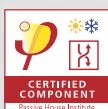


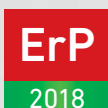
OPERATING AND INSTALLATION INSTRUCTIONS LG 1400(S) - LG 3200(S)

**COMFORT
VENTILATION**



for residential
buildings (T-Version)
for non-residential
buildings (T-Version)

EN13141-7:2010



EU Regulation
1253/2014

 **PICHLER**

Systematic ventilation.

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1. Introduction

Dear Customer

Thank you very much for choosing a ventilation unit of the series LG.

Series LG ventilation units are state of the art. They prevail due to their high efficiency, operating convenience and operational reliability.

To operate your compact ventilation unit safely, properly and efficiently, please read and observe this operating guide carefully.

Only use the ventilation unit when it is in perfect condition, according to its intended purpose, with an awareness of safety and dangers, and also taking all the information in this guide into

consideration. The unit type and serial number (see type plate on unit) must always be provided for any questions or spare parts orders.



Please contact us if you have any further queries or you have lost the documentation.

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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 guide contains instructions and information for the safe operation, correct installation and operation and maintenance of the ventilation unit. Refer to 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.

The unit is subject to constant improvement and ongoing development. Therefore it is possible that your unit differs slightly from this description.

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 compact 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

Series LG ventilation units are designed to be installed in ventilation and air-conditioning systems for mechanical ventilation of living and recreation rooms and similar applications. The range of use extends fundamentally to residential buildings in passive or low-energy construction, with an adjustable air volume flow up to approx. 1200 m³/h (LG 1400) and the air volume flow up to approx. 3200 m³/h (LG 3200).

The entire living area is provided with supply air and exhaust air ventilation by installing a mechanical, controlled ventilation system for apartments. Controlled air supply with purified and filtered outdoor air is provided in the outdoor air areas. Odours and damp/used ambient outlet air are dissipated in the outlet air area.

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 area of application and proper use of the unit are limited to use in ventilation and air-conditioning systems for the extraction of room air and supply of fresh, temperature controlled outdoor air with maximum conveying temperatures of -16°C to +35°C. The conveyed air must be free of aggressive vapours and any substances that promote wear.

Any other application is considered to be for purposes other than the intended ones. The manufacturer declines any responsibility for ensuing damage or

consequential damage. Compliance with the operating and installation guide stipulated by us is also part of proper use.

This unit, which is accessible to the general public, is intended to be installed in residential buildings or in commercially used buildings. The unit is used for mechanical ventilation of the room air and also for supplemental heating/cooling in connection with a heating and cooling battery.

This unit is not meant to be used by anyone, including children, with limited physical, sensory or mental abilities or with a lack of experience and/or lack of knowledge unless they are supervised by someone who is responsible for their safety or if they are given instructions by that person on how to use the unit. The unit is not suitable for installation outdoors and must only be installed in suitable and temperature controlled indoor rooms.

The unit is not suitable for installation in the open air and must be installed in suitable and temperature controlled indoor rooms. Series LG ventilation units are not ready-to-use products. They may only be put into operation after they have been properly built into and connected to the ventilation and air-conditioning system. Only qualified and appointed persons may work on the unit.



People who transport or work on the unit must have read and understood the operating guide, especially *chapter 6 „Safety, page 7“*. The end user must be informed of possible dangers that may arise.



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 is considered to be improper use and may lead to personal injury or damage to the ventilation unit for which the manufacturer cannot be made liable.

The manufacturer is not liable for any damage in the event of:

- non-compliance with the safety, operating and servicing instructions listed in these operating and installation instructions
- the installation of replacement parts that are not supplied by the manufacturer, whereby the responsibility for the use of such replacement parts lies completely with the system installer/fitter.
- normal wear



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 5.**

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 unit may only be installed in frost-free and dry rooms. The room temperature in the place of installation must constantly be between a minimum of +5°C and a maximum of +40°C.

The ventilation unit is designed for floor mounting and may only be installed if there is a suitable floor construction that is capable of bearing it. No vibrations must affect the unit. Suitable structure-borne sound insulation to the building must be provided by the customer.

When transporting the ventilation unit, the maximum permissible and reasonable lifting load for people and hoists must be observed.

A suitable drain with an effect odour trap (siphon) must be installed for continuous removal of the condensate that forms during operation of the ventilation unit. There must be sufficient distance between the bottom edge of the unit and the floor.

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.



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 (can be seen on the unit's type plate) 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. 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 consideration 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. 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, compact ventilation units LG 1400 and LG 3200 are specially developed and optimised ventilation units each with an integrated regulation and control unit that is matched to the individual requirements. The compact ventilation units are used for controlled mechanical ventilation with heat recovery for multiple apartments in a multi-storey residential building, student residences and retirement homes, commercial, hotel and office buildings or similar applications.

With regard to freezing protection, the supplemental heating and cooling operation are optional additional components

that are available, for example with or without a brine pre-heater, re-heater or cooling battery. For ventilation units including an electric preheating battery, always a pre-filter (minimum quality category ISO Coarse 70%) has to be installed. A filter- and flap box with a ISO Coarse 70% filter can be optionally obtained as an accessory item and can be mounted directly onto the heating battery.

Due to the sizes that are available, an air volume flow range of approx. 400 m³/h to approx. 3,200 m³/h is covered. The units are available in either a left or right design.

8.1.1 Unit housing

The unit's housing is constructed using a compact, thermal bridge minimised and thermally insulated housing made of galvanised sheet metal in a self-supporting construction.

The panels have a double-shell design constructed with galvanised sheet metal with an insulation thickness of 50 mm using mineral wool insulation.

8.1.2 Heat recovery

The ventilation unit contains a highly efficient heat recovery system with aluminum air/air counterflow heat exchanger in the T-version (degree of temperature change > 85 %) or an enthalpy exchanger in the F version (with moisture recovery). The integrated 100 %

automatic bypass is used to bypass the heat exchanger (summer operation, frost bypass, etc.. It is equipped with an internal bypass for smooth regulation of the heat transfer capacity.

8.1.3 Fans

Energy-saving and low-noise high-performance fans with EC technology are used in the units. The energy savings potential is up to 60 % compared to

conventional drives, especially in partial load operation. 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 Coarse 90%. 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

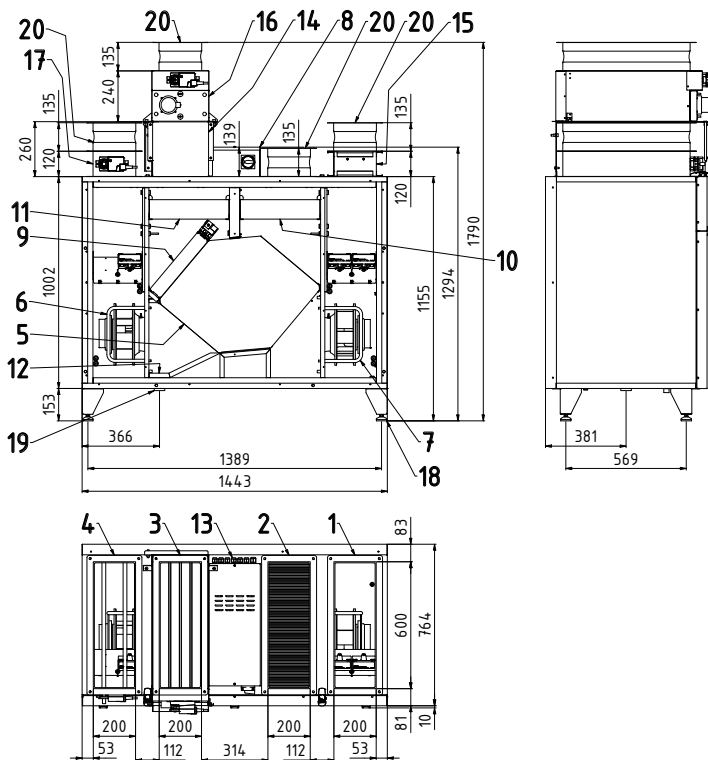
The LG 1400 and LG 3200 ventilation units are equipped with an integrated control and regulation system as a standard feature. An operator control unit is used to operate the unit, which can be optionally installed directly on the unit.

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 1400 R AND LG 1400 SR

Air line connections, top: outdoor air / exhaust air / supply air / extract air (W x H) 200 x 596 mm
Air line connections: with connecting profil P30



- 1 Supply air 200 x 596 mm
- 2 Extract air 200 x 596 mm
- 3 Outdoor air 200 x 596 mm
- 4 Exhaust air 200 x 596 mm
- 5 Counterflow heat exchanger
- 6 Exhaust air fan
- 7 Supply air fan
- 8 Control system
- 9 Bypass damper with actuator
- 10 Extract air filter
- 11 Outdoor air filter
- 12 Condensate tray
- 13 Cable inlets 2 x M20, 8 x M16
- 14 Electric preheater battery (optional),
- 15 Electric reheater battery (optional)
- 16 Filter and flap box (required in connection with electric preheater battery) or supply air butterfly valve (optional, without electric preheater battery, 120 mm high)
- 17 Exhaust air shut-off valve (optional)
- 18 Height adjustable feet
- 19 Condensate drain
- 20 Flexible connections top

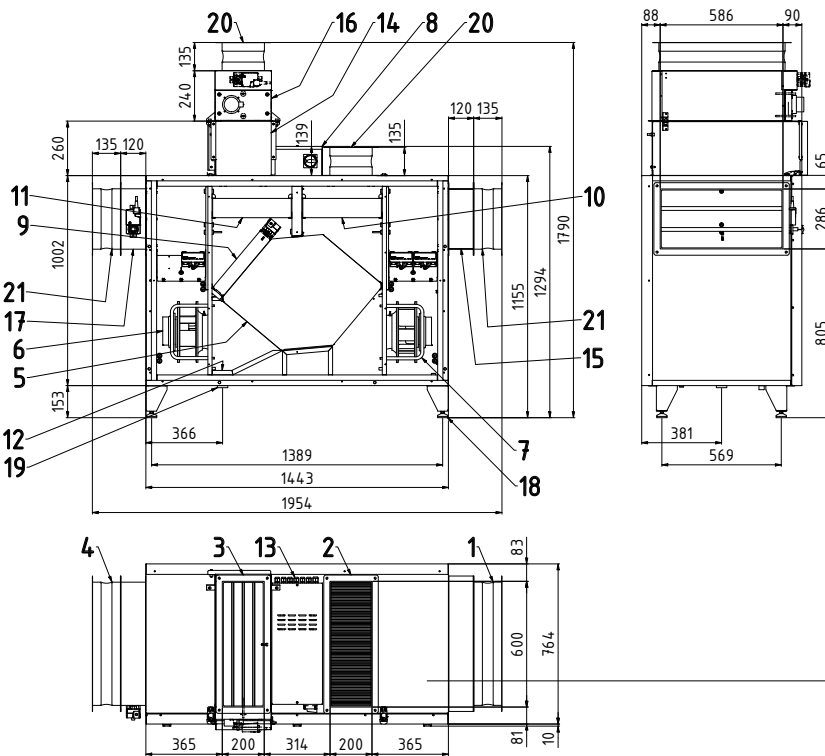
Optional: Hot water preheater battery and hot water preheater battery for duct installation

Fig. 1: LG 1400 R (right-hand version)

The PI-HMI operating unit is delivered separately.



Air line connections, top: outdoor air / exhaust air / supply air / extract air (W x H) 200 x 596 mm
 Air line connections, side: exhaust air / supply air (W x H) 286 x 586 mm
 Air line connections: with connecting profil P30



- 1 Supply air 286 x 586 x mm
- 2 Extract air 200 x 596 mm
- 3 Outdoor air 200 x 596 mm
- 4 Exhaust air 286 x 586 mm
- 5 Counterflow heat exchanger
- 6 Exhaust air fan
- 7 Supply air fan
- 8 Control system
- 9 Bypass damper with actuator
- 10 Extract air filter
- 11 Outdoor air filter
- 12 Condensate pan
- 13 Cable inlets 2 x M20, 8 x M16
- 14 Electric preheater battery (optional) with an optional heat insulation
- 15 Electric reheater battery (optional)
- 16 Filter and flap box (required in connection with electric preheater battery) or supply air butterfly valve (optional, without electric preheater battery, 120 mm high)
- 17 Exhaust air shut-off valve (optional)
- 18 Height adjustable feet
- 19 Condensate drain
- 20 Flexible connections top
- 21 Flexible connections side

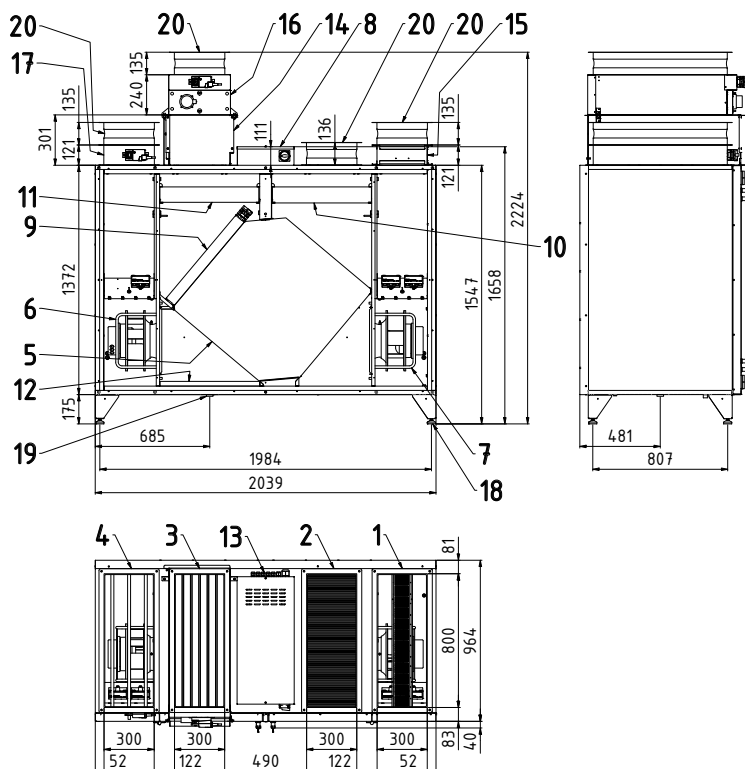
Optional: Hot water preheater battery and hot water reheater battery for duct installation

Fig. 2: LG 1400 SR (right-hand version)

The PI-HMI operating unit is delivered separately.

**8.3 UNIT LAYOUT WITH FITTINGS
 LG 3200 R AND LG 3200 SR**

Air line connections, top: outdoor air / exhaust air / supply air / extract air (W x H) 300 x 800 mm
 Air line connections: with connecting profil P30



- 1 Supply air 300 x 800 mm
- 2 Extract air 300 x 800 mm
- 3 Outdoor air 300 x 800 mm
- 4 Exhaust air 300 x 800 mm
- 5 Counterflow heat exchanger
- 6 Exhaust air fan
- 7 Supply air fan
- 8 Control system
- 9 Bypass damper with actuator
- 10 Extract air filter
- 11 outdoor air filter
- 12 Condensate tray
- 13 Cable inlets 1 x M32, 2 x M20, 10 x M16
- 14 Electric preheater battery (optional), with an optional heat insulation
- 15 Electric reheater battery (optional)
- 16 Filter and flap box (required in connection with electric preheater battery) or supply air butterfly valve (optional, without electric preheater battery, 120 mm high)
- 17 Exhaust air shut-off valve (optional)
- 18 Height adjustable feet
- 19 Condensate drain
- 20 Flexible connections top
- 17 Exhaust air shut-off valve (optional)

Optional: Hot water preheater battery and hot water reheater battery for duct installation

Fig.3: LG 3200 R (right-hand version)

The PI-HMI operating unit is delivered separately.

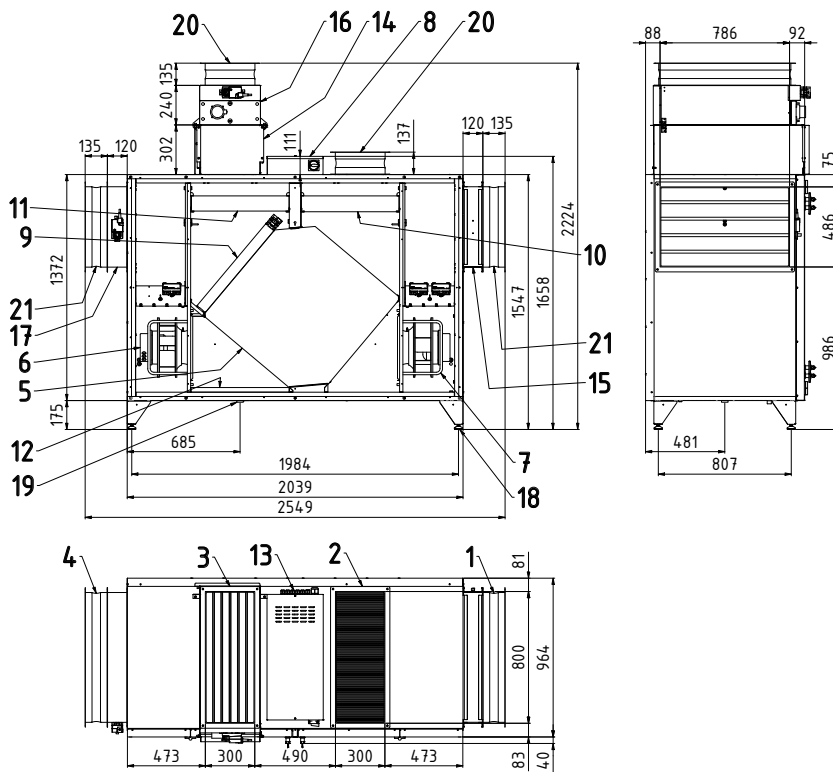
GENERAL

USER

SPECIALIST PERSONNEL



Air line connections, top: outdoor air / exhaust air / supply air / extract air (W x H) 300 x 800 mm
 Air line connections, side: exhaust air / supply air (W x H) 486 x 786 mm
 Air line connections: with connecting profil P30



- 1 Supply air 486 x 786 mm
- 2 Extract air 300 x 800 mm
- 3 Outdoor air 300 x 800 mm
- 4 Exhaust air 486 x 786 mm
- 5 Counterflow heat exchanger
- 6 Exhaust air fan
- 7 Supply air fan
- 8 Control system
- 9 Bypass damper with actuator
- 10 Extract air filter
- 11 Outdoor air filter
- 12 Condensate pan
- 13 Cable inlets 1 x M32, 2 x M20, 10 x M16
- 14 Electric preheater battery with an optional heat insulation
- 15 Electric reheater battery (optional)
- 16 Filter and flap box (required in connection with electric preheater battery) or supply air butterfly valve (optional, without electric preheater battery, 120 mm high)
- 17 Exhaust air shut-off valve (optional)
- 18 Height adjustable feet
- 19 Condensate drain
- 20 Flexible connections top
- 21 Flexible connections side

Optional: Hot water preheater battery and hot water reheater battery for duct installation

Fig. 4: LG 3200 SR (right-hand version)

The PI-HMI operating unit is delivered separately.

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.



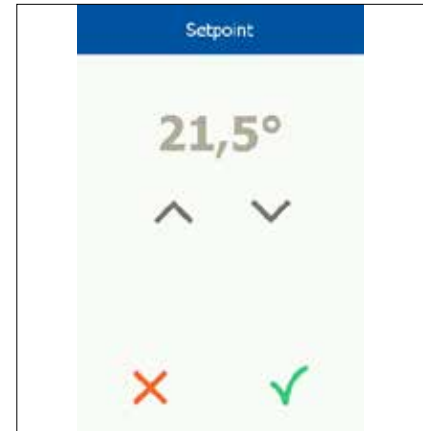
9.1 HOME SCREEN

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



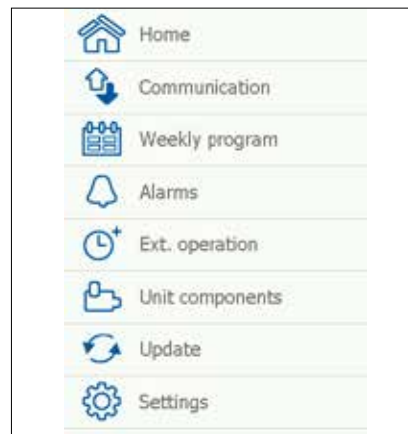
- 1 Time and weekday are shown on the left in the topmost row on the display.
- 2 The main menu can be accessed from the icon in the top right.
- 3 The alarm bell in the top left denotes an active alarm.
- 4 The house icon on the left in the middle row enables an overview screen for the ventilation unit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

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



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.

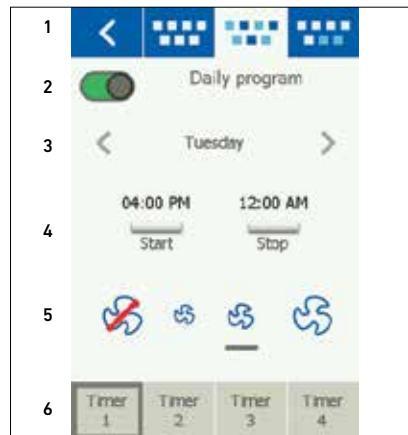
Then you can choose among three different modes:

- „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

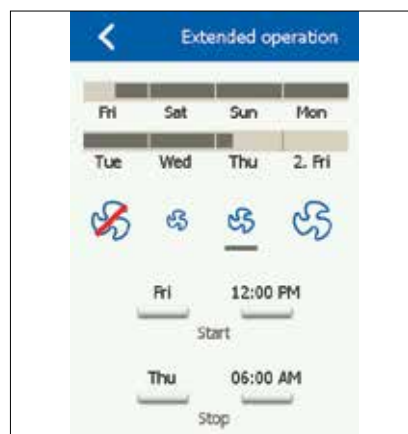


9.2.3 Alarms



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



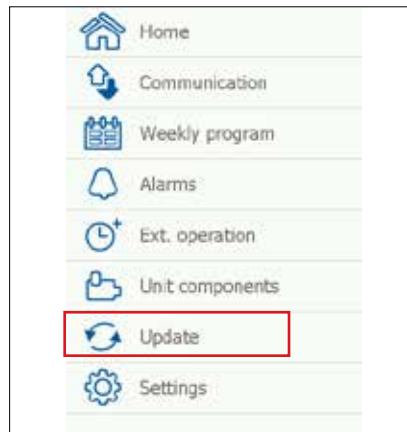
- Air-conditioning:
 - o General settings:
 - Temperature control type
 - Desired temperature value
 - Minimum Supply air temperature
 - Maximum Supply air temperature
 - o Heat exchanger settings
 - o Heating register settings
 - Cooling register settings
- Ventilation settings: (can also be accessed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

- 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 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



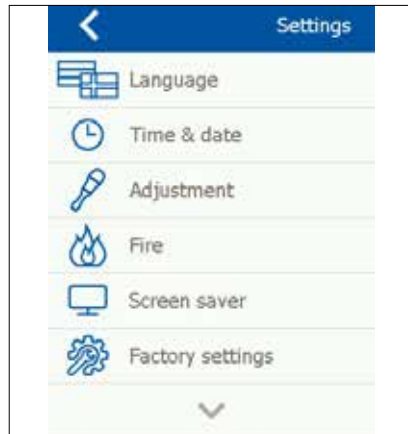
9.2.6 Software update



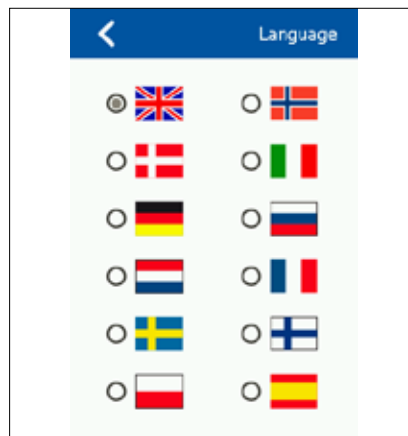
Here you can check if an SD card inserted into the PI Air2 Master contains a new software version. Then select update in the settings and follow the instructions on the display.



9.2.6 Settings



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



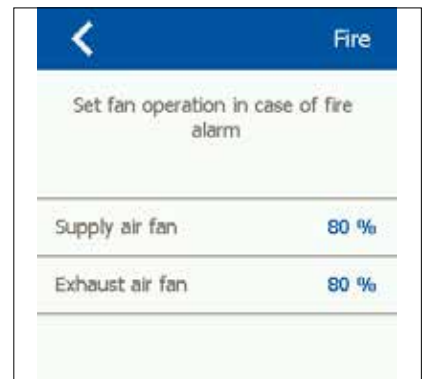
- Time & Date: Here you can set the time and date for the system.



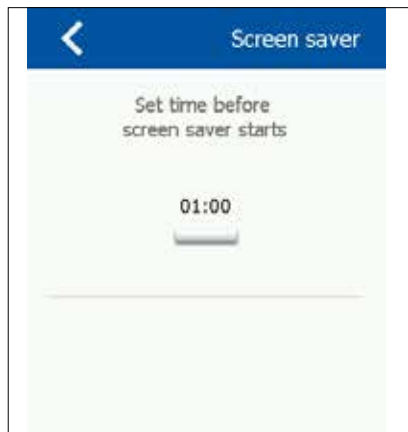
- Adjustment: Here you can lock fan speed during system adjustment. Once the required air volume has been reached, the fan is locked at its current speed. This gives the installer the opportunity to adjust the system, ensuring the right amount of air in the individual rooms without interference from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



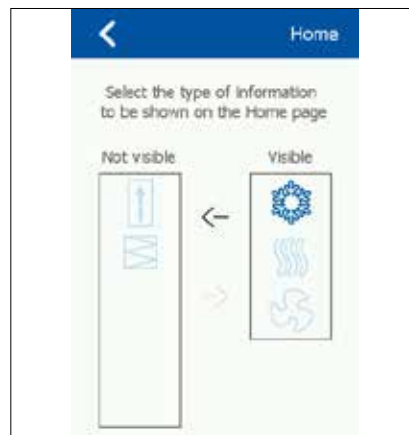
- Fire: When the fire alarm is active, this speed is set for the fans (default = 0%).



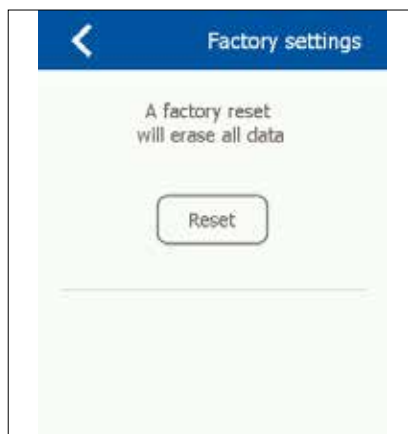
- Screen saver: Here you can set the screen saver timeout period.



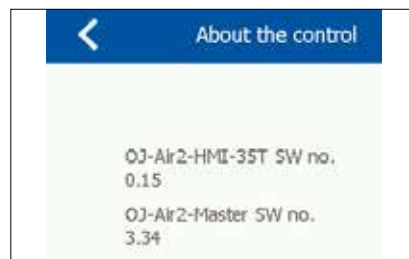
- Quick access: (PIN-required) Configuration of the icons in the lower part of the start view.



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



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



GENERAL

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.

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

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

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



SPECIALIST PERSONNEL



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 a filter and hot water pre-heating battery box is used, the filter ODA of the ventilation unit is inserted into the pre-heating battery box.

An overview of the filters used and of their designation on the control unit and on the web server can be found in the table below.



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	Item No.	Designation touch display and webservice	
			without spare filter	with spare filter
	Filter ODA ISO ePM1 55% (outdoor air) standard	40LG050130 (LG1400) 40LG050170 (LG3200)	Outdoor air filter	supply air filter
	Filter ODA ISO ePM1 85% (outdoor air)	40LG050150 (LG1400) 40LG050190 (LG3200)	Outdoor air filter	supply air filter
	Filter ETA ISO Coarse 90% (extract air) standard	40LG050140 (LG1400) 40LG050180 (LG3200)	Extract air filter	Extract air filter
	Filter ETA ISO ePM10 70% (extract air)	40LG050160 (LG1400) 40LG050200 (LG3200)	Extract air filter	Extract air filter
	Replacement filter ISO Coarse 70% filter and flap box	40LG0500020A (LG 1400) 40LG0500021A (LG 3200)	-	-

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)



<
Alarms

Alarms

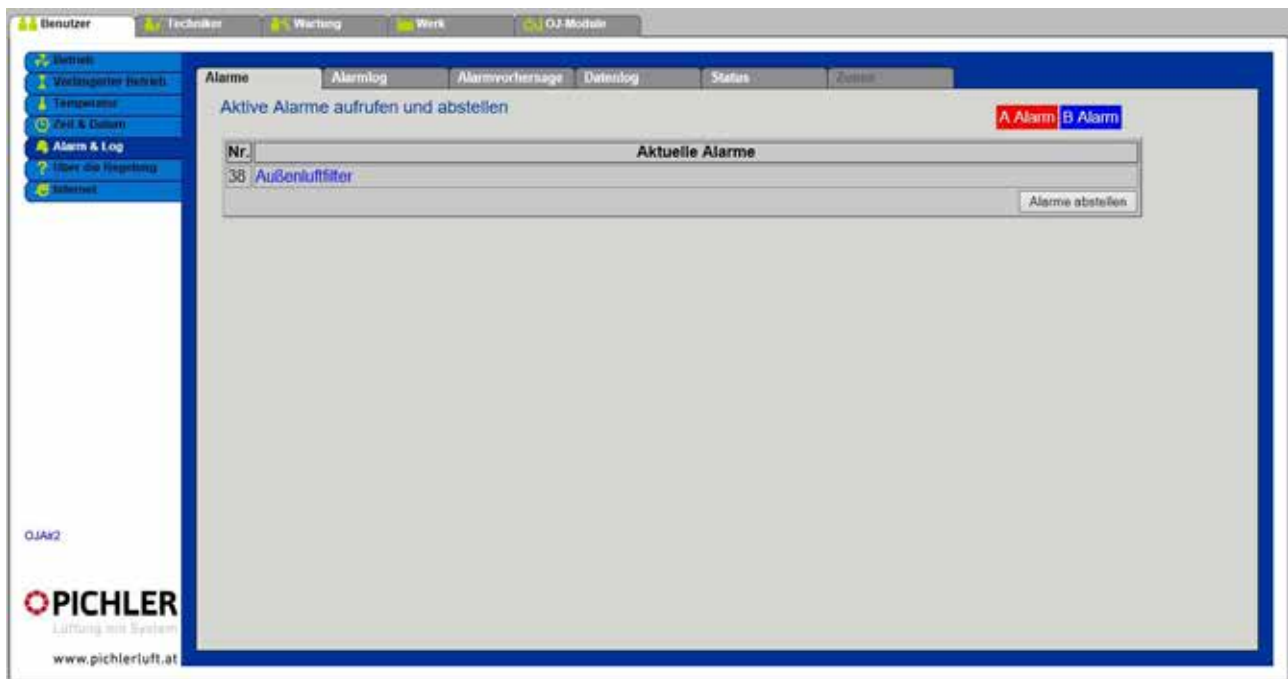
Alarm log

Reset

No.	Current Alarms
38	Outdoor filter
48	Extract filter



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.



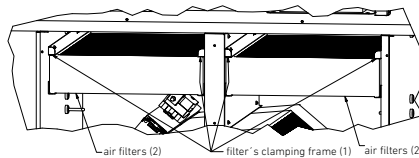
Before carrying out any work on live parts, the unit must always be disconnected completely from the power supply (all poles) and secured against being switched back on!

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.



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.

Detail Z

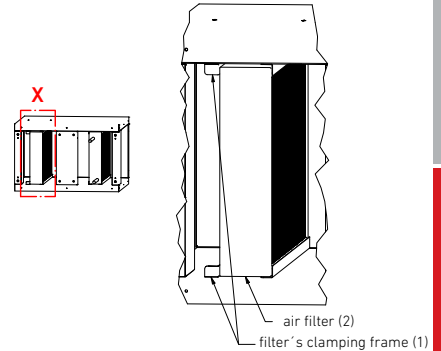


Note the indication of proper air flow direction on the filter.



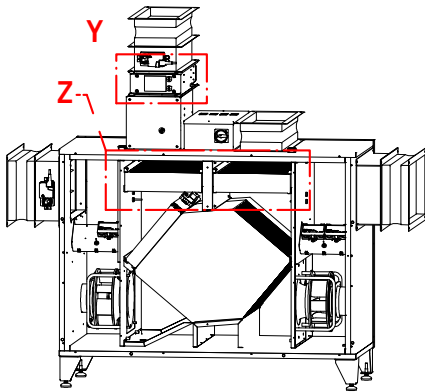
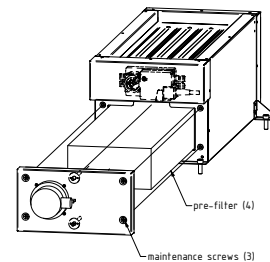
If a filter and hot water pre-heating battery box is used, the filter ODA of the ventilation unit is inserted

Detail X
(Filter and warm water preheating radiator)



into the pre-heating battery box. In order to be able to replace the pre-filter, the maintenance screws (3) at the filter- and flap box must be unscrewed. After that the pre-filter (4) can be replaced and then close the filter- and flap box again.

Detail Y
(pre-filter)



Where can I order filters?

Use only original replacement filters of the filter class specified.



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SPECIALIST PERSONNEL - MOUNTING / INSTALLATION

12. Scope of Supply, Transport & Packing, Storage & Disposal

GENERAL


12.1 SCOPE OF SUPPLY

The scope of supply comprises the following:

- the ventilation unit with „PI-HMI“ control unit (loose)
- the operating and installation manual (enclosed with the ventilation unit)
- DN 40 mm siphon (enclosed in the ventilation unit)

When the unit is delivered, check whether the types and serial numbers

on the type plate match the information on the order and delivery documents, that the equipment with the optional accessories is complete, and that all parts have been delivered in perfect condition.

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

USER

12.2 TRANSPORT AND PACKAGING

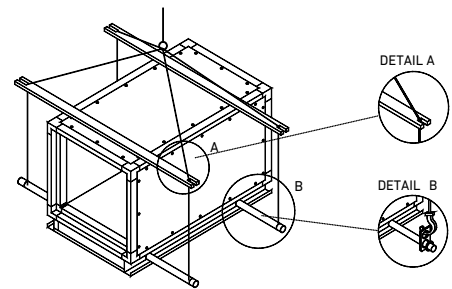
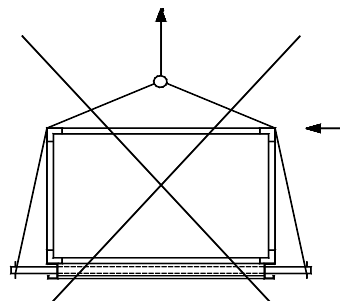
The ventilation unit is packed when it is delivered. The safety markings applied to the packaging must be observed and complied with when handling.

- Dimensions W x H x D
 LG 1400 (S) : 1445 x 1265 x 775 mm
 LG 3200 (S) : 2040 x 1655 x 1000 mm
- Weight without optional accessories
 LG 1400 (S) : ca. 190 kg
 LG 3200 (S) : ca. 390 kg

To prevent transportation damage, handle the compact ventilation unit with care and secure it appropriately. Make sure that the unit is not damaged by tipping or overturning under any

circumstances. Avoid any blows or impact during transport. The unit can be lifted with a forklift or with the help of belts. Only lifting rods with sufficient load bearing capacity may be used. Secure the rods against slipping if at all possible (*see illustration*). Blows and impacts during transport as well as twisting the unit's frame and the housing components must be avoided.

The applicable safety and accident regulations must be complied with during transport. When transporting by hand, take reasonable human lifting and carrying strength into consideration.



SPECIALIST PERSONNEL

12.3 STORAGE

The unit must be stored in the packaging in a suitable, dry, dust-free room and protected against frost.

Excessive storage periods, longer than a year, are to be avoided.

12.4 WASTE 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. Products with this label must not be disposed as normal domestic waste, but collected separately in accordance with the applicable local regulations.



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

13.1 SPECIFICATIONS LG 1400 (S)

Dimensions:

(W x H x D) 1445 x 1265 x 775 mm

Housing in double-shell construction made of galvanized sheet steel, 50 mm heat insulation

LG 1400 air line connections:

ODA/EHA/SUP/ETA (W x H) 200 x 596 mm (top)

LG 1400 S air line connections:

ODA/ETA (W x H) 200 x 596 mm (top) and

EHA/SUP (W x H) 286 x 586 mm (side)

Connection profile: P30

Condensate connection with syphon and mechanical sealing device \varnothing 40 mm at the bottom

Electrical connection without electric heater battery:

230 V/50 Hz/20 A

Electrical connection with electric heater battery:

400 V/50 Hz/25 A

Degree of protection: IP 20

Permitted ambient temperature for the unit:

+ 5° C bis + 40° C

Weight without accessories: approx. 190 kg

VALUES ACCORDING TO EU REGULATION 1253-2014:

(See product data sheet for additional values, downloadable from www.pichlerluft.at)

T VERSION WITH COUNTERFLOW HEAT EXCHANGER:

Maximum operating point:

Volume flow: 1200 m³/h

External pressure: 250 Pa

Nominal operating point:

Volume flow: 800 m³/h

External pressure: 200 Pa

Specific fan power (SFP): 0,36 Wh/m³

Thermal transfer rate: 85,4 %

F VERSION WITH ENTHALPY EXCHANGER FOR HUMIDITY RECOVERY:

Maximum operating point:

Volume flow: 1200 m³/h

External pressure: 250 Pa

Nominal operating point:

Volume flow: 800 m³/h

External pressure: 200 Pa

Specific fan power (SFP): 0,38 Wh/m³

Thermal transfer rate: 77,8 %

Humidity transfer rate: 71,7 %



PASSIVE HOUSE CERTIFIED IN ACCORDANCE WITH PHI CRITERIA (T VERSION)

Non-residential building:

Area of application: 350 to 1100 m³/h at an external pressure of 228 Pa

Housing seal-tightness: external leakage 0,39 %, internal leakage 0,56 %

Heat recovery rate: $\eta_{HR, eff} = 83 \%$

Comfort criterion: $T_{supply air} = +16,5 \text{ °C}$ bei $T_{outdoor air} = -10 \text{ °C}$

Flow efficiency: $\eta_{el} = 0,39 \text{ Wh/m}^3$

Residential building:

Area of application: 350 to 1200 m³/h at an external pressure of 198 Pa

Housing seal-tightness: external leakage 0,36 %, internal leakage 0,52 %

Heat recovery rate: $\eta_{HR, eff} = 82 \%$

Comfort criterion: $T_{supply air} = +16,5 \text{ °C}$ bei $T_{outdoor air} = -10 \text{ °C}$

Flow efficiency: $\eta_{el} = 0,38 \text{ Wh/m}^3$



13.2 SPECIFICATIONS LG 3200 (S)**Dimensions:**

(W x H x D) 2040 x 1655 x 1000 mm

Housing in double-shell construction made of galvanized sheet steel, 50 mm heat insulation

LG 3200 air line connections:

ODA/EHA/SUP/ETA (W x H) 300 x 800 mm (top)

LG 3200 S air line connections:

ODA/ETA (W x H) 300 x 800 mm (top) and

EHA/SUP (W x H) 486 x 786 mm (side)

Connection profile: P30**Condensate connection** with syphon and mechanical sealing device \varnothing 40 mm at the bottom**Electrical connection without electric heater battery:**

400 V/50 Hz/20 A

Electrical connection with electric heater battery:

400 V/50 Hz/40 A

Degree of protection: IP 20**Permitted ambient temperature****for the unit:** + 5° C to + 40° C**Weight without accessories:** approx. 390 kg**VALUES ACCORDING TO EU REGULATION 1253-2014:**(See product data sheet for additional values, downloadable from www.pichlerluft.at)**T VERSION WITH COUNTERFLOW HEAT EXCHANGER:**

Maximum operating point:

Volume flow: 3200 m³/h**External pressure:** 250 Pa

Nominal operating point:

Volume flow: 1700 m³/h**External pressure:** 200 Pa**Specific fan power (SFP):** 0,33 Wh/m³**Thermal transfer rate:** 85,2 %**F VERSION WITH ENTHALPY EXCHANGER FOR HUMIDITY RECOVERY:**

Maximum operating point:

Volume flow: 2900 m³/h**External pressure:** 250 Pa

Nominal operating point:

Volume flow: 1700 m³/h**External pressure:** 200 Pa**Specific fan power (SFP):** 0,34 Wh/m³**Thermal transfer rate:** 80,3 %**Humidity transfer rate:** 76 %**PASSIVE HOUSE CERTIFIED IN ACCORDANCE WITH PHI CRITERIA (T VERSION)****Non-residential building:****Area of application:** 950 to 1800 m³/h at an external pressure of 259 Pa**Housing seal-tightness:** external leakage 0,3 %, internal leakage 0,9 %**Heat recovery rate:** $\eta_{HR, eff} = 84 \%$ **Comfort criterion:** $T_{supply\ air} = +16,5 \text{ }^{\circ}\text{C}$ bei $T_{outdoor\ air} = -10 \text{ }^{\circ}\text{C}$ **Flow efficiency:** $\eta_{el} = 0,41 \text{ Wh/m}^3$ **Residential building:****Area of application:** 950 to 2200 m³/h at an external pressure of 236 Pa**Housing seal-tightness:** external leakage 0,3 %, internal leakage 0,9 %**Heat recovery rate:** $\eta_{HR, eff} = 82 \%$ **Comfort criterion:** $T_{supply\ air} = +16,5 \text{ }^{\circ}\text{C}$ bei $T_{outdoor\ air} = -10 \text{ }^{\circ}\text{C}$ **Flow efficiency:** $\eta_{el} = 0,41 \text{ Wh/m}^3$ 

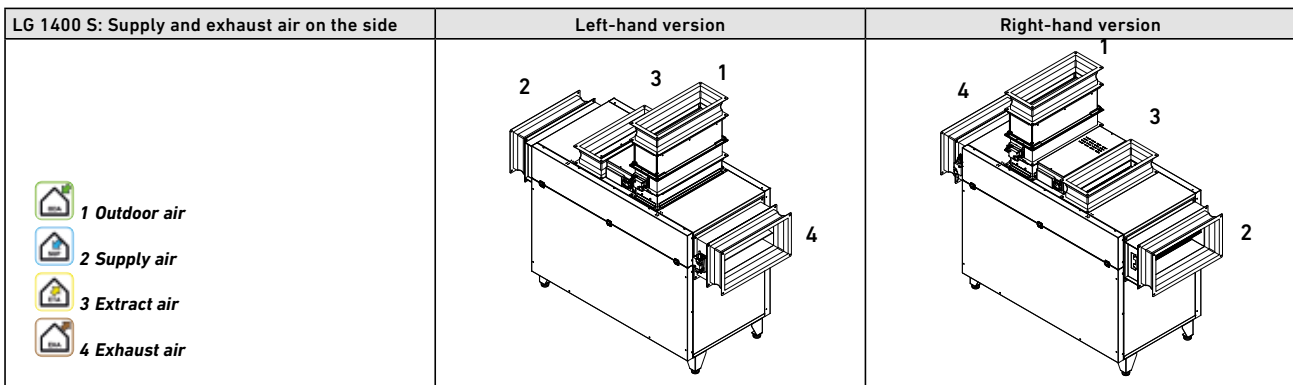
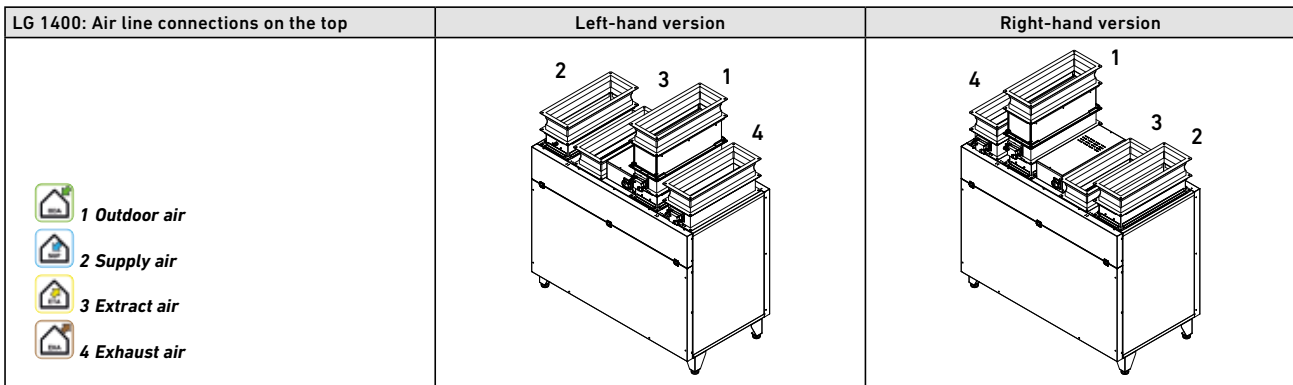
13.3 VERSIONS LG 1400 (S)

The compact ventilation unit LG 1400 is available in several different versions:

- Right- or left-hand depending on the position of the supply air connection
- Optional exhaust air and supply air sockets on the side
- Optional installed, insulated, electrical preheater battery 6 kW

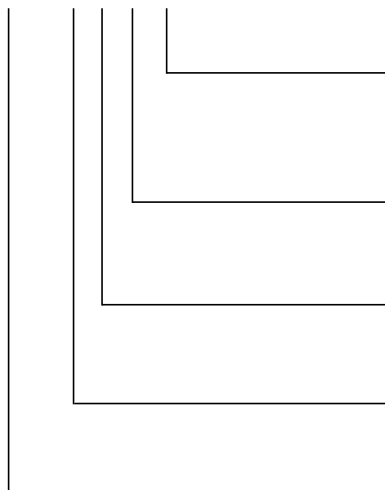
(requires additional filter and flap box, 08FKK1400A)

- Optional installed electric reheater battery 2 kW
- With counterflow heat exchanger (T version) or enthalpy exchanger for humidity recovery (F version)



13.4 ARTICLE KEY 1400

08LG1400 T S L VN



Add-on parts

- * ... No designation: without add-on parts
- V ... Electric preheater battery
- N ... Electric reheater battery

Inspection side seen from the supply air direction

- L ... Left
- R ... Right

Design

- * ... No designation: air line connections on top
- S ... Side supply and exhaust air connection

Heat exchanger type

- T ... Counterflow heat exchanger with temperature change > 85%
- F ... Enthalpy exchanger with humidity recovery

Unit type

- 08LG1400 ... Ventilation unit LG 1400



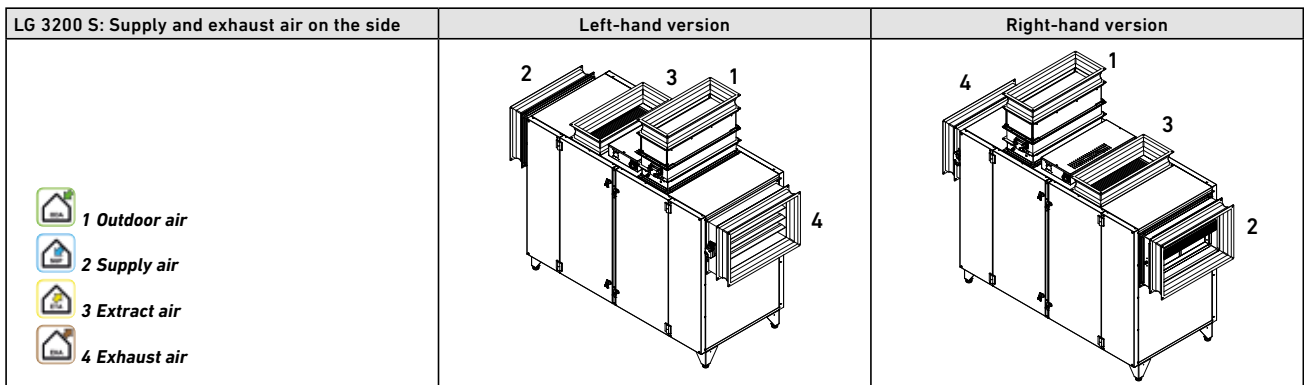
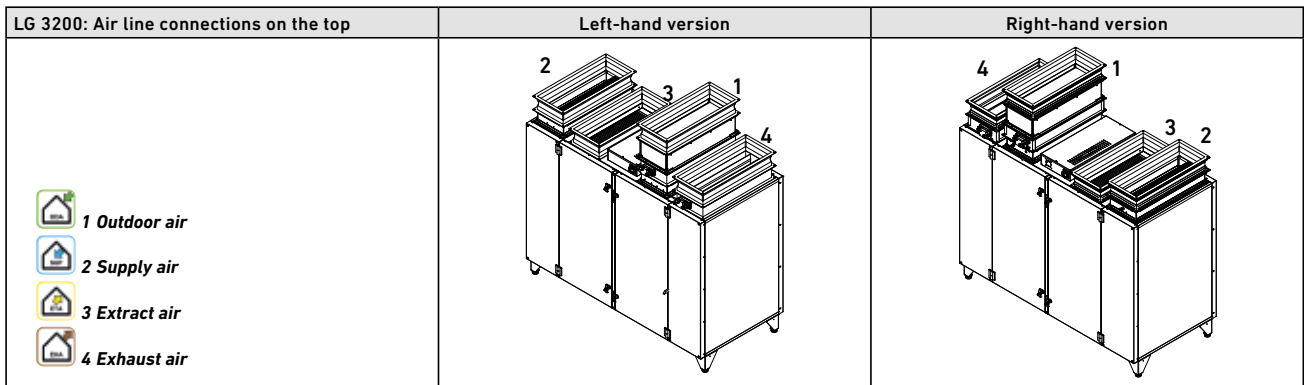
13.5 VERSIONS LG 3200 (S)

The compact ventilation unit LG 3200 is available in several different versions:

- Right- or left-hand depending on the position of the supply air connection
- Optional exhaust air and supply air sockets on the side
- Optional installed, insulated, electrical preheater battery 12 kW

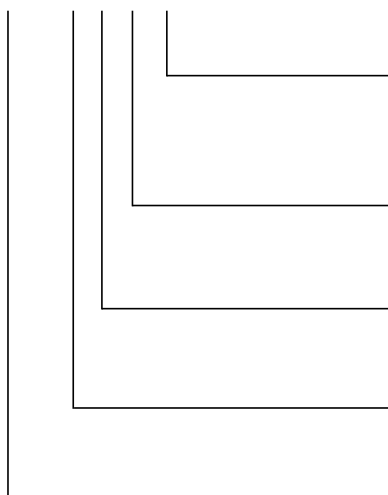
(requires additional filter and flap box, 08FKK3200A)

- Optional installed electric reheater battery 4 kW
- With counterflow heat exchanger (T version) or enthalpy exchanger for humidity recovery (F version)



13.5 ARTICLE KEY LG 3200

08LG3200 T S L VN



Add-on parts

- * ... No designation: without add-on parts
- V ... Electric preheater battery
- N ... Electric reheater battery

Inspection side seen from the supply air direction

- L ... Left
- R ... Right

Design

- * ... No designation: air line connections on top
- S ... Side supply and exhaust air connection

Heat exchanger type

- T ... Counterflow heat exchanger with temperature change > 85%
- F ... Enthalpy exchanger with humidity recovery

Unit type

- 08LG3200 ... Ventilation unit LG 3200



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 ₂		●
	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	External electric pre-heater battery		●
	Control of an external 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 ₂ sensor (on terminal)		●
	Low rpm input		●
	High rpm input		●
	Shut-off valves 2x Belimo LM24A control (on terminal)	●	
	Error message Level A (floating max. 30V / 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. 30V / 3A)	●	

* 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 DIAGRAM

GENERAL

USER

SPECIALIST PERSONNEL

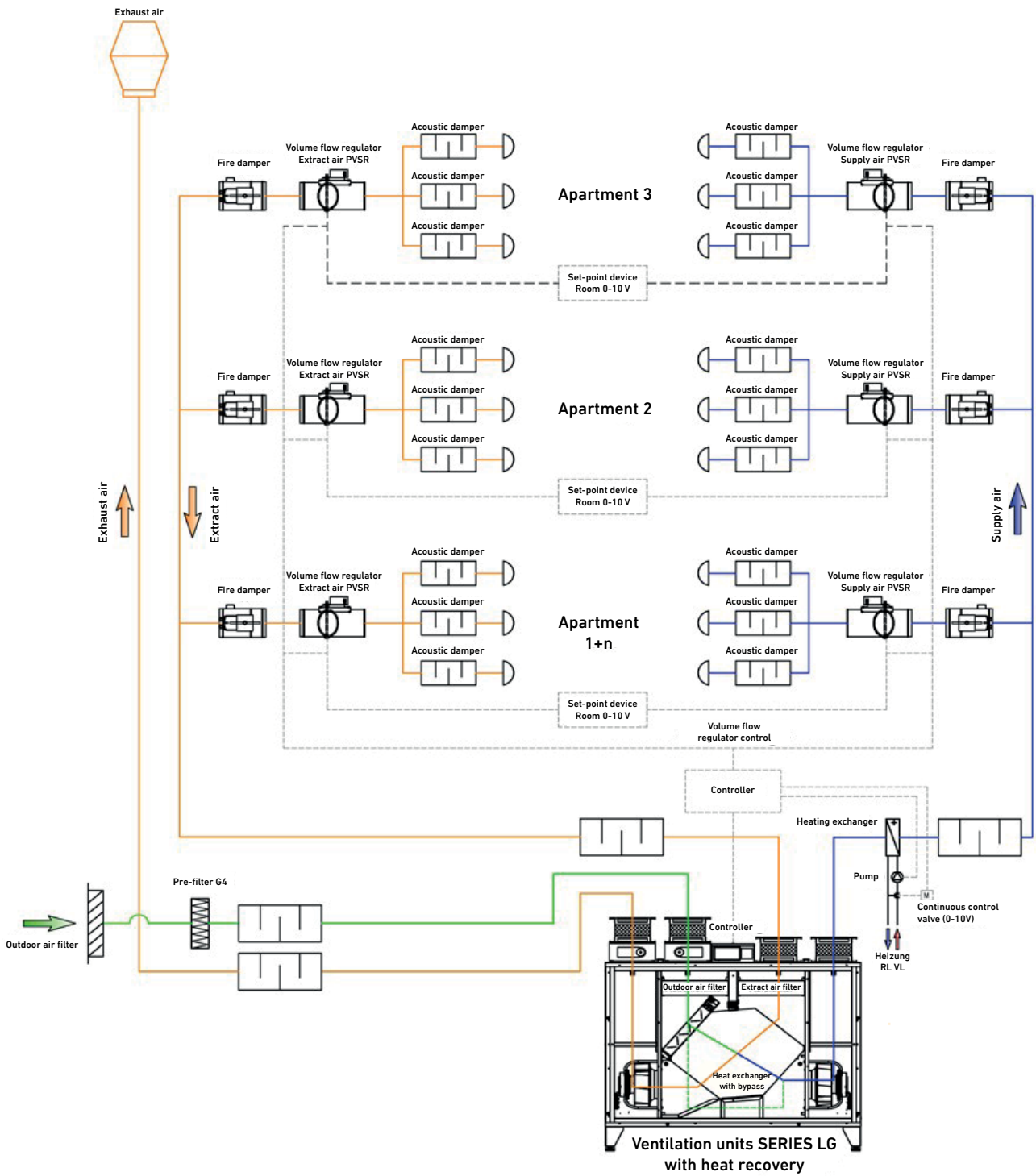


Fig.: The system diagram demonstrates the application of LG 1400 (S)/LG 3200 (S) compact ventilation units in a multi-storey residential building.



14.4 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

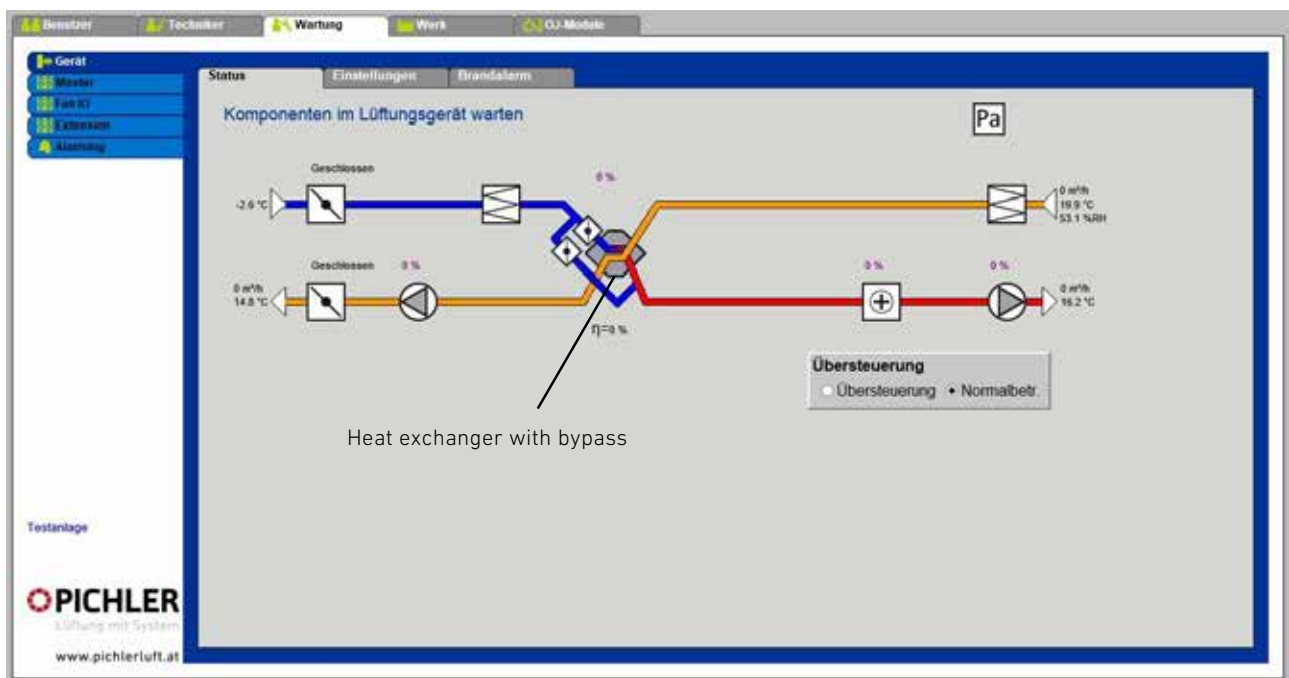
- Frost protection by means of waterpre-heater battery (glycol)
- Frost protection via pre-heater coils - electric version

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.

14.4.1 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.

GENERAL

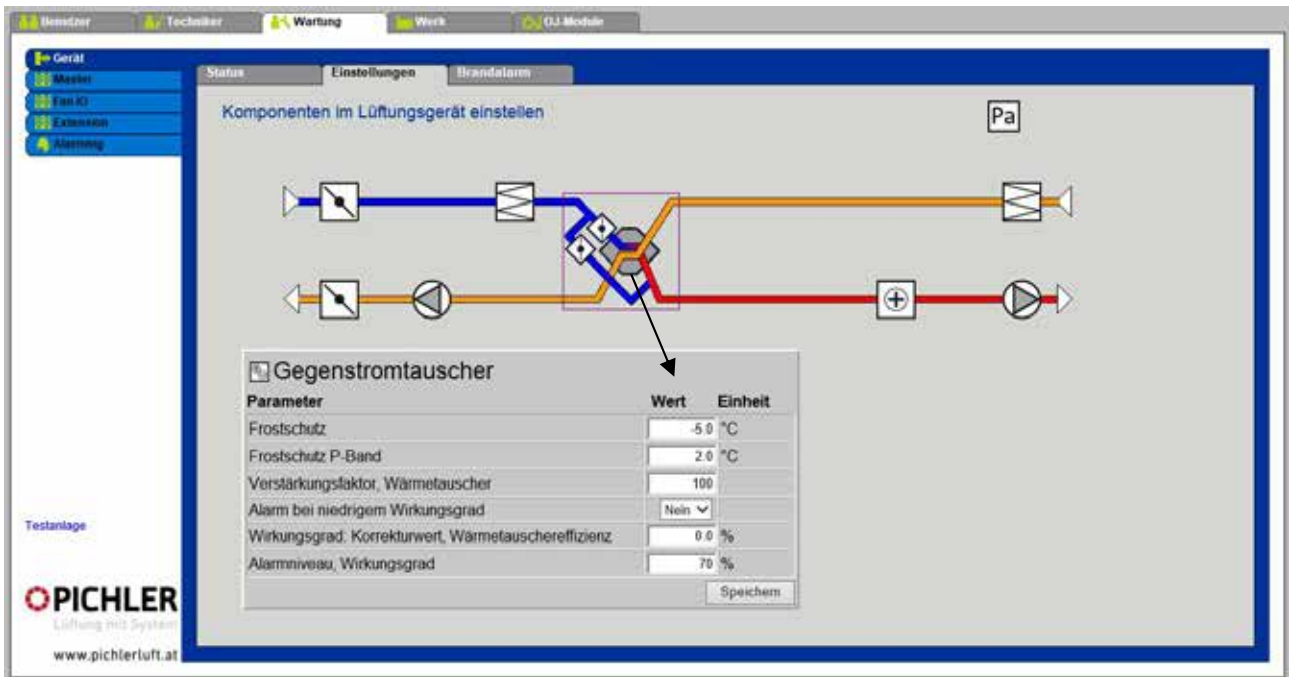
USER

SPECIALIST PERSONNEL



GENERAL

USER



Primary parameters:

Frost protection	<ul style="list-style-type: none"> 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.
Frost protection P-band	<ul style="list-style-type: none"> 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.
Amplification factor, heat exchange	<ul style="list-style-type: none"> Set the heat exchanger's amplification factor.
Alarm at low efficiencies	<ul style="list-style-type: none"> Determine whether an alarm will trigger when efficiency is too low.
Efficiency: Correction factor for efficiency calculation	<ul style="list-style-type: none"> Set correction factor for efficiency calculation.
Efficiency alarm level	<ul style="list-style-type: none"> Set low efficiency alarm limit. 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“.

SPECIALIST PERSONNEL



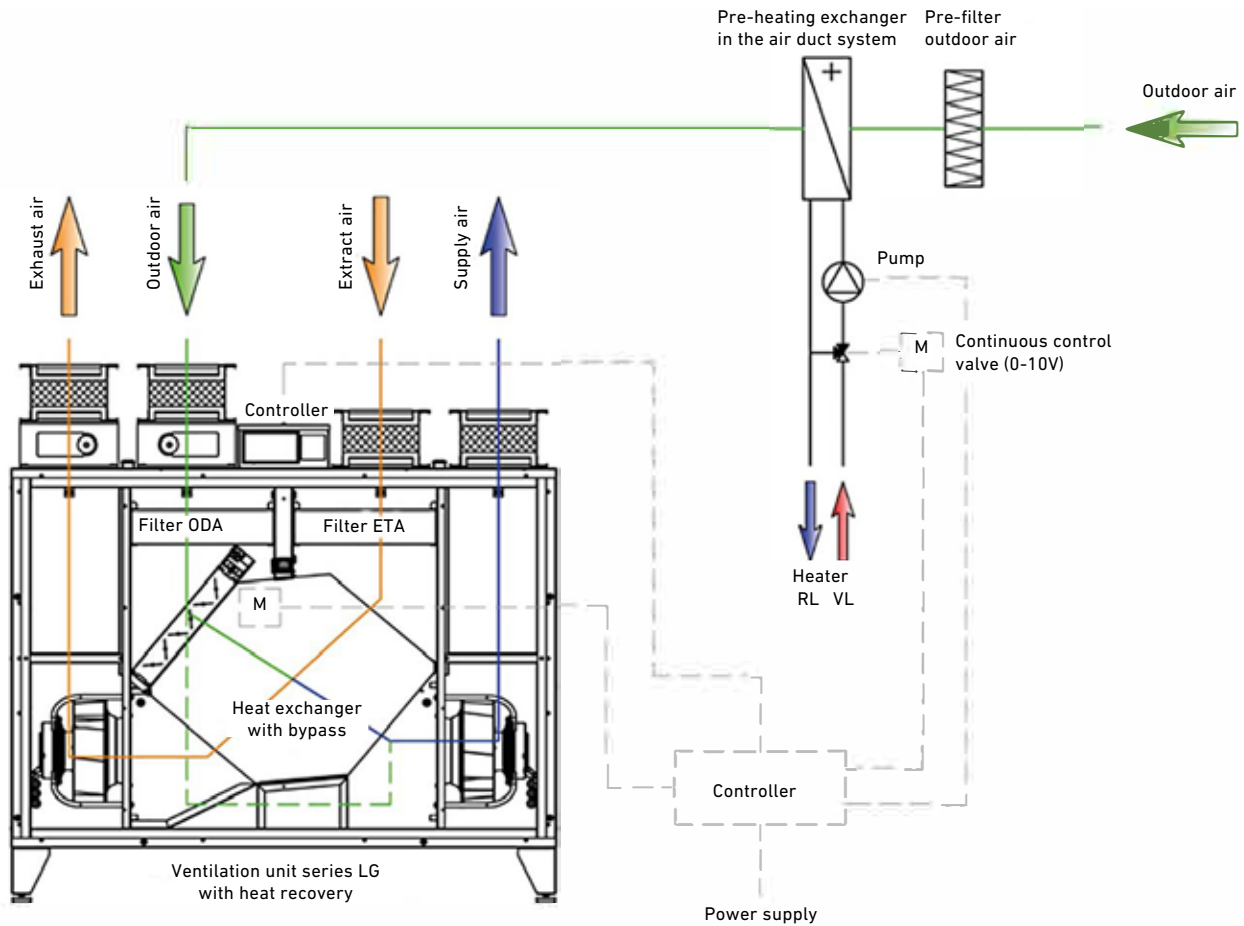
14.4.2 Frost protection via water pre-heating exchanger (optional)

The Series LG 1400 and LG 3200 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)

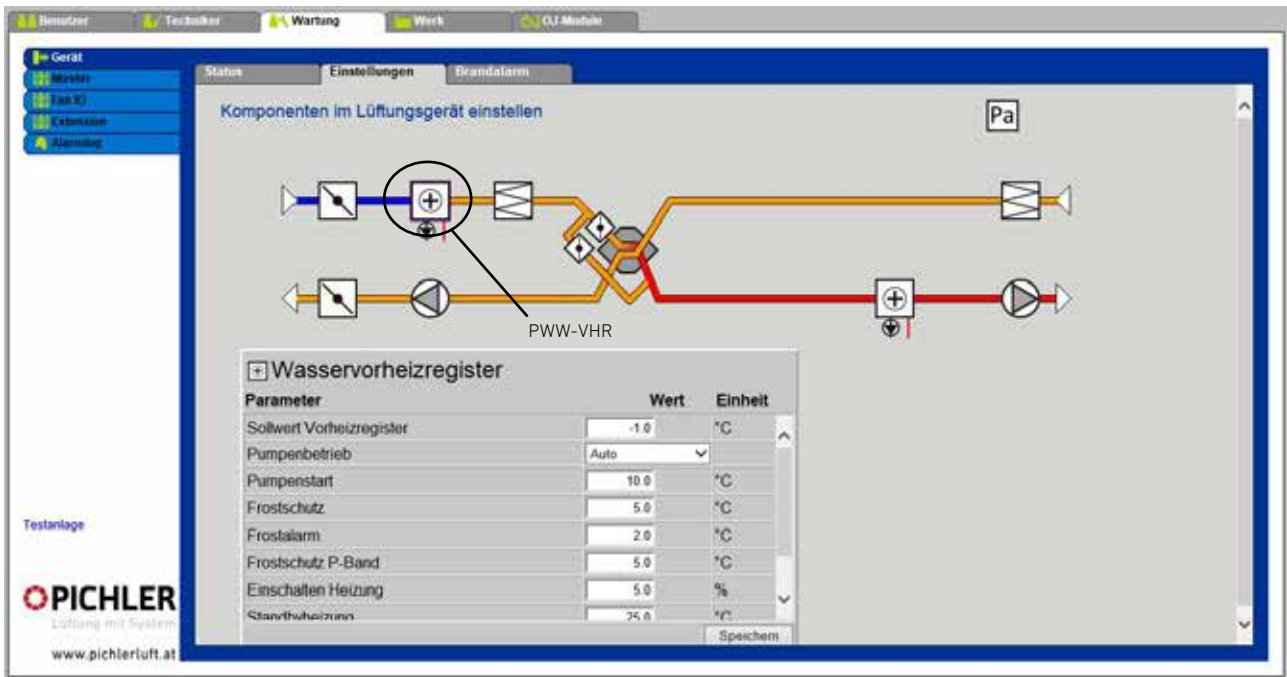


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Description of the control systems

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.

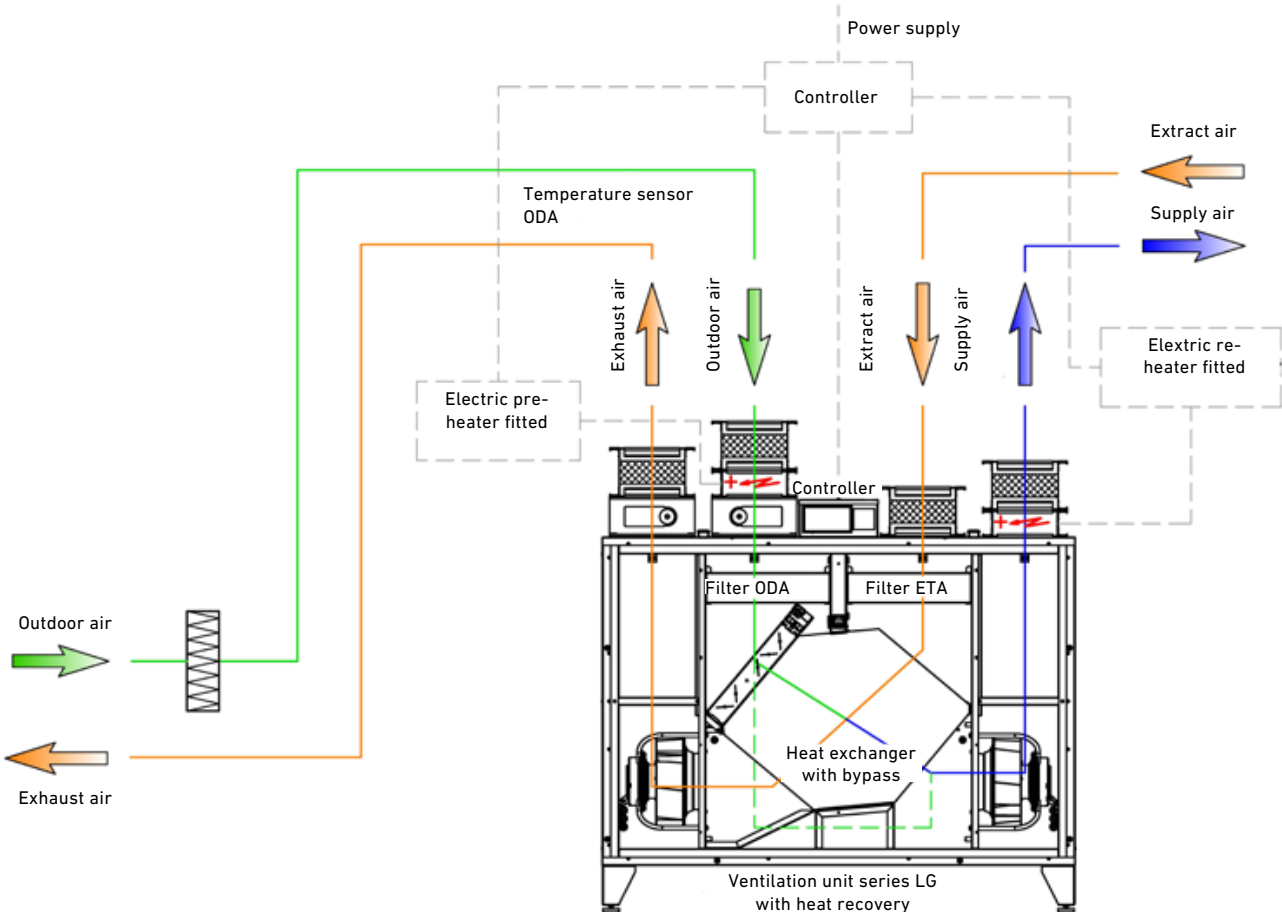
Primary parameters	
Set-point, pre-heater	• Desired air-temperature set-point after pre-heating exchanger
Pump operation	<ul style="list-style-type: none"> • "Constant". The circulating pump in the PWW heater will run continuously when power to the Air2Master is on. • „Auto“. The circulating pump in 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.
Pump start	<ul style="list-style-type: none"> • The pump will start when the outside temperature falls below the set value. • „Pump operation“ must be set to „Outside temperature“.
Frost protection	• 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.
Frost P-band	• PWW heater frost protection sets in at the set value plus the "Frost protection" parameter value.
Start-up heating	• Initial heating in %. Heating power when switching from standby to operation.
Stand-by heat	• 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.
PWW heater battery temperature	• Read actual return temperature.
P-band	• P-band for the pre-heater PI controller
I-time	• I-time for the pre-heater PI controller
Motor-driven valve	• Set the control range of the motor-driven valve (0-10 V/2-10 V)



14.4.3 Frost protection via electric pre-heating exchanger (optional)

The Series LG 1400 and LG 3200 ventilating unit may optionally be fitted with an electric pre-heating exchanger to protect the heat exchanger from freezing. The cold outside air will to this end be pre-heated via a shell and tube heat exchanger mounted directly in the outside

air duct to counter freezing of the heat exchanger. To reduce the consumption of primary energy, *the frost protection strategies mentioned in Point 14.4.1, page 33*, are recommended instead of the electrical versions



Description of the control system

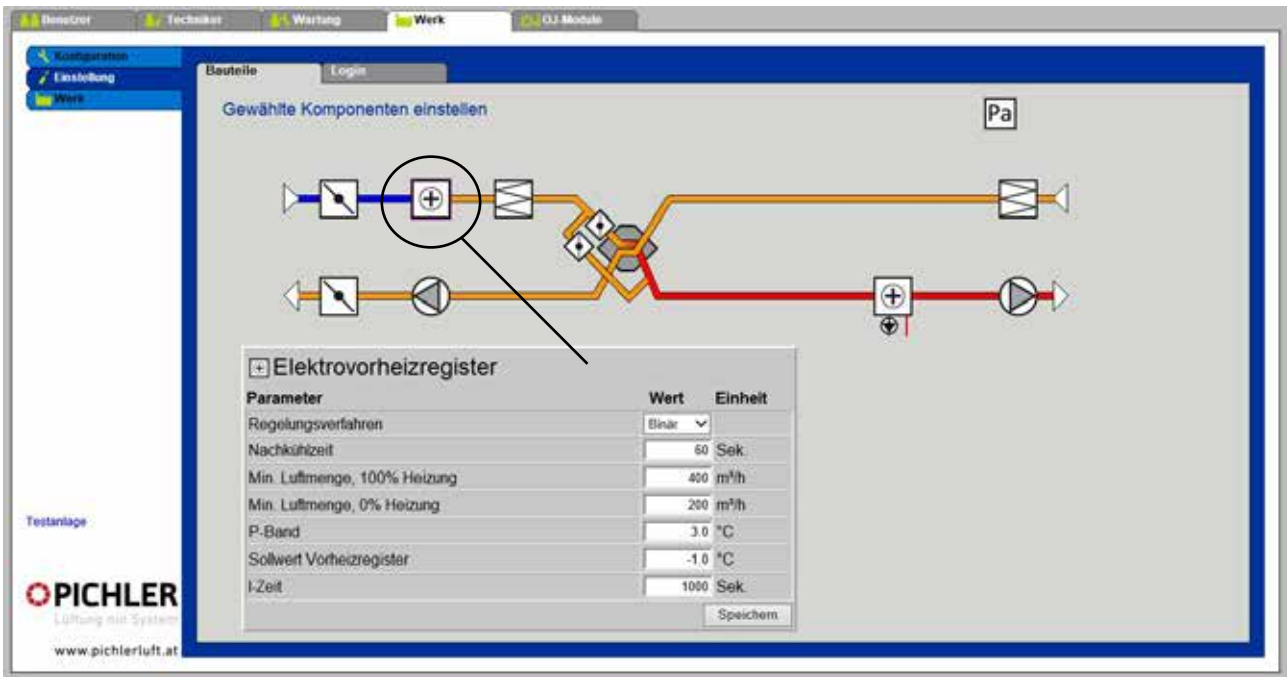
The pre-heating exchanger will maintain a minimum required temperature before a heat exchanger. The temperature sensor must be fitted directly after the pre-heating exchanger.

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.



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Primary parameters

	<ul style="list-style-type: none"> „0-10 V“. Analogue heater control via a 0-10 V analogue output (e.g. EFS-9XXX) „single stage“. Electric preheater is On/Off controlled „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. „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.
Regulation form	<p>By increasing heat requirements:</p> <p>„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>By decreasing heat requirements:</p> <p>„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>
Post cooling time	<ul style="list-style-type: none"> 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.
Min. flow, 100 % heat	<ul style="list-style-type: none"> Set value informs at which minimum volume (m³/h) in the inlet, the heating should be 100 % on.
Min. flow, 0 % varme	<ul style="list-style-type: none"> Set value informs at which minimum volume (m³/h) in the inlet, the heating should be off (0 %).
P-band	<ul style="list-style-type: none"> P-band for PI controller pre-heater
Set-point, preheating	<ul style="list-style-type: none"> Desired air-temperature set-point after pre-heating exchanger P-band
I-time	<ul style="list-style-type: none"> I-time for PI controller pre-heater

SPECIALIST PERSONNEL



14.5 OPTIONAL: SYSTEM EXTENSION FOR EXTERNAL 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.

14.5.1 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)!

The screenshot displays the 'Regelung' (Control) interface for a Pichler system. The main window is titled 'Temperaturregelung einstellen' (Set temperature control). A sub-window titled 'Temperaturregelung' is open, showing the following settings:

- Konstante Zuluft (Constant supply air): selected
- Aktuelle Temperatur (Actual temperature): 17.3 °C
- Sollwert (Setpoint): 17.5 °C
- Raum Sensor Korrektur (Room sensor correction): 0.0 °C

A 'Speichern' (Save) button is visible at the bottom of the sub-window. To the right, a schematic diagram of a re-heating exchanger is shown with temperature labels: 17.1 °C (supply air), 21.1 °C (extract air), 21.5 °C (supply air after re-heating), and -17.3 °C (cold water inlet). A thermometer icon at the bottom left shows the current room temperature of 17.5 °C. The Pichler logo and website 'www.pichierluft.at' are visible in the bottom left corner.

Temperature control settings

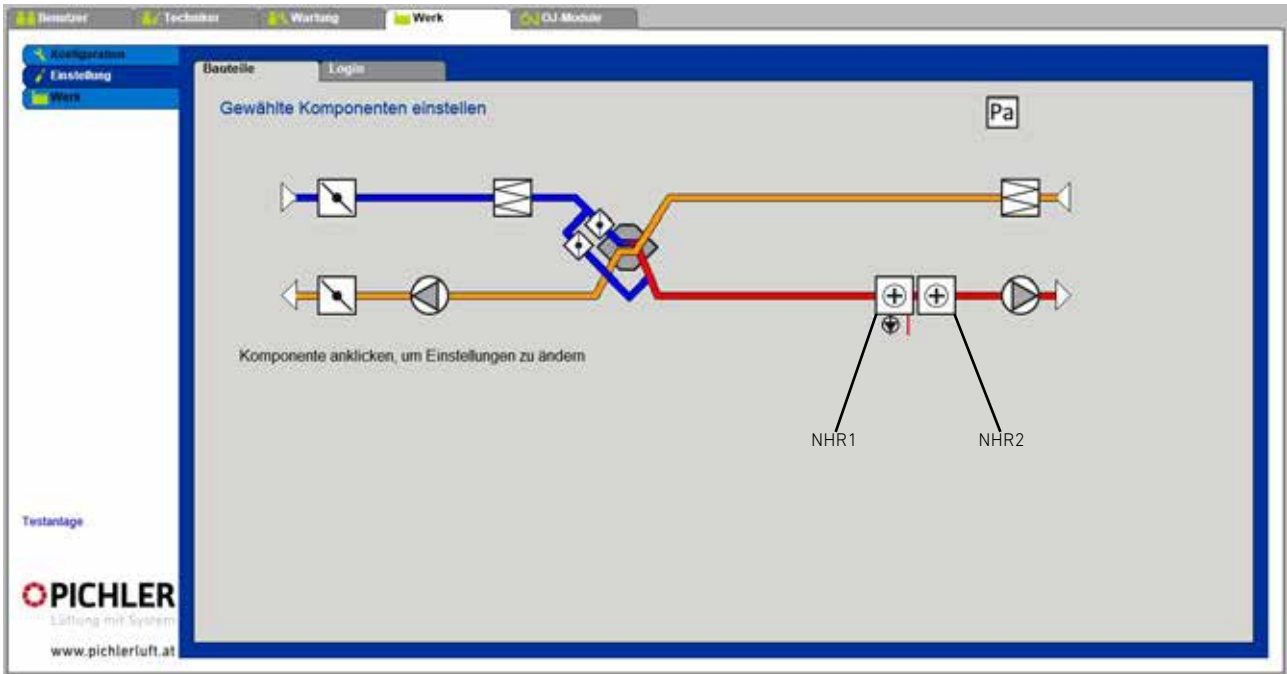


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A return flow sensor (immersion sleeve or strap-on sensor) must be installed for frost protection of PWW-NHR. The heating circuit of the supply air re-heating

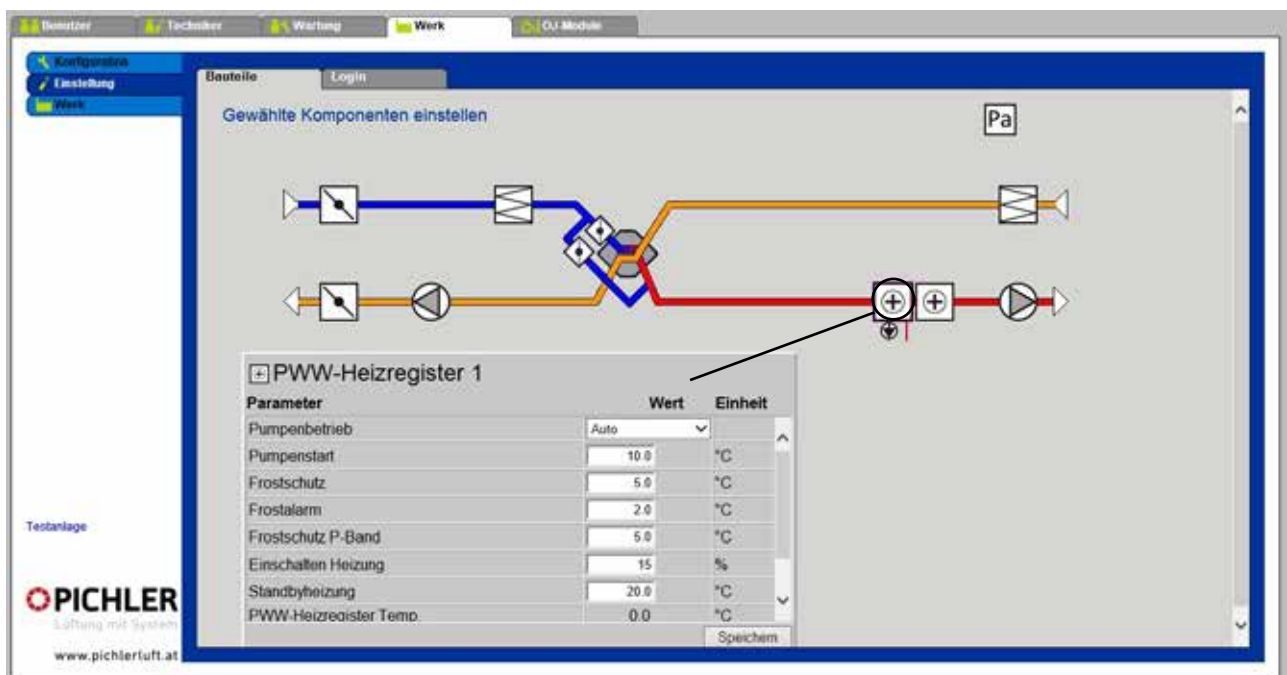
exchanger may also be operated with antifreeze. The fans will stop when a frost alarm triggers.



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.

SPECIALIST PERSONNEL



Primary parameters	
Pump operation	<ul style="list-style-type: none"> • „Constant“. The circulating pump in the PWW heater will run continuously when the Pichler Air2 Master is switched 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.
Pump start	<ul style="list-style-type: none"> • The pump will start when the outside temperature falls below the set value. • „Pump operation“ must be set to „Outside temperature“.
Frost protection	<ul style="list-style-type: none"> • The set value gives the PWW heater return flow temperature at which the ventilator should be fully controlled. • The heating valve control will be activated at set value plus „Frost- P-band“
Frost alarm	<ul style="list-style-type: none"> • 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
Frost P-band	<ul style="list-style-type: none"> • PWW heater frost protection sets in at the set value plus the „Frost protection“ parameter value (see graphic Page 12)
P-band	<ul style="list-style-type: none"> • P-band for PI controller heating
I-time	<ul style="list-style-type: none"> • I-time for PI controller heating
Start-up heating	<ul style="list-style-type: none"> • Initial heating in %. Heating power when switching from standby to operation.
Stand-by heat	<ul style="list-style-type: none"> • 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.
Water temperature	<ul style="list-style-type: none"> • Read actual return temperature.
Gainfactor, heat 1	<ul style="list-style-type: none"> • Set gain factor for heating battery
Motor-driven valve	<ul style="list-style-type: none"> • Set the control range of the motor-driven valve (0-10 V/2-10 V)

14.5.2 Re-heating using electrical heating

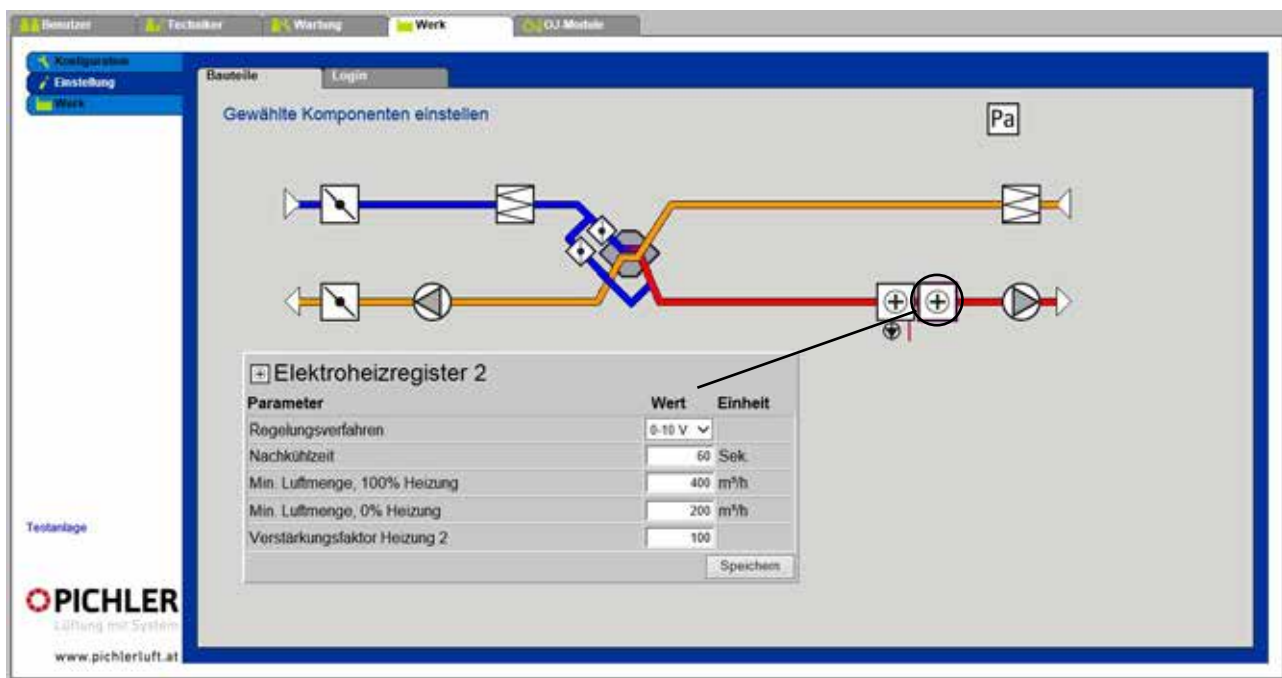
The electrical heater may be controlled either via 0-10 V analogue signal or via digital relay outputs. To maintain an adjustable set-point temperature, the electrical re-heating exchanger, optionally fitted to the connecting flange for supply air, is controlled via a 0 -10 V signal to a Triac controller.

When controlled via one or two digital outputs, the heater may be controlled as

follows:

- Single stage
- Two-stage
- Binary via 2 relay outputs

The electrical re-heating exchanger will control the supply air set-point temperature with heating outputs of 0.4 kW to 2.0 kW (LG 1400) and 4.0 kW (LG 3200).



GENERAL

USER

Primary parameters	
Regulation form	<ul style="list-style-type: none"> „0-10 V“: Analogue heater control via a 0-10 V analogue output (e.g. EFS-9XXX) „single stage“: Electric heating battery is On/Off controlled „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. „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. <p>By increasing heat requirements: „Activate „Heating relay 1“ „Activate „Heating relay 2“ and disconnect „Heating relay 1“ „Activate „Heating relay 1“ and „Heating relay 2“</p> <p>By decreasing heat requirements: „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"> 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.
Min. flow, 100 % heat	<ul style="list-style-type: none"> Set value informs at which minimum volume (m³/h) in the inlet, the heating should be 100 % on.
Min. flow, 0 % varme	<ul style="list-style-type: none"> Set value informs at which minimum volume (m³/h) in the inlet, the heating should be off (0 %).
Gainfactor, heat 2	<ul style="list-style-type: none"> Set gain factor for heating battery

14.6 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 components such as circulating pump, mixing valves etc.

14.6.1 Cooling with water cooling exchanger

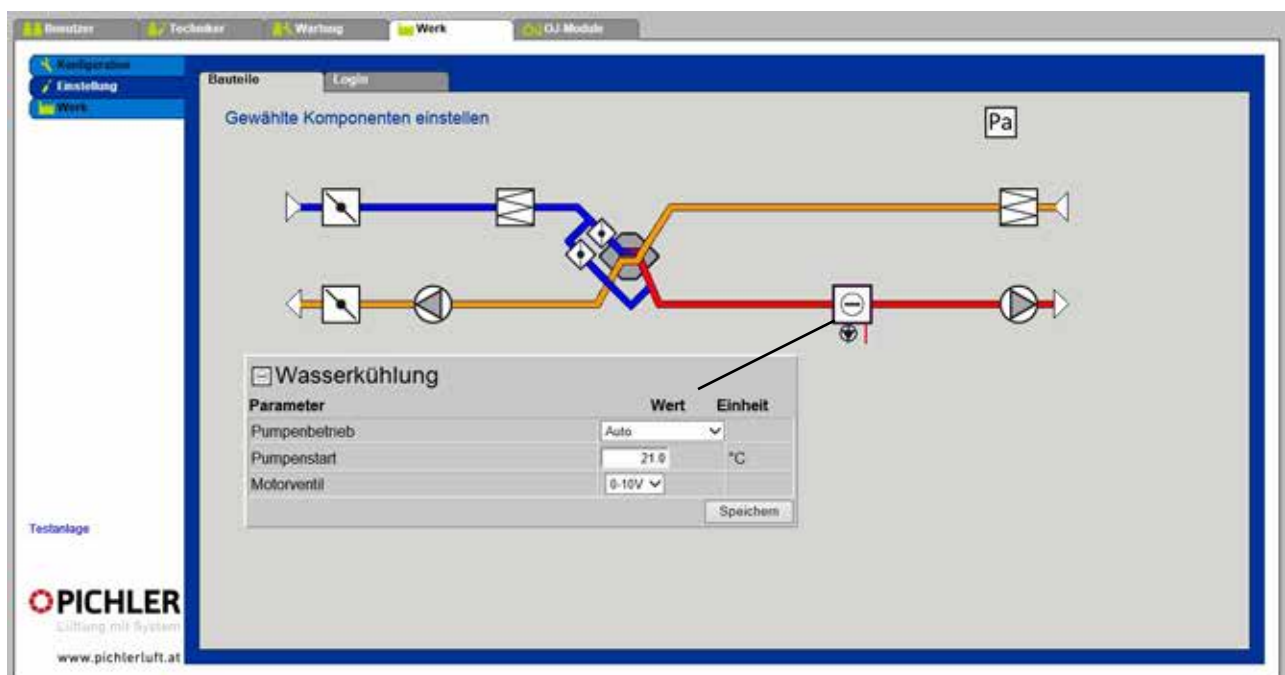
A 0-10 V signal controls the cold water cooling valve. Start/Stop of the circulating pump in the cooling circuit via digital output. The alarm output of the pump may be connected to the „Cooling fault“ digital input. This will trigger an alarm when the contact opens.

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) In water-based cooling batteries

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

14.6.2 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.

14.7 HEAT EXCHANGER

The Air2 system may use various heat exchangers for heat recovery (WRG).

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.

Bypass dampers in the heat exchangers will be controlled via a 0-10 V signal

Parameter	Wert	Einheit
Frostschutz	-5.0	°C
Frostschutz P-Band	2.0	°C
Verstärkungsfaktor, Wärmetauscher	100	
Alarm bei niedrigem Wirkungsgrad	Nein	
Wirkungsgrad: Korrekturwert, Wärmetauschereffizienz	0.0	%
Alarmniveau, Wirkungsgrad	70	%

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



14.8 OPTIONAL: DEMAND-DRIVEN PLANT OPERATION

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

- Constant CO₂/ RH value
- Fan optimiser
- GreenZone
- PI zone module / PI optimiser

14.8.1 Constant CO₂ value/RH value

- The plant must be configured with a CO₂ sensor.
- The CO₂ sensor may be fitted either as a room sensor or as a duct sensor in the extract air duct.

14.8.2 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.

14.8.3 GreenZone, PI-Zonenmodule/PI-Optimizer

- GreenZone modules control demand-driven ventilation (CO₂, RH%, temperature) of the individual zones (rooms)
 - GreenZone 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 CO₂-/RH content. This will require a relevant sensor in either the ambient or extract air ducts.

14.9 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. Overview of Pl-Air-2 functions

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		

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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 ₂ /VOC demand optimised control		o	o (CO ₂ /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 CONDITIONS FOR INSTALLATION OF THE UNIG

The LG 1400/LG 3200 compact ventilation unit must be installed in accordance with the general and locally applicable safety and installation regulations and also in accordance with the regulations of this guide.

Installation and assembly work may only be performed by authorised specialists.

The ventilation unit may only be installed in a frost-free room, for example in the basement or in the attic with ambient temperatures of at least +5 °C and a maximum of +40 °C.

Any condensate water that forms must be drained frost-free and reliably with a slope and using an effective odour trap (siphon).

16.1.1 Installation site

The installation site of the unit must be selected in such a way that there is enough room to setup the air line connections, electrical connections, a condensate connection and to perform any maintenance and inspection work. At least 1 m of free space must be provided

in front of the unit for operating and maintenance work.

A level and sufficiently hard installation surface must be provided for installing the ventilation unit.

16.1.2 Connecting fixtures

The following connecting fixtures must be available in the installation room:

- air line connections for the supply air, extracted air and exhaust air
- electrical mains connection 230 v/ 50 Hz, 20A fuse for LG 1400 without an optional heating battery
- electrical mains connection 400 v/ 50Hz, 25A fuse for LG 1400 with an optional heating battery

- electrical mains connection 400 v/ 50Hz, 20A fuse for LG 3200 without an optional electric heating battery
- electrical mains connection 400 v/ 50Hz, 40A fuse for LG 3200 with an optional heating battery
- condensate drain line with effective odour trap (siphon)

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. After the air lines are connected to the ventilation unit, they are fixed in position and can no longer be moved.

The outdoor air and exhaust air lines, e.g. between the ventilation unit and the roof opening, must be adequately insulated for energy reasons and to prevent the formation of condensate.

There must not be any condensate formation on the air lines and in the roof sheathing. In the event of line routing outside the thermally insulated building

shell, they must be adequately insulated in the cold area. 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.

16.1.4 Protect the system

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.

GENERAL

USER

SPECIALIST PERSONNEL



16.2 UNIT INSTALLATION - FLOOR MOUNTING



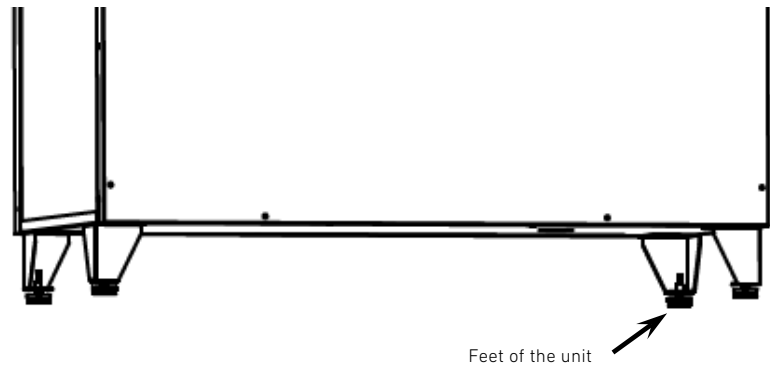
The safety instructions given in *Chapter 6, page 8* of this guide must be observed in all work.

The ventilation unit is delivered ready to use. Make sure that there is enough room to setup the air line connections, electrical connections, condensate connection and to perform any maintenance and inspection work. After setting the ventilation unit down on the installation

site, then it must be positioned correctly. The ventilation unit must be setup so that it is horizontal and stable. It is easy to align the unit by using the adjustable feet of the unit.



Make sure that there is enough clearance between the floor and bottom edge of the unit in order to ensure flawless operation of the condensate drain.



16.2.1 Preparing the condensate water connection

The front doors of the unit must be opened to prepare the condensate drain. The siphon included in the delivery must be shortened to the respective length and screwed onto the condensate tray on the bottom of the housing with the valve connector.



After completion of the work, all tools and installation materials must be removed from the unit. Make sure that not tools or installation materials are left in the unit, because they may damage or destroy the unit when it starts up.

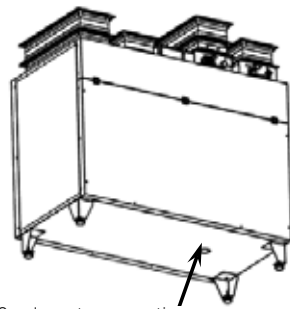
There must be sufficient slope (at least 5%) for reliable drainage of the water. The siphon must be filled with water for effective odour control and to prevent leakage. (Fig. 1)

When closing the front doors, make sure there is an adequate and reliable seal to the unit's housing to ensure sealing that is air and condensate water tight. (Fig. 2, page 49)



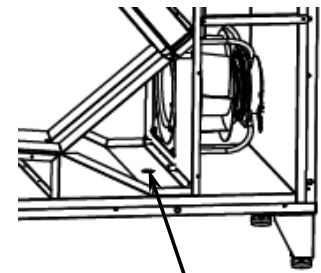
Fig. 1 Installation recommendation: Condensate connection





Condensate connection
Ø 5/4"

Fig. 2 Condensate connection, Condensate cup



Condensate tray
with drain

GENERAL

USER

SPECIALIST PERSONNEL

16.3 CONNECTION OF AIR LINES AND COMPONENTS

When connecting the air line, make sure that it is air-tight and suitably decoupled from vibrations. The air lines and attachments such as the sound suppressor, for example, may only be fastened to the ventilation unit on suitable solid wall or ceiling structural elements of the building using suitably dimensioned fastening elements.

connections, pay particular attention to ensure that no tools or installation material fall into the connections to the unit or on the unit. This could result in damage to components, for example to the fan blades.

In accordance with the project specifications, suitable and adequate insulation must be prepared for the air line components and fittings.



Avoid using flexible hoses to setup the connections to the unit. When setting up the line

16.4 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

16.5 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.
- 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.)

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!

17.1 CONNECTION TO WEB SERVER (OPTIONAL!)

In the controller part of the ventilation unit, directly on the "PI-Air2 Master", is a corresponding RJ-45 jack (see graphic)

that is provided for communication with a TCP/IP network.

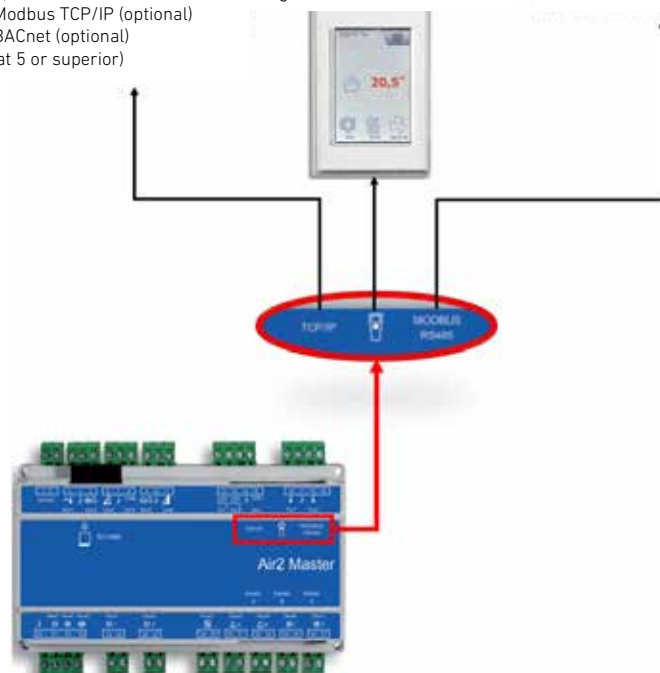
RJ45 connection for:

- optional webservice
- Modbus TCP/IP (optional)
- BACnet (optional)

(Cat 5 or superior)

R12 connection for control unit
Length of cable max. 50 m

R12 connection for
External Modbus RTU (optional)



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 Fig.1) provided for connecting 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 6x0,14 mm² electric cable or a flat ribbon cable AWG28/6G (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!

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 Fig. 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 Fig. 2).

back cover can now be detached and the front cover refitted.

Once the front cover has been detached, the two screws holding the back cover in place can be removed (see Fig. 3). The

The baseplate is equipped with several screw holes. The dimensioned drawing (see Fig. 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.

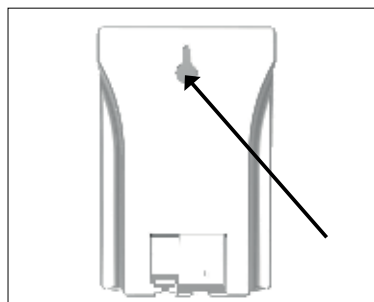


Fig. 1: Installation on flat surface

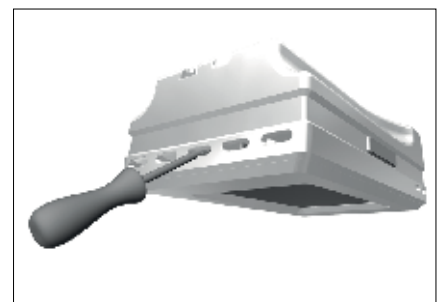


Fig. 2: Removing the front cover

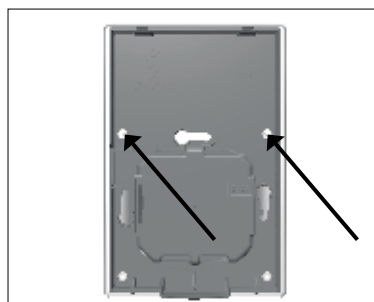


Fig. 3: Removing the back cover

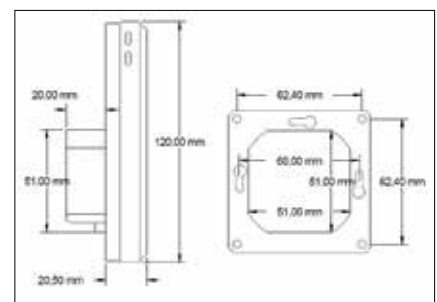


Fig. 4: Dimensioned drawing to facilitate installation in wall box or panel front



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 a hand terminal on the PI Air2 Master and to the RJ12 6P6C port on the PI-HMI (see Fig. 5).

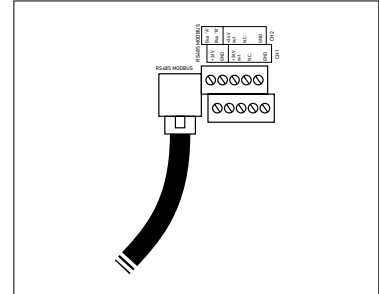


Fig. 5: Connecting Modbus via the RJ12 6P6C port

17.7 MODBUS SCREW TERMINALS

Connect the Modbus cable to the Modbus port for a hand terminal on the PI Air2 Master and to the corresponding screw terminals on the PI-HMI (see Fig. 6).

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

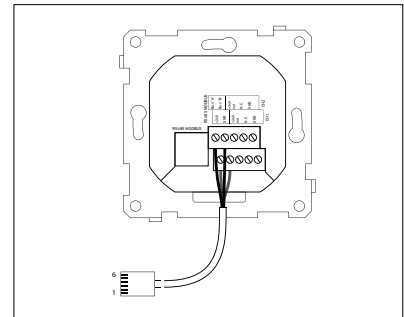


Fig. 6: Connecting Modbus via the screw terminals

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

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

 **PICHLER**

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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 sub-assemblies - 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 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,

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.

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.

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 $U = 230 \text{ VAC}$ and $I_{\text{max}} = 2 \text{ A}$.

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

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.

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.

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

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

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.

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 1400(S)/ LG 3200(S) compact ventilation unit, please contact the

installer of the ventilation and air-conditioning 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

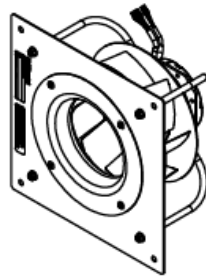
work, then they must be eliminated immediately for safe operation of the system. Original spare parts may be used exclusively for replacements and repairs.

18.2.1 Outdoor and extracted air compact filters

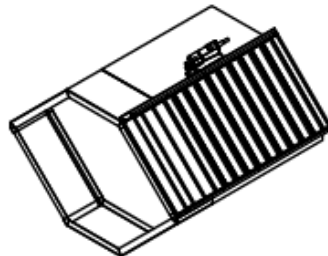
The condition of the air filters must be checked regularly. If they are very dirty, then the filters must be replaced immediately. Otherwise the filters are replaced at intervals of at least half a year depending of the pollution of the outdoor air. Original replacement filters are to be used exclusively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

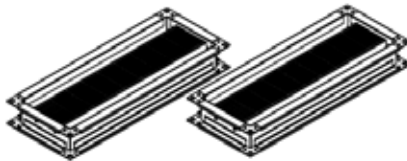
Details see Chapter 11 „Filter maintenance“!

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.

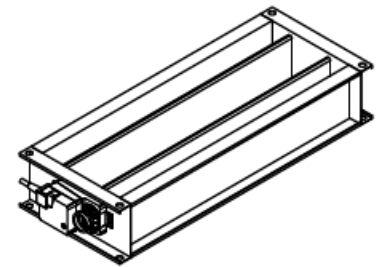
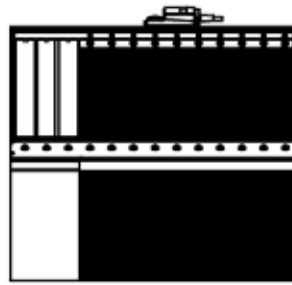
18.2.4 Pre- and re-heater battery

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.



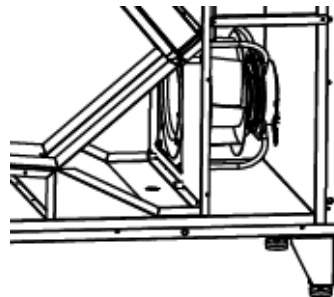
18.2.5 Bypass flap, exhaust air flap, outdoor air flaps



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.

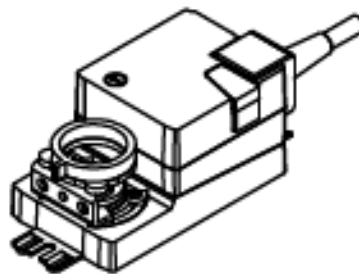
18.2.6 Condensate tray



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

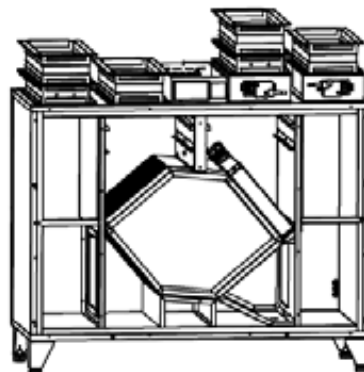
18.2.7 Servo motors



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

Otherwise the motors are maintenance-free.

18.2.8 Unit's housing - cleaning the inside



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.

A vacuum cleaner must be used to remove dust. Electrical components must not come into contact with moisture or wetness. In particular, make sure to avoid any possible damage to the temperature sensors and electrical connection line.

GENERAL

USER

SPECIALIST PERSONNEL



18.3 MAINTENANCE TABLE

GENERAL

USER

SPECIALIST PERSONNEL

	Task	Action	Monthly	3 months	6 months	12 months	24 months	Hygiene, inspection
1	Outdoor and exhaust air outlets							
1.1	Check for dirt, damage and corrosion	Clean and repair				x		
2	Room control/Unit housing							
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			
3	Air filter							
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					
4	Heat exchanger							
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
5	Fan							
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		
6	Air ducts and sound dampening							
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
7	Air apertures							
7.1	Spot check installed perforated plates, wire mesh or sieves for dirt					x		
7.2	Replace woven filter medium (dirt or time)					x		
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		
8	Terminal devices							
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	



This table must be completed (for documentation) after completion of the maintenance work on the system:

System installed by:			Date
No.	Maintenance work (e.g. replace filter)	Performed by signature	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

GENERAL

USER

SPECIALIST PERSONNEL



GENERAL

USER

SPECIALIST PERSONNEL

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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 nameplate voltage. The nominal mains voltage is 400 V/50 Hz (three phase) or 230 V/50 Hz (single phase, LG 1400 without electrical heating battery).



Before starting up the ventilation unit, the entire ventilation system must be completed, connected electrically, hydraulically and to the air and it must be operational. Only when all work on the system has been completed is a start-up or system setup possible.

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 FACTORY SETTING OF THE FAN SPEEDS FOR LG 1400 (S)

Fan speed	Mode of operation	Description	Volumetric flow rate
low speed	Normal ventilation	Fan speed that is active if no other fan speed has been selected manually or via the automatic system	800 m ³ /h
high speed	Intensive ventilation	Operation with increased volume flow, rush airing for short, intensive ventilation of the occupied area	1400 m ³ /h

19.2 FACTORY SETTING OF THE FAN SPEEDS FOR LG 3200 (S)

Fan speed	Mode of operation	Description	Volumetric flow rate
low speed	Normal ventilation	Fan speed that is active if no other fan speed has been selected manually or via the automatic system	1600 m ³ /h
high speed	Intensive ventilation	Operation with increased volume flow, rush airing for short, intensive ventilation of the occupied area	3000 m ³ /h

19.3 GENERAL PROCEDURE FOR START-UP BY A SPECIALIST

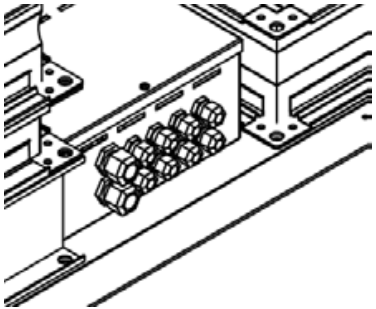
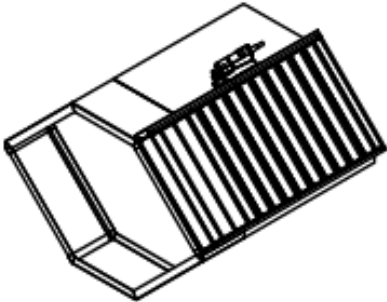
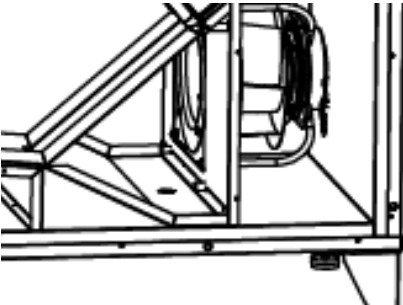

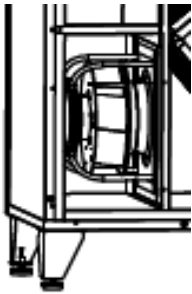

Checks before start-up	<ul style="list-style-type: none"> • Are all air lines and fittings completely installed? • Are all system components installed and electrically connected? • Is the electrical cabling finished and the control unit installed? • Is an operational condensate connection setup? • Are the air passages, inlet and outlet valves (grating) installed correctly and open? • Are the air filters in the ventilation unit installed correctly and in a clean condition? • Are the air filters in the geothermal heat exchanger etc. installed correctly and in a clean condition? • Are the fire protection flaps in an open position if applicable?
Setting the system parameters	<ul style="list-style-type: none"> • Check the system components and correct the setting if applicable. • Set the system parameters, for example adjust the air volume flow/fan speed. • Set the system time. • Program the time of day program in accordance with requirements



GENERAL

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<p>Cable inlets</p> 	<ul style="list-style-type: none"> • To connect the power mains cable, optional system components or external sensors, the cables must be inserted into the ventilation unit through the PG penetrations provided on the top of the unit.
<p>Counter-current plate heat exchanger</p> 	<ul style="list-style-type: none"> • If there is a servo motor for the bypass flap, check to see whether it turns in the right direction.
<p>Condensate tray</p> 	<ul style="list-style-type: none"> • The siphon included with the delivery must be installed properly. There must be sufficient slope (at least 5%) for reliable drainage of the water. • Check that the water drains reliably and that all connections are leak-proof during the start-up. 
<p>Fan</p> 	<ul style="list-style-type: none"> • The fans must run quietly without any grinding noises
<p>Housing front/door</p>	 <ul style="list-style-type: none"> • The housing front/door must be closed tightly after start-up and secured against being opened by unauthorised persons with the key that is included with the delivery.



19.4 CONNECTION OF AIR LINES AND COMPONENTS

- When connecting the air lines, make sure that it is air-tight and suitably decoupled from vibrations.
- The air lines and attachments such as the sound suppressor, for example, may only be fastened to the ventilation unit on suitable solid wall or ceiling structural elements of the building using suitably dimensioned fastening elements.
- When setting up the line connections, pay particular attention to ensure that no tools or installation material fall into the connections to the unit or on the unit. This could result in damage to components, for example to the fan blades.

- In accordance with the project specifications, suitable and adequate insulation must be prepared for the air line components and fittings.



- After completion of the work, all tools and installation materials must be removed from the unit. Make sure that no tools or installation materials are left in the unit, because they may damage or destroy the unit when it starts up.
- When closing the front doors, make sure there is an adequate and reliable seal to the unit's housing to ensure sealing that is air and condensate water tight.

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. Reli-

able system operation is only ensured if original spare parts are used.

21.1 CONTROL ELEMENTS LG 1400 (S)

Designation	Item number
Control unit PI-HMI	08PIHMI
Connecting cable (control unit / compact ventilation unit, copper clad aluminium (CCA) ribbon cable)	40LG041480
RJ12 connector for Connecting cable	40LG041650
PT1000 Temperature sensor with metal sleeve	40LG400011B
Glass time-lag fuse for the Control unit	40LG042550
CO ₂ sensor module with surface-mounted housing	07RCO248330

21.2 SYSTEM COMPONENTS LG 1400 (S)

Designation	Item number
Pre-heater battery 400 V/6 kW for LG 1400 (S) Dimensions: 200 x 710 x 260 mm	40LG0800018A
Electrical re-heater battery 230 V/2 kW (LG 1400) Dimensions: 260 x 654 x 121 mm	40LG080160
Electrical re-heater battery 400 V/2 kW (LG 1400 S) Dimensions: 346 x 646 x 121 mm	40LG080150
Canvas supports for LG 1400 Dimensions: 200 x 596 x 121 mm, P30 <i>(Note: for the LG 1400, 4 pieces of item number 08STELG1400 are required!)</i>	08STELG1400
Canvas supports for LG 1400 S Dimensions: 286 x 586 x 121 mm, P30 <i>(Note: for the LG 1400S, 2 pieces of item number 08STELG1400 and 2 pieces of item number 08STELG1400S are required!)</i>	08STELG1400S
Condensate siphon DN 40 mm	40LG030620
Installation accessories set for canvas supports LG 1400/LG 3200	08STEMONTZB

21.3 FILTER LG 1400 (S)

Designation	Item number
ODA-Filter ISO ePM1 55% (outdoor air) - STANDARD	40LG050130
ODA-Filter ISO ePM1 85% (outdoor air) - OPTIONAL	40LG050150
ETA-Filter ISO Coarse 90% (extract air) - STANDARD	40LG050140
ETA-Filter ISO ePM10 70% (extract air) - OPTIONAL	40LG050160
Replacement filter ISO Coarse 70% filter and flap box LG 1400	40LG0500020A



21.4 CONTROL ELEMENTS LG 3200 (S)

Designation	Item number
Control unit PI-HMI	08PIHMI
Connecting cable (control unit / compact ventilation unit, copper clad aluminium (CCA) ribbon cable)	40LG041480
RJ12 connector for Connecting cable	40LG041650
PT1000 Temperature sensor with metal sleeve	40LG400011B
Glass time-lag fuse for the Control unit	40LG042550
CO ₂ sensor module with surface-mounted housing	07RCO248330

21.5 SYSTEM COMPONENTS LG 3200 (S)

Designation	Item number
Pre-heater battery 400 V/12 kW for LG 3200 (S) Dimensions: 200 x 914 x 334 mm	40LG0800019A
Electrical re-heater battery 400 V/4 kW (LG 3200) Dimensions: 360 x 860 x 121 mm	40LG080220
Electrical re-heater battery 400 V/4 kW (LG 3200 S) Dimensions: 546 x 846 x 121 mm	40LG080230
Canvas supports for LG 3200 Dimensions: 300 x 800 x 121 mm, P30 <i>(Note: for the LG 3200, 4 pieces of item number 08STELG3200 are required!)</i>	08STELG3200
Canvas supports for LG 3200 S Dimensions: 486 x 786 x 121 mm, P30 <i>(Note: for the LG 3200, 2 pieces of item number 08STELG3200 and 2 pieces of item number 08STELG3200S are required!)</i>	08STELG3200S
Condensate siphon DN 40 mm	40LG030620
Installation accessories set for canvas supports LG 1400/LG 3200	08STEMONTZB

21.6 FILTER LG 3200 (S)

Designation	Item number
ODA-Filter ISO ePM1 55% (outdoor air) - STANDARD	40LG050170
ODA-Filter ISO ePM1 85% (outdoor air) - OPTIONAL	40LG050190
ETA-Filter ISO Coarse 90% (extract air) - STANDARD	40LG050180
ETA-Filter ISO ePM10 70% (extract air) - OPTIONAL	40LG050200
Replacement filter ISO Coarse 70% filter and flap box LG 3200	40LG0500021A

21.7 GATEWAY (LG 1400 AND LG 3200)

Designation	Item number
MODBUS/KNX-GATEWAY	08KNXGAB



22. Product data sheets

22.1 PRODUCT DATA SHEET LG 1400 (F)

Model ID	LG 1400 F
Type	Ventilation plant for non-residential use, central ventilation plant
Drive type	Speed control
Type of heat recovery *	Other heat recovery system

Thermal transmission with validation conditions (EN308)	η_{t_nwla}	77,80	[%]
Nominal airflow	qnom	800	[m ³ /h]
Electrical input power (effective power)	PeI,ges (Pm)	0.46	[kW]
Internal specific fan power / Validation	SVLint (SFPint) / SFP	519 / 1393	[W/(m ³ /s)]
Classification of the specific fan power / Validation	SFPv-class	SFP3	[-]
Maximum permissible SVLint as of 2018 in accordance with EU regulation 1253/20	SVLintlimit_2018	1.061	[W/(m ³ /s)]
Transfer velocity SUP / ETA	w	0,37 / 0,37	[m/s]
Velocity class SUP / ETA	V-class	V1 / V1	[-]
Nominal outside pressure SUP / ETA	dps, ext	200 / 200	[Pa]
Internal pressure drop across ventilation components SUP / ETA	dps, int	143 / 115	[Pa]
Internal pressure drop across non-ventilation components SUP / ETA	dps, add	169 / 200	[Pa]
Static efficiency fan SUP / ETA (design point)	nfan	49,7 / 49,7	[%]
Maximum external air leakage at +400 / - 400 Pa		0,09 / 0,06	[%]
Maximum internal air leakage (at 250 Pa)		2,00	[%]
Annual energy class SUP-Filter (Speed 1) **	ePM1 55%	452,39	[kWh]
Annual energy class SUP-Filter (Speed 2) **			[kWh]
Annual energy class ETA-Filter **	Coarse 90%	309,43	[kWh]

* Types of heat recovery:	no
	closed-circuit-system
	other types of heat recovery

** The energy class is calculated based on the annual operating hours (8760 h) and average pressure loss (see table below for final pressure loss pursuant to ÖNORM EN 13053).

	Filter class	Final pressure difference
Max. pressure drop across filter pursuant to ÖNORM EN 13053:	G1-G4	150 Pa
	M5-F7	200 Pa
	F8-F9	300 Pa

For units without a controller:

The ventilation unit is to be equipped with a controller that continuously adapts the electrical energy with which the fans are supplied, in order to control the air volume flow. In addition, the controller must be able to control the heat exchanger bypass. In order to ensure compliance with ErP2018, the customer agrees to provide the ventilation unit controller with an optical indicator device or an acoustic warning device that is triggered when the pressure drop on the filter exceeds the maximum permissible value (see table for maximum filter drop loss values).

Only if these conditions are met, the ventilation unit complies with the EU regulation 1253/2014.

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

Visual filter warning (for units with Air-2-controller)

The ventilation unit has a visual warning to replace the filter. An error message will be displayed on the control panel when the set pressure difference is exceeded.

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

Disposal

Equipment that is no longer functional must be uninstalled by a specialist firm and properly disposed of at a suitable facility. The Electrical and Electronic Equipment Act (EAG-VO), implementing Community law Directives 2002/95/EC (RoHS) and 2002/96/EC (WEEE Directive) applies.



22.2 PRODUKTDATENBLATT LG 1400 (T)

Model ID	LG 1400 T
Type	Ventilation plant for non-residential use, central ventilation plant
Drive type	Speed control
Type of heat recovery *	Other heat recovery system

Thermal transmission with validation conditions (EN308)	η_{t_nwla}	85,40	[%]
Nominal airflow	q_{nom}	800	[m ³ /h]
Electrical input power (effective power)	$P_{el,ges} (P_m)$	0.44	[kW]
Internal specific fan power / Validation	SVLint (SFPint) / SFP	425 / 1299	[W/(m ³ /s)]
Classification of the specific fan power / Validation	SFPv-class	SFP3	[-]
Maximum permissible SVLint as of 2018 in accordance with EU regulation 1253/20	SVLintlimit_2018	1.289	[W/(m ³ /s)]
Transfer velocity SUP / ETA	w	0,37 / 0,37	[m/s]
Velocity class SUP / ETA	V-class	V1 / V1	[-]
Nominal outside pressure SUP / ETA	dps, ext	200 / 200	[Pa]
Internal pressure drop across ventilation components SUP / ETA	dps, int	116 / 94	[Pa]
Internal pressure drop across non-ventilation components SUP / ETA	dps, add	169 / 200	[Pa]
Static efficiency fan SUP / ETA (design point)	nfan	48,99 / 50	[%]
Maximum external air leakage at +400 / - 400 Pa		0,09 / 0,06	[%]
Maximum internal air leakage (at 250 Pa)		2,00	[%]
Annual energy class SUP-Filter (Speed 1) **	ePM1 55%	458,95	[kWh]
Annual energy class SUP-Filter (Speed 2) **			[kWh]
Annual energy class ETA-Filter **	Coarse 90%	307,57	[kWh]

* Types of heat recovery:	no
	closed-circuit-system
	other types of heat recovery

** The energy class is calculated based on the annual operating hours (8760 h) and average pressure loss (see table below for final pressure loss pursuant to ÖNORM EN 13053).

	Filter class	Final pressure difference
Max. pressure drop across filter pursuant to ÖNORM EN 13053:	G1-G4	150 Pa
	M5-F7	200 Pa
	F8-F9	300 Pa

For units without a controller:

The ventilation unit is to be equipped with a controller that continuously adapts the electrical energy with which the fans are supplied, in order to control the air volume flow. In addition, the controller must be able to control the heat exchanger bypass. In order to ensure compliance with ErP2018, the customer agrees to provide the ventilation unit controller with an optical indicator device or an acoustic warning device that is triggered when the pressure drop on the filter exceeds the maximum permissible value (see table for maximum filter drop loss values).

Only if these conditions are met, the ventilation unit complies with the EU regulation 1253/2014.

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

Visual filter warning (for units with Air-2-controller)

The ventilation unit has a visual warning to replace the filter. An error message will be displayed on the control panel when the set pressure difference is exceeded.

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

Disposal

Equipment that is no longer functional must be uninstalled by a specialist firm and properly disposed of at a suitable facility. The Electrical and Electronic Equipment Act (EAG-VO), implementing Community law Directives 2002/95/EC (RoHS) and 2002/96/EC (WEEE Directive) applies.



22.3 PRODUCT DATA SHEET LG 3200 (F)

Model ID	LG 3200 F
Type	Ventilation plant for non-residential use, central ventilation plant
Drive type	Speed control
Type of heat recovery *	Other heat recovery system

Thermal transmission with validation conditions (EN308)	η_{t_nwla}	80,30	[%]
Nominal airflow	qnom	1.700	[m ³ /h]
Electrical input power (effective power)	PeI,ges (Pm)	0.88	[kW]
Internal specific fan power / Validation	SVLint (SFPint) / SFP	434 / 1238	[W/(m ³ /s)]
Classification of the specific fan power / Validation	SFPv-class	SFP3	[-]
Maximum permissible SVLint as of 2018 in accordance with EU regulation 1253/20	SVLintlimit_2018	1.098	[W/(m ³ /s)]
Transfer velocity SUP / ETA	w	1,24 / 1,24	[m/s]
Velocity class SUP / ETA	V-class	V1 / V1	[-]
Nominal outside pressure SUP / ETA	dps, ext	200 / 200	[Pa]
Internal pressure drop across ventilation components SUP / ETA	dps, int	131 / 102	[Pa]
Internal pressure drop across non-ventilation components SUP / ETA	dps, add	168 / 200	[Pa]
Static efficiency fan SUP / ETA (design point)	nfan	53,55 / 53,88	[%]
Maximum external air leakage at +400 / - 400 Pa		0,00 / 0,00	[%]
Maximum internal air leakage (at 250 Pa)		2,00	[%]
Annual energy class SUP-Filter (Speed 1) **	ePM1 55%	896,08	[kWh]
Annual energy class SUP-Filter (Speed 2) **			[kWh]
Annual energy class ETA-Filter **	Coarse 90%	606,53	[kWh]

* Types of heat recovery:	no
	closed-circuit-system
	other types of heat recovery

** The energy class is calculated based on the annual operating hours (8760 h) and average pressure loss (see table below for final pressure loss pursuant to ÖNORM EN 13053).

	Filter class	Final pressure difference
Max. pressure drop across filter pursuant to ÖNORM EN 13053:	G1-G4	150 Pa
	M5-F7	200 Pa
	F8-F9	300 Pa

For units without a controller:

The ventilation unit is to be equipped with a controller that continuously adapts the electrical energy with which the fans are supplied, in order to control the air volume flow. In addition, the controller must be able to control the heat exchanger bypass. In order to ensure compliance with ErP2018, the customer agrees to provide the ventilation unit controller with an optical indicator device or an acoustic warning device that is triggered when the pressure drop on the filter exceeds the maximum permissible value (see table for maximum filter drop loss values).

Only if these conditions are met, the ventilation unit complies with the EU regulation 1253/2014.

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

Visual filter warning (for units with Air-2-controller)

The ventilation unit has a visual warning to replace the filter. An error message will be displayed on the control panel when the set pressure difference is exceeded.

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

Disposal

Equipment that is no longer functional must be uninstalled by a specialist firm and properly disposed of at a suitable facility. The Electrical and Electronic Equipment Act (EAG-VO), implementing Community law Directives 202/95/EC (RoHS) and 2002/96/EC (WEEE Directive) applies.



22.4 PRODUCT DATA SHEET LG 3200 (T)

Model ID	LG 3200 T
Type	Ventilation plant for non-residential use, central ventilation plant
Drive type	Speed control
Type of heat recovery *	Other heat recovery system

Thermal transmission with validation conditions (EN308)	η_{t_nwla}	85,20	[%]
Nominal airflow	qnom	1.700	[m ³ /h]
Electrical input power (effective power)	PeI,ges (Pm)	0.86	[kW]
Internal specific fan power / Validation	SVLint (SFPint) / SFP	393 / 1196	[W/(m ³ /s)]
Classification of the specific fan power / Validation	SFPv-class	SFP3	[-]
Maximum permissible SVLint as of 2018 in accordance with EU regulation 1253/20	SVLintlimit_2018	1.245	[W/(m ³ /s)]
Transfer velocity SUP / ETA	w	1,24 / 1,24	[m/s]
Velocity class SUP / ETA	V-class	V1 / V1	[-]
Nominal outside pressure SUP / ETA	dps, ext	200 / 200	[Pa]
Internal pressure drop across ventilation components SUP / ETA	dps, int	117 / 94	[Pa]
Internal pressure drop across non-ventilation components SUP / ETA	dps, add	168 / 200	[Pa]
Static efficiency fan SUP / ETA (design point)	nfan	53,26 / 54,25	[%]
Maximum external air leakage at +400 / - 400 Pa		0,00 / 0,00	[%]
Maximum internal air leakage (at 250 Pa)		2,00	[%]
Annual energy class SUP-Filter (Speed 1) **	ePM1 55%	900,96	[kWh]
Annual energy class SUP-Filter (Speed 2) **			[kWh]
Annual energy class ETA-Filter **	Coarse 90%	602,39	[kWh]

* Types of heat recovery:	no
	closed-circuit-system
	other types of heat recovery

** The energy class is calculated based on the annual operating hours (8760 h) and average pressure loss (see table below for final pressure loss pursuant to ÖNORM EN 13053).

	Filter class	Final pressure difference
Max. pressure drop across filter pursuant to ÖNORM EN 13053:	G1-G4	150 Pa
	M5-F7	200 Pa
	F8-F9	300 Pa

For units without a controller:

The ventilation unit is to be equipped with a controller that continuously adapts the electrical energy with which the fans are supplied, in order to control the air volume flow. In addition, the controller must be able to control the heat exchanger bypass. In order to ensure compliance with ErP2018, the customer agrees to provide the ventilation unit controller with an optical indicator device or an acoustic warning device that is triggered when the pressure drop on the filter exceeds the maximum permissible value (see table for maximum filter drop loss values).

Only if these conditions are met, the ventilation unit complies with the EU regulation 1253/2014.

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

Visual filter warning (for units with Air-2-controller)

The ventilation unit has a visual warning to replace the filter. An error message will be displayed on the control panel when the set pressure difference is exceeded.

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

Disposal

Equipment that is no longer functional must be uninstalled by a specialist firm and properly disposed of at a suitable facility. The Electrical and Electronic Equipment Act (EAG-VO), implementing Community law Directives 2002/95/EC (RoHS) and 2002/96/EC (WEEE Directive) applies.



GENERAL

23. 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.

USER

SPECIALIST PERSONNEL



Notes

GENERAL

USER

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ErP
2018

ErP 2018

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



Your partner/installer:

klimaaktiv
Partner

PASSIVHAUS
Austria

Responsible for the content: J. Pichler Gesellschaft m.b.H. | Photos: J. Pichler Gesellschaft m.b.H.
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