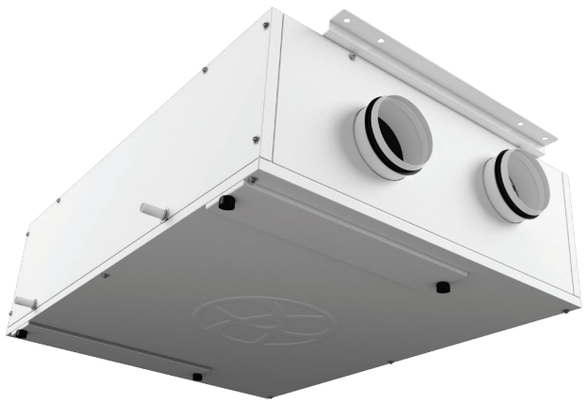


MOTOR EC

HEAT RECOVERY AIR HANDLING UNITS

KOMFORT EC DB S11
KOMFORT EC DB S15

EN

OPERATION MANUAL

BLAUBERG Ventilatoren

CONTENTS

BLAUBERG Ventilatoren GmbH Company is happy to offer your attention a heat recovery air handling unit KOMFORT EC DB.

INTRODUCTION

The present operation manual contains a technical description, technical data sheets, operation and mounting guidelines, safety precautions and warnings for safe and correct operation of the unit.

Read carefully and understand the operation manual, especially the safety requirements, before the unit mounting and start up.

Keep the operation manual available as long as you use the unit.

GENERAL

The heat recovery air handling unit KOMFORT EC DB is designed for efficient and energy saving ventilation of domestic and public premises.

The unit is not a ready to use product but a component part of central air conditioning and ventilation network.

The unit is designed for indoor application with the ambient temperature ranging from +1 °C up to +40 °C and relative humidity up to 80 %.

Hazardous parts access and water ingress protection rating:

- ☐ unit motors - IP 44;
- ☐ assembled unit connected to air ducts - IP 22.

The unit design is regularly improved, so some models can slightly differ from those ones described in this operation manual.

SAFETY REGULATIONS

All operations related to the unit electrical connections, servicing and repair works are allowed only after the unit is disconnected from power supply.

All mounting and servicing operations are allowed by duly qualified personnel.

Please, follow the safety regulations and working instructions (DIN EN 50 110, IEC 364).

Make sure the impeller and the casing are not damaged before connecting the unit to power mains. The casing internals must be free of any foreign objects which can damage the impeller blades or the motor.

The unit maintenance and repair is allowed only after power cut-off and full stop of the rotating parts.

Misuse of the unit or any unauthorized modification are not allowed.

The unit is designed for connection to power supply in compliance with the «Technical data» section.

The unit is rated for permanent operation.

Take steps to prevent ingress of smoke, carbon monoxide and other combustion products into the room through open chimney flues or other fire-protection devices. Sufficient air supply must be provided for proper combustion and exhaust of gases through the chimney of fuel burning equipment to prevent back drafting. The maximum permitted pressure difference per living units is 4 Pa.

The transported air must not contain any dust or other solid impurities, sticky substances or fibrous materials.

The unit is not rated for operation in a flammable or explosive medium.

Fulfil the operation manual requirements to ensure a trouble-free and long service life of the unit.

TRANSPORTATION AND STORAGE REGULATIONS

Transportation of the unit is allowed by any vehicle provided the unit is transported in the original package and is protected against weather and mechanical damages.

Use hoist machinery for handling and transportation to prevent possible mechanical damages of the unit. Fulfil the requirements for transportation of the specified cargo type during cargo-handling operations.

Store the unit in a dry and cool place in the original packing.

The storage environment must not be subjected to any aggressive and/or chemical evaporations, admixtures, foreign objects that may provoke corrosion and damage connection tightness.

Store the unit in an environment with minimized risk of mechanical damages, temperature and humidity fluctuations.

Do not expose the unit to the temperatures below +5 °C and above +40 °C.

Connection of the unit to power mains is allowed after the appliance has been kept indoors for minimum two hours.

MANUFACTURER'S WARRANTY

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility.

We hereby declare that the unit complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility, which relate to electrical appliances used in set voltage classes.

The manufacturer hereby warrants normal operation of the unit over the period of two years from the retail purchase date provided observance of the installation and operation regulations.

In case of a failure due to a manufacturing fault during the warranty period the consumer has the right to exchange it.

The replacement is offered by the Seller.

In case of no confirmation of the purchase date, the warranty period shall be calculated from the manufacturing date.

The MANUFACTURER is not responsible for any damage resulting from any misuse of or gross mechanical interference with the unit.

The MANUFACTURER is not responsible for the damages resulted due to the use of third party equipment or to third party equipment.

WARNING

The unit is not allowed for use by children and persons with reduced physical, mental or sensory capacities, without proper practical experience or expertise, unless they are controlled or instructed on the product operation by the person(s) responsible for their safety.

Supervise the children and do not let them play with the product.

WARNING

Do not dispose in domestic waste.

The unit contains in part materials that can be recycled and in part substances that should not end up as domestic waste.

Dispose of the unit once it has reached the end of its working life according to the regulations valid in your country.

DELIVERY SET

- ✓ Air handling unit – 1 item;
- ✓ Operation manual – 1 item;
- ✓ S11 or S15 control panel (depending on the model) – 1 item
- ✓ Mounting box for wall flush mounting (for S15 models) – 1 item
- ✓ Mounting box for wall surface mounting (for S15 models) –1 item
- ✓ Packing box – 1 item.

ATTENTION

Make sure the unit has no visible transport damages while accepting the goods. Check the ordered and the delivered goods for compliance.

DESIGN

The casing is made of double-skinned polymer-coated aluzinc panels, internally filled with mineral wool layer 40 mm for heat- and sound-insulation. The service panel is located at the bottom of the unit. It has special gaps for filter maintenance. The unit is built for ceiling suspension and spigots are located at sides of the unit and are equipped with rubber seals for airtight connection to air ducts.

The unit is equipped with high-efficient EC-motors with an external rotor and a centrifugal impeller with backward curved blades.

The unit is equipped with a high-efficient counter-flow aluminium heat exchanger with a large surface area.

The drain pan under the heat exchanger block is used for condensate collection and drainage.

The drain pan is equipped with drain pipes for condensate removal outside the unit.

The electronic frost protection system is used to prevent the heat exchanger freezing in cold seasons. In case of heat exchanger freezing danger communicated by the temperature sensor the supply fan is stopped to let warm extract air warm up the heat exchanger. After that the supply fan is turned on and the unit reverts to normal operation.

The unit is equipped with a 100 % bypass for summer ventilation (air cooling by the cool air from outside).

The F7 panel filter provides efficient supply air filtration and the G4 panel filter provides efficient extract air filtration.

The **KOMFORT EC DB S11** units have an integrated control system with a wall-mounted control panel S11 with a sensor display.

The **KOMFORT EC DB S15** units have an integrated control system with a wall-mounted control panel S15 with a LED indication. Units are equipped with a USB connector (Type B) and can be connected to a PC for configuring advanced settings in a special software (available for download on the website blaubergventilatoren.de).

The standard delivery set includes a 10 m cable for connection of the unit to the control panel.

The installation place must allow connection to the sewage drain system using the KIT SFK 20x32 kit (available upon separate order).

By customer request the unit can be equipped with a humidity sensor. The humidity sensor is purchased separately (see Table 2). The unit with an installed humidity sensor maintains a set indoor humidity point. As the extract air humidity rises above the set point, the system automatically switches to the maximum speed. As the humidity drops down below the set point the unit returns to the previous mode. Installation and connection of the humidity sensor as well as setting of the humidity level using the software is carried out on site by the service technician.

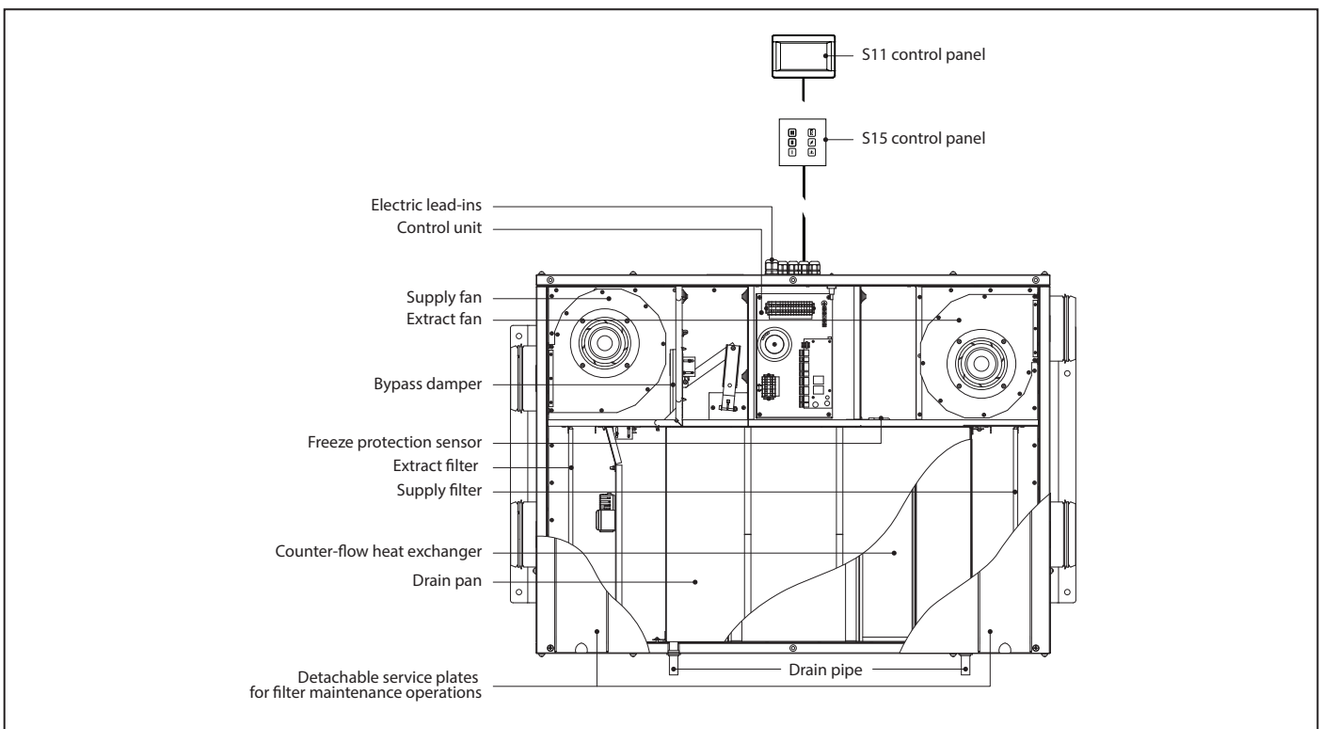


Fig. 1. Unit design

OPERATION MODES

The unit has several operation modes (see Fig. 2).

Heat recovery mode: warm extract air from the room flows into the unit and is cleaned in the extract filter. Then the air is moved through the heat exchanger and is exhausted outside with the extract fan. Cold fresh air from outside flows into the unit, where it is cleaned in the supply filter. Then the air flows through the heat exchanger and is moved to the room with the supply fan. Supply air is heated in the heat exchanger by transferring the heat energy of warm and humid extract air to the cold fresh air. The air flows are fully separated while flowing through the heat exchanger. Heat recovery minimizes heat losses, which reduces the cost of space heating in the cold season.

Summer cooling mode: the bypass damper is opened, the extract air that is removed from the premises bypasses the heat exchanger. The intake air temperature remains constant.

Defrosting mode: to prevent the heat exchanger freezing in the cold season the unit has an automatic Defrosting mode according to the freeze protection temperature sensor readings in the exhaust air duct downstream of the heat exchanger. The unit switches to the Defrosting mode at the extract air temperature +3 ° C. As the temperature rises the unit returns to the previous mode. Only the extract fan operates in the Defrosting mode, the supply fan is switched off.

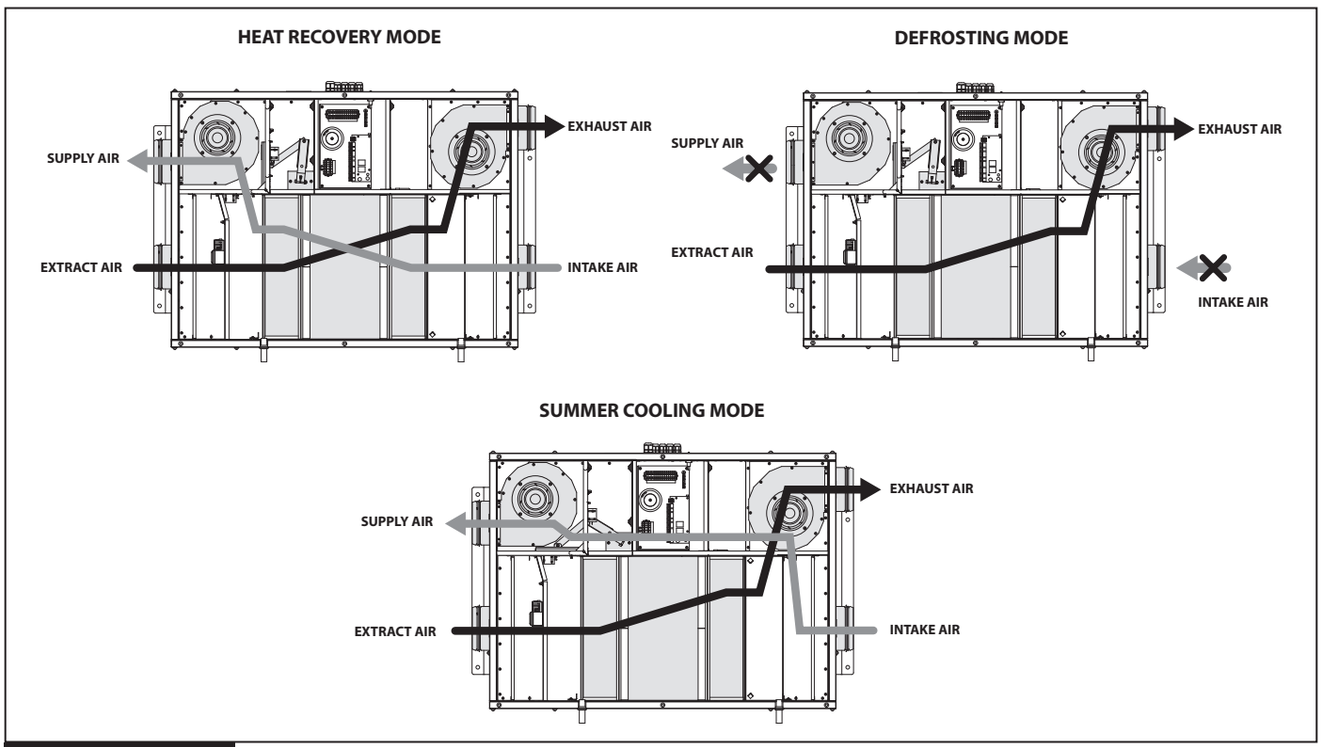


Fig. 2. Operation modes

TECHNICAL DATA

Table 1. Technical data

Parameters	KOMFORT EC DB160	KOMFORT EC DB350
Unit voltage [V /50-60 Hz]	1 ~ 230	
Power [W]	50	170
Current [A]	0,4	1,3
Max. air capacity [m³/h]	190	410
RPM	3770	3200
Sound pressure level at 3 m distance [dB(A)]	26	34
Transported air temperature [°C]	from -25 to +60	
Casing material	polymer-coated aluzinc	
Insulation	40 mm mineral wool	
Extract filter	panel G4	
Supply filter	panel F7	
Connected air duct diameter [mm]	125	160
Weight [kg]	48	70
Heat recovery efficiency [%]	from 82 to 94	from 80 to 91
Heat exchanger type	counter-flow	
Heat exchanger material	aluminium	

Table 2. Accessories

Model	G4 replaceable filter (panel type)	F7 replaceable filter (panel type)	Duct humidity sensor	Condensate drainage kit
KOMFORT EC DB160 S11	FP-EC DB160 G4	FP-EC DB160 F7	FS1 	KIT SFK 20x32 
KOMFORT EC DB350 S11	FP-EC DB350 G4	FP-EC DB350 F7		
KOMFORT EC DB160 S15	FP-EC DB160 G4	FP-EC DB160 F7	FS2 	
KOMFORT EC DB350 S15	FP-EC DB350 G4	FP-EC DB350 F7		

Table 3. Overall dimensions

Model	Dimensions [mm]																
	ØD	A	A1	A2	B	B1	B2	B3	H	H1	L	L1	L2	L3	L4	L5	L6
KOMFORT EC DB160 S15	125	1004	1104	1072	754	822	480	410	340	361	386	293	245	31	128	123	216
KOMFORT EC DB350 S15	160	1135	1234	1202	1044	1112	680	610	340	363	555	417	345	40	119	144	282

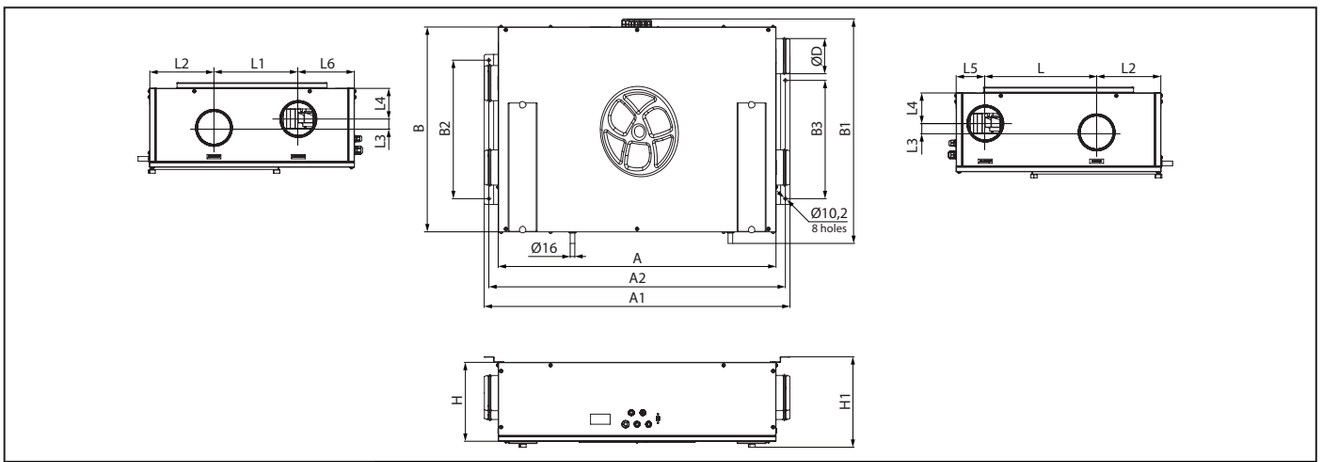


Fig. 3. Overall dimensions of the unit

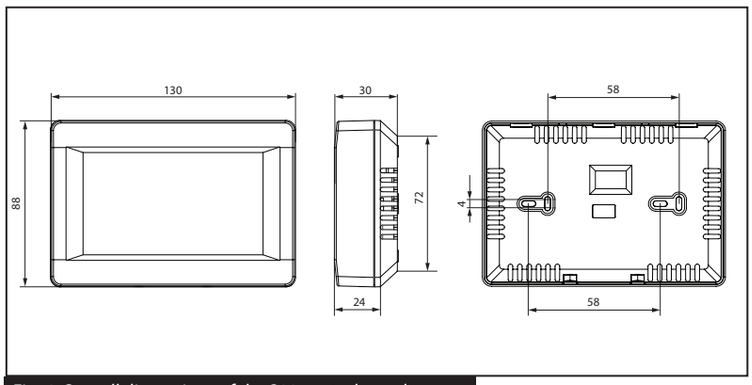


Fig. 4. Overall dimensions of the S11 control panel

Table 4. Technical parameters of the S11 control panel

Parameter	Value
Ambient temperature [°C]	from +5 to +40
Relative humidity [%]	from 5 to 80 (no condensation)
Cable cross section [mm²]	from 0,25 to 0,35
Cable length [m]	to 15
Ingress protection rating	IP20

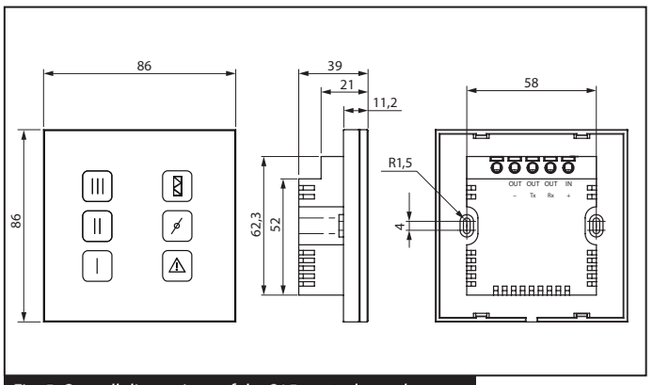


Fig. 5. Overall dimensions of the S15 control panel

Table 5. Technical parameters of the S15 control panel

Parameter	Value
Ambient temperature [°C]	from 0 to +40
Humidity range [%]	from 5 to 80 (no condensation)
Cable cross section [mm²]	from 0.25 to 0.35
Ingress protection rating	IP30

The S15 control panel can be flush mounted using the mounting box for wall flush mounting, Fig. 6 (included in the delivery set).

The S15 control panel can be mounted on the wall using the mounting box for wall surface mounting, Fig. 7 (included in the delivery set).

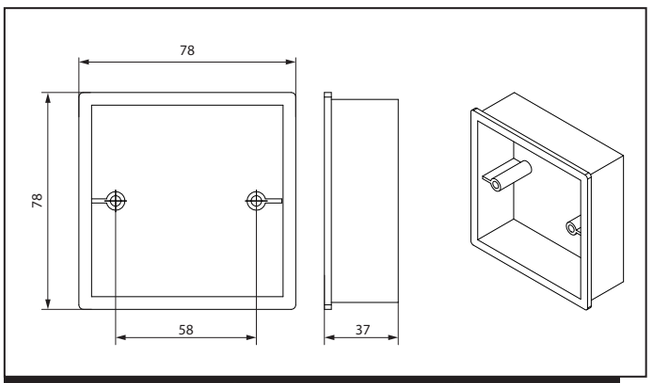


Fig. 6. Overall dimensions of the mounting box for wall flush mounting

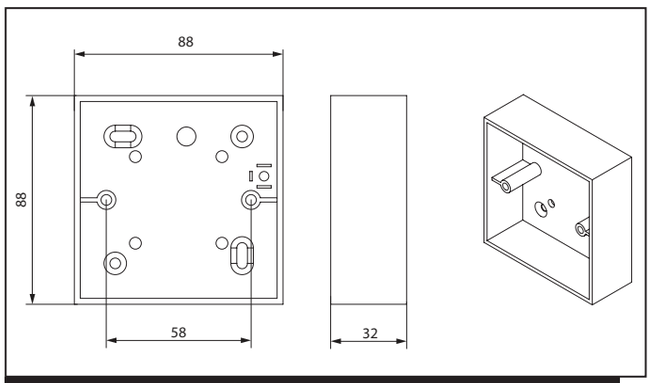


Fig. 7. Overall dimensions of the mounting box for wall surface mounting

UNIT MOUNTING

WARNING

Safety precautions:

The unit must be mounted to a rigid and stable structure.
The unit must be suspended using anchor bolts. Make sure that the base structure is capable of sustaining the unit weight.
The unit mounting is allowed only after power cut-off and full stop of the rotating parts.

Restrictions:

- *Do not operate the unit beyond the determined temperatures, in aggressive and in explosive environment.*
- *Do not connect the clothes dryer or other similar equipment to the ventilation system.*
- *Do not use the unit for air/dust mixture handling.*

The unit mounting position must provide condensate drainage and access to the service panel for electric connection, maintenance and filter replacement.

To attain the best performance of the unit and to minimise turbulence-induced air pressure losses connect the straight air duct section to the spigots on both sides of the unit while mounting.

Minimum straight air duct length:

• equal to 1 air duct diameter on intake side

• equal to 3 air duct diameters on outlet side

If the air ducts are too short or not connected, protect the unit parts from ingress of foreign objects. To prevent uncontrollable access to the fans the spigots may be covered with a protecting grille or other protecting device with mesh width not more than 12.5 mm.

The unit must be mounted on a plane surface. Mounting of the unit to an uneven surface can lead to the unit casing distortion and operation disturbance.

Fasteners for ceiling mounting are not included into delivery set and should be ordered separately. While choosing fasteners consider the material of the mounting surface as well as the weigh of the unit, refer to the Technical Data section. Fasteners for unit mounting should be selected by the qualified specialist.

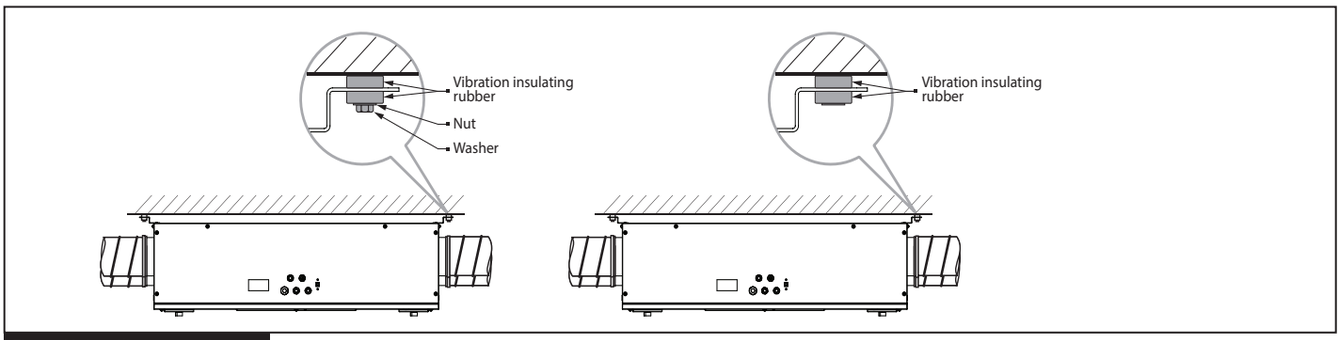


Fig. 8. Unit ceiling mounting

FS1 HUMIDITY SENSOR MOUNTING (FIG. 9).

The FS1 humidity sensor is not included in the delivery set and can be ordered separately for S11 units.

Humidity sensor installation order:

• remove the mounting screws of the service side panel of the unit and take it off ;

• install the humidity sensor into the mount from the side of the extract air duct and connect the humidity sensor contact socket to the respective contact socket coming from the control unit, refer to the Wiring diagram;

• install the service side panel back.

FS2 HUMIDITY SENSOR MOUNTING (FIG. 10).

The FS2 humidity sensor is not included in the delivery set and can be ordered separately for S15 units.

Humidity sensor installation order:

• remove the mounting screws of the service side panel of the unit and take it off;

• install the humidity sensor into the mount on the extract air duct panel and connect the humidity sensor contact socket to the respective contact socket on the outer side panel of the control unit, refer the Wiring diagram.

• install the service side panel back.

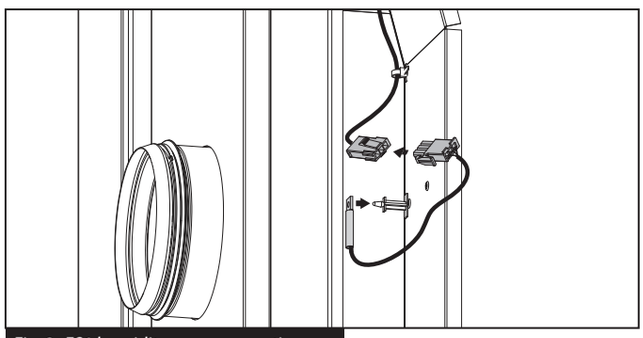


Fig. 9. FS1 humidity sensor mounting

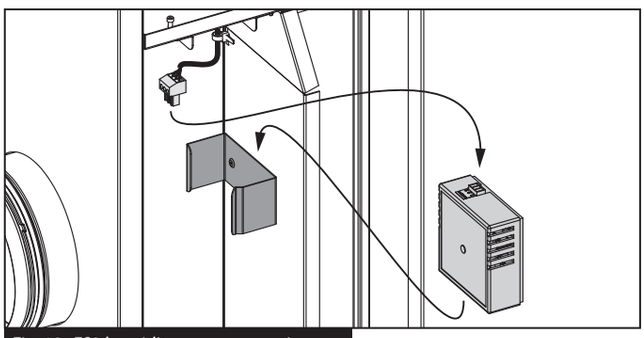


Fig. 10. FS2 humidity sensor mounting

S11 CONTROL PANEL MOUNTING

The **KOMFORT EC DB S11** units have an integrated control system with a wall-mounted control panel S11 with a sensor display. The standard delivery set includes a 10 m cable for connection of the unit and the control panel. The control panel installation chart is shown in Fig. 12. The room temperature sensor is integrated into the control panel, for that reason the control panel must be installed in a temperature balanced place, at least 1 m away from the heating equipment, doors and windows.

Fix the control panel to the wall using the screws and connect it to the air handling unit using a supplied four-wire connecting cable.

For control panel mounting refer to Fig. 12.

WARNING

Make sure that the control panel is not damaged. Do not use a damaged control panel! Do not install the control panel on an uneven surface! While tightening the screws, do not apply excessive force to prevent the control panel casing deformation. Do not lay the cable in close proximity parallel to the control panel cable! Do not coil the cable from the control panel in loops while laying it.

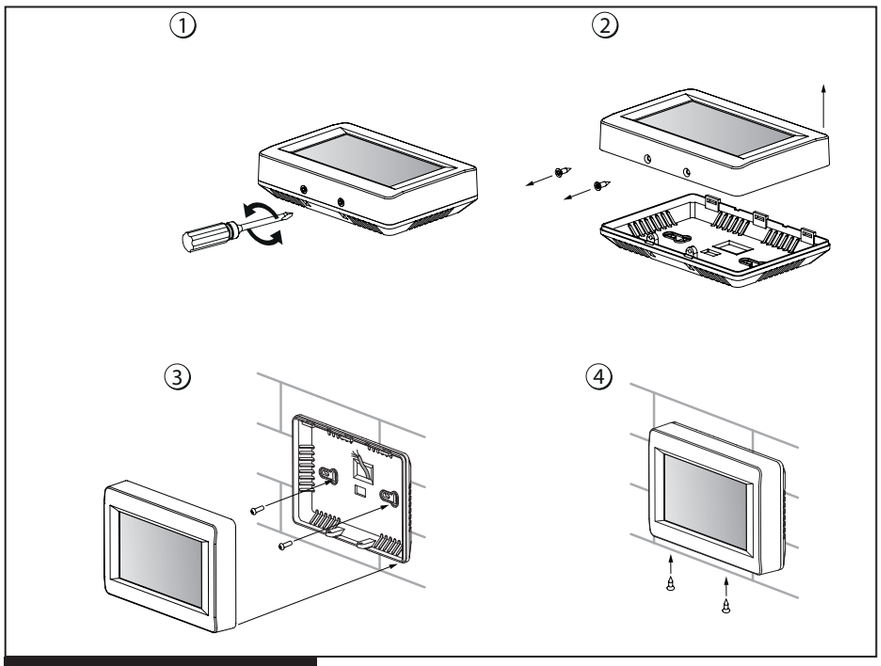
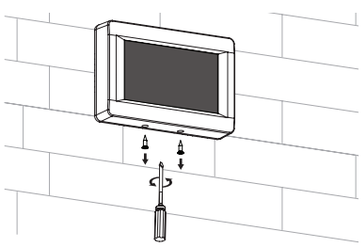


Fig. 12. S11 control panel mounting

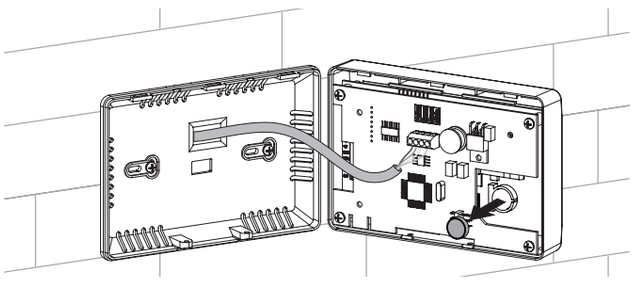
The S11 control panel includes a lithium cell **CR1220** with a limited time resource.

The battery keeps the internal clock running while the unit is disconnected from power supply. If the unit is disconnected from power supply and the battery is low, the clock stops and the day and time settings are reset. This leads to incorrect date and time indication when the unit is on and, as a result, to incorrect scheduled operation of the unit. In this case, the battery should be replaced. To replace the battery use a new battery only. Battery replacement:

1. Disconnect the ventilation unit from power supply.
2. Remove two screws in the bottom part of the casing.



3. Open the top of the casing to allow access to the upper circuit board. Replace the battery.



4. Assemble the control panel in the reverse order. If the terminal block wires on the upper circuit board were unplugged make sure to re-connect them correctly. Failure to re-connect the wires properly may knock the equipment out of service.

5. Connect the panel to the power supply and set the current date and time.

S15 CONTROL PANEL MOUNTING

The **KOMFORT EC DB S15** units have an integrated control system with a wall-mounted control panel S15 with a LED indication. The standard delivery set includes a 10 m cable for connection of the unit to the control panel.

Wall flush mounting of the control panel is shown in Fig. 13. Wall surface mounting of the control panel is shown in Fig. 14. Fix the control panel to the wall using one of the mounting boxes and the screws, then connect it to the air handling unit using a connecting cable from the delivery set.

WARNING

Make sure that the control panel is not damaged. Do not use a damaged control panel! Do not install the control panel on an uneven surface! While tightening the screws, do not apply excessive force to prevent the control panel casing deformation. Do not lay the cable in close proximity parallel to the control panel cable! Do not coil the cable from the control panel in loops while laying it.

Wall flush mounting of the S15 control panel (Fig. 13):

1. Make a hole in the wall to install the control panel. Insert all the necessary cables and wires into the hole, install the mounting box from the delivery set in the wall.
2. Use a screwdriver to carefully undo the clips on the backside of the control panel and remove the back cover.
3. Fix the back side of the casing to the mounting box through the mounting holes, then connect the cable to the control panel in accordance with the Wiring diagram.
4. Fix the front side of the control panel using the latches.

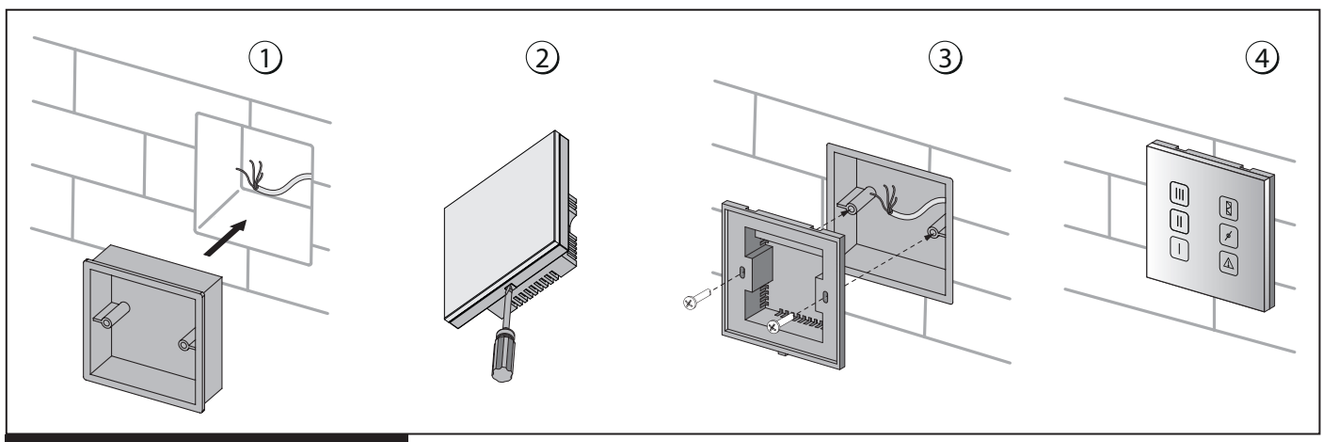


Fig. 13. S15 control panel wall flush mounting

Wall surface mounting of the S15 control panel (Fig. 14):

1. Lead all necessary cables and wires to the control panel mounting place and install the mounting box from the delivery set on the wall.
2. Use a screwdriver to carefully undo the clips on the backside of the control panel and remove the back cover.
3. Fix the back side of the casing to the mounting box through the mounting holes using two screws from the delivery set. Then connect the cable to the control panel in accordance with the Wiring diagram.
4. Fix the front side of the control panel using the latches.

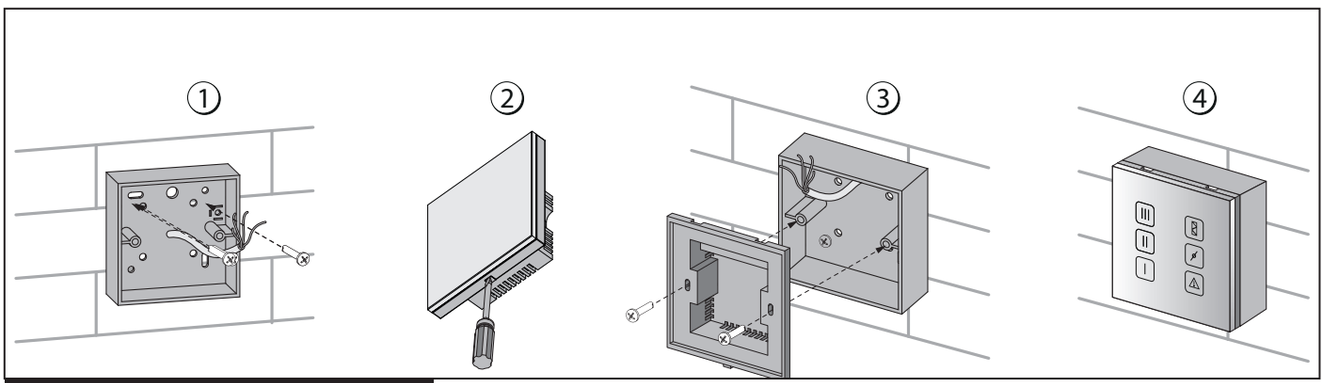


Fig. 14. S15 control panel wall surface mounting

CONDENSATE DRAINAGE

The drain pan is equipped with drain pipes for condensate removal outside the unit.

Connect the drain pipes to the sewage system using the KIT SFK 20x32 condensate drainage kit (should be ordered separately).

While laying the hoses provide the slope downwards min. 3 %. Fill the system with water prior to connecting it to power supply! The U-trap must always be filled with water. Provide free drainage for the condensed water, otherwise it is accumulated inside the unit which may cause the equipment damage and condensate outflow to the room.

The condensate drainage system is designed for normal operation in premises with air temperatures above 0 °C!

If the expected ambient air temperatures are below 0 °C the condensate drainage system must be equipped with heat insulation and pre-heating facilities.

WARNING

In case of several units mounting connect each unit to an individual U-trap.
Direct condensate drainage with no connection to the drain system is not allowed.

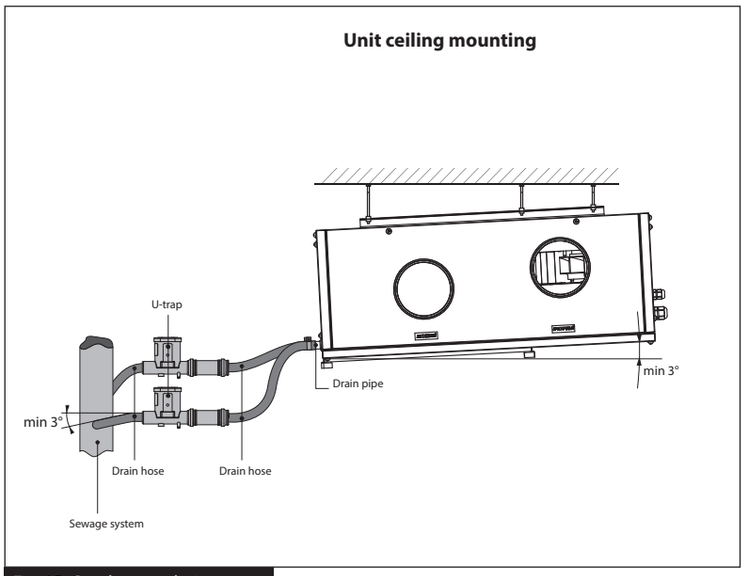


Fig. 15. Condensate drainage

CONNECTION TO POWER MAINS

WARNING

Read the service instruction prior to any electric installations. Connection of the unit to power mains is allowed by a qualified electrician only.

The rated electrical parameters are stated on the rating plate. Any tampering with the internal connections is prohibited and will void the warranty.

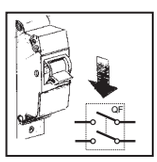
Connect the unit only to power mains with valid electric standards.

*Follow the respective electric standards, safety rules (DIN VDE 0100), TAB der EVUs. The house cabling system must be equipped with a magnetic trip automatic switch at the external input. The contact gap on all poles must be at least * mm (VDE 0700 T1 7.12.2 / EN 60335-1).*

The automatic switch trip current must be not below the rated current consumption (ref. to Table 1). Enable quick access to an automatic switch installation place.

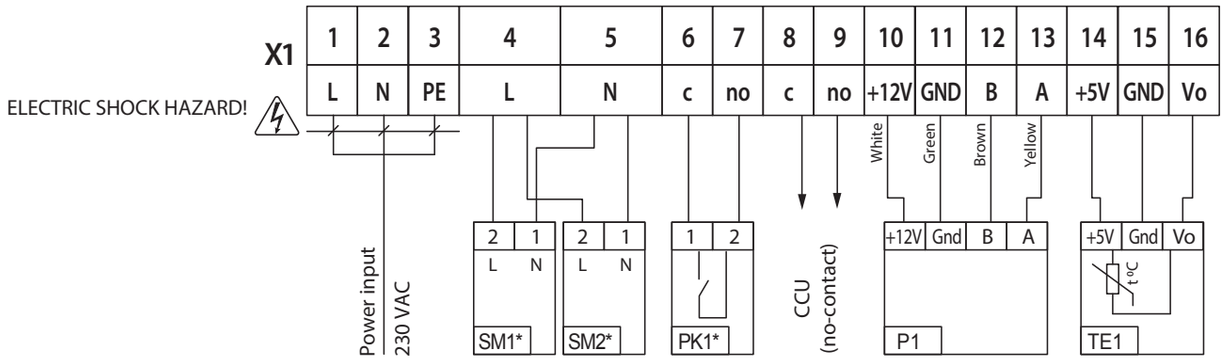
Cut power supply to the unit off by turning the automatic electric switch QF to OFF position prior to any operations.

Take steps to prevent activation of the automatic switch before finishing all the operations.



Connect the **KOMFORT EC DB S11** units to single-phase AC 230 V/50-60 Hz power mains using the power cord with the Euro Plug, pre-wired at the factory. The unit must be grounded in compliance with the valid electrical standards of the user country!

The unit has an option of additional external controls connection to the X1 terminal block (Fig. 16). The unit must be grounded in compliance with the valid electrical standards of the user country!



Design.	Name	Type	Wire**
CCU*	DX cooler	N0	2x0,75 mm²
SM1*	Supply air damper actuator	1_P 230	2x0,75 mm²
SM2*	Extract air damper actuator	1_P 230	2x0,75 mm²
PK1*	Contact from fire alarm panel	N0	2x0,75 mm²
P1	S11 control panel		4x0.25 mm2
TE1	Outdoor air temperature sensor		

*Is not included in the delivery set, should be ordered separately.
** Maximum connecting cable length is 20 m!

Recommended cross section of the data cable between the control panel and the unit		
Cable cross section	≥ 0,12 mm²	≥ 0,25 mm²
Cable length	up to 15 m	up to 50 m

Fig. 16. KOMFORT EC DB S11 wiring diagram

DO NOT LAY THE CONTROL PANEL CABLE IN CLOSE PROXIMITY PARALLEL TO A POWER CABLE! DO NOT COIL THE CABLE FROM THE CONTROL PANEL IN LOOPS WHILE LAYING IT.

Connect the **KOMFORT EC DB S15** units to single-phase AC 230 V/50-60 Hz power mains using the power cord with the Euro Plug, pre-wired at the factory. The unit must be grounded in compliance with the valid electrical standards of the user country!

The unit has an option of additional external controls connection to the X2 terminal block, which is located on the hinged electrical mounting plate of the control unit. Extra connections to the unit are shown in dotted lines in the Wiring diagram, see Fig. 17.

• PK - connection of the automatic fire extinguishing system contact.

Upon connecting the automatic fire extinguishing system contact remove the jumper between the 1 and 2 terminals. In case of fire the dry contact breaks the control circuit from the central fire-fighting board and cuts off power supply to the unit.

• Connection of the external control unit contact, such as CO2 sensor (NO, C).

Connect the CO2 sensor to the 6 and 7 terminals by using a normally closed dry contact. If the dry contact is closed, the unit turns to the maximum speed.

• FS2 (+U, 0-10 V, GND) humidity sensor connection.

Connect the FS2 humidity sensor (not included in the delivery set, can be ordered separately) to the contact socket located on the side panel of the control unit from the side of the extract pipe in accordance with the Wiring diagram.

• Connection of outer air dampers (SM1 supply air damper, SM2 exhaust air damper).

The air dampers and the actuator are not included in the delivery set and can be purchased separately. For controlling the air dampers use the LF 230 BELIMO electric actuator with a voltage of 230 V and an open-close controlling. Connect the electric actuators to the 12 and 13 terminals (refer to the Wiring diagram).

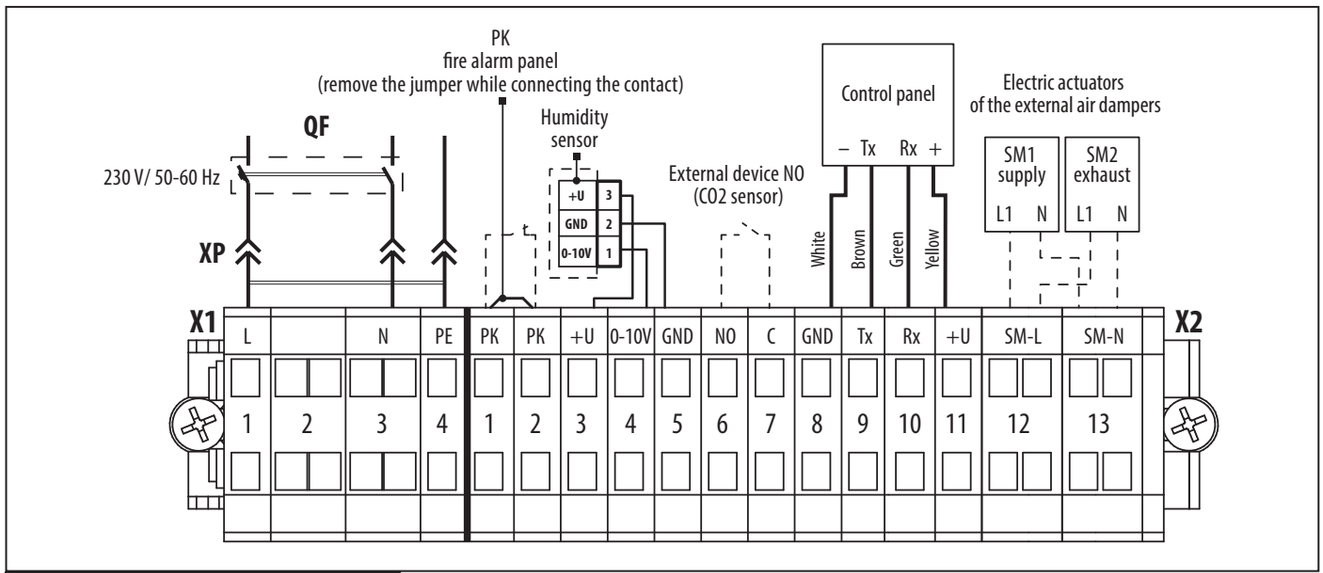


Fig. 17. KOMFORT EC DB S15 wiring diagram

UNIT CONTROL

The **KOMFORT EC DB S11** units are controlled from the wall-mounted control panel with a sensor display, Fig. 18. Unit control and adjustment of operating parameters are shown in Table 6. Possible error codes are shown in Table 7. Factory settings are shown in Table 8.

Fig. 18. S11 control panel

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel

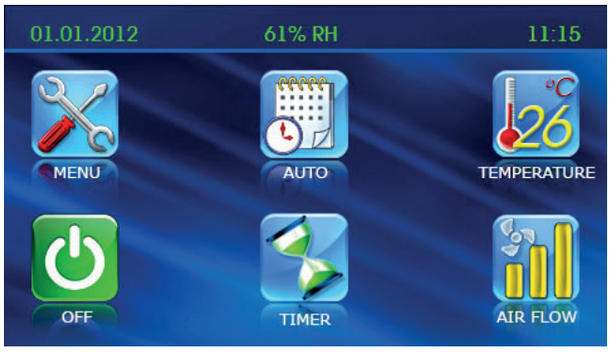
Function	Indication
1 Main menu	
The Main menu contains the date, current humidity, time, temperature and set air flow. **MENU** - access to the User menu, see clause 5. **AUTO** - scheduled operation activation/deactivation. **TEMPERATURE** - display of the current indoor temperature. After pressing this button the Temperature Setting menu is opened, see clause 4. Alarm signal ON/OFF ON/OFF - turning air handling unit ON/OFF or Standby mode activation. **TIMER** - turning the timer on / off. **AIR FLOW** - current fan speed display. The Fan Speed Setting menu is accessible through this button, see clause 3. The network connection status indicator is displayed:  — the unit is connected to network.  — the unit is disconnected from network.	
2 Unit Activation and Deactivation	
The unit is activated with ON  button. Press OFF  for the unit deactivation or Standby mode activation. The indicator changes its colour from red to green as the unit is turned ON. In the Standby mode the unit operates at the first speed and set temperature, see clause 12.	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

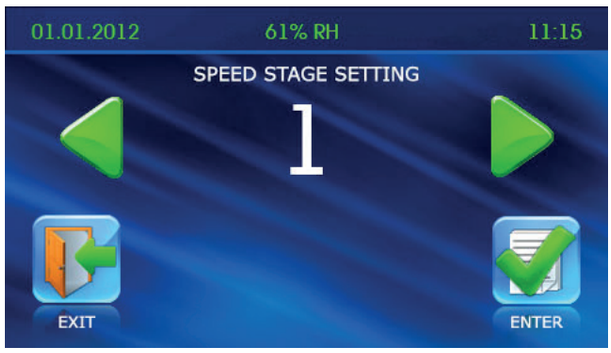
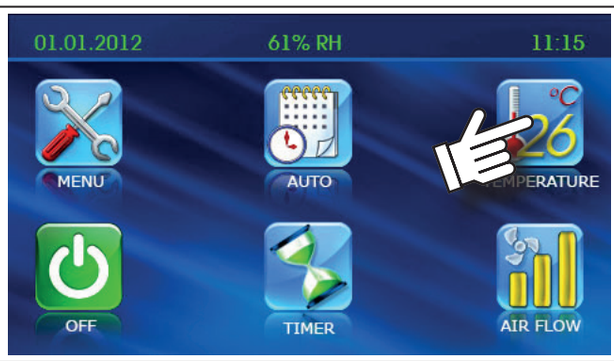
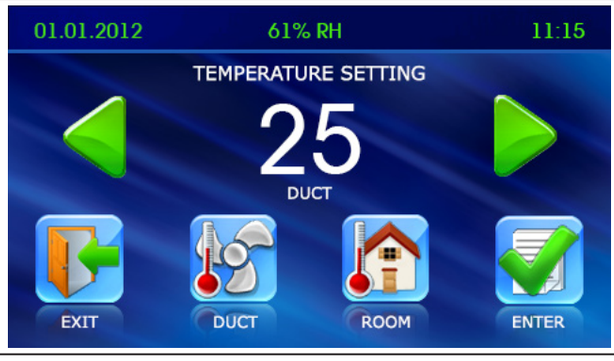
Function	Indication
3 Fan speed changeover	
☐ Fan speed setting: Press the AIR FLOW button ; The unit has four speed stages: - Speed 1; - Speed 2; - Speed 3; - Humidity Control mode. The fan speed is regulated depending on the humidity setting. The humidity level is set via the Engineering menu, see clause 14. ☐ If the **AUTO** or **TIMER** mode is activated the current air flow value is displayed in real time operation no matter of the set air flow value.	
☐ Set the required speed using the buttons or . ☐ Then press **ENTER** . ☐ To return to the Main menu without saving changes press **EXIT** .	
4 Temperature setting	
Temperature setting: ☐ Press the **TEMPERATURE** button . ☐ Select the set temperature type: **DUCT** (temperature in the air duct); **ROOM** (temperature in the room).	
☐ Set the required temperature using the buttons or . ☐ Then press **ENTER** . ☐ To return to the Main menu without saving changes press **EXIT** .	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

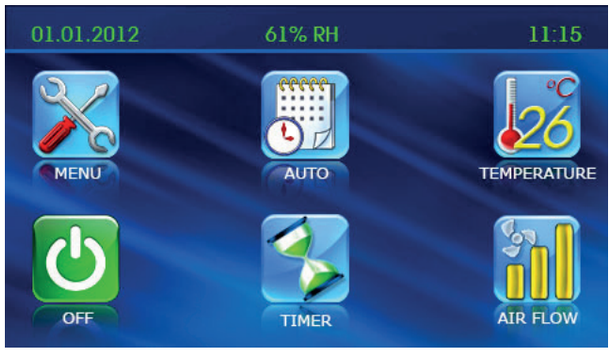
Function	Indication
5 User menu	
☐ To enter the **User menu** press **MENU**  in the **Main menu**.	
☐ The **User menu** contains basic menu items and functions for parameters setting: **ENG. MENU** - access to the Engineering menu. The menu is password-protected. **AUTO ADJUST.** - scheduled operation setting. **DATE/TIME** - date and time setting. **TIMER ADJUST.** - setting time and speed operation on timer basis. **MOTOR HOURS** - setting filter replacement periodicity. **EXIT** - return to the Main menu.	
6 Engineering menu	
To enter the Engineering menu press **ENG. MENU**  in the **User menu**.	
☐ To access the **Engineering menu** enter the password. The default setting is 1111. ☐ Press **OK**.. ☐ To change the password use the **RESET**  button. Press **RESET** to clear the password field.. ☐ To return to the User menu press **EXIT**  . ☐ If you forgot the user-defined password, see clause 11 Password Change, press and hold **RESET**  until you hear a long sound signal (20 clicks, approximately 20 seconds). The default password 1111 is set.	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

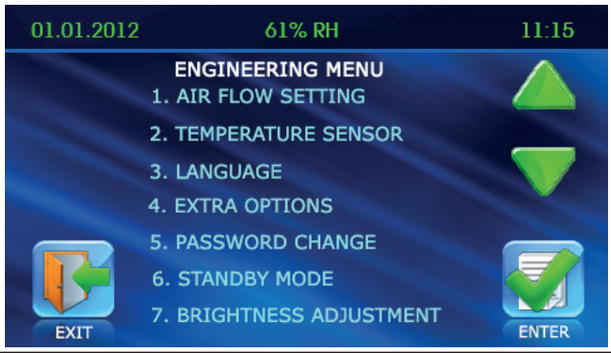
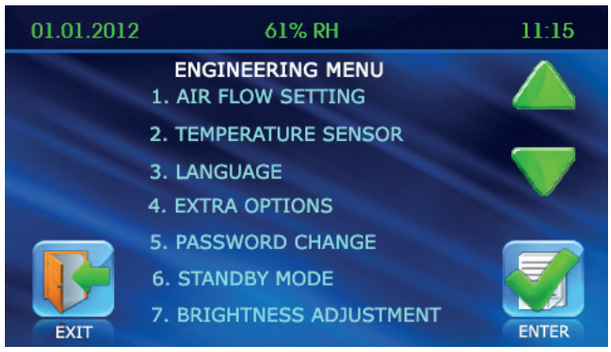
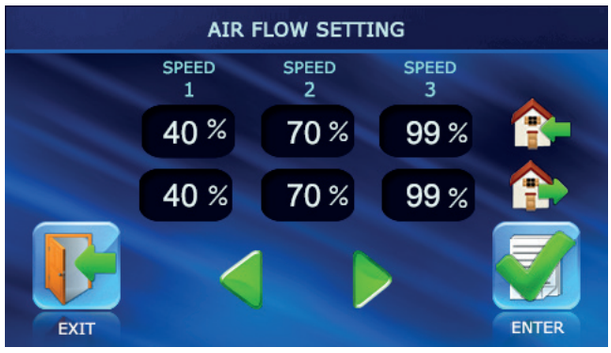
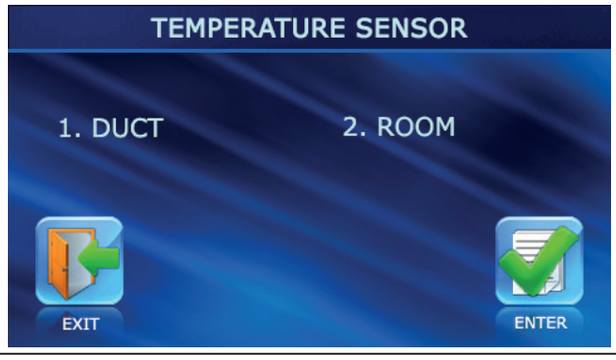
Function	Indication
☐ For navigating in the Engineering menu use the following buttons:  - moving upwards in the list.  - moving downwards in the list.  - select the value from the parameter list.  - return to the User menu.	 
7 Air flow setting	
☐ Select the AIR FLOW SETTING item from the Engineering menu and press **ENTER**  . ☐ Select the edited speed value (the selected value is highlighted with a rectangle). ☐ Use  or  buttons to set the air flow value for each fan speed stage. ☐ The air flow is set as a percentage of the maximum performance of each fan. ☐ To return to the **Engineering menu** without saving changes press **EXIT**  .	
8 Temperature sensor	
☐ To select the heating control sensor from the **Engineering menu** select the **TEMPERATURE SENSOR** submenu and press **ENTER**  . ▪ Select a desired temperature sensor type. ▪ Press **ENTER**  to confirm. ▪ To return to the **Engineering menu** without saving changes press **EXIT**  .	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

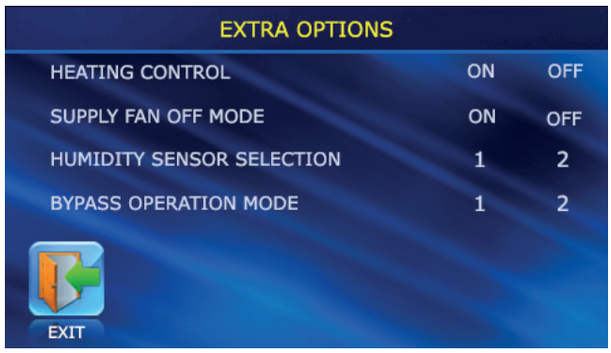
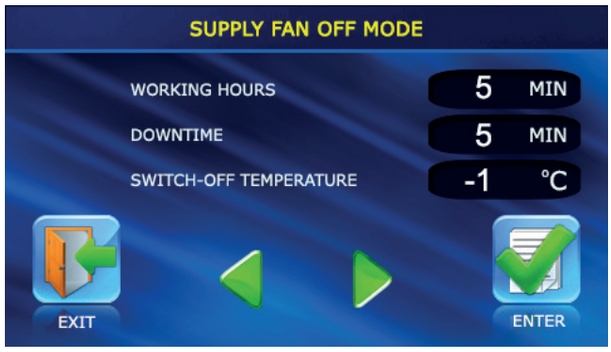
Function	Indication
9 Language selection	
☐ To select the control panel interface language select the **LANGUAGE** submenu from the **Engineering menu** and press **ENTER**. ☐ Select the desired language from the list. ☐ Press **ENTER** to confirm.. ☐ To return to the **Engineering menu** without saving changes press **EXIT**.	
10 Extra options	
☐ Select the **EXTRA OPTIONS** submenu from the **Engineering menu** and press **ENTER**. ☐ The **SUPPLY FAN OFF** mode helps to prevent heat exchanger freezing and requires disabling of the **HEATING CONTROL** parameter. ☐ To activate the heat exchanger freezing protection function by means of the supply fan deactivation set the **HEATING CONTROL** parameter value to OFF. To proceed to the function setup set the **SUPPLY FAN OFF MODE** parameter to **ON**. ☐ To select a humidity sensor type set 1 for the duct sensor (exhaust duct) or 2 for the room sensor in the **HUMIDITY SENSOR SELECTION** menu item. ☐ For selecting the bypass operation mode set 1 in the **BYPASS OPERATION MODE** to select the regular operation mode, which prevents heat exchanger freezing, or 2 to enable bypass opening in the ventilation mode. ☐ To save the changes and return to the Engineering menu press **EXIT**.	
☐ If the **SUPPLY FAN OFF MODE** parameter is set to **ON** the control panel switches to the **SUPPLY FAN OFF MODE** setting. ☐ Select an item by touching the respective field: **WORKING HOURS, DOWNTIME** and **SWITCH-OFF TEMPERATURE** (the temperature is set according to the outdoor temperature sensor readings defined in the range from 0 °C to -30 °C). ☐ Then use or buttons to set the desired value. ☐ Press **ENTER** to confirm the set parameters. ☐ To return to the **Engineering menu** without saving changes press **EXIT**.	
11 Password change	
☐ Select the **PASSWORD CHANGE** submenu from the Engineering menu and press **ENTER**. ☐ Then enter the new password for accessing the Engineering menu. ☐ Press **OK**. ☐ To re-enter the password press **RESET** This operation clears the **ENTER NEW PASSWORD** field. ☐ To return to the Engineering menu press **EXIT**.	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

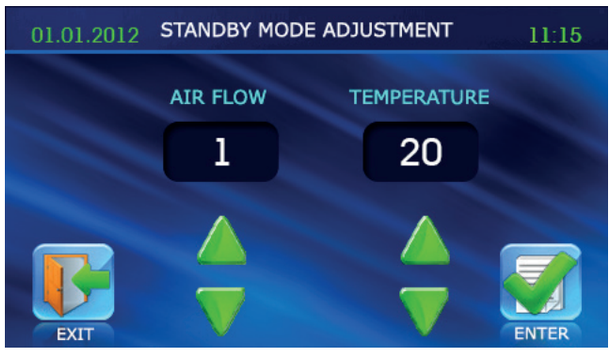
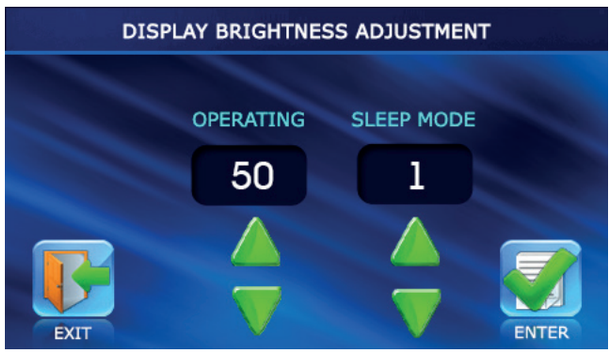
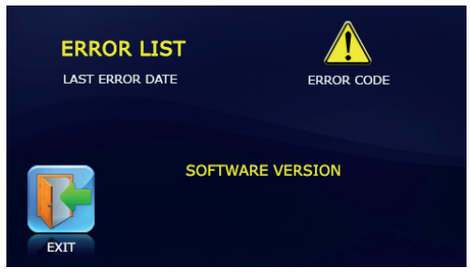
Function	Indication
12 Standby mode setting	
☐ Select the **STANDBY MODE** item in the **Engineering menu** and press **ENTER**. ☐ Use the buttons or to select 0 or 1 in the **AIR FLOW** window: • **0** – deactivation of the unit. • **1** – activation of the Standby mode. In the Standby mode the unit operates at the first speed at temperature set by or buttons in **TEMPERATURE** window). ☐ Press **ENTER** to confirm. ☐ To return to the **Engineering menu** without saving changes press **EXIT**.	
13 Display brightness adjustment	
☐ Select the **BRIGHTNESS ADJUSTMENT** submenu from the **Engineering menu** and press **ENTER**. ☐ Then use the or buttons to set the brightness for the Operation and Sleep modes. The panel switches to the Sleep mode 30 seconds after the last screen interaction. ☐ Press **ENTER** to confirm. ☐ To return to the **Engineering menu** without saving changes press **EXIT**.	
14 Humidity setting	
Select the **HUMIDITY SETTING** item in the **Engineering menu** and press **ENTER**. ☐ Select the humidity sensor type used to control the humidity: • **DUCT** (the duct humidity sensor is optional and is not included in the basic delivery set); • **ROOM humidity sensor**. ☐ Then use or buttons to set the desired humidity level. ☐ Press **ENTER** to confirm. ☐ To return to the **Engineering menu** without saving changes press **EXIT**. ☐ In the Humidity Control mode the minimum air flow is equal to the air flow at the low speed.	
15 Error Control	
To receive information regarding the last error select **ERROR CONTROL** submenu from the **Engineering menu** and press **ENTER**. ☐ The display shows the error date and code. ☐ To return to the **Engineering menu** press **EXIT**. ☐ Errors description is stated in Table 7.	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

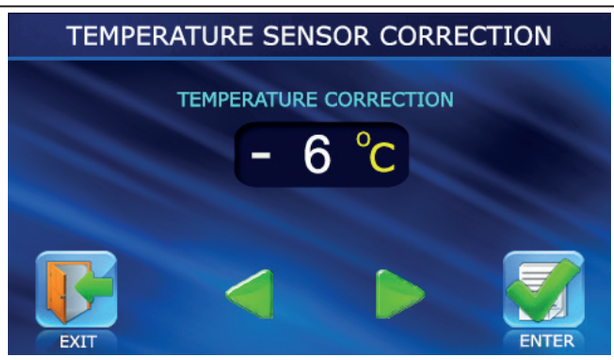
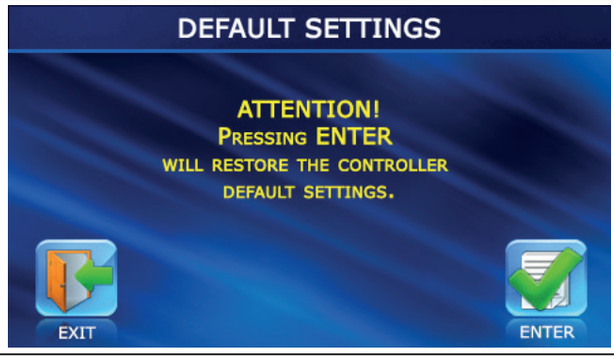
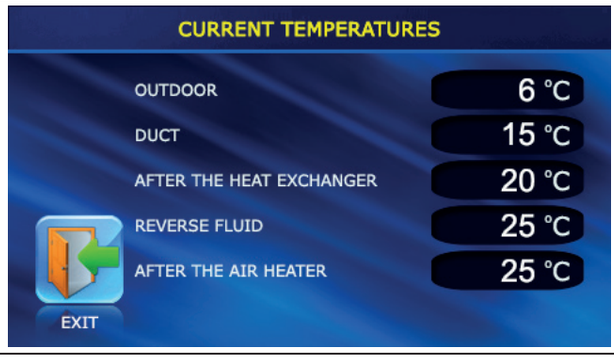
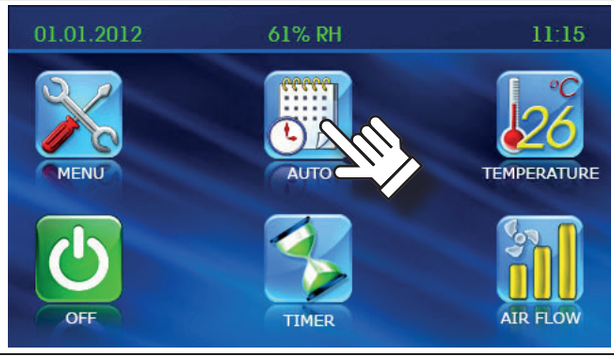
Function	Indication
16 Control panel temperature sensor correction	
☐ To correct the panel temperature sensor indications select **TEMPERATURE CORRECTION** submenu from the **Engineering menu** and press **ENTER**. ☐ Then use the or buttons to set the temperature correction for the room temperature sensor installed in the control panel casing. ☐ The default factory setting for the temperature sensor correction is -6°C. ☐ To return to the **Engineering menu** without saving changes press **EXIT**.	
17 Default settings	
☐ To reset the controller settings to the factory defaults select **DEFAULT SETTINGS** submenu from the **Engineering menu** and press **ENTER**. ☐ Press **ENTER** to confirm the reset. ☐ To return to the **Engineering menu** without saving changes press **EXIT**. ☐ The default settings are given in Table 8.	
18 Current temperature review	
☐ To review the current temperatures select the **CURRENT TEMPERATURES** submenu from the **Engineering menu** and press **ENTER**. ☐ The display shows all the current temperature information. ☐ If any temperature sensor of the ventilation unit is missing its configuration value is displayed as **OFF**. ☐ To return to the **Engineering menu** press **EXIT**.	
19 AUTO Mode (scheduled operation)	
The **AUTO** mode enables scheduled operation of the ventilation unit. The unit runs at the pre-set speed and temperature during the specified time periods. The unit is in the **Standby** mode between the operating periods. ☐ To activate the **AUTO** mode press **AUTO** in the control panel Main menu. Activation of the **AUTO** mode is confirmed with a tick —.	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

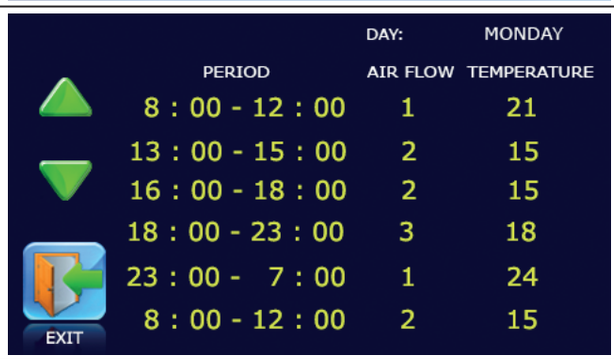
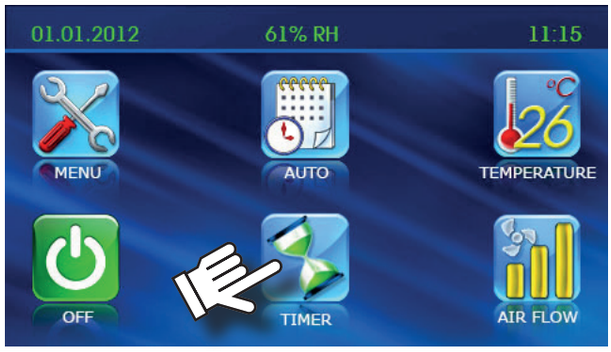
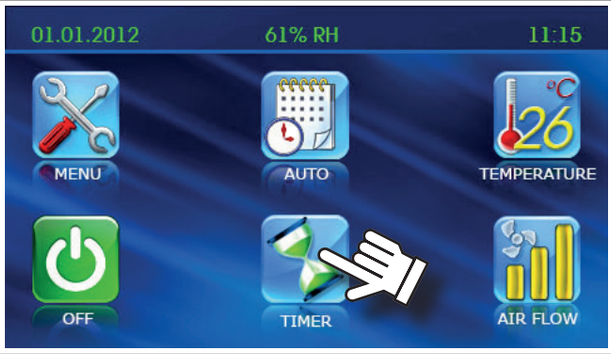
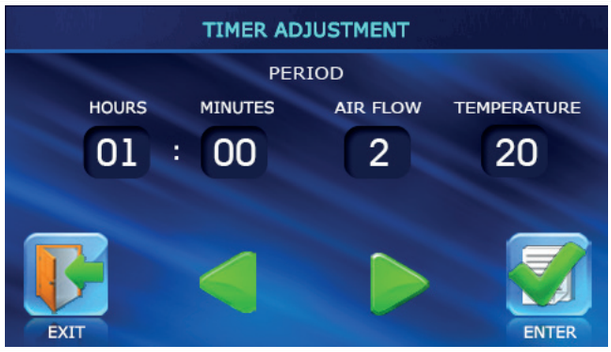
Function	Indication
☐ To set up the **AUTO** mode press the button to enter the User menu and press **AUTO ADJUST**  . ☐ While the **TIMER** is active the **AUTO** mode is disabled due to a lower priority.	
☐ Select the day to enable the **AUTO** mode. Upon entering the menu the value is set to the current day. To change the day press the **DAY** field. ☐ Then use the  or  buttons to set the time, air flow and temperature for the selected day by pressing the respective parameter field. ☐ Depending on the **Standby** mode settings, the unit remains in the **Standby** mode or turns off between the operating periods. ☐ To return to the **Engineering menu** and save changes automatically press **EXIT**  .	
20	**Timer**
☐ To activate the timer press **TIMER**  in the control panel **Main menu**.	
☐ To set up the timer enter the User menu and press **TIMER ADJUST**  . ☐ Activation of the **TIMER** function is confirmed with a tick —  . ☐ If the **AUTO** and **TIMER** functions are activated synchronously, **TIMER** function will operate as it supersedes the AUTO function. ☐ The timer **cannot be activated** once the **Humidity Control** mode is on.	
☐ Use  or  buttons to set the time, air flow and air temperature values. ☐ Press **ENTER**  to confirm the set parameters. ☐ To return to the **Engineering menu** without saving changes press **EXIT**  .	

Table 6. Unit control and adjustment of operating parameters of the unit with the S11 control panel (continued)

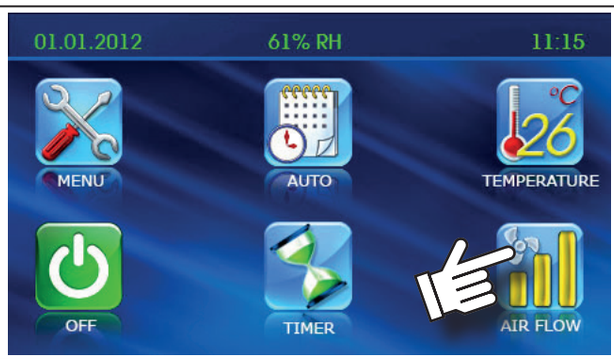
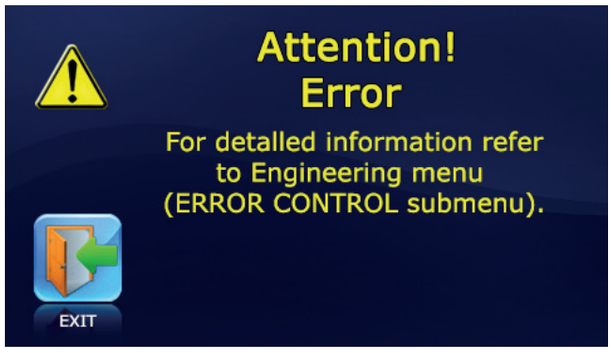
Function	Indication
21 Motor hours	
The **MOTOR HOURS** function enables the user to set up filter cleaning or replacement periodicity. Upon expiration of the pre-set time the panel displays a filter cleaning or replacement indicator. The indicator is displayed every 24 hours. ☐ To set up the **MOTOR HOURS** function enter the User menu and press **MOTOR HOURS** 	
	
☐ Then use the  or  buttons to set the filter replacement interval. ☐ The **OPERATING HOURS** window shows the time elapsed from the filter installation. ☐ Press **RESET**  after replacement of the filter. ☐ To save the changes and return to the **Engineering menu** press **EXIT** 	
22 Errors	
The control panel displays the following message in case of any malfunctions in the ventilation unit operation. ☐ To enter the **ERROR LIST** press **EXIT**  ☐ The **ERROR LIST** can also be accessed from the **Engineering menu**. ☐ The error code details are stated in Table 7. ☐ The error message appears every 30 seconds until the system emergency cause has been troubleshooted. To reset the error alert restart the unit once the malfunction cause has been eliminated.	

Table 7. Error code description for the S11 control panel

Error code	Description
TE1	Outdoor temperature sensor malfunction
TE2	Malfunction of the temperature sensor for heat exchanger freezing protection
TE5	Duct temperature sensor malfunction
TE6	Malfunction of the duct humidity sensor
MIN	Supply fan malfunction
MEX	Extract fan malfunction
ERP	Control panel communication error
DI2	Fire alarm sensor actuation

Table 8. Factory settings for the S11 control panel

Parameter		Factory setting
Air flow rate		1
Temperature	Duct	+ 25 °C
	Room	+ 20 °C
Air flow setting	Air supply	Speed 1 - 40 %, Speed 2- 70 %, Speed 3 - 99 %
	Air extract	Speed 1 - 40 %, Speed 2- 70 %, Speed 3 - 99 %
Temperature sensor		Duct
Extra options	Heating control	Off
	Supply Fan Off mode	Off
	Humidity sensor selection	2
	Bypass Operation mode	1
Supply Fan Off mode	Working hours	20 minutes
	Downtime	5 minutes
	Switch-off temperature	+ 3 °C
Standby mode setting	Air flow rate	1
	Temperature	+ 20 °C
Display brightness adjustment	Operation	50
	Sleep	1
Humidity setting	Duct	50 %
	Room	50 %
Temperature sensor correction		- 6 °C
Timer settings	Hours	01
	Minutes	00
	Air flow rate	1
	Temperature	+ 20 °C
Motor hours	Setting	4000 hours

The **KOMFORT EC DB S15** units are operated from the wall-mounted control panel using the touch buttons (Fig. 19). Unit control and adjustment of operating parameters are shown in Table 9. Factory settings and parameters adjustment range are shown in Table 10.

Indication variants when the unit is off:
- the touch buttons on the control panel are not highlighted;
- filter maintenance indicator and emergency indicator are highlighted in the respective cases.

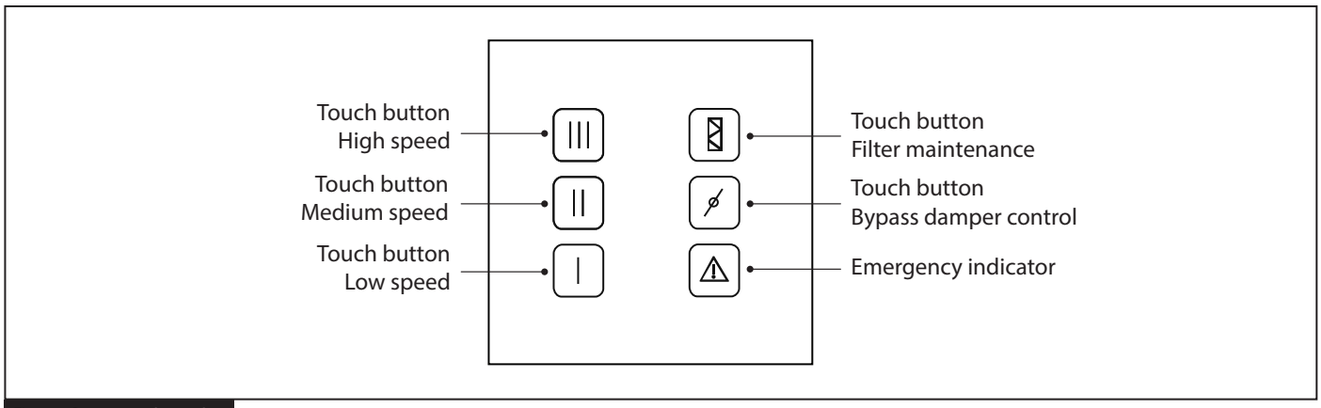


Fig. 19. S15 control panel

Table 9. Unit control and adjustment of operating parameters of the unit with the S15 control panel

Button	Function
I II III	**Unit activation:** Press one of three speed setting buttons. The selected button will be highlighted and the unit switches to the required speed.
	Speed changeover: Press the inactive speed setting button once. The selected button will be highlighted and the unit will switch to the required speed.
	Unit deactivation: To turn the unit off press the highlighted speed setting button.
	Summer Cooling mode: Press the touch button once. When the touch button is activated the display lights up and the unit switches to the Summer Cooling mode (the bypass damper opens). Each time a touch button is pressed, the current unit status is changed and saved in the control panel memory.
	Filter maintenance: As the unit reaches the set value of operating hours, the touch button is highlighted to remind about cleaning or replacing of the filters. After filter replacement or cleaning, reset the motor hours. Press and hold the touch button for 5 seconds. Resetting of the timer is confirmed by the touch button light turning off.
	Alarm: In case of alarm, the alarm indicator is highlighted. **In case of alarm indication, contact the Seller!**

Table 10. Factory settings for the S15 control panel

Parameter	Factory setting	Adjustment range
Zero speed (the unit is off), %	0	0 - 100
Low speed [%]	40	0 - 100
Medium speed [%]	70	0 - 100
High speed [%]	100	0 - 100
Unit speed with the closed dry contact of the external control unit, %	100	0 - 100
Filter cleaning (replacement) interval	2160 (3 months)	0 - 10000
Humidity level, %	60	30 - 80

The **KOMFORT EC DB S15** units are equipped with a USB connector (Type B) and can be connected to a PC for configuring the advanced settings in a special software (available for download on the website engl.blaubergventilatoren.de).

To work with the pre-installed software connect the unit to a laptop or to a PC via a USB cable with the Type A and Type B contact sockets. The USB cable is not included in the delivery set. The software enables editing the unit parameters (see Table 10).

The list of the adjustable parameters can be expanded in new versions of the software.

Setting, troubleshooting and upgrading of the software version is made by the service technician.

The software is available for downloading on our website: blaubergventilatoren.de.

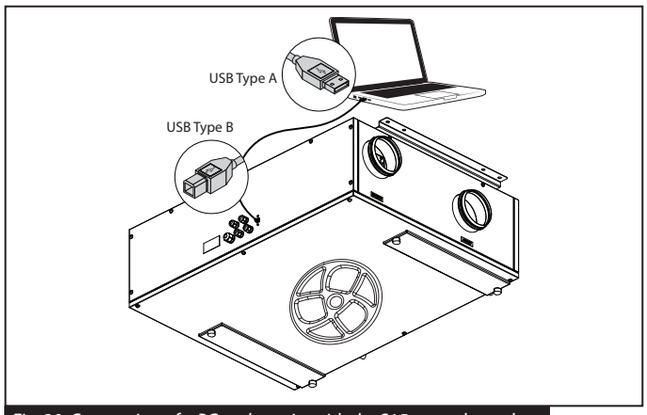


Fig. 20. Connection of a PC to the units with the S15 control panel

TECHNICAL MAINTENANCE

WARNING

Cut power supply to the unit off by turning the automatic electric switch QF to OFF position prior to any maintenance operations. Take steps to prevent activation of the automatic switch before finishing all the operations.

Regular technical supervision and maintenance of the unit are required to ensure the product long service life and non-stop operation.

Disconnect the unit from power supply prior to any maintenance operations.

WARNING! Consider the unit sharp edges! Fulfil maintenance operations in work gloves!

The unit must undergo technical maintenance 3 to 4 times a year.

The unit technical maintenance includes regular cleaning and other works:

1. Filter maintenance (3-4 times per year).

Dirty filters increase air resistance in the system and reduce supply air volume. The filters require cleaning not less than 3-4 times per year. Vacuum cleaning is allowed. After two consecutive cleanings filters must be replaced. For new filters contact the Seller.

To clean or replace the filters remove the detachable plates located on the service side of the unit. After cleaning install the filters and the detachable plates in the reverse order.

2. Heat exchanger maintenance (once a year).

Some dust may accumulate on the heat exchanger block even in case of regular maintenance of the filters. To maintain the high heat recovery efficiency regular cleaning is required. The heat exchanger is connected with the drain pan by the fixing bands that should be removed only in case of heat exchanger replacement. The drain pan is fixed to the unit casing using three screws. To clean the heat exchanger pull it and the drain pan out, drain the water through the pipes, then flush the heat exchanger with warm detergent solution. After cleaning install the dry heat exchanger with the drain pan back to the unit.

3. Fan maintenance (once a year).

Even in case of regular maintenance of the filters, some dust may accumulate inside the fans and reduce the fan performance and supply air flow.

Clean the fans with a soft brush or cloth. Do not use water, aggressive solvents or sharp objects as they may damage the impeller.

4. Technical maintenance of condensate drainage system (once a year).

The drain pipes may get clogged with the extracted particles. Pour some water inside the drain pan to check the pipe for clogging. Clean the U-trap and the drain pipe if required.

5. Technical maintenance of air duct system (every 5 years).

Even regular fulfilling of all the prescribed above maintenance operations may not completely prevent dirt accumulation in the air ducts which reduces the unit capacity. Duct maintenance means regular cleaning or replacement.

6. Control unit maintenance (if necessary).

The control unit maintenance must be performed by an expert qualified for unassisted operations with electrical installations with the voltage up to 1000 V after careful reading of the user's manual.

TROUBLESHOOTING

Table 11. Possible faults and troubleshooting

Fault	Possible reason	Troubleshooting
The fan(s) does not start when the unit is on	No power supply or wrong connection to power mains.	Connect the unit to power supply. Troubleshoot the connection error.
	The motor is jammed, the impeller blades are soiled.	Remove the motor jam, clean the impeller blades.
Automatic switch tripping	Short circuit in power grid.	Turn the unit off and contact the unit Seller for fault diagnostics.
Low air flow	Too low set speed.	Set higher speed.
	The filters and the fans are soiled, the heat exchanger is soiled.	Clean or replace the filters, fans and the heat exchanger.
	The air dampers, the supply diffusers or the exhaust grilles are closed or soiled.	Open and clean the air dampers, the supply diffusers, the exhaust grilles to ensure free air flow.
Cold supply air	The extract filter is soiled.	Clean or replace the extract filter.
	The heat exchanger is frozen.	Check the heat exchanger condition. Turn the unit off if required and restart it after the freezing danger is no longer imminent.
Noise, vibration	The impeller is soiled.	Clean the impeller.
	The screw connection is loose.	Tighten the screws.
	No flexible anti-vibration connectors.	Install the flexible anti-vibration connectors.
Condensate leakage	The drain system is clogged, damaged or wrong installed.	Clean the condensate drain system. Check the drain hose slope. Make sure the U-trap is filled with water and the drain system is frost-protected.

ACCEPTANCE CERTIFICATE

The air handling unit with heat recovery

KOMFORT EC DB160 S11		KOMFORT EC DB160 S15	
KOMFORT EC DB350 S11		KOMFORT EC DB350 S15	

is recognized as serviceable.

The unit complies with the requirements according to the EU norms and directives, to the relevant EU-Low Voltage Equipment Directives, EU-Directives on Electromagnetic Compatibility. We hereby declare that the unit complies with the essential protection requirements of Electromagnetic Council Directive 2004/108/EC, 89/336/EEC and Low Voltage Directive 2006/95/EC, 73/23/EEC and CE-marking Directive 93/68/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility, which relate to electrical appliances used in set voltage classes.

This certificate is issued following test carried out on samples of the product referred to above.

Quality Inspector's Stamp Manufacture Date _____

CONNECTION CERTIFICATE

Heat recovery air handling unit

KOMFORT EC DB160 S11		KOMFORT EC DB160 S15	
KOMFORT EC DB350 S11		KOMFORT EC DB350 S15	

is connected to power mains in compliance with the operation manual requirements by the professional:

Company: _____

Expert's Full Name _____

Date_____Signature_____

WARRANTY CARD

KOMFORT EC DB160 S11		KOMFORT EC DB160 S15	
KOMFORT EC DB350 S11		KOMFORT EC DB350 S15	

SELLER

PURCHASE DATE

REPRESENTATIVE IN EU

BLAUBERG Ventilatoren GmbH
Aidenbachstr. 52a,
D-81379 München,
Deutschland

BLAUBERG
Ventilatoren

www.blaubergventilatoren.de
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