOVENT"), and the use of other related services. KOMFOVENT CONTROL is a mobile application designed to CONTROLly monitor and control a KOMFOVENT air handling unit connected to the Internet. These Terms also contain information about personal data processed for the above-mentioned purposes.

You must confirm that you have read the Terms of Use to use the KOMFOVENT CONTROL application. Please read all the Terms carefully and start using the KOMFOVENT CONTROL application only if the terms are clear and acceptable. KOMFOVENT reserves the right, at its sole discretion, to change these Terms of Use. If you continue to use KOMFOVENT CONTROL after we post changes to the Terms of Use, you are signifying your acceptance of the new terms.

2. Functionality

KOMFOVENT CONTROL allows monitoring and controlling your KOMFOVENT air handling unit remotely. As a user, you can see existing errors or warning messages, select and adjust the AHU settings and main parameters that provide information about the operation of the unit and facilitates its control.

The user can turn the device on/off, change modes and settings (airflow, temperatures, etc., depending on the device configuration), set a weekly schedule or air quality control function. User can monitor: sensor readings (temperature, humidity, etc., depending on installed sensors), flow/fan intensity information, heat exchanger operation and efficiency, filter contamination, power consumption, messages, message history, etc. KOMFOVENT may also perform software updates remotely (regarding bug fixes, compatibility of the application/controllers/server, support of new functions, etc.).

Detailed information on the KOMFOVENT CONTROL functions and operation can be found in the DOMEKT User Manual available at www.komfovent.com.

In case of any discrepancies between the product information provided in the Terms of Use and the User Manual, the information specified in the User Manual shall prevail.

3. Your Responsibility

Device ID number (ID) and a password identify you as a user in the KOMFOVENT CONTROL application. We strongly recommend that you make use of a unique and strong password that is reasonably hard to guess or find out (for example, do not use your name, birth date, car make or the same password used in other accounts) and do not disclose it to others. If you suspect someone is using your password, change it immediately.

The use of the KOMFOVENT CONTROL application is free except for any possible data usage fees that may be set by your Internet service provider.

4. Rights

Copyrights, other rights and contents of KOMFOVENT CONTROL are owned by KOMFOVENT and protected by law.

Commercial use of these rights without a prior written consent of KOMFOVENT is prohibited. This also applies to copying, transferring and sale of information, images, graphics, program codes and technical solutions. Bypassing security measures or system is prohibited.

Unauthorized use or distribution of the KOMFOVENT CONTROL application may violate copyrights, trademark and/or other laws and may be subject to civil and criminal liability.

5. Privacy Notice

5.1. Installation

In order to install the KOMFOVENT CONTROL application, you must agree with the Terms of Use and connect your controller to the Internet. Once the controller is connected to the Internet, the following data is periodically sent to the KOMFOVENT server:

- Product/controller ID number (ID).
- Software versions.
- Device configuration name.
- Product serial number.
- IP address and port number of the controller.
- Date of the first attempted login.

The processing of this data is necessary for the operation of the KOMFOVENT CONTROL app and provision of remote control services. If you use the KOMFOVENT CONTROL application, the legal basis for the processing of such data is the execution of the agreement on the use of the KOMFOVENT CONTROL mobile application.

The above-mentioned data is periodically sent to the KOMFOVENT server even if you do not start using your KOMFOVENT CONTROL application or decide to stop using KOMFOVENT CONTROL after connecting your device to the Internet. In this case, the legal basis for the processing of such data is your consent expressed by connecting your controller to the Internet. To stop sending the above-mentioned data, disconnect your controller from the Internet.

5.2. Login

To start controlling and monitoring your device via the KOMFOVENT CONTROL application, simply enter your device ID/scan the QR code and enter your password in the application. The controller and mobile phone must have access to the Internet.

5.3. Data Categories and Objectives

The following is an overview of data and personal information processed by KOMFOVENT:

Account credentials:

- User password.

Information about the product and its use:

- Date of the controller's first attempt to connect to the server.
- Product/controller ID number (ID).
- Product serial number.
- Software versions.
- Device configuration name.
- Data and parameters for control and operation of the product/device:
  - Operation modes and settings: flow, temperature, humidity and air quality settings, disabling or enabling of individual units.
  - Values for different types of device sensors, for example, temperature sensors, humidity sensors, etc.
  - Calibration values, operation limits.
  - Informative parameters: fan control levels, efficiency, energy consumption meters, notifications.
  - Parameters affecting device performance.
  - Weekly schedule times, programs, modes.
  - Settings of time, measurement units.

KOMFOVENT processes personal data for the following purposes:

- To provide a remote control feature to the user;
- To provide remote assistance;
- To analyse product operation;
- To improve the product and the KOMFOVENT CONTROL operation;
- To handle complaints and warranty requests.

The legal basis for the processing of such data is the execution of the agreement on the use of the KOMFOVENT CONTROL mobile application.

5.4. Storage and Deletion

Data specified in point 5.1 Installation is periodically sent to the KOMFOVENT server. The server does not connect to the controller and does not store any more data until the KOMFOVENT CONTROL application is downloaded and the Terms of Use are accepted. Once the Terms of Use are accepted, the server starts periodically collecting the data specified in point 5.3 Data Categories and Objectives.

Device data history is stored for 1 month.

After that, the data is safely and carefully deleted unless it is anonymized or there are other reasons and legal basis for extended storage.

5.5. Transfer of Personal Data

Personal data processed by KOMFOVENT shall not be transferred to third parties for management purposes. Personal data may only be transferred to data processors providing installation, maintenance and other services to KOMFOVENT. These companies process data on our behalf and under signed data processor contracts.

Your data will not be transferred to others unless you have given your consent or KOMFOVENT has a legal obligation to transfer such data or the transferred data is anonymized.

5.6. Additional Information

You have the right to access your personal data, to have it corrected or deleted, to restrict the processing and portability of your data, to refuse the processing of your personal data and the right to complain to the State Data Protection Inspectorate. Requests for enforcement of your rights shall be sent to the specified e-mail address or to the KOMFOVENT, UAB office address.

6. Notification and Termination

You may stop using the KOMFOVENT CONTROL app and/or stop periodical collection of your device information specified in point 5.3 Data Categories and Objectives at any time. This can be done in the KOMFOVENT CONTROL application by refusing to accept the Privacy Policy. By refusing to accept the Privacy Policy, you lose access to the KOMFOVENT CONTROL application and your device data is deleted from the KOMFOVENT server unless it is anonymized or there are other reasons and legal basis for extended storage.

If you transfer ownership of the product, you shall inform the new owner of the Terms of Use of KOMFOVENT CONTROL.

KOMFOVENT may terminate your access to the KOMFOVENT CONTROL application by notifying you 90 days in advance about the termination of the KOMFOVENT CONTROL services or planned major changes to the program. KOMFOVENT may also terminate or limit your access to the KOMFOVENT CONTROL if you violate these Terms of Use.

7. Disclaimer

Internet access is required for the proper functioning and failure-free operation of the KOMFOVENT CONTROL application according to these Terms and Product User Guide. In rare cases, KOMFOVENT CONTROL or a part thereof may be unavailable due to, for example, program updates, Internet network problems or other malfunctions.

KOMFOVENT will make every effort to ensure that the KOMFOVENT CONTROL app is free from viruses and other threats, but cannot guarantee this. You shall be held responsible for using and maintaining antivirus software and other security features on your phone and for backing up your data.

If you receive an error message or notice the error yourself, please report it to KOMFOVENT. KOMFOVENT shall not be held liable for any direct or indirect loss incurred by you or others if the KOMFOVENT CONTROL app cannot continue to operate as expected.

8. Contact information and other

The remote service provider and data controller is KOMFOVENT, UAB, company code 124130658, registered address Ozo g. 10, LT-08200 Vilnius, e-mail: info@komfovent.com.

For more information about KOMFOVENT products and services visit www.komfovent.com.

UAB KOMFOVENT

TECHNINĖS PRIEŽIŪROS SKYRIUS / SERVICE AND SUPPORT
Tel. +370 5 200 8000
service@komfovent.com

ООО «КОМФОВЕНТ»
Россия, Москва
ул. Выборгская д. 16,
стр. 1, 2 этаж, 206 офис
Тел. +7 499 673 22 73
info.oka@komfovent.com
www.komfovent.ru

ООО «КОМФОВЕНТ»
390017 г. Рязань
Ряжское шоссе, 20 литера Е, пом Н6
Тел.: +7 491 255 95 71
info.oka@komfovent.com
www.komfovent.ru

ИООО «Комфовент»
Республика Беларусь, 220125 г. Минск,
ул. Уручская 21 – 423
Тел. +375 17 266 5297, 266 6327
info.by@komfovent.com
www.komfovent.by

Komfovent AB
Ögärdesvägen 12B
433 30 Partille, Sverige
Tel. +46 31 487 752
info_se@komfovent.com
www.komfovent.se

Komfovent Oy
Muuntotie 1 C1
FI-01 510 VANTAA
Tel. +358 0 408 263 500
info_fi@komfovent.com
www.komfovent.com

Komfovent GmbH
Konrad-Zuse-Str. 2a, 42551 Velbert,
Deutschland
Tel. +49 0 2051 6051180
info@komfovent.de
www.komfovent.de

SIA Komfovent
Bukaišu iela 1, LV-1004 Riga
Tel. +371 24 664433
info@komfovent.lv
www.komfovent.lv

Vidzemes filiāle
Alejas iela 12A, LV-4219 Valmiermuiža,
Valmieras pagasts, Burtnieku novads
Tel. +371 29 358 145
kristaps.zaicevs@komfovent.com
www.komfovent.lv

www.komfovent.com

PARTNERS

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