

## Assembly and Operating Manual

### SLIGHTLINE, Supply air unit with control

SL 6030 ... E ... J

SL 9030 ... E ... J

SL 9040 ... E ... J

SL 12040 ... E ... J

English

The data specified above only serve to describe the product. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification.

It must be remembered that our products are subject to a natural process of wear and aging.

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The picture on the cover shows an example configuration. The product supplied may therefore differ from the illustration.

The original manual has been produced in the German language.

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We reserve the right to make changes

## Assembly and Operating Manual

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## 1. Important information

This manual contains important information on the safe and appropriate assembly, transport, commissioning, operation, maintenance, disassembly and simple troubleshooting of the product.

The product has been manufactured according to the accepted rules of current technology.

There is, however, still a danger of personal injury or damage to equipment if the following general safety instructions and the warnings before the steps contained in these instructions are not complied with.

- **Read these instructions completely and thoroughly before working with the product.**
- **Keep these instructions in a location where they are accessible to all users at all times.**
- **Always include the operating instructions when you pass the product on to third parties.**



### 1.1. Rules and regulations

Also observe the generally applicable, legal or otherwise binding regulations of the European or national legislation and the rules for the prevention of accidents and for environmental protection applicable in your country.

### 1.2. Guarantee and liability

**ruck** products are made to the highest technical standards in accordance with the generally recognized rules of the profession. They are subject to constant quality control and meet the relevant requirements when delivered. Because the products are being constantly developed, we reserve the right to make changes to the products at any time and without prior announcement. We do not accept any liability for the correctness or completeness of this installation and operating manual.

**The warranty only applies to the delivered configuration. The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.**

## 2. General safety instructions

Planners, plant engineers and operators are responsible for ensuring that the product is installed and operated correctly.

- Exclusively use **ruck** Ventilatoren in good technical order and condition.
- Check the product for visible defects, for example cracks in the housing or missing rivet, screws and covers.
- Only use the product within the performance range provided in the technical data.
- Protection against contact and being sucked in and safety distances should be provided in accordance with DIN EN 13857.
- Generally prescribed electrical and mechanical protection devices are to be provided by the client.
- Safety components must not be bypassed or put out of operation.
- The product may be operated by personnel with limited physical, sensory or mental capacities only if they are supervised or have been instructed by responsible personnel.
- Children must be kept away from the product!



### 2.1. Intended use

The **ruck** fan is a component in terms of the machine directive 2006/42/EC (partly completed machinery). The product is a not ready-for-use machine in terms of the machine directive. It is intended exclusively for installation in a machine or in ventilation equipment and installations or for combination with other components to form a machinery or installation. The product may be commissioned only if its integrated in the machinery/system for which it is designed and the machinery/system fully complies with the EC machinery directive. **Observe the operating conditions and performance limits specified in the technical data.**

**ruck** ventilation products can be used to provide:

- Clean, dry air (no condensation) and non-aggressive gases with a maximum density of 1.2 kg/m<sup>3</sup>.
- The medium and room temperatures and the humidity range given in the technical data and on the rating plate.

**Intended use includes having read and understood these instructions, especially chapter 2 "General safety instructions".**



## 2.2. Improper use

Any use of the product other than described in chapter “Intended use” is considered as improper. The following points are improper and dangerous:

- Delivery of explosive and flammable media or operation in potentially explosive atmospheres.
- Delivery of aggressive and abrasive media.
- Delivery of media containing dust or grease.
- Installation outside without any protection against the weather.
- Eine Aufstellung in Feuchträumen.
- Operation without the duct system.
- Operation with closed air connections.

## 2.3. Personnel qualifications

Assembly, commissioning, operation, disassembly and service (including maintenance and repair) require basic mechanical and electrical knowledge, as well as knowledge of the appropriate technical terms. In order to ensure operating safety, these activities may therefore only be carried out by qualified technical personnel or a instructed person under the direction and supervision of qualified personnel. Qualified personnel are those who can recognize possible hazards and institute the appropriate safety measures due to their professional training, knowledge, and experience, as well as their understanding of the relevant conditions pertaining to the work to be done. Qualified personnel must observe the rules relevant to the subject area.









## 2.4. Safety instructions in this manuel

In this manual, there are safety instructions before the steps whenever there is a danger of personal injury or damage to the equipment. The measures described to avoid these hazards must be observed.

Safety instructions are set out as follows:

- Safety sign (warning triangle)** - Draws attention to the risk.
- **Type of risk** - Identifies the type or source of the hazard.
  - » **Consequences** - Describes what occurs when the safety instructions are not complied with.
  - **Precautions** - States how the hazard can be avoided.

Safety sign (warning triangle)	Denotation
	<b>General warning!</b> Indicates possible hazardous situations. Failure to observe the warnings may result in personal injury and / or damage to property.
	<b>Electricity warning (hazardous voltage)!</b> Indicates possible hazards due to electricity. Failure to observe the warnings may result in death, injury and/or damage to property.
	<b>Hot surface warning!</b> Indicates possible hazards due to high surface temperatures. Failure to observe the warnings may result in personal injury and/or damage to property.
	<b>Crushing of fingers warning!</b> Indicates possible hazards due to moving and rotating parts. Failure to observe the warnings may result in personal injury.
	<b>Overhead load warning!</b> Indicates possible hazards due to overhead loads. Failure to observe the warnings may result in death, injury and/or damage to property.
	<b>Important instructions follow!</b> Instructions for safe, optimum use of the product.

## 2.5. Adhere to the following instructions



### 2.5.1. General instructions

- Observe the provisions for accident prevention and environmental protection for the country where the product is used and at the workplace.
- Persons who assemble, operate, disassemble or maintain **ruck** products must not consume any alcohol, drugs or pharmaceuticals that may affect their ability to respond.
- Responsibilities for the operation, maintenance and regulation of the product should be clearly determined and observed so that there can be no unclear areas of responsibility with regard to safety.
- Never overload the product. Never use it as a handle or step. Do not place anything on it.
- The warranty only applies to the delivered configuration.
- The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.

### 2.5.2. During installation

- Disconnect all of the product's poles from the mains before installing the product or connecting or removing plugs. Make sure that the product cannot be switched back on again.
- Lay cables and lines so that they cannot be damaged and no one can trip over them.
- Before commissioning, make sure that all gaskets and seals in the plug-in connections are correctly fitted and undamaged in order to prevent fluids and foreign matter getting into the product.
- Information signs must not be changed or removed.

### 2.5.3. During commissioning

- Make sure that all electrical connections are either used or covered. Commission the product only if it is installed completely.
- The power switch must be always fully functional and easy accessible!

### 2.5.4. During operation

- Only authorized personnel is allowed to operate the setting mechanisms of the components or parts, under the provision that the system is used as intended.
- In an emergency, or if there is a fault, or other irregularities, switch the equipment off and make sure it cannot be switched back on again.
- The technical data given on the rating plate must not be exceeded.

### 2.5.5. During cleaning

- Never use solvents or aggressive detergents. Only clean the product using a slightly damp, lint-free cloth. Only use water to do this and, if necessary, a mild detergent.
- Do not use a high-pressure cleaner for cleaning.
- After cleaning, make sure that the product is working correctly again.

### 2.5.6. During maintenance and repair

- If operated correctly, **ruck** products only require a minimum amount of maintenance. Please follow all of the instructions given in section 10 in this respect.
- Make sure that no connections or components are loosened unless the device is disconnected from the mains. Make sure that the equipment cannot be switched back on again.
- Individual components must not be interchanged. For example, the components intended for one product may not be used for other products.

### 2.5.7. Disposal

- Dispose the product in accordance with the currently applicable national regulations in your country.

## 2.6. Safety labels on the product

SL ... E2J ...

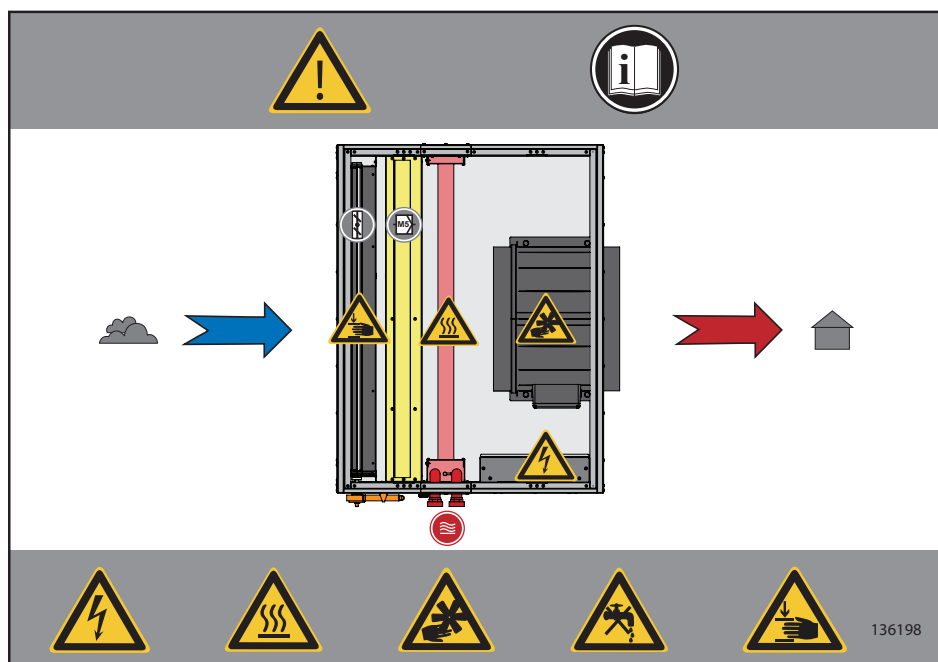


Fig. 1

SL ... E3J ...

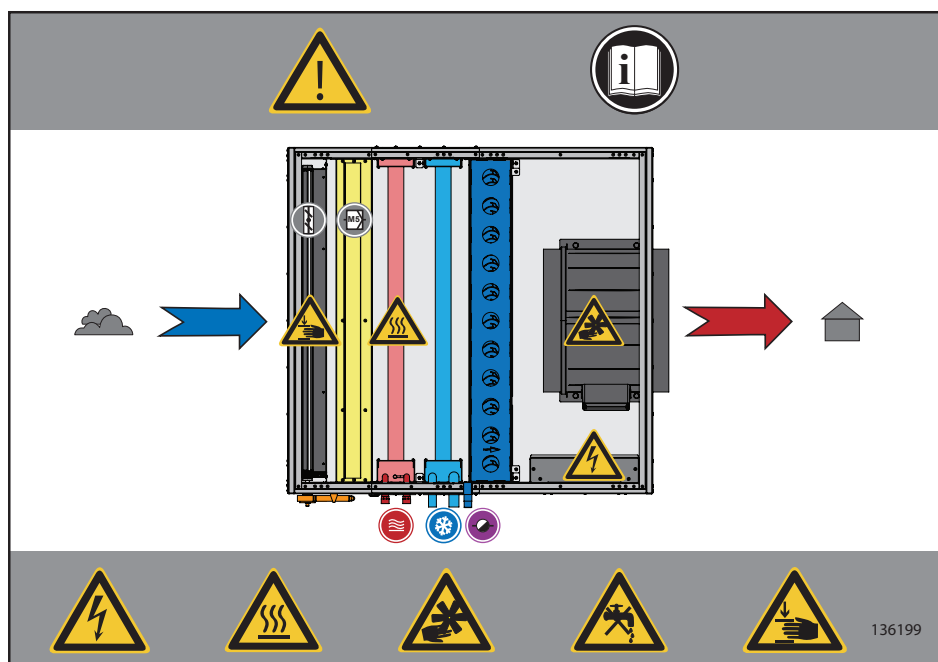


Fig. 2





- General warning
- » Failure to observe the warnings may result in personal injury and / or damage to property.
- Unauthorized repairs may cause personal injury and / or damage to property, in which case the manufacturer's guarantee or warranty will not apply.



- Caution! Burning hazard.
- » Failure to observe the hazard may result in personal injury and/or damage to property.
- Do not touch the surface until the motor and heater have cooled.



- Never reach into rotating or moving parts.
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- Electricity warning (hazardous voltage)!
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect the unit completely from the electricity supply and make sure that it cannot be switched back on again.



- Never reach into the impeller or other rotating or moving parts.
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- Never clean the internal space with flowing water or a high-pressure cleaner. Do not use aggressive or easily flammable products for cleaning (impellers/housing).
- Only use mild soapsuds. The impeller should be cleaned with a cloth or brush.



Read the operating manual before commissioning the product.



Connection condensate drainage



Connections for the heating coils



Connections for cooling or DX-Coil



Air filter (Panel Filter)  
Filter class M5



Bypass

### 3. Delivery contents

Included in delivery depending on model type:

- 1 x SLIGHTLINE air supply unit with diagonal fan
- 1 x EC fan
- 1 x compact filter M5
- 4 x Brackets
- 1 x remote control with control cable 10m
- 1 x main heater (Hot water coil or electrical heating coil depending on the type)
- 1 x Installation and operating manual
- 1 x SL electronic control

### 4. Product and Performance description

The SLIGHTLINE compact supply air unit is a complete, ready-to-use supply air unit. The high quality housing consists of a frameless sheet metal structure with smooth internal and external walls. The housing is insulated with 30 mm mineral wool. There are no cold bridges. Im Innenbereich ist ein mit Glasfaser versiegeltes Schalldämmmaterial, zur Reduzierung der Ventilatorgeräusche und zur Isolierung gegen thermische Verluste angebracht. Der Ventilator ist drehzahlsteuerbar.

Data in detail:

- Galvanized steel housing.
- Removable Galvanized steel cover.
- Motor with integrated thermal contact, designed for continuous operation.
- Integrated shutter (damper)
- Maximum temperature: 40 °C - 55 °C ( technical data).
- Protection class: in ceiling installation with cover at the bottom and correct duct and cable connection, IPX 3 (see connection diagram).
- Hot water coil or electrical heating coil (depending on the type)
- Extractable large compact filters M5.
- Controller installed, wired, ready to plug in.
- Main / Isolator switch
- External control unit with control cable.
- Protection class: in ceiling installation correct duct and cable connection, IPX3 (see 6.1. Permitted installation positions).

#### 4.1. Device description

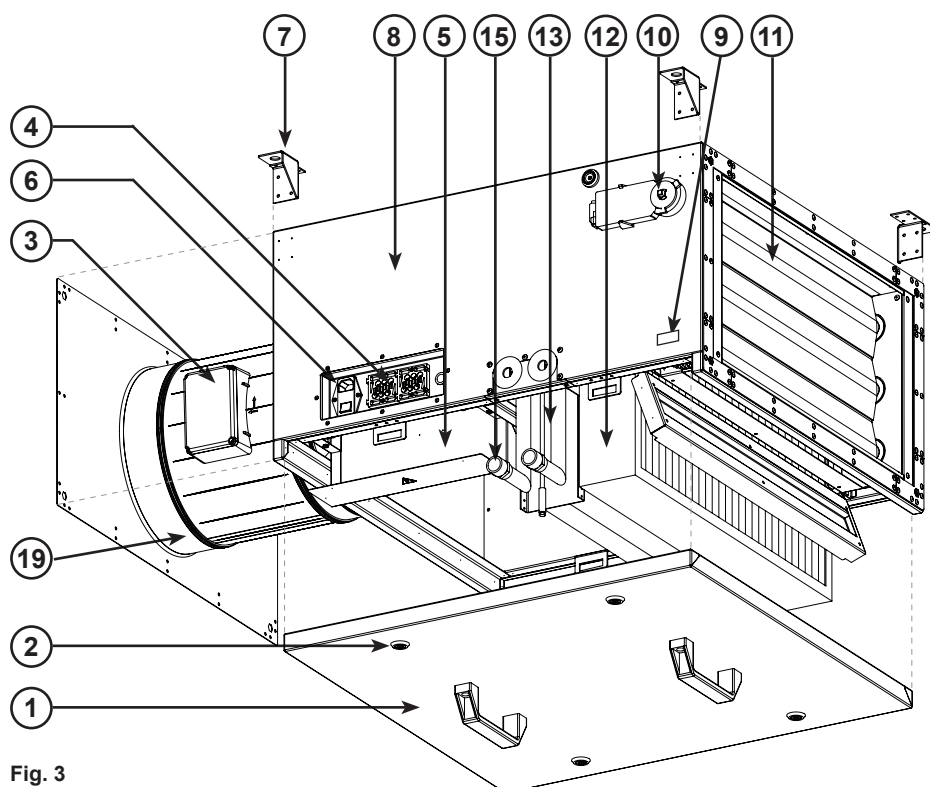


Fig. 3  
SL...E2J

#### Legend

- 1. Cover
- 2. Lock
- 3. Junction box for fan
- 4. Cable bushing
- 5. Switchboard cover
- 6. Isolator switch
- 7. Bracket
- 8. Housing
- 9. Rating plate
- 10. Damper motor
- 11. Damper
- 12. Filter (Panel Filter) M5
- 13. Warm water coil (WW)
- 14. Cold water coil or DX-Coil
- 15. Connection heating coil
- 16. Connection cooling coil
- 17. Droplet separator
- 18. Connection condensate drainage
- 19. Tube fan - ETAMASTER

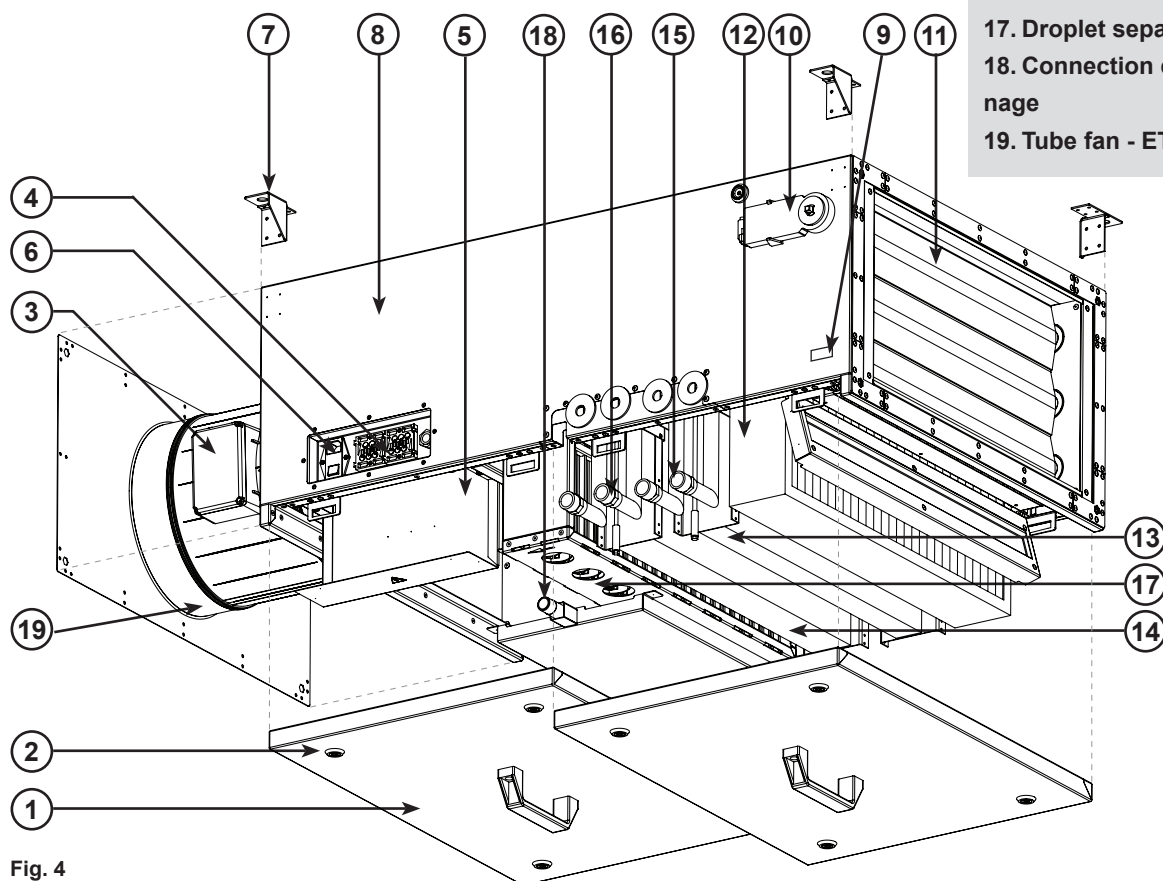
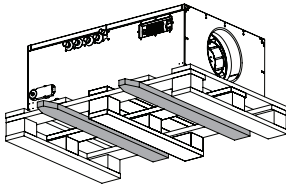


Fig. 4  
SL...E3J

## 5. Transport and storage



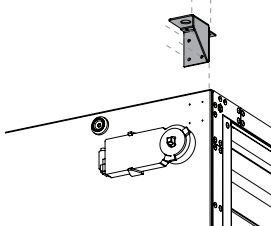
**Fig. 5:**  
Unit transported on a pallet with a forklift.

Transport and storage should only be performed by specialist personnel in accordance with the installation and operating manual and regulations in force.

The following points should be noted and followed:

- Check the delivery according to the delivery note to ensure it is complete and correct and check for any damage. Any missing quantities or damage incurred during transport should be confirmed by the carrier. No liability is accepted if this is not observed.
- The product weighs approx. 77 - 155 kg (depending on the product type in question).
- It should be transported with suitable lifting equipment in the original packaging or on the transport equipment indicated.
- If transported with a forklift it should be ensured that the product is resting with the basic profile or base frame completely on the forks or on a pallet and the product's centre of gravity is between the forks (see Fig. 5).
- The driver must be authorized to drive a forklift.
- Do not go beneath the suspended load.
- Only lift and transport the machine by its base plate, never by the cover handle!
- Avoid damage or deformation of the housing.
- The product must be stored in a dry area and protected from the weather in the original packaging. Open pallets should be covered with tarpaulins.
- Open pallets should be covered with tarpaulins. Even weatherproof modules should be covered because their weather resistance is only guaranteed after complete installation.
- Storage temperature between  $-10^{\circ}\text{C}$  and  $+40^{\circ}\text{C}$ . Avoid severe temperature fluctuations.
- If the product has been in storage for more than a year, check the smooth running of impellers and valves by hand.

## 6. Assembly

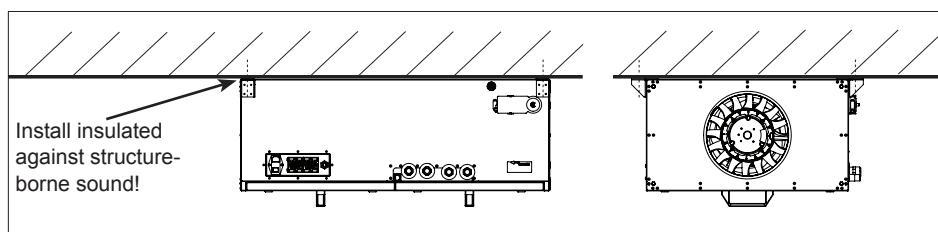


**Fig. 6:**  
Mounting the securing brackets.

Assembly work may only be performed by specialist personnel in accordance with the installation and operating manual and the regulations and standards in force.

The following points should be noted and followed:

- Set up and align the machine with the aid of a water level. Only if the machine is horizontally installed can proper condensate drainage be guaranteed.
- Installation accessories should be provided by the client.
- Only suitable installation aids, in accordance with regulations, should be used.
- The installation should be easily accessible for maintenance and cleaning and should be easy to dismantle. Leave a space of at least the height of the unit + 5 cm from other units, shelves or cabinets to facilitate maintenance work such as changing the filter (see Fig. 8).
- The unit should only be installed using approved and suitable fastening components, using the defined fastening points.
- It must be fastened with screws or threaded rods, minimum diameter 8 mm.
- The unit should only be installed on ceilings or supporting frames with adequate load-bearing capacity. (see Fig. 7)
- Do not distort the unit when installing.
- The unit should be suitably secured.
- No holes should be made in the housing, or any screws screwed into it. Excluded are the mounting screws for the supplied angle bracket (Fig. 6).
- The duct system must not be supported on the housing.
- It is recommended that the duct system is attached with flexible connections in order to isolate any structure-borne noise.
- Make sure that the duct system cannot be closed off.
- Make sure that the intake duct has direct access to the intake air.
- Warning: branches in the intake duct, to other fan units for example, may, if the dimensions are too small, lead to low pressure in the duct and therefore malfunction of the unit.
- The pressure loss in the duct system must not be more than the capacity of the unit! The pressure loss in the duct should not be more than 2/3 the unit's maximum pressure so that an adequate air output can still be achieved. This will prevent malfunction. Pressure losses in the duct system are adversely affected by: the length of the duct system, small duct cross-section, elbows, additional filters, valves, etc.



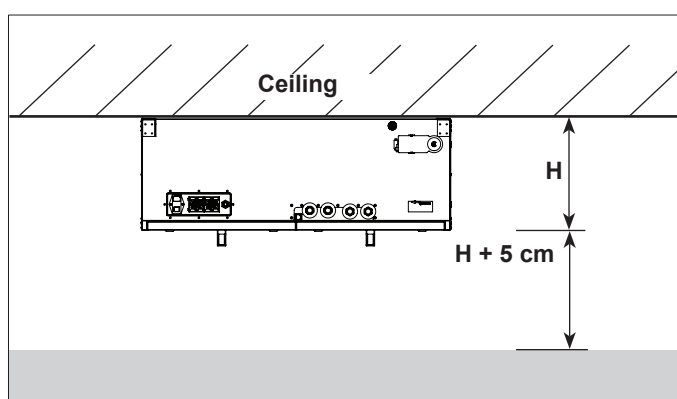
**Fig. 7:**  
Unit suspension

### 6.1. Permitted installation positions

The unit is solely for ceiling mounting in a horizontal installation position. (Fig. 8)

The warranty applies only to units which has been mounted workmanlike as depicted in the „permissible mounting position“.

The warranty will not apply if the product is incorrectly assembled or handled or not used as intended.



See table on chapter 15.  
Technical Data for height  
H.

**Fig. 8:**  
SL-E Ceiling installation / Minimum distance for maintenance work

### 6.2. Air connections

During assembly of the air supply unit, please note the following:

#### Air duct

- The ducting system may not be suspended from the housing.
- To decouple structurally borne noise, it is recommended that elastic couplings are used in the duct system.

### 6.3. Operating limits

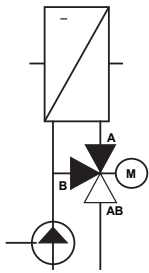
#### Operating limits indoor installation

Fresh air temperature -28 °C to +40 °C

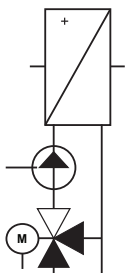
Installation place: +5 °C / max. 15g/kg Water content of the air

For the ventilation of rooms where the emission sources are human metabolism or building materials and structures, such as offices, spaces for public services, meeting rooms.

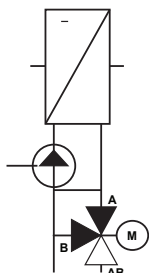
## 6.4. Medium connections / Heating Coil



**Fig. 9:**  
Bypass circuit



**Fig. 10:**  
Admixture circuit



**Fig. 11:**  
Injection circuit

- Before connecting heating coil, the duct system must be thoroughly cleaned.
- Use only permitted sealants (DIN EN 751-2, DVGW tested).
- When making pipe connections to the unit, with screw connections, a wrench, for example, must be used to hold against the tightening torque.
- The connection must be executed without tension.
- Air bleeding must be executed through a threaded sleeve on which a corresponding valve can be connected, keeping the cooling and heating medium in mind.
- All pipes and fittings of the medium connections must be insulated.

### Hydraulic circuits

For air conditioning applications, there are three basic circuits:

#### Bypass circuit

With the bypass circuit, only the hot water is fed to the heating coil. The rest of the water supplied by the pump bypasses the heating coil. This can lead to a temperature difference between top and bottom of the heating coil if the flow of water through it is very small. The resulting temperature gradients can lead to false temperature measurements in the duct or to draught effects in the room. The bypass circuit is usually used in air coolers. In air coolers, the air is partly cooled below the dew point and thereby dehumidified.

#### Admixture circuit

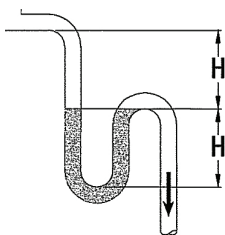
In the admixture circuit, the circulating pump always supplies the full amount of water required by the heating coil with an amount of hot water determined by the valve setting. The temperature is thus constant over the whole heating surface. The temperature control is thus much better. Furthermore, the risk of frost damage when the pump is running is reduced as the continuous circulation and increased pressure reduce the freezing point of the water.

The only advantage of the bypass circuit over the admixture circuit arises when the pipe lengths between three-way ball valve and water heater are very long. Because the pump is ahead of the valve, there is always hot water available at the valve that can be immediately fed to the heat exchanger if required. When in admixture circuit it is possible the water in the pipe to the valve cools, so when heat is required there is a short delay before the hot water reaches the heating coil.

#### Injection circuit

The combination of these circuits is the injection circuit, which is generally recommended.

## 6.5. Condensate drainage



**Fig. 12:**  
Water seal height H

- The cooler is equipped with a stainless steel condensate sump.
- A drainage connection from the condensate sump is brought out of the unit.
- To avoid corrosion, the drain pipe from this connection should be in stainless steel, copper or plastic.
- A siphon must be installed on each condensate drainage connection.
- The water seal height in the siphon depends on the pressure inside the unit, the minimum is 60 mm. For internal pressures above 400 Pa, please refer to the water trap heights in Table.

The water seal height can also be determined by calculation, provided the minimum of 60 mm is maintained:

#### Example calculation:

$$\Delta p_{st} = \Delta p_t - \Delta p_d$$

$$\Delta p_{st} = 500 \text{ Pa (see technical data)}$$

$$1 \text{ mm water gauge equals } 9,81 \text{ Pa}$$

Water seal height H

$$H = \Delta p_{st} / 9,81 \text{ Pa/mm} + 15 \text{ mm}$$

$$H = 500 \text{ Pa} / 9,81 \text{ Pa/mm} + 15 \text{ mm}$$

$$H = 66 \text{ mm}$$

#### Legend

$\Delta p_{st}$  = Static pressure [Pa]  
 $\Delta p_t$  = Total pressure [Pa]  
 $\Delta p_d$  = Dynamic pressure [Pa]  
 H = Water seal [mm]

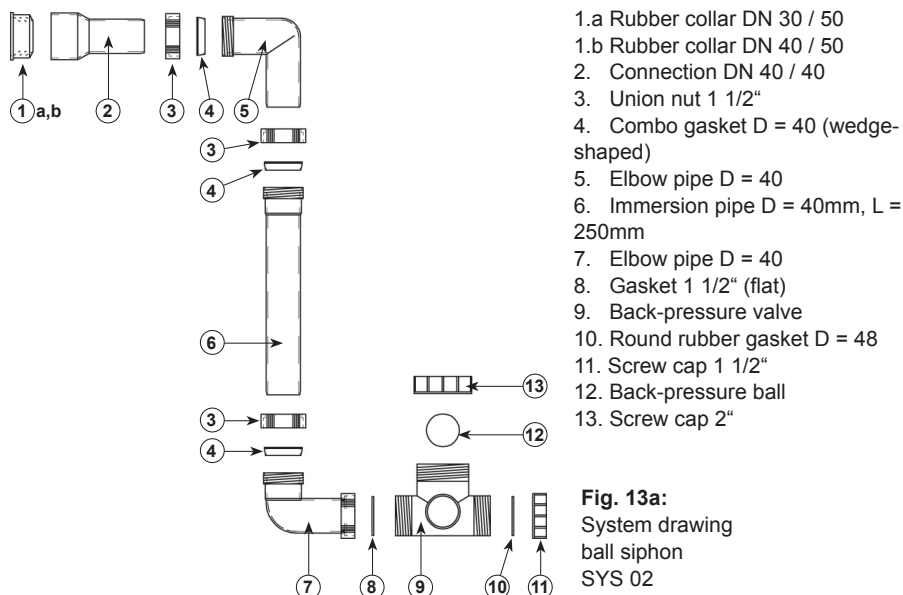
$\Delta p_{st}$ [Pa]	H [mm]
300	60
400	60
500	66
600	76
700	86
800	97

**Table: Water seal height H in siphon as a function off pressure.**

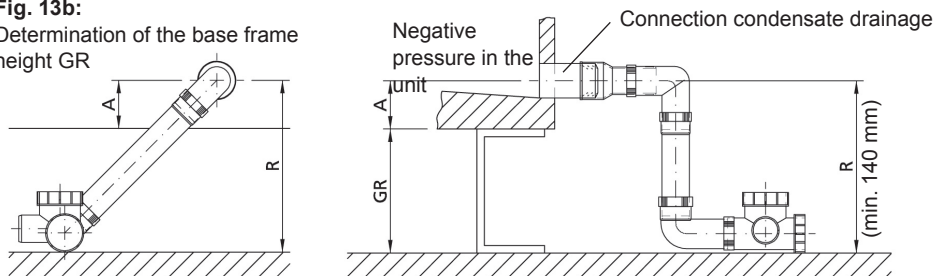
For hygienic reasons, it is recommended to use the suitable siphon SYS 02 for the unit. This siphon provides sufficient water seal height and is equipped with a self-closing ball siphon.

The water seal height for on site siphons can also be determined by calculation, provided the minimum water seal height of 60 mm is maintained.

## 6.6. Ball siphon installation



**Fig. 13b:**  
 Determination of the base frame height GR



**Example:** Negative pressure at the condensate drain connection  $P=1500$  Pa and distance  $A$  is 70 mm.

$$R = P/10 + A = 1500/10 + 70 = 220 \text{ mm}$$

$$GR = R - A = 220 - 70 = 150 \text{ mm}$$

## 7. Electrical connection



- Electricity warning (hazardous voltage)
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.

Electrical installation may only be performed by qualified electricians in accordance with the installation and operating manual and the national regulations, standards and guidelines in force:

- EN, DIN and VDE specifications, including all safety requirements.
- Technical connection conditions
- Safety at work and accident prevention requirements.

**This list does not claim to be complete.**

**Requirements should be applied under one's own personal responsibility.**

The following points should be noted and followed:

- The electrical connections must be made as shown in the corresponding wiring diagrams and terminal diagrams.
- The type of cable, size of cable and method of laying should be determined by an authorized electrician.
- An all-pole mains disconnection device with at least 3 mm contact gap must be provided in the supply line.
- Use a separate cable inlet for each cable.
- Any cable inlets that are not used must be sealed so that it is airtight.
- All cable inlets must have strain relief.
- Create equipotential bonding between the unit and the duct system.
- Check all protective measures after the electrical connection work (earthing resistance, etc.).

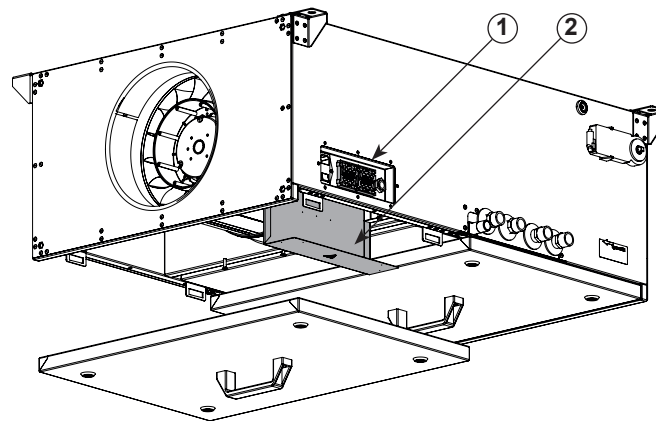


### Connection compartment / Connections on the unit

The connection compartment is inside the unit. Each lead that is connected must pass through a separate cable gland (see Fig. 14). For this, use the supplied cable glands, fittings and cover plate. Cables that carry mains voltage must be fastened with the tension relief devices available.

### Unit supply cable

Connect the mains supply cable as shown in the wiring diagram. For the dimensioning of the line, observe the unit's rating plate and the relevant guidelines. Suitable fuse protection should be provided.



**Fig. 14:**

(1) Cable glands

Connection compartment  
(2) Switchboard cover

## 7.1. Overcurrent protection

- The unit may only be operated with the correct overcurrent protection.
- This must be established by a qualified electrician.
- The recommended protection is shown in the enclosed wiring diagram.
- Pre-fuse 10 A up to max. voltage of 240 V.

## 7.2. Description external inputs and outputs



### Unit enabling

The unit can be switched on and off with an external potential-free contact (see wiring diagram). An external voltage must never be applied to this connection. The control system would be destroyed. Any devices providing a potential-free contact (e.g. central building control system) can be used to control the unit. This contact must be securely isolated from external voltages because otherwise dangerous conditions might occur in the event of a fault.

**The extra-low voltage control cables must be laid separately from the mains cables.**

### Motion detector

A motion detector can be connected to the controller. Bei geschlossenem Kontakt geht das Gerät in Lüfterstufe 3 für die unter Parameter 30 eingestellte Nachlaufzeit.  
External, potential-free contact.

### Circulation pump enable HEATING

A circulation pump can be connected to the controller (see circuit diagram). If heating is required, the heating valve is opened by the controller and the circulation pump output is activated. Any pump connected must be inherently safe and block-proof.

Electrical connection with  $V_{max} = 230 \text{ VAC}$  and  $I_{max} = 2 \text{ A}$ .

### Fire detector

The potential free fire alarm contact switches the device off. In the remote control unit display „FIRE ALARM“ appears. This signals requires a manual reset.

### Modbus RTU

The communication interface with Modbus RTU protocol is already integrated as standard. The central building control system can be connected directly to the integrated interface via Modbus.

The unit can be visualized using the ruck view software. All parameters, measured and set values can be controlled with ruck view.



### 3-way valve heating

Temperature control for the optional warm water heating coil, e.g. active heating to cover the heating demand by the ventilation system. Control output 3-position. Control output 230V.

### 3-way valve cooling

Temperature control for the optional cold water cooling coil, e.g. active outdoor air cooling by the ventilation system. Control output 3-position. Control output 230V.

### 0-10V heating / 0-10V cooling

Control output for 3-point control or DX-coil.

P 22	0 = Heating (Water)	0-10V (X6: 11,12) Parallel to the 3-point control heating
	1 = Cooling (Water)	0-10V (X6: 11,12) Parallel to the 3-point control cooling
	2 = Heating and cooling (Water)	0-10V (X6: 11,12) Parallel to the 3-point control heating 0-10V (X6: 9,10) Parallel to the 3-point control cooling
	3 = Heating condenser and cooling DX-coil	If contact Enable Cooling opened, 0-10V heating (X6: 11,12) If contact Enable Cooling closed, 0-10V cooling (X6: 11,12)

### Unit malfunction

If there is a unit malfunction, an error message appears on the display and at the same time switches a relay. A closing and opening signal is available (see wiring diagram). Electrical connection of the changeover contact with U - 230 VAC and  $I_{max} = 2A$ . (There is not any double insulation on the mains cables).

### Frost protection thermostat

Ein externer Frostschutzthermostat kann an die Regelung angeschlossen werden. When the temperature undershoots the set-point, the dampers close, the circulation pump starts running and the heating valve opens. If the set value is not reached after 20 minutes, the unit switches off completely and the control unit indicates an error.

### External 0 - 10V input

An external measuring transducer can be connected to the 0 - 10V input for demand controlled ventilation. Fan control according parameters in chapter 9.4. Commissioning level.

### External pressure sensor

Two pressure sensors can be connected to the control unit for the operation with constant pressure control. One sensor for extract air pressure, one sensor for supply air pressure.

### Cooling system enable

A floating, normally open contact is provided to enable a cooling unit (see circuit diagram). If cooling is required, the contact is closed. Electrical connection with  $V_{max}=230$  VAC and  $I_{max}=6.3$  A. (there is no double insulation from the mains). If cooling is required, the contact is closed. Electrical connection with  $V_{max}=230$  VAC and  $I_{max}=2$  A. There is no double insulation from the mains. If the set value is reached, if the supply air temperature sinks below 16°C, the contact will be opened.

### Control unit

The control unit is connected to the supply air unit's control system with a control cable. A connector on the control cable is plugged directly into the socket on the control unit from beneath (see Fig. 15). On the unit, the control cable is first fed through a cable gland (see Fig. 14), placed in the cable duct and then connected to the RJ10 socket provided in the controller board. If the cable is too short, extensions can be ordered from the manufacturer or supplier. Alternatively, a 4-wire data cable with 120 Ohm resistance can also be connected. This is fed through the back wall of the control unit and connected to the spring-loaded terminals. In the unit, instead of being connected to the controller board in the RJ10 socket, the cable is connected in the spring-loaded terminals next to it (see wiring diagram).



## 8. Commissioning



- **Electricity warning (hazardous voltage)**
- » **Failure to observe the hazard may result in death, injury or damage to property.**
- **Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.**



- **Never reach into the impeller or other rotating or moving parts.**
- » **Failure to observe the hazard may lead to serious injury.**
- **Work may only be performed once the impeller has come to a complete halt.**



- **Caution! Burning hazard.**
- » **Failure to observe the hazard may result in personal injury and/or damage to property.**
- **Do not touch the surface until the motor and heater have cooled.**



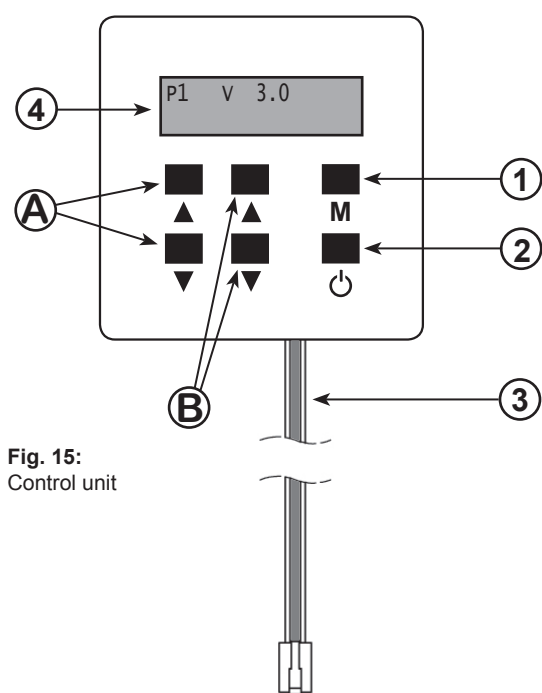
Commissioning by trained technical personnel may only be performed when any risk has been ruled out. The following checks should be performed in accordance with the installation and operating manual and the regulations in force:

- Correctly sealed installation of the unit and duct system.
- Check the duct system, unit and medium lines, if present, remove any foreign bodies if necessary.
- The intake opening and inflow into the unit must be clear.
- Check all mechanical and electrical protection measures (e.g. earthing).
- Voltage, frequency and type of current must correspond with the rating plate.
- Check all electrical connections and wiring.
- Check any electrical, switching, safety and control devices connected.
- The unit may not be switched on when the housing is open.
- Measure electricity consumption at operating speed and compare with the rated current.
- Check the fan for excessive vibrations and noise generation.
- The impeller must not be rubbing against the inlet nozzle or other fittings.










## 9. Operation







### 9.1. Control unit

The control unit enables the control and input of the unit's various functions. The control unit has an integrated temperature sensor (set-point sensor) for measuring the room temperature. The display shows the various operating parameters and error messages. You can select individual menu points or change values with the various buttons.



**Fig. 15:**  
Control unit

- |    |   |  |
|----|---|--|
| 1) |  Mode button<br><b>M</b>   | Switches to the control unit parameter menu. Change-over operating menu to basic menu (Escape).  |
| 2) |  ON/OFF button<br>  | Button for switching the unit on or off or switching to menu management.   |
| A) |  Button A:<br><br>       | Can be used to increase or reduce the set-point temperature in the status display or to switch through the individual operating menus or operating parameters. |
| B) |  Button B:<br><br> | This allows setting the values of the individual operating menus or operating parameters.  |
| 3) | Control cable   |  |
| 4) | Display   |  |

	Replace battery
	CO2 control active
	Timer active
	Temperature
	Filter
	Fan stage

### 9.1.1. Adjustment of the control unit parameter

To be able to make changes to the control unit parameter, you must press the „Mode button“ (M) for at least 5 seconds. P 1 will appear on the display. Use button A (▲) to change to your desired parameter.

#### P 1 Unit control system

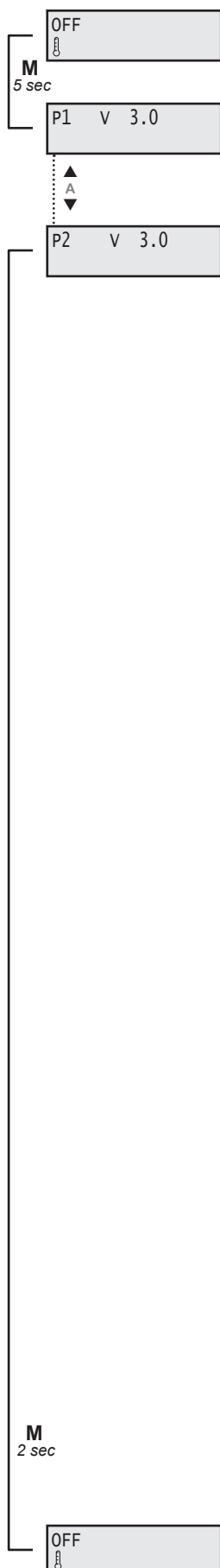
This parameter shows the software version number.

#### P 2 Language setting

Use button A (▲) to change to parameter language setting P 2. Now press button B (▲) and the control unit will change to input mode. You can now use buttons A (▲ and ▼) to select the language required.

Press button B (▲) again to accept the language selected.

Then press the „Mode button“ (M) for at least 2 seconds. The parameters will be saved and the menu will close. The display switches into operating mode.



## 9.2. Overview menu management

**Status ON / OFF**

 OFF  

  
 4 sec

**Display user level**

 SUPPLY AIR TEMP  
 20,7° 20,3°

Supply air temperature

 ROOM TEMPERATURE  
 21,0° V 3.0

Room temperature

SUPPLY AIR88 PA

Pressure loss at the filter

 ▲  
A  
▼

 UNUSED  
 0011001011001111 ↑

Control unit outputs

 UNIT UNABLE ↓  
 0000000000001111

Control unit inputs

 OPERATING HOURS  
 1 x 10

Hours of operation

 FILTER CHANGE  
 1

Filter change counter

  
 6 sec

**Commissioning level  
(trained personnel)**
**1** Fixed fan speed steps.

**2** Constant pressure control

 P13 TYP  
 SL-S

Variable fan speed

 P13 TYP  
 SL-P

 P28 SUPPLY AIR  
 TACHO 1

 P28 SUPPLY AIR  
 TACHO 1

 P29 EXTRACT AIR  
 TACHO 1

 P29 EXTRACT AIR  
 TACHO 1

 P14 SENSORTYPE  
 W/O EXT.SENSOR

 P14 SENSORTYPE  
 CO2

 P15 ↓ 100 PA  
 MIN. VENT

 ▲  
A  
▼

 P23 EXT.SENSOR  
 0 V 0

 P23 EXT.SENSOR  
 0 V 0

 P16 ↑ 100 PA  
 MIN. VENT

 P24 EXT.SENSOR  
 10V 2000

 P24 EXT.SENSOR  
 10V 2000

 P17 ↓ 150 PA  
 BASIC VENT

 P20 AIR QUALITY  
 1400 PPM

 P20 AIR QUALITY  
 1400 PPM

 P18 ↑ 150 PA  
 BASIC VENT

 P14 SENSORTYPE  
 VOC

 P14 SENSORTYPE  
 VOC

 P23 EXT.SENSOR  
 0 V 0

 P23 EXT.SENSOR  
 0 V 0

P21 ROOMTEMP. CONTROL

P22 HEATING

P22 HEATING

P22 HEATING

 P25 SUP.AIR FILT  
 100 PA

 P25 SUP.AIR FILT  
 100 PA

 P25 SUP.AIR FILT  
 100 PA

P27 CALIBRATE FILTER

P27 CALIBRATE FILTER

P27 CALIBRATE FILTER

 P30 RUN-ON TIME  
 5 MIN.

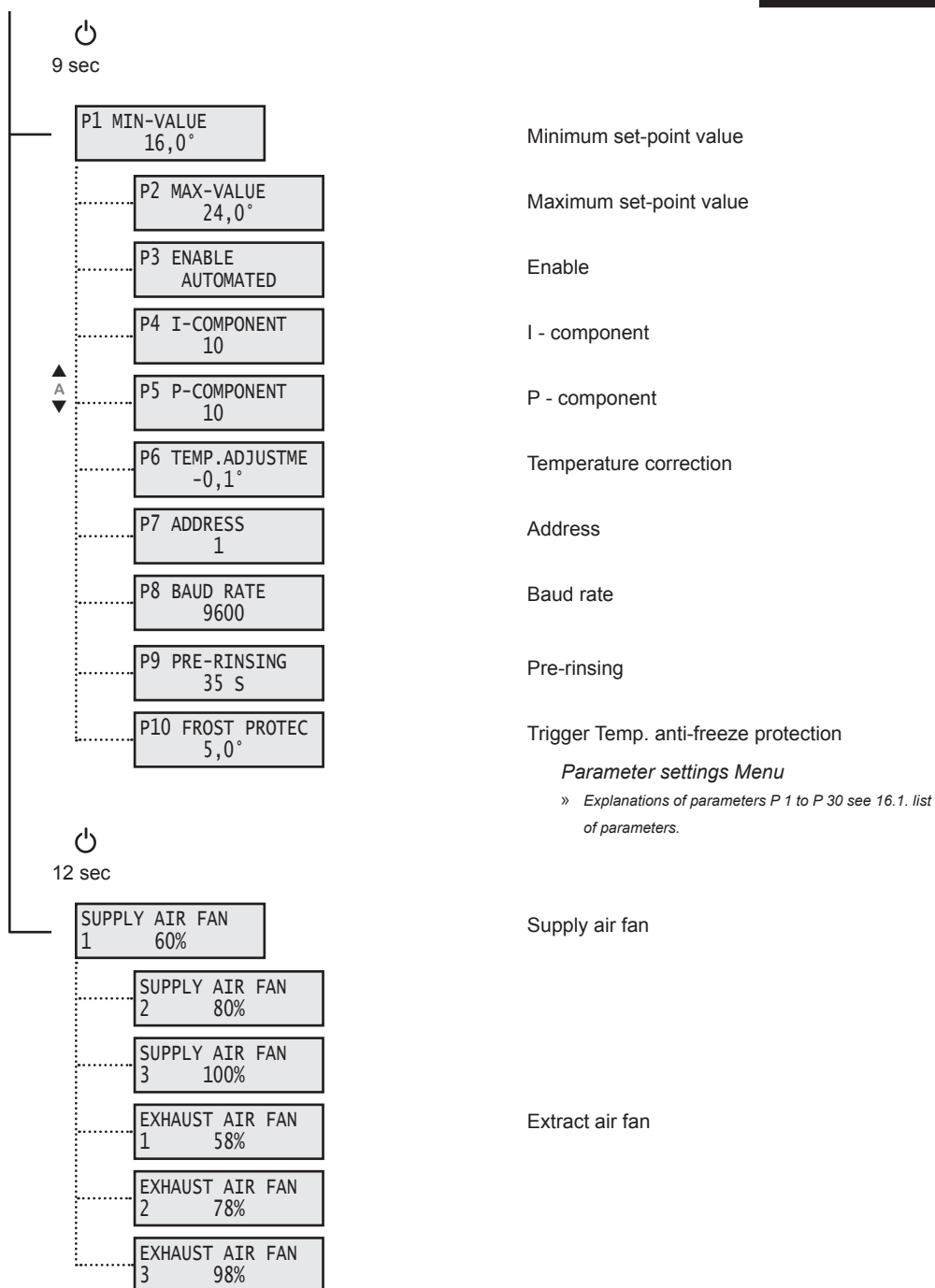
 P30 RUN-ON TIME  
 5 MIN.

 P30 RUN-ON TIME  
 5 MIN.

 P14 SENSORTYPE  
 EXT.CTRL.

 P14 SENSORTYPE  
 EXT.CTRL.

 P30 RUN-ON TIME  
 5 MIN.

**Parameter level  
(trained personnel)**



 Constant 4 sec  
 hold down

 SUPPLY AIR TEMP  
 20,7° 20,5°

 ROOM TEMPERATURE  
 21,0° V 3.0


SUPPLY AIR 88 PA


 UNUSED  
 0011001011001111

Pos. 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1


 UNIT UNABLE  
 0000000000001111

Pos. 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1


 OPERATING HOURS  
 1 x 10

 FILTER CHANGE  
 1

**M**

21,0° 0%

### 9.3. Display user level

You move to the user level by pushing and holding the ON/OFF button for approx. 4 seconds. The display then changes to the volumetric flow. The individual menu points can be called up with buttons A (▲ and ▼) on the control unit. Press the „Mode button“ (M) once to go back to the start functions and the status display.

#### Supply air temperature

Displays the current value of the supply air temperature, measured by a temperature sensor in the device, in the supply air flow.

Temperature sensor 1 (e.g. 20,7°) = sensor for supply air temperature control

Temperature sensor 2 (e.g. 20,5°) = sensor for frost protection

#### Room temperature

Here is displayed the current value of the room air temperature, measured by a temperature sensor in the remote control unit.

The value after V shows the software version of your unit.

#### Pressure loss at the filter

Display for the current pressure loss at the filters.

#### Control unit outputs

Display of the assigned outputs on the control unit.

The individual outputs can be interrogated with buttons B (▲ and ▼).

The selection is made from right to left.

#### Description:

0 = no relay connected

1 = relay connected

Position:	Consequence:	Description:
1	unimplemented	UNUSED
2	1 = on	COOLING PUMP
3	1 = on	ENABLE COOLING
4	1 = opening	COOL VALVE OPEN
5	1 = closing	COOL VALVE CLOSE
6	1 = opening	HEAT VALVE OPEN
7	1 = closing	HEAT VALVE CLOSE
8	1 = on	HEATING PUMP
9	1 = error	FAULT RELAIS
10	1 = closing	AIR FLAP CLOSE
11	1 = opening	AIR FLAP OPEN
12	unimplemented	UNUSED
13	unimplemented	UNUSED
14	unimplemented	UNUSED
15	unimplemented	UNUSED
16	unimplemented	UNUSED

#### Control unit inputs

Display of the assigned inputs on the control unit.

The individual inputs can be interrogated with buttons B (▲ and ▼).

The selection is made from right to left.

#### Description:

0 = false

1 = true

Position:	Consequence:	Description:
1		UNIT ENABLE
2	1 = OK	FROST PROTECTION
3	1 = OK	FIRE PROTECTION
4		MOTION DETECTOR
5	unimplemented	UNUSED
6	unimplemented	UNUSED
7	unimplemented	UNUSED
8	unimplemented	UNUSED
9	1 = error	MOTOR PROTECTION RELAIS EXTRACT AIR 1
10	1 = error	MOTOR PROTECTION RELAIS EXTRACT AIR 2
11	1 = error	MOTOR PROTECTION RELAIS SUPPLY AIR 1
12	1 = error	MOTOR PROTECTION RELAIS SUPPLY AIR 2
13	1 = error	MOTOR PROTECTION TACHO EXTRACT AIR 1
14	1 = error	MOTOR PROTECTION TACHO EXTRACT AIR 2
15	1 = error	MOTOR PROTECTION TACHO SUPPLY AIR 1
16	1 = error	MOTOR PROTECTION TACHO SUPPLY AIR 2

#### Hours of operation

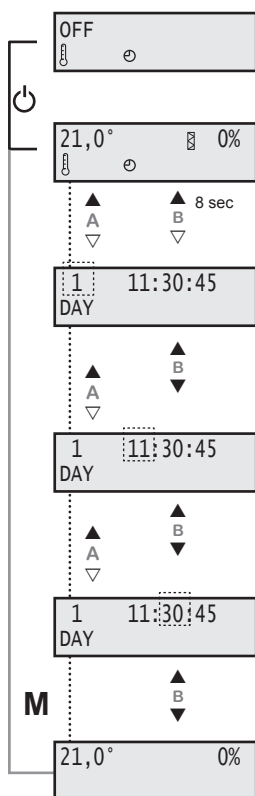
The current number of hours for which the unit has been in constant operation.

Value x 10 in hours.

#### Filter change counter

Number of filter changes made. The value rises automatically whenever a filter has been correctly changed.

More information and notes on changing the filter are given in Section 10.3.1. „Air filter“ in this manual.



#### 9.4. Commissioning level (trained personnel)

##### Setting the current time / day

From the status display, press button A (▲) and B (▲) for approximately 8 s to get to the menu for setting the current time and the current day of the week.

The display shows the current time and day set.

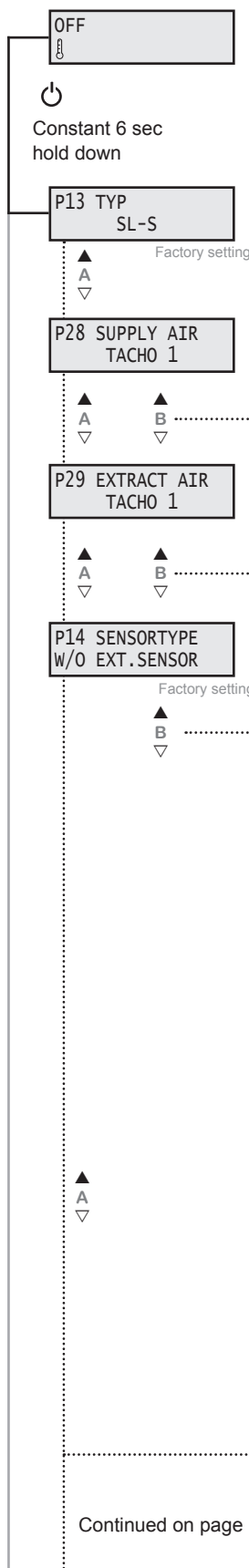
Above the „DAY“ display, there is a value indicating the current day of the week.

When the value is flashing, the value can now be set. Press buttons B (▲ and ▼) to set the current day of the week (see table). Press button A (▲) to confirm the set value.

On the display, the „hour“ now starts to flash. The hour is set by again pressing buttons B (▲ and ▼) and then confirmed with button A (▲). The display then moves to „minutes“ which can be set in the same way with buttons B (▲ and ▼) and confirmed with button A (▲).

Press the „Mode button“ (M) to go back to the status display.

Set	Day
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday



# **1** **Setting control mode** **SL-S: Constant speed control**

When confirming constant air volume control, the following parameters have to be adjusted/checked.

**P 13 SL-S**  
 Variable control with constant volume operation

**P28 Fan monitoring supply air**  
 TACHO 1 = One supply fan with tachometer output  
 TACHO 2 = Two supply fans with tachometer output  
 FAULT RELAY = Supply fan with fault relay or thermal contact

**P29 Fan monitoring extract air**  
 NO = no exhaust  
 TACHO 1 = One extract fan with tachometer output  
 TACHO 2 = Two extract fans with tachometer output  
 FAULT RELAY = Extract fan with fault relay or thermal contact

**P 14 without external sensor**  
 Constant air volume control active

**P 14 Sensor type CO2**  
 Fan speed demand controlled via CO2 sensor in the extract air.

**P 14 Sensor type VOC**  
 Fan speed demand controlled via external transducer (VOC).

**P 14 External control**  
 External fan speed control via 0 - 10 V input (see wiring diagram).

**P 23 and P 24**  
 These settings can be found in the measuring range of the used measuring transducer. The measuring range is already preset for devices with integrated CO2 sensor.

Example: Measuring area sensor 0 - 5000 ppm  
 P 23 = 0  
 P 24 = 5000

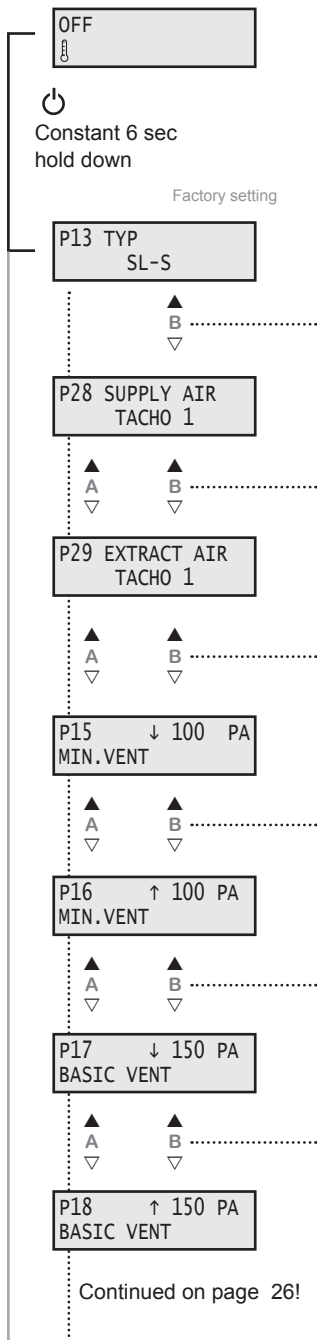
**P 20 Air quality**  
 When using external measuring transducers, the maximum air flow rate can be adjusted by parameter P 20.  
 Example:  
 Class room      CO<sup>2</sup>:      max. set-point e.g. 1400 ppm  
                      VOC:      max. set-point e.g. 1400 ppm

Continued on page 26!



## 2 ETA-P: Constant pressure control

Pressure control only possible with EC-extract fan or with no extract fan!



### P 13 ETA-P Constant pressure control

Operating mode P is the common control mode for the operation with variable air volumes by variable air volume controllers. The desired supply and extract air pressure can be set with the control unit. Two pressure sensors SEN P are necessary for this operating mode. The device does not balance the air volume. We recommend a re-heater for this operating mode to control the air volume balance.

### P28 Fan monitoring supply air

TACHO 1 = One supply fan with tachometer output  
 TACHO 2 = Two supply fans with tachometer output  
 FAULT RELAY = Supply fan with fault relay or thermal contact

### P29 Fan monitoring extract air

NO = no exhaust  
 TACHO 1 = One extract fan with tachometer output  
 TACHO 2 = Two extract fans with tachometer output  
 FAULT RELAY = Extract fan with fault relay or thermal contact

### P 15 Minimum ventilation supply air / P 16 Minimum ventilation extract air

The duct pressure can also be adjusted to „MINIMUM VENTILATION“ (night setback). This parameter is controlled by the timer and can be adjusted to the complete pressure range.

### P 17 Basic ventilation supply air / P 18 Basic ventilation extract air

The required duct pressure for „BASIC VENTILATION“ can be set in Pa with the control unit. The duct pressure can be individually set for supply and extract air.

The following parameters are for all types of control:

P21  
ROOMTEMP. CONTROL

### P 21 Room, supply or extract air temperature regulation

The room, supply air or extract air temperature regulator compares the air temperature measured at the temperature sensors with the reference temperature set on the control unit. In the case of heating, a difference between the set-point and actual temperature causes the controller to increase or reduce the heat output.

#### P 21 Room temperature control

With room temperature control, any external heat source in the room will be taken into account and compensated for by a correction to the supply air temperature. The room temperature sensor is in the control unit.

▲  
B  
▼

P21  
SUP. AIR TEMP. CON

#### P 21 Supply air temperature control

With supply air temperature control, the external heat source is not taken into account. Fixed supply air temperature. No other adjustability.

▲  
A  
▼

P22  
HEATING

### P 22 Heating

With warm water heating coil or external electric heating module.\*  
3-point control and 0 - 10 V

Functional descriptions see also Table under 7.2. Description of external inputs and outputs

▲  
B  
▼

P22  
COOLING

#### P 22 Cooling

The ventilation unit is operated with cold water coil.  
3-point control or 0-10V

▲  
B  
▼

P22  
HEATING-COOLING

#### P 22 Heating and cooling

Only with option Warm water heating coil or Electric heater\* and option cooling coil.  
Heating: 3-point control or 0-10V  
Cooling: 3-point control or 0-10V

▲  
B  
▼

P22 DX COIL  
HEATING-COOLING

#### P 22 Heating and cooling (direct expansion)

Only with option Warm water heating coil or Electric heater\* and option cooling coil.  
Heating: 3-point control or 0-10V  
Cooling: potential-free contact ON / OFF and linear output 0-10V,  
3-point control or 0-10V

\* The electric heaters are controlled by the internal bus.

▲  
A  
▼

P25 SUP. AIR FILT  
100 PA

### P 25 Supply air filter pressure loss

Setting for pressure loss at the supply air filter before the filter is clogged or 100% clogging is reached. The current level of clogging can be seen on the status display. The factory setting is 100 Pa. You might have to optimize the settings if a different type of filter is used.

▲  
A  
▼

▲  
B  
▼

P27  
CALIBRATE FILTER

### P 27 Calibrate filter

Calibrating the pressure loss at the unclogged filter.  
The calibrated value corresponds to 0% clogging.

▲  
B  
▼

P27  
COMPLETED

For the filters to be calibrated the whole ventilation system has to be set up and adjusted.

Pushing the B (▲) button opens automatically the calibration mode. Display flashes „FILTER CALIBRATION“ After calibration, the display shows „COMPLETED“.

P30 RUN-ON TIME  
5 MIN.

### P 30 Follow-up time


This parameter sets the stop delay of the motion detector input. The ventilation unit commutes to stage 3 for the set time.

▲  
B  
▼

## 9.5. Menu parameter level

Parameter values, see table 16.1. List of parameters.

You move to the parameter settings menu by pressing the ON/OFF button, which must be held down for approx. 9 seconds. The display then changes to „P 1 MIN-VALUE“. The individual menu points can be called up with buttons A (▲ and ▼) on the control unit. The values can be changed with buttons B (▲ and ▼). Press the „Mode button“ (M) to go back to the starting functions.

  
 Constant 9 sec  
 hold down

P1 MIN-VALUE  
16,0°



P2 MAX-VALUE  
24,0°



P3 ENABLE  
AUTOMATED



P3 ENABLE  
AUTOMATED

Contact open. The unit is switched off.  
Contact closed. The unit is switched on / ready for operation.

P3ENABLE  
ACKNOWLEDGED

The unit can only be switched on if the contact is closed. If the contact is open, the display will show „NOT ENABLE“. The contact should be closed and then acknowledged with button B (▲).

The default mode is AUTOMATIC.



P4 I-COMPONENT  
10



P5 P-COMPONENT  
10



P6 TEMP ADJUSTME  
-0,1°



P7 ADDRESS  
1



P8 BAUD RATE  
9600



### P 1 Minimum set-point value

Parameter P 1 gives the minimum set-point temperature that can be set on the control unit. Values between 16 °C and 20 °C can be selected. The default setting is 16 °C.

### P 2 Maximum set-point value

Parameter P 2 gives the maximum set-point temperature that can be set on the control unit. Values between 20 °C and 30 °C can be selected. The default setting is 22 °C.

### P 3 Enable

#### Switching the unit on and off with an external contact

The unit must be switched on at the control unit.

### P 4 I - component

A value between 5-20 can be set for the I – component.

The factory setting is at 10.

If the value decreases, the control becomes more sensitive.

CAUTION! Due to highly sensitive settings, the control tends to pulsate.

### P 5 P - component

A value between 5-20 can be set for the P – component.

The factory setting is at 10.

If the value increases, the control becomes more sensitive.

CAUTION! Due to highly sensitive settings, the control tends to pulsate.

### P 6 Temperature correction

The room temperature sensor in the control panel may show minor differences with the actual prevalent room air. A correction of the temperature sensors within the interval  $\pm 5K$  can be made here.

### P 7 Address

The bus address can be set between 1 and 247 with parameter P27 on the control unit.

Every device on a bus line needs an individual address.

Ensure that an address is not used for two devices. This can lead to malfunctions of the complete bus system.

### P 8 Baud rate

The baud rate defines the data speed.

2400, 4800, 9600 and 14400 baud rates can be set.

1 stop bit (fixed), no parity

P9 PRE-RINSING  
 90 S

 ▲  
 B  
 ▼

 P9 PRE-RINSING  
 90 S

 P9 PRE-RINSING  
 95 S

 ▲  
 A  
 ▼

 P10 FROST PROTEC  
 5,0°

 ▲  
 B  
 ▼

### P9 Startup behavior

In the parameter P9, you can set the start process of the system for low outside temperatures. A hasty frost protection thermostat shut off at extremely low temperatures can be avoided.

By pressing button B (▲ and ▼), the value can be increased or decreased.

#### Without pre-rinsing

The factory setting is 90 sec

- » No pre-rinsing
- » The fan runs after 90 sec
- » The control valve opens after 90sec
- » The pump runs immediately!

#### With pre-rinsing

The value is adjustable in 5 steps. Range of value is 95 to 600 sec

- » The fan runs after the set time.
- » The control valve opens immediately.
- » The pump runs immediately!
- » The adjustments will begin after the expiry of the set time.

### P10 Frost protection triggering temperature

An installed heating coil is supplied with a frost protection thermostat to protected against freezing. If the supply air temperature goes under the frost protection set temperature, the dampers close, the circulation pump runs on continuous operation, the 3-way ball valve opens and a fault message is generated.

By pressing button B (▲ and ▼), the value can be increased or decreased.

The factory setting is at 5 °C.

As frost protection release temperature a value of 3 °C to 10 °C can be defined.

## 9.5.1. Supply and extract air parameter Menu

You can get to the menu for the supply and extract air parameters by pressing the ON/OFF button for approximately 12 s. The display then changes to the supply air fan.

The individual menu points can be called up with buttons A (▲ and ▼) on the control unit. You can change the values for the fan stages with buttons B (▲ and ▼). Press the Mode button (M) to go back to the starting functions.

*100% corresponds to the maximum speed*

#### Supply air fan

Regulation of the supply air fan's stages.

The setting must be made according to the complete installation.

Factory setting:

Fan stage 1 =	60 %
Fan stage 2 =	80 %
Fan stage 3 =	100 %

**Optionally, when the exhaust air fan is present:**

#### Extract air fan

Regulation of the extract air fan's stages.

The setting must be made according to the complete installation.

Factory setting:

Fan stage 1 =	58 %
Fan stage 2 =	78 %
Fan stage 3 =	98 %



Constant 12 sec hold  
down

 SUPPLY AIR FAN  
 1  
 60%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

 SUPPLY AIR FAN  
 2  
 80%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

 SUPPLY AIR FAN  
 3  
 100%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

 EXHAUST AIR FAN  
 1  
 58%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

 EXHAUST AIR FAN  
 2  
 78%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

 EXHAUST AIR FAN  
 3  
 98%

 ▲  
 A  
 ▼

 ▲  
 B  
 ▼

## 9.6. Menu functions

### Switching the unit on/off on the control unit.

Press the ON/OFF button (1) to switch the unit on or off.  
The unit's status now appears on the display with the current values.

- » Set-point temperature display
- » Time switch
- » Contamination degree of the filters
- » CO<sub>2</sub> / VOC control

### Changing the set-point temperature

When commissioning for the first time, a set-point value of 21 °C is given. This value is shown on the left-hand side of the display. The set-point value can be increased (▲) or reduced (▼) on the control unit using buttons A. (The setting range is limited by parameters P 1 and P 2.)

### Changing fan stage

There are two possibilities for selecting the fan stages: automatic and continuous mode. Press buttons B (▲ and ▼) at the same time to switch between the two modes. Automatic mode is indicated on the display by the regular flashing of the fan stage selected.

#### • Continuous mode

In continuous mode, the fan stages can be selected with buttons B (▲ and ▼) on the control unit. The control system does not then affect the speed of the fan (except for in the case of a fault). Continuous mode can be seen by the constant display of the fan stage on the display.

#### • Automatic mode

In automatic mode the fan will always try to run in the highest possible stage. If the set-point temperature set is not achieved by this, it switches to a lower fan stage to be able to ensure a constant room and supply air temperature.

## 9.6.1. Time / Time switch

### Setting the time switch

With the setting parameters for the time switch, the times when the unit is to come on (ON) or off (OFF) can be set individually for each day of the week.

From the status display, press button A (▲) and B (▲) to get to the menu for setting the time switch.

On the top line, the display flashes for the „hour“ in which the unit is to come on (ON) on day 1. Press buttons B (▲ and ▼) to set the „hour“ and then confirm the entry with button A (▲). The display then moves on to the „minutes“ which can be set in the same way with buttons B (▲ and ▼) and confirmed with button A (▲).  
(The minutes are set in 5-minute increments)

On the bottom line, the display now flashes for the „hour“ in which the unit is to switch off on day 1. The „hour“ and „minutes“ are again set and confirmed with buttons B (▲ and ▼) and button A (▲).

Set	Day
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

Once the entry has been confirmed, the display moves on to day 2 where the individual on and off times can be set. Days 3 to 7 then follow.

Once you have set all of the parameters / days, press the „Mode button“ (M) to go back to the unit's status display.

However, you do not have to go through the whole time switch menu to get back to the status display. You can press the „Mode button“ (M) at any time to go back to the status display.

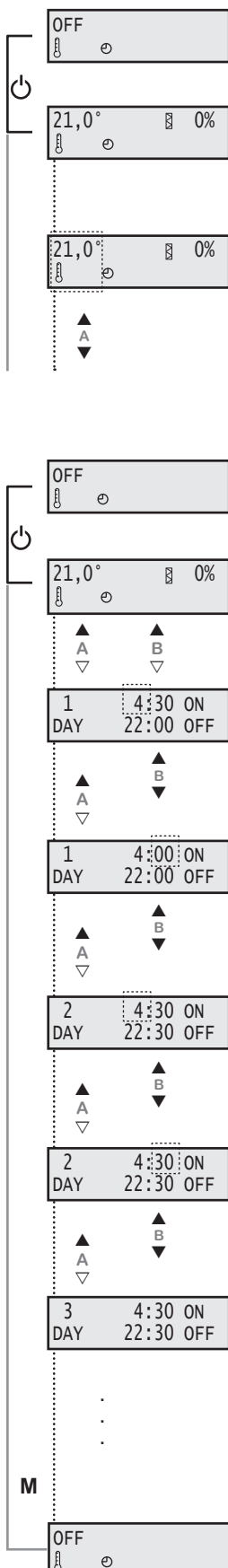
#### Note:

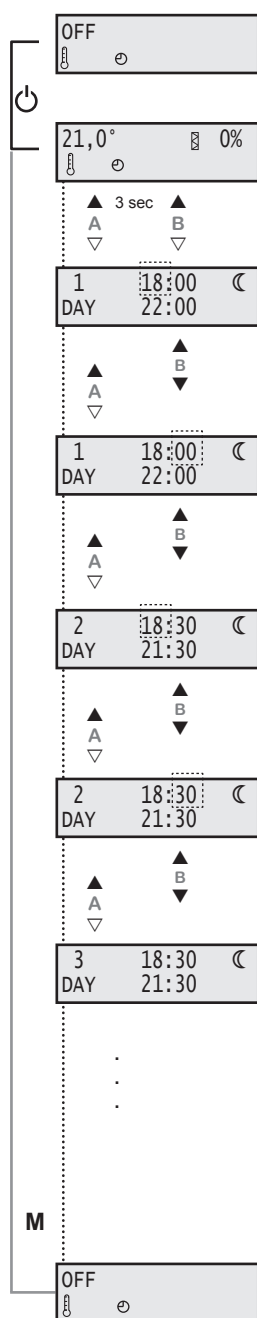
If the time 0:00 is given in the parameters, the unit will not switch on or off.

If, for example, you do not want the unit to come on during the weekend, you should set the value to 0:00 for „Day 6“ and „Day 7“.

The values set are saved even when there is a power failure or if the battery in the control unit runs down. Only the current time and day of the week have to be reset.

Note: Instructions on changing the clock battery are given in section 10.3.2.





### Setting day - night switch-over

This menu works similar as the timer, however it does not set the on (ON) and off (OFF) times, but the times when the unit switches from day to night mode.

The device runs in day mode with the basic ventilation volume flow.

The device runs in night mode with the minimum ventilation volume flow.

On the display, push button A (▲) and B (▲) simultaneously for approx. 3 seconds to get to the menu for day-night switch-over.

The display flashes on the top line for the time point in which the device starts the night mode on day 1 (Monday). Press buttons B (▲ and ▼) to set the „hour“ and then confirm the entry with button A (▲). The display then moves on to the „minutes“ which can be set in the same way with buttons B (▲ and ▼) and confirmed with button A (▲). (The minutes are set in 5-minute increments)

The display now flashes on the bottom line for the time point in which the device stops the night mode on day 1 (Monday). The „hour“ and „minutes“ are again set and confirmed with buttons B (▲ and ▼) and button A (▲).

Set	Day
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

Once the entry has been confirmed, the display moves on to day 2 where the individual on and off times can be set. Days 3 to 7 then follow.

Once you have set all of the parameters / days, press the „Mode button“ (M) to go back to the unit's status display.

However, you do not have to go through the whole time switch menu to get back to the status display. You can press the „Mode button“ (M) at any time to go back to the status display.

Note:

If the time 0:00 is given in the parameters, the unit will not switch to night operation.

The values set are saved even when there is a power failure or if the battery in the control unit runs down. Only the current time and day of the week have to be reset.

Note: Instructions on changing the clock battery are give in section 10.3.2.

### Switching the time switch on and off.

The time switch can be switched on and off as required.

From the status display you can switch the time switch on or off by pressing button A (▼) and B (▼) at the same time.

When the time switch is on, a continuous clock symbol is shown on the display.

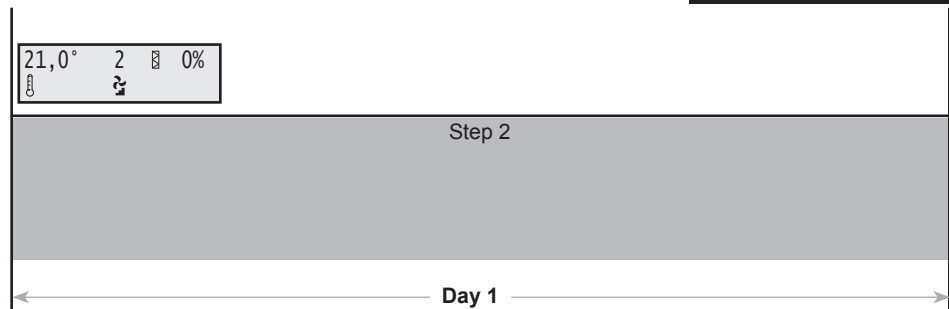


Time switch on

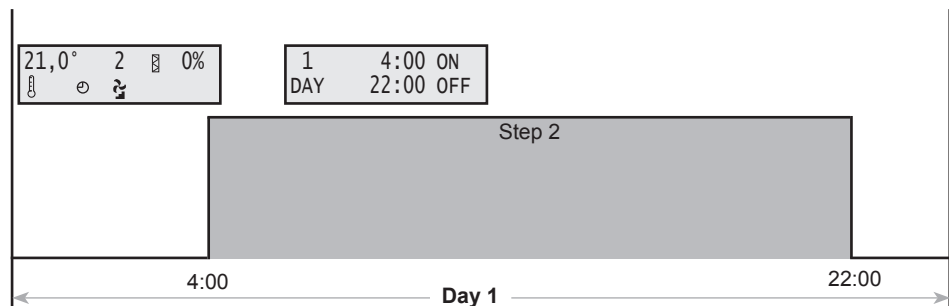


Time switch off

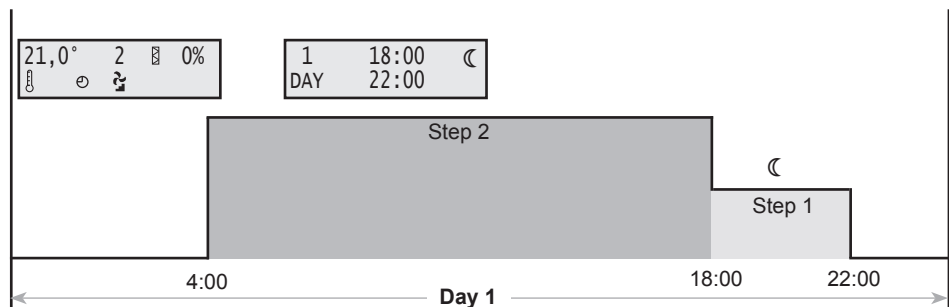
**Fig. 16:**  
Systematic drawing without  
timer settings



**Fig. 17:**  
Systematic drawing for timer  
settings



**Fig. 18:**  
Systematic drawing for timer  
and day-night switch-over  
settings



## 9.7. Functions

### 9.7.1 Fan error message contact

Each motor has an error message contact which is closed during fan operation. The unit switches off when the contact opens. After correction of the fault (see 14.2. Fault diagnosis chart), the unit can then be restarted.

### 9.7.2 Hot water coil / frost protection

The power of the hot water coil is steplessly regulated with the heating valve. The installed heating coil is protected against icing by a frost-protection thermostat. If the supply air temperature drops below the temperature set on the anti-freeze controller, the valves close and the circulating pump runs constantly, the heating valve opens and a fault message is given. The device automatically runs „PRE-RINSING“ until heating provides the desired operation temperature. The unit restarts then automatically. If the desired operating temperature cannot be achieved after 20 min., an error message is displayed. Afterwards, the unit turns itself completely off until the fault is repaired. (see 14.2. Error table F07)

## 10. Maintenance and repair

### 10.1. Important notes



- Electricity warning (hazardous voltage)
- » Failure to observe the hazard may result in death, injury or damage to property.
- Before performing any work on conductive parts, always disconnect all of the unit from the electricity supply with all poles and make sure that it cannot be switched back on again.



- Never reach into the impeller or other rotating or moving parts.
- » Failure to observe the hazard may lead to serious injury.
- Work may only be performed once the impeller has come to a complete halt.



- Caution! Burning hazard.
- » Failure to observe the hazard may result in personal injury and/or damage to property.
- Do not touch the surface until the motor and heater have cooled.



Maintenance and repairs may only be performed by specialist personnel in accordance with this installation and operating manual and the regulations in force.

Do not repair defective or damaged units yourself, but report the damage or faults to the manufacturer in writing.



- Unauthorized repairs may cause personal injury and / or damage to property, in which case the manufacturer's guarantee or warranty will not apply.



### 10.2. Cleaning and care

**Servicing, troubleshooting and cleaning may only be performed by specialised personnel in accordance with this installation and operating manual and the regulations in force.**

If operated correctly, **ruck** products only require a small amount of maintenance.

The following work should be performed at regular intervals, in accordance with health and safety regulations:

- Check the operation of the control system and safety devices.
- Check electrical connections and wiring for damage.
- Remove any dirt from the fan impeller or impellers and from inside the fan housing in order to prevent any unbalance or reduction in output.
  - Do not use aggressive or easily flammable products for cleaning (impellers/housing).
  - Preferably only water (not flowing water) or mild soapsuds should be used.
  - The impeller should be cleaned with a cloth or brush.
  - Never use a high-pressure cleaner.
  - Balancing clips must not be moved or removed.
  - The impeller and fittings must not be damaged in any way.
- Check the operation of the bearing with a visual inspection and by checking running noise.
- Check the unit for leaks on the air side.

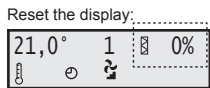
**Before putting the unit back into operation after maintenance and servicing work, carry out a visual inspection as described in section 7 and 8.**





### 10.3. Maintenance

#### 10.3.1. Air filter

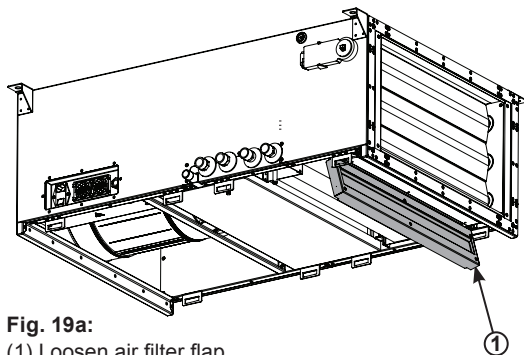


The differential pressure increases as one of the air filters becomes more clogged. When the pressure reaches the value set on the corresponding pressure sensor, this can be seen on the status display. The filter must be changed when the level of clogging reaches 100%. To reset the filter display after changing the filter, press buttons A (▲) and B (▼) at the same time until the clogging level display shows 0% again. The filter change counter will then increase by one.

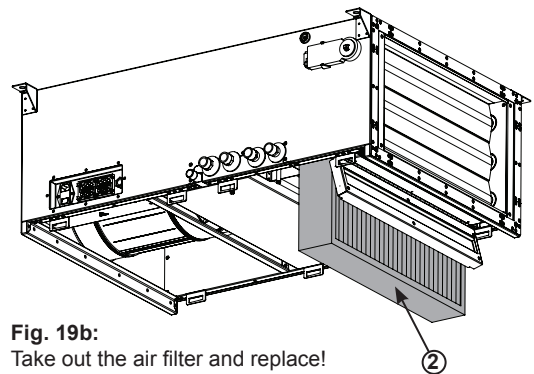
To ensure that the air filter is changed correctly, proceed as follows:

- The air filter can be removed without the use of tools.
- The air filter should be replaced if severely clogged.
- When changing the filter, make sure that the filter frame is sitting correctly on the guide rail in the device.
- Finally, the filter display should be reset and the new air filter calibrated (see Section 9.4. „Calibrate filter“)

Find filters positions in the device description or safety instructions.

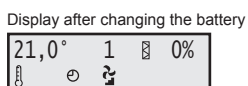
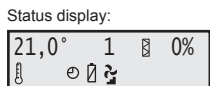


**Fig. 19a:**  
(1) Loosen air filter flap.



**Fig. 19b:**  
Take out the air filter and replace!  
(2) = Panel filter M5

#### 10.3.2. Changing the battery

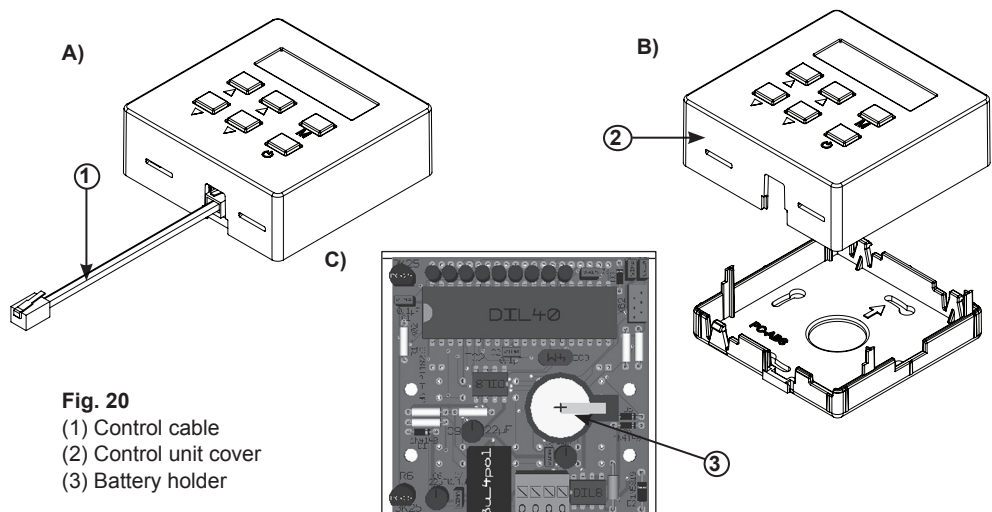


The battery's operating capacity is checked when voltage is applied to the unit. A dead battery is indicated by a battery symbol in the status display.

Change the battery as follows:

- Remove the control cable (1) from the control unit.
- Open the control unit by removing the cover (2).
- The holder (3) for the battery is on the board. Remove the battery and replace it with a new one as shown in Fig. 20 C.
- The control unit can now be closed again and the control cable connected again.
- You only have to reset the current time (see Section 9.4.). The battery symbol disappears from the status display. Your control unit is fully functional again.

*Note: requires a 3 V lithium CR 1616 button cell battery.*



**Fig. 20**  
(1) Control cable  
(2) Control unit cover  
(3) Battery holder

## 11. Modbus communication interface

### 11.1. Wiring diagram

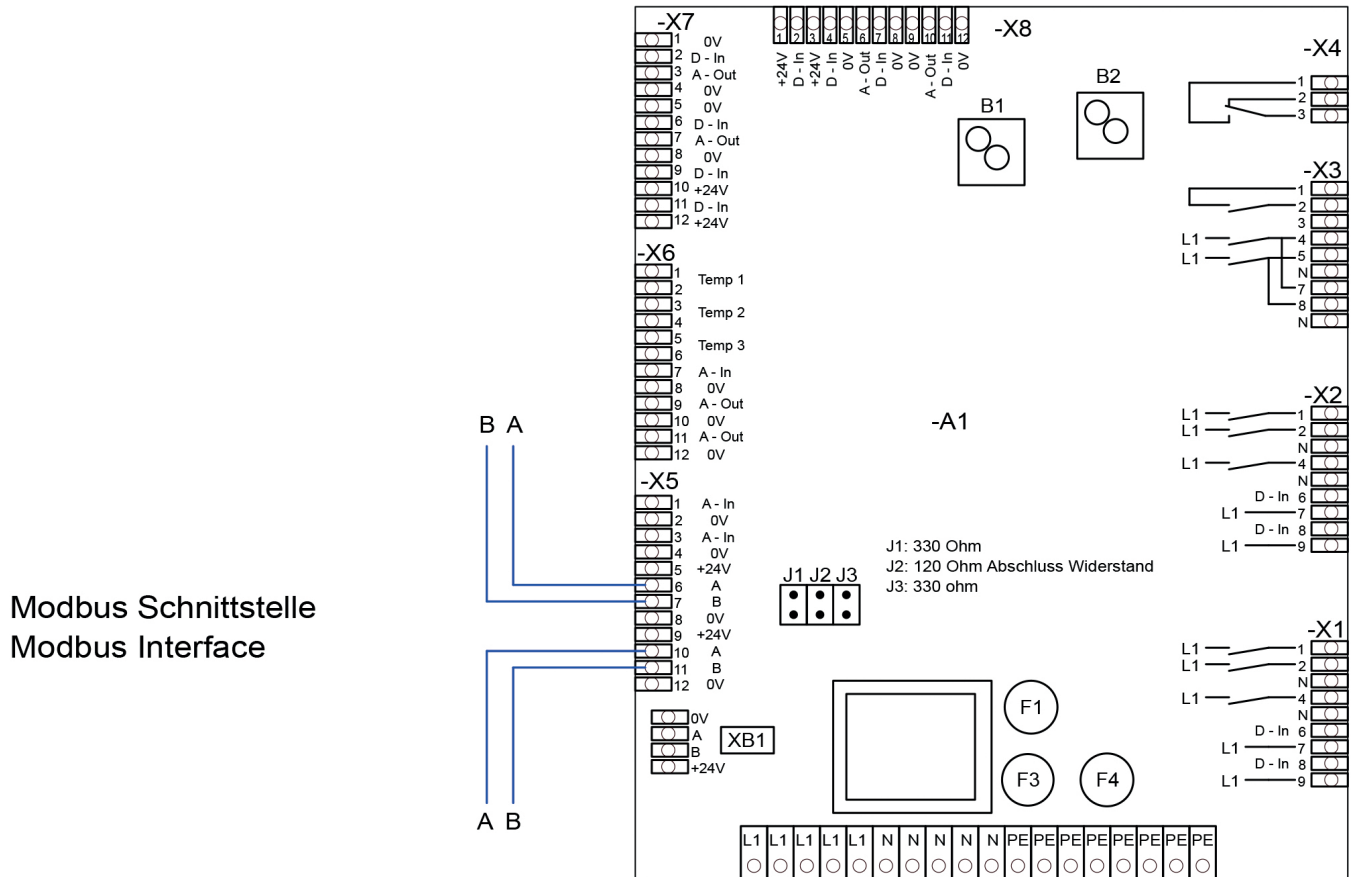


Fig. 21

### 11.2. Functions implemented

Function code	Name	Description
03 Hex	Read Hold Register	Read device parameter
04 Hex	Read Input Register	Read current value
06 Hex	Write Single Register	Write device parameter word by word
10 Hex	Write Multiple Register	Write several device parameters word by word

Function code	Name	Sub-function	Description
08 Hex	Return Query Dat	00	Send the received message back
08 Hex	Restart Communications	01	Restart communication
08 Hex	Force Listen Only Mode	04	Switch to listen-only mode

### 11.3. Parameter table

Register address	Protocol address	Parameter name	Value range	Data type	Authority
40001	0	Reserved		integer	R/W
40002	1	Minimum target temperature	160 - 200 corresponds to 16.0 - 20.0 °C	integer	R/W
40003	2	Maximum target temperature	200 - 300 corresponds to 20.0 - 30.0 °C	integer	R/W
40004	3	External error input	0 = Automatic start 5 = Start after acknowledgement	integer	R/W
40005	4	I - component of heating controller	5 - 20 5 = 0.5 min 20 = 2 min	integer	R/W
40006	5	P - component of heating controller	5 - 20	integer	R/W
40007	6	Temperature-correction sensor	-50 - +50 corresponds to -5.0 - +5.0 K	integer	R/W
40008	7	Modbus address	1 - 247	integer	R/W
40009	8	Modbus baud rate	0 = 2400 ; 1 = 4800 ; 2 = 9600 ; 3 = 14400 Baud	integer	R/W
40010	9	Pre-rinsing time	90 - 600 sec	integer	R/W
40011	10	Frost protection temperature	30 - 100 corresponds to 3.0 - 10.0 °C	integer	R/W
40012	11	Reserved		integer	R/W
40013	12	Reserved		integer	R/W
40014	13	Units	0 = Speed step control 1 = Pressure control	integer	R/W
40015	14	External sensor type	0 = without sensor    1 = CO2 sensor 2 = VOC sensor        3 = Ext. control	integer	R/W
40016	15	Minimum ventilation supply air	50 - 500 Pa	integer	R/W
40017	16	Minimum ventilation extract air	50 - 500 Pa	integer	R/W
40018	17	Basic ventilation supply air	50 - 500 Pa	integer	R/W
40019	18	Basic ventilation extract air	50 - 500 Pa	integer	R/W
40020	19			integer	R/W
40021	20	external set-point (CO2, VOC)	CO2/VOC Range of values 600 - 1500PPM	integer	R/W
40022	21	Type of regulation	0 = Room temperature 1 = Supply-air temperature	integer	R/W
40023	22	Function (heating – cooling coil)	0 = Heating (Water) 1 = Cooling (Water) 2 = Heating and cooling (Water) 3 = Heating condenser and cooling DX-coil	integer	R/W
40024	23	min. value when analogue input 0V	0 - 500 for CO2 and VOC sensor	integer	R/W
40025	24	max. value when analogue input 10V	0 - 5000 for CO2 and VOC sensor	integer	R/W
40026	25	Sensor contamination filter 1	0 - 500 Pa Pressure loss	integer	R/W
40027	26			integer	R/W
40028	27	Calibrate filter	1 = Calibrate filter	integer	R/W
40029	28	Motor protection supply air fan	0 = TACHO 1    1 = TACHO 2    2 = FAULT RELAIS	integer	R/W
40030	29	Motor protection extract air fan	0 = without extract air    1 = TACHO 1    2 = TACHO 2 3 = FAULT RELAIS	integer	R/W
40031	30	Follow-up time motion detector	60 - 3600 sec	integer	R/W
40032	31	Target temperature	Minimum - maximum target temperature in 1/10 degree	integer	R/W
40033	32	Ventilation change-over	1 = Step 1    2 = Step 2    3 = Step 3	integer	R/W
40034	33	Status and control word	See Table below	integer	R/W
40035	34	Reserved		integer	R/W
40036	35	Save parameters	12439 Value change after saving under 0	integer	R/W
40037	36	Speed, supply air, stage 1	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W
40038	37	Speed, supply air, stage 2	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W
40039	38	Speed, supply air, stage 3	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W
40040	39	Speed, exhaust air, stage 1	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W
40041	40	Speed, exhaust air, stage 2	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W
40042	41	Speed, exhaust air, stage 3	25 - 100 corresponds to 25% - 100% of n-max	integer	R/W

### Status and control word, protocol address 33

Function	Authority	Comment
Bit 0 1 = Error present	R	
Bit 1 1 = Pre-heating mode	R	
Bit 2 Reserved	R	
Bit 3 Reserved		
Bit 4 Filter changed	R/W	With rising slope, filter change acknowledged
Bit 5 1 = Cancel error	R/W	With rising slope, error is cancelled
Bit 6 0 = Unit switched ON 1 = Unit switched OFF	R/W	shut-off with increasing flank
Bit 7 1 = Unit switched ON 0 = Unit switched OFF	R/W	With rising slope, unit switched ON
Bit 8 E-heating module 1	R	1 = present 0 = not present
Bit 9 E-heating module 2	R	1 = present 0 = not present
Bit 10 Reserved	R/W	
Bit 11 Reserved	R/W	
Bit 12 Reserved	R/W	
Bit 13 Reserved	R/W	
Bit 14 Reserved	R/W	
Bit 15 Reserved	R/W	

#### 11.4. Current value table

Register address	Protocol address	Parameter name	Value range	Data type	Authority
30001	0	Unit identification	14000	integer	R
30002	1	Room temperature	Temp in 1/10 ° - 500 to 1000	integer	R
30003	2	Supply-air temperature	Temp in 1/10 ° - 500 to 1000	integer	R
30004	3			integer	R
30005	4			integer	R
30006	5	Frost protection temperature	Temp in 1/10 ° - 500 to 1000	integer	R
30007	6	Pressure-difference, filter 1	0 - 1000 Pa	integer	R
30008	7			integer	R
30009	8	Soiling indicator 1	0 - 100%	integer	R
30010	9			integer	R
30011	10	Program version	0 - 100	integer	R
30012	11	Operating hours	(0 - 32767) *10	integer	R
30013	12	Number of filter changes	0 - 32767	integer	R
30014	13	Inputs	See Table below	integer	R
30015	14	Outputs	See Table below	integer	R
30016	15			integer	R
30017	16			integer	R
30018	17	Reserved		integer	R
30019	18	Reserved		integer	R
30020	19	Used by system		integer	R
30021	20	Used by system		integer	R
30022	21	Valve setting, heating valve	0 - 100%	integer	R
30023	22	Valve setting, cooling valve	0 - 100%	integer	R
30024	23	Actual sensor value	0-2000 ppm	integer	R
30025	24	Error number	See Table below	integer	R
30026	25	Reserved		integer	R
30027	26	Pressure supply air analogue input 2	-1000 up to +1000 Pa	integer	R
30028	27	Pressure extract air analogue input 3	-1000 up to +1000 Pa	integer	R
30029	28	Reserved		integer	R
30030	29	Reserved		integer	R

### Current value table, protocol addresses 13 (inputs)

Bit 0	1 = Enable_signal_external
Bit 1	1 = Frost protection OK
Bit 2	1 = Fire detector ok
Bit 3	1 = Motion detector
Bit 4	Reserved
Bit 5	Reserved
Bit 6	Reserved
Bit 7	Reserved
Bit 8	1 = Thermal switch, fan Extract air 1
Bit 9	1 = Thermal switch, fan Extract air 2
Bit 10	1 = Thermal switch, fan Supply air 1
Bit 11	1 = Thermal switch, fan Supply air 2
Bit 12	1 = Thermal switch, fan Extract air 1
Bit 13	1 = Thermal switch, fan Extract air 2
Bit 14	1 = Thermal switch, fan Supply air 1
Bit 15	1 = Thermal switch, fan Supply air 2

### Current value table, protocol addresses 14 (outputs)

Bit 0	Reserved
Bit 1	1 = Kühlungspumpe ein
Bit 2	1 = Cooling requirement
Bit 3	1 = Cooling valve open
Bit 4	1 = Cooling valve closed
Bit 5	1 = Heating valve open
Bit 6	1 = Heating valve closed
Bit 7	1 = Heating pump on
Bit 8	1 = Unit defective
Bit 9	1 = Damper closed
Bit 10	1 = Damper open
Bit 11	Reserved
Bit 12	Reserved
Bit 13	Reserved
Bit 14	Reserved
Bit 15	Reserved

### Current value table, protocol addresses 24 (error numbers)

#### Value

0	No error
1	Supply-air temperature sensor defective
2	Room-air temperature sensor defective
3	Outlet-air temperature sensor defective
4	Exhaust-air temperature sensor defective
5	Outdoor-air temperature sensor defective
6	Damper position
7	Frost protection triggered
8	Safety thermostat triggered
9	Thermal switch for ventilator triggered
10	Frequency converter defective
11	Reserved
12	Not enabled
13	Cooling plant defective
14	Fire detector
15	Reserved
16	Reserved
17	Supply-air temperature too low
18	Supply-air temperature too hot
19	Reserved
20	Heat exchanger



## 12. Expansion and reconfiguration

The unit must not be reconfigured.

**The warranty for ruck fans only applies for the configuration delivered.  
 The warranty will cease to apply after any reconfiguration or expansion.**

### 13. Dismantling and disposal



- Risk of injury if dismantled under hazardous voltage!
- » If you do not switch off the voltage before starting to dismantle the unit, you may injure yourself and damage the product or parts of the installation.
- Make sure that the relevant parts of the installation have been disconnected from the voltage supply.

Dismantle the unit as follows:

#### 13.1. Disassembling the product

Observe the safety instructions given in Sections 2 to 8 and Section 12 when decommissioning and disassembling the unit.

#### 13.2. Disposal

Careless disposal of the unit may cause pollution.

Please therefore dispose of the unit in accordance with the national requirements that apply in your country.



### 14. Troubleshooting

Please note the following instructions:

- Proceed systematically and purposefully when troubleshooting, even under time pressure. In the worst case, randomly and indiscriminately dismantling and changing settings may result in it no longer being possible to determine the original cause of the fault.
- Get an overview of the unit's operation in conjunction with the overall installation.
- Try to clarify whether the unit provided the required function in the overall installation before the fault occurred.
- Try to find any changes to the overall system in which the unit is installed:
  - Have the unit's operating conditions or operating range been changed?
  - Have any changes (e.g. reconfigurations) or repairs been performed on the overall system (installation, electrics, control) or to the unit? If yes: what?
  - Has the unit been operated correctly?
  - How does the fault appear?
- Form a clear idea of the cause of the fault. If necessary, question the immediate operator or the installation operator.



If you have not been able to remove the fault, please contact the manufacturer. The contact address can be found at [www.ruck.eu](http://www.ruck.eu) or on the back cover of this assembly and operating manual.

#### 14.1. Low-current fuses

To protect the electrical equipment there are three low-current fuses built-in at the controller circuit board. If the fuse blows, the fault can be located and repaired by using the following table. A low-current fuse must be changed by specialised personnel.

The low-current fuses must comply with EN 60127, dimensions 5 x 20 mm.

For position of microfuse see wiring diagrams.

Fuse	Possible causes	Fault correction
F1 / T 0,2 A F3 / T 0,2 A	<ul style="list-style-type: none"> <li>• Control unit defect.</li> <li>• Connecting lead defect.</li> <li>• Board on control unit soiled.</li> <li>• Mainboard defect.</li> <li>• Mainboard soiled.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace control unit.</li> <li>• Replace connecting lead.</li> <li>• Clean board with appropriate means.</li> <li>• Inform Service</li> <li>• Inform Service</li> </ul>
F4 / T 6,3 A	<ul style="list-style-type: none"> <li>• Valve gear and cable defect.</li> <li>• Circulating pump and cable defect.</li> <li>• Damper drive and cable defect.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace valve gear and cable.</li> <li>• Replace circulating pump and cable.</li> <li>• Replace damper drive and cable.</li> </ul>



## 14.2. Fault diagnosis chart

If a fault occurs on the unit, one or more fault messages will appear on the display. A fault is acknowledged with button B (▲). It is not possible to use the control unit until all of the faults have been removed and acknowledged. Depending on the priority of the fault, the installation will either switch off or continue working with the last settings.

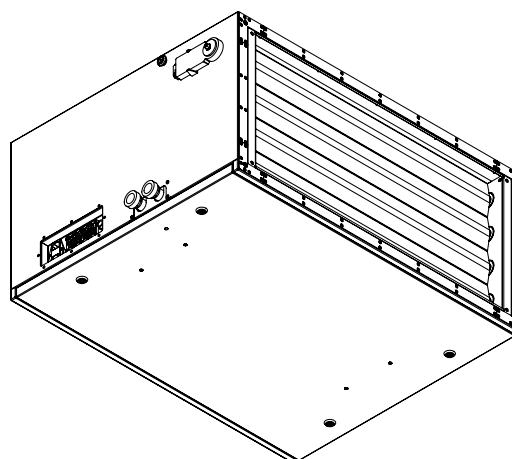
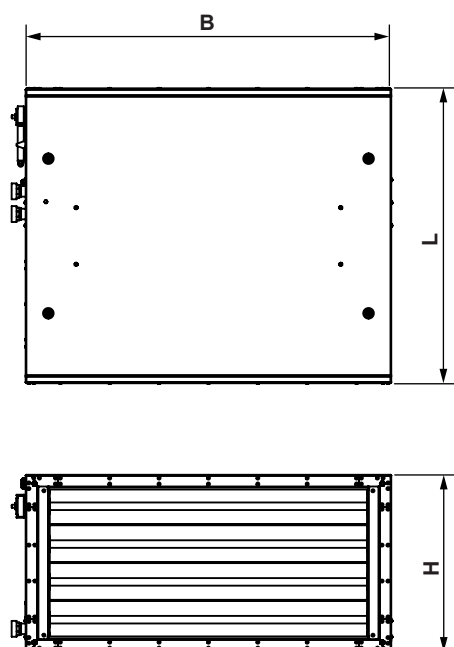
The following faults might be shown on the display:

Faults displayed	Type of fault and repair
ERR	<b>ERROR</b> <ul style="list-style-type: none"> <li>» The control unit has no reception.</li> <li>» Check the connection or replace the cable if necessary.</li> </ul>
F1 FAULT SUPPLY AIR TEMP	<b>Supply air temperature sensor fault</b> <ul style="list-style-type: none"> <li>» The supply air temperature sensor is defective or the cable is broken.</li> <li>» Replace the defective temperature sensor or replace the broken cable if necessary.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F2 FAULT ROOM TEMPERATURE	<b>Room temperature sensor fault.</b> <ul style="list-style-type: none"> <li>» The room temperature sensor is defective.</li> <li>» Replace the remote control unit.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F7 FAULT FROST PROTECTION	<b>Error frost protection</b> <ul style="list-style-type: none"> <li>» The air temperature has fallen below the value set on the antifreeze thermostat. The fans will be switched off, the air flaps closed, the heating valve fully opened and the circulating pump switched on.</li> <li>» Check fuse F2.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F8 FAULT SAFTY THERMOSTAT	<b>Fault in the safety thermostat - electric heating element temperature monitoring</b> <ul style="list-style-type: none"> <li>» The housing temperature is higher than 75 °C. The control circuit is broken, the electric heater is switched off. Possible cause: defective supply air valve, fan has failed, etc.</li> <li>» Repair supply air valve, check fuses F2.</li> <li>» Once the cause of the fault has been removed, the reset button on the safety thermostat (see Fig. 20/21) must be reset manually and the fault must be acknowledged on the control unit with button B (▲).</li> </ul>
F9 FAULT FAN TEMP	<b>Fault, fan thermal contact</b> <ul style="list-style-type: none"> <li>» The thermal contact has been tripped, device will be switched off. Possible cause: motor overheating or defective.</li> <li>» The power supply must be switched off at the main switch for at least 20 s. Check fuse F2, replace the motor if necessary.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F10 FAULT FREQUENCY CONVER	<b>Frequency converter fault</b> <ul style="list-style-type: none"> <li>» A frequency converter's signalling relay has been tripped. See display on the frequency converter for fault.</li> <li>» To remove the fault, please consult the operating manual for the frequency converter.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F14 CONTACT FIRE PROTECTION	<b>Fire protection signal</b> <ul style="list-style-type: none"> <li>» The fire protection contact is open. The fire detector has tripped.</li> <li>» After removing the cause of the fire detection, the fault must be acknowledged with button B (▲).</li> </ul>
F17 FAULT TEMP. LOW SUP. AIR	<b>Insufficient temperature of supply air</b> <ul style="list-style-type: none"> <li>» The maximum set supply air temperature (12 °C) was undershot longer than 30 minutes.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
F18 FAULT TEMP. HIGH. SU. AIR	<b>Excess temperature, supply air</b> <ul style="list-style-type: none"> <li>» The maximum supply air temperature of 80 °C was exceeded longer than 10 sec. or the cable of the air supply temperature sensor is broken.</li> <li>» Switch off the device, check fans.</li> <li>» After removing the cause of the fault, the fault must be acknowledged with button B (▲).</li> </ul>
NOT ENABLE	<b>No release</b> <ul style="list-style-type: none"> <li>» The release contact is not closed.</li> <li>» Close the release contact. The unit can then be started.</li> </ul>



## 15. Technical data

Specifications								
Units / Model SL60/30			SL 6030 E3J 11 10	SL 6030 E3J 12 10	SL 6030 E3J 21 10	SL 6030 E3J 22 10	SL 6030 E2J 10 10	SL 6030 E2J 20 10
Length	<i>L</i>	mm	1020	1020	1020	1020	740	740
Width	<i>B</i>	mm	667	667	667	667	667	667
Height without holder	<i>H</i>	mm	368	368	368	368	368	368
Standard actuator			x	x	-	-	x	-
Spring return actuator			-	-	x	x	-	x
Weight	kg		75,0	75,0	75,0	75,0		
Operating voltage	V		230V ~	230V ~	230V ~	230V ~	230V ~	230V ~
Frequency	Hz		50	50	50	50	50	50
Current	A		1,9	1,9	1,9	1,9	1,9	1,9
Max. medium temp.	°C		40	40	40	40	40	40
Power consumption	W		273	273	273	273	273	273
Max. air volume	m³/h		1785	1785	1785	1785	2010	2010
RPM	1/min		2920	2920	2920	2920	2990	2990
Max. pressure	Pa		610	610	610	610	630	630
Sound intake air	<i>L<sub>WA 5</sub></i>	dB(A)	77	77	77	77		
Sound outlet air	<i>L<sub>WA 6</sub></i>	dB(A)	84	84	84	84		
Sound extraction	<i>L<sub>WA 2</sub></i>	dB(A)	57	57	57	57		
Cooling coils			KW	DV	KW	DV	-	-
Fan stage			3	3	3	3	3	3
Filter grade			M5	M5	M5	M5	M5	M5
Wiring diagram No.			136184	136184	136184	136184	136184	136184



**Fig. 22:**  
Dimensions of the supply air unit

Specifications							
Units / Model SL90/30			SL 9030 E3J 11 10	SL 9030 E3J 12 10	SL 9030 E3J 21 10	SL 9030 E3J 22 10	SL 9030 E2J 10 10
			136205	136254	136257	136260	136263
Length	L	mm	1020	1020	1020	1020	780
Width	B	mm	967	967	967	967	967
Height <i>without holder</i>	H	mm	367	367	367	367	367
Standard actuator			x	x	-	-	x
Spring return actuator			-	-	x	x	-
Weight		kg	100,0	100,0	100,0		72,0
Operating voltage		V	230V ~	230V ~	230V ~	230V ~	230V ~
Frequency		Hz	50	50	50	50	50
Current		A	3,7	3,7	3,7	3,7	3,7
Max. medium temp.		°C	40	40	40	40	40
Power consumption		W	545	545	545	545	540
Max. air volume		m³/h	3290	3290	3290	3290	3830
RPM		1/min	2915	2915	2915	2915	2930
Max. pressure		Pa	620	620	620	620	640
Sound intake air	L <sub>WA 5</sub>	dB(A)	78	78	78		81
Sound outlet air	L <sub>WA 6</sub>	dB(A)	86	86	86		86
Sound extraction	L <sub>WA 2</sub>	dB(A)	65	65	65		65
Cooling coils		KW		DV	KW	DV	-
Fan stage			3	3	3	3	3
Filter grade			M5	M5	M5	M5	M5
Wiring diagram No.			136184	136184	136184	136184	136184

Specifications							
Units / Model SL90/40			SL 9040 E3J 11 10	SL 9040 E3J 12 10	SL 9040 E3J 21 10	SL 9040 E3J 22 10	SL 9040 E2J 10 10
			136022	135828	136028	136025	136150
Length	L	mm	1060	1060	1060	1060	780
Width	B	mm	967	967	967	967	967
Height <i>without holder</i>	H	mm	467	467	467	467	467
Standard actuator			x	x	-	-	x
Spring return actuator			-	-	x	x	-
Weight		kg	124,5	124,5	124,5	124,5	78,5
Operating voltage		V	230V ~	230V ~	230V ~	230V ~	230V ~
Frequency		Hz	50	50	50	50	50
Current		A	3,4	3,4	3,4	3,4	3,4
Max. medium temp.		°C	40	40	40	40	40
Power consumption		W	736	736	736	736	738
Max. air volume		m³/h	3790	3790	3790	3790	4280
RPM		1/min	2265	2265	2265	2265	2360
Max. pressure		Pa	800	800	800	800	790
Sound intake air	L <sub>WA 5</sub>	dB(A)	82	82	82	82	80
Sound outlet air	L <sub>WA 6</sub>	dB(A)	91	91	91	91	88
Sound extraction	L <sub>WA 2</sub>	dB(A)	64	64	64	64	60
Cooling coils		KW		DV	KW	DV	-
Fan stage			3	3	3	3	3
Filter grade			M5	M5	M5	M5	M5
Wiring diagram No.			136184	136184	136184	136184	136184

Specifications						
Units / Model SL120/40			SL 12040 E3J 11 10	SL 12040 E3J 12 10	SL 12040 E3J 21 10	SL 12040 E3J 22 10
			135952	135951	135954	135953
Length	<i>L</i>	<i>mm</i>	1114	1114	1114	1114
Width	<i>B</i>	<i>mm</i>	1267	1267	1267	1267
Height <i>without holder</i>	<i>H</i>	<i>mm</i>	467	467	467	467
Standard actuator			x	x	-	-
Spring return actuator			-	-	x	x
Weight	<i>kg</i>		156,0	156,0	156,0	156,0
Operating voltage	<i>V</i>		230V ~	230V ~	230V ~	230V ~
Frequency	<i>Hz</i>		50	50	50	50
Current	<i>A</i>		6,8	6,8	6,8	6,8
Max. medium temp.	<i>°C</i>		40	40	40	40
Power consumption	<i>W</i>		1483	1483	1483	1483
Max. air volume	<i>m³/h</i>		6470	6470	6470	6470
RPM	<i>1/min</i>		2790	2790	2790	2790
Max. pressure	<i>Pa</i>		890	890	890	890
Sound intake air	<i>L<sub>WA 5</sub></i>	<i>dB(A)</i>				
Sound outlet air	<i>L<sub>WA 6</sub></i>	<i>dB(A)</i>				
Sound extraction	<i>L<sub>WA 2</sub></i>	<i>dB(A)</i>		64		
Cooling coils			KW	DV	KW	DV
Fan stage			3	3	3	3
Filter grade			M5	M5	M5	M5
Wiring diagram No.			136184	136184	136184	136184

## 16. Appendix



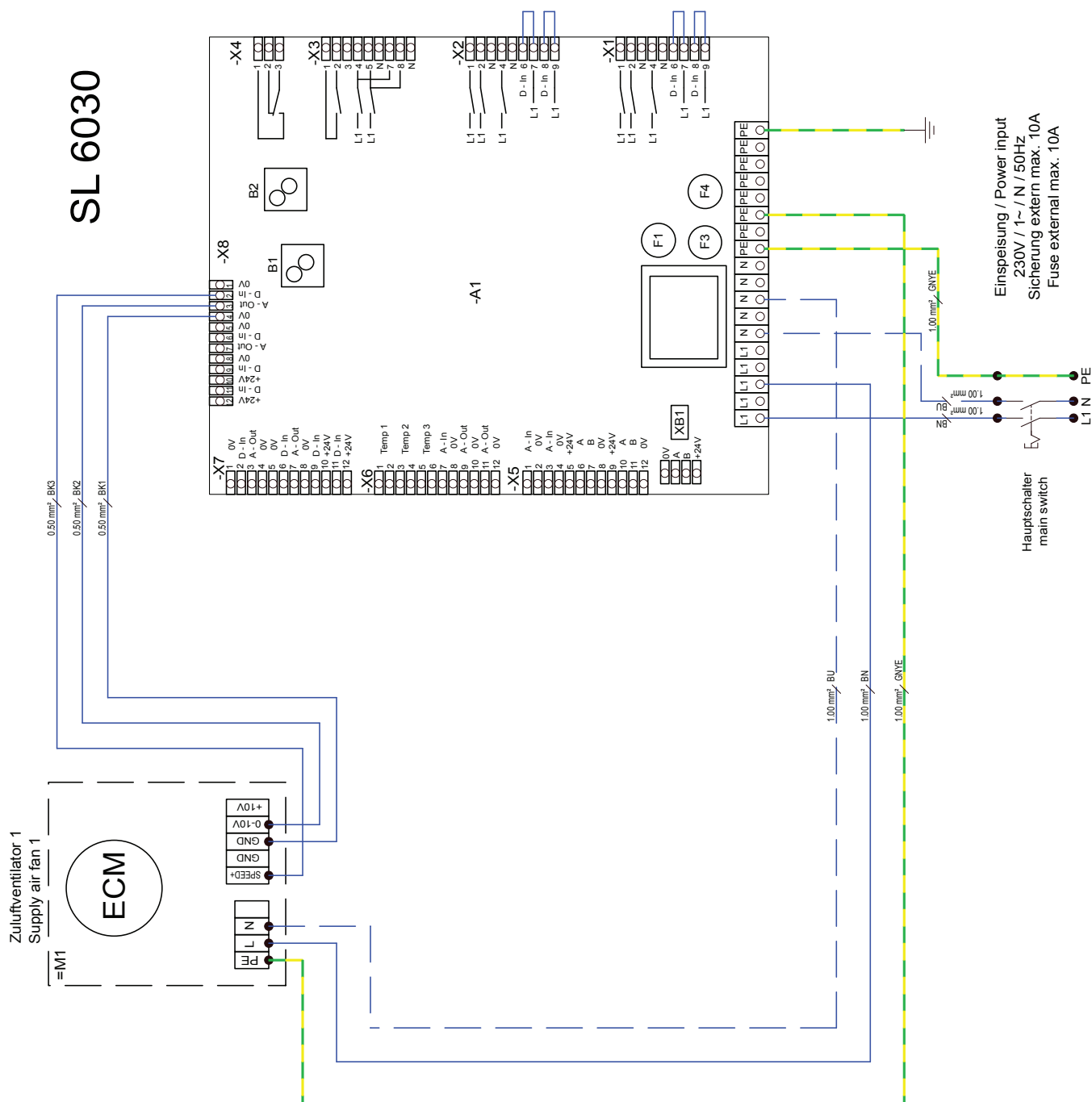
### 16.1. List of parameters

The following table lists all of the parameters that are displayed on the control unit, some of which may be changed. Section 9.3.4. „Parameter settings menu“ gives full instructions on operating and setting the corresponding parameters.

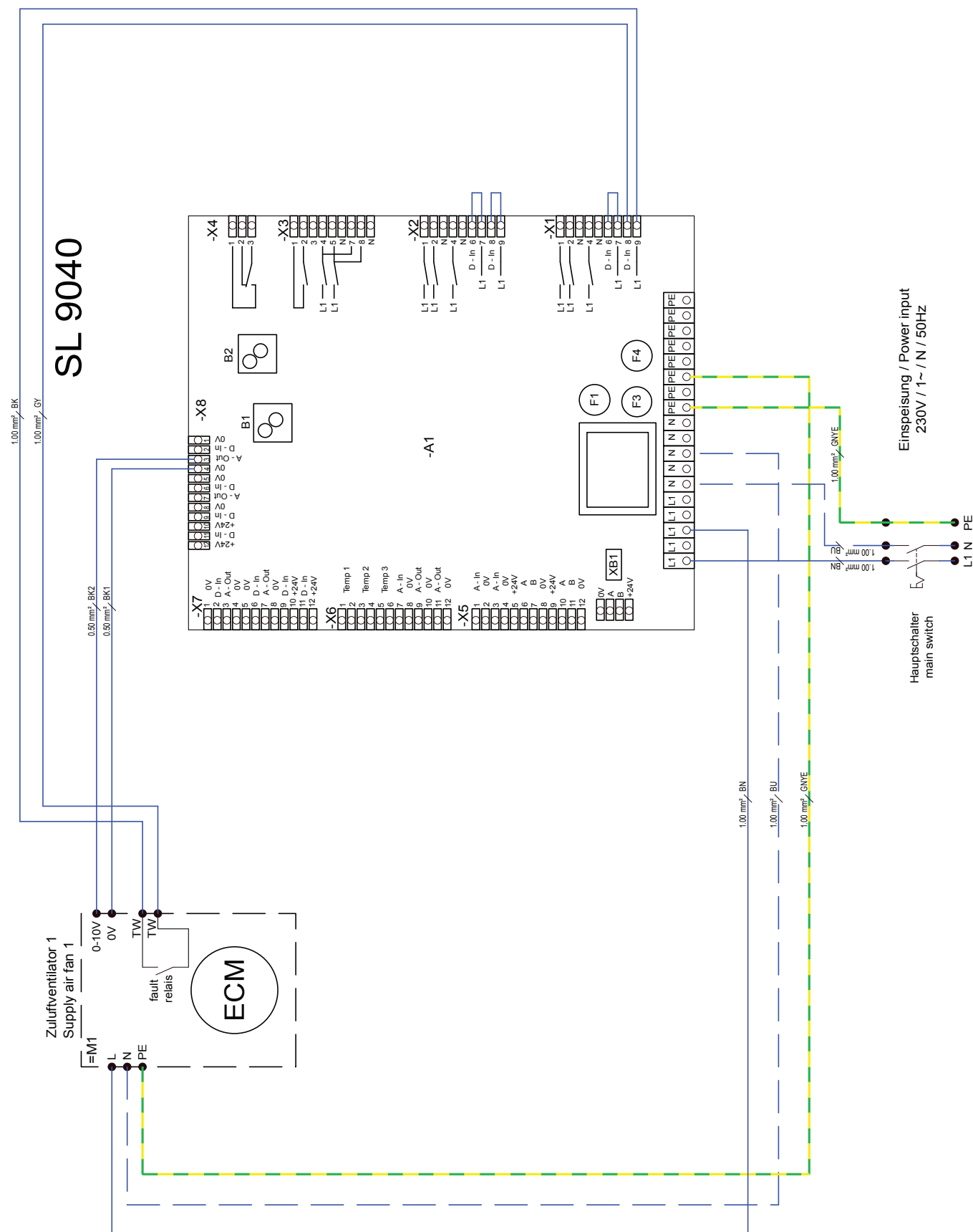
No.	Consequence	Range of values	Factory setting
P 1	Mini.set-point temp. that can be set on the control unit	16 °C ... 20 °C	16 °C
P 2	Max. set-point temp. that can be set on the control unit	20 °C ... 30 °C	22 °C
P 3	External release	AUTOMATED ACKNOWLEDGED	AUTOMATED
P 4	I - component	5 ... 20	10
P 5	P - component	5 ... 20	10
P 6	Temp. correction of the ambient temp. sensor on the control unit	± 5K	0
P 7	Address	1 - 247	1
P 8	Baud rate	2400 / 4800 / 9600 / 14400	9600
P 9	0	90 - 600 sec	95
P 10	0	3 °C ... 10 °C	5
P 13	Type	S / P	S
P 14	Sensor type	CO2 / VOC / EXT.CTRL.	Units / Model
P 15	Minimum ventilation supply air	50 - 500 Pa	100
P 16	Minimum ventilation extract air	50 - 500 Pa	100
P 17	Basic ventilation supply air	50 - 500 Pa	150
P 18	Basic ventilation extract air	50 - 500 Pa	150
P 19			
P 20	Air quality	CO2 / VOC	1400 ppm / 45 %
P 21	Type of regulation	SUP.AIR TEMP.CON / ROOMTEMP.CONTROL	SUP.AIR TEMP.CON
P 22	Selection of heating system	HEATING / COOLING / HEATING-COOLING DIRECT EVAPORATO	HEATING
P 23	Sensor measuring range min.	0 ppm	-
P 24	Sensor measuring range max.	2000 ppm	-
P 25	Supply air filter	0 - 500 Pa	100 Pa
P 26			
P 27	Calibrate filter	Calibrate filter	
P 28	Motor protection extract air fan	0 = without extract air    1 = TACHO 1 2 = TACHO 2                3 = FAULT RELAIS	0
P 29	Motor protection supply air fan	0 = TACHO 1                1 = TACHO 2 2 = FAULT RELAIS	-
P 30	Extended running time	1 - 60 mins	5 MIN.
P 31			
P 32			
P 33			
P 34			
P 35			

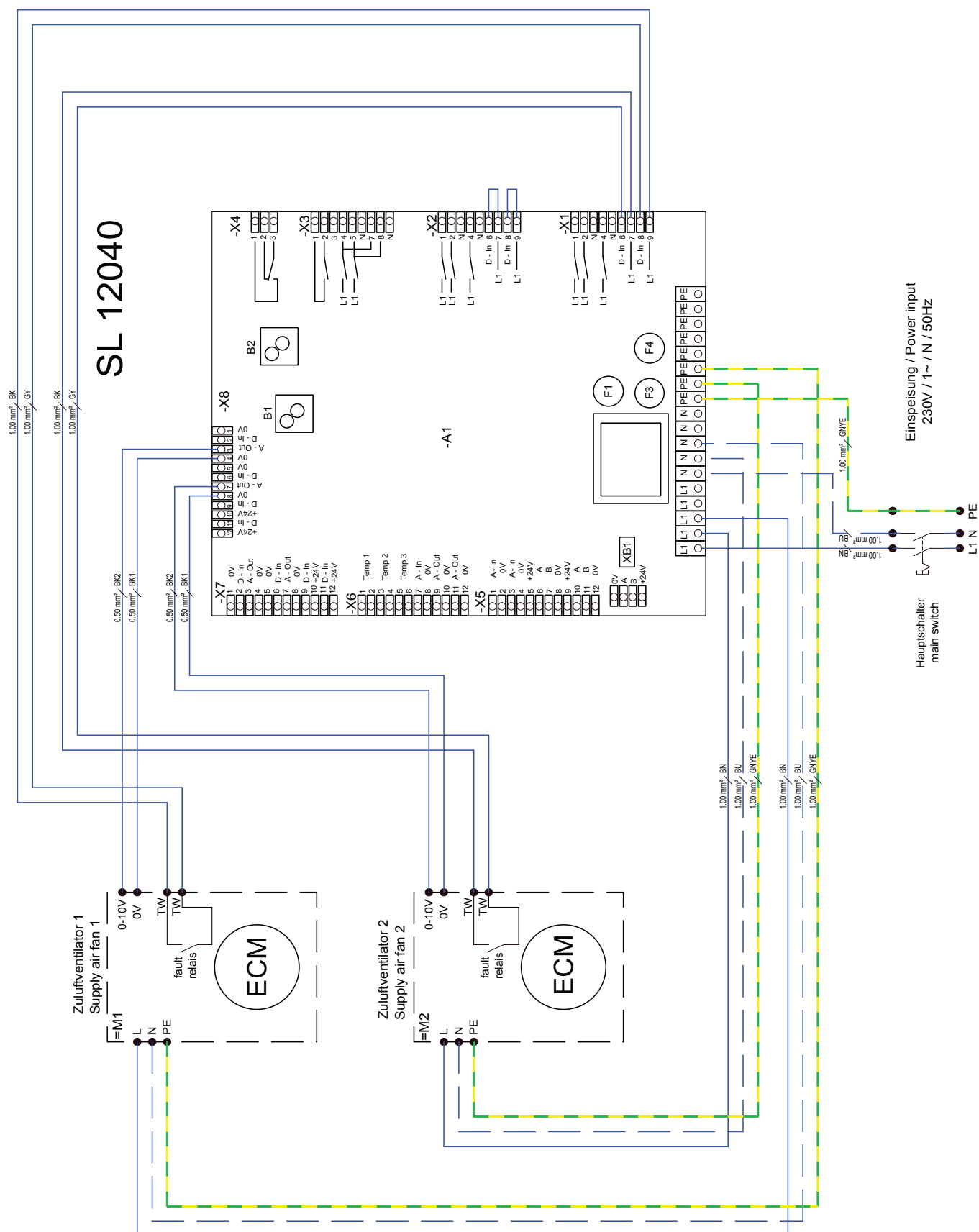
## 16.2. Wiring diagrams

Wiring diagram No. 136184

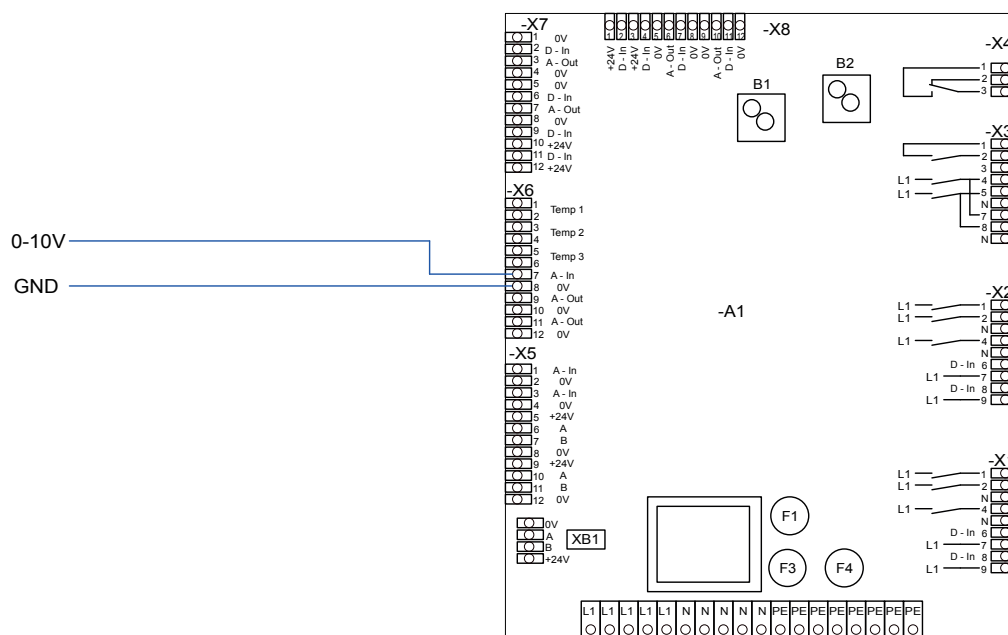
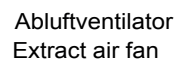




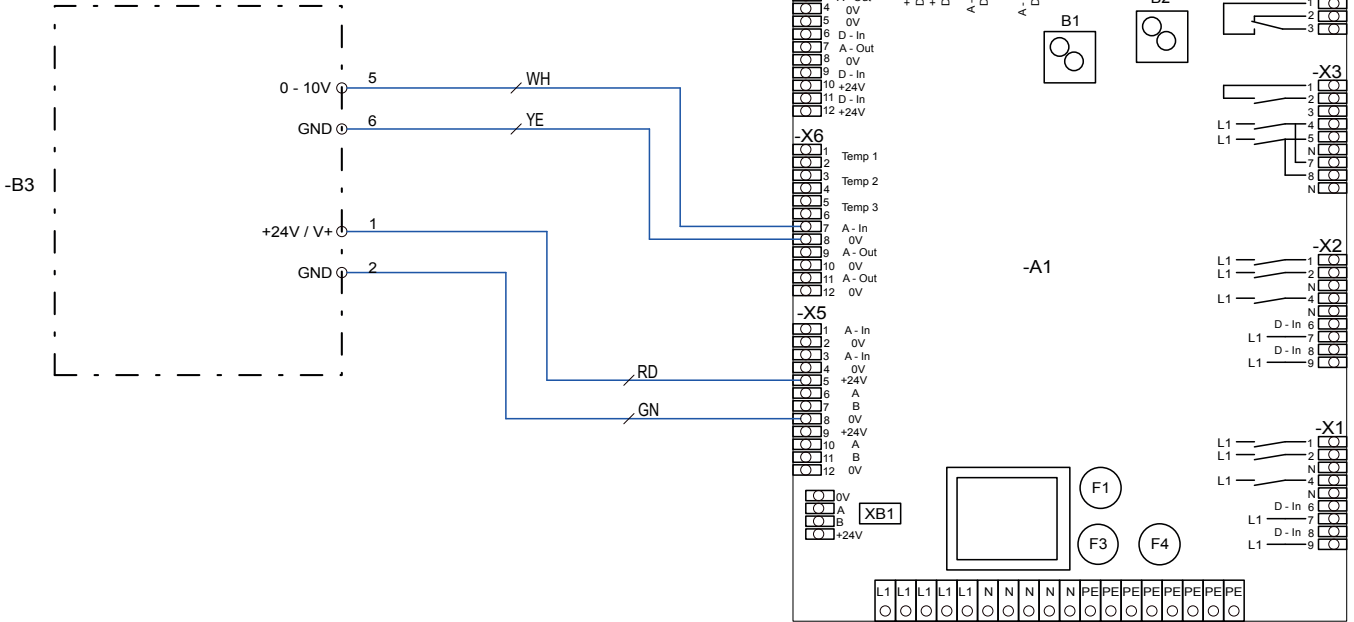




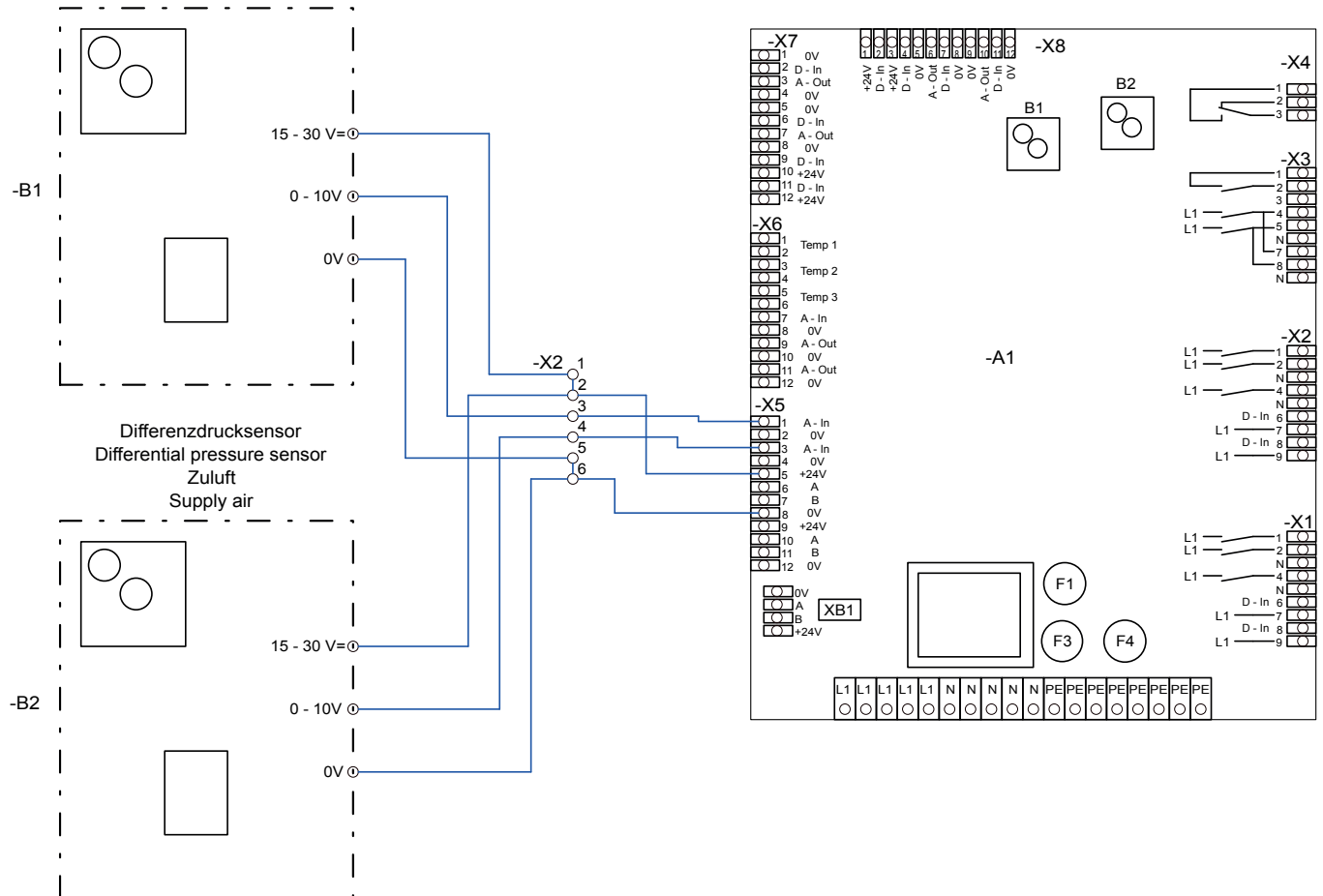


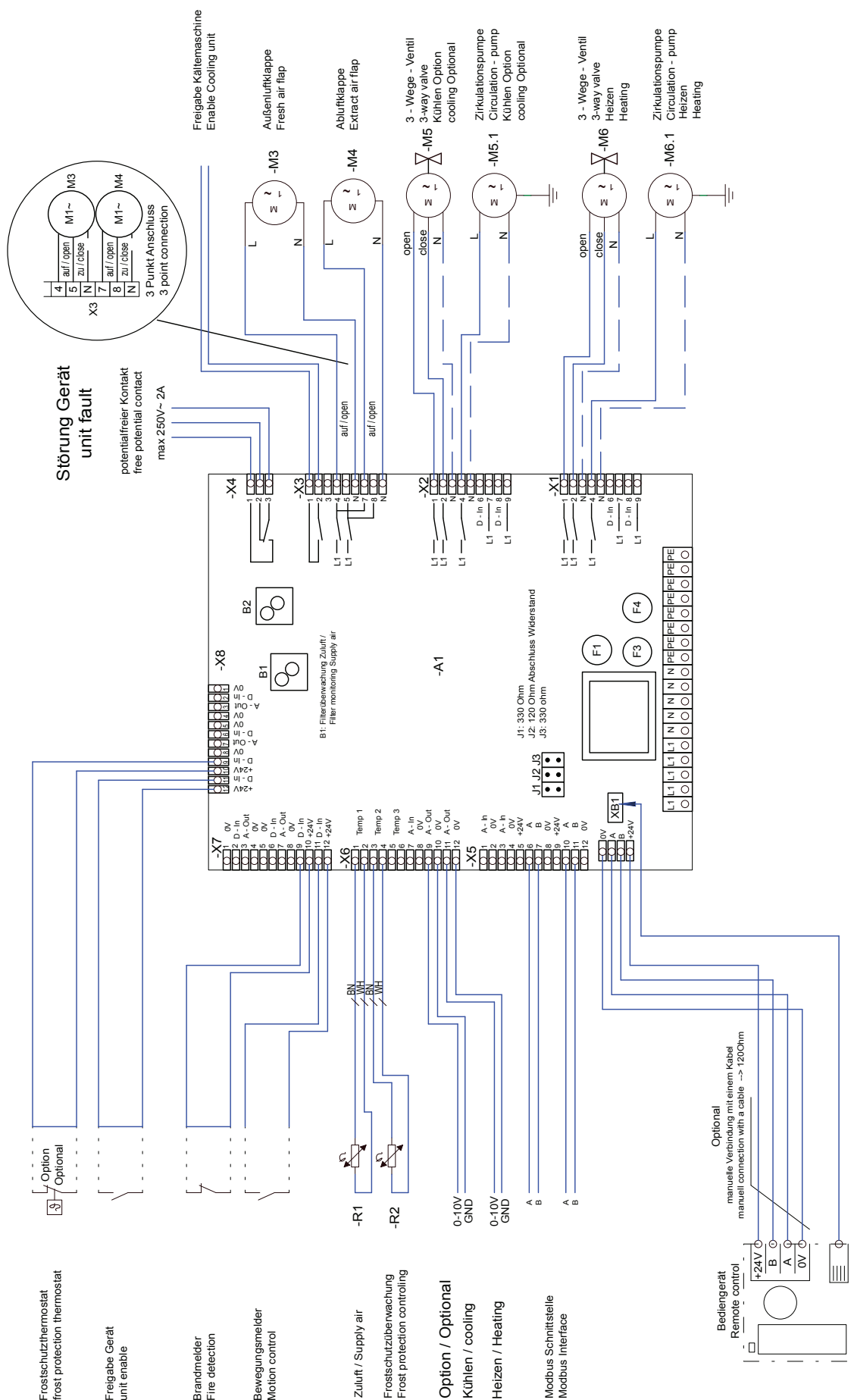


extern Sensor (CO<sub>2</sub>, VOC)  
external Sensor (CO<sub>2</sub>, VOC)



Differenzdrucksensor  
Differential pressure sensor  
Abluft  
Extract air





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