

# OPERATING AND INSTALLATION INSTRUCTIONS LG 750 – LG 6000

**COMFORT  
VENTILATION**



for residential buildings  
EN13141-7:2010



EU-Regulation  
1253/2014



Ventilation and  
air conditioning /  
TUV-certified design



 **PICHLER**

*Systematic ventilation.*

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## 1. Introduction

Dear Customer,

thank you for purchasing a Series LG 750 - LG 6000 ventilation unit.

Series LG ventilation units are state-of-the-art. They are convincing by their high cost effectiveness, ease of use and reliable operation.

Please read this manual carefully and follow the instructions to ensure the safe, reliable and economic operation of your ventilation system.

Do not use your ventilation system unless in perfect condition and use only as designated; be aware of safety issues and any hazards and familiarise yourself with the notes and information contained in this Manual.

Please always keep the model and serial number (see nameplate on unit) at hand, in case of queries or when ordering spare parts.

In case of further questions or lost documentation, please contact.

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Equipment type:	08LG1400R	Construction year:	L	Weight:	190 kg
Serial number:		Order No.:			
Order number:		Volume flow:	max. 1400 m <sup>3</sup> /h		
Dimensions WxHxD:	1.445x1.340x765 mm				
Voltage / frequency:	230V / 50 Hz				
Power consumption:	max. 1,0 kW				

# PICHLER

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## 2. General

This chapter contains general information on the series LG with control unit type „PI-HMI“.



**READ THESE INSTRUCTIONS CAREFULLY BEFORE INITIAL STARTUP OF THE UNIT!**

This Manual contains notes and information on safe operation and proper installation of the Series LG ventilation unit and on its use and servicing. Reference this Manual during servicing to ensure proper execution of the tasks. Keep this Operating Manual in a safe place and readily available at all times.

Fault rectification and intervention work may only be performed by a

licensed, specialist installation company. These units are subject to ongoing improvement and further development. Your unit may therefore vary slightly from the description in this Manual.

### Subject to change without notice:

This guide was prepared with the utmost care. Nevertheless, no rights can be derived from it. We are constantly making an effort to provide technical improvements and optimisations to our products and reserve the right to change the designs of the units or technical data completely or in part without any prior notification.

For the ventilation unit series LG, our „General Terms and Conditions“ in the applicable version apply.

## 3. Use in compliance with the intended use

### 3.1 INTENDED USE

The energy efficient Series LG 750 to LG 6000 ventilation units are specially developed and optimised ventilation units with integrated Pichler-Air2 controller customised to meet individual demands.

The ventilation units are deployed for controlled mechanical aeration and ventilation with heat recovery from several dwelling units in multi-storey

residential buildings, student quarters and old age homes, commercial/hotel/office buildings or similar applications.

The purpose of the controlled mechanical ventilation of living areas is to improve air quality and to reduce heating requirements through the use of a highly efficient heat recovery system as well as influencing indoor air humidity.



The ventilation unit's applications and designated use are limited to the deployment and operation for mechanical ventilation and extraction of air in residential and non-residential buildings. The ventilation unit may not be used for drying, since the unit is not designed for dehumidifying. The conveyed air at minimum and maximum temperatures of -16 °C to + 35 °C resp. must be free of aggressive vapours and substances causing wear.

Any other use shall be deemed contrary to designated use. The manufacturer shall accept no responsibility for damages or consequential damages arising from improper use. Designated use shall also include compliance with our prescribed Operating and Installation Manual.

This unit is available to the general public and is intended for installation in residential or industrial buildings. The

unit is used for mechanical aeration and ventilation of ambient air and, combined with a heating and cooling battery, also for re-heating/cooling of the air.

This unit is not intended for use by persons, including children, with limited physical, sensory or mental capacities or lacking experience and/or knowledge, unless under supervision or instruction of a person responsible for their safety. Series LG ventilation units are not ready-to-use products. They shall not be started up unless after proper installation and connection in the ventilation and air conditioning system. Only qualified and instructed persons may work on and with the unit.



Persons transporting or working on the unit must have read and understood the Operating Manual, especially *Chapter 6 „Safety“*. The end user must be informed of potential hazards.

### 3.2 STIPULATIONS FOR OPERATION WITH FIREPLACES

Local requirements in terms of standards, laws and directives, must be taken into account.

**The central air conditioners with heat recovery should not be installed in comparably sized rooms, apartments or facilities with room air dependent heating apparatus unless:**

- safety systems are in place to prevent simultaneous operation of room air dependent heating apparatus and units extracting air, or
- special safety systems will monitor waste gas extraction of a heating apparatus dependent on room air. For ambient air-dependent heating systems for liquid, gaseous and solid fuels, the heating or ventilation system must be switched off in the event the safety equipment triggers.

Central air conditioning equipment for controlled ventilation and extraction of air in an apartment or similar facility shall not be installed if the facility has

room air dependent heating apparatus connected to waste gas units with multiple infeeds.

For normal operation of central air conditioning systems, it must be possible to close any ducts for combustion air or waste gas systems from heating apparatus dependent on room air. Shut-off systems for waste gas from solid fuel heating apparatus must be manual. The position of the operating lever must indicate the status of the shut-off unit. This is deemed complied with if a shut-off system is used to block soot (soot shut-off).

#### **Fire protection requirements**

The regional regulatory provisions, especially the fire protection regulations for air conditioning of buildings, as amended, must be taken into consideration when installing the air conditioning system in accordance with the instructions for fire protection.



### 3.3 STIPULATIONS IN CONNECTION WITH EXTRACTOR HOODS

On account of the heavy load and irregular operation the extract air of any kitchen extractor hood present must not be integrated into the apartment's ventilation system. The extract air from such extractor hoods should be removed separately out of the roof via an exhaust air line. The supply air is provided separately, e.g. via the window ventilation.

If an extractor hood is being operated without separate introduction of the supply air, the air volume balance in the apartment is no longer balanced and the proper functioning of the apartment's ventilation system is not ensured (odour entrainment etc.). One possibility is to operate the extractor hood with adequate air filtering in recirculated air mode.

## 4. Liability

Series LG ventilation units were developed and manufactured for ventilation in living rooms and rooms with similar purposes such as offices and seminar rooms.

For proper operation of the central air conditioning systems, it must be possible to close any ducts for combustion air and flue gas systems of fireplaces drawing in room air.

Any other use shall be deemed improper and may cause personal injury or dama-

ge to the ventilation unit, for which the manufacturer shall accept no liability.

**The manufacturer shall accept no liability for any damages due to:**

- non-observance of the Safety, Operating and Servicing notes in this Operating and Installation Manual
- installation of spare parts other than parts supplied by the manufacturer
- normal wear and tear

## 5. Warranty

The warranty starts when the unit is put into operation, or one month after delivery at the latest. You can find details on the warrantee in our „General terms and conditions“ in the current version and the dealer conditions in your country. It only applies if there is documentation of maintenance carried out in accordance with our regulations by a licensed, specialised installer company.

Warranty claims can be made exclusively for material and/or construction flaws that occur during the warranty period. In the event of a warranty claim, the ventilation unit may not be disassembled without the prior written consent of the manufacturer.

The manufacturer then only grants a warranty on spare parts if they are installed by an installer recognised by the manufacturer.

The warranty shall expire automatically at the end of the warranty period, or in the case of improper operation, such as operating without filters, installation of parts not supplied by the manufacturer, or where non-approved changes or modifications have been made to the system.

Failure to comply with these operating and installation instructions will automatically void all warranties.



## 6. Safety

Read this operating and installation guide carefully and observe the safety instructions during installation work, start-up, maintenance work or general work on the ventilation unit.

Keep the operating and installation guide close to the unit during its entire service life.

Always follow the safety regulations, warning information, instructions and comments described in this operating

guide. The specifications mentioned in this document may not be changed.

Not observing these safety regulations, warning information, instructions and comments can lead to bodily harm or damage to the ventilation unit.

A service agreement is recommended to ensure that the unit is checked and serviced at regular intervals. Your supplier can give you the addresses of recognised installers in your area.

### 6.1 SYMBOLS USED

The following safety symbols identify text passages in which there are warnings about dangers and sources of danger. Please familiarise yourself with these symbols.



**Important information!**



**Caution!** The non-observance of this warning can lead to injury or danger to life and limb and/or damage to the unit.



**Caution - dangerous electrical voltage!** The non-observance of this warning can lead to injury or danger to life and limb.

### 6.2 SAFETY REGULATIONS



The installation, start-up, maintenance and repair must be carried out by an authorised specialist (heating/installation specialists).

The local national regulations and standards apply without restriction beyond these operating installation instructions in respect of operation of the unit.

Let the installer of the system instruct you on the unit and control unit after the installation. The ventilation unit may only be used in accordance with the usage in accordance with the intended purpose given in *Chapter 3 „Use in compliance with the intended use“, page 4.*

All safety and danger notices attached to the unit and described in these instructions must be observed.

In the event of any malfunctions, shut down the unit immediately and secure it suitably against being switched back on. Faults on the unit must be rectified immediately. Make sure that children do not play with the unit.

After the repair work, the operational reliability of the unit must be restored by qualified persons.

Attaching or installing additional equipment is not permitted. Changes and modifications to the ventilation unit are not permitted and release the manufacturer of any warranty and liability. Only original spare parts may be used.

Modifications and adaptations to the ventilation unit are not permitted and release the manufacturer from any warranty and liability.



### 6.3 SETTING UP THE UNIT



The national and local regulations must be observed for installation and setup. The unit must be installed only in compliance with the national installation regulations.

The assembly and installation must be carried out in accordance with the general, locally applicable building, safety and installation regulations of the respective municipality, or of the water and electricity services and other institutions.

The ventilation unit is designed for upright installation or in case of ceiling installation, for the installation on the ceiling and may only be set up on a suitable, load-bearing floor. The unit may not be subjected to vibrations and the customer shall provide suitable structural acoustic decoupling between unit and building.

Permissible reasonable maximum lifting capacities of persons and lifting equipment must be noted when transporting the ventilation unit.

Suitable permanent drainage of condensate arising during operation of the ventilation unit will be required, including effective odour blocking traps (siphon). Ensure adequate spacing between the base of the unit and the floor or perhaps false ceilings.

Installation of the unit, the electrical connection work as well as the installation and connection work for the water, heating and condensate connections must only be performed by a specialist.

Proper installation is essential for ensuring the water-tightness and effectiveness of the condensate discharge line

and in order to prevent damage to the building. The condensate drainage has to be checked for operability by means of an on-site inspection prior to initial start-up and after any servicing work. During manual transport take care that only reasonable human lifting and carrying forces are used.

System components of the ventilation system such as, for example, air lines with built-in components, optional heating batteries with accessories, which are possibly installed in unheated areas, must be designed to be suitably insulated in order to prevent heat loss or the formation of condensate (if the temperature drops below the dew point temperature). If there is a danger of frost for components, then suitable measures must be taken to ensure automatic, reliable, frost-free operation.

Structural, safety and fire protection regulations, provisions and standards that must be applied locally must be complied with. If applicable, suitable measures must be taken during the installation of the units on site, e.g. the installation of fire protection dampers in the air lines, etc.

Take into consideration the ambient influences and do not install the ventilation unit in the vicinity of combustible liquids or gases, in swimming pools or in areas subject to the influence of chemicals.

When installing ceiling units, special care must be taken to ensure that the unit is secured at all times and cannot fall down.

### 6.4 ELECTRICAL CONNECTION WORK



- Warning: dangerous electrical voltages!
- Failure to observe this risk can lead to death, injury or damage to property.
- Before carrying out any work on live parts, the unit must always be disconnected completely from the power supply (all poles) and secured against being switched back on.

Electrical connections and work carried out on electrical components of the unit and its accessories may only be carried out by authorised electricians in compliance with the applicable laws, requirements, standards and directives.



Before opening the unit and when carrying out work on the unit e.g. maintenance work and repairs, the unit must be isolated from the mains (all poles disconnected) and secured against being switched back on for the duration of the work.

The ventilation units are designed for a power supply of 230 V/50 Hz or 400 V/50 Hz.



Refrain from any way of working that has an adverse effect on safety. For safe operation, safety equipment must not be disassembled or rendered inoperative.





The electrical equipment with the warning and protective devices of the unit must be checked regularly to make sure they work properly. In the event of malfunctions or deficiencies such as, for example, loose connections or scorched cables, the unit must be shut down immediately.

Only original fuses with the specified amperage and dimensions may be used.

If the mains connection of the unit is damaged or defective, then it must be

repaired without delay in order to avoid any resulting danger. It is forbidden to operate the unit until restoration of safe system operation.

If electrical deficiencies and malfunctions arise, then only authorised electricians may determine the cause and resolve the problem without delay. After completion of electrical work, all protective measures on the unit must be checked (e.g. grounding resistance, etc.). *Details see Chapter 17 „Electrical connection“, page 50.*

## 6.5 OPERATION OF THE SYSTEM



It is only permitted to operate the ventilation unit if all necessary connections related to planned external fittings and components such as, for example, a pre-heater battery with air filter, re-heater battery, sound suppressor, etc. have been established properly and are also operational and in working order.



If faults, deficiencies or damage occur that can endanger people or other components, then the ventilation unit must be shutdown immediately and all poles disconnected from the mains power supply. Any further use of the system must be effectively prevented until its repair. Measures must be taken to prevent the unit from being switched back on unintentionally.

When the front covers are open or the cover plates removed, make sure you proceed in a safety and danger conscious way. With ceiling units, special attention must be paid to parts that may potentially fall. Refrain from any way of working that has an adverse effect on safety. It is only permitted to operate the unit with a connected air line and attached system components such as a sound suppressor for example, with a minimum line length of 1000 mm in order to ensure that the fans, for example, cannot be touched by the hands.

The ventilation units may only be operated in accordance with the design documents. They must comply with the Equipment and Product Safety Act as well as the relevant regulations of the EU guidelines and standards.

Take environmental effects into consider-

ation and do not install the ventilation unit close to combustible liquids and gasses, in swimming pools or in areas that are affected by chemicals or hazardous substances.

Never operate the ventilation unit without installed air filters. The air filters must be checked or replaced regularly for contamination and damage and cleaned or replaced if necessary. The control unit will warn of the need to replace filters. Air filters must be replaced at least every six months or when a corresponding message is displayed on the control unit. Use only genuine spare filters.

If the unit has not been in service for a longer time, for hygienic reasons the air filters have to be replaced before putting it back into operation.

In case of simultaneous use of the ventilation unit with fireplaces consuming indoor air, the applicable safety instructions and standards must be observed.

In the case of indoor air dependent fireplaces the combustion air supply has to be provided separately. See the provisions on this topic under the **point 3.2 „Provisions for operation with fireplaces“, page 6.**

Owing to their heavy loading and irregular operation, extractor hoods must not be integrated into the extract air or exhaust air circuit of the ventilation unit. Advice on this is provided **under point 3.3 „Provisions for use with extractor hoods“, page 6.** Exhaust air extractor hoods must be operated via separate air lines, with provision for a suitable fresh air supply, e.g. by opening windows, or via suitable air filters in recirculated air mode.



## USER GUIDE

### 7. Customer service

Please contact the installer of your ventilation and air conditioning system or contact us directly for any questions relating to the compact ventilation unit of the series LG supplied.



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### 8. Ventilation unit design

#### 8.1 DESCRIPTION

The energy efficient Series LG 750 to LG 6000 ventilation units are specially developed and optimised ventilation units with integrated Pichler-Air2 controller customised to meet individual demands.

The ventilation units are deployed for controlled mechanical aeration and ventilation with heat recovery from several dwelling units in multi-storey residential buildings, student quarters and old age homes, commercial/hotel/office build-

ings or similar applications.

Weatherproof variant with flat roof as standard (unit height + 60 mm).

Suitable bases available on request for roof-integrated unit design.

20 mm must be added to the unit height for ceiling units, because of the vibration damping and hinges provided.

#### 8.1.1 Unit housing

The unit housing is a compact, thermally insulated galvanised sheet steel frame construction enclosure with minimal thermal bridges. The panels are double-

walled, made of galvanised sheet steel with respectively 30 mm thick insulation for ceiling unit, 50 mm for interior and 100 mm for exterior installation.

#### 8.1.2 Heat recovery

Energy efficient heat recovery is achieved through the adequately dimensioned, highly efficient, corrosion-resistant aluminium air/air counterflow heat exchanger. Alternatively, enthalpy heat exchangers which also recover moisture

are available. The integrated 100 % automatic bypass is used to bypass the heat exchanger (summer use, frost protection etc.). It is fitted with an internal bypass for continuous heat transfer control.

#### 8.1.3 Fans

The units are fitted with energy-saving and quiet high performance EC technology radial fans. Compared to conventional drives, the potential for saving energy is

up to 60 %, especially when operating on partial load. The fans are maintenance-free.

#### 8.1.4 Outdoor air filters- (ODA-filter)/ Extract air filters (ETA-filter)

The units are supplied with outdoor air filters of quality standard ODA-filter ISO ePM1 55% and with extracted air filters of quality standard ETA-filter ISO ePM10 75%. If there are higher requirements of

the air filter quality, then they can also be supplied with higher quality standards. After opening the maintenance doors, the air filters are easy to replace.

#### 8.1.5 Integrated control and regulation

The LG 750 - LG 6000 ventilation units are equipped with an integrated control and regulation system as a standard feature. An operator control unit is used to operate the unit, which can be optionally installed directly on the unit. System operation can be programmed in

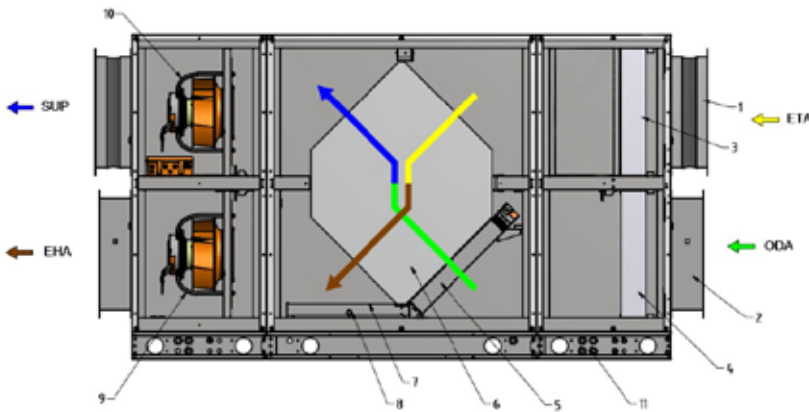
accordance with the individual requirements using an integrated daily and weekly program. The volume flow is set using a 0 - 10 V control signal, which can also be used to incorporate external pressure control systems such as a fan optimiser, for example.



For protection against the counter-current heat exchanger freezing in the event of low outside temperatures, different frost strategies can be taken into consideration, for example by using bypass control with a re-heater battery. The set system parameters and also the current values of temperature, volume flow or

pressure that are currently in operation can be read on the Pichler handheld terminal or an other operator control unit. Fault messages are output on the control panel as a collective fault message or alternatively as a fault message.

8.2 UNIT LAYOUT WITH FITTINGS LG 750 AND LG 6000



- 1 Flexible connection
- 2 Shut-off valve
- 3 Outdoor air filter with push-pull device
- 4 Extract air filter with push-pull device
- 5 Bypass flap with actuator
- 6 Counterflow heat exchanger
- 7 Condensate cup
- 8 Condensate drainage
- 9 Exhaust air fan
- 10 Supply air fan
- 11 Control uni

Ill.: LG 1000 ...LV for interior installation, illustration left-hand version, with vertical heat exchanger.

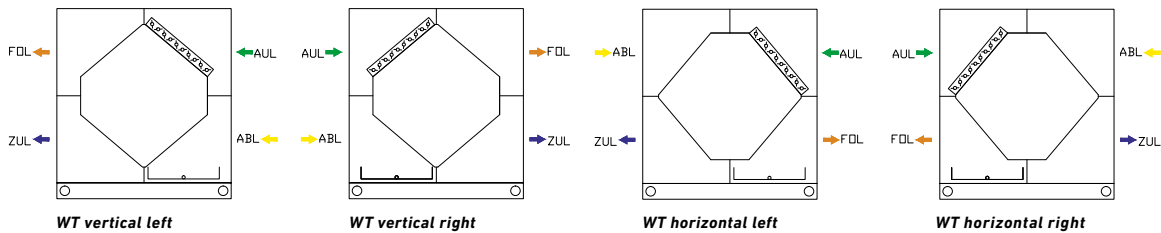
8.1.3 Heat exchanger arrangement

The heat exchanger positions shown are the preferred ones, in each case in left-hand and right-hand versions for the different inspection sides and with airflow arrows. Standard ventilation units are available in the following designs: Ventilation units for indoor installation are fitted with horizontal heat exchangers;

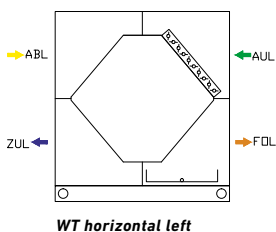
weather-resistant and roof-integrated ventilation units are fitted with vertical heat exchangers. Weatherproof and roof-integrated ventilation units in version „N“ are designed with a horizontal heat exchanger. Prices and delivery times for other versions are available on request.

Standard ventilation units with weather-resistant or roof-integrated design:

Standard ventilation units for indoor installation:



Side-by-side units, also ceiling units:



## 9. Control unit



**Product:** PI-HMI  
**Type:** 3,5" touchscreen panel

The settings made on the ventilation unit are performed via an operator control unit. Control and operation of the ventilation unit is performed via the „PI-HMI“ control unit in-wall or on-wall mounting.

The touchscreen makes performing settings simple. All important operating data are displayed.



The control unit is normally installed in the living area and should be suitably positioned. Thermal source areas, radiators, direct sunlight etc. have to be avoided on account of their temperature influence!

PI-HMI is a touchscreen panel with user-friendly graphical user interface specially developed for controlling ventilation systems. The panel communicates with the PI Air2 system via a Modbus interface, ensuring easy installation.

The panel communicates with the PI Air2 system via a Modbus interface, ensuring easy installation.



The following changes to the ventilation unit can be set from the PI-HMI control unit. When the screensaver is enabled, tap the touch display to open the start view.

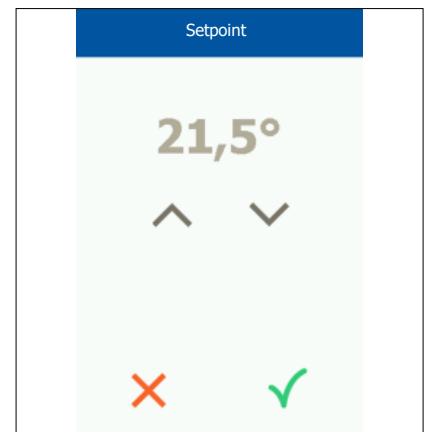
### 9.1 HOME SCREEN

Basic functions (such as fan speed, temperature and configuration) can be accessed from the start view.

5 The desired temperature value is shown in the middle row on the right. Click this value to change it.



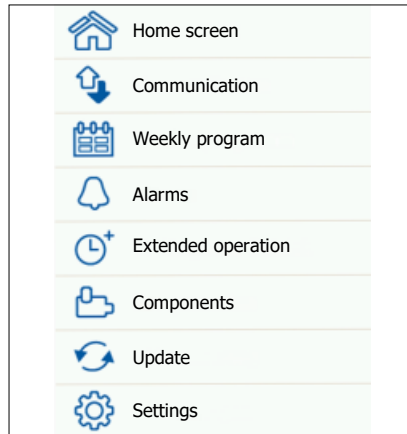
- 1 Time and weekday are shown on the left in the topmost row on the display.
- 2 The main menu can be accessed from the icon in the top right.
- 3 The alarm bell in the top left denotes an active alarm.
- 4 The house icon on the left in the middle row enables an overview screen for the ventilation unit to be accessed. Temperatures, air quantities and filter pressures can be checked.



- 6 The icons in the lower part of the start view are for quick access to the individual components. They can be changed in the main menu under Settings – Start view, and so can be different from the figure.

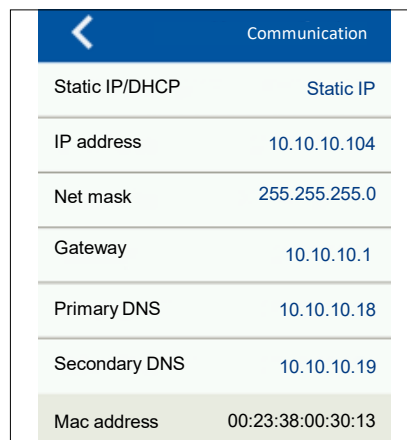


9.2 MAIN MENU



Press this icon to return to the home screen.

9.2.1 Communication



Here you can configure LAN settings.

9.2.2 Weekly programm

Here you can enter times and modes for the built-in 7-day clock.

*Then you can choose among three different modes:*

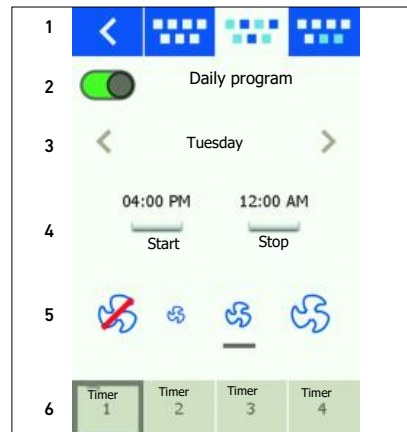
- „Whole week“ – A ventilation setting for the whole week
- „Daily program“ – For each day different ventilation settings can be parameterized

- „Weekday / weekend“ – Ventilation settings on weekdays and weekends are set

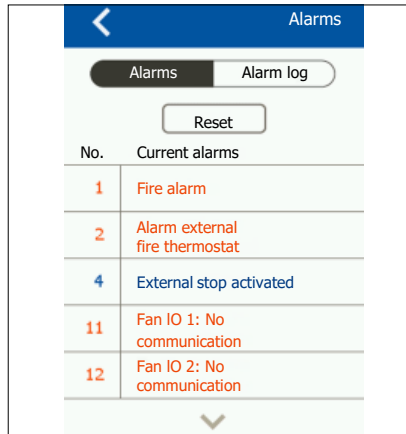
By pressing the button, the mode is turned on or off

- 1 Switching between the different modes
- 2 Mode
- 3 Weekday
- 4 Time to start and stop the system
- 5 Fan speed

- 6 Timer: A fan speed can be selected for a certain period (e.g. in the morning). Up to four timers can be programmed.

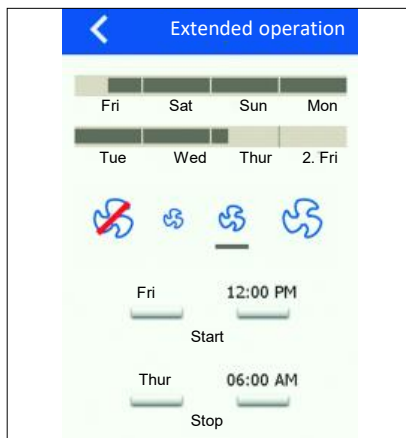


9.2.3 Alarms



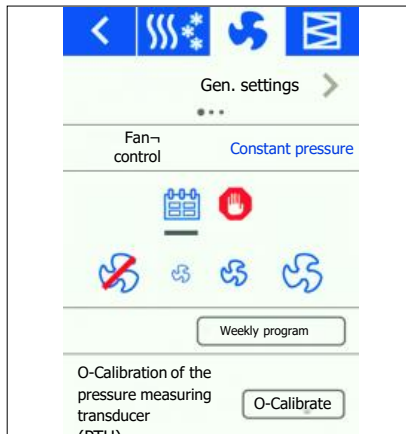
Here you can view active alarms and an alarm log. In case of an alarm, this screen can also be accessed via the bell icon on the home screen.

9.2.4 Extended operation



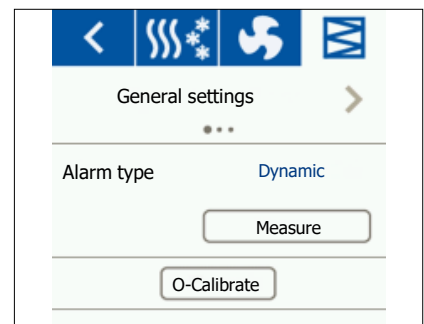
If a different pattern of operation is required for a short period of time, the weekly program can be overridden. The override period can last up to a week at most. Once the period has elapsed, the system returns to standard clock-controlled operation.

9.2.5 Components

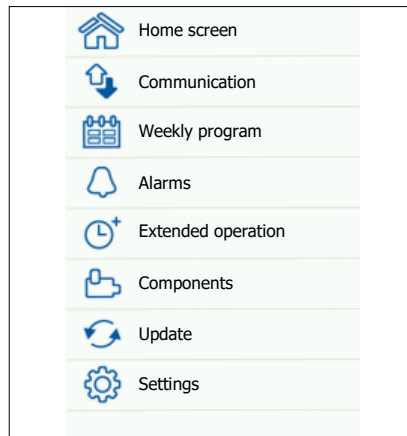


- Low: Low ventilation level is active.
- Medium: Medium ventilation level is active.
- High: High ventilation level is active.
- Service stop: The system can only be restarted locally from the control unit.
- Week program
- Calendar program:
  - o Configuration via web server
  - o Supply air fan settings
  - o Exhaust air fan settings
- Filter settings:
  - o General settings
  - o Outdoor air filter: Reset filter time
  - o Extract air filter: Reset filter time

- Air-conditioning:
  - o General settings:
    - Temperature control type
    - Desired temperature value
    - Minimum Supply air temperature
    - Maximum Supply air temperature
  - o Heat exchanger settings
  - o Heating register settings
  - o Cooling register settings
- Ventilation settings: (can also be accessed from the start screen)
  - o General settings:
    - Off: The fans are stopped and the system is not running.

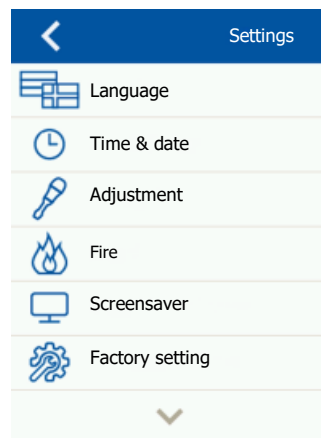


9.2.6 Software update



Here you can check if an SD card inserted into the PI Air2 Master contains a new software version. Then select update in the settings and follow the instructions on the display

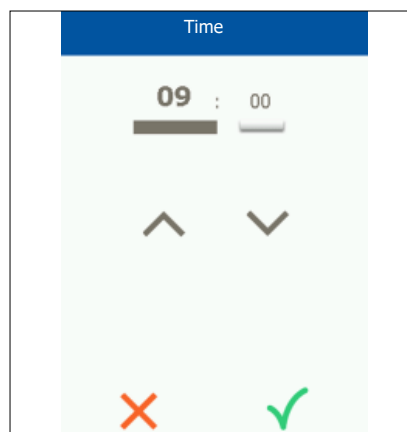
9.2.7 Settings



• Language: The PI-Air2 software supports the following languages



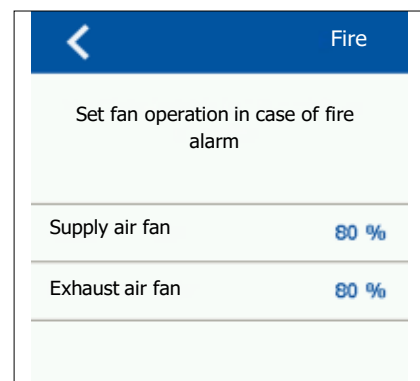
• Time & Date: Here you can set the time and date for the system.



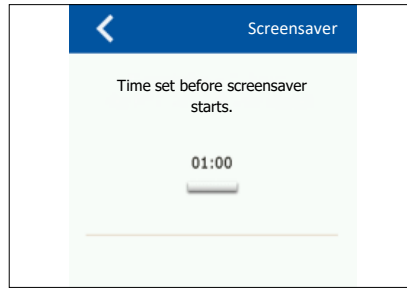
• Adjustment: Here you can lock fan speed during system adjustment. Once the required air volume has been reached, the fan is locked at its current speed. This gives the installer the opportunity to adjust the system, ensuring the right amount of air in the individual rooms without interference from ventilation system regulation.



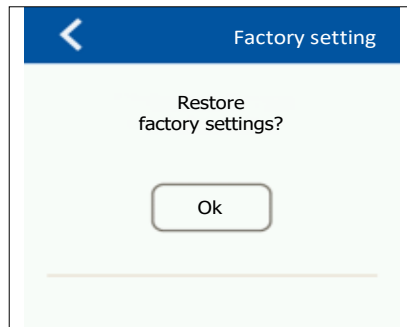
• Fire: When the fire alarm is active, this speed is set for the fans (default = 0%)



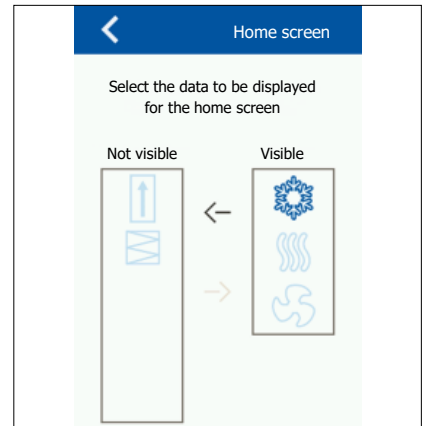
- Screen saver: Here you can set the screen saver timeout period.



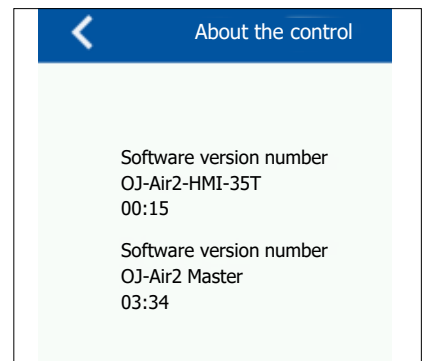
- Factory settings: (PIN-required) Here you can restore factory settings.



- Quick access: (PIN-required) Configuration of the icons in the lower part of the start view.



- Software version: Here you can view information on software versions.

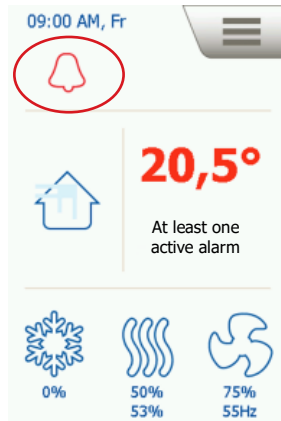




# 10. Messages / Faults

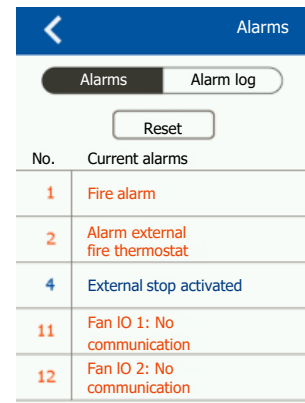
Pichler Air2 system malfunctions will be shown as alarms. This display may differ, depending on the control unit or internal Web server.

## 10.1 ALARM DISPLAY



The bell icon flashes on the home screen.

The operator control unit „PI-HMI“ will display active alarms and an alarm log in the ALARM submenu.



In case of an alarm, this screen can also be accessed via the bell icon on the home screen.

Pressing the “Reset” button acknowledges all active alarms.

## 10.2 OPTIONAL: ALARM LOG IN THE WEB-SERVER

The log of the most recent 16 active alarms is shown in the user menu. Clicking the “Turn off alarms” button resets all active alarms



# 11. Filter maintenance

## 11.1 MAINTENANCE INSTRUCTIONS (FILTER)



These instructions relate exclusively to regular inspection, maintenance and replacement of air filters by the user.



**Check the condition of the air filters regularly.**



If they are very dirty, then the filters must be replaced immediately. Otherwise the filters are replaced at intervals of at least half a year depending of the pollution of the outdoor air.

Original replacement filters are to be used exclusively to replace the filters, taking the designated filter quality standard into consideration. The ventilation unit must never be operated without the air filters for outdoor and extracted air in place.



If ventilation units are put out of operation for an extended period of time, then it is necessary to replace the air filters for hygienic reasons before the unit is switched back on.

Symbol	Designation
	Filter ODA ISO ePM1 55% (outdoor air) standard
	Filter ETA ISO ePM10 75% (extract air) standard

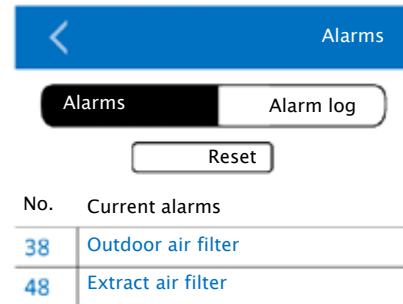
## 11.2 FILTER MESSAGE ON THE „PI-HMI“

The ventilation unit will display a filter replacement warning. An error message will be displayed on the control unit when the max. pressure difference set for the filter is exceeded.



Plant efficiency will drop and power consumption will increase unless the filters are replaced regularly.

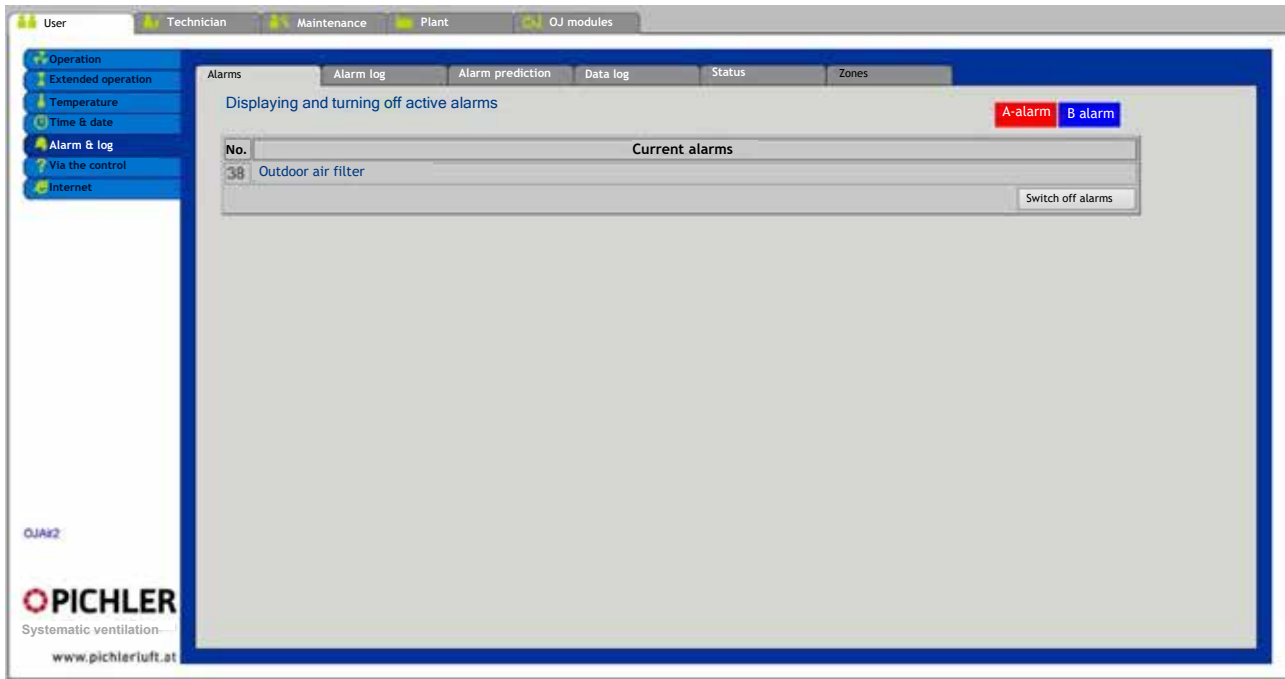
### 11.2.1 Filter message on touch display (PI-HMI)



Message on the touch control unit



### 11.2.2 Filter message on the web server



### 11.3 CLEARING FILTER MESSAGES

After the filters have been replaced, the message on the touch display (PI-HMI) or in the web server can be reset by pressing the „Reset“ or „Switch off alarms“ button.



## 11.4 FILTER CHANGING

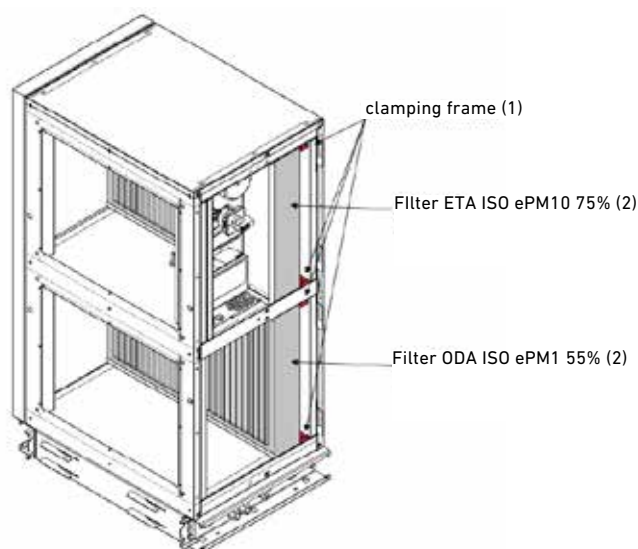


When replacing the air filters, avoid soiling the unit and its components. Dirty air filters must be immediately and suitably disposed of. It is advisable to package the air filters in an airtight container immediately after removal to avoid contamination of the ventilation system and the unit.



Before carrying out any work on live parts, the unit must always be disconnected completely from the power supply (all poles) and secured against being switched back on!

Before pulling the air filters (2) out of the unit, the filter's clamping frame (1) must be released by pulling it forward. Only then can the air filters (2) be pulled out easily and replaced.



Caution with ceiling units: Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!



When inserting a new filter (2), make sure there is a good seal and adequate clamping between the air filter and filter clamping (1) frame in order to avoid too much filter bypass leakage.

*Note the indication of proper air flow direction on the filter.*

### Where can I order filters?

Use only original replacement filters of the filter class specified.

 **PICHLER**

J. Pichler Gesellschaft m.b.H.

**9021 KLAGENFURT**

Karlweg 5

T +43 (0)463 32769

Onlineshop: <https://shop.pichlerluft.at/>



## SPECIALIST PERSONNEL - MOUNTING / INSTALLATION

### 12. Scope of supply, transport, storage and disposal


#### 12.1 SCOPE OF SUPPLY


The scope of supply comprises the following:

- the ventilation unit comprising from one or several units
- the operator control unit colour touch display PI-HMI
- the Operating and Installation Manual (enclosed with ventilation unit)
- Key for inspection doors
- Siphon (enclosed with ventilation unit)
- Trace heating (in exterior installation type)
- Miscellaneous installation materials (bolts, sealing strips, etc.)

On delivery of the unit, check that the type and serial number on

the nameplate correspond to the information on the order and delivery documents, that the equipment is complete, including any optional accessories, and that all parts have been delivered in perfect condition.

 Any transport damage and/or missing parts must be immediately reported to the forwarder or supplier in writing.

 Connection of individual modules and wiring is not included in the scope of supply and must be done on site!

#### 12.2 PACKAGING & TRANSPORT

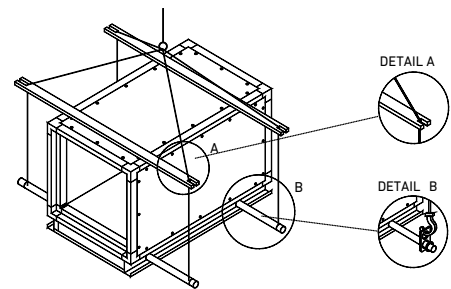
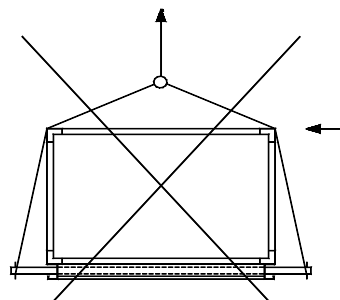
The ventilation unit is supplied packaged. The safety markings on the packaging must absolutely be noted and observed during handling.

Ensure that the unit is not damaged through tipping or knocking over. The unit may be lifted with a forklift or using slings.

Ensure that lifting bars have adequate capacity. Secure the bars against

slipping, if possible (see Illustration). Prevent knocks and blows during transportation and do not twist equipment frames or housing components.

Applicable safety and accident regulations must be complied with during transport. Ensure that reasonable human lifting and carrying capacity exists for manual transport.



#### 12.3 STORAGE

The unit must be stored in its packaging in suitable, dry and dust-free rooms. Avoid excessive storage times.

#### 12.4 DISPOSAL

Help us to protect the environment through environmentally friendly disposal of packaging and used products. The packaging material and protective packaging are to be disposed of in an environmentally compatible way. The packing materials must be disposed of according to the local regulations, for example recycling of wooden pallets or cardboard.



Units that no longer work must be disassembled by a specialised company and disposed of professionally using a suitable collection centre in accordance with the Waste Electrical and Electronic Equipment Ordinance (WEEE), which provides for the implementation of municipal law, guideline 202/95/EG (RoHS) and guideline 2002/96/EG (WEEE guideline).



## 13. Technical specifications

On request we provide you more detailed information on the technical device data. Please contact us!



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## 14. Functioning of the ventilation system

### 14.1 FUNCTIONAL OVERVIEW

Function	Description	Standard	Optional*
Ventilation control method:	Constant volume flow control	●	
	Constant pressure control		●
	PICHLER System Optimiser		●
	Air quality control CO <sub>2</sub>		●
	Air quality control VOC		●
	External control signal 0-10 V		●
Temperature control method	Constant supply air temperature		●
	Constant extract air temperature	●	
Ancillary functions	External air compensation	●	
	Summer nights cooling (only for weekly program)	●	
Possible heating and cooling components	Electric pre-heater battery		●
	Control of an E-re-heater battery		●
	DX cooler controller		●
	Control of a water pre-heater battery		●
	Control of a water re-heater battery		●
	Control of a water cooling battery		●
	Control of a water combi battery		●
Communication	Integrated web server		●
	Modbus TCP/IP		●
	Modbus RTU (not possible with System Optimiser!)		●
	BACnet		●
	KNX-Gateway		●
Signal exchange hardware	Analog input for VOC/CO <sub>2</sub> sensor (on terminal)		●
	Low rpm input		●
	High rpm input		●
	Shut-off valves [2 x Belimo LM24A (on terminals)/LF24]	●	
	Error message Level A (floating max. 30 V / 3A)	●	
	Error message Level B (Maintenance message)		●
	External start input (inverted)		●
	External stop input (on terminal)		●
	External fire alarm input (on terminal)		●
	Operational (floating max. 230 V / 2A)	●	

\* The options must be specified in the order and will attract additional costs!

### 14.2 SYSTEM DESCRIPTION

Centralised ventilation extracts air from rooms such as bedroom, lounge, bathroom, toilet and kitchen and replaces this air with filtered outside air.

Large savings in energy may be achieved in plants which are in constant operation, thanks to highly efficient heat exchangers recovering heat from the extract air and energy efficient fans with state of the art EC technology for controlled airflow.

This technology is particularly cost effective when buildings have air-tight

shells and are effectively thermally insulated. Efficient heat exchangers will allow substantial energy savings.

Demands for economical and energy efficient operation may be satisfied using variable volume air flow systems for comfort zone ambient air, especially through on-demand fan control in coordination with, for instance, electronic control of volume flow. The Pichler Air2 system will control these complex processes



### 14.3 SYSTEM EXTENSIONS FOR HEAT EXCHANGER FROST PROTECTION



Depending on extract air temperature and humidity, a danger of freezing will exist at the heat exchanger exhaust air side, particularly under frost conditions in winter. The heat exchanger must be protected against ice formation during low outside air temperatures of ca. -3 °C or less, using suitable measures.

*Various strategies may be followed to protect the heat exchanger from freezing:*

- Frost protection via heat exchanger bypass

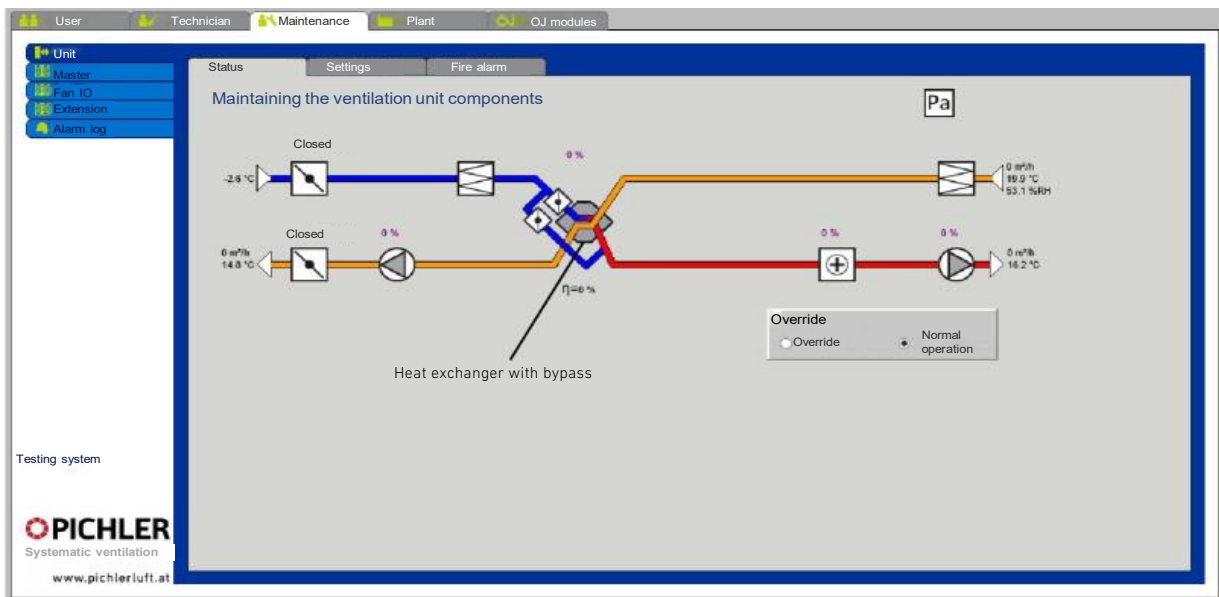
- Frost protection by means of waterpre-heater battery (Glycol)
- Frost protection via pre-heater coils - electric version

A frost protection alarm will trigger if none of these measures produce an effect after 5 minutes, i.e. if exhaust air temperature remains below minimum level despite fully open bypass damper and PWW pre-heating exchanger or electrical pre-heater on full power.

#### 14.3.1 Frost protection via heat exchanger bypass

If the ventilation unit has no pre-heating exchanger, a bypass may be used to protect the heat exchanger from freezing. Cold outside air will in this case bypass the heat exchanger via a duct and the warm extract air will be used to protect

the exchanger from freezing. With this arrangement, a re-heater exchanger is recommended, in order to maintain a minimum supply air temperature. Damper actuators are controlled via a 0-10 V signal.



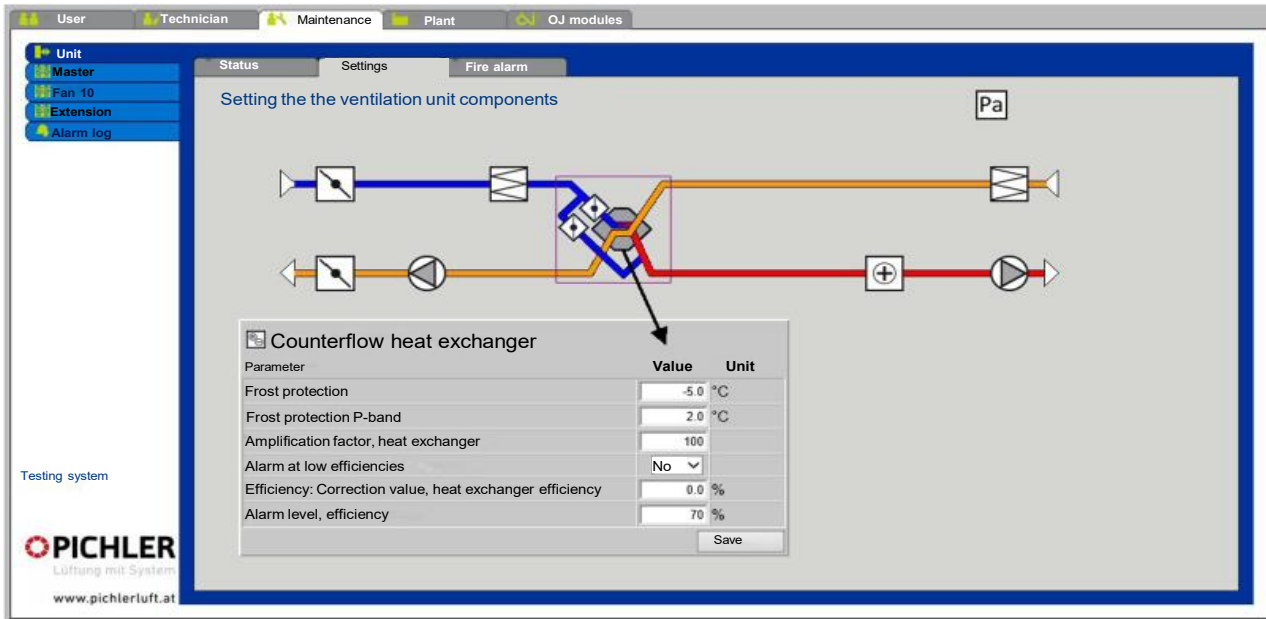
#### Description of the control system:

The bypass arrangement will protect the heat exchanger from freezing. The temperature sensor must be positioned in the exhaust air directly after the heat exchanger.

To protect the heat exchanger from freezing, the frost protection temperature (factory setting -5 °C) and frost protec-

tion P-band (factory setting 2 °C) parameters must be set. This means that the bypass damper will remain closed down to a frost protection temperature plus frost protection P-band. Starting from this temperature, the bypass damper will steadily open and will be fully open when the frost protection temperature is reached.





Primary parameters:	
<b>Frost protection</b>	<ul style="list-style-type: none"> <li>The bypass damper will open fully controlled at temperatures below the frost protection temperature and frost protection P-band. This means that the outside air will bypass the heat exchanger and the room extract air will continue passing through the heat exchanger.</li> </ul>
<b>Frost protection P-band</b>	<ul style="list-style-type: none"> <li>At temperatures below the set frost protection P band plus the set frost protection, the bypass damper will be linearly controlled up to fully open.</li> </ul>
<b>Amplification factor, heat exchange</b>	<ul style="list-style-type: none"> <li>Set the heat exchanger's amplification factor.</li> </ul>
<b>Alarm at low efficiencies</b>	<ul style="list-style-type: none"> <li>Determine whether an alarm will trigger when efficiency is too low.</li> </ul>
<b>Efficiency: Correction factor for efficiency calculation</b>	<ul style="list-style-type: none"> <li>Set correction factor for efficiency calculation.</li> </ul>
<b>Efficiency alarm level</b>	<ul style="list-style-type: none"> <li>Set low efficiency alarm limit.</li> <li>To trigger the alarm, the system must be „running“, the efficiency must be less than the set value and the „alarm at low efficiency“ parameter must be set to „Yes“.</li> </ul>

14.3.2 Frost protection via water pre-heating exchanger (optional)

The Series LG 700 to LG 6000 ventilation unit may optionally be fitted with a water pre-heating exchanger to protect the heat exchanger from freezing. The cold outside air will to this end be pre-heated in an optional heating exchanger integrated in the air duct. The pre-heating exchanger will maintain the temperature before the heat exchanger above a set

minimum to counter freezing of the heat exchanger.

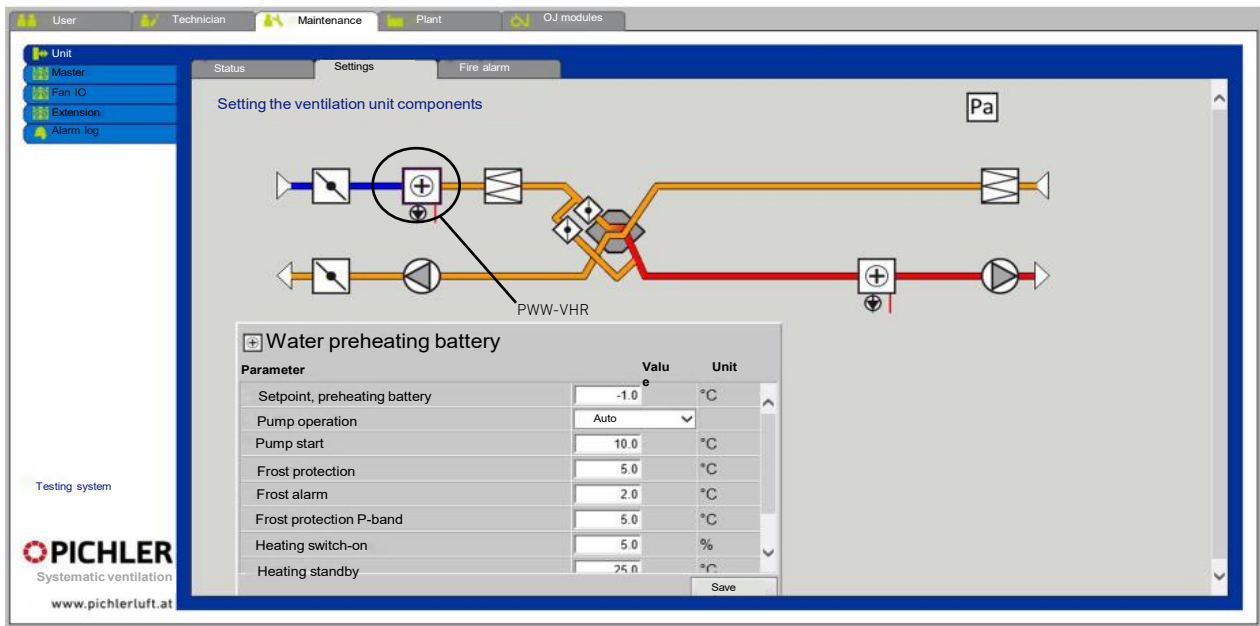
The water-glycol mixture is regulated via a 0-10 V mixer controller with heating circuit, including a circulating pump.



The heating circuit **must** operate with antifreeze. (Glycol)







**Description of the control systems:**

The pre-heating exchanger will maintain the temperature before the heat exchanger at a set minimum.

The sensor must be fitted directly after the pre-heating exchanger. Always operate the pre-heating exchanger with antifreeze.

Primary parameters	
<b>Set-point, preheater</b>	• Desired air-temperature set-point after pre-heating exchanger
<b>Pump operation</b>	• „Constant“. The circulating pump in the PWW heater will run continuously when power to the Air2Master is on. • „Auto“. The circulating pump in the PWW heater will run when heating is required (valve setting > 0.1 %) • „Outside temperature“. The circulating pump in the PWW heater will run when heat is required or when the outside temperature drops below the value set in the „Pump start“ parameter.
<b>Pump start</b>	• The pump will start when the outside temperature falls below the set value. • „Pump operation“ must be set to „Outside temperature“.
<b>Frost alarm</b>	• The set value gives the PWW heater return flow temperature at which the compact ventilation unit will stop and a frost alarm will be triggered
<b>Frost protection</b>	• The set value gives the PWW heater return flow temperature at which the ventilator should be fully controlled.
<b>Frost protection P-band</b>	• PWW heater frost protection sets in at the set value plus the "Frost protection" parameter value
<b>Start-up heating</b>	• Initial heating in %. Heating power when switching from standby to operation.
<b>Stand-by heat</b>	• When stopping the ventilation system, the heating valve will ensure that the return flow from the water battery does not get below the set value.
<b>PWW heating temperatur</b>	• Read actual return temperature.
<b>P-Band</b>	• P-Band for the pre-heater PI controller
<b>I-time</b>	• I-time for the pre-heater PI controller
<b>Motor-driven valve</b>	• Set the control range of the motor-driven valve (0-10 V/2-10 V)

**14.3.3 Frost protection via electric pre-heating exchanger (optional)**

The Series LG 750 to LG 6000 ventilating unit may optionally be fitted with an electric pre-heating exchanger to protect the heat exchanger from freezing. The cold outdoor air is directly preheated via a heater battery which is integrated

into the unit. To reduce the consumption of primary energy, the frost protection strategies mentioned in **Point 14.3.1** are recommended instead of the electrical versions.



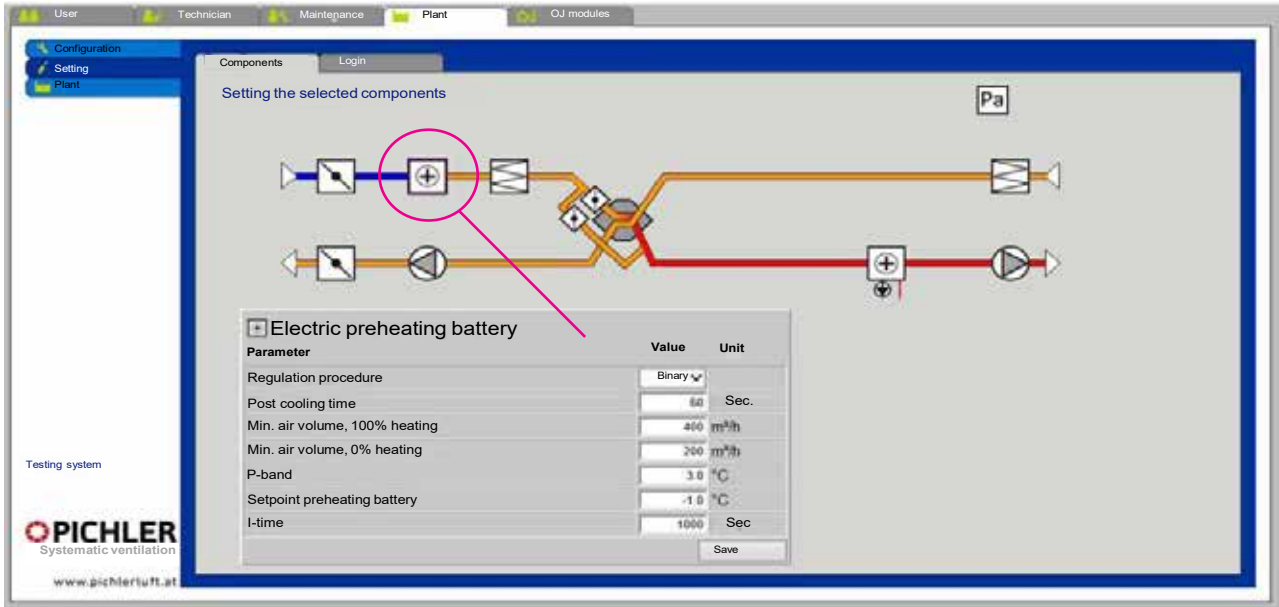
GENERAL

USER

**Description of the control system:**

The pre-heating exchanger will maintain a minimum required temperature before a heat exchanger. The temperature sensor must be fitted directly after

the pre-heating exchanger. A PI control algorithm is implemented here. The 0-10 V controller output signal regulates the pre-heating exchanger's power consumption via a Triac controller.



**Primary parameters**

<b>Regulation form</b>	<ul style="list-style-type: none"> <li>• "0-10 V". Analogue heater control via a 0-10 V analogue output (e.g. EFS-9XXX)</li> <li>• "single stage". Electric preheater is On/Off controlled</li> <li>• "two-stage". Electric preheater is controlled in two stages (On/Off). As more heat is required, „Electric preheater relay 1“ is first switched on, then „Electric preheater relay 2“ and in reverse sequence switched off for less heat.</li> <li>• "Binary" The electrical heater is digitally controlled in three stages (On/Off). The heating elements in the heating battery must be sized in 1/3 - 2/3.</li> </ul> <p><b>By increasing heat requirements:</b>                      "Activate „Electric preheater relay 1“                      "Activate „Electric preheater relay 2“ and disconnect „Electric preheater relay 1“                      "Activate „Electric preheater relay 1“ and „Electric preheater relay 2“</p> <p><b>By decreasing heat requirements:</b>                      "Disconnect „Electric preheater relay 1“                      "Disconnect „Electric preheater relay 2“ and activate „Electric preheater relay 1“                      "Disconnect „Electric preheater relay 1“ and „Electric preheater relay 2“</p>
<b>Post cooling time</b>	<ul style="list-style-type: none"> <li>• The electrical heater elements may overheat should air flow be reduced or stopped. The heating elements will be disconnected during post cooling and the ventilation units will continue to run as per the set air volume set-point. The set value defines the period required to ensure cooling of the electrical heating exchanger.</li> </ul>
<b>Min. flow, 100 % heat</b>	<ul style="list-style-type: none"> <li>• Set value informs at which minimum volume (m³/h) in the inlet, the heating should be 100 % on.</li> </ul>
<b>Min. flow, 0 % varme</b>	<ul style="list-style-type: none"> <li>• Set value informs at which minimum volume (m³/h) in the inlet, the heating should be off (0 %)</li> </ul>
<b>P-band</b>	<ul style="list-style-type: none"> <li>• P-band for PI controller pre-heater</li> </ul>
<b>Set-point, preheating</b>	<ul style="list-style-type: none"> <li>• Desired air-temperature set-point after pre-heating exchanger P-band</li> </ul>
<b>I-time</b>	<ul style="list-style-type: none"> <li>• I-time for PI controller pre-heater</li> </ul>

**14.4 OPTIONAL: SYSTEM EXTENSION FOR AUXILIARY HEATING**

The supply air exit temperature may be increased using one or two optional heating exchangers in the air duct system, operating using hot water or electrical power.

The integrated controller will control individual components such as the circulating pump, mixing valve etc.



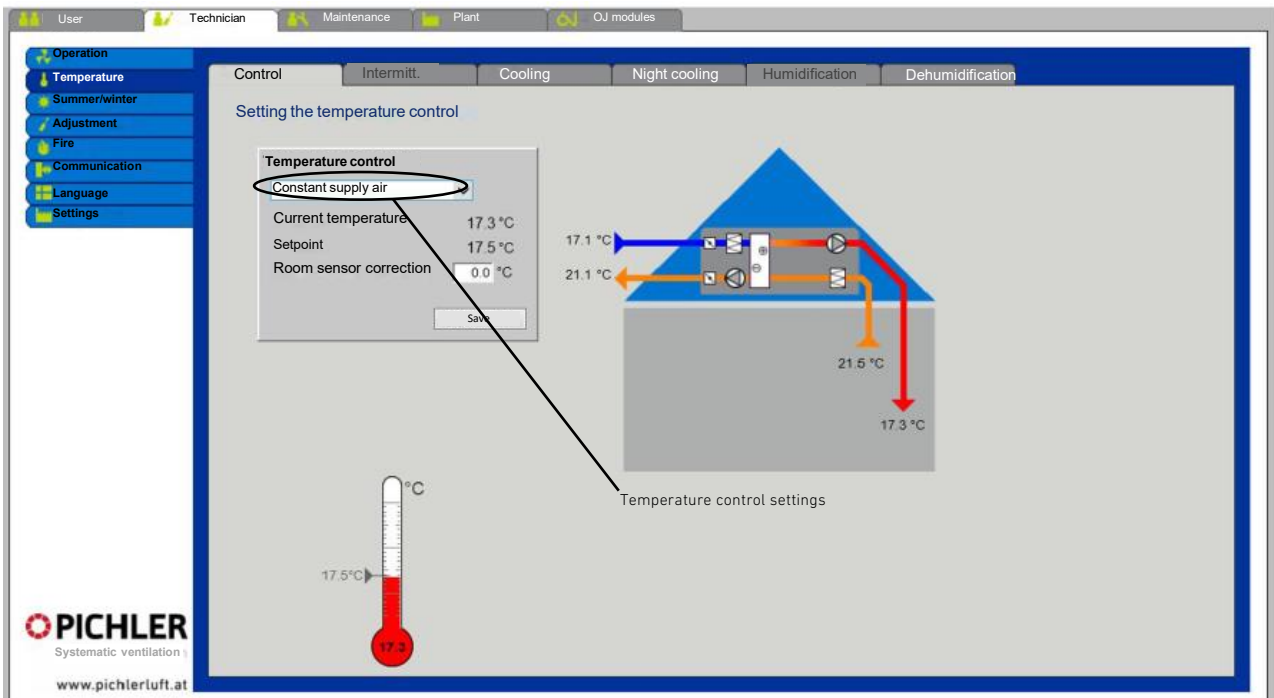
14.4.1 Post heating via pumped hot water re-heating exchanger (PWW-NHR)

The pumped hot water re-heating exchanger (PWW-NHR) mixer valves are controlled via 0-10 V signals (continuous). The circulating pumps will also be activated on demand. The following temperatures may be used as control parameters:

- Constant supply air temperature
- Constant extract air temperature
- Constant ambient air temperature
- Constant supply/extract air difference

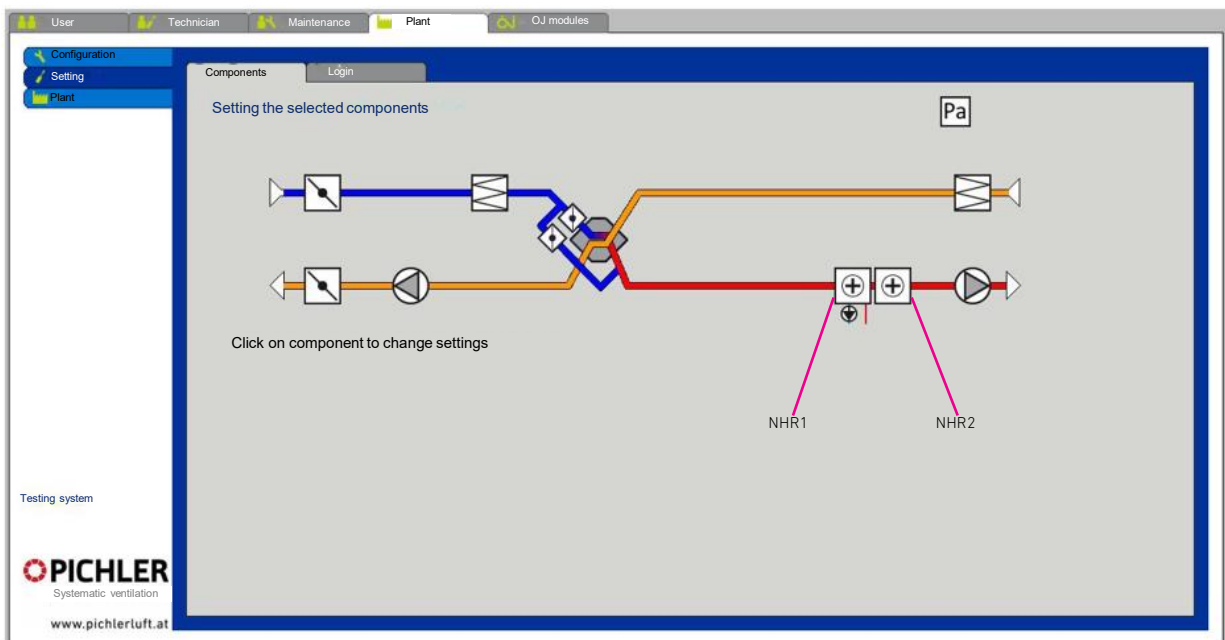


The frost protection strategy for water-dependent heating/cooling batteries must always be checked against the local system requirements and on-site conditions, and modified if necessary. It may sometimes be necessary to install an additional safety assembly (e.g. frost protection thermostat, heat exchanger). In case of risk of frost we recommend to always use a glycol filling. Outdoor heating circuits must always be operated with antifreeze (glycol)!



A return flow sensor (immersion sleeve or strap-on sensor) must be installed for frost protection of PWW-NHR. The heating circuit of the supply air re-heating

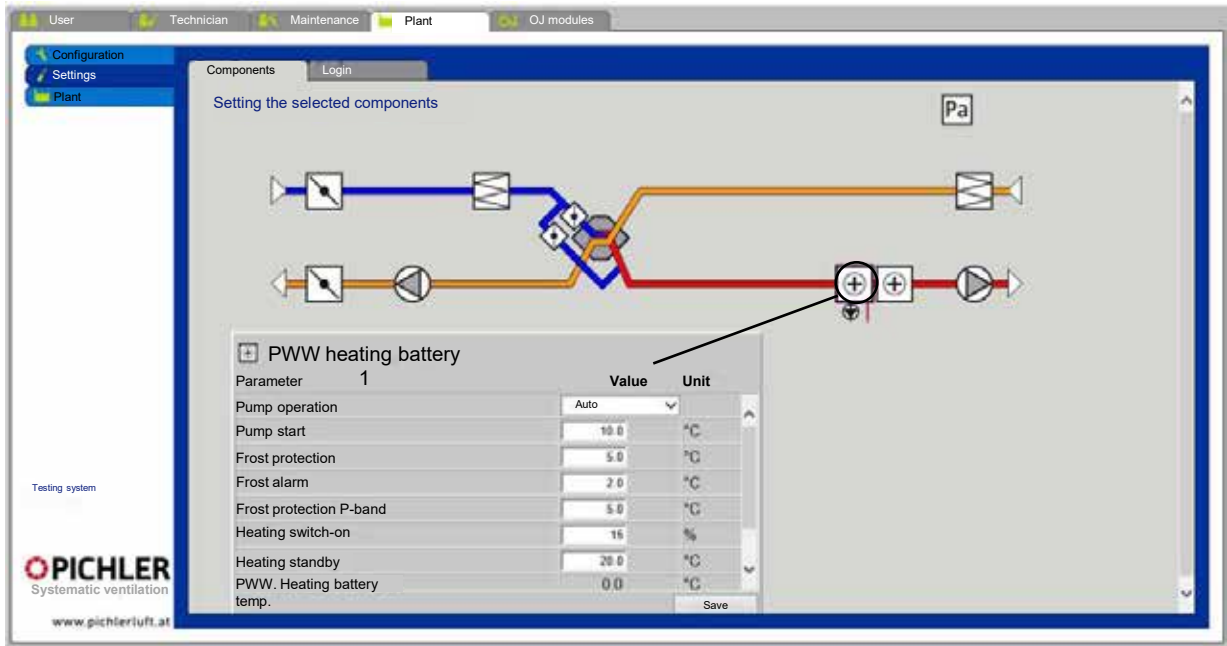
exchanger may also be operated with antifreeze. The fans will stop when a frost alarm triggers.





A return flow sensor (immersion sleeve or strap-on sensor) must be installed for frost protection of PWW-NHR. The heating circuit of the supply air re-heating exchanger may also be operated with antifreeze. The fans will stop when a frost alarm triggers. With room temperature control configured, the room temperature controller determines a set point supply

air temperature based on the difference between set point temperature and actual temperature, which is then regulated by a downstream supply air temperature controller. With supply air temperature control configured, the higher level room temperature control falls away and the supply air temperature is regulated directly via a set point supply air temperature.

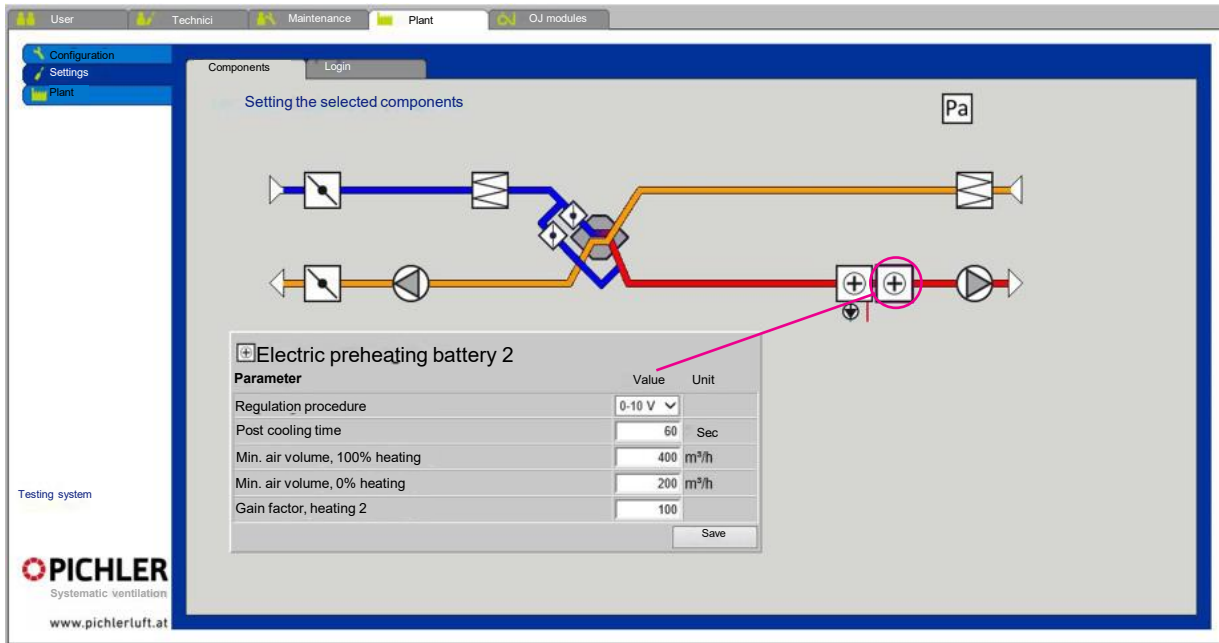


Primary parameters	
<b>Pump operation</b>	<ul style="list-style-type: none"> <li>• "Constant". The circulating pump in the PWW heater will run continuously when the Pichler Air2 Master is switched on.</li> <li>• "Auto". The circulating pump in the PWW heater will run when heating is required (valve setting &gt;0.1%)</li> <li>• "Outside temperature". The circulating pump in the PWW heater will run when heat is required or when the outside temperature drops below the value set in the „Pump start“ parameter.</li> </ul>
<b>Pump start</b>	<ul style="list-style-type: none"> <li>• The pump will start when the outside temperature falls below the set value.</li> <li>• „Pump operation“ must be set to „Outside temperature“.</li> </ul>
<b>Frost protection</b>	<ul style="list-style-type: none"> <li>• The set value gives the PWW heater return flow temperature at which the ventilator should be fully controlled.</li> <li>• The heating valve control will be activated at set value plus „Frost-P-band“</li> </ul>
<b>Frost alarm</b>	<ul style="list-style-type: none"> <li>• The set value gives the PWW heater return flow temperature at which the compact ventilation unit will stop and a frost alarm will be triggered</li> </ul>
<b>Frost-P-band</b>	<ul style="list-style-type: none"> <li>• PWW heater frost protection sets in at the set value plus the "Frost protection" parameter value</li> </ul>
<b>P-band</b>	<ul style="list-style-type: none"> <li>• P-band for PI controller heating</li> </ul>
<b>I-time</b>	<ul style="list-style-type: none"> <li>• I-time for PI controller heating</li> </ul>
<b>Start-up heating</b>	<ul style="list-style-type: none"> <li>• Initial heating in %. Heating power when switching from standby to operation.</li> </ul>
<b>Stand-by heat</b>	<ul style="list-style-type: none"> <li>• When stopping the ventilation system, the heating valve will ensure that the return flow from the water battery does not get below the set value.</li> </ul>
<b>PWW-heating temperatur</b>	<ul style="list-style-type: none"> <li>• Read actual return temperature.</li> </ul>
<b>Gainfactor, heat 1</b>	<ul style="list-style-type: none"> <li>• Set gain factor for heating battery</li> </ul>
<b>Motor-driven valve</b>	<ul style="list-style-type: none"> <li>• Set the control range of the motor-driven valve (0-10 V/2-10 V)</li> </ul>



14.4.2 Re-heating using electrical heating

The electric radiator can either be controlled via 0-10 V signal by an analog output.



GENERAL

USER

Primary parameters	
Regulation form	<ul style="list-style-type: none"> <li>• "0-10 V": Analogue heater control via a 0-10 V analogue output (e.g. EFS-9XXX)</li> <li>• "single stage": Electric heating battery is On/Off controlled</li> <li>• "two-stage": Electric heating battery is controlled in two stages (On/Off) As more heat is required, „Heating relay 1“ is first switched on, then „Heating relay 2“ and in reverse sequence switched off for less heat.</li> <li>• "Binary": The electrical heater is digitally controlled in three stages (On/Off). The heating elements in the heating battery must be sized in 1/3 - 2/3.</li> </ul> <p><b>By increasing heat requirements:</b>                      "Activate „Heating relay 1“                      "Activate „Heating relay 2“ and disconnect „Heating relay 1“                      "Activate „Heating relay 1“ and „Heating relay 2“</p> <p><b>By decreasing heat requirements:</b>                      "Disconnect „Heating relay 1“                      "Disconnect „Heating relay 2“ and activate „Heating relay 1“                      "Disconnect „Heating relay 1“ and „Heating relay 2“</p>
Post cooling time	<ul style="list-style-type: none"> <li>• The electrical heater elements may overheat should air flow be reduced or stopped. The heating elements will be disconnected during post cooling and the ventilation units will continue to run as per the set air volume set-point. The set value defines the period required to ensure cooling of the electrical heating exchanger.</li> </ul>
Min. flow, 100 % heat	<ul style="list-style-type: none"> <li>• Set value informs at which minimum volume (m³/h) in the inlet, the heating should be 100 % on.</li> </ul>
Min. flow, 0 % varme	<ul style="list-style-type: none"> <li>• Set value informs at which minimum volume (m³/h) in the inlet, the heating should be off (0 %).</li> </ul>
Gainfactor, heat 2	<ul style="list-style-type: none"> <li>• Set gain factor for heating battery</li> </ul>

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GENERAL

**14.5 OPTIONAL: SYSTEM EXTENSION FOR COOLING**

The supply air may be cooled using an optional cooling exchanger fitted in the supply air ducting. The integrated controller will control the individual compo-

nents such as circulating pump, mixing valves etc..

**14.5.1 Cooling with water cooling exchanger**

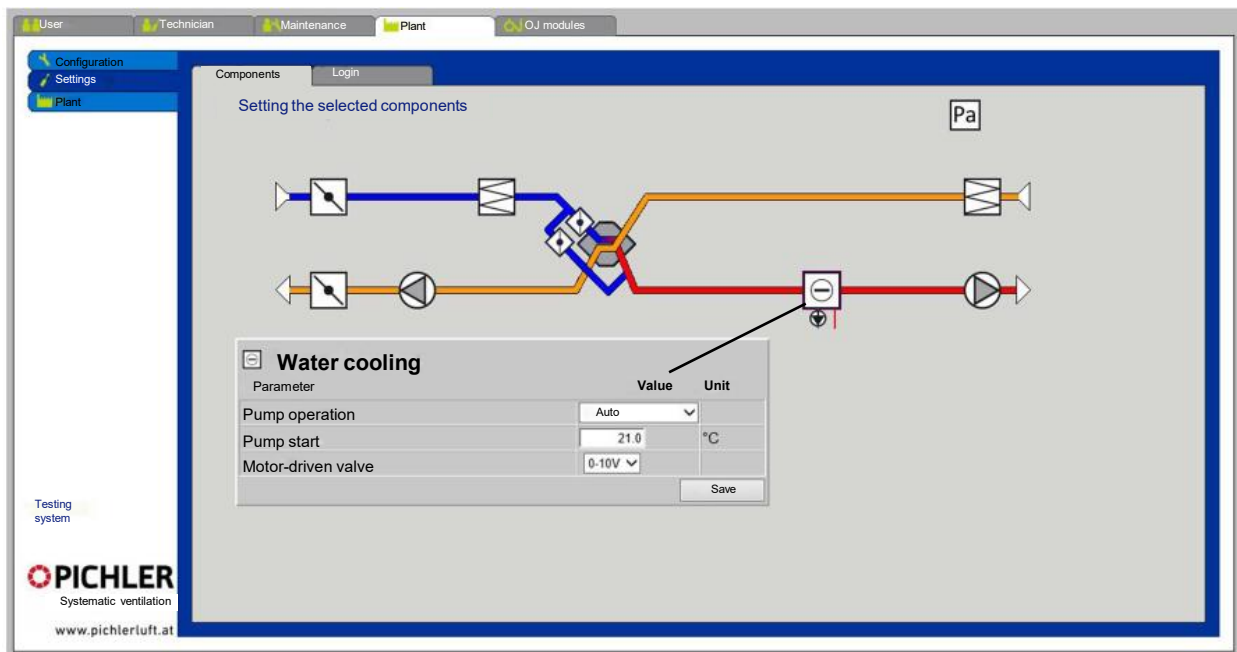
A 0-10 V signal controls the cold water cooling valve. Start/Stop of the circulating pump in the cooling circuit via digital output. The alarm output of the pump may be connected to the „Cooling fault“ digital input. This will trigger an alarm when the contact opens.

In water-based cooling batteries and cooling circuits no frost protection monitoring is carried out by the control system! The glycol filling may only be dispensed with in exceptional cases, in indoor areas and if there is absolutely no risk of frost (e.g. if the cooling battery is installed downstream of a frost-monitored heater battery).



The heating circuit **must** operate with antifreeze. (Glycol)

USER



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Primary parameters	
<b>Pump operation</b>	<ul style="list-style-type: none"> <li>• "Constant". The circulating pump for the cooling exchanger will run continuously when the Pichler Air2 Master is switched on.</li> <li>• "Auto". The circulating pump for the cooling exchanger will run when cooling is needed (valve setting &gt;0.1 %).</li> <li>• "Outside temperature". The circulating pump for the cooling exchanger will run when cooling is required or when the outside temperature exceeds the „Pump start“ parameter set value.</li> </ul>
<b>Pump start</b>	<ul style="list-style-type: none"> <li>• The pump will start when the outside temperature exceeds the set value.</li> <li>• „Pump operation“ must be set to „Outside temperature“</li> </ul>
<b>Motor-driven valve</b>	<ul style="list-style-type: none"> <li>• Set the control range of the motor-driven valve (0-10 V/2-10 V)</li> </ul>
<b>P-band cooling</b>	<ul style="list-style-type: none"> <li>• Controller parameter setting: P-band „cooling“</li> </ul>
<b>I-time cooling</b>	<ul style="list-style-type: none"> <li>• Regulator parameter setting: I-time „cooling“</li> </ul>

**14.5.2 DX cooling (cooling unit)**

DX cooling may be configured for controlling compressors or cooling stages. The Air2 system will start and stop the compressors as required and will trigger

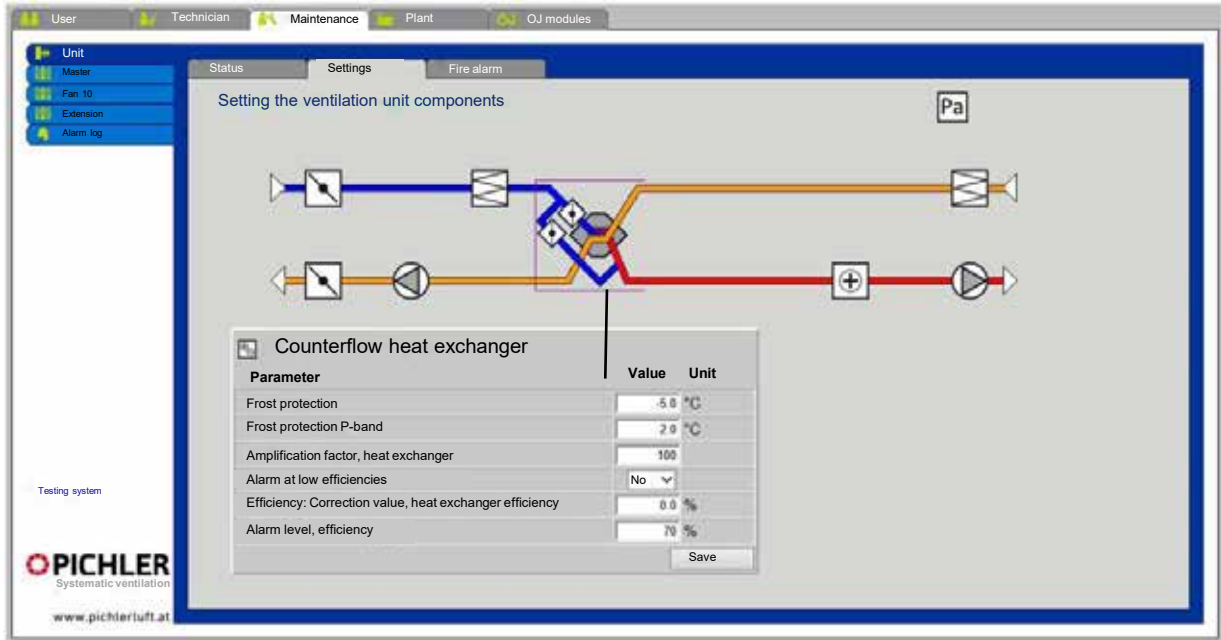
alarm in case of errors in the cooling circuits. The compressors are started/ stopped via 4 digital outputs.



**14.6 HEAT EXCHANGER**

The Air2 system may use various heat exchangers for heat recovery (WRG). Bypass dampers in the heat exchangers will be controlled via a 0-10 V signal from the Air2 system.

The exhaust air temperature is measured after the extract air has passed the heat exchanger to protect the heat exchanger from freezing up.



Primary parameters	
Protection from frost and freezing	<ul style="list-style-type: none"> <li>At temperatures below the set value plus P-band, the bypass freezing damper will be controlled up to 100 % open. The warm extract air will in this way protect the heat exchanger from freezing.</li> </ul>

**14.7 OPTIONAL: DEMAND-DRIVEN PLANT OPERATION**

The Pichler Air2 system can offer several options for demand-driven air flow control:

- Constant CO<sub>2</sub> / RH value
- Fan optimiser

- GreenZone
- PI-zone module / PI optimiser

**14.7.1 Constant CO<sub>2</sub>-/RH value**

- The plant must be configured with a CO<sub>2</sub> sensor.
- The CO<sub>2</sub> sensor may be fitted either as

a room sensor or as a duct sensor in the extract air duct.

**14.7.2 Fan optimiser**

- Supply air and extract air fans are controlled by fan optimiser signals from the supply and extract air ducts.
- The fan optimiser signal (0-10 V) is connected to the analogue input.

- The plant must be fitted with 2 separate fan optimisers – one each in the supply and extract air ducts.

**14.7.3 Green Zone/PI zone modules, PI optimisers**

- Green zone modules control demand-driven ventilation (CO<sub>2</sub>, RH%, temperature) of the individual zones (rooms)
- Green zone Master will optimise the air flow based on real time required air volumes in the individual zones
- Plug and Play system

PI zone modules (in rooms/zones) and PI optimisers together with flow regulators will adjust fan speeds as required to save energy. This will guarantee optimal plant operating points. Fan speeds may also be controlled depending on CO<sub>2</sub>-/RH content. This will require a relevant sensor in either the ambient or extract air ducts.



**14.8 OPTIONAL: BUILDING AUTOMATION - NETWORKING**

The Pichler Air2 system offers several options for networking into a higher level building automation system.

- Integrated Web server
- Modbus RTU
- Modbus TCP/IP

- BACnet
- KNX-Gateway

The corresponding bus connection will be activated/parameterised ex factory on customer request.

**15. Übersicht PI-Air-2 Funktionen**

Function	Description	Standard	Optional	Accessories necessary
Filter monitoring	Filter timer monitors filter runtime		o	
	Pressure switch for monitoring static pressure loss		o	o
	Continuous pressure sensors for monitoring static pressure loss	o		
	Continuous pressure sensors for monitoring dynamic pressure loss		o	o
Temperature control	Regulation of constant supply air temperature		o	
	Regulation of constant extract air temperature	o		
	Regulation of constant room air temperature		o	o (room air temperature sensor)
	Regulation of constant supply air/extract air temperature differential		o	
	Temperature compensation guided by outside air temperature setpoint value		o	
Summer/winter changeover	Changes temperature control type for winter and summer modes.		o	
Night time cooling	If the temperature conditions are approved during the summer, the cooler outside air is used to cool down rooms at night. This can be controlled over a period of time or within a temperature window.		o	
Active cooling	Cooling performance can be managed continuously by installing a cooler battery.		o	o (PWW cooler)
	DX cooling battery - digital or continuous refrigerating machine power control		o	o (DX cooler)
Active heating/cooling	By using a combination battery, the user can control heating and cooling via a continuous 0-10 V and a 230 V pump outlet.		o	o (Combi battery)
	Requirement for heating or cooling demand		o	o (Signal relay)
Approve cooling	Digital input when using a combi battery. Facility for external control of whether coolant is provided in the event of demand for cooling		o	
Approve heating	Digital input when using a combi battery. Facility for external control of whether heating medium is provided in the event of demand for heating		o	
Pre-heating protection from freezing / Pre-heating	Control signal for an electrical pre-heater battery or digital switch output		o	o (electric heater)
	Control signal for a PWW/glycol/brine pre-heater battery 0 - 10 V mixer valve and 230 V pump control		o	o (PWW heater)
	Heat requirement in the event of heating demand		o	o (Signal relay)
Re-heating	Control signal for an electrical re-heater battery or digital switch output		o	o (electric heater)
	Control signal for a PWW reheater battery 0-10 V mixer valve and 230 V pump control		o	o (PWW heater)
	Heat requirement in the event of heating demand		o	o (Signal relay)
Temperature sensor	Outdoor air temperature sensor	o		
	Supply air temperature sensor	o		
	Exhaust air temperature sensor	o		
	Room temperature sensor		o	o (room air temperature sensor)
	Extract air temperature sensor	o		





Heat recovery bypass performance control	Continuous bypass control for optimal energy recovery	o		
Bypass frost protection	Protection of the heat exchanger by opening the bypass duct.	o		
Fan protection	In the event of a fault in the fans, an alarm is triggered and the unit is shut down.	o		
Fire alarm system	Alarm signal from central fire alarm system can be connected (digital input). An active alarm stops the unit.		o	
Smoke alarm	An active smoke alarm (digital input) triggers a smoke detector alarm in the unit and a defined, adjustable fan speed.		o	
Web operation	Integration into a LAN network. Unit operation and remote control via integrated web server		o	
Communication	Connection to a building's automation system via Modbus RTU interface		o	
	Connection to a building's automation system via Modbus TGP/IP interface		o	
	Connection to a building's automation system via BACnet interface		o	
	Connection to a building's automation system via LON interface		o	o (LON module)
Shut-off valve	Outside air valve closes automatically when the unit stops.		o	o (valve with actuator)
	Exhaust air valve closes automatically when the unit stops.		o	o (valve with actuator)
Cold recovery	When extract air is cool and outside air is too warm, the warm outside air is used to cool down the outside air.	o		
Weekly programme	Time-controlled ventilation regulation. Up to 4 start and stop times may be defined per 24 hour period.	o		
Shock ventilation (party function)	By activating a digital input, the unit is operated at a high ventilation level. The unit can run for a definable period of time after the contact is opened.		o	
External start/stop	The unit is started or stopped by activating a digital input.		o	
A-alarm	Fault message resulting in unit shutdown. (potential-free output)		o	
B-alarm	Warning message requiring maintenance e. g. filter change (potential-free output)		o	
Ventilation control	Constant ducting pressure control		o	o (pressure sensors)
	Constant air volume control	o		
	Constant supply air duct pressure control		o	o (pressure sensors)
	Constant extract air duct pressure control		o	o (pressure sensors)
	CO <sub>2</sub> /VOC demand optimised control		o	o (CO <sub>2</sub> /VOC Fühler)
	0-10 V demand-controlled supply air and extract air separated		o	o (e.g. Belimo, Fan-optimiser)
	GreenZone/PI Optimizer - demand optimised control		o	o (PI-optimiser/zonen module)
	Constant fan speed		o	
Dehumidification	Dehumidification of extract room air (only possible in combination with cooling and heater batteries)		o	o (humidity sensor, cooling/heater battery)
Humidification	0-10 V signal and switch output to control an external humidification unit for supply air		o	o (external humidifier, humidity sensor)
Control unit	Pichler 3,5 colour touch screen control unit	o		
Language package	The following languages are currently available: German, English, Italian, French, Danish, Finnish, Swedish, Norwegian, Spanish, Polish, Russian, Dutch	o		
Heater battery protection	An alarm is triggered in the event of a heater battery fault.	o		
combi battery protection	An alarm is triggered in the event of a combi battery fault.		o	
Summer operation	Signalling of summer operation		o	
Operating message	Signalling of system operation status		o	



## 16. Installation

### 16.1 PREREQUISITES FOR INSTALLATION OF THE UNIT / INTERIOR INSTALLATION

The LG ventilation unit must be installed in accordance with the general and locally applicable safety and installation regulations and to the specifications in this Manual. Erection and installation work may only be carried out by authorised competent staff.

**Place of interior installation:** The ventilation unit may only be installed in a frost-free room, e.g. in a cellar or loft, with ambient temperatures ranging between +5 °C to +40 °C. Accumulating condensate

must be discharged frost-free and safely via a gradient and with an effective trap (siphon) to block odours.

**Place of weatherproof installation:** Units integrated in the roof and weatherproof units, also side by side, must be installed on a base and above snow height. Accumulating condensate must be discharged frost-free and safely via a gradient and with an effective trap (siphon) to block odours.

GENERAL

USER

#### 16.1.1 Installation site

The installation position for the unit must be selected to allow sufficient space for air ducts, electrical connections, condensate connection and for maintenance and inspection.

Depending on the size of the unit, sufficient space must be provided on the revision side for operations and maintenance work. This must be at least 1 m.

Devices must be installed or set up horizontally on a stable surface.

#### 16.1.2 Connection facilities

**The following connection facilities in accordance with the unit card must be available in the installation area:**

- Air duct connections for supply, extract, outdoor and exhaust air

- Electrical mains connection in accordance with the unit card
- Condensate drainage line with an effective trap to block odours

#### 16.1.3 Before installing

Before installing the ventilation unit, all work that is to be done by the customer (drain, floor preparation, etc.) must be completed.

No condensate must be allowed to form on the air ducts and roof cladding. Suitable insulation, sound insulation and installation material such as, for example, adequately dimensioned noise suppressors, supply air and extracted air valves, overflow openings, etc. must be provided

for proper and functional system operation taking into consideration the planning documents as well as technical data. Generally, sound suppressors must be taken into consideration on all the unit's connecting pieces to ensure a suitable noise level.

Air line openings through walls or ceilings must be decoupled from vibrations to prevent structure borne noise.

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### 16.1.4 Protection against dirt

To protect the system against coarse dirt such as greenery, leaves or insects, a fine-mesh wire screen must be provided as a pre-filter on the central outdoor air intake. The protective screen must be checked at regular intervals, especially in spring and autumn, and cleaned if necessary.

Maintenance openings in the air line system must be taken into consideration if applicable to provide a way to clean and service the system.

To prevent condensation inside the unit, the ventilation unit must be commissi-

oned immediately after proper installation; failing this, the connections for supply and extract air must be sealed airtight until commissioned. Condensation may permanently damage the ventilation unit, especially the integrated electronic controller. It may, for instance, suffice to use an EPS disc and adhesive tape to seal the supply and extract air connections airtight. Strictly ensure that condensation inside the unit will be reliably prevented should the unit not run for extended periods, e.g. by installing airtight shut-off valves in the ducting system to prevent undesirable natural circulation of air.

## 16.2 UNIT INSTALLATION

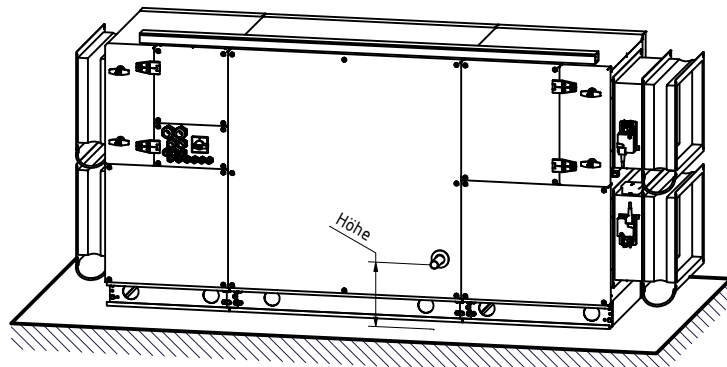


The safety instructions given in *Chapter 6, page 8* of this guide must be observed in all work.



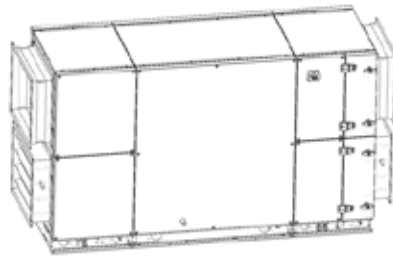
During installation, ensuring sufficient height for the condensate drain must be borne in mind from the outset.

Sufficient space must be provided for fitting air duct connections, electrical connections and the condensate connection and for performing maintenance and inspection work.



GENERAL

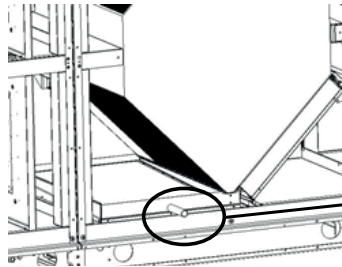
16.2.1 Making the condensate water connection



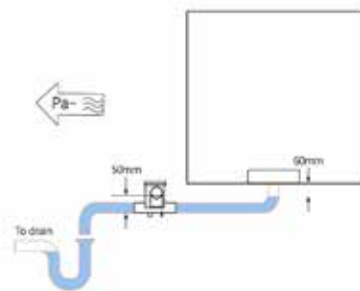
Cut the siphon to length and connect to the valve connection on the inspection side of the condensate tray.

An adequate gradient (at least 5 %) is required for reliable draining of water. Fill the siphon with water to effectively block odours and avoid leakage.

USER



Condensate connection DN 32 mm



We recommend using a ball siphon, since all ventilation units operate at underpressure.

For exterior installations the siphon should be equipped with trace heating on site.

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16.3 LEGEND FOR THE SYMBOLS USED

The corresponding air type for each connection piece on the ventilation unit is marked by means of a symbol.



Extract air



Outdoor air



Exhaust air



Supply air

16.4 SEALING

All sealing required during assembly must be performed using neutral-curing and non-corrosive sealants.

*For example:* Sikaflex®-221, silicone-free (item no. 12DMAUSSEN).



## 17. Electrical connection



- Warning: dangerous electrical voltages!
- Failure to observe this risk can lead to death, injury or damage to property.
- Before carrying out any work on live parts, the unit must always be disconnected completely from the power supply (all poles) and secured against being switched back on.

Electrical connection work and work on the system's electrical components may only be carried out by authorised electricians, in compliance with national and local regulations. Final responsibility for the electrical installation, cabling, etc. lies with the electrical contractor which performed them.



Under normal power supply conditions, the terminals and connections of the EC fans are constantly live!

The Safety notes under **Section 6.4 - Electrical connections** must be heeded when performing any electrical work.

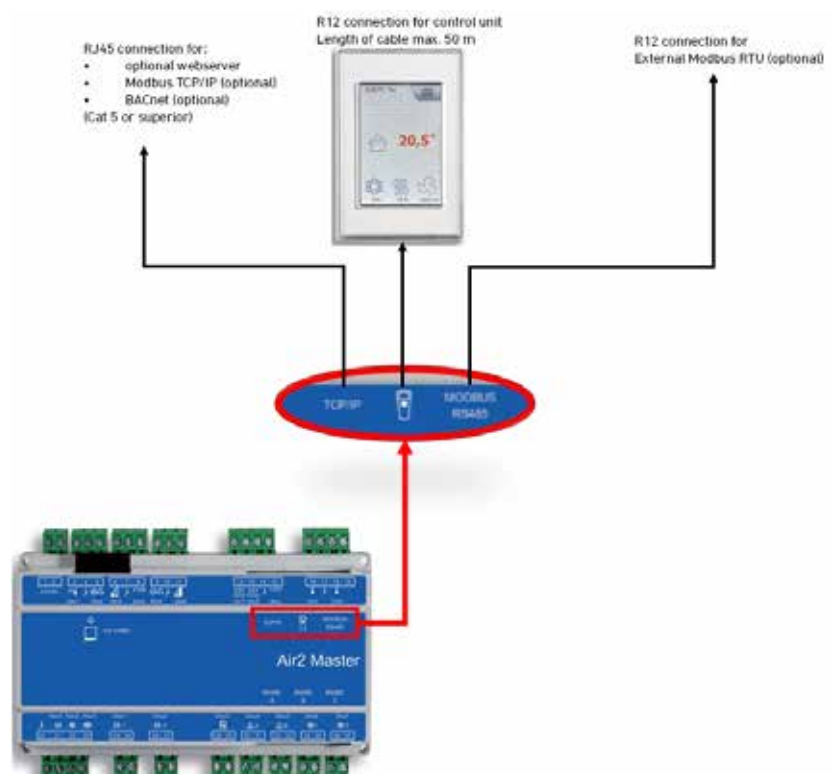
- The electrical connection must accord with the electrical switching plan!

- The cable cross-sections indicated are minimum cross-sections for copper lines and do not take cable length or site conditions into account.
- Cable type, cable cross-section and laying must be determined by an authorised electrician.
- Low-voltage cables must be laid separately from mains cables; alternatively, screened cables must be used.
- The inlet fuse on the power supply line must be an isolation type!
- The cable glands are only suitable for rounded cable and lines. The permissible clamping areas can be found in the electrical switching plan.
- A separate cable inlet must be used for each cable!
- Unused cable inlets must be hermetically sealed!
- All cable entries must be strain-relieved!
- Potential equalisation must be put in place between the unit and the air duct system!
- All safety measures must be tested following electrical connection! (Earth resistance, etc.)

### 17.1 CONNECTION TO WEB SERVER (OPTIONAL!)

The control component of the ventilation unit contains an „-X4“ RJ45 jack (see switching plan) which is used to commu-

nicate with a TCP/IP network.



GENERAL

**17.2 CONNECTING THE OPERATING UNIT**

The operating unit is connected to the ventilation unit control system by means of the supplied Modbus cable. To this end, the control unit has a corresponding RJ-12 jack directly at the „PI-Air2 Master“ (*see graphic*) in order to connect the operating unit. On the control unit itself, the Modbus cable is plugged into the rear of the unit, in the RJ12 port. Alternatively, the screw glands on the control unit can also be used to connect a Modbus cable. Please refer to the appropriate connection images and diagrams in *sections 17.4 - 17.7.*

An adequately long RJ-12 Modbus cable (max. 50 m.) must be supplied for separate installation of the operating unit. We recommend using an LIYY 6 x 0,14 mm<sup>2</sup> electric cable or a flat ribbon cable AWG28/6C (e.g.: MFK6SW, MPFK6S). The required RJ-12 plugs are supplied together with the ventilation unit. Suitable crimping pliers are required to crimp on the plugs! When installing the control unit separately, a standard telephone cable or appropriately designed Modbus cable up to a max. length of 50 m can be used.

USER

**17.3 INSTALLATION ON FLAT SURFACE**

PI-HMI can be installed in two ways: either in a wall box/panel front or directly on a flat surface. The back cover of the PI-HMI is equipped with a keyhole-shaped opening which can be used to

hang the unit on a flat surface (*see illus. 1*). Use a screw that is max. 3.5 mm in diameter with a head no larger than 9 mm.

**17.4 INSTALLATION IN WALL BOX/PANEL FRONT**

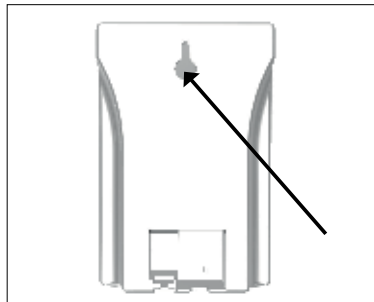
If PI-HMI is to be installed in a wall box or panel front, the back cover must be removed. Firstly, the front cover must be detached by gently releasing the catch on the bottom of the unit with a flat screwdriver and then tipping the cover outwards (*see illus. 2*).

place can be removed (*see illus. 3*).

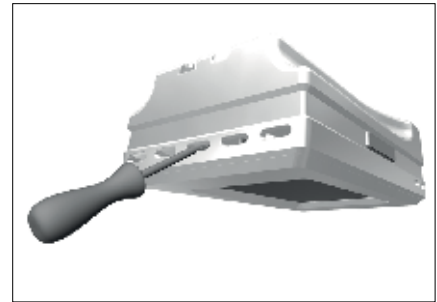
Once the front cover has been detached, the two screws holding the back cover in

The back cover can now be detached and the front cover refitted. The baseplate is equipped with several screw holes. The dimensioned drawing (*see illus. 4*) can be used as a drilling template. The baseplate should be secured with at least two screws tightened to a torque of max. 0.8 Nm. Installation depth is 20 mm.

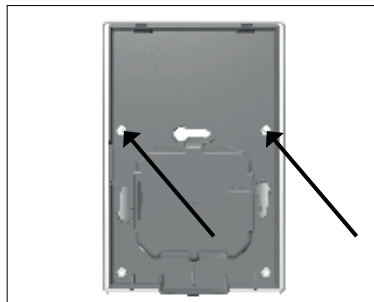
SPECIALIST PERSONNEL



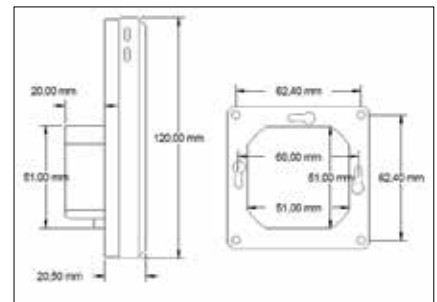
*Illus. 1: Installation on flat surface*



*Illus. 2: Removing the front cover*



*Illus. 3: Removing the back cover*



*Illus. 4: Dimensioned drawing to facilitate installation in wall box or panel front*



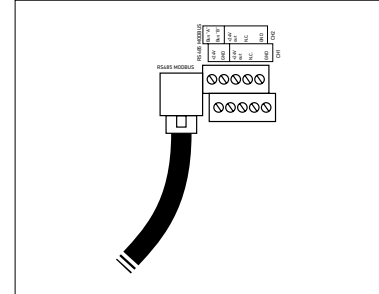
**17.5 MODBUS CONNECTION**

PI-HMI is connected to the PI Air2 Master by means of a Modbus cable. The Modbus cable can be connected to the PI-HMI by means of the RJ12 6P6C

port or four single-wire screw terminals. Whether the RJ12 6P6C port or screw terminals are used does not influence the available functions or operation.

**17.6 MODBUS RJ12 6P6C**

Connect the Modbus cable to the Modbus port for the operator control unit on the PI Air2 Master and to the RJ12 6P6C port on the PI-HMI (see illus. 5).

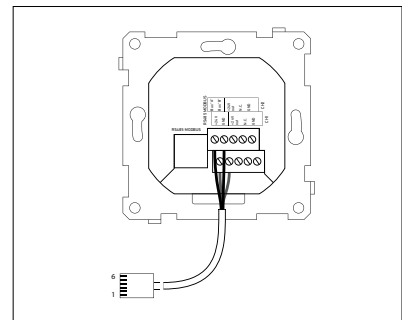


Illus. 5: Connecting Modbus via the RJ12 6P6C port

**17.7 MODBUS SCREW TERMINALS**

Connect the Modbus cable to the Modbus port for the operator control unit on the PI Air2 Master and to the corresponding screw terminals on the PI-HMI (see illus. 6).

- |      |                 |
|------|-----------------|
| RJ12 | Screw terminals |
| 1    | +24 V           |
| 2    | GND (earth)     |
| 3    | Bus „B“         |
| 4    | Bus „A“         |
| 5    | +24 V           |
| 6    | GND (earth)     |



Illus. 6: Connecting Modbus via the screw terminals

<b>Supply voltage</b>	24 V= ±10 %
<b>Cable dimensions</b>	10 × max. 0,75 mm <sup>2</sup>
<b>Relative humidity</b>	0-95 % (non-condensing)
<b>Operating temperature</b>	-10/+40 °C
<b>Enclosure rating</b>	IP21 (EN 60529)
<b>Port</b>	1 × RJ12 6P6C ; 10 screw terminals
<b>Dimensions</b>	80 × 121 × 42 mm (see illus. 4)
<b>Installation depth</b>	22 mm
<b>Max. power consumption</b>	900 mW
<b>Standby power consumption</b>	600 mW

The PI-HMI touch panel is maintenance-free. Please contact us if you have any further queries.



J. Pichler Gesellschaft m.b.H.

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GENERAL

**17.8 MAINS CONNECTION**

The ventilation unit is not supplied ready to plug in. The mains connection is provided by the customer and - depending on unit size and subassemblies - must comply with the rated voltage specified on the nameplate. Before working on the electrical power unit, the equipment must be isolated from mains and protected against renewed switch-on.

the length of the cable from the distributor to the unit and the installation type, taking into account the regulatory requirements. An appropriate inlet fuse with an isolation function must be provided in accordance with the provisions of the electrical switching plan.

The power connection must be connected in accordance with the specifications in the electrical diagram. The cross-section of the power supply line must be determined by authorised specialist personnel based on the nominal output of the equipment, the supply line fuse,

Only AG/DG sensitive earth leakage circuit breakers (type B) are permitted. As with frequency converters, earth leakage circuit breakers will not protect persons when the unit operates. To ensure as high as possible operating safety, we recommend earth leakage circuit breakers with a 300 mA trigger level.

USER

**17.8.1 Control lines**

All lines for sensors, actuators, pumps, etc. must be connected in accordance with the wiring plan. Lines must be dimensioned by an electrician. Low-voltage cables must be laid separa-

tely from mains cables; alternatively, screened cables must be used. Refer to the electrical switching plan for the max. permissible load from potential-free outputs.

**17.8.2 Circulating pumps**

Pumps connected to the control system must be intrinsically safe and stallproof. Electrical connection with U = 230 VAC and I<sub>max</sub> = 2A.

**17.8.3 Internal control fuse**

Only original fuses with the prescribed amperage and dimensions may be used.

Internal control fuse:  
2 x glass tube fuses,  
2.5 A Ø 5 x 20 mm, slow-blow

SPECIALIST PERSONNEL

**18. Shutdown/Maintenance/Cleaning**



During cleaning or maintenance work on the ventilation unit, always pull the power plug or separate all poles of the ventilation unit from the power mains. Otherwise there is possible danger from the rotating components if the unit is switched on unintentionally.

re-heater battery, sound suppressor etc. must be maintained and cleaned in accordance with the regulations and instructions.

All fans and rotating parts must come to a complete stop before opening the door. Due to the underpressure in the unit, loose parts can be drawn in, which can lead to damaging the fan or danger to life and limb.

A vacuum cleaner should be used if possible to remove dirt and dust. Cleaning by exerting a great deal of force or with compressed air can lead to damage to the components and surfaces. It is not permitted to use aggressive cleaning agents or solvents.

Any other existing system components and system parts such as, for example, a geothermal heat exchanger, pre- and

The electrical components must not come into contact with moisture or wetness. *The safety instructions in section 6.2 must be observed for all electrical work, especially section 6.4 Electrical Connection Work.*

**18.1 FACTORY CUSTOMER SERVICE**

For all questions connected to the delivered LG 750 to LG 6000 ventilation unit, please contact the installer of the

ventilation and airconditioning system or contact us directly.





**18.2 MAINTENANCE INSTRUCTIONS FOR THE SPECIALISED COMPANY**



The work on the ventilation unit given in the following may only be performed by qualified personnel. If deficiencies are discovered during the course of the maintenance

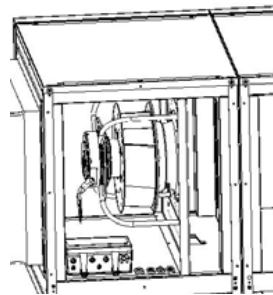
work, then they must be eliminated immediately for safe operation of the system. Original spare parts may be used exclusively for replacements and repairs.

**18.2.1 Outdoor and extracted air compact filters**

The condition of the air filters must be checked regularly. If they are very dirty, then the filters must be replaced immediately. Otherwise the filters are replaced at intervals of at least half a year depending of the pollution of the outdoor air. Original replacement filters are to be used exclusively to replace

the filters, taking the designated filter quality standard into consideration. The ventilation unit must never be operated without the air filters for outdoor and extracted air in place.  
*Details see Chapter 11 „Filter maintenance“!*

**18.2.2 Fans**



A soft brush must be used to clean the fan blades and fan housing. The dust deposits under the fan are to be removed with a vacuum cleaner. Damage to the blades must be avoided. Any existing balancing weights must not be removed or damaged. Otherwise imbalance of the impeller will occur and as a result an increased noise level and vibrations may occur. In the event of that kind of fault of the fan, it must be replaced by a new original fan.

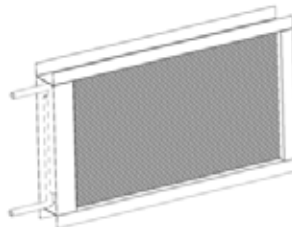
**18.2.3 Counter-current plate heat exchanger with bypass flap**

Yearly cleaning at least is recommended depending on how dirty the heat exchanger is. Rinse the heat exchanger with warm water and a conventional cleaning agent. Under no circumstances clean the heat exchanger with compressed air, steam jets or high-pressure cleaners. That could destroy it.



Caution with ceiling units: Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!

**18.2.4 Pre- and re-heater battery**



Yearly cleaning at least is recommended depending on how dirty the unit is. During the course of cleaning, the fins on the battery must not be damaged.

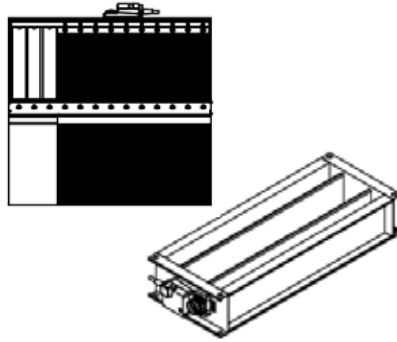
A vacuum cleaner or soft brush must be used to remove dust. If the pre- or alternatively re-heater battery becomes damaged that way, it must be replaced by an original heater battery.



Caution with ceiling units: Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!

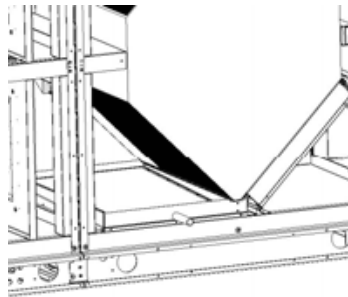


### 18.2.5 Volet de dérivation, volet d'air rejeté, volets d'air neuf



The flaps must be checked to ensure they move easily. A soft brush and soapy water must be used to clean the flaps. The flaps must not be oiled, because the plastic that is used may be destroyed and the flaps will no longer work.

### 18.2.6 Collecteur de condensat



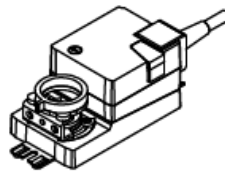
least yearly cleaning of the condensate drain, drain line and odour trap (siphon) is recommended. Before switching the system on again, the odour trap (siphon) must be filled with water.



Caution with ceiling units: Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!

The condensate tray must be checked regularly for dirtying. Depending of how dirty it is and the temperatures, at

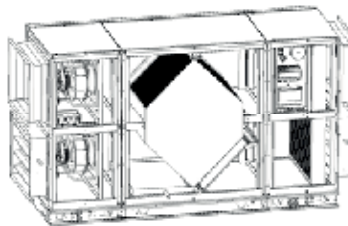
### 18.2.7 Servomoteurs



Check the connection between the servo motor and the flap drive regularly to make sure it is firm.

Otherwise the motors are maintenance-free. requièrent aucune maintenance.

### 18.2.8 Nettoyer l'intérieur du boîtier



Depending of how dirty it is, at least yearly cleaning of the inside of the unit's housing is recommended. Make sure the surfaces of the housing are treated with care during cleaning.



Caution with ceiling units: Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!



18.3 MAINTENANCE CHART

	Task	Action	Monthly	3 months	6 months	12 months	24 months	Hygiene, inspection
<b>1</b>	<b>Outdoor and exhaust air outlets</b>							
1.1	Check for dirt, damage and corrosion	Clean and repair				x		
<b>2</b>	<b>Room control/Unit housing</b>							
2.1	Check for dirt, damage and corrosion of the air ducts	Clean and repair				x		
2.2	Check for water accumulation	Clean, determine cause			x			
<b>3</b>	<b>Air filter</b>							
3.1	Check for dirt and damage (leakages)	Replace the affected air filters		x				
3.2	Check filters and replace after servicing message	Check and replace air filters	As required					
<b>4</b>	<b>Heat exchanger</b>							
4.1	Check for dirt, damage and corrosion	Clean and repair		x				
4.2	Check sealing between exhaust air and outdoor air	Repair		x				
4.3	Check wet cooler, condensate tray and moisture eliminator for dirt, corrosion and functionality	Repair		x				
4.4	Check siphon functionality	Repair		x				
4.5	Clean wet cooler, moisture eliminator and condensate tray				x			
4.6	Check hygiene condition							x
<b>5</b>	<b>Fan</b>							
5.1	Check for dirt, damage and corrosion	Clean and repair			x			
5.2	Clean the parts of the fan in contact with air and clean water drainage, to ensure functionality					x		
<b>6</b>	<b>Air ducts and sound dampening</b>							
6.1	Check accessible air duct sections for damage	Repair				x		
6.2	Perform two to three spot checks for dirt and corrosion at representative interior air duct positions	Determine cause, clean relevant air duct sections				x		
6.3	Check sound dampeners for dirt, damage and corrosion	Clean and repair				x		
6.4	Spot check the hygienic condition in the air duct at a representative position	Determine cause, clean relevant air duct sections						x
<b>7</b>	<b>Air apertures</b>							
7.1	Spot check installed perforated plates, wire mesh or sieves for dirt					x		
7.2	Change filter fleece (contamination or time)							
7.3	Check air apertures with room air flow and extract air inlets for solids residues	Clean	As required					
7.4	Cleaning of components in contact with secondary air flow	Clean				x		
<b>8</b>	<b>Terminal devices</b>							
8.1	Check terminal devices with outdoor air filter for dirt	Replace air filter, clean unit		x				
8.2	Check terminal devices with circulating air filter for dirt	Replace air filter, clean unit				x		
8.3	Check heat exchanger in terminal devices without air filter for dirt	Clean (vacuum cleaner)			x			
8.4	Cleaning of components exposed to flow of secondary air (without air filter)	Clean				x		
8.5	Replace air filters						x	

GENERAL

USER

SPECIALIST PERSONNEL

GENERAL

USER

SPECIALIST PERSONNEL

Complete this table (for documentation)  
when plant servicing is complete:

Plant installed by		Date	
No.	Servicing (e.g. replacing filters)	Executed by Signature	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			



11			
12			
13			
14			
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GENERAL

USER

SPECIALIST PERSONNEL



## SPECIALIST PERSONNEL - COMMISSIONING - SERVICE

### 19. Initial startup



Note the following before commissioning the plant:

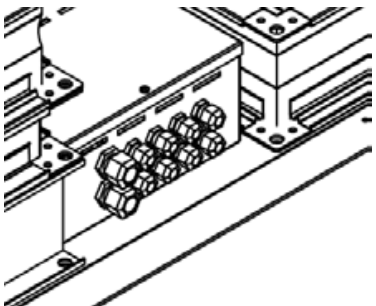
- All connections must comply with the local EVU [electricity board] provisions.
- Check that all connecting and contact screws and free connections are tight (may loosen in transport).
- Compare the mains voltage with the plant's connection voltage. The nominal connection voltage is 400 V/50 Hz (three phase) or 230 V/50 Hz (single phase).



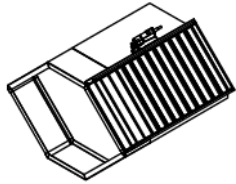

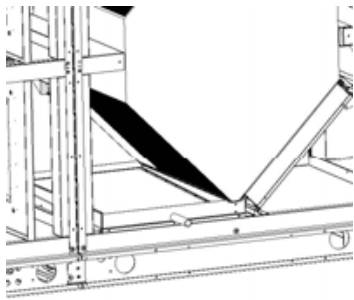
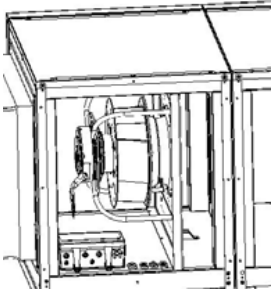
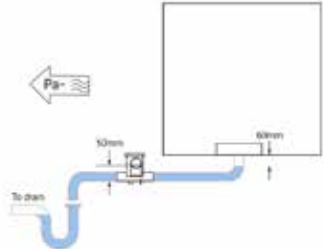

The ventilation system must be completed with all electrical, hydraulic and air duct connections in place before commissioning the unit. Commissioning or system settings can only be performed once all work on the plant is complete.

The factory settings on the control unit may only be changed by the specialised installer. An incorrect setting can result in the unit malfunctioning.

#### 19.1 BASIC PROCEDURE FOR COMMISSIONING BY A SPECIALIST


<p><b>Checking prior to commissioning</b></p>	<ul style="list-style-type: none"> <li>• Are all air ducts and subassemblies fully installed?</li> <li>• Are all system components fitted and electrically connected?</li> <li>• Is the electric wiring complete and the control unit fitted?</li> <li>• Is the condensate connection in place and functional?</li> <li>• Are the air vents, inlet and outlet valves (grating) properly installed and open?</li> <li>• Are the air filters in the ventilation unit correctly installed and clean?</li> <li>• Are the air filters in the geothermal heat exchanger correctly installed and clean?</li> <li>• Are any installed fire shutters in open position?</li> </ul>
<p><b>Setting the system parameters</b></p>	<ul style="list-style-type: none"> <li>• Check the system components and correct the setting if applicable.</li> <li>• Set the system parameters, for example adjust the air volume flow/fan speed.</li> <li>• Set the system time.</li> <li>• Program the time of day program in accordance with requirements.</li> </ul>
<p><b>Cable feed-throughs</b></p> 	<ul style="list-style-type: none"> <li>• To connect the mains cable, optional system components or external sensors, feed the cable through the PG feed-throughs at the back of the controller housing into the ventilation unit.</li> </ul>



<p><b>Counter-current plate heat exchanger</b></p> 	<ul style="list-style-type: none"> <li>• If there is a servo motor for the bypass flap, check to see whether it turns in the right direction.</li> </ul> <p> <b>Caution with ceiling units:</b> Care should be taken when opening the housing or loosening component fixtures as the loosened components may potentially fall!</p>
<p><b>Condensate tray</b></p> 	<ul style="list-style-type: none"> <li>• The siphon provided with delivery must be fitted properly. An adequate gradient (at least 5 %) is required to reliably drain the water.</li> <li>• During commissioning, check proper drainage of the water and tightness of all connections.</li> </ul>
<p><b>Fans</b></p> 	<ul style="list-style-type: none"> <li>• The fans must run smoothly without any grinding noises.</li> </ul> 
<p><b>Housing front/door</b></p>	<p> • The housing front/door must be firmly closed after commissioning and secured against unauthorised opening, using the supplied key.</p>

**19.2 CONNECTING AIR DUCTS AND COMPONENTS**

- When connecting the air ducts, ensure that they are airtight and are suitably vibration damped.
- The air ducts and add-on parts such as sound absorbers etc. may only be attached to the ventilation unit using adequately dimensioned fastening elements to suitable, solid wall or ceiling structural elements.
- When making connections, ensure in particular that no tools or assembly material will fall into the connections to the unit or onto the unit itself. This may damage components such as fan blades.

- Project specifications require that air duct and installation components be suitably and adequately insulated.
-  • Remove all tools and assembly materials from the unit when work is complete. Ensure that no tools or assembly materials remain in the unit, since these may damage or destroy the unit when starting up.
- Ensure that the housing seals well and reliably against the closing front door, to guarantee airtight and condensate-tight sealing.



## 20. Installation / Operation from the web server

Certified partners receive on request more detailed information on installation and operation from the web server.

**Servicehotline:** +43 (0)463 32769-290  
**E-Mail:** service@pichlerluft.at

## 21. Spare parts and accessories



Exclusively original spare parts may be installed and used for replacements and repairs. Reliable system operation is only ensured if original spare parts are used.

## 22. Subject to change

These instructions have been drawn up with the greatest care. However, no rights may be derived from them.

We constantly make every effort to make technical improvements to and optimize our products and reserve the right to change the design of the units or the technical specifications without prior notice.



### ErP 2018

Fulfils the requirements of the Ecodesign Directive, in accordance with EU Regulation 1253/2014.

Your partner/installer:



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