

# Installation Manual Mergen

INSTALLATION INSTRUCTIONS



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## INTRODUCTION

This user manual contains important information on the correct and safe use of the MERGEN devices. Therefore, please read the user manual completely before using the device. Otherwise, there may be danger to persons and damage to the product.



CUSTOMER REFERENCE NO.	F02983
CUSTOMER NAME	COMPLETE VENTILATION SOLUTIONS LTD
PROJECT NAME	SALFORD CITY SKILLS
ORDER NO.	93IP010539
SERIAL NUMBER	01.6.2021.0539.847
ITEM CODE	M4550H-EH
ITEM MODEL	Premium Line 2 H x 4 W
AIR VOLUME	5,500 m <sup>3</sup> /h
COUNTERFLOW HEAT EXCHANGER	REK 95 850-26 / 1 REK 95 550-24 / 1
ELECTRIC HEATING CAPACITY	18 Kw
SUPPLY AIR 1. FILTER	592x502x48 F7 / 2
EXHAUST AIR 2. FILTER	592x502x48 M5 / 2
EXHAUST FAN	KJG355P1802
MOTOR kW / POLES / V / Hz	2.8 kW/3P/400V/50-60V-Hz
EXTERNAL / TOTAL PRESSURE	390 / 773 Pa
SUPPLY FAN	KJG355P1802
MOTOR kW / POLES / V / Hz	2.8 kW/3P/400V/50-60V-Hz
EXTERNAL / TOTAL PRESSURE	390 / 709 Pa

The unit has a rating plate on the front. The rating plate contains the serial number and the required markings for identifying the unit.

Manufactured in Turkey



The controller manual is valid for all ATC MERGEN (M45xx) models equipped with an integrated controller.

Control mode	Type	Description
Mode 1	Standard regulation	Automatic temperature control of supply air with external compensation, % low flow - % high flow - time based LS / HS speed switching
Mode 2	CO2 control	Automatic temperature control with external compensation, % low flow - % high flow - CO2 concentration based LS/HS speed switching
Mode 3	Constant pressure control	(Automatic temperature control of supply air with external compensation, % low flow - % high flow - Pulse channel pressure based LS/HS speed switching
Mode 4	Constant Flow Control	Automatic temperature control of supply air with external compensation, constant low flow rate in m <sup>3</sup> /h - constant high flow rate in m <sup>3</sup> /h - time-based LS / HS speed switching
Mode 5	Constant Flow CO2 control	(Automatic temperature control of supply air with external compensation, constant low flow rate in m <sup>3</sup> /h - constant high flow rate in m <sup>3</sup> /h - CO2 concentration based LS/HS speed switching.

It describes the functions available to users with the access rights of an Operator or below, as well as Admin functions specific to installation and startup.

## MANUFACTURER

### ATC Air Trade Centre A.Ş.

#### Headquarters:

İçerenköy Mah., Karaman Çiftlik Yolu Cad.,

Kar Plaza No: 47 İç Kapı No: 3

Ataşehir/ İstanbul Türkiye

#### Factory:

POSB 14. Cad. No:15

35875, Pancar / Torbalı / İzmir, TURKEY

## WARRANTY

- ◆ The warranty period starts from the date of invoices and is standard 2 (two) years for MERGEN devices.
- ◆ In case of failure of the product within the warranty period, the time spent in repair is added to the warranty period of the defective product. The repair period of the product is up to 30 work days. This period starts from the date of defective product.
- ◆ During the warranty period of the product, product defects are troubleshoot free of charge due to material, workmanship and factory assembly errors
- ◆ Malfunctions arising from the use of the product contrary to the matters stated in the user manual and malfunctions due to user error are not covered by the warranty.
- ◆ The accessories and devices used on our products that are not assembled by our company are not covered by our company's warranty.
- ◆ The warranty is not valid in case of repairs and changes made without the written consent of the Air Trade Centre and if the unit is not operated as specified in the agreement with the Air Trade Centre. Damages caused by negligence, lack of maintenance or not following the recommendations of Air Trade Centre are not covered by the warranty.

## SAFETY

Observe all safety instructions in this document and all warning labels on the air handling unit.

Failure to observe the safety instructions may result in injury to persons or damage to products.

### PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment should always be used according to the risks presented in the workplace and has to comply with national laws and regulations.

The following personal protective equipment is recommended when the job requires it:

- ◆ Safety shoes with steel toe caps
- ◆ Hearing protectors
- ◆ Safety helmet
- ◆ Gloves
- ◆ Safety glasses
- ◆ Covering clothes
- ◆ Protective overall
- ◆ Mouthguard/protective mask
- ◆ Fall protection

### PREVENT PERSONAL INJURY AND DAMAGE TO PRODUCT

To avoid personal injury or damage to air handlers, observe the following:

- ◆ Read the entire document before working on the unit.
- ◆ Comply with national and local laws and regulations for safety at work.
- ◆ Do not wear loose clothing or jewelry that could get caught.
- ◆ Do not step on or climb on the unit.
- ◆ Use the recommended tools and equipment intended for the job.
- ◆ Use recommended personal protective equipment when work requires it.
- ◆ Observe the product signs, information and warning labels on the device.
- ◆ Keep the device clean and follow the operating and maintenance instructions.
- ◆ Make sure all covers are in place, inspection hatches are closed and lockable inspection hatches are locked before operating the unit and after repairs/maintenance.
- ◆ Use suitable fall protection when working at height - normally over 2 metres. Even work at lower heights may require protective measures.

### PRODUCT LABELS, INFORMATION AND WARNING LABELS

Keep labels and stickers free from dirt and replace them if they are lost, damaged or illegible. Contact ATC Air Trade Centre for replacement labels, quoting the item number.



## GENERAL SAFETY AND PREVENTION

All persons concerned must familiarise themselves with these instructions before starting work on the Mergen devices. Any damage to the device or its components caused by improper handling or use by the purchaser or installer cannot be considered as covered by the guarantee if these instructions have not been followed correctly.

The device must always be operated with the doors and panels closed. The service doors should only be opened after you have made sure that the device is switched off.

Check that there are no foreign objects in the unit, duct system or functional parts. The unit should not be operated while there are no duct connections. If the unit is installed in a cold location, make sure all connections are covered with insulation and properly taped.

All electrical connections must be carried out by a qualified electrician and in accordance with local regulations and controls.

Make sure that the power supply to the unit is disconnected before carrying out any maintenance or electrical work!

Although the mains supply to the unit has been disconnected, there is still a risk of injury from rotating parts that have not come to a complete stop.

## GENERAL

### PURPOSE OF USE

Mergen devices are designed for use in comfort ventilation applications.

The device must be protected from excessive moisture and water. Devices used outdoors must be fitted with a roof.

The device must be protected against shock and vibration.

Electrical connections to the device must never come into contact with water. Electrical cables between the mains & device must be protected from water and impact.

The device must be used in accordance with its design form. If the device is designed horizontally, it must be used horizontally; if it is designed vertically, it must be used vertically.

Depending on the variant chosen, MERGEN devices can be used in buildings such as office buildings, schools, public buildings, residential buildings, shops, etc.

MERGEN devices are equipped with plate heat exchangers and can be used for ventilation of moderately humid buildings; however not where humidity is continuously high, nor for ventilation of explosive and corrosive atmospheres or for ventilation of oily environments.

Please feel free to contact us if you need a unit suitable for such an application.

### CE MARKING AND EU DECLARATION OF CONFORMITY

The Mergen devices are CE marked, which means that on delivery they comply with the applicable provisions in the EU Machinery Directive 2006/42/EC.

Directive 2006/42/EC and to other EU directives applicable to the types of air handling units, e.g. Pressure Equipment Directive PED 2014/68/EU.

#### **For units without integrated control equipment**

The CE declaration only applies to units in the version in which they were delivered and installed at the factory in accordance with the enclosed installation instructions. The declaration does not apply to components added subsequently or which have been added to the unit.

### MAINTENANCE

Maintenance of Mergen devices can be performed by the person who normally maintains the building or through a contract with a reputable service company.

### EXTENDED WARRANTY

In cases where the delivered equipment is covered by an extended warranty up to 5 years, in accordance with the specifically agreed conditions (\*), a Service and Warranty Logbook will be requested.

To claim an extended warranty, the book must be fully documented and signed.

(\*) The specific warranty conditions can be requested from your local distributor.

## SPARE PARTS

Spare parts and accessories for this device are ordered from the nearest ATC Air Trade Centre sales office.

Please specify the order number and designation while ordering spare parts. These information are indicated on the name plate attached to each MERGEN device.

## DISMANTLING AND DECOMMISSIONING

When a Mergen device must be dismantled, please contact with ATC Air Trade Centre in order to get disassembly and decommissioning instructions.

## INSTALLATION INSTRUCTIONS

The installation instructions must be followed for proper operation and for the warranty to be valid.

Please note that the continuous development of the product may lead to changes in specifications without prior notice.

## GENERAL TECHNICAL DESCRIPTION

### MERGEN SERIES

MERGEN is designed taking into account the requirements for silent air handling units with highly efficient heat recovery for heating and cooling. The units are sustainably designed with maximum consideration for the environment. Each component used in MERGEN heat recovery units is selected with regard to the energy saving principle. All Mergen devices are supplied pre-wired with operationally tested control equipment.

MERGEN is a range of compact air handling units with many options, consisting of various complete functional components and modules in standard lengths. The modules are equipped with selected air handling functions tailored to the specific requirements.

The MERGEN range consists of 5 different sizes, 5 different control options and 4 different configurations. The flow rates range from 1200 to 5500 m<sup>3</sup>/h. Each unit has as standard two programmable flow rates that can be selected at the time of commissioning.

### CASING

Thermal break aluminum profiles with polyamide spacers between the profiles provide a TB2 Thermal Bridging class according to EN 1886. Glass fiber reinforced corners improve the durability of the casing. Insulation between the double-skin panels is 50 mm (70 kg/m<sup>3</sup>) of rock wool, resulting in a T2 thermal transmittance class. The exterior panels are powder coated in RAL 7047.

The MERGEN casing achieves class D1, L1, T2, TB2 according to EN1886.

The device is equipped with a separate IP 65 technical control panel containing the electrical components and controls. This section which is accessible via a lockable hinged door on one of the lateral sides also contains an LCD display and the isolating switch.

Access to the other internal components, such as the stainless steel condensate drain pan, automatic bypass dampers, filters or the heat exchanger, is via the removable safety interlock panels.

### FILTERS

MERGEN devices have as standard a high efficiency F7 filter for fresh supply air and an M5 panel filter for return air. The filters are always mounted upstream of components to protect them. Mounted on guides for easy maintenance, fitted with lip seals to ensure effective air tightness.

### HEAT EXCHANGER

The Mergen devices are equipped with Eurovent certified hexagonal aluminum plate exchangers. The exchanger has an efficiency higher than 90% according to EN308. The bypass with automatic defrosting function ensures the heating of the fresh air when needed. If the unit has an electric pre-heater, the control will automatically choose the most optimal solution.

## FANS AND MOTORS

Mergen devices are equipped with directly driven plug fans with EC motor, direct current motors with electronic modulation (EC), high efficient, thermal protected and integrated speed control. The EC technology guarantees low consumption by controlling its operating point between 10 and 100%. EC motors provide a low noise level which results in better acoustic comfort.

## DUCT CONNECTIONS

Devices with round duct connections are supplied with rubber seals.

Units with rectangular duct connections are intended for connection with guide strips. Rectangular duct connections must be supplemented with a sealing strip.

## DELIVERY CONFIGURATION AND BASIC FRAME

MERGEN devices can be supplied as: block sections without feet, block sections with a foot, or block sections with a lifting eye.

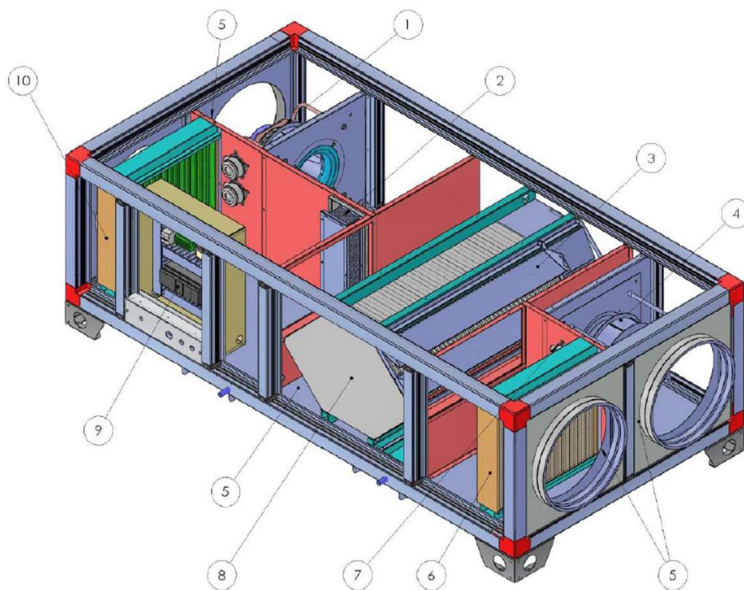
The basic frame consists of profiles with feet and carrying slots for transport, with a standard height of 100 mm.

## POSSIBLE OPTIONS

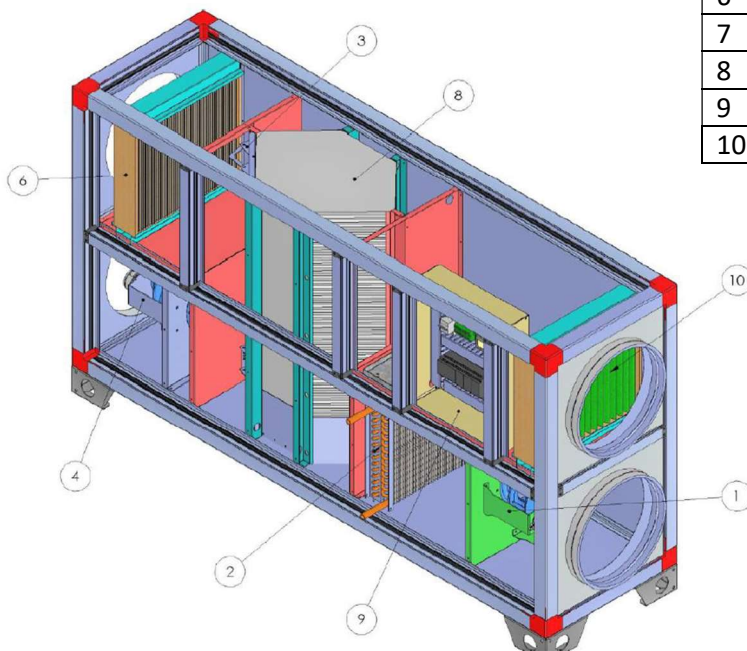
- ◆ Electric preheater
- ◆ Water heater coil or electric heater
- ◆ External water or DX coil for cooling
- ◆ 5 different automatic control options
- ◆ Roof for outdoor use
- ◆ Hoods for fresh air inlet and exhaust air outlet
- ◆ Motorised dampers for fresh air inlet and exhaust air outlet
- ◆ Base frame for floor mounting or lifting eye for ceiling mounting

## POSITIONING OF THE COMPONENTS

Configuration H: Horizontal installation (landscape model)

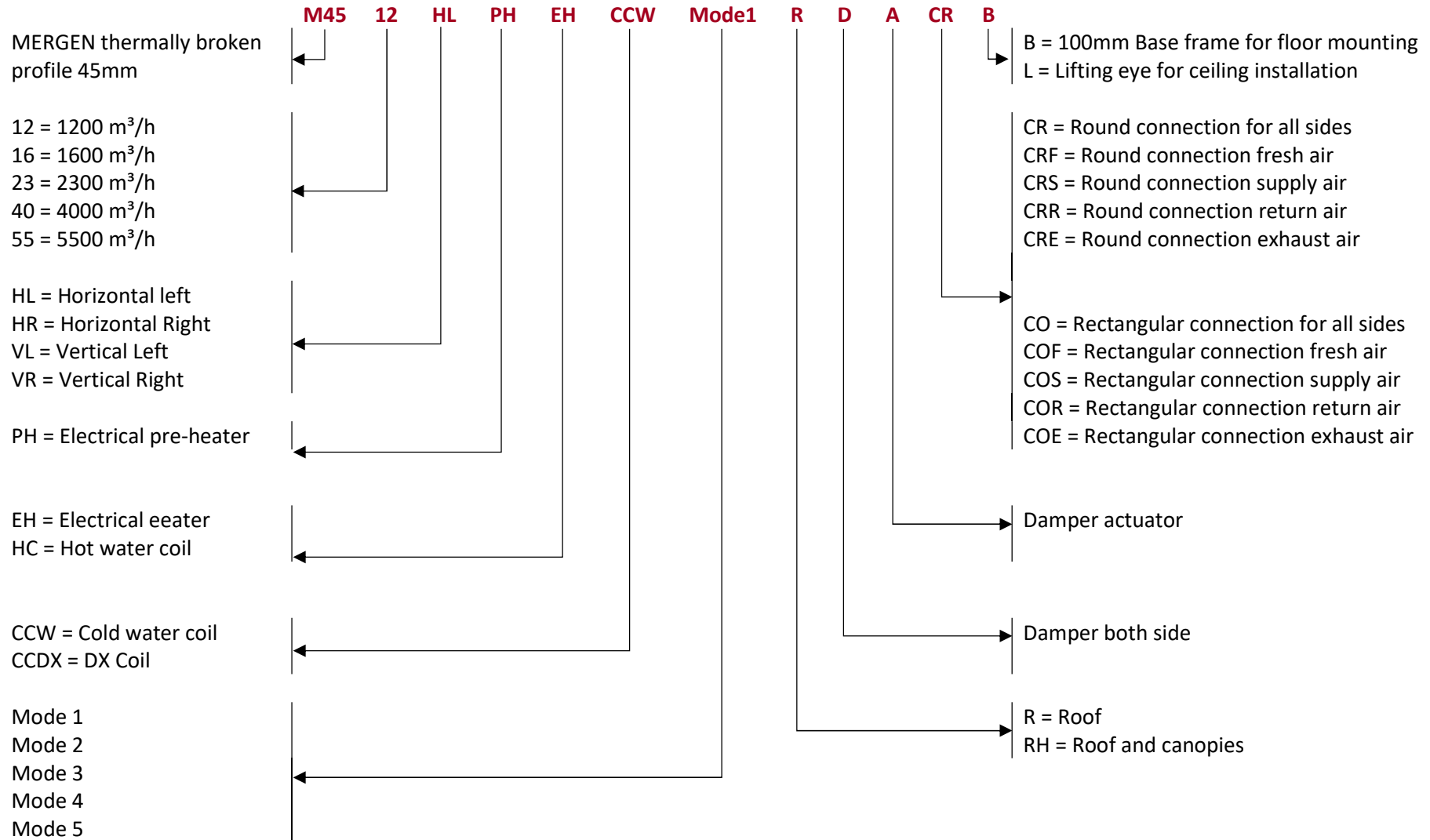


Configuration V: Vertical installation (floor-standing model)



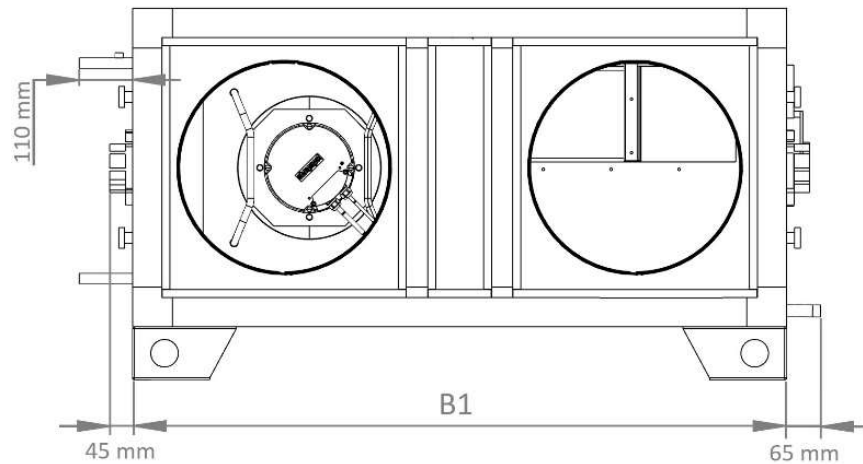
No.	Component
1	Supply fan
2	Coil (electric or water)
3	Bypass valve
4	Exhaust fan
5	Temperature sensor
6	Filter feed
7	Pressure measurement
8	Plate Changer
9	Control section
10	Filter outlet

## DESCRIPTION OF THE MODEL

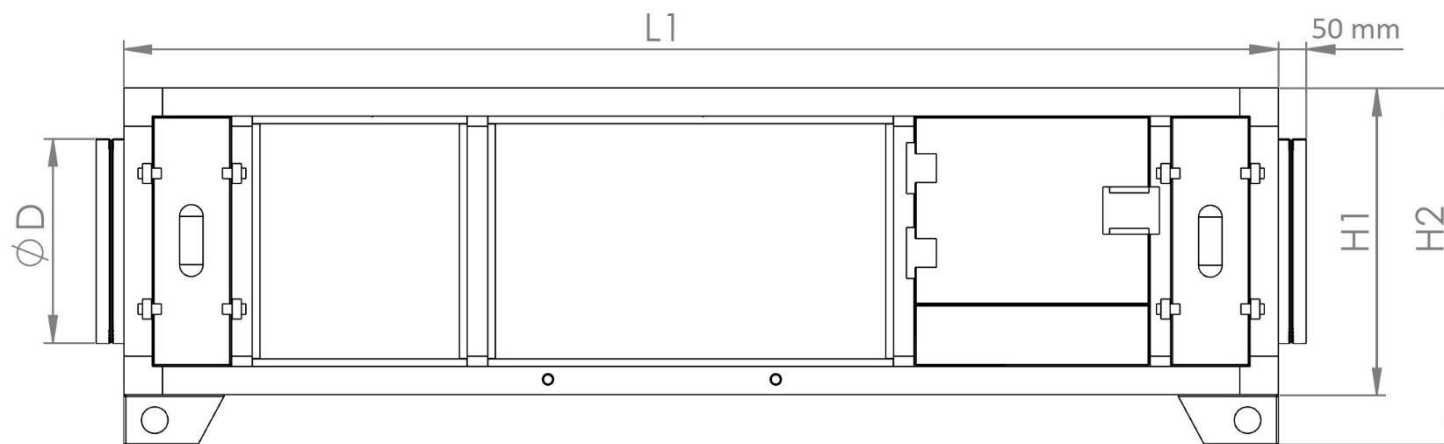


## DIMENSION TABLE

Horizontal setup (landscape model)

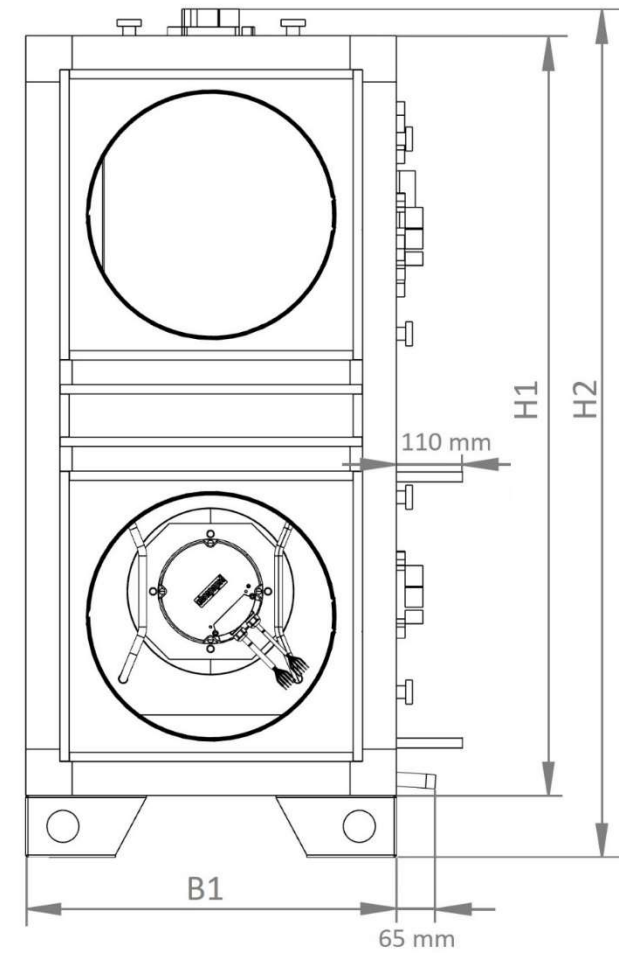
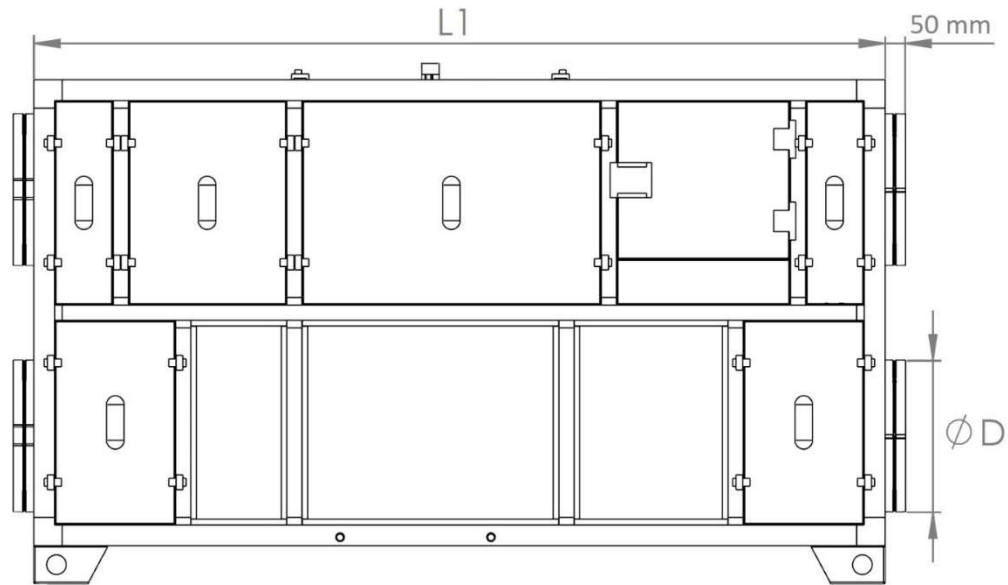


	L1	B1	H1	H2	Connections		Weight
					Round [Ø]	Rectangular [WxH]	
					[mm]		
<b>M4512H</b>	2190	1230	600	700	315	460x490	289
<b>M4516H</b>	2250	1230	600	700	400	460x490	299
<b>M4523H</b>	2395	1430	730	830	450	560x620	377
<b>M4540H</b>	2980	1630	1050	1150	630	680x940	607
<b>M4555H</b>	3240	1750	1334	1434	630	730x1225	1047





Vertical arrangement (standing model)



	L1	B1	H1	H2	Connections		Weight
					Round [Ø]	Rectangular[WxH]	
					[mm]		
<b>M4512V</b>	2190	600	1230	1375	315	490x470	301
<b>M4516V</b>	2250	600	1230	1375	400	490x470	311
<b>M4523V</b>	2395	730	1430	1575	450	605x640	393
<b>M4540V</b>	2980	1050	1630	1775	630	670x540	632
<b>M4555V</b>	3240	1134	1750	1895	630	1124x730	1089

## ELECTRICAL SUPPLY

Model	Power Details			Cable Cross Sections									RCD Details	
	Default Unit	PH	EH	Default Unit			Unit+PH & Unit+EH			Unit+PH+EH			Rec. Type	Rec. Current
				Max Current	Rec. Cable	Rec. Fuse	Max Current	Rec. Cable	Rec. Fuse	Max Current	Rec. Cable	Rec. Fuse		
	[kW]	[kW]	[kW]	[A]	[mm <sup>2</sup> ]	[A]	[A]	[mm <sup>2</sup> ]	[A]	[A]	[mm <sup>2</sup> ]	[A]		[mA]
M4512 H/V	1,1	3,75	3,75	5,1	5x2,5	16	9,9	5x2,5	16	17,1	5x2,5	20	B or B+	30
M4516 H/V	1,6	5,25	5,25	7,1	5x2,5	16	13,8	5x2,5	20	23,8	5x4	25	B or B+	30
M4523 H/V	2,2	6,75	6,75	3,7	5x2,5	16	16,5	5x2,5	20	29,3	5x4	32	B or B+	30
M4540 H/V	3,7	13,5	13,5	6,1	5x2,5	16	31,7	5x4	32	57,4	5x10	63	B or B+	300
M4555 H/V	5,46	18	18	8,7	5x2,5	16	42,9	5x6	50	77,1	5x16	80	B or B+	300

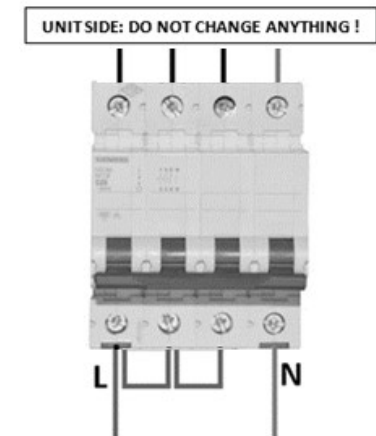
Cable section calculations are based on max 50m cable length and %10 drop of supply voltage. Please contact with ATC for different installations!

### MONOPHASE – TRIPHASE CHANGE (ONLY FOR M4512-M4516)

All units are produced in tri-phase supply connections as factory default. In case of monophasic operation needs, please proceed in accordance with defined instructions.

All revisions for tri phase-monophasic conversion must be done on the electrical supply side of circuit breaker. **DO NOT CHANGE ANYTHING ON THE DEVICE SIDE (UNIT SIDE)!**

**NOTE: The monophasic option is not suitable for the units which are produced with electrical heaters and M4523/M4540/M4555 models!**



**AIR  
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by **MAICO**

## DELIVERY

Upon delivery of goods, it is strongly recommended that you check the goods to ensure that no damage has occurred during transportation.

### TRANSPORT

The device must be transported in its original packaging.

The MERGEN device must be transported in accordance with the applicable transport conditions without any damage when transporting to the working site.

Lifting and transporting operations must be carried out by experienced and trained technicians.

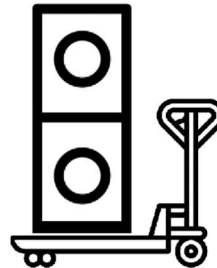
The necessary safety measures must be taken on the device to prevent cases such as dropping and toppling.

The unit must not be lifted by holding it at service doors, duct connection flanges, valves and door handles.

It must be ensured that the device is balanced during transportation. The transport must not be carried out upside down or turned around.

#### Transportation by forklift on a pallet:

The forks of the forklift should not touch to the casing. Forks should fit into the slots mounted on the base of the unit. In order to prevent deflection on the bottom panels, the distance between forks should not be too wide.

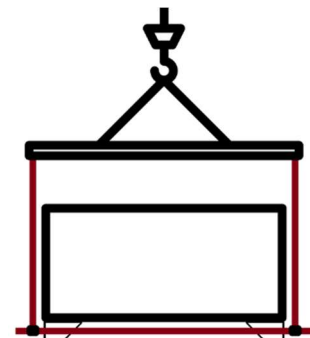


#### Transportation by crane:

Make sure that the crane cable, chain and slings do not come into contact with the casing during transportation with the crane, so that the profiles and panels of the device are not damaged.

The ropes, chains and slings to be used during transportation must comply with the international "Regulations on Hoisting and Lifting Equipment and Loading and Unloading Instruments".

When the device is attached to the load-bearing cables, ensure that the load is distributed evenly.



## STORAGE

If the unit is to be stored for a shorter period before installation, it should be placed on a flat surface in a dry environment and must be kept in its original packaging.

The unit should be stored in a place not exposed to sunlight and away from dust and dirt. If the temperature changes during storage, evaporated water may occur and must be allowed to dry when the unit is used.

In case of long-term storage, the duct connections/duct ends should be sealed with plastic to protect against water and dirt. During storage, parts of the unit should be covered from rain, snow and sunlight.

The coil inlet and outlet sections coming out of the unit must be closed.

The devices must not be stored on top of each other.

The environment where the units are stored must be between min. -20°C max. +40°C.

## MOUNTING

### ATTENTION DURING ASSEMBLY

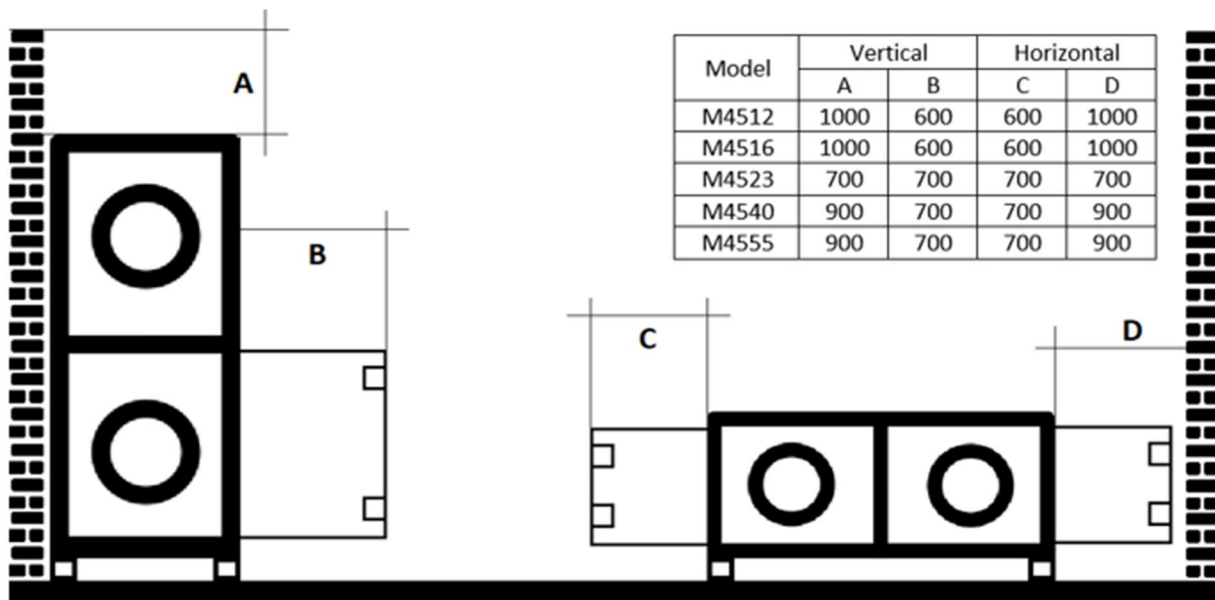
The assembly and transportation site of the Mergen device must be suitable for the weight and dimensions supplied by ATC.

The device must be mounted parallel to and in balance with the ground. The unit must not be mounted with an angle.

It must be ensured that the maintenance and service doors are at a comfortable distance to open during the installation of the equipment taking into account possible fan failure and exchanger replacement.

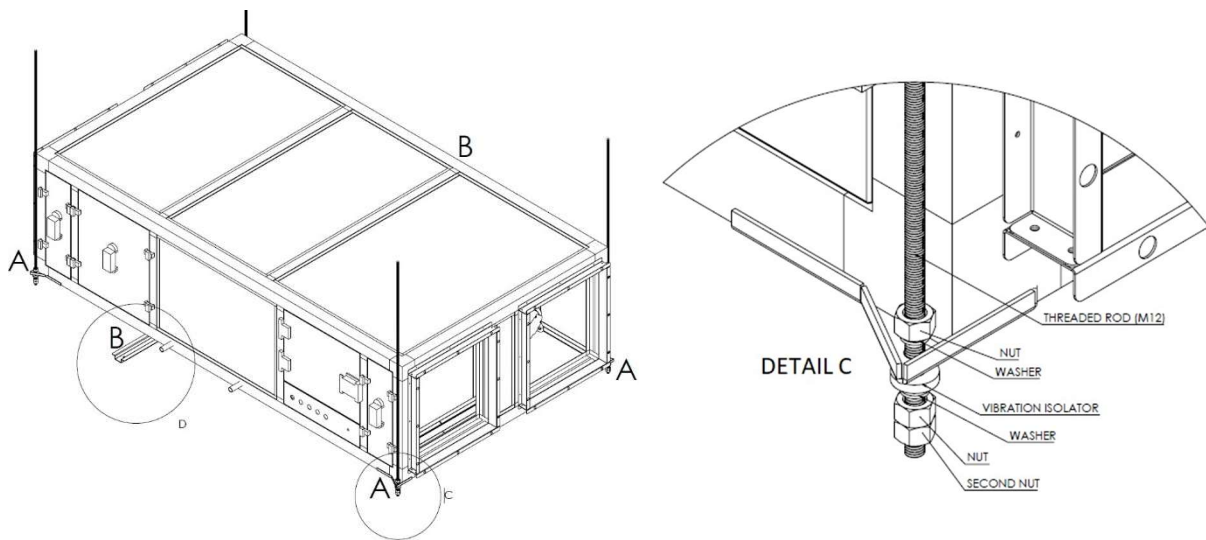
### REQUIRED SPACES

For service and maintenance operations, the spaces shared below must be provided around the device on the installation site.



### CEILING INSTALLATION

Mergen Unit Hanging Details				
Model Name	Rod Diameter	Hanging Quantity	Hanging Position	
	mm		A	B
4512H	M12	4	+	
4516H		4	+	
4523H		4	+	
4540H		6	+	+
4555H		6	+	+



## DUCT CONNECTIONS

Devices with round duct connections have connections with rubber seals.

Devices with rectangular duct connections must be completed with a sealing strip.

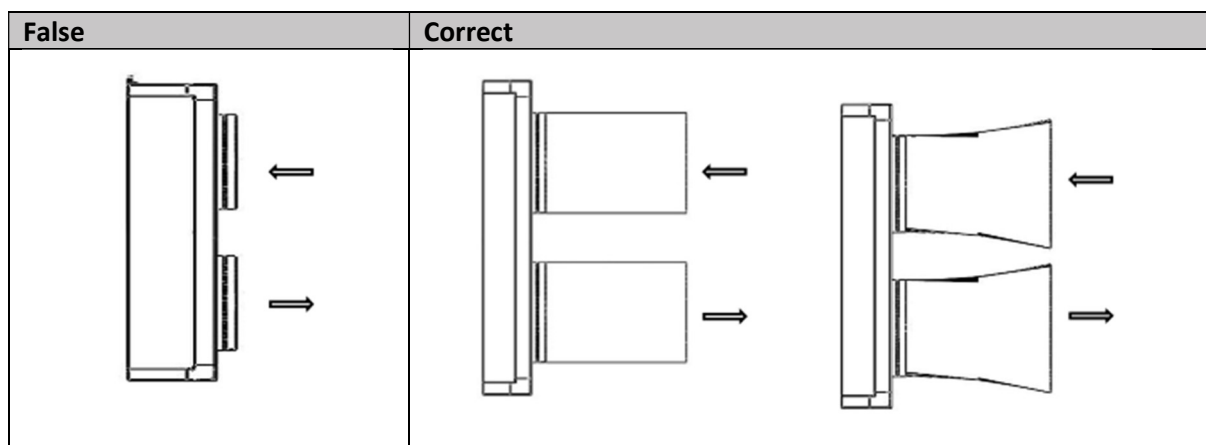
Fresh air intake and extract on the room side must be connected to the device with flexible sleeves. These must be mounted at an extended length.

The ducts must be made leak-tight with a gasket or other leak-proof element, and insulation must be provided to minimize heat transfer in the ducts.

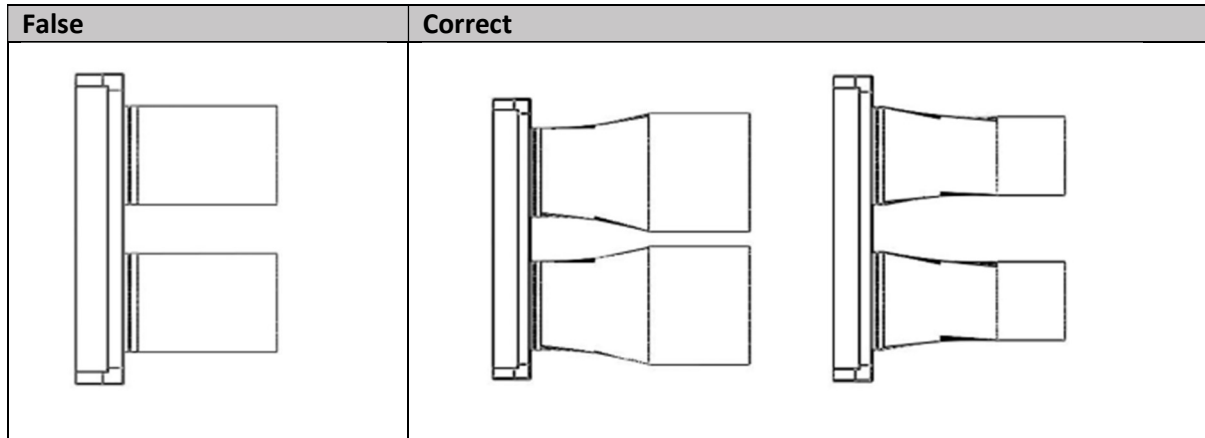
Duct sizes shall be determined based on the air flow rate and maximum external pressure drop of the device, and shall be designed in accordance with the capacity of the device.

The fresh air intake and exhaust ducts connected to the outside environment must not be left exposed.

Turbulent flow at suction and discharge must be converted into a laminar flow by installing a straight channel piece or expansion piece to reduce pressure drop, otherwise unexpected severe pressure drop will occur.

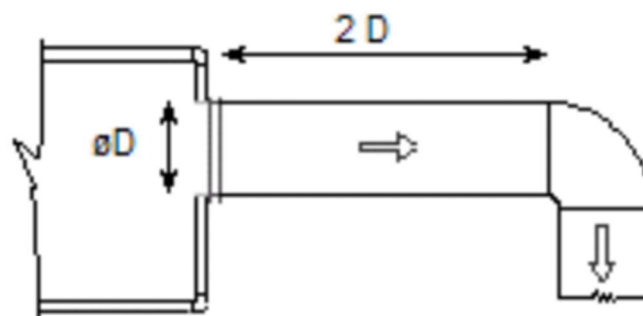


Changes in the duct sections at the air inlet and air outlet of the device must be made using a reduction piece. Ductwork with different cross-sections must not be connected directly to the inlet and outlet sections of the device. Section changes must be made with a minimum angle of 15 degrees.



In cases where the airflow direction is to be changed immediately after the discharge or intake section of the device or in cases where equipment (duct-type electric heater or duct-type water coil) is to be installed, as shown in the figure below, before the standard bends or before the equipment, 2 times the equivalent diameter must be provided.

Installing a parallel duct at a certain distance will minimise the pressure drop caused by the change in the direction of the air flow.



Appropriate transition pieces must be used in the transition from round to rectangular or from rectangular to round. It should not be directly connected to a rectangular section or a rectangular section to a circular section.

A wire mesh should be used at the fresh air intake and the discharge to the outside to prevent rainwater and foreign material from entering.

## COIL CONNECTIONS

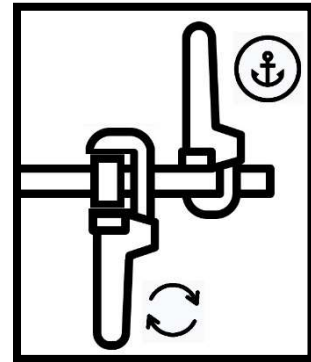
MERGEN heat recovery units can include a heating, cold water or DX coil, depending on the customer's choice and the capabilities of the environment in which the unit will be used. In such cases, the installer must make the connections of these coils.

The connection points of coils are outside of the unit. Information labels are stuck to the sections for the pipe connections. VRF installation or plumbing work should be done according to these labels.

When installing the pipes, care must be taken not to damage the coils in the MERGEN device.

Bottle connectors are recommended to connect the coils.

For preventing torsion/rotation on copper or steel pipes, the counter wrench usage is mandatory. While tightening the coil connections, it must be tightened with counter wrench. Torsions that will occur if it is not tightened with counter wrench may make the coil unusable!



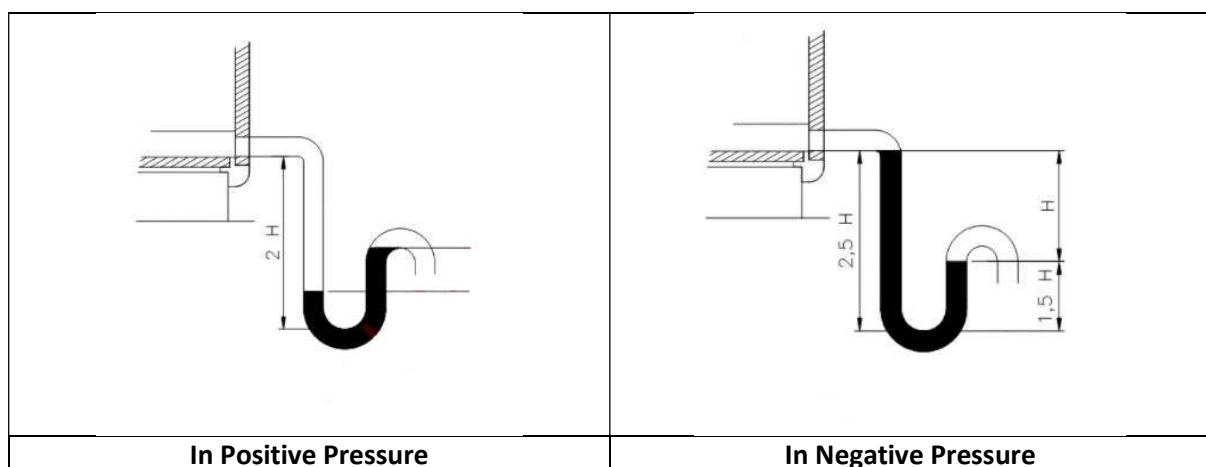
**IMPORTANT : The frost protection sensor should be installed at the coldest point of the coil in order to prevent ice in the pipes of the coil.**

## DRAIN CONNECTIONS

Condensation pans are used in the MERGEN devices to extract the water formed by the condensation. The drain pipes of these condensation pans taken from the section must be connected to the drain pipe with the siphon placed next to the device.

The pipe diameter of the discharge pipe to be connected must be equal to the diameter of the discharge pipe on the device.

The siphon must be filled with water during installation to prevent air leakage.



**H (mmSS):** height (Pa) / 10

The height H must be at least equal to 1x the maximum internal negative pressure of the unit.

*Example:*  $\Delta p = 500 \text{ Pa} \approx 50 \text{ mm CE} \Rightarrow H > 50 \text{ mm}, 2H > 100 \text{ mm}$



## ELECTRICAL CONNECTIONS

The MERGEN unit has a built-in control and works with the plug & play principle, therefore it is sufficient to connect the main power cable. The control panels are located inside the unit, in the return air stream behind an access door.

The diameter and type of the power cable must be determined by taking into account the total power of the device and the voltage drop that will occur depending on the distance.

The communication cable and the control panel power cables must not be transported in the same place. They must be transported in different places.

Even if the necessary precautions have been taken in the unit, the necessary circuit breakers must be used in the main line in accordance with the current values of the unit.

The grounding conductor must be connected to the section indicated on the panel.

Make sure that no parts of the unit are punctured when making electrical connections.

The cables that are drawn from the mains to the device must be protected against damage.

The power connection must be made according to the electrical supply of the device, in the table below you can find the power supply, cable and the fuse values.

## POWER SUPPLY

Model	Power Details			Cable Cross Sections									RCD Details	
	Default Unit	PH	EH	Default Unit			Unit+PH & Unit+EH			Unit+PH+EH			Rec. Type	Rec. Current
				Max Current	Rec. Cable	Rec. Fuse	Max Current	Rec. Cable	Rec. Fuse	Max Current	Rec. Cable	Rec. Fuse		
	[kW]	[kW]	[kW]	[A]	[mm <sup>2</sup> ]	[A]	[A]	[mm <sup>2</sup> ]	[A]	[A]	[mm <sup>2</sup> ]	[A]	[mA]	
M4512 H/V	1,1	3,75	3,75	5,1	5x2,5	16	9,9	5x2,5	16	17,1	5x2,5	20	B or B+	30
M4516 H/V	1,6	5,25	5,25	7,1	5x2,5	16	13,8	5x2,5	20	23,8	5x4	25	B or B+	30
M4523 H/V	2,2	6,75	6,75	3,7	5x2,5	16	16,5	5x2,5	20	29,3	5x4	32	B or B+	30
M4540 H/V	3,7	13,5	13,5	6,1	5x2,5	16	31,7	5x4	32	57,4	5x10	63	B or B+	300
M4555 H/V	5,46	18	18	8,7	5x2,5	16	42,9	5x6	50	77,1	5x16	80	B or B+	300

Cable section calculations are based on max 50m cable length and %10 drop of supply voltage. Please contact with ATC for different installations!

## START-UP

### TO CHECK BEFORE THE START-UP



**Before starting the electrical connections, make sure that the power has been disconnected from the mains.**

START-UP CHECKLIST	
Tasks	Check
The ducts, coils, drain and electrical supply are connected as prescribed in the manual.	
That there are no foreign materials inside the unit; if so, it should be removed or cleaned.	
Before starting the unit, check that the fans rotate freely by hand. If any object is stuck in the fans, it must be removed.	
The sealing elements (gasket, etc.) must be checked before starting.	
Make sure the service doors are fully closed and the doors are securely locked.	
Check for visual damage to the controller and controls.	
Damaged fans must be replaced before start-up.	
The ducts must be checked before startup. If there is residue (Insulation, tape, etc.), it should be removed and cleaned.	
The fan should be checked for proper operation. (Quiet operation, vibration, imbalance, power consumption, controllability).	
Electrical values (current, current consumption, voltage) must be measured during operation of the fans. Check that these are within the values indicated on the rating plate. If higher values are observed, the device must not be used.	
There is no air leakage in the ducts and the unit.	
Check that the condensation drain is working properly	
The noise level of the unit must be checked. If it is outside the list value, the unit should not be used.	



**Important: During checks after the first start, if a contradictory situation arises, the competent service should be contacted.**

## MAINTENANCE

### BEFORE TO START THE MAINTENANCE

The device must be stopped and the mains voltage switched off.

A wait should be made for the fans to come to a complete stop. A hand or other object should not be used as a brake to stop the fans.

Make sure the unit is not operated during maintenance, so turn off safety switches such as the maintenance switch and fuses.

### ATTENTION DURING MAINTENANCE

- ◆ Fans, filters and exchangers must not be cleaned with pressurized water.
- ◆ Maintenance is not recommended while the device is running.
- ◆ Protective gloves and safety goggles should be used during maintenance.
- ◆ Maintenance may only be carried out by a authorized technicians.
- ◆ During maintenance, avoid situations that would upset the balance of the fans and damage the fans.
- ◆ During maintenance, situations that may damage the structure of filters and exchangers must be avoided.

### REGULAR MAINTENANCE

Periodic maintenance should be performed step by step in the sections of the MERGEN unit.

*Fan:*

- ◆ **Check for mechanical friction noises:** If a mechanical friction noise is heard, the fan should be stopped. The fan should be replaced with a new one.
- ◆ **Balance check:** If it is observed that the fan is not balanced, the fan must be stopped. The fan should be replaced with a new one.
- ◆ **Fan blades check:** The fan must be stopped in case of warping and crushing in the fan blades. The fan must be replaced with a new one.
- ◆ **Check the fan mounting bolts:** The fan mounting bolts should be checked one by one, if there is a loose bolt, it should be tightened.
- ◆ **Dust, dirt and corrosion control in fans:** If the fans become dirty, they should be cleaned with compressed air or wiped with a damp cloth.
- ◆ **Checking the fan pressure sensor hoses:** If a pressure sensor is used for fan speed control, check that the hoses are still in place. If not, they must be reinserted and damaged hoses replaced.
- ◆ **Electrical data check of the motor integrated in the fan:** Measure current, voltage, etc. If the electrical values are lower or higher than they should be, stop the fan and check the electrical lines.

The above checks must be carried out every 3 months and the ATC after-sales service must be contacted in the event of a discrepancy.

#### *Changer:*

- ◆ **Damage control on aluminum fins:** The situations such as crushing and cracks in the aluminum fins that make up the heat exchanger will reduce the efficiency of the MERGEN device, so if this situation occurs, the exchanger must be replaced.
- ◆ **Cleaning of aluminium fins:** The aluminium fins of the heat exchanger must be cleaned of dust and other dirt. Cleaning of the heat exchanger should be done in the summer. The heat exchanger should be removed from the unit and wiped with a damp cloth, then replaced. No chemical substances should be used when cleaning the heat exchanger.
- ◆ **Checking the bypass valve blades:** The blades of the bypass valve in the heat exchanger section should be checked. If there are damages, such as bending of the blades, the valve must be replaced. In addition, the dirt on the surface of the valve must be cleaned.
- ◆ **Checking the tightness of the heat exchanger:** To ensure the tightness of the heat exchanger, the connected gaskets must be checked, the shifted gaskets must be replaced and the unusable ones must be replaced.

The above checks must be carried out every 3 months and the ATC after-sales service must be contacted in the event of a discrepancy.

#### *Filter:*

- ◆ **Filter checking:** The cleanliness of the filters must be checked and the filters must be cleaned if they are dirty.
- ◆ **Filter tightness check:** To ensure the tightness of the filter, the connected gaskets must be checked, shifted gaskets must be replaced and those that are unusable must be replaced.
- ◆ **Filter pressure switch hose check:** Pressure switches are used for the contamination information of the filters, it should be checked that the hoses of these pressure switches are in place. If not, they should be reinserted and damaged hoses replaced.

The above checks must be carried out once a month and ATC after-sales service must be contacted in the event of a discrepancy. Even if monthly periodic maintenance is performed, the filters must be replaced by new ones once a year.

#### *Coil:*

- ◆ **Checking the coil section:** The general cleanliness of the water coil, DX coil and electric heater being used should be checked and cleaned. Foreign objects that obstruct air flow on the surface of the coils should be cleaned.

The above checks must be carried out every 3 months and the ATC after-sales service must be contacted in the event of a discrepancy.

#### *Drainage:*

- ◆ **Checking the siphon and the condensation trap:** The dirt in the condensation trap must be cleaned. In addition, the water from the siphon must be drained and cleaned.

The above checks must be carried out every 6 months and the ATC after-sales service must be contacted in the event of a discrepancy.

#### *Housing:*

- ◆ **Checking the casing:** The interior and exterior of the unit should be checked for dust, dirt and corrosion, and dirt should be cleaned with a damp cloth. The parts that begin to form corrosion should be replaced.

- ◆ **Service door latch and fasteners check:** The operation of the door handle, hinge and other fasteners on the unit should be checked and defective ones replaced.

The above checks must be carried out every 6 months and the ATC after-sales service must be contacted in the event of a discrepancy.

Maintenance Plan					
Checkpoint		Action (If required)	3 Months	6 Months	12 Months
<b>1</b>	<b>Fan Section</b>				
1.1	Mechanical noises control	Replace the fan		x	
1.2	Fan balance control	Replace the fan		x	
1.3	Fan blade control	Replace the fan		x	
1.4	Fan mounting bolts control	Tightened it		x	
1.5	Dust, dirt control	Clean it	x		
1.6	Pressure meas. hoses control	Reinsert or replace		x	
1.7	Fan's electrical values control	Replace the fan		x	
<b>2</b>	<b>Heat Exchanger Section</b>				
2.1	Fin damage control	Replace the HEX	x		
2.2	Dust, dirt control	Clean it	x		
2.3	Bypass damper actuator control	Replace the actuator	x		
<b>3</b>	<b>Filters</b>				
3.1	Damage control	Replace the filter	x		
3.2	Gasket control	Replace the gaskets	x		
3.3	Pressure meas. hoses control	Reinsert or replace	x		
<b>4</b>	<b>Drainage</b>				
4.1	Dust, dirt control	Clean it		x	
<b>5</b>	<b>Coil</b>				
5.1	Damage / leakage control	Replace the coil		x	
5.2	Dust, dirt control	Clean it		x	
<b>6</b>	<b>Casing</b>				
6.1	Damage / leakage control	Replace the part			x
6.2	Dust, dirt control	Clean it			x

## TROUBLESHOOTING

Problem	Possible reason	Solution
The device does not work	Not started from the control panel	The device must be started from the panel
	Alarm in the unit	The cause of the alarm must be checked and the alarm must be reset from the control panel
	Electrical supply issue	Control the supply cable and turn on the circuit breakers.
Device vibrates	Unbalanced fan	The fans must be replaced with a new one.
	Loose parts in the fan section	Tighten loose parts
The device is excessively noisy	Damaged fan blades	Fan must be replaced
	Mechanical friction in the fan	Fan must be replaced
	Foreign object in the device	The unit must be checked and cleaned
	Unbalanced fan	The fans must be replaced with a new one.
	Seals (gasket etc.) are broken	The tightness of the seals must be checked, If necessary repair or replace with new one.
The bypass damper is not working.	Mechanical defect of the damper	The bypass damper must be replaced.
	Failure of the bypass damper actuator	Damper actuator must be replaced
Water leaks from the unit	The siphon or condensate tray clogged.	The siphon and condensate tray must be cleaned
Insufficient airflow	Incorrect assembly	Adjust the assembly according to the user manual
	Filters are clogged or dirty	Filters must be cleaned or replaced
	Clogged ducts	Clean the ducts
	The heat exchanger is clogged or dirty	Heat exchanger must be cleaned or replaced
	Fan pressure sensor hoses removed	The sensor hoses should be reinsert the fan inlets
	Fault in the fan pressure sensor	Fan pressure sensor must be replaced
Too much airflow	The device doors are open	Close industrial doors and possible open spaces
	Check the setpoints on control	Set the new values
	Fan pressure sensor hoses relocated	The sensor hoses should be put back in place
	Fault in the fan pressure sensor	Fan pressure sensor must be replaced








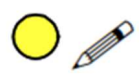

## DISPLAY, KEYS AND LEDS

### DISPLAY

```
Vent controller 5.0
2017-01-08 14:29
System: Normal run
Sp: 22.0 Act: 22.5 °C
```

The display has 4 lines with 20 character positions each. The display is backlit. The backlight is off, but is activated when the user presses a key. After a certain period of time with no key presses, the backlight switches off automatically.

### KEYS AND LEDS

	<b>UP ARROW:</b> Go to previous line in menu. (Increase parameter value)		<b>ALARM:</b> Press to view alarm summary.
	<b>DOWN ARROW:</b> Go to the next line in the menu. (Decrease parameter value)		<b>DELETE:</b> Resets/cancels change of a parameter unless OK is already pressed.
	<b>ARROW TO THE RIGHT:</b> Go to lower level in menu. (Move cursor to the right within the parameter)		<b>ALARM LED:</b> Red LED flashes if the alarm has not yet been acknowledged. After acknowledgement, the LED remains lit until the alarm is reset.
	<b>LEFT ARROW:</b> Go to a higher level in the menu. (Move cursor to the left within the parameter)		<b>SCREAMING LED:</b> Some menus have adjustable values. This is indicated by a flashing yellow LED. The value can be changed by pressing OK.
	<b>OK:</b> Open/enable menu/setting after selection. (Confirm a parameter value)		



## ACCESS RIGHTS

There are four levels of access rights. **Normal** has the least access rights which do not require logging in. This is followed by **Operator**, **Service** and **Admin** levels, where Admin has the most rights. The choice of an access level determines which menus are displayed and also which settings you can change in those menus.

The basic level only allows you to change the operating mode and gives you read access to a limited number of menus.

The Operator level gives access to all menus except Configuration.

The Service level provides access to all menus except the Inputs, Outputs and System submenus of the Configuration menu.

The Admin level gives full read/write rights for all settings in all menus.

```
Log on
Log off
Change password
```

In the startup display, press ARROW repeatedly. DOWN to the marker arrow at the line Access rights state. Press the RIGHT ARROW.

### SIGN UP

```
Log on
Enter password ****
Cur. Level:None
```

This menu allows you to log in at any access level by entering the appropriate 4-digit code. The login menu also appears if you are trying to access a menu or function that requires higher access rights than you currently have.

Press OK. A cursor mark will then appear at the first digit position. Press UP ARROW repeatedly until the correct digit appears. Press RIGHT ARROW to move to the next position. Repeat until all four digits of the code are displayed. Then press OK to confirm. Shortly afterwards, the new logon level will be displayed in the Current level line. Press LEFT ARROW to exit the menu.

Factory preset passwords:

Admin: **1111 (Authorized personnel only!)**

Services: **2222**

Operator: **3333**

## SIGN OFF

```
Log off
No
Cur. Level:Admin
```

Use this menu to log out of the current level and go to the basic 'without logging in' level.

## AUTOMATIC UNSUBSCRIBE

At the Operator, Service and Admin access level, the user is automatically logged off after a certain period of inactivity and the Normal level is activated. This period can be set.

## CHANGE PASSWORD

```
Change password for
Level: Admin
New password: ****
```

You can only change the password of access levels lower than the currently active access level.



**If your system password has been changed and subsequently lost, you can request a temporary password from Regin. This code is only valid for one day.**

## LANGUAGE

```
Choose language  ->
English
```

The menu can also be accessed directly by holding down the OK key during startup or by pressing the RIGHT ARROW three times in the start menu.

The language files are stored in the application memory and are copied to the working memory. If you have loaded a newer program version than the manufacturer's revision via Application tool©, you cannot download language files from the application memory. This prevents the language files from being incompatible with that latest version. Therefore, you can only choose between the two languages that you downloaded with Application tool©.

## VERSION NUMBER

If you press the RIGHT ARROW twice on the Home menu, a menu will be displayed showing the revision number, release date and ID number of the program.

### NAVIGATE THROUGH THE MENUS

The access rights or user rights determine which menus are displayed.

```
Vent controller 5.0  
2023-01-08 14:29  
System: Normal run  
Sp: 22.0 Act: 22.5 °C
```

The display on the left is usually shown at startup and is at the basic level of the menu structure. The appearance of the start-up display can vary as there are 5 types to choose from during configuration. The text on the first line can be changed with Application tool©.

**Sp** and **Act** are respectively the set point value and the measured value for the supply air controller. This also applies to cascade control of the room temperature or return air temperature.

Measured value (Act) = the temperature currently being measured.

Set point value (Sp) = the set point temperature for supply air.

The DOWN ARROW button moves down through the options in this lowest menu level.

Use the UP ARROW button to scroll up through the options.

The access level you use determines which menus are visible (see the chapter on access rights for logging on at a higher level).

The basic access level, the level that is usually active when you are not logged in, shows only a limited number of menus and submenus:

#### **Operating mode**

Here you can view and set the current operating mode. You can also view the selected operation functions and alarm events.

#### **Temperature, Air Control**

The relevant values and the desired values are displayed here. You can only change desired values if you have Operator rights or higher.

#### **Time settings**

The time, date and set active periods are displayed here. You can only change the values if you have Operator rights or higher.

## Access rights

You can log on and off at a higher access level and change the password.

```
Vent controller 5.0
2017-01-08 14:29
System: Normal run
Sp: 22.0 Act: 22.5 °C
```

A user with normal access at the basic level has a limited number of menus to choose from. The user can change the operating mode and acknowledge alarms.

If you have Operator rights, you can access more information and change other operating parameters, such as set point values and timer functions.


To move to another menu level, use UP ARROW and DOWN ARROW to highlight your desired menu, then press RIGHT ARROW. If you are logged in with sufficient access rights, the selected menu will appear.

Each level can have several new menus. Use the UP ARROW and DOWN ARROW keys to move through the options.

Sometimes you can access additional submenus from a menu or option. This is indicated by an arrow on the right of the display. Press the RIGHT ARROW to enter the submenu.

LEFT ARROW takes you to the previous level.

## CHANGE PARAMETERS

In some menus you can adjust the value of a parameter. This is indicated by the yellow LED with blinking . 

Fast blinking (2 times per second) means that the setting can be changed with the current access rights.

Slower flashing (1 time per second) means that changing the setting requires higher access rights.

To change a setting, press OK first. If higher access rights are required, a login menu appears. See below. If you have sufficient access rights, a cursor will appear next to the first value you can change.

To change the value, press UP ARROW or DOWN ARROW.

For multi-digit numbers, you can move through the number using LEFT/RIGHT ARROW.

Press OK when the desired value is displayed.

If other values can be set, the cursor automatically moves to the next of those values.

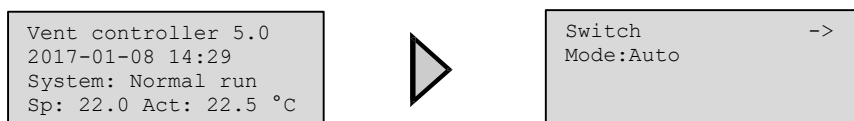
If you want to skip a value without changing, press the RIGHT ARROW.

To abort a change and restore the existing value, press and hold the C key until the cursor disappears.

This is followed by a number of menus showing the operating mode, selected functions, alarm events and the status of inputs and outputs.

## OPERATING MODE UNIT

You can change the operating mode of the unit without logging in first. When you are at start display, press [▶]. Select **AUTO** or **OFF** and press [OK] to confirm the change.

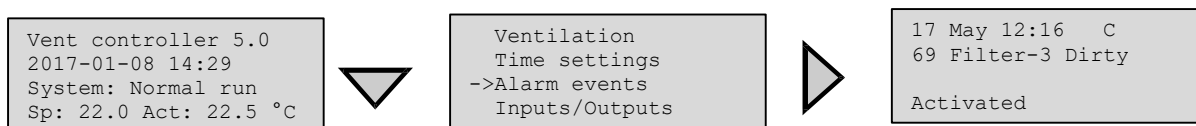


The operating mode can be set to **Automatic, Off**. Normally the Automatic mode should be used.

**Off** can be used to stop the unit for maintenance or similar purposes.

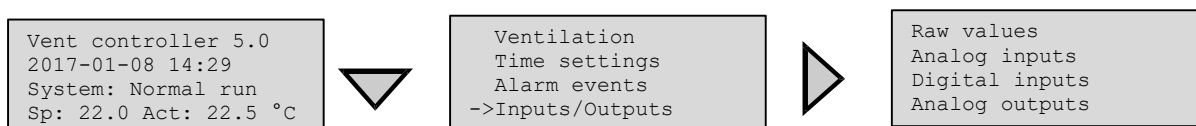
If the operating mode is set to **Off** a C alarm is triggered: Operating state Manual. This alarm is reset as soon as you return the operating mode to **Automatic**.

## ALARM EVENTS



A logbook with the last 40 alarm events. The overview starts with the last alarm. The log can only display the alarm history. An alarm is handled in a special area. See [Alarm handling](#).

## IN/OUT ACCESSES

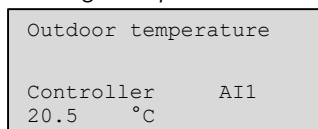


These menus show the current values for all set inputs and outputs.

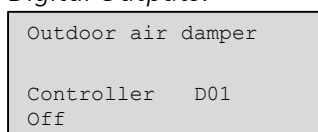
These menus are only readable. You cannot change anything in them.

Universal inputs (UI) can be set as analog (AI) or digital input (DI). The analog inputs (AO) and digital outputs (DO) are shown here as examples.

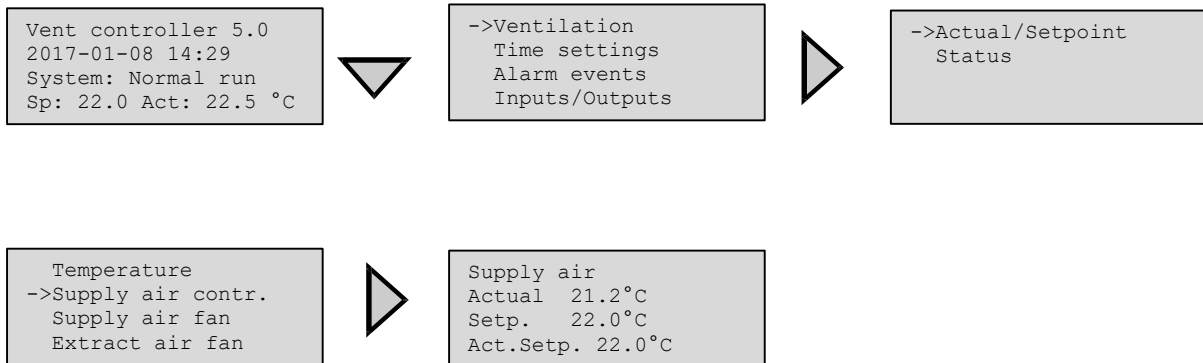
*Analogue inputs:*



*Digital Outputs:*

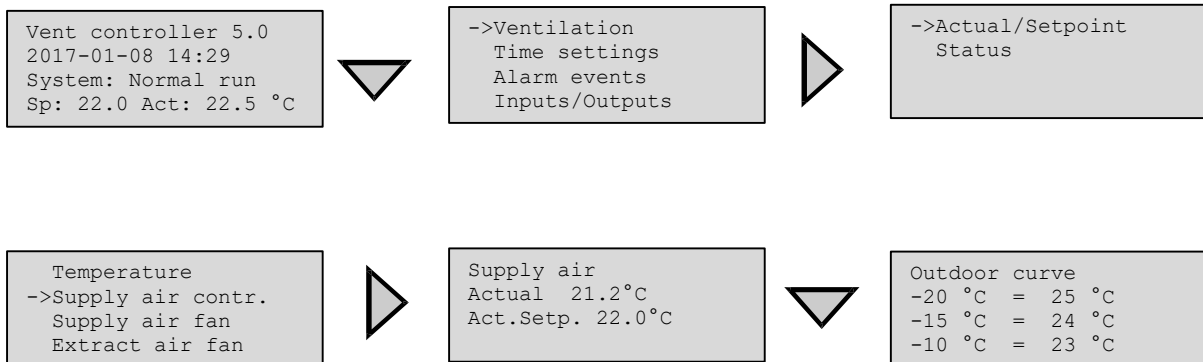


## SET POINT VALUE FOR TEMPERATURE CONTROL OF SUPPLY AIR



The measured and target values are displayed here.

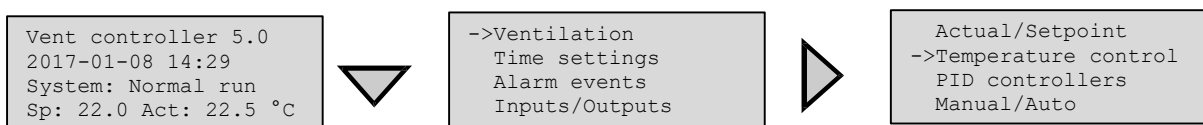
## SET POINT VALUE WEATHER-DEPENDENT SUPPLY AIR CONTROL



The measured and target values are displayed here. Use the eight nodal points for the ratio between the desired temperature and the outside temperature. Intermediate values are calculated using straight lines between nodal points. Desired values that are lower than the lowest kink point or higher than the highest kink point are calculated by extending the line between the last two kink points on either side.

Example: At the lowest end, the set point value is increased by 1 °C for every 5 °C drop in the outside temperature. At -23°C, the set point value therefore becomes  $25^{\circ}\text{C} + 0.6 \times 1.0^{\circ}\text{C} = 25.6^{\circ}\text{C}$ .

## DEFROSTING EXCHANGER



Freeze protection  
->Exchanger



Defrosting  
Setpoint 1.0°C

This menu is available if defrosting of the exchanger has been configured. If the temperature at the defrost sensor falls below the set value, the defrost function is started. It stops as soon as the temperature rises above that value again plus the set margin.

## AIR CONTROL

This menu is only available if frequency controlled fans are used. The available menus depend on the selected fan control.

### MODE 1: STANDARD CONTROL

Vent controller 5.0  
2017-01-08 14:29  
System: Normal run  
Sp: 22.0 Act: 22.5 °C



->Ventilation  
Time settings  
Alarm events  
Inputs/Outputs



->Actual/Setpoint  
Status

Temperature  
Supply air contr.  
->Supply air fan  
Extract air fan



Setpoint SAF  
Low 60 %  
Normal 70 %  
High 80 %

Temperature  
Supply air contr.  
Supply air fan  
->Extract air fan



Setpoint EAF  
Low 58 %  
Normal 68 %  
High 78 %

The measured values and the set point values are displayed here. The set point value is a percentage of the full output power. 100% = 10 V output signal.

### MODE 2: CO2 CONTROL

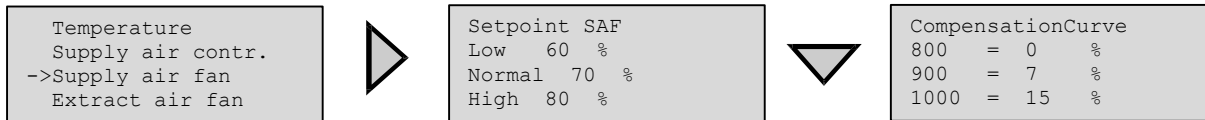
Vent controller 5.0  
2017-01-08 14:29  
System: Normal run  
Sp: 22.0 Act: 22.5 °C



->Ventilation  
Time settings  
Alarm events  
Inputs/Outputs

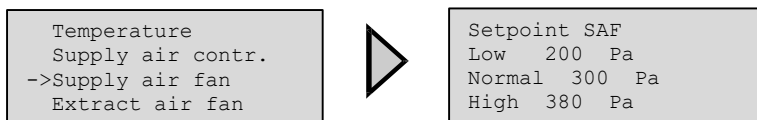
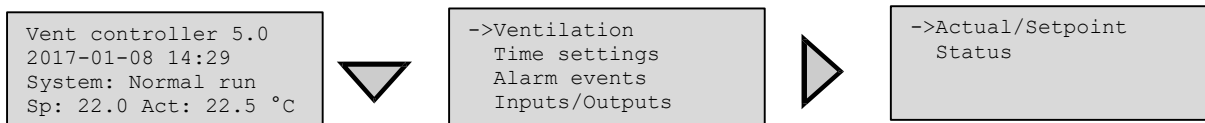


->Actual/Setpoint  
Status



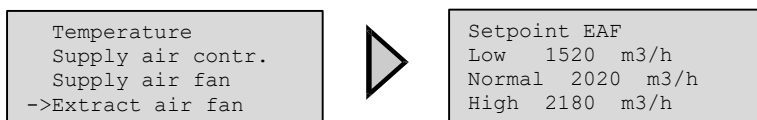
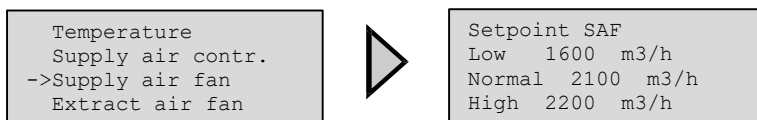
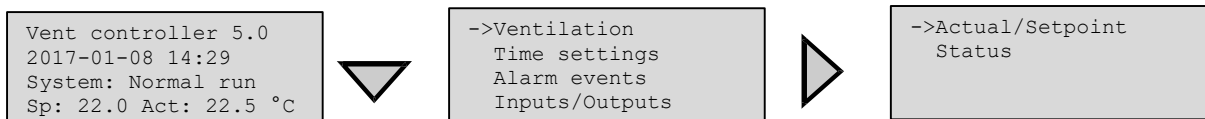
In applications with varying occupancy rates, fan speed can be controlled based on air quality as measured by a CO2 sensor.

### MODE 3: CONSTANT PRESSURE CONTROL



The set point values are displayed here.

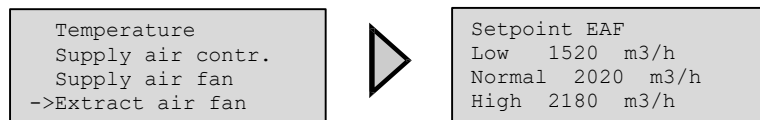
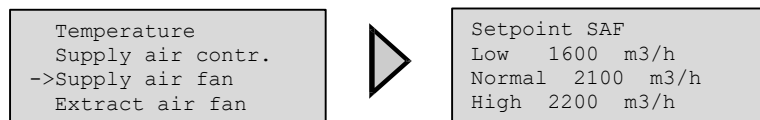
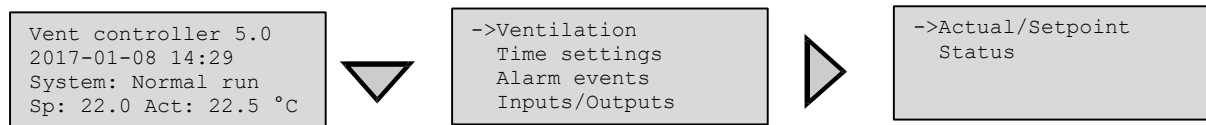
### MODE 4: CONSTANT FLOW CONTROL



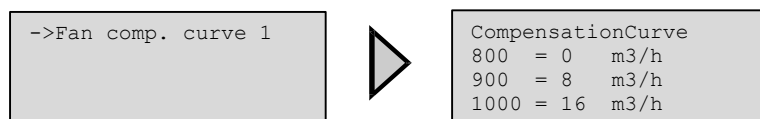
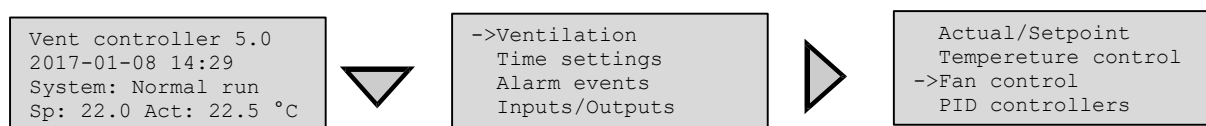
The set point values are displayed here.



## MODE 5: CONSTANT FLOW - CO2 CONTROL



In applications with varying flow speed, fan speed can be controlled based on air quality as measured by a CO2 sensor.



## TIME SETTINGS

### GENERAL

A Corrigo has a clock that can be set for an entire year. Therefore, a weekly schedule including holiday periods can be set for an entire year in advance.

The clock automatically switches between summer and winter time.

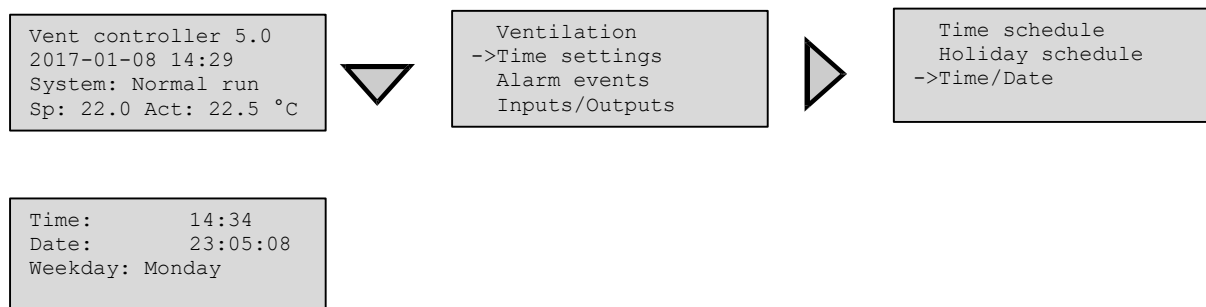
Separate schedules per weekday and special holiday schedules. Up to 24 separate holiday periods can be set. A holiday period can last from 1 to 365 days.

Holiday schedules are given priority over other schedules.

Two separate operating periods can be set for each day. For dual speed fans and pressure-controlled fans there are separate daily schedules for full speed and half speed, each with up to two running times.

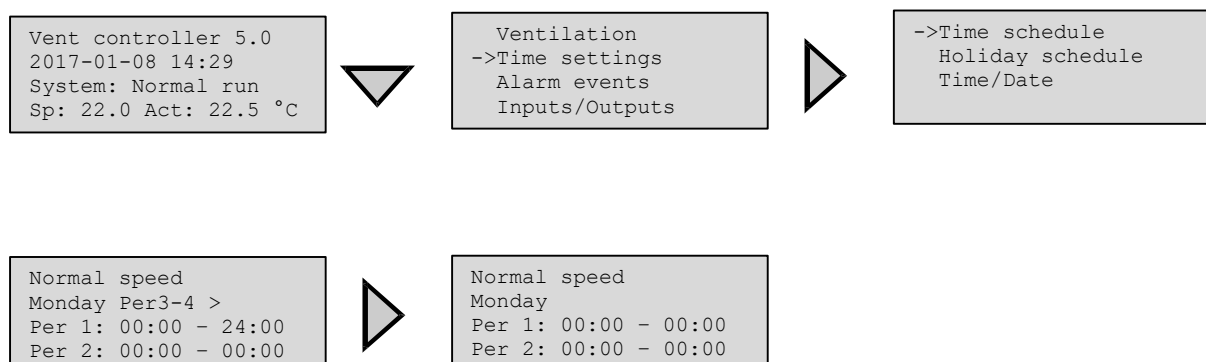
Up to 5 digital outputs can be used as timer-controlled outputs, each with its own weekly schedule and two running times per day. These outputs can be used to control lighting, proximity switches etc. Only configured outputs are displayed. Timer output 5 can be used to control a recirculation function.

### TIME/DATE



In this menu you can display and set the time and date. The time is displayed in 24-hour format. The date is displayed in the YY-MM-DD format.

### TIMER LOW SPEED, NORMAL SPEED



There are sixteen separate settings menus for each timer channel, two for each weekday and two extra for holidays. Holiday schedules take precedence over other schedules.

For 24 hour running, set a period to 00:00 - 24:00.

To inactivate a period, set the time to 00:00 - 00:00. If both periods of a day are set to 00:00 - 00:00, the unit will not run at 1/1-speed that day.

If you want to run the unit from one day to another, e.g. from Monday 22:00 to Tuesday 09:00, the desired running time for both must be entered.

```
Normal speed
Monday
Per 1: 00:00 - 24:00
Per 2: 00:00 - 00:00
```

```
Normal speed
Tuesday
Per 1: 00:00 - 09:00
Per 2: 00:00 - 00:00
```

Should periods for the different speeds overlap, high speed takes precedence over normal speed, and normal speed takes precedence over low speed.

## MANUAL/AUTO

In this menu, the operating mode of all configured output signals and a number of control functions can be controlled manually. This is a very convenient function that makes it easier to check individual functions in the controller.

The operating mode for the entire unit is set in the "[Operating mode](#)" menu.

The output signal of the supply air controller can be set manually (Manual/Auto) to any value between 0 and 100 %. The temperature output signals will change accordingly when in "Auto" mode. It is also possible to manually control each of the temperature output signals separately.

All configured digital outputs can be set to "Auto", "On" or "Off".

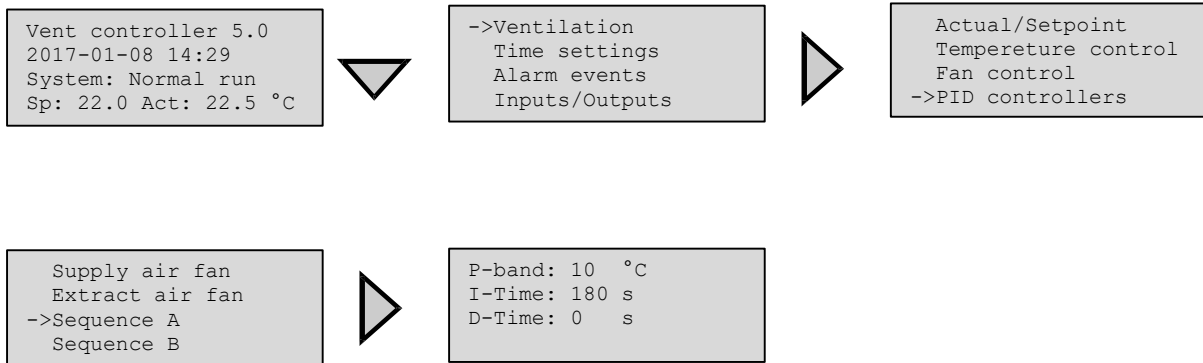
Since manual control of any of the outputs will interfere with normal control, an alarm will be generated whenever any output is set to manual.

Since the menus vary according to the configuration of the outputs, only the most common ones are shown here. For the digital signals you can normally choose between "Auto" and "On" and "Off" or similar words indicating the two possible manual states of the digital output.

## PID CONTROLLERS

This menu is available when logged in with the service level. Depending on the choices made during configuration, some alternatives in this menu may not be shown.

## TEMPERATURE CONTROL

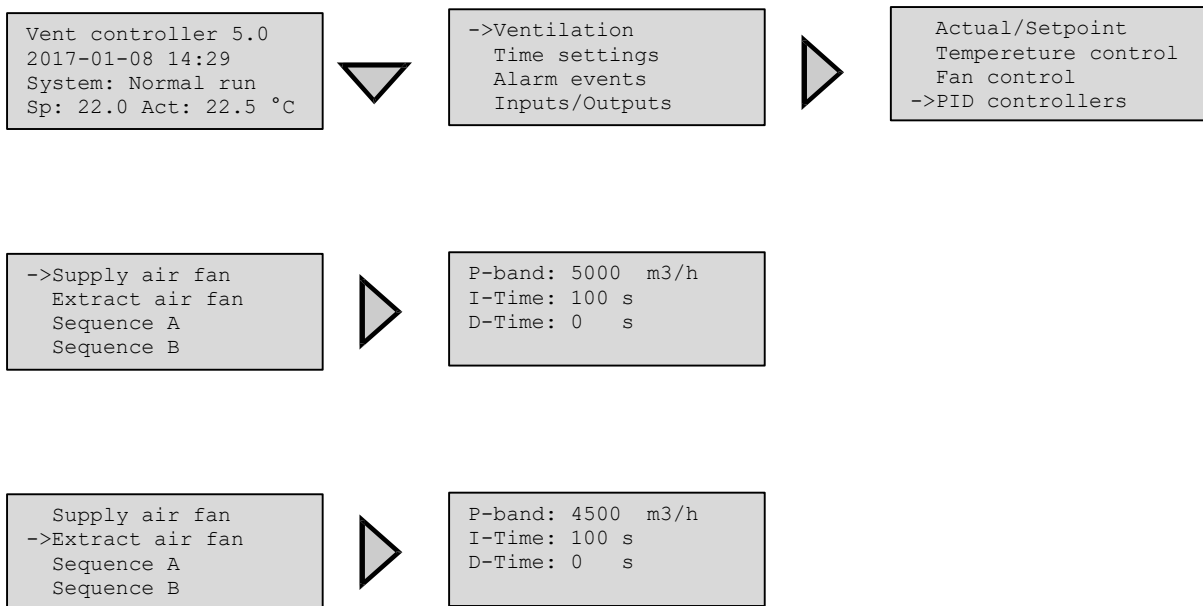


Sequence A: Heating sequence,

Sequence B: Heat exchanger sequence,

Sequence C: Cooling sequence,

## FAN CONTROL



## SAVE AND RESTORE SETTINGS

It is possible to save all settings in a separate memory area of the controller and restore it afterwards. Two different settings can be stored; local settings and factory settings. The saved settings are available after a reset of the application.

Variable	Function	Description
Save settings local	Yes/No	Saving of the current configuration as local "user" settings
Restore settings to local	Yes/No	Restore the saved settings.
Save factory settings	Yes/No	Saving the current configuration as factory settings
Total restore to factory settings	Yes/No	Go back to the factory settings the <b>controller</b> was delivered with.

## ALARM HANDLING

When an alarm occurs, the red alarm LED on the front panel of units with a display illuminate or the alarm LED on a connected display starts flashing. The LED will only stop flashing when there are no more unconfirmed alarms.

Each alarm is recorded in an alarm summary. This summary shows the type of alarm, the date and time of the alarm and the alarm class (A, B or C).

You can open the alarm overview by pressing the alarm button on the front panel. This is the key with the red top.

```
175 Sensor error
CO2 room/extract air
8 May 14:31 Class:B
Acknowledged
```

If multiple alarms are active, this will be indicated by vertical arrows on the right-hand side of the display. Use the UP/DOWN ARROW buttons to view other alarms.

The status of the displayed alarm is shown at the bottom left of the display. This line is empty if it is an active and not yet acknowledged alarm. Alarms that have been reset are indicated by Confirmed. Alarms that are still active or that are still blocked are indicated by Confirmed or Blocked.

You acknowledge an alarm by pressing OK. You can then acknowledge or block the alarm.

An acknowledged alarm remains in the overview until the alarm input signal is reset. After acknowledging all alarms (after solving the cause) and switching the unit on and off with the isolating switch the unit is fully reset.

Blocked alarms remain in the overview until the alarm is reset and the blockage is removed. As long as the lockout is active, no new alarms of the same type will be activated.

Class A or B alarms activate alarm outputs when configured.

Class C alarms do not activate alarm outputs.

Class C alarms are removed from the alarm summary when the alarm input is reset, even if the alarm is not acknowledged.

### INSPECT ALARMS

- 1- Press the alarm buttons **[ALARM]** / **[◀▲]** to display the alarms.
- 2- If there is more than one alarm at the same time, this is indicated by up/down arrow symbols at the right-hand edge of the display. You can browse among them in two ways:
  - a. By using the navigation buttons **[▼]** and **[▲]**.
  - b. By pressing the alarm buttons **[ALARM]** / **[◀▲]** several times.
- 3- Press **[◀]** to exit alarm handling and return to the previous menu.

### ACKNOWLEDGE, BLOCK and UNBLOCK ALARMS

- 1- Press the **[OK]** button to get a menu with the available alarm actions for the currently displayed alarm.

- 2- Select the required alarm action with the buttons [▼] and [▲].
- 3- Press the [OK] button to execute the action.

At the left end of the bottom display line the alarm status is shown. For active, unacknowledged alarms the space is blank. Alarms that have been reset are indicated by the text **Acknowledged**. Active or blocked alarms are indicated by the text **Acknowledged** or **Blocked**.

Acknowledged alarms will remain on the alarm list until the alarm input signal resets.

Blocked alarms remain on the alarm list until the alarm has been reset and the block has been removed. New alarms of the same type will not be activated as long as the block remains.

## ALARM LIST



No	Alarm text	Delay	Description	THINGS TO DO
1	Malfunction supply air fan 1	200 s	Malfunction supply air fan 1	The ventilator fan needs to be checked.
6	Malfunction extract air fan 1	200 s	Malfunction extract air fan 1	The extractor fan needs to be checked.
11	Alarm supply air fan 1	0 s	Alarm from frequency converter SAF via Modbus communication	The ventilator fan needs to be checked.
16	Alarm extract air fan 1	0 s	Alarm from frequency converter EAF 1 via Modbus communication	The extractor fan needs to be checked.
21	Warning supply air fan 1	0 s	Warning from frequency converter SAF 1 via Modbus communication	The ventilator fan needs to be checked.
26	Warning extract air fan 1	0 s	Warning from frequency converter EAF 1 via Modbus communication	The extractor fan needs to be checked.
56	Freeze protection guard	0 s	External frost protection thermo- stat activated	The value from the freezing temperature sensor is below the specified limit.
57	Defrosting guard exchanger	0 s	Exchanger deicing pressure switch activated	The value from the defrosting temperature sensor is below the specified limit.
58	Fire alarm	0 s	Fire alarm activated	Check the fire status information connections from the relevant terminal
59	Smoke alarm	0 s	Smoke detector activated	Check the smoke status information connections from the relevant terminal
63	Electric heating is overheated	0 s	Heater high temperature limit switch activated	Electric heater high-temperature failure. Check if there is air flow. Check heater wiring connections. Cut off the power and check the heater.
68	Filter-1 Dirty	0 s	Filter-1 Dirty on digital input	Check if the filter on the fresh air side is dirty.
69	Filter-2 Dirty	0 s	Filter-2 Dirty on digital input	Check if the filter on the return air side is dirty.
71	SAF Motor Protection Switch	0 s	SAF Motor Protection Switch on digital input	Check SAF Motor Protection Switch
72	EAF Motor Protection Switch	0 s	EAF Motor Protection Switch on digital input	Check EAF Motor Protection Switch
73	DX Fault	0 s	DX Fault on digital input	Check the DX fault information connections from the relevant terminal
78	Internal battery error	0 s	Internal battery needs replacing	Internal battery needs replacing
81	Deviation alarm supply air temp.	30 min	Supply air temp deviates too much from the setpoint	Check the supply air temp. sensor and coils
86	High supply air temperature	5 s	Supply air temp too high	The supply air is above the specified limit. Check the heating actuator or electric heater.
87	Low supply air temperature	5 s	Supply air temp too low	The supply air is below the specified limit. Check cooling valve or DX Unit.
90	High room temperature	30 min	Room temp too high during room temp control	Room temperature is above the specified limit. Check the temperature control equipment. Heater valve, DX Unit, etc.

91	Low room temperature	30 min	Room temp too low during room temp control	Room temperature is below the specified limit. Check refrigeration control equipment. Refrigerant valve, DX Unit, etc.
113	Manual operation air handling unit	0 s	The unit is in manual mode	The unit must be OFF mode. If not, check manual mode parameters
114	Manual operation supply air	0 s	Supply air temp controller in manual control	Check manual mode parameters
115	Manual operation supply air fan	0 s	Supply air fan in manual control	Check manual mode parameters
116	Manual operation extract air fan	0 s	Extract air fan in manual control	Check manual mode parameters
117	Manual operation heater	0 s	The heater is in manual mode	Check manual mode parameters
118	Manual operation exchanger	0 s	Heat exchanger output in manual control	Check manual mode parameters
119	Manual operation cooler	0 s	Cooling output in manual control	Check manual mode parameters
120	Manual operation damper	0 s	Damper output in manual control	Check manual mode parameters
128	Manual control sequence A	0 s	Manual control of sequence A	Check manual mode parameters
129	Manual control sequence B	0 s	Manual control of sequence B	Check manual mode parameters
130	Manual control sequence C	0 s	Manual control of sequence C	Check manual mode parameters
131	Manual control sequence D	0 s	Manual control of sequence D	Check manual mode parameters
132	Manual control sequence E	0 s	Manual control of sequence E	Check manual mode parameters
138	Output in manual operation	0 s	Analogue or digital output in manual mode	Check manual mode parameters
139	Input in manual operation	0 s	Analogue or digital input in manual mode	Check manual mode parameters
143	Manual operation pretreatment	0 s	Pretreatment in manual mode	Check manual mode parameters
144	Sensor error outdoor air temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
145	Sensor error intake air temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
146	Sensor error supply air temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
147	Sensor error exhaust air temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
148	Sensor error extract air temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
149	Sensor error room temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
165	Sensor error pressure supply air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
166	Sensor error pressure extract air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
167	Sensor error flow supply air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
168	Sensor error flow extract air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
171	Sensor error defrosting temperature	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
175	Sensor error CO2 room/extract air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
176	Sensor error humidity room/extr. air	5 s	Malfunction in connected sensor	Check the relevant sensor connections.
192	Communication fault device	0 s	Communication error to supply/exhaust fan driver	Check the communication cables.
194	Internal error	60 s	Configuration of a physical output to more than 1 function will cause in an undefined behavior of the controller.	Check the all-digital and analog outputs positions

## INDICATIELEDS

The status indicator is located in the upper left hand corner of the drive. On drives equipped with a display the LEDs for alarm indication and mode adjustment are located near the keys.

### STATUS INDICATION

Symbol	Color	Description
Tx	Green	Port 1/2, send
Rx	Green	Port 1/2, send
Serv (...Lon models)	Yellow	Serviceled LON, commissioning
LAN (... W models)	Yellow/Green	Green: connected to other network devices Flashing green: network traffic Flashing yellow: for identification
P/B (power supply/battery)	Green/Red	Power supply enabled/battery fault
<b>Controllers with integrated display:</b>		
	Red	Alarm indication. Flashing: there are unconfirmed alarms. Permanently lit: there are alarms that have been acknowledged, but the fault remains active.
	Yellow	Change mode. Rapidly flashing: the display shows values that can be changed. Slowly flashing: a password is required to make changes to the display.



## BATTERY REPLACEMENT

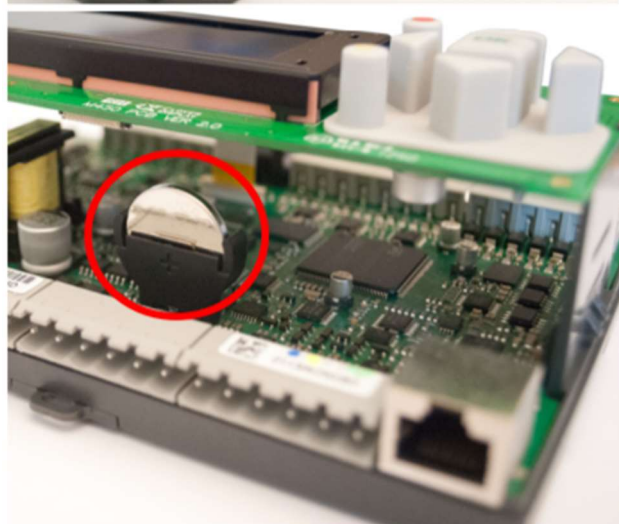
A Corrigo contains a battery that ensures that the memory and real-time clock continue to work even in the event of a power failure.

When the "Internal Battery" alarm is activated and the battery LED lights red, the battery used to back up the program memory and real-time clock has become too weak. Replace the battery as described below. A backup capacitor stores the memory and keeps the clock for at least 10 minutes after the power supply is interrupted. Therefore, if battery replacement takes less than 10 minutes, there is no need to reload the program and the clock continues to run normally.

The replacement battery must be of type CR2032.



Remove the cover by pressing in the locking latches on the edge of the cover with a small screwdriver while pulling the edges outward.



Grasp the battery firmly and lift it up until it comes out of its holder.

Press the new battery firmly in place.

Note: To maintain correct polarity, the battery should only be inserted "right side up"!

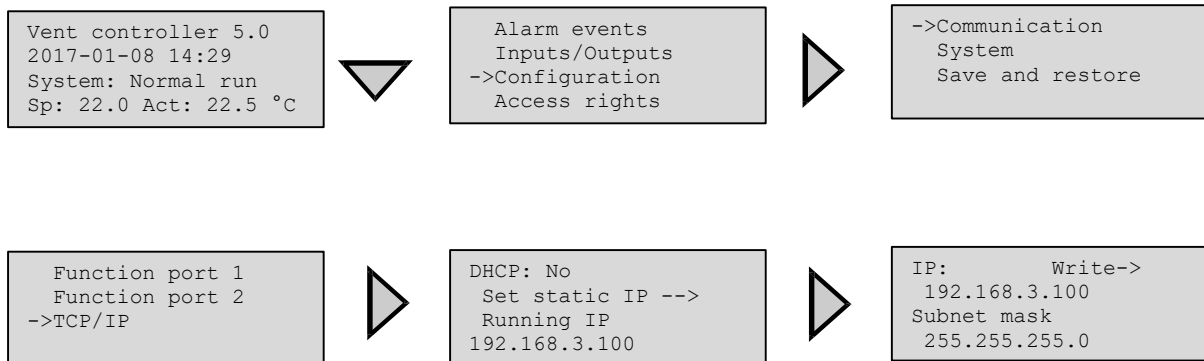
## COMMUNICATION

### MODBUS

#### Communication via TCP/IP

The MODBUS TCP/IP is activated by default. Default IP address is **192.168.3.100 255.255.255.0**

It is possible to change the IP address.



This menu is available only when logged in with the admin level.

#### Communication via RS485 (Port 2)

The MODBUS RS 485 is activated by default. Default modbus settings:

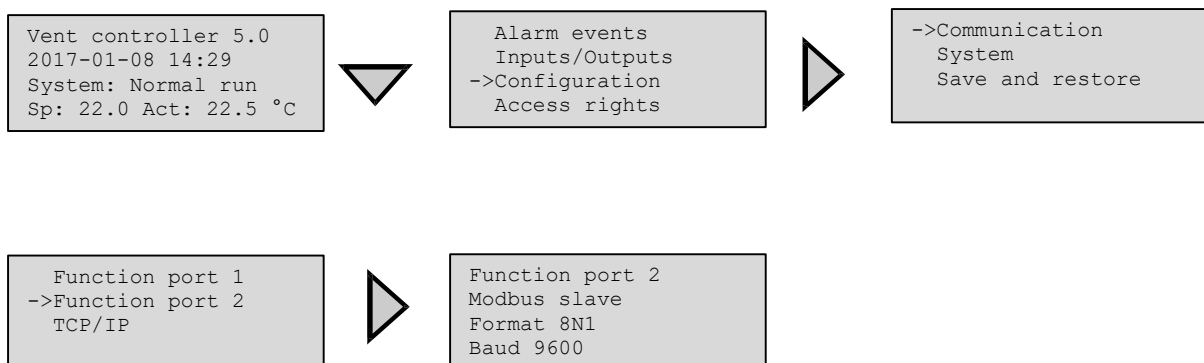
**Address:** 1

**Baudrate:** 9600

**Format:** 8N1

**Port:** Port 2

It is possible to change the IP address.



This menu is available only when logged in with the admin level.

### **Modbus Type**

The types used in Modbus are not bound to the EXOL types.

1 = Coil Status Register (Modbus function = 1, 5 and 15)

2 = Input status register (Modbus function = 2)

3 = Holding Register (Modbus function = 3, 6 and 16)

4 = Input register (Modbus function = 4)

*NOTE: 2 and 4 are read-only while, 1 and 3 are read-write.*

### **Modbus functions supported:**

1 = Read Coils

2 = Read Discrete Input

3 = Read Holding Register

4 = Read Input Register

5 = Write Single Coil

6 = Write Single Register

15 = Write Multiple Coils

16 = Write Multiple Registers

## **BACNET**

The controller is capable of communicating via the BACnet-AAC (Advanced Application Controller) protocol, using IP or MS/TP data link formats. A B-AAC unit is a device that may be intended for a specific application, but supports some degree of programmability so that the user can do more - such as generate alarms, define schedules, synchronize clocks, etc.

The BACnet/IP is activated by default. The device is searched.

### **BACnet type**

The BACnet type of signals:

10XXX = read and write binary

20XXX = Binary read

30XXX = Read and write analog

40XXX = Read Analog

30XXX = read and write multistate

40XXX = Multistate read

(Where XXX = Modbus address)

## COMMON SIGNALS

To make a system integration easier, a list of frequently used signals is shown below. The complete list can be found in the Corrigo 5.0 variable list document.

### Coil status

Signal name	Modbus address	Default value	Function	Description
VentSettings.S_AlaAcknowAll	0	0	Alarm Acknowledging, Blocking and Unblocking	Command to acknowledge all alarms
VentSettings.S_FilterAlarmReset	1	0	Settings, General	Resets the filter alarm counter

### Input Registers

Values for input registers are read-only.

Signal name	Modbus address	Default value	Function	Description
VentActual.A_AI_OutDoorTemp	290		Analogue inputs	Outdoor temperature
VentActual.A_AI_SupplyAirTemp	292		Analogue inputs	Supply air temperature
VentActual.A_AI_EAirTemp	293		Analogue inputs	Exhaust air temperature
VentActual.A_AI_RoomTemp1 (0)	295		Analogue inputs	Room temperature
VentActual.A_AI_SAFPressure	313		Analogue inputs	Supply air fan flow. Scale factor = 0.1
VentActual.A_AI_EAFPressure	314		Analogue inputs	Extract air fan flow. Scale factor = 0.1
VentActual.A_AI_Frostprot- Temp1(0)	317		Analogue inputs	Exchanger Defrosting temperature
VentActual.A_AI_CO2	321		Analogue outputs	Room CO2
VentActual.A_AO_SequenceY1	363		Analogue outputs	Heating Request 0 – 1000, Scale factor = 0.01 0.0 - 10.0 V
VentActual.A_AO_SequenceY3	365		Analogue outputs	Cooling Request 0 – 1000, Scale factor = 0.01 0.0 - 10.0 V
VentActual.A_UnitMode	428		Actual/Setpoint	0=Stop 1=Starting up 2=Low speed run 3=Normal speed run 4=High speed run 5=Heating support run 6=Cooling support run 7=CO2 Run 8=Free cool run 9=Fan stop run 13=Delcing run
VentActual.A_UnitModeControl	429		Actual/Setpoint	Indicates what is triggering the current run mode 2=Time schedule 3=Manual run 4=Digital Input 5=Alarm 6=External control 7=Service stop

Signal name	Modbus address	Default value	Function	Description
VentActual.A_ActiveSeqType	430		Actual/Setpoint	Unit Active Mode (0 = heating, 1= cooling)
VentActual.A_SAFRunTime	434		Actual/Setpoint	Running time (hour) supply air fan
VentActual.A_EAFRunTime	435		Actual/Setpoint	Running time (hour) extract air fan
VentActual.A_SAF	449		SAF/EAF Pressure and Flow	Control signal supply air fan
VentActual.A_EAF	450		SAF/EAF Pressure and Flow	Control signal extract air fan
VentActual.A_SAFSpeed	451		SAF/EAF Pressure and Flow	SAF speed in auto and manual mode 0= Off 1= Low speed 2= normal speed 3= high speed 4= Special
VentActual.A_EAFSpeed	452		SAF/EAF Pressure and Flow	EAF speed in auto and manual mode
VentActual.A_SAFPID_SetP	465		SAF/EAF Pressure and Flow	Actual setpoint SAF
VentActual.A_EAFPID_SetP	466		SAF/EAF Pressure and Flow	Actual setpoint EAF
VentComActual.CA_Motor-SpeedHzSAF(1)	476		SAF/EAF Frequency converter	SAF Motor speed Hz Scale factor = 0.1
VentComActual.CA_Motor-SpeedHzEAF(1)	481		SAF/EAF Frequency converter	EAF Motor speed Hz Scale factor = 0.1
VentComActual.CA_Motor-CurrentSAF(1)	496		SAF/EAF Frequency converter	SAF Motor current Scale factor = 0.1
VentComActual.CA_Motor-CurrentEAF(1)	501		SAF/EAF Frequency converter	EAF Motor current Scale factor = 0.1
VentComActual.CA_MotorPowerSAF(1)	506		SAF/EAF Frequency converter	SAF Motor power Scale factor = 0.1
VentComActual.CA_MotorPowerEAF(1)	511		SAF/EAF Frequency converter	EAF Motor power Scale factor = 0.1

## Holding Register - Setpoint settings

Values for the Holding Register list are editable (read/write).

Signal name	Modbus address	Default value	Function	Description
QSystem.Minute	503		Real Time Clock	Real time clock: Minute 0-59
QSystem.Hour	504		Real Time Clock	Real time clock: Hour 0-23
QSystem.WDay	505		Real Time Clock	Real time clock: Day of Week 1-7, 1=Monday
QSystem.Week	506		Real Time Clock	Real time clock: Week number 1-53
QSystem.Date	507		Real Time Clock	Real time clock: Day of month 1-31
QSystem.Month	508		Real Time Clock	Real time clock: Month 1-12
QSystem.Year	509		Real Time Clock	Real time clock: Year 0-99
AlaData.Ala_MalfunctionSAF1_DelayValue	510	120 sec	Settings, Alarm Delays	Malfunction SAF alarm delay
AlaData.Ala_MalfunctionEAF1_DelayValue	515	120 sec	Settings, Alarm Delays	Malfunction EAF alarm delay

Signal name	Modbus address	Default value	Function	Description
AlaData.Ala_FireAlarm_DelayValue	567	0	Settings, Alarm Delays	Fire alarm, alarm delay
AlaData.Ala_SmokeAlarm_DelayValue	568	0	Settings, Alarm Delays	Smoke detector alarm alarm delay
AlaData.Ala_ExtraAlarm1_DelayValue	577	0	Settings, Alarm Delays	Filter-1 Dirty alarm delay
AlaData.Ala_ExtraAlarm2_DelayValue	578	0	Settings, Alarm Delays	Filter-2 Dirty alarm delay
AlaData.Ala_HighTemp-Supply_DelayValue	595	5 sec	Settings, Alarm Delays	High supply air temp alarm delay
AlaData.Ala_LowTemp-Supply_DelayValue	596	5 sec	Settings, Alarm Delays	Low supply air temp alarm delay
AlaData.Ala_HighTemp-Room_DelayValue	599	30 min	Settings, Alarm Delays	High room temp alarm delay
AlaData.Ala_LowTempRoom_DelayValue	600	30 min	Settings, Alarm Delays	Low room temp alarm delay
VentSettings.S_AirUnitAutoMode	788		OFF/Auto	Running mode air unit: 0=Off 2=Auto
VentSettings.S_VentControl	808		Settings, General	Select temperature control mode: 0=Const.supply air 1=Outdoor compensated supply air 2=Cascade room temp control
VentSettings.S_FanType	809		Settings, General	Select fan control mode: 0=Frequency control pressure 1=Frequency control air flow 2=Frequency control manually 3=Direct Frequency control 4=Frequency control with slave controlled EAF
VentSettings.S_SupplySetpoint	811	22°C	Actual/Setpoint	<b>Setpoint supply air temperature</b> when constant supply air temperature function
VentSettings.S_SupplySetpointMax	813		Actual/Setpoint	Max limit of supply setpoint when cascade control
VentSettings.S_SupplySetpointMin	814		Actual/Setpoint	Min limit of supply setpoint when cascade control
VentSettings.S_SAFNormalspeedAirFlow	842		Actual/Setpoint	Setpoint normal speed Supply air fan flow. Scale factor = 0.1
VentSettings.S_EAFNormalspeedAirFlow	845		Actual/Setpoint	Setpoint normal speed Extract air fan flow. Scale factor = 0.1
VentSettings.S_SupplySetpoint	986		Actual/Setpoint	Room setpoint if room temp control function
VentSettingsS_FrostProt-SPRun(0)	987		Frost protection	Round around water frost setpoint While running Scale factor = 0.1
VentSettings.S_FrostProt-SPRun(1)	988		Frost protection	Round around water frost setpoint While stand-by Scale factor = 0.1

## Input Status

Values for input status are read-only.

Signal name	Modbus address	Default value	Function	Description
VentActual.A_SumAlarm	7		Alarm Status	Sumalarm, is set if any alarm
VentActual.A_AlaPt(1)	11		Alarm Points	Malfunction SAF

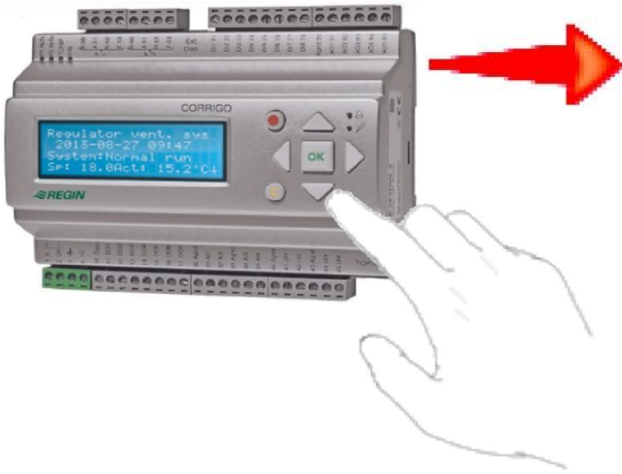
VentActual.A_AlaPt(6)	16		Alarm Points	Malfunction EAF
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Signal name	Modbus address	Default value	Function	Description
VentActual.A_AlaPt(58)	68		Alarm Points	Fire alarm
VentActual.A_AlaPt(58)	69		Alarm Points	Smoke alarm
VentActual.A_AlaPt(73)	73		Alarm Points	Electric heating is overheated
VentActual.A_AlaPt(64)	74		Alarm Points	Frost risk
VentActual.A_AlaPt(68)	78		Alarm Points	Filter-1 Dirty
VentActual.A_AlaPt(69)	79		Alarm Points	Filter-2 Dirty
VentActual.A_AlaPt(70)	80		Alarm Points	Reserved
VentActual.A_AlaPt(71)	81		Alarm Points	Reserved
VentActual.A_AlaPt(72)	82		Alarm Points	Reserved
VentActual.A_AlaPt(73)	83		Alarm Points	Reserved
VentActual.A_AlaPt(74)	84		Alarm Points	Reserved
VentActual.A_AlaPt(78)	88		Alarm Points	Internal battery error
VentActual.A_AlaPt(81)	91		Alarm Points	Supply air temp control error
VentActual.A_AlaPt(86)	96		Alarm Points	High supply air temp
VentActual.A_AlaPt(87)	97		Alarm Points	Low supply air temp
VentActual.A_AlaPt(90)	100		Alarm Points	High room temp
VentActual.A_AlaPt(91)	101		Alarm Points	Low room temp
VentActual.A_AlaPt(96)	106		Alarm Points	Round around water low frost guard temp
VentActual.A_AlaPt(113)	123		Alarm Points	Unit OFF by Manual
VentActual.A_AlaPt(114)	124		Alarm Points	Manual control supply air
VentActual.A_AlaPt(115)	125		Alarm Points	Manual control SAF
VentActual.A_AlaPt(116)	126		Alarm Points	Manual control EAF
VentActual.A_AlaPt(117)	127		Alarm Points	Manual control heater
VentActual.A_AlaPt(118)	128		Alarm Points	Manual control exchanger
VentActual.A_AlaPt(119)	129		Alarm Points	Manual control cooler
VentActual.A_AlaPt(120)	130		Alarm Points	Manual control damper
VentActual.A_AlaPt(144)	154		Alarm Points	Sensor error outdoor air temp
VentActual.A_AlaPt(146)	156		Alarm Points	Sensor error supply air temp
VentActual.A_AlaPt(149)	159		Alarm Points	Sensor error room temp
VentActual.A_AlaPt(165)	175		Alarm Points	Sensor error SAF pressure
VentActual.A_AlaPt(166)	176		Alarm Points	Sensor error EAF pressure
VentActual.A_AlaPt(167)	177		Alarm Points	Sensor error SAF flow
VentActual.A_AlaPt(168)	178		Alarm Points	Sensor error EAF flow
VentActual.A_AlaPt(172)	182		Alarm Points	Sensor error frost protection
VentActual.A_AlaPt(192)	202		Alarm Points	Fault communication device
VentActual.A_AlaPt(193)	203		Alarm Points	Malfunction Extra Controller
VentActual.A_AlaPt(194)	204		Alarm Points	Internal error

Signal name	Modbus address	Default value	Function	Description
VentActual.A_DigitalInput(1)	261		Digital inputs	Value of DI1
VentActual.A_DigitalInput(2)	262		Digital inputs	Value of DI2
VentActual.A_DigitalInput(3)	263		Digital inputs	Value of DI3
VentActual.A_DigitalInput(4)	264		Digital inputs	Value of DI4
VentActual.A_DigitalInput(5)	265		Digital inputs	Value of DI5
VentActual.A_DigitalInput(6)	266		Digital inputs	Value of DI6
VentActual.A_DigitalInput(7)	267		Digital inputs	Value of DI7
VentActual.A_DigitalInput(8)	268		Digital inputs	Value of DI8
VentActual.A_DigitalInput(9)	269		Universal inputs	Value of UDI1
VentActual.A_DigitalInput(10)	270		Universal inputs	Value of UDI2
VentActual.A_DigitalInput(11)	271		Universal inputs	Value of UDI3
VentActual.A_DigitalInput(12)	272		Universal inputs	Value of UDI4
VentActual.A_DO_SAFStart (0)	331		SAF/EAF Pressure and Flow	Start signal Supply air fan
VentActual.A_DO_EAFStart	332		SAF/EAF Pressure and Flow	Start signal Extract air fan



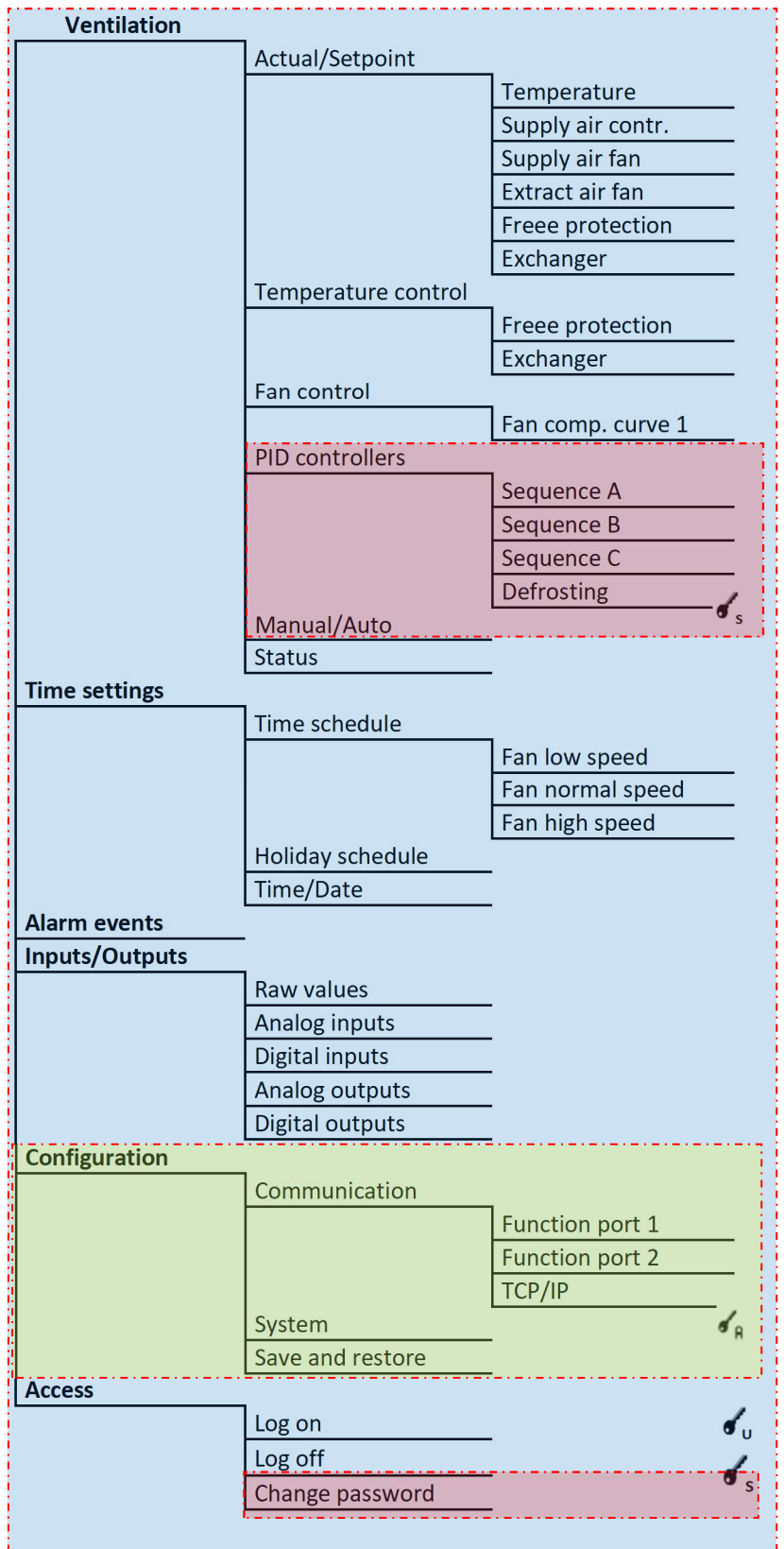
# CONTROLLER MENU MAP



**U** It shows the menus that can be accessed with the user password.

**S** It shows the menus that can be accessed with the service password.

**R** It shows the menus that can be accessed with the admin password.



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## NOTES

# Installation Manual

## Mergen

### INSTALLATION INSTRUCTIONS

#### More information

##### ATC Air Trade Centre A.Ş.

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