ÖSTBERG

HERU®400–1200 S/T

INSTALLATION | EN

Other languages in digital format can be downloaded at www.ostberg.com

ENGLISH

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GARANTI

Warranty period valid according to purchase contract calculated from date of purchase. Unless otherwise agreed, the usual warranty period is two (2) years in accordance with NL01, amendment VU03.

SCOPE OF WARRANTY

The warranty covers faults occurring during the warranty period which are reported to the retailer, or which have been confirmed by H. Östberg AB (the warrantor) or the warrantor's representative, and which concern design, manufacturing or material faults and consequential faults that have occurred on the product itself. The above-mentioned faults will be rectified so that the product is made operational.

GENERAL WARRANTY LIMITATIONS

The warrantor's responsibility is limited in accordance with these warranty terms and the warranty does not cover property damage or personal injury. Verbal promises made in addition to this warranty agreement are not binding for the warrantor.

WARRANTY LIMITATIONS

This warranty applies on condition that the product is used in a normal fashion or under comparable circumstances for its intended purpose and that the instructions for use are followed.

This warranty does not cover faults caused by:

– Transport of the product.
– Careless use or overstraining of the product.
– Failure on the part of the user to follow instructions concerning installation, use, maintenance, care and handling.
– Incorrect installation or incorrect positioning of the product.
– Conditions that are not due to the warrantor, e.g. excessive voltage variations, lightning, fire and other accidents.
– Repair, maintenance or design changes made by an unauthorized party.
– Faults that do not impact operation, e.g. surface scratches.
– Parts that through handling or normal wear are exposed to greater than average hazard, e.g. lamps, glass, ceramic, paper and plastic parts, and filters and fuses are not covered by the warranty.
– Settings; information on use, care, handling, service or cleaning that are customarily described in the instructions for use; or works caused by the user neglecting to observe warning or installation instructions; or investigation of such are not covered by the warranty.
– The warrantor is only responsible for the function if approved accessories are used.
– The warranty does not cover product faults caused by accessories/equipment from another manufacturer.

Deviations from the unit's factory settings must be documented in the enclosed delivery/commissioning report (see tab 4) to avoid costs for faults, if any. The warrantor is not liable for costs such as adjustment costs related to the replacement of fans and control boards in the unit.

SERVICE TERMS DURING THE WARRANTY PERIOD

In cases where service partners are used, the customer will not be charged for work, replaced parts, necessary transports or travel costs for repairs covered by the warranty..

This, however, requires that:

– The warrantor and the service partner agree in advance on appropriate measures.
– The unit is installed and adjusted according to relevant instructions.
– The defective parts are handed over to the service partner for forwarding to the warrantor.
– Repairs starting and work is carried out during normal working hours. For urgent repairs or repairs conducted outside normal working hours, the service partner is entitled to charge for extra costs. However, if the fault may pose a health risk or cause substantial economic damage, the fault will be repaired immediately at no extra charge.
– Service vehicles or public modes of transport running on a set timetable may be used (public modes of transport here do not include boats, aircraft or snow vehicles).

RECTIFICATION MEASURES WHEN A FAULT IS DETECTED

When a fault is detected, the customer must notify this to the retailer. Specify the product it concerns. The part number and date of manufacture (year and week) is given on the product label. Describe the fault as accurately as possible and describe how the fault occurred. For a warranty repair to be performed, the customer must prove that the warranty is valid by presenting the receipt of purchase. After the warranty period has expired, warranty claims that have not been made in writing before the expiration of the warranty period will not be valid. The current terms of sale at H. Östberg AB otherwise apply.

1. Scope of assembly/installation instructions

HERU®400 T EC
HERU®600 T EC
HERU®800 T EC
HERU®1200 T EC

HERU®400 S EC
HERU®600 S EC
HERU®800 S EC
HERU®1200 S EC

DESCRIPTION OF UNIT

The HERU®400–1200 T/S energy recovery unit is designed for supply air and exhaust air ventilation with cooling and heat recovery. The unit is equipped with plug fans with maintenance-free EC motors and integrated heating function via water or electricity. A large number of optional accessories are available for the unit, such as U pipes, shunts, dampers, silencers, cooling coil, etc.
The unit panels are made of double sheet steel with 50 mm thick mineral wool insulation.
HERU®400 T/S, 600 T/S, 800 S and 1200 S have a steel design with minimized thermal bridges. HERU®800 T and 1200 T have an aluminium frame and hatch design.

- HERU® can be used in environments with stringent demands for:
  – high temperature efficiency
  – low energy consumption
  – low sound level
  – high operating reliability

- HERU®
  – is equipped with a non-hygroscopic, aluminium rotary heat exchanger located in the centre of the unit. The heat exchanger has a temperature efficiency rate of up to 86%.
  – is designed for simple installation, maintenance and cleaning.
  – is supplied with the Siemens Climatix control system as standard. The unit is also available without a control system.
  – can be equipped with an integrated electric heater.
  – is supplied with an incinerable bag filter ePM1 65% as standard.
  – is equipped with wired control unit for operation and monitoring.
  – can handle Modbus communication via RS485 and TCP IP.
  – is supplied with integrated web server.
- HERU® is suitable for placement in both warm and cold areas.

INSTALLATION AND SAFETY

USE

- For an optimal indoor climate and to avoid moisture damage in the property, there must be continuous and adequate air exchange. The unit ***must*** be running continuously and only stopped for service.
  The airflow is controlled via various settings on the control panel:
  - **Reduced** – Reduced airflow, can be used when no one is in the property.
  - **Normal** – This is set by the installer and should not be changed by the user.
  - **Boost** – Higher airflow than normal, medium/max can be selected. This should be used when the load on the property is higher than what the standard mode is set for, e.g. when there are more people than normal in the property.
- When installing HERU®, follow applicable regulatory requirements and recommendations concerning location, access, duct insulation, etc.
- The user may, in accordance with IEC 60335-2-40, independently perform the service and maintenance on HERU® that is described in this user manual. However, the unit must be disconnected from any power supply before all such work. With reservation according to IEC 60335-2-7.12 "This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance."
- HERU® should be kept in a sheltered and dry environment during storage before installation.
- Dimensioned airflow should not exceed 75% of the unit's maximum capacity.
- Check regularly to ensure that supply air and extract air are functioning properly.
- **To avoid condensation in the unit in cold weather, the unit should not be turned off for a prolonged period of time.** If the unit is installed during cold weather and not operated immediately, the ducts should be plugged to prevent condensation.

SAFETY

- Maintenance and operation of the unit may only be performed by personnel who have the requisite knowledge concerning maintenance of the ventilation unit and who have read this manual.
- Consider the weight of the unit when installing. See technical specification for weight data.
- Bear in mind that HERU® and the fan housing may have sharp corners and edges.
- Before commissioning, make sure there are no foreign objects inside the unit which could cause serious injury or damage to the unit.
- Always follow the electrical safety regulations concerning free clearance for control cabinets and electric heaters.
- Make sure that the unit is always locked and that the keys are stored in a location that is not accessible to unauthorized persons.
- Do not open the service doors while the unit is in operation. Overpressure from the fans could cause the doors to swing open.
- The unit should be fitted with a locking safety switch placed nearby.
- Turn off the unit via the control panel and wait two (2) minutes before opening the service doors
- The safety switches must be switched off and locked before starting any service work.
- Do not use the safety switches for normal start and stop of the unit.
- Electrical installation, electrical and mechanical work and work inside the unit and its peripheral equipment may only be performed by certified electricians or personnel designated by H. Östberg AB.
- Note that the surfaces of the unit may be cold in winter conditions.
- HERU® contains ***rotating parts that could cause serious injury in the event of contact***. The unit must therefore be connected to a duct, the doors closed and locked and the key removed.
- ***The heating coil in the unit could cause burns.*** The heating coil may still be hot after the voltage has been switched off for service, maintenance and repair work (approx. 60°C).

The HERU®T/S-units must stand even and stable. Note and take into account the unit's weight.

Note!

When lifting the unit, always use a pallet jack or truck with forks with a minimum length as the width of the unit.

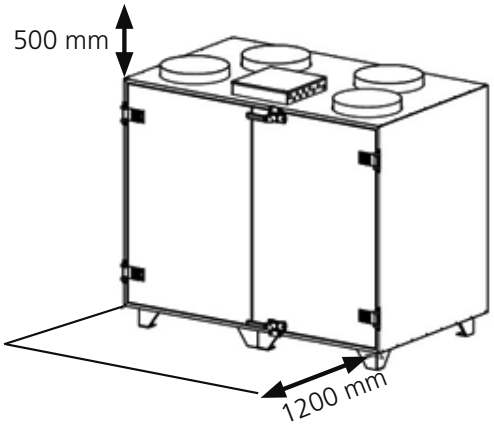
1. Make sure the unit is level using a spirit level.
   - If the floor is uneven use the adjustable feet.
   - Use the underlying Novibra mat to reduce vibrations against the floor joists.
2. Connect the ducts. *Note! Make sure to connect the supply/extract/exhaust/fresh air connections to the corresponding duct.*
   Use duct clamp or flange with encompassing insulation when connecting to duct.
3. The ducts should be insulated all the way towards the unit casing.
   - The supply and the extract air ducts should be insulated if installed in a cold space.
   - To prevent condensation the supply air duct should also be insulated if installed in warm space.
   - The fresh air and exhaust air ducts should always be condense insulated.
4. If a heating coil is connected a damper motor with spring return must be mounted in the fresh air duct.
5. Connect the electrical cables according to wiring diagrams, see chapter 2 "Reference document".
6. The duct sensor GT1 should always be installed in the supply air duct and connected to the unit. See chapter 9 "Supply air temperature sensor".
7. Ensure there is space enough in front of and above the unit according to the recommended service clearance, see below.
8. The cooling coil must always lean slightly towards the drainage connection to avoid the risk of stagnant water.
9. Locking safety switches should be placed near the unit (not supplied by H. Östberg AB).

HERU®400 and 600 T/S are delivered in one part.

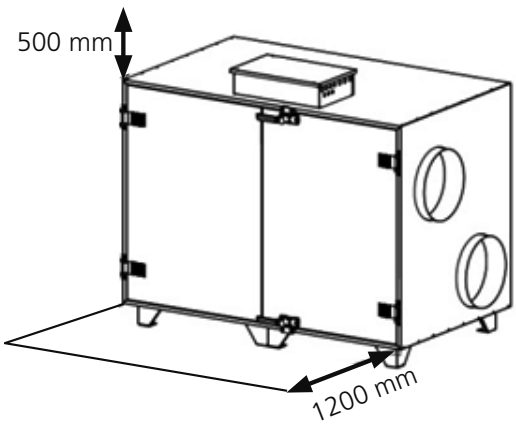
HERU®800 and 1200 T/S are delivered in two parts. Screw the unit together using the fixed internal corner joints (rear) and the corner post angles (front). Use the duct connection to reach the corner at the far end.

CLEARANCE FOR SERVICE AND MAINTENANCE

HERU®T



HERU®S



BEFORE STARTING

- Ensure that HERU® is installed correctly.
- Make sure that all ducts, water pipes and electrical connections are correctly assembled.
- **Make sure no objects or dirt are left behind in the unit during construction, as this could lead to injury and/or damage to the unit.**
- Ensure that the service doors are closed and locked.
- Make sure that the connection cable has not been damaged during assembly and installation.

STARTING

Carefully read the operating instructions before starting up the unit.

HERU® starts automatically (with a few minutes delay) when the power is switched on. In the event of a power failure, always check so the unit is starting up again.

Never run the unit without the filters!

Note!

2. Important information

The menu information in the control unit/HMI is describe for each individual function. Because of this, the information in the example menu screenshots may not be consistent with the information provided in the HMI of each individual HERU®CX unit. Sometimes all information rows are described, when in reality only a limited number of menu rows will be visible. The reason for this is that, to simplify handling for the user, non-selected functions and settings are "turned off" at configuration.
If any information is not provided in the display, that function or input is probably not configured/enabled. See chapter 11.6 for more information

Important!

This manual describes general functions and components that are directly connected to the HERU® CX unit.
The software may include functions and concepts related to moisture, humidification and/or dehumidification. All such information has been omitted in this document.
H. Östberg AB does not accept any responsibility for these functions, as it is not our intention to treat air using humidification or dehumidification.
The software is continuously developed and improved, therefore H. Östberg AB is not to be held accountable for any discrepancies that may appear in this document, and also reserves the right to modify data and design.

ABBREVIATIONS

Förkortning	*Förklaring*
BMS	Building Management System (parent control system)
BSP	Board Support Package (firmware)
EXP1	Expansion module no. 1, module for multiple outlets and inlets
EHC	Electrical Heater (heating coil)
HERU®S CX	Side connected HERU® unit with Climatix control
HERU®T CX	Top connected HERU® unit with Climatix control
HERU®CX	HERU® unit with Climatix control (data applies to both S & T)
HMI	Human Machine Interface (control panel)
LED	Light Emitting Diode (light diode for indication)
NC	Normally Closed (opening switch at signal)
NO	Normally Open (closing switch at signal)
OEM	Original Equipment Manufacturer
PROC1	Processing unit 1 (Climatix base unit)

REFERENCE DOCUMENT

Dokumenttitel	*Art.no.*
Wiring diagram HERU®400-600 T/S	999500003
Wiring diagram HERU®800-1200 T/S	999500002
Climatix Room unit POL822.60 (2-wire interface)	999720001
Climatix Basic documentation	999720005
Climatix Modbus Guide & reference list	999720006
Climatix LON-Guide	999720007
Climatix BACnet-/IP-Guide & tag list	999720008
Climatix OPC Guide & tag List	999720009
Climatix AWM Advanced Web Module Guide	999720010
Climatix Modbus Pressure Sensor QBM68	999720014

The referenced documentation is digital and available at www.ostbergs.com

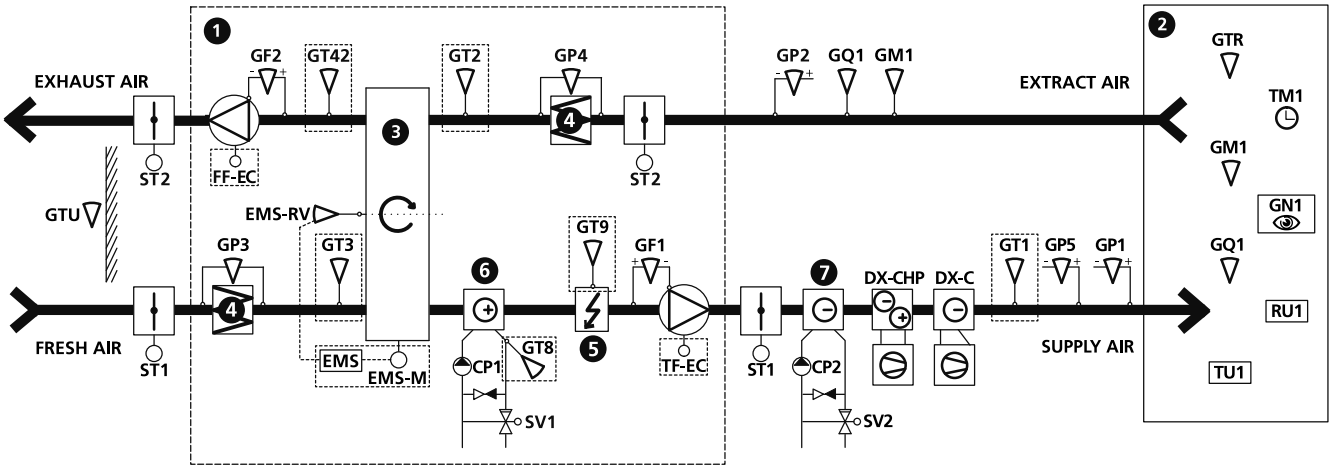
3. Flowchart and function descriptions

Important!

The flowchart and function descriptions describes most of the functions the controller can handle. Regarding to the unit configuration, all functions may not be available in the supplied model. Some can be selected in the HMI and are described as Optional in the HMI. Other functions do not have the external components required for selection.
If you have any questions about a specific function, please contact your nearest H. Östberg AB sales office for assistance. The controller supplier constantly works with product development and we reserve the right to continuously improve our product. As such, there may be new functions in the software version this unit is equipped with, even if this function is not described in the function description.

CONTROL DIAGRAM HERU®CX

The unit comes as standard with: **Filter, fans, heat exchanger, heating coil/electric heater, EMS, EMS RV, GT1, GT2, GT3, GT42** and **GT8/GT9.**
Other components are optional.



ID	Description
1	HERU® unit
2	Room
3	Rotary heat exchanger
4	Filter
5	Electrical heater
6	Heating coil
7	Cooling coil
⬚	Incl. in the basic version

ID	Description
GT1	Temp.sensor, supply air
GT2	Temp.sensor, extract air
GT3	Temp.sensor, outside air
GT42	Temp.sensor, exhaust air
GT8	Freeze protection sensor
GT9	Overtemp. sensor
GTR	Temp.sensor, room air
GTU	Outside temp.sensor
GP1	Pressure switch, supply air
GP2	Pressure switch, extract air
GP3	Flow detector, supply air
GP4	Flow detector, extract air
GP5	(Pressure switch/flow detector) EHC
GF1	Supply air flow
GF2	Extract air flow
ST1	Actuator supply/outside air
ST2	Actuator extract/exhaust air

ID	Description
EMS	Speed control rotary heat exchanger
EMS-M	Drive motor EMS
EMS-RV	Rotation monitor EMS
CP1	Circulation pump heating
CP2	Circulation pump cooling
SV1	Valve actuator heating
SV2	Valve actuator cooling
DX-C	DX-cooling 1…3 stage
DX-CHP	Direct expansion cooling and heating pump (or water)
GQ1	CO2-sensor, room or extract air
GM1	Humidity sensor, room or extract air
GN1	Presence detector
TM1	Timer OT/Boost
TU1	Setpoint impact room pot.
RU1	Room unit
TF-EC	Supply air fan, EC motor
FF-EC	Extract air fan, EC motor

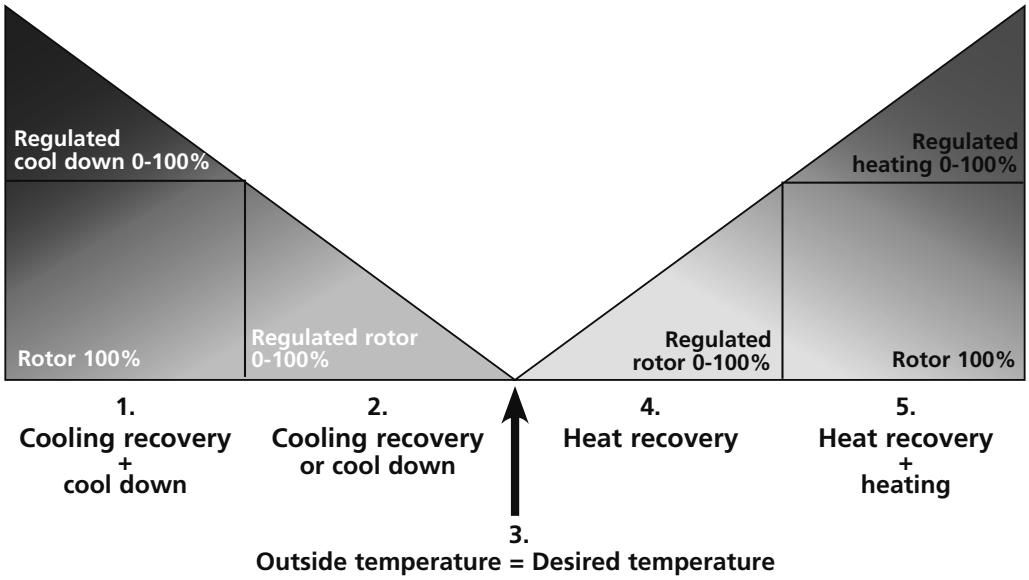
The temperature can be regulated as constant supply air regulation or room regulation/extract air regulation.

- When constant supply air regulation, the air supply temperature remains constant.
- When room regulation, a sensor is placed in the room to obtain a constant room temperature (suitable when a cooling coil is installed).
- Extract air regulation works in a similar way, but with the difference that the temperature is measured on the unit's extract air side.

THE TEMPERATURE CAN BE REGULATED IN 5 STAGES:

1. **Cooling recovery + cooling:**
   The control unit can regulate a cooling coil (e.g. cooling water from geothermal heating), when the cooling recovery from the rotor is insufficient.
2. **Cooling recovery and/or regulated cool down:**
   The rotary heat exchanger starts if the extract air temperature is lower than the outside temperature.
   - Regulated cool down: If the temperature outside is lower than the desired room temperature and is not sufficient for lowering the room temperature, the cool down will start.
3. **Outside temperature = desired temperature:**
   When the outside temperature is the same as the desired supply air temperature, the rotor will stop.
4. **Heat recovery:**
   The rotary heat exchanger starts to recover the warmer indoor temperature.
5. **Heat recovery + heating:**
   In climate zones in which the rotary heat exchanger, in spite of its high efficiency, is insufficient to achieve the desired supply air temperature, the control unit can also regulate either an electric heater or a heating coil connected to the duct.

"Night cooling" is a function which utilizes the cool outdoor temperature and cools down the building at night without using any other additional energy. The fan speed is boosted when the ratio between the outside and the extract air temperature is within the programmed criteria.



4. Control system function description

CONTROL

OPERATING TIMES 4.1

The unit is controlled via a built-in timing channel.
At start-up, the dampers **ST1/ST2** opens and efter inställd tid startar, , and according to a set time the extract air fan (FF) starts and then heat recovery (EMS) is controlled to maximum recovery if the outside temperature is under the adjustable set value *[15°C]*. The supply air fan (TF) then starts after an adjustable time delay, and a normal regulation starts.
When the unit is stopped, the fans will stop and then the dampers ST1/ST2 will close according to the set time, with control voltage or spring return.

TIMER/BOOST 4.2

The unit is controlled to the set fan stage for prolonged operation or boost during the set time via push button TM1, push button timer (time in timer) or pulse-controlled push button (spring return with adjustable time in **PROC1**).

CIRCULATION PUMPS 4.3

Circulation pump heating **CP1** goperates automatically when heating is required or at outside temperature below the minimum setting (adjustable in **HMI**. Exercised once a week.
Cirkulationspump, cooling **CP2** går enligt automatik vid kylbehov. The pump is blocked if outside temperature is below the minimum setting in **HMI**. Exercised once a week.

COOLING DOWN WHEN ELECTRIC HEATING 4.4

If electric heating is configured and operation is stopped, the supply air fan will switch to prolonged operation to cool down the electric heater. **ST1** and **ST2** remains open during cool down.

ROTARY HEAT EXCHANGER 4.5

Time controlled blow-off when the unit is stopped or when heating is not required.
The control is integrated in EMS.

REGULATION

TEMPERATURE REGULATION 4.6

The supply air temperature is regulated via **GT1**.

At increased heating requirement, temperature is regulated according to following sequence:
1. Cooling valve **SV2** is closing, or cooling unit **KM1** reducing the output.
2. Heat exchanger **EMS** increases the heat recovery, if **GT2 > GT3**.
3. Heating valve **SV1** opens for heating, or electric heater **EHC** increasing the output.

At reduced heating/increased cooling requirement, the above sequence is reversed.

Models with DX cooling and heating pumps and integrated heating:
1. The cooling and heating pump **CHP** reducing the cooling effect.
2. Heat exchanger EMS increases heat recovery, if **GT2 > GT3**.
3. The cooling and heating pump **CHP** increasing the heating effect.
4. Heating valve **SV1** opens for heating, or electric heater **EHC** increasing the output.

At reduced heating/increased cooling requirement, the above sequence is reversed.

EXTRACT AIR REGULATION (cascade control) 4.7

Can be selected in **HMI**. Temperature sensor **GT2** becomes main sensor and temperature sensor **GT1** becomes sensor for supply air limit according to set value in**HMI**.
Cascade control in combination with supply air regulation *[Extract air SuWi]*.
Selectable in **HMI**; switching between extract air and supply air regulation according to outside temperature or annual calendar, or digital input (summer/winter changeover).

Different setpoints apply for cascade control and supply air regulation.
If room sensor GTR is used, room regulation in combination with supply air regulation is also selectable *[Room SuWi]*.

4.8 OUTSIDE COMPENSATED TEMPERATURE REGULATION

Selected in **HMI**. Temperature is shifted via 4 breakpoints, according to adjustable value, from *[start point]* till *[end point]* according to *[ΔK]* for summer/winter.

4.9 FAN COMPENSATION (boost/ reduction)

Selected in **HMI**. Possible to fan compensate via outside temperature, room temperature **GTR**, air quality **GQ1** and humidity **GM1**. The different fan compensations will be added to the total fan compensation value.

Temperature exercise:
Is used for support heating and/or cooling or night cooling when there is no room temperature sensor.
Temperature exercise ramps/starts up the unit after an extended period of inactivity (switched off) and updates the extract air temperature duct sensor.

4.10 SUPPORT OPERATION

Selected in HMI. *Heating, cooling or heating and cooling* is selectable.
Temperature regulation *support heating* when unit is stopped (night time), as follows:

1. Heat exchanger
2. Heating coil in sequence according to specified order.

Support cooling with cooling coil.

4.11 NIGHT COOLING (summer night cooling)

Selected in HMI. Night cooling starts automatically to cool premises at night with cool fresh air.
Heat exchanger, heating and cooling coil are blocked during night cooling.
Conditions for automatic start:

- Time switch program must be in OFF mode.
- Outside temperature is higher than min. outside temperature.
- Outside temperature is lower than the difference between the room/extract air temperature.
- (minus) Δ *[1K]*.
- Room/extract air temperature is higher than room/extract air setpoint.

Night cooling is cancelled if the Timer input is enabled, or if the above conditions cease during operation.

PROTECTION

4.12 FREEZE PROTECTION

At low return temperature **GT8** in the heating coil, the heating valve **SV1** will be overridden (open more than the heating requirement demands), according to set value in **HMI**. If the temperature continues to decrease, an alarm will go off and the unit will stop. When the unit stops, the coil will maintain heat according to set value. Freeze protection sensor is reset in **HMI**.

4.13 HEAT EXCHANGER

Rotation monitor **RV1** monitors the rotation of the rotary heat exchanger, **EMS** alarm goes to **HMI**. **EMS** has an integrated motor protection. In the event of over-current, an alarm is sent from the heat exchanger to **HMI**. The alarm is reset in **EMS** (by unplugging main voltage/external switch disconnector) and in **HMI.** Alarm class is selectable in **HMI**.

4.14 EHC

GT9 consists of an alarm for low temperature (aut. return) and high temperature (man. return). If the **GT9** alarm is triggered, **EHC** will be blocked and cool down will begin. The electric heating alarm can be reset in **HMI**. If the high temperature protection also is triggered, **GT9** must also be reset on the **EHC** electric heater.
GP5 monitors minimum supply air flow/pressure. If pressure falls below the set value, **EHC** is blocked and the alarm will not be triggered.

EFFICIENCY MEASUREMENT EXTRACT AIR **4.15**

Temperature efficiency is calculated via temperature sensors **GT2**, **GT42** and **GT3**, provided that the heat exchanger signal is 100%.
Alarm is triggered if efficiency falls below the set value.

FIRE/SMOKE **4.16**

When a signal is received from the parent fire/smoke system, the fire/smoke alarm will not be triggered.
In the event of alarm, the following functions can be selected:

- The unit is stopped and the damper closes.
- Extract fan speeds up to the fire setpoint and supply fan is stopped. Dampers **ST1/ST2** remains open.
- Supply fan speeds up to the fire setpoint and extract fan is stopped. Dampers **ST1/ST2** remains open.
- Supply + extract fan speed up to the fire setpoint. Dampers **ST1/ST2** remains **open**.

ALARMS

- **Deviation alarm:** GT1, GT2, GT3, GP1, GP2, GP3, GP4, GF1 and GF2
- **Recovery alarm** (rotor control EMS)
- **Fan alarm**
- **Freeze protection sensor** GT8/**Overheating** electric heater GT9
- **Low efficiency**

4.17

MULTIFUNCTIONAL INPUT
The following functions are located at the same signal input and cannot be combined:

- *Control input 1:* Timer input for additional speeds.
- *Control input 2:* Additional speeds from BMS.
- *Quick stop input*
- *Common filter alarm:* Active via pressure sensor, supplied as optional accessory.

OPTIONS via add on module EXP-1 (9050054)

The following features are optional and are not included in the basic version supplied from H. Östberg AB.
Besides the respective sensor, an EXP1 is also required to obtain multiple I/Os (inputs/outputs).

PRESSURE REGULATION **4.18**

Duct pressure regulation, designed to be combined with VAV systems. The fans are controlled to maintain a pre-set pressure (setpoint), via **GP1** and **GP2**, in each duct system.

FLOW REGULATION **4.19**

Flow regulation is designed to be used in systems where a constant flow is desired. The fans are controlled to maintain a pre-set flow (setpoint), e.g. compensate for increased filter clogging via **GF1** and **GF2**.

PRESSURE REGULATION WITH FLOW MEASUREMENT **4.20**

This function can also be combined with one fan operating as MASTER/duct pressure regulation and the other fan as SLAVE/flow regulated.
MASTER-/SLAV regulation requires **GP1/GP2, GF1** and **GF2**.

FAN COMPENSATION **4.21**

Fan compensation can be obtained via air quality/humidity sensor **GQ1/GM1** (duct or room model). The fan can be boosted to a higher flow at higher PPM/RH.

4.22 PUMP MONITORING

Monitoring is done using current relay and feedback to **PROC1**. If the pump does not draw current when the pump is in operation, an alarm is triggered and heat maintenance of the freeze protection sensor will take over.
Monitoring is possible for both **CP1** and **CP2**.

4.23 DIRECT EXPANSION COOLING UNIT

Can control 1-STAGE (On/Off)/ 2-STAGE stage-connected (50/50 stage)./ 3-STAGE binary (1/3-2/3 stage).
Alarm from direct expansion cooling or operation indication from direct expansion (DX) cooling.

4.24 SU/WI-SWITCH

Summer/Winter switch. can switch between summer/winter from BMS system or via supply pipe thermostat at COMBI COI.

5. Password handling

Password protection can be set for up to 9 levels. Only 3 levels are defined in this application.

The following actions are possible at the different levels:

- **Without password:**
  - Read access to all menus except system parameters, configuration and detailed menus.
  - Read access to alarm lists and alarm history.

- **Password 1000/"User" level 6:**
  - The same rights as for *"without password"* plus:
  - Read access to all menus except configuration menus.
  - Write access to the main setpoints.
  - –Alarm and alarm history can be acknowledged and reset.

- **Password 2000/"Service" level 4:**
  - The same rights as for *"User"*, plus:
  - Rights for all menus and system settings.

Caution!

If password 2000 must be used, the utmost caution should prevail!
There is a high risk that a change may damage basic settings/configurations.

6. Control unit HMI-TM

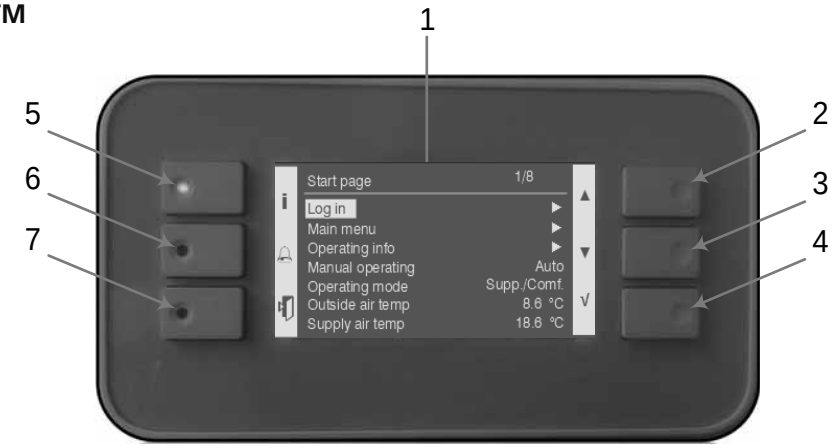
GENERAL

HMI-TM is a separate control unit. The backside has a magnetic area for accurate placement on the HERU®CX casing.
The connection cable has a semi-spiral design, i.e. the 50% closest to the HMI-TM is spiral and the rest is astraight cable.
The temperature operating range is –40...+60°C.

Control display/HMI-TM, IP65 [POL871.71/STD] ..... Art.no 994020643

FUNCTIONS

HMI-TM



LCD **6.1**

1. LCD display, blue or white background lighting (adjustable), resolution 240x148.
Viewing of menus, parameters, parameter values, etc.

UP▲, DOWN▼ AND ENTER√ **6.2**

2. 3. 4. Buttons for menu navigation.

- Maneuver with:
  - Pos. 2: UP▲
  - Pos. 3: DOWN▼
  - Pos. 4: Select with ENTER √,

- Change the parameter values:
  - Open the value you would like to change by pressing ENTER √.
  - Increase or decrease the value with UP▲ / DOWN▼
  - Acknowledge/confirm the changed value by pressing ENTER √ again**.**

- Move to the lower levels by pressing ENTER √.

If a higher password level is required, a "shortcut" to the password handling/login/logout menu is possible, by pressing ENTER √ for about 3 seconds.
Once the password is keyed, you automatically return to the previous menu location.

INFO- i **6.3**

5. Shortcut button to the main index and start page.

- Go to main index.
- Switch between main index and start page.

6.4 INFO- i - LED DISPLAY

5. The LED display may indicate the following:

- **Not lit**
  – The unit is not in operation
- **Green/flashing**
  – Start up
  – Night operation test
  – Night cooling
  – Support operation
- **Green/steady light**
  – Normal operation
- **Orange/steady**
  – Quick stop enabled (designated in the HMI as Emergency stop)
- **Orange/flashing**
  – Fire damper exercise (not available on HERU®CX)
- **Alternating Green/Orange**
  – Operation OFF (see Menu: *Startpage* → *Manuell operation*)
  – Operation in Manual mode (see Menu: *Startpage* → *Manuell operation*)
    □ Econ. St1
    □ Comf. St1
    □ Econ. St2
    □ Comf. St2
    □ Econ. St3
    □ Comf. St3

  To return to time switch program mode, choose Auto.
  – Room unit overrides settings in HMI
  – Manual control of any output or value.

Can mean that one or more outputs or values/signals in the HMI are set as manual values. In this mode the outputs, parameter values and signals are not controlled automatically.

Important!

When any of the signals or values are set in manual mode, the utmost caution must prevail.
All use of manual control of signals or values is at your own risk.
When resetting manual control of signals or values, the parameter must always be reset to ZERO (ZERO stands for automatic mode).
All parameters are set to Auto (Zero) through:
Main menu → Configuration → Set IO to, choose Auto.

6.5 ALARM

6. Alarm handling buttom.

- **Go to Alarm list**
  – If an alarm is triggered:→*Alarm list*, shows triggered alarms
  – If no alarm is triggered: →*Alarm history*
- **Go to the latest triggered alarm in the Alarm list**
  – Possibility to acknowledge/reset triggered alarm
- **Go to Alarm entry**
  – Alarm list sorting
    □ Name
    □ Time
    □ Prio
    □ Status
  – Alarm history sorting
    □ Name
    □ Time
    □ Prio
    □ Status

Alarm handling is also listed under:
Main index → Alarm handling → Alarm reset:
For more information about Alarm handling, see chapter 7.5 and 12.18.

ALARM -LED DISPLAY 6.6

6. The LED display may indicate the following:

- **No lit LED**
  – No alarm.
- **Red/flashing LED**
  – One or more alarms are triggered.
- **Red/steady LED**
  – Tried to acknowledge the alarm, but not reset.

ESC 6.7

7. ESC button:

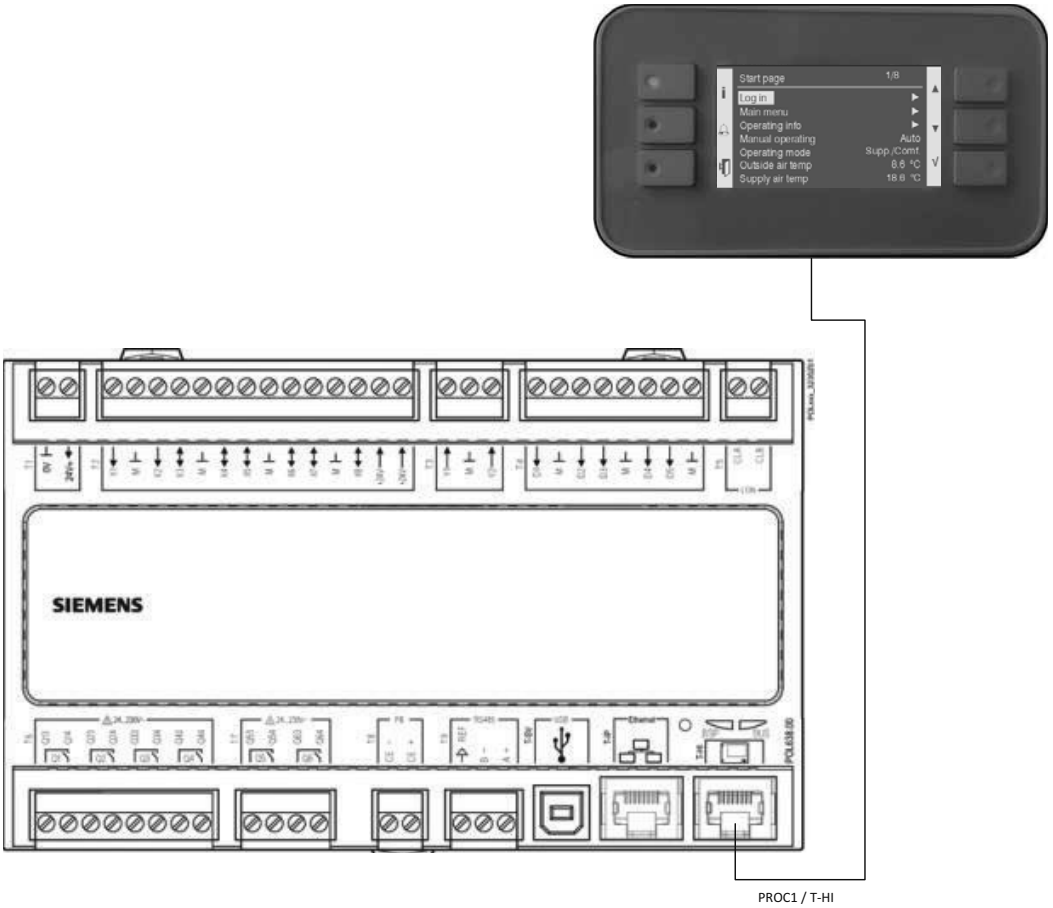
- Returns one level in the menu.
- Cancels any changes made.
- Go to the main page in HMI: Press ESC for about 3 seconds.
  For more info about Alarm, see chapter 12.16.

CONNECTING HMI

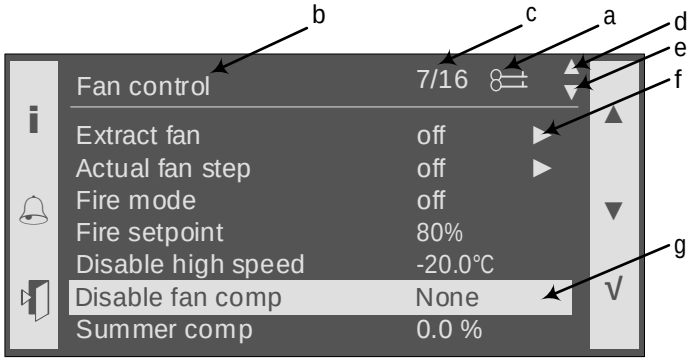
When needed, it is possible to extend the cable up to 15 m.
The connector is a modular RJ45, for connection in the Basic regulator.
See image below (PROC1/T-HI).

The simplest way to extend the cable is to use a 15 m CAT5 cable and a splice block. Type: female-female RJ45. (should be X marked).

Tip!



PROC1 / T-HI



6.8 SCREEN

a. Current authority level:
- No symbol: No authority level.
- 1st key: authority level 6.
- 2nd key: authority level 4.
- 3rd key: authority level 2.

b. Title of displayed page.

c. *7:* The number of the marked row. *16:* Total number of rows at the page (incl. this row).

d. The page includes additional rows above; press the up arrow to display.

e. The page includes additional rows below; press the down arrow to display.

f. The navigation arrow shows that there is sub level under this level.

g. Highlighted row.

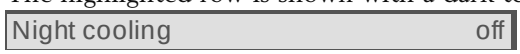
6.9 NAVIGATION ROWS

On the navigation rows, the option is shown with dark text on a light-coloured background when it is highlighted.
In front of the navigation arrow, the current value for the option is shown.
- Go to the row to be highlighted: Press the arrow UP▲ or DOWN▼.
- Go to the sub level with the navigation arrow ▶: Press ENTER √.

6.10 DISPLAY ROW

The option is shown with a dark background even when viewed in read-only mode. Current value of the option is shown. The navigation arrow is not shown in read-only mode (non-authorized level).

6.11 PREFERENCES ROW

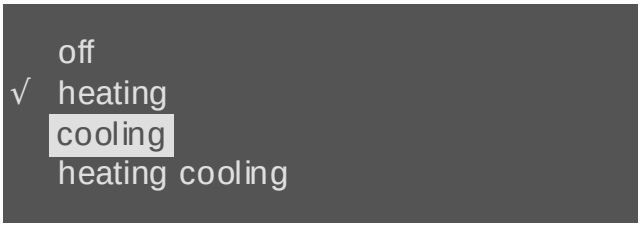
The parameter name and the current value are shown with a dark background.
Setting of value:
- Go to the row to be highlighted: Press the arrow UP▲ or DOWN▼. The highlighted row is shown with a dark text.
- 

- Switch to preferences page: Press ENTER √.
- Set the parameter value: Press the arrow UP▲ or DOWN▼.
- Close the preferences page and apply the changed parameter value: Press ENTER √.
- Close the preferences page without applying the changed parameter value: Press ESC.

DISCRETE PARAMETER SETTINGS

WHEN ONE VALUE IS SELECTABLE ONLY

6.12

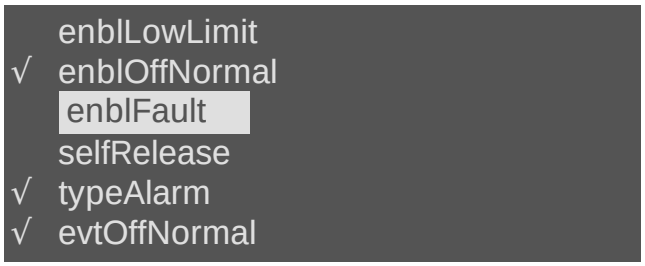


The set value is shown on the row preceded by a check mark (here "Heating").
To change the value:

- Choose a new value: Press the arrow UP▲ or DOWN▼.
- Switch to editable mode: Press ENTER √.
- Set the parameter value: Press the arrow UP▲ or DOWN▼.
- Close editing mode and apply the changed parameter value: Press ENTER √.
- Close the preferences page without applying the changed parameter value: Press ESC.

WHEN SEVERAL VALUES ARE SELECTABLE

6.13



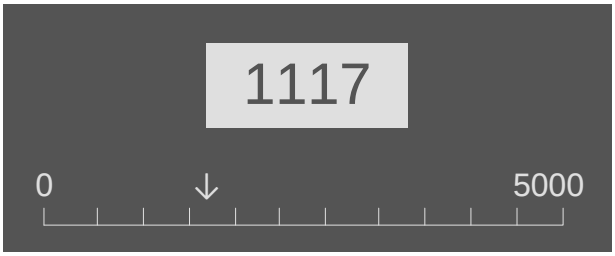
The set value is shown on the row preceded by a check mark.
To change the value:

- Choose a new value: Press the arrow UP▲ or DOWN▼.
- Select or deselect a value: Press ENTER √.
- Apply the new value(s):
  – Go to **Done** (at the bottom of the menu): Press the arrow UP▲ or DOWN▼.
  – Choose **Done**: Press ENTER √.

or

- Keep the old value and close the preferences page: Press ESC.

ANALOGUE PARAMETER SETTINGS



The scale above shows the minimum and maximum values that can be set.
Changing set values:

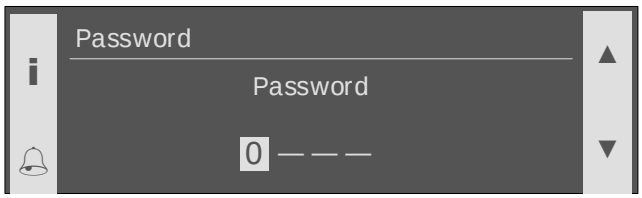
- Change the value below the arrow: Press the arrow UP▲ or DOWN▼.
- Increase the value in increments of 10, 100 or 1000:
  Press the arrow UP▲ for some time. After a moment, the value will increase by increments of 10, then by increments of 100, and so on.
- To slow the rate of the increased from 1000s to 100s to 10s to 1s:
  Do not press the arrow UP▲ or DOWN▼ for at least a second. The cursor will then move from 1000→100, after another second, from 100→10, 10 →1 and so on.
- Keep the new value and close the preferences page: Press ENTER √.
  or
- Keep the old value and close the preferences page: Press ESC.

7. Getting started, a few simple steps

LOG IN WITH PASSWORD

7.1 TO LOG IN

1. Go to the main page.
2. Choose Log in and press ENTER √ (see chapter 5).



3. Press the arrow UP▲. The number 1 will be shown. Press ENTER √.
4. The cursor automatically moves into position, and
5. choose number 0, press ENTER √.
6. Repeat steps 4 and 5 until password 1000 is entered.

A key symbol will now be shown in the upper right corner, as confirmation that you are logged in as "User". For more info about passwords, see chapter 5.

Tip!

Press ENTER √ for more than 3 seconds to be linked directly to Password handling. This is possible to do from anywhere in the menu to be linked to Password handling, and then for log in or out.
After logged in, you will be linked back to the location in the menu where you were before.

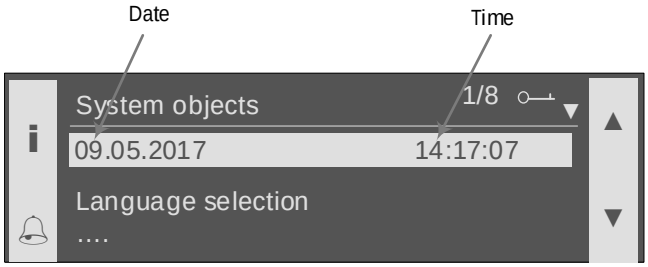
SETTING DATE AND TIME

7.2 DATE AND TIME ARE USED FOR

- Annual clock in the Time switch program.
- Weekly clock in the Time switch program.
- Seasonal functions, summer/winter time.

7.3 CHANGING DATE AND TIME

1. Log in with 1000 (see chapter 7).
2. Go to main index (see chapter 6.3).
3. Choose System parameters and press ENTER √.
4. You can now change the date and time with arrow UP▲/DOWN▼.

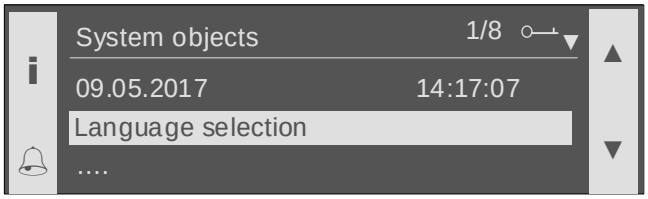


LANGUAGE

The following languages are currently available:
• English • Swedish • German • Italian • Spanish • Chinese • Danish • Finnish • Polish

CHANGING LANGUAGE 7.4

1. At least password level 1000 (see chapter 7.1).
2. Go to main index (see chapter 6.3).
3. Choose System overview and press ENTER √.
4. Now choose Language selection and press ENTER √.
5. Choose the desired language, press ENTER √.

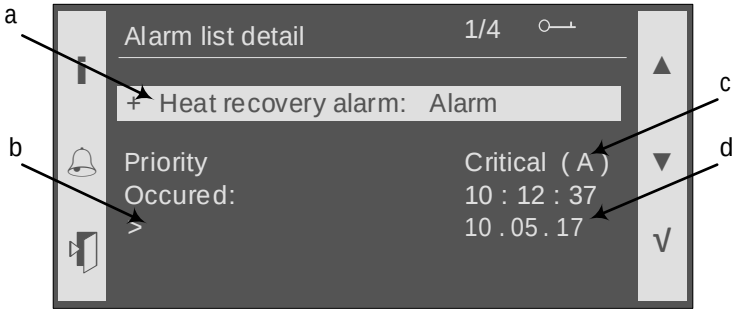


ALARM HANDLING

This chapter contains simplified information about alarms and resetting alarms.
For more detailed information on alarm handling, see chapter 12.16.

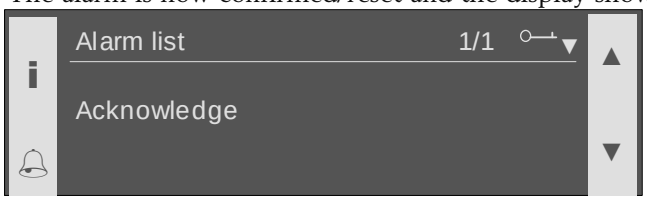
RESETTING ALARMS 7.5

1. At least password level 1000 (see chapter 7.1).
2. Press the ALARM 🔔-button.
   A detailed alarm list will now be shown in the display window.
   a. The highlighted row shows what alarm was triggered.
   b. Date of enabled recovery alarm.
   c. What Alarm class.

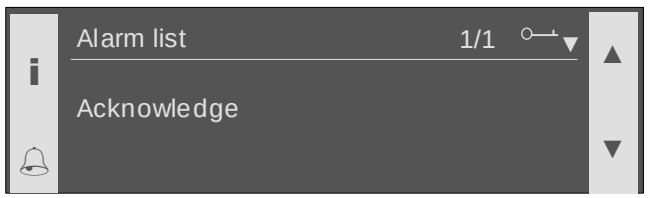


3. Press the ALARM🔔-button again.
   Confirm/Reset will now be shown. The Alarm list now shows all enable alarms.
4. Press ENTER √
5. Choose Execute and press ENTER √.

The alarm is now confirmed/reset and the display shows:



If any alarm is still enabled, the reset cannot be executed. The enabled alarm will be shown on the row below confirm/reset.



In this mode, the red LED on the ALARM🔔button has a steady light.
Troubleshoot to determine why the alarm will not reset. For help, see chapter 16 "Troubleshooting". For more information about Alarm handling, see chapter 12.16.

To change a setpoint, you must be logged in with password:
Temperature setpoint: Password 1000/"User"
Fan setpoint: Password 2000/"Service"
To log in, see chapter 7.1.
Start from the main page: ***: Choose Unit → Setpoints/Settings***

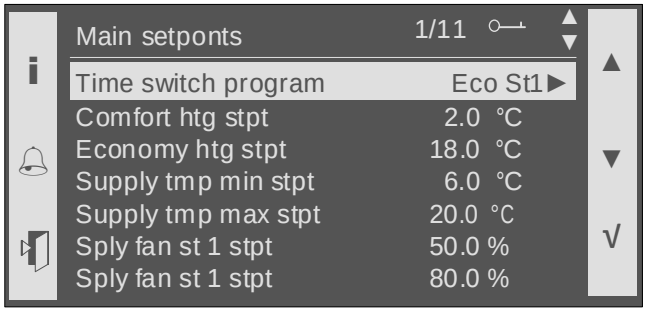
7.6 TEMPERATURE SETPOINT

The temperature setpoint is selectable as one or as two different setpoints.
If only one setpoint is configured, this will be presented as either *"Setp. Comf heating"* or as only *"Setpoint heating"* with associated dead zones.
If the setpoint for temperature are divided into two types, these will be presented as comfort and economy with associated dead zones.
Which one of these two setpoint types HERU®CX uses to regulate is determined in the Time switch program or in manual mode, see the next section.

- **Setp.comf.heating**
  This setpoint is usually used as the "main setpoint". If the temperature drops below this value HERU®CX will switch to heat regulation.
  – *Setp.comf.dead zone*
  The dead zone controls the cooling setpoint according to the formula: "Setp.comf.heating"+"Dead zone"=Cooling setpoint.
  If the temperature increase above the cooling setpoint HERU®CX will switch over to cooling regulation. A normal dead zone value is 2°C.

- **Setp.econ.heating**
  Same principle as Setp.comf.heating (see above), but a different setpoint to switch between in the time switch program.
  – *Setp.econ.dead zone*. Same principle as Setp.comf. dead zone (see above).

Example:

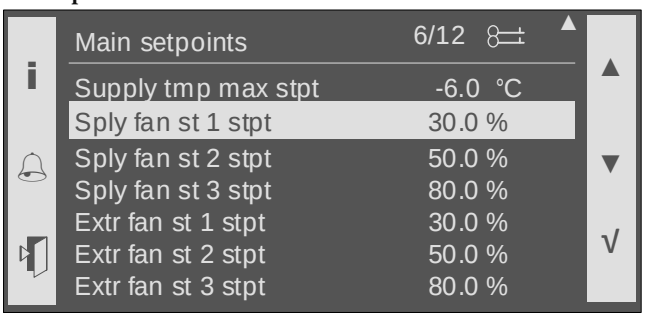


7.7 FAN SETPOINT

Fans setpoints are divided into 1-3 stages for supply air fan and for extract air fan. Which of these stages HERU® CX uses to regulate is determined in the Time switch program or in manual mode, see next section.
The stage options are usually used as follows:

- *Stage 1:* Reduced operation
- *Stage 2:* Normal operation
- *Stage 3:* Boost operation

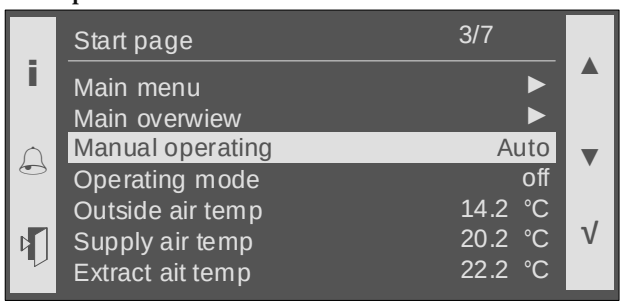
Example:



MANUAL CONTROL OF HERU®CX

I normala fall styrs driften av Tidstyrprogrammet.
Möjlighet finns att frångå Tidstyrprogrammet. Endera stoppa driften eller styra driften manuellt till valfritt fläktsteg and/eller valfri börvärdestyp temp.regulation.
At least password level 1000 (see chapter 7.1).
– Go to the S*tart page*, choose *Manual operation* and press ENTER √.

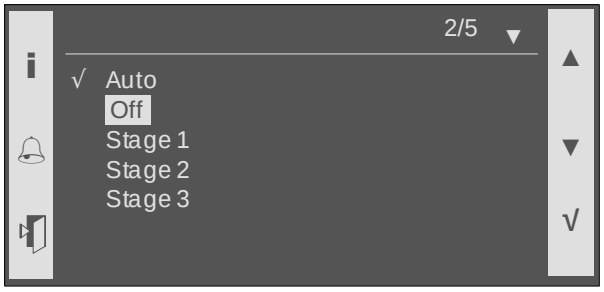
Example:



STOPPING THE UNIT FOR SERVICE 7.8

It is possible to stop HERU®CX, similar to a service switch. This is done in the HMI. This is done via *Manual mode*.
– Choose O*FF* and press ENTER √.
The unit will now stop.
If EHC is used, an after blowing period will control the supply air fan to prolonged operation before HERU®CX stops and the dampers closes.
The dampers close according to set time after the fans have stopped. The default time delay for the dampers is about 10 seconds.

Example:



MANUAL START 7.9

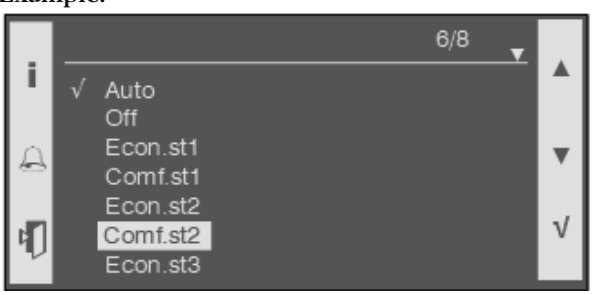
To start the unit independently the Time switch programs start and stop times.
The following options can be shown:

Selections manual operation	Temp. regulation acc. to setpoint	Fan control/-regulation acc. to setpoint
Auto	See Time switch program, chap. 5	See Time switch program, chap. 5
Off	Stopped unit, see chap. 5.	Stopped unit, see chap. 5.
Stage 1	Only 1 Setpoint	Stage 1
Stage 2	Only 1 Setpoint	Stage 2
Stage 3	Only 1 Setpoint	Stage 3
Econ.St1	Economy	Stage 1
Comf.St1	Comfort	Stage 1
Econ.St2	Economy	Stage 2
Comf.St2	Comfort	Stage 2
Econ.St3	Economy	Stage 3
Comf.St3	Comfort	Stage 3

– Choose an option and press ENTER √.
The unit will now **not** follow the Time switch program, but will instead continue to follow the preferences that have been set. The safety functions are still enabled, e.g. freeze protection, EHC overheating protection, fire alarm, etc. These kind of alarms will still stop the operation.

– To return to the Time switch program, follow the above steps but choose "Auto".

Example:

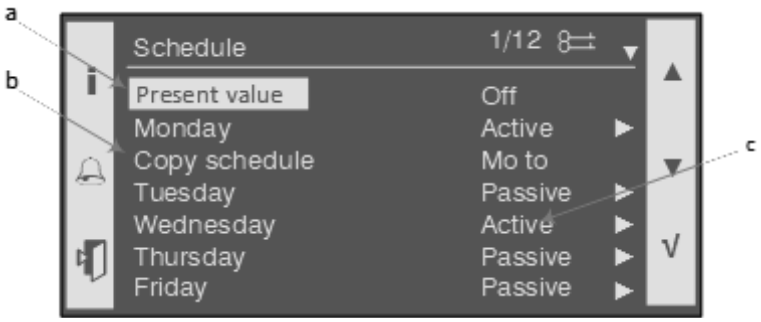


7.10 DEFAULT PROGRAMMING

The Time switch program (time channels) is preset at delivery as follows:

- Monday-Friday / 06:00–18:00 / st.2.
- Saturday and Sunday are switched off throughout the day, i.e. the unit is stopped from Friday at 6 pm until Monday 6 am.

7.11 WEEK SCHEDULE



Explanation to above image:

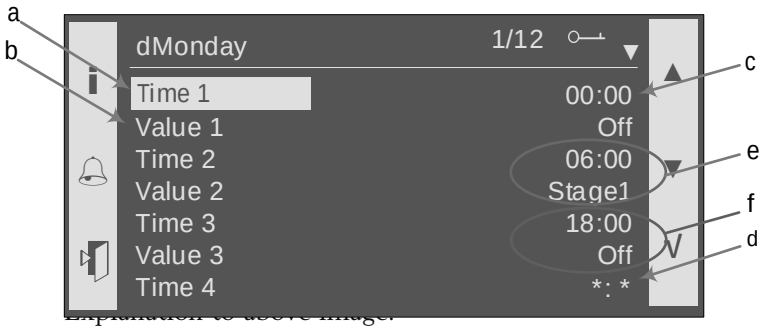
a. Present value is the operating mode that the Time switch program wants to control. This doesn't mean that operation is according to the value for Present value; it can be manual control or alarm on HERU®CX that controls operation to another value.

b. Choose C*opy schedule* for transfer the Monday programming to Tuesday–Friday, Tuesday–Sunday or a specific day.

c. The Time switch program controls according to this day: Active. A passive day does not have priority to control operation.

7.12 PROGRAMMING THE TIMES OF MONDAY

Times are programmed in each individual day of the week (possibility to copy the times of Monday to the other week days, see above).



Explanation to above image:

a. *Time 1* is the first connection time of that day, in this case Monday.

b. *Value 1* is the operating mode that will apply for Time 1. The same applies for the others. *Value 2* is operating mode according to *Time 2*, and so on. There are six different Times/Values for each weekday.

Important!

c. **Must ALWAYS have value 00:00, applies to all weekdays (incl. exceptions).**

d. *: * = no time stamp, so Value 4 has no significance. Operation will continue switched off (Off) until the next day of the week. *Time 1=00:00* according to the value that *Value 1* has this day.

e. *Time 2* with associated *Value 2* (i.e. 06:00 / Comf.st2) is what controlling the start of the ventilation when the unit will be stopped during the night. It is this time after operating preference that must be changed for custom start in each individual case.

f. *Time 3* with associated *Value 3* (i.e. 18:00/Off) is the time that stops operation. This time must be changed for custom shutdown in the evening in each individual case.

Tip!

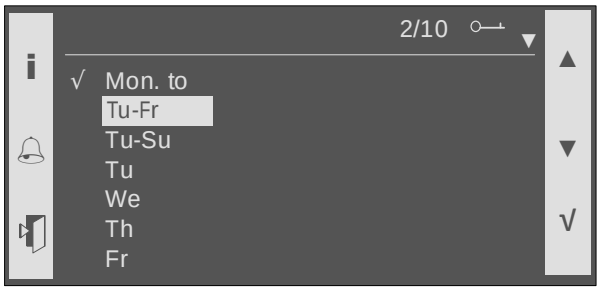
If the unit will be operated at night in reduced mode, only change *Value* 3 to Comf. st1. Reduced air volume can then be set under *Setpoint/Sply fan st 1/Extr fan st 1,* see chapter 7.7.

Choose *Economy St1* if the setpoint will also be customized for night time, according to *Temperature. Econ. Heating,* see chapter 7.6.

COPY MONDAY TIMES

7.13

The Week schedule has a function so you don't need to enter operating times for each weekday. It is possible to copy the Monday settings over to Tuesday-Friday.
When the Monday settings are done, go to *Copy schedule*.
Kopiera schema finns under *Schema* se kapitel 7.11.
– Choose *Tu-Fr* and press ENTER √.
Example:

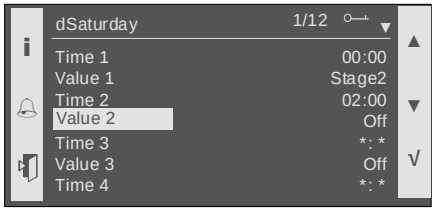


EXAMPLES OF THE TIME SWITCH PROGRAM IN DIFFERENT UNITS

OPERATION PAST MIDNIGHT

7.14

The unit will start at 11:00 am on Friday and stop at 2:00 am on Saturday.
Program according to the following:



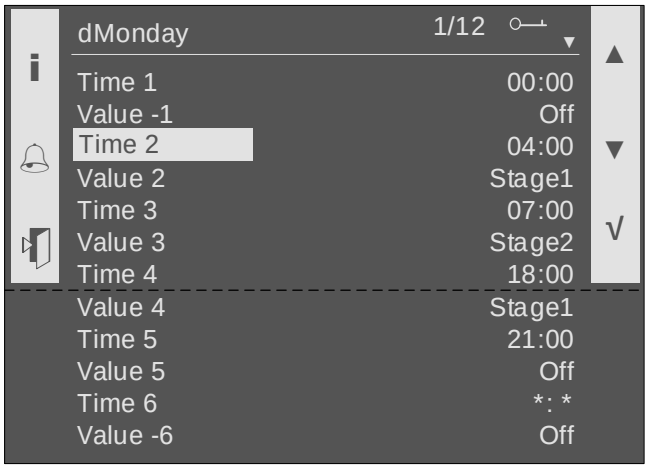
Friday time starts at 11:00 with comfort temperature regulation fans stage 2 (usually normal operation) and continues the remaining time on Friday with the same setting.

Saturday starts as always at 00:00, but in this case is Value 1 Comf.st2 (same value as Friday ended with). The unit is now stopped according to Time 2 (02:00) and that must be stopped operation, i.e. Off.

OPERATION AT DIFFERENT SPEEDS

7.15

The unit will start at 04:00 with reduced air volume.
From 07:00-18:00 (7 am-6 pm), the unit operates with normal flow and then steps down to reduced flow. The unit stops again at 21:00 (9 pm).
Program according to the following:



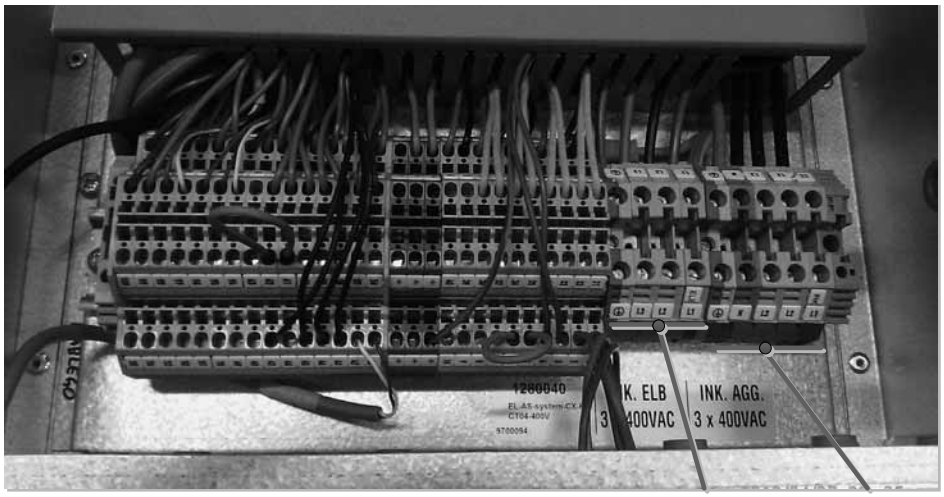
8. Connection of mains voltage

The HERU®CX unit is available in two different voltage models, 3~ 400V AC and 3~ 230V AC.

Important!

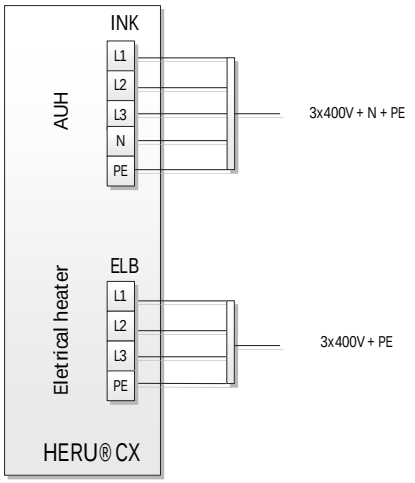
The power supply cable must always be equipped with an external load disconnector. Which is not included in the delivery from H. Östberg AB.

HERU®CX with electric heating coil (EHC) has always a separate feed for the air heater. The connection is located next to the connection for the unit.



CONNECTION OF MAINS VOLTAGE

3~ 400V



UNIT CONSUMPTION AND OUTPUT

BASIC UNIT

Consumption is calculated excluding external circulation pumps.

Size	Mains voltage [VAC]	Max consump. [kW]	Max consump. [A]	Max inc. Cable [mm²]	Max fuse main supply [A]
HERU®400	3~ 400	1,1	4,6	6	25
HERU®600	3~ 400	2,3	10,1	6	25
HERU®800	3~ 400	2,6	4,6	6	25
HERU®1200	3~ 400	5,1	8,1	6	25

HEATING COIL

Size	Mains voltage [VAC]	EHC output variant [kW]	Max consump. [A]	Max inc. Cable [mm²]	Max fuse main supply [A]
HERU®400	3~ 400	6,3	9,1	6	25
HERU®600	3~ 400	6,3	9,1	6	25
HERU®800	3~ 400	9,9	14,3	6	25
HERU®1200	3~ 400	9,9	14,3	6	25

9. External components, basic unit

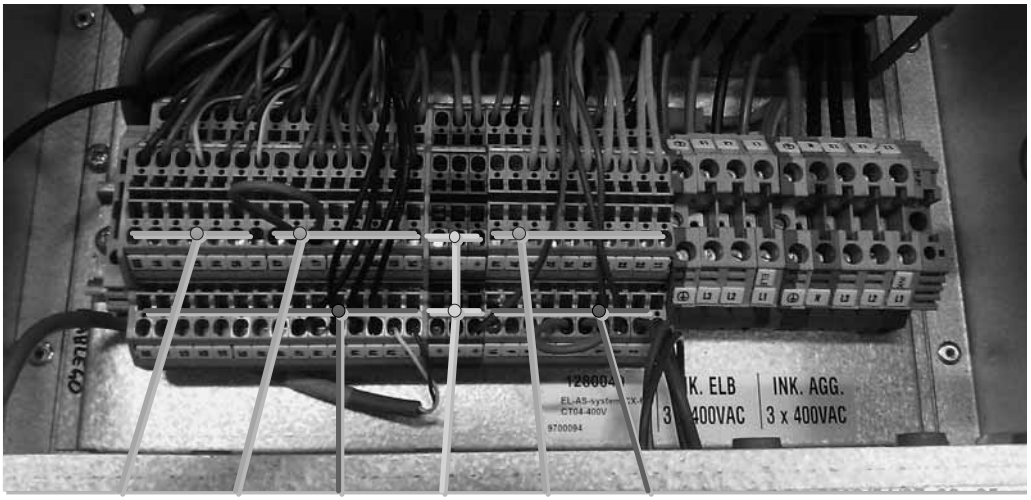
GENERAL

External sensors, actuators, etc. are connected to the HERU®CX unit or to an expansion model, supplied separately (see chapter 11).
Terminal numbers are grouped as follows:

Terminal no.	Cable's max mm²	Group's placing	Voltage
1-10	4	HERU®CX	≤ 230VAC
11-20	4	EXP1	≤ 230VAC
31-40	4	HERU®CX	≤ 230VAC
41-63	1	HERU®CX	≤ 50V
71-93	1	EXP1	≤ 50V
94-96	1	HERU®CX	Modbus RTU - RS485
97-100	1	HERU®CX & EXP1	≤ 50V/KNX (internal communication)

CONNECTION

The following example shows a HERU®T CX:



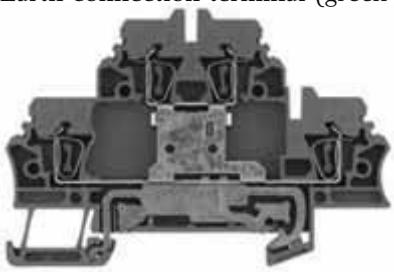
Terminal no.: 94...100 56...63 41...55 GND 31...40 1...10

All terminals, except for the feeding power connections, are 2-level type.

2-LEVEL CONNECTION TERMINALS

Connection terminal (beige)

Earth connection terminal (green-yellow)



The external side on the bottom level is connected with the bottom level's internal side.
The external side on the top level is connected to the internal side's top level.
The earth connection terminals, green-yellow, are all connected to each other and in direct contact with DIN rail and thereby also in contact with the unit casing.

9.1 TEMPERATURE SENSORS

The temperature sensors are cable sensors, with 6 mm stainless bulb and PVC cable in custom length. If there are any problems with the temperature sensors, check resistance using the table below.

Temp. °C	-30	-20	-10	0	10	20	30	40	50
Resistance Ω	872	913	956	1000	1045	1091	1138	1186	1235

9.2 INTERNAL TEMP. SENSOR GT2, GT3, GT42

Outside air, extract air and exhaust air.
The cable sensor is equipped with 2 m cable, sensor body 6x50 mm.

Temp. sensor internal 2 m cable Climatix..... Art.no 994020613

9.3 SUPPLY AIR TEMPERATURE SENSOR GT1

The supply air temperature sensor is intended to be mounted in the supply air duct (circular or rectangular). It is important that it is positioned after the last treatment module, i.e. after any cooling coils.
The sensor is a cable sensor, i.e. the sensor body is directly mounted at the end of the cable. The cable length is 5 meters and the recess in the duct is approx. 130 mm.

Connection of supply air temp. sensor as follows:

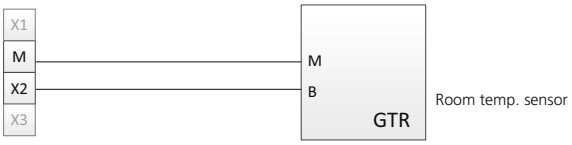
The delivery includes a flange bracket for the duct, is mounted with 2 screws (max 4,2 mm Ø).

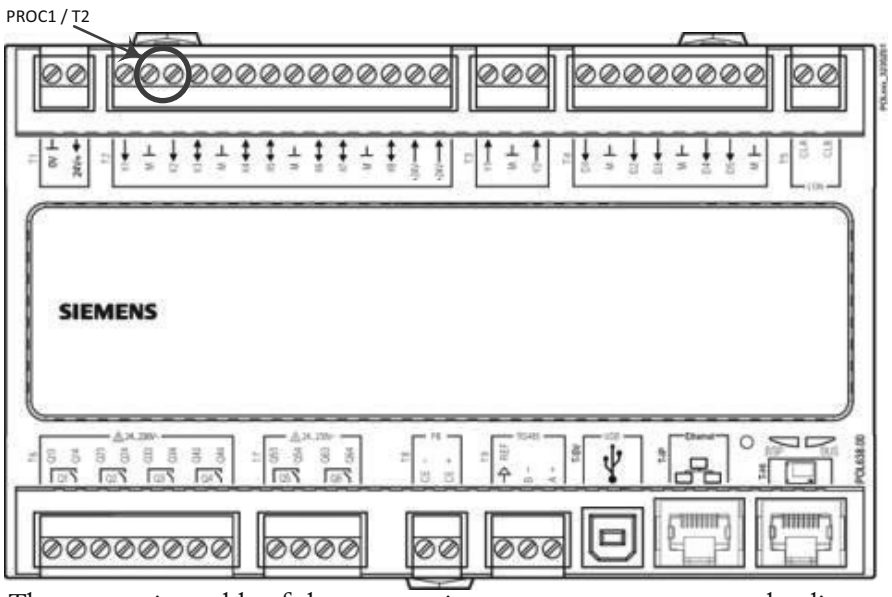
Duct temp. sensor 5 m with flange bracket Climatix..... Art.no 995010002

ROOM TEMPERATURE SENSOR GTR

HERU®CX units with Climatix uses an extract air temperature sensor, basic model, that in most systems can replace a room sensor.
It is often expensive to install a cable to a room temperature sensor in a property. Therefore the software of Östberg Climatix has been equipped with functions that allow an extract air sensor to replace a room sensor.
Night functions start up to check the extract air temperature, and the controller then determines if the night function will continue to be in operation or not.
In systems that require use of room temperature sensors, the extract air temperature sensor can be replaced with a room temperature sensor.

Connection of room temperature sensor as follows:





The connection cable of the extract air temperature sensor must be disconnected from M+X2, and replaced with the room sensor cable. The terminals that are connected are positioned directly on the controller.

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Room sensor temp.	No / 1 Sensor / ...	1 Sensor
Extract air temp. sensor	No / Yes / …	No
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Temperatures		
Rooms	…	Pos: X2 Ni1KLG
Restart	√, Execute	Execute

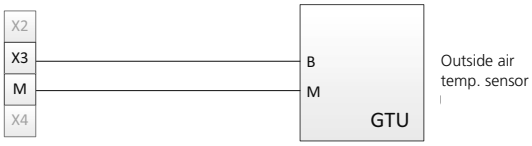
The room temperature sensor is delivered separately, without a connection cable.

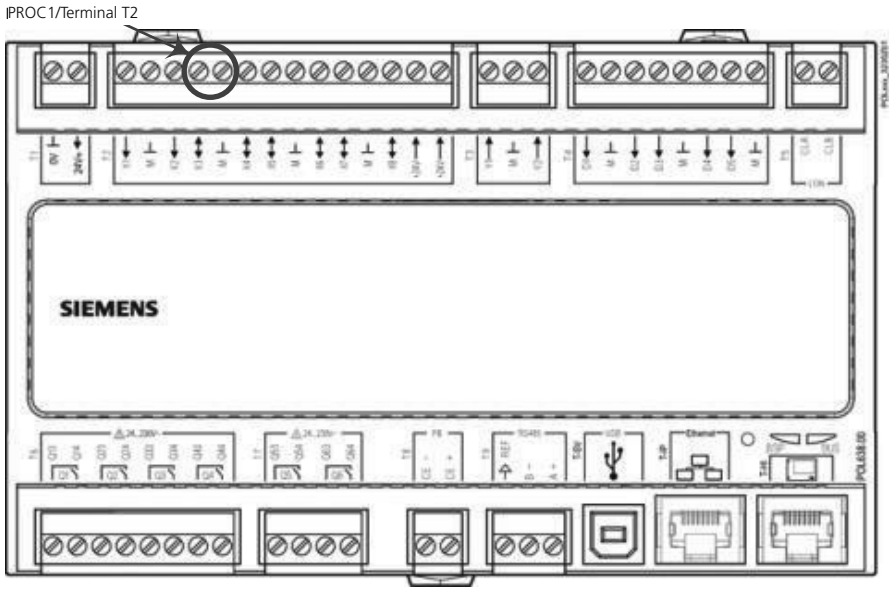
Room sensor HERU®CX Climatix..... Art.no 994020773

9.5 OUTSIDE AIR TEMPERATURE SENSOR GTU

Outside air temp. sensor is integrated in the delivered HERU®CX. It is often expensive to install a cable to an outside temperature sensor in a property. Therefore the software of Östberg Climatix has been equipped with functions that allow an outside air temperature sensor to be positioned inside the ventilation unit. In the systems that require use of outside temperature sensors, the integrated outside air temperature sensor can be replaced with an external outside temperature sensor.

Connection of outside air temperature sensor as follows:





The connection cable of the integrated outside air temp. sensor must be disconnected from X3+M, and replaced with the outside air sensor cable. The terminals that are connected are positioned directly on the controller.

For activation/configuration:

Parameter		
Configuration is not needed; it is the same type of sensor element, but with a new measuring point because the sensor is placed outside.		

Outside air temp. sensor HERU®CX Climatix ..... Art.no 994020774

ACTUATORS

ACTUATORS ST1, ST2

There are two different types of actuators for damper control.

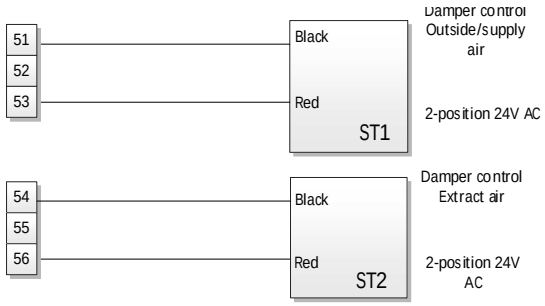
- Spring return (2-point)
- On/Off (3-point)

Important!

The On/Off actuator is only intended to be combined with electric air heater EHC. If the air heater is a water heater, the system must be equipped with a spring-return (2-point) actuator. . If not, the coil and/or the fluid piping system can freeze. Natural draught can occur in the ventilation ducts at the same time as freeze protection regulation with related circulation pumps is put out of operation due to power failure.

CONNECTION OF SPRING-RETURN MOTOR:

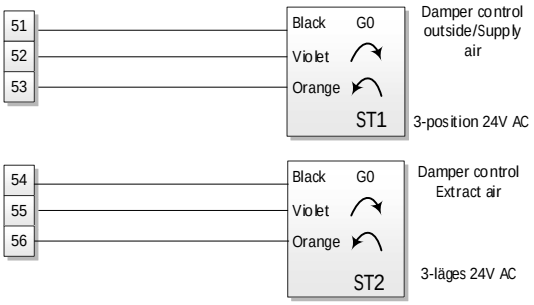
9.6



If the damper motor turns the wrong way when starting the HERU®CX, flip the damper actuator.

9.7

CONNECTION OF ON/OFF MOTOR:



If the damper motor turns the wrong way when starting the HERU®CX, switch Violet/Orange.

Damper motor Spring return 24VAC ..... Art.no 993061001
Damper motor On/Off 3-mode 24VAC/0-10VDC ..... Art.no 993061004

SHG & ACTUATOR

This consists of a prefabricated pipe fitting with valve, pump, balancing valve (only secondary adjustment) and shut-off valves.

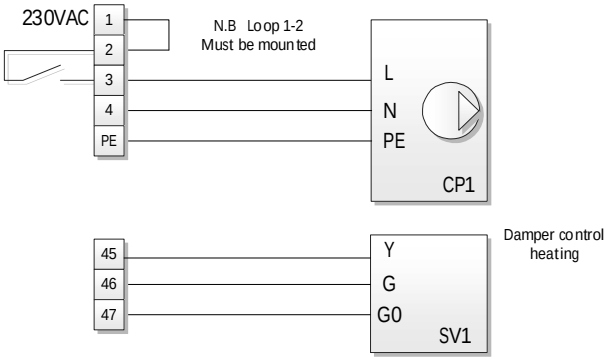
9.8 CONNECTION OF ACTUATOR AND CIRCULATION PUMPS:

Max power output of single-phase circulation pumps is 230 VAC/2A.
If a 3-phase circulation pump, the connection mentioned above is used as operating voltage to an externally mounted motor protection.

Actuator SSC61 designed for VXP45/VVP45 valves ..... Art.no 994030060
Actuator SQS65 designed for VXG44/VVG44 valve..... Art.no 994030062

9.9 HEATING CP1, SV1

Connection of actuator and circulation pump as follows:



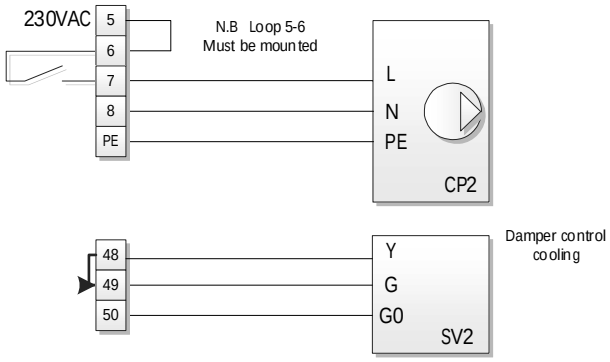
For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes	Yes
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Pump heating	No / Yes / Yes +exercise	Yes+exercise
Restart	√, Execute	Execute

COOLING CP2, SV2

9.10

Connection of actuator and circulation pump as follows:



For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Cooling	No, Water, DX….	Water
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Pump cooling	No / Yes / Yes +exercise	Yes+exercise
Restart	√, Execute	Execute

FREEZE PROTECTION GT8

9.11

If the heating coil is mounted in the HERU®CX unit when delivered, the freeze protection sensor is already mounted (and connected) on the return conduit inside the ventilation unit.

EXTERNAL WATER HEATING, NOT INTEGRATED IN HERU®CX

9.12

If a water air heater is used, a freeze protection sensor must always be mounted on the water's return side. If the water coil is mounted in a duct, the freeze protection sensor with associated straps and contact paste must be mounted on the return pipe.

Connection of freeze protection sensor as follows:

For activation/configuration:

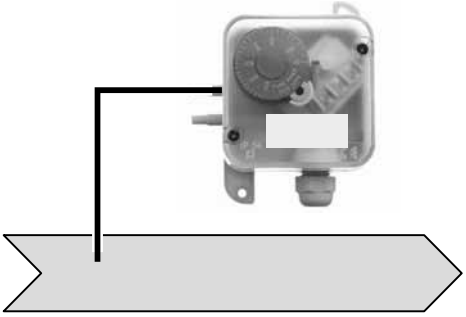
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes	Yes
Electric heating	No, Analogue, 1 stage, …	No
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Freeze protection sensor heating	No, Sensor, Sens+2sp, …	Sens+2sp
Restart	√, Execute	Execute

Freeze protection sensor 2 m with Climatix mounting kit …Art.no 995010004

9.13 ELECTRIC HEATER, EHC

All electric air heaters must always be pre-regulated via flow in the supply air ducts. This is done using a pressure switch (GP5) that measures the pressure in the supply air duct in relation to atmospheric pressure. The pressure switch (GP5) is normally connected, electrically, at delivery.

The hose is mounted as follows:

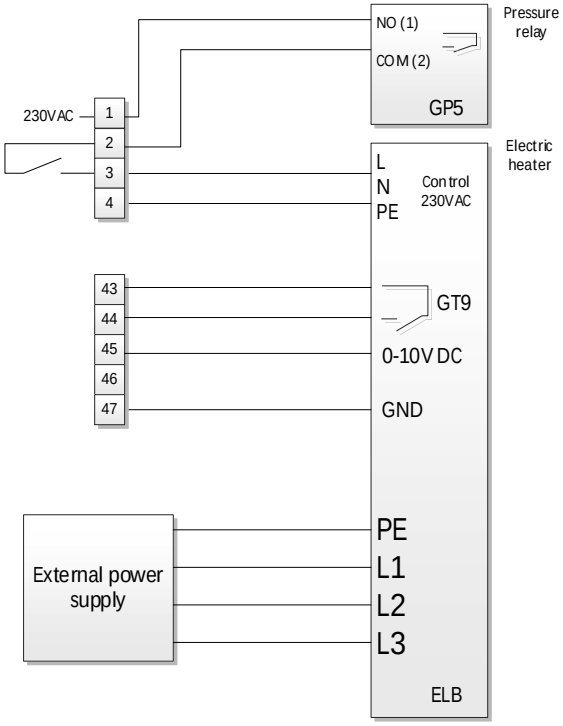


+ (plus) on GP5, will measure the supply air pressure in duct
- (minus) on GP5, must be unconnected, will measure atmospheric pressure

9.14 EXTERNAL ELECTRIC HEATER, NOT INTEGRATED IN HERU®CX

The electric heating coil is normally mounted inside the HERU®CX unit when delivered from H. Östberg AB.

If the electric heating coil is a duct design, it is connected as follows:



GT9 is the designation for overheating protection.

For activation/configuration:

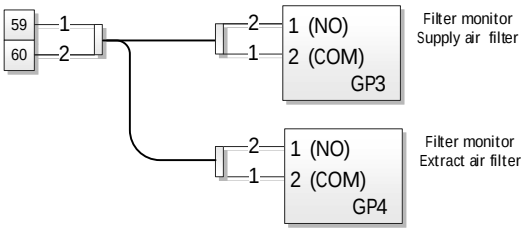
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes, …	No
Electric heating	No, Analogue, 1 stage, …	1 stage
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Alarm electric heating	No, Yes	Yes
Restart	√, Execute	Execute

Pressure switch 30-300Pa with hose package ..... Art.no 994020617
Pressure switch 30-300Pa with 5 m cable ..... Art.no 995010010

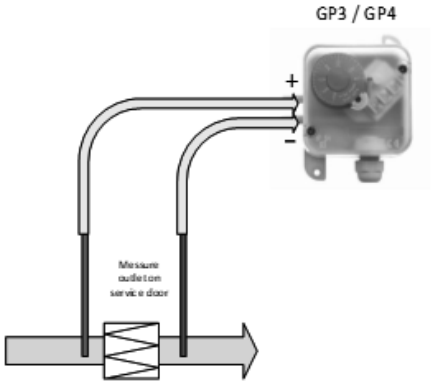
FILTER MONITORS GP3, GP4 9.15

The filter monitor is a differential pressure switch, pressure range 40–300 Pa.
It is delivered with the unit but separately from H.Östberg AB.

Connection of filter monitor as follows:



The filter monitors GP3 and GP4 are connected in parallel on the terminals P.59 and P.60.



The hoses for pressure measurements are mounted with blue test point connected to the negative pole (-) on the pressure switch, and red test point connected to the positive pole(+).

For activation/configuration:

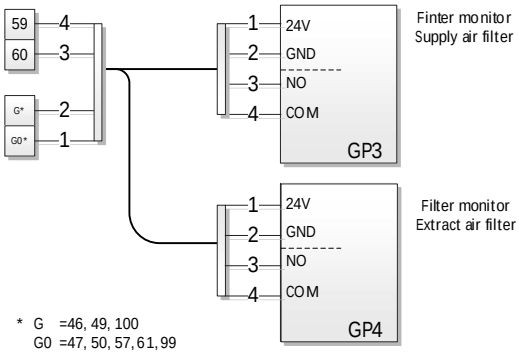
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter monitor	No, supply air, Combi, Supply+extract	Combi
Restart	√, Execute	Execute

Filter monitor 30-300Pa with hose package ..... Art.no 994020617
Filter monitor 30-300Pa with 5 m cable ..... Art.no 995010011

FILTER MONITOR WITH DISPLAY 9.16

Filter monitor with display enables active reading of differential pressure over the filter while retaining the monitor's alarm function. It is delivered as the regular filter monitor, separately with a 5 meter connection cable.

Filter monitor with display is connected as follows:



For activation in Climatix, see chapter Filter monitor 9.15 above.

Filter monitor with display with hose package ..... Art.no 994020625
Filter monitor with display with 5 m cable ..... Art.no 995010014

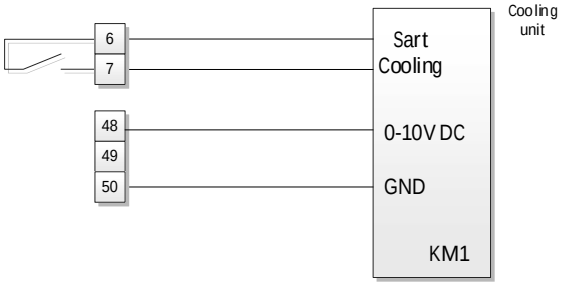
9.17 COOLING UNIT KM1

The system can control a basic cooling unit (without EXP1). This model has no On/ Off time delay (like that covered by a DX control). The start signal stops as soon as there is a cooling needed.

Available signals are:

- Start signal, important that the jumper cable between P.5 and P.6 is not connected (remove if necessary)
- Control signal 0–10V DC

Connection of cooling unit as follows:



For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Cooling	No, Water, DX…	Water
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Pump cooling	No / Yes / Yes+exercise	Yes
Restart	√, Execute	Execute

9.18 COMBI COIL, DX COOLER AND HEAT PUMP, DX-CHP

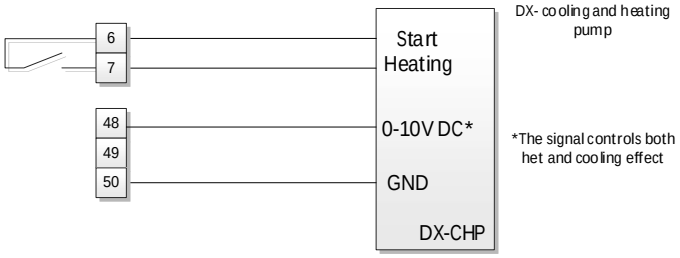
The system can control a combined cooling/heating pump DX-CHP, basic model (without EXP1).

The following models have DX machines that HERU®CX can control:

- Fujitsu
- Mitsubishi
- Panasonic
- LG

The integrated heater will regulate as Extra heat, i.e. after the DX-CHP has controlled to 100% heat, the integrated heater will control the unit towards increasing heating.

The DX-CHP is connected as follows:



CONFIGURATION WHEN INTEGRATED HEATER IS A WATER COIL: 9.19

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No / Yes / PreH Outs.Temp. / ...	Yes (0x0001)
Electrical heating	No / Analog / 1step / ...	No
Heating 2	No / Yes / PreH Outs.Temp. / ...	Yes (0x0001)
Cooling	No, Water / DX 1step / ...	Water (0x0001)
El heating	No / Analog / 1step / ...	No
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Htg frost protect	No / … / Sens+2spv / …	No
Heating pump	No / Yes / Yes+Kick	Yes
Alarm Heating pump	No / Alarm / ...	No
Combi Coil	No / Norm.seqv. / … / 1Valv 1Pu / …	Norm.seqv. + 1Valv 1Pu
Cooling pump	No / Yes / Yes+Kick	Yes
Cooling pump alarm	No / Alarm / ...	No
Htg frost protect	No / … / Sens+2spv / …	Sens+2spv
Pump E.htg	No / Yes / Yes+Kick	Yes+Kick
E.htg 2 control	Stand alone / Seq.H-heating 2	Seq.H-heat
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Digital alarms		
Htg frost protect	…	Pos: X4 (Ni1kLG)
Main index > Configuration > Config. IOs > Outputs tmp.control		
Heating AO	…	Pos: X8
Heating pump DO	…	Pos: Comm
Cooling pump DO	…	Pos: Q3
El heating 2 AO	…	Pos: X7
El heating 2 DO 1	…	Pos: Q2
Restart	√, Execute	Execute

If reverse logic is required on output for DX-CHP (i.e. output active for heating):

Main index > Unit > Outputs > Pump cooling		
Contact function	NO / NC	NC

CONFIGURATION WHEN INTEGRATED HEATER IS ELECTRIC: 9.20

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No / Yes / PreH Outs.Temp. /...	Yes (0x0001)
Electrical heating	No / Analog / 1step / ...	No
Heating 2	No / Yes / PreH Outs.Temp. / ..	No (0x0000)
Cooling	No, Water, DX 1step / ...	Water (0x0001)
El heating	No / Analogue / 1step / ….	1step
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Htg frost protect	No / … / Sens+2spv / …	No
Heating pump	No / Yes / Yes+Kick	Yes
Combi Coil	No / Norm.seqv. / … / 1Valv 1Pu / …	Norm.seqv. + 1Valv 1Pu
Cooling pump	No / Yes / Yes+Kick	Yes
Cooling pump alarm	No / Alarm / ...	No
El heating alarm	No / Yes	Yes
E.htg 2 control	Stand alone / Seq.H-heating 2	Seq.H-heat
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Digital alarms		
E. El heating 2	…	Pos: X4
Main index > Configuration > Config. IOs > Outputs tmp.control		
Heating AO	…	Pos: X8
Heating pump DO	…	Pos: Comm
Cooling pump DO	…	Pos: Q3
El heating 2 AO	…	Pos: X7
El heating 2 DO1	…	Pos: Q2
Restart	√, Execute	Execute

If reverse logic is required on output for DX-CHP (i.e. output active for heating):

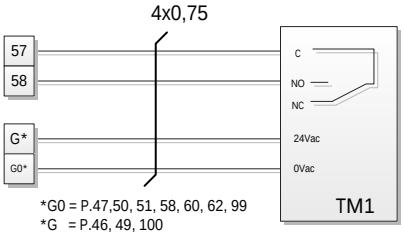
Main index > Unit > Outputs > Pump cooling		
Contact function	NO / NC	NC

9.21 TIMER CONTROL, SIEMENS KOP5 TM1

Timer control is performed with an electronic timer.
Press the button to select time - one press for each whole hour. Each diode (1 h–5 h) indicates the number of presses per hour, and shows also full hours left before the unit stops.
To switch off the unit (when time already started), hold the button down for three seconds to reset the timer.

Depending on the configuration of Control input for timer, operation can be configured as prolonged operation or boost operation; see below.

The timer is connected as follows:



Timer Electronic 1–5h 24/230VAC ..... Art.no 994022053

9.22 TIMER TM1, PROLONGED OPERATION

It is possible to control operation with a timer/push button.
At activation HERU®CX is controlled to run at normal flow (usually fan stage 2)

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+extract	No
Emergency stop	No, Yes	No
External control input	No, One, Two	One
Restart	√, Execute	Execute
Main index > Unit > Operating functions > External control		
Fan stage	Auto, Off, Stage1, Stage2, Stage3	Stage2

9.23 TIMER TM1, BOOST OPERATION

It is possible to control operation with a timer/push button.
At activation HERU®CX is controlled to run at boost flow (usually fan stage 3)

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+extract	No
Emergency stop	No, Yes	No
Timing prog. stage	1 stage, 2 stage, 3 stage	3 stage
External control input	No, One, Two	One
Restart	√, Execute	Execute
Main index > Unit > Operating functions > External control		
Fan stage	Auto, Off, Stage1, Stage2, Stage3	Stage3

PRESENCE DETECTOR GN1

9.24

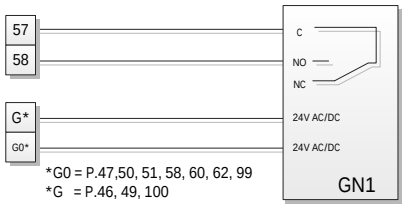
Settings in presence detector:

– Delay OFF: selectable 0.1–30 min

– Delay ON: selectable 0–10 min

Vid aktivering av närvarosensorn styrs HERU®CX att gå på normalflow (vanligtvis fläktsteg-2).

The presence detector is connected as follows:



Configuration, see chapter 9.22 Timer prolonged operation.

Presence detector for wall/ceiling mounting 24V ..... Art.no 994020782

EXTERNAL CONTROL FROM BMS, MULTIPLE SPEEDS

9.25

HERU®CX has two control inputs to control fan operation to multiple speeds/stages.

– Control input 1 is on all versions of HERU®CX.

– Control input 2 is on all versions of HERU®CX,
but cannot be combined with filter monitor or quick stop.

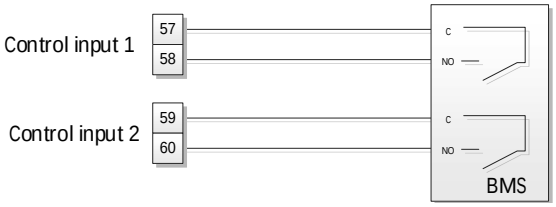
Important!

If two control inputs are active:

Control input 1	Control input 2	Fan operation is controlled to
ON	OFF	STAGE 1
OFF	ON	STAGE 2
ON	ON	STAGE 3 Selectable in HMI (AUTO, OFF, Stage1, Stage2, Stage3)
OFF	OFF	AUTO = time channel If the time channel is set to OFF during the week schedule, this will cause an external stop from BMS

For only one control input, read function and configuration according to Timer, see above.

Signals from BMS are connected as follows:



For activation/configuration:

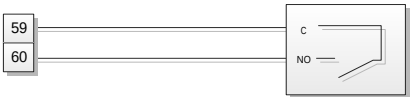
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+extract	No
Emergency stop	No, Yes	No
External control input	No, One, Two	Two
Restart	√, Execute	Execute
Main index > Unit > Operating functions > External control		
Fan stage	Auto, Off, Stage1, Stage2, Stage3	Stage3
Main index > Unit > Operating functions > Time switch program > Schedule > Monday...Sunday		
Time-1	*: *, 00:00…23:59	00:00
Value-1	Off, Econ.st1, Comf.st1, … , Comf.st3	OFF
Time-2	*: *, 00:00…23:59	06:00
Value-2	Off, Econ.st1, Comf.st1, … , Comf.st3	OFF
Time-3	*: *, 00:00…23:59	18:00
Value-3	Off, Econ.st1, Comf.st1, … , Comf.st3	OFF
Time-4	*: *, 00:00…23:59	*: *
Value-4	Off, Econ.st1, Comf.st1, … , Comf.st3	OFF
…	…	…
Value-6	Off, Econ.st1, Comf.st1, … , Comf.st3	OFF

Programming applies to all days of the week. The unit will stop if no control input is active.

9.26 QUICK STOP

Quick stop will in any condition stop operation, no after blow in electric heating coil operation, EHC.

Quick stop is connected as follows:



For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+extract	No
Emergency stop	No, Yes	Yes
External control input	No, One, Two	One
Restart	√, Execute	Execute

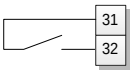
INDICATIONS FOR EXTERNAL SIGNALS

OPERATION INDICATION

9.27

Operation indicator indicates by closing (NO), when the HERU®CX unit is in operation. Max load is 230V AC / max 6A.

Operation indication is connected as follows:



ALARM INDICATION

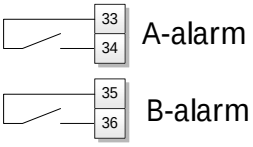
9.28

There are two alarm outputs on HERU®CX; indication through closing of output at signal.

– Alarm A - operation stops.
– Alarm B - HERU®CX operation is not stopped, only information in HMI and the Alarm B output indicate that something is wrong.

Alarm A can be described as Danger or High alarm class in the HMI.
Alarm B can be described as Low alarm class.
Max load is 230V AC / max 2A.

Alarm indication is connected as follows:



Signal output for alarm indications can be function reversed (i.e. changed to NC). This is done under *Unit* > *Outputs*.
For more information or assistance, see Climatix Basic Documentation.

AUX OPERATION INDICATION

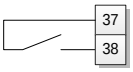
9.29

AUX operation indication is a selectable indication.
The following functions can be chosen for indication on the AUX output:

Parameternamn	Beskrivning av indikeringen
Off	Switched off.
Supply/Comf	Comfort mode (Temperature setpoint comfort).
Economy	Economy mode (Temperature setpoint economy).
Osstp	Not applicable for HERU®CX
Night cooling	Night cooling enabled (in operation).
Support operation	Support operation; heating and/or cooling enabled (in operation).
Test Temp	Temperature test enabled for updating of duct sensor temperature.
Damper exercise	Not applicable for HERU®CX
Fire	Fire mode (function dependent on the parameter setting for fire mode).
Stop	Unit stopped and locked (controller in start phase, configuration not completed, alarm class danger, emergency stop).
Cool down	Cool down.
Start-up	Unit's start routine enabled.
Full heat	The heat output signal has reached 100 %
Full recovery	The recovery output signal has reached 100 %
Full cooling	The cooling signal has reached 100 %

Max load on the output is 230V AC / max 2A

AUX operation indication is connected as follows:



Signal output for AUX operation indicators can be function reversed (i.e. changed to NC). This is done under *Unit* > *Outputs*.
For more information or assistance, see Climatix Basic Documentation.

9.30 ROOM UNIT 2-WIRE, RU1

A room unit is available as an accessory for the CLIMATIX system.

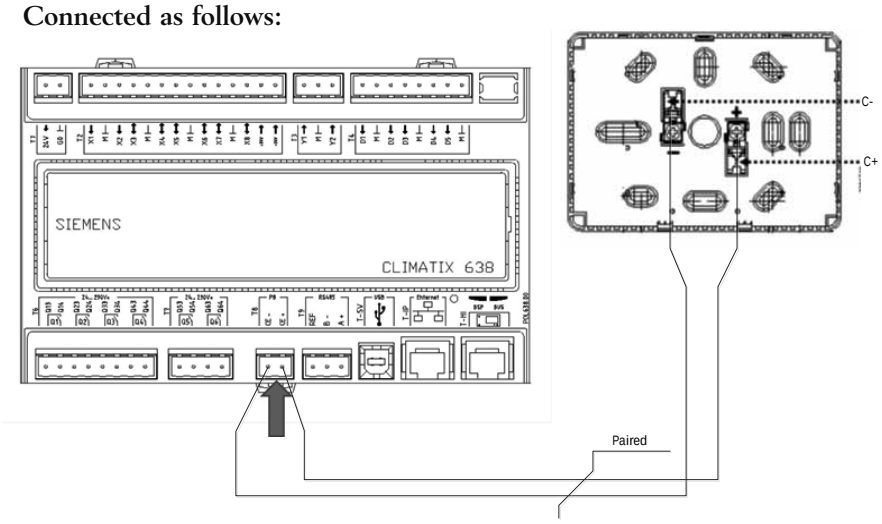
Climatix nr: POL822.60.

It is equipped with the following:

- Connected with 2-wire interface
- Room temperature measurement
- Buttons for setpoint setting of room temperature, presence, fan control, time settings, etc.
- Display for room temperature, operating mode, presence, time, fan stage and day of week
- 2-wire interface to controller by use of Climatix process bus (KNX)
- Adjustable start-up and regulator parameters
- Semi-recessed mounting; can be mounted on most types of recessed junction boxes
- Programmable schedule

Connected directly on Climatix controller. 2-wire interface, supply voltage and data in the same line.
+ Device supply voltage, data (positive)
- Device supply voltage, data (negative)
Connection terminals (screw terminal blocks). Single or multi-wire conductors 0.8–2.5 mm².

Connected as follows:



For activation/configuration:

Parameter name	Area	Select
Main index > Integrations > Room unit		
Room unit	None /… / 1 unit / ….	1 unit

For other settings, see separate user manual for room unit.

Room unit 2-wire CX-600..... Art.no 995010018

EXTERNAL HMI-DM (IP31)

An external HMI is available as an accessory for the CLIMATIX system.
HMI-DM is designed for applications where an extra HMI is needed, or for monitoring multiple HERU®CX units from one HMI.

Example:

- Monitoring is conducted from utility/control room and HERU®CX is located in another location in the property.
- Monitoring is conducted from utility/control room and several HERU®CX units are located somewhere else on the property. Select in HMI-DM which of the units will be connected and full monitoring can be performed.

POL 985.50/STD

It is equipped with the following:

- 8 row display with blue or white background (adjustable), resolution 96 x 208.
- Push knob for simple operation.
  Corresponds to buttons, UP▲, DOWN▼ and ENTER √, on the HMI for HERU®CX.
- Alarm button with LED.
- Info button.

Connection via 2-wire interface to the controller, Climatix process bus (KNX); supply voltage and data in the same line.
+ Device supply voltage, data (positive)
- Device supply voltage, data (negative)
Connection terminals (screw terminal blocks). Single or multi-wire conductors 0.8–2.5 mm².

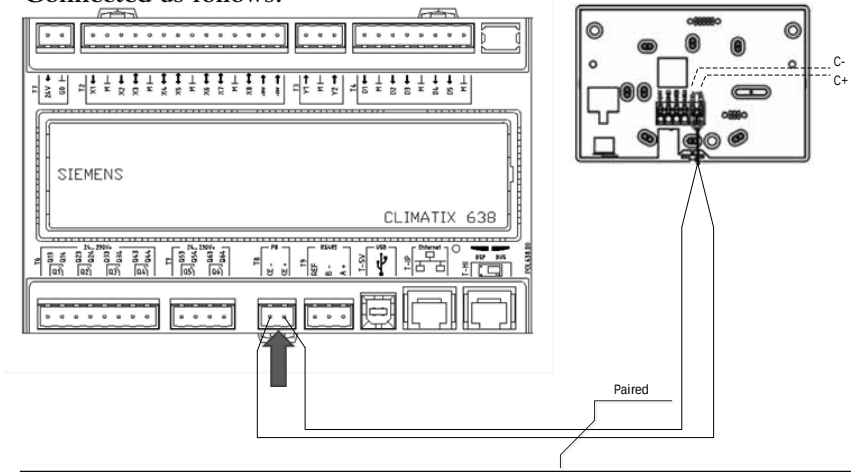
Important!

Before connecting via twisted pair cable, the supplied RJ45 "data cable" must be used and connected in the regular HMI connection marked T-HI.
Wait while the software/settings are updated.
When the menu, similar to the HMI-TM, is visible in HMI-DM, you can disconnect the RJ45 connection. Reconnect the HMI-TM in its contact on the PROC1, marked T-HI.

Then connect the display via BUS connection PB, contact T8.

- **CE+ to CE+**
- **CE- to CE-**

Connected as follows:



Climatix HMI-DM Display IP31	Art.no 994020653

10. Modbus pressure sensor for pressure regulation

Important!

For versions ≥ V2.4X it is possible to use pressure sensors that communicate via Modbus.
If pressure sensors that communicate via Modbus master are used, these are connected via the Modbus RTU/RS485 connection. It will then no longer be possible to use the built-in Modbus RTU/slave for BMS, but you can still use Modbus TCP/IP to connect to BMS.
If the property's BMS requires Modbus RTU you can use an external communication module for Modbus RTU. See chapter 12.7.

10.1 DESIGNATIONS AND MEASURING RANGES OF THE PRESSURE SENSORS, GP1, GP2

This model does not need any extra expansion module, and therefore does not require multiple I/O's. . The signal for each pressure transmitter goes via data bus communication.
Pressure sensors used is QBM68.

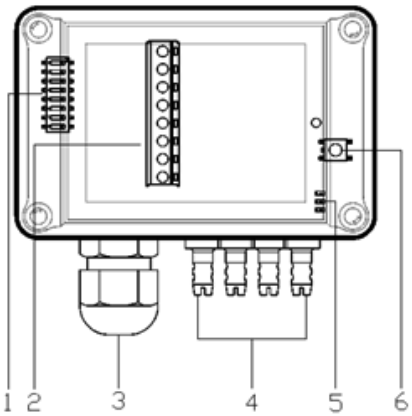
These pressure sensors are available with pressure ranges 1250 Pa or 2500 Pa.
QBM68 is also available for double sensors in a unit (enclosure), with the first sensor marked P1 and the second sensor marked P2.

The following variants are possible:

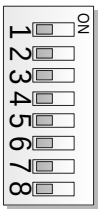
Designation	P1 pressure range	P2 pressure range	Modbus/0–10V signal
QBM68.1200	0-1250Pa	---	Yes/Yes
QBM68.1212	0-1250Pa	0-1250Pa	Yes/Yes
QBM68.2500	0-2500Pa	---	Yes/Yes
QBM68.2512	0-2500Pa	0-1250Pa	Yes/Yes
QBM68.2525	0-2500Pa	0-2500Pa	Yes/Yes

PRESSURE SENSOR QBM68

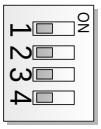
10.2 SETTINGS AND CONNECTIONS



1. DIP switch for selecting the measuring range
2. Terminal block used for all connections
3. Cable gland entry M16 (without cable strain relief)
4. Connection nipples (see "Mounting notes")
5. Status LEDs
6. Push-button for zero-point calibration and configuration



A



B

10.3 ASSEMBLY

To obtain the desired IP rating, the differential pressure sensor must be mounted vertically (connection fittings downward). The connection fittings must also be located higher than the measuring tube at the air duct.

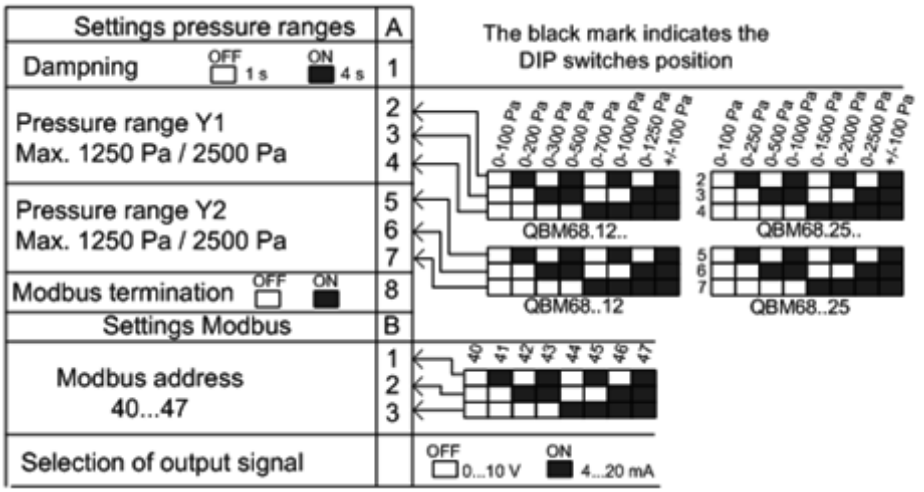
Important!

When the connection fittings are pointed upward, or if these are lower than the measuring tubes, condensation water can be collected in the sensor and cause damage.

PRESSURE REGULATION, ADDRESSING OF PRESSURE SENSOR

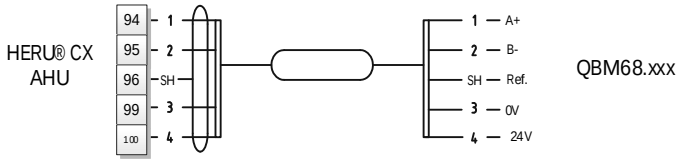
When using Modbus signal for pressure sensors, the pressure range does not need to be adjusted. Modbus handles this via the data signal. The measuring range is only used when the 0-10 V signal is used.

			Description I/O designation		
Type of function	**Pressure sensor unit**	**I/O type**	**Pxxx**	**x40x**	**xxx1**
Supply air pressure, GP1	QBM68.2525	P401	Pressure	MB address 40	1=P1
Extract air pressure, GP2	QBM68.2525	P402	Pressure	MB address 40	2=P2



See previous image regarding to A setting pressure range & B settings Modbus.

Connected as follows:



For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	No
Fan regulation type	Fixed frequency, pressure regulation, flow regulation, supply air slave, extract air slave (Direct, Direct FO not applicable to HERU® CX)	Select Pressure regulation
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Pressure/ Flow		
Supply air pressure	Pos: Factor: Area: Com 500 Pa* Type: P401	Select type: P401
Extract air pressure	Pos: Factor: Area: Com 500 Pa* Type: P402	Select type: P402
Restart	√, Execute	Execute

*The pressure sensor's max measuring range (500 Pa) is only active at 0-10 V signals from the pressure sensor. With Modbus, this value is not active, i.e. the measuring value is automatically sent via Modbus.

Note!

The modbuster termination must be switched on when using pressure sensors that are not controlled via 0-10V.

Pressure sensor Climatix MB with 10 m cable.....Art.no 995010040

995010040 contains a QBM68.2525, which contains two sensors, P1 & P2, which are used for pressure regulation. Depending on which address you give the sensor, it will be used for the relevant function, provided that the function is enabled during configuration.

ROTARY HEAT EXCHANGER CONTROL UNIT

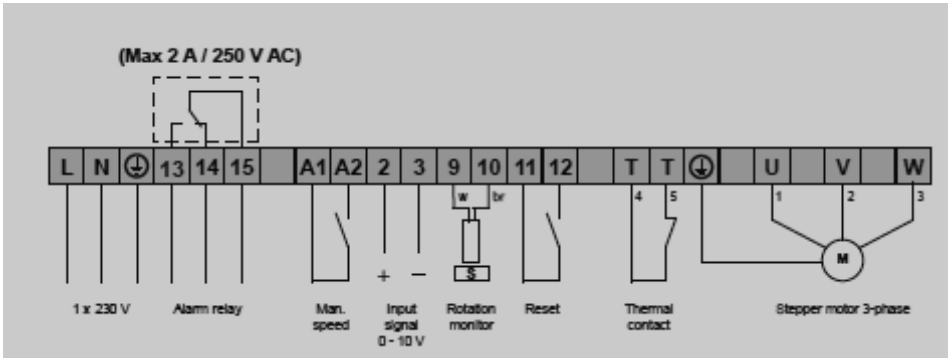
11.1 STEP MOTOR VARIMAX

The rotor is powered by a step motor with automatic restart and alarm reset in the event of power failure. The unit has an integrated blow-off function as standard. When the rotor is stationary, a holding torque is activated, which ensures that the rotor actually remains stationary.
The control unit is equipped with a rotation monitor that emits an alarm if e.g. the belt becomes dislodged. A built-in input signal offset provides an efficiency proportional to the input signal.

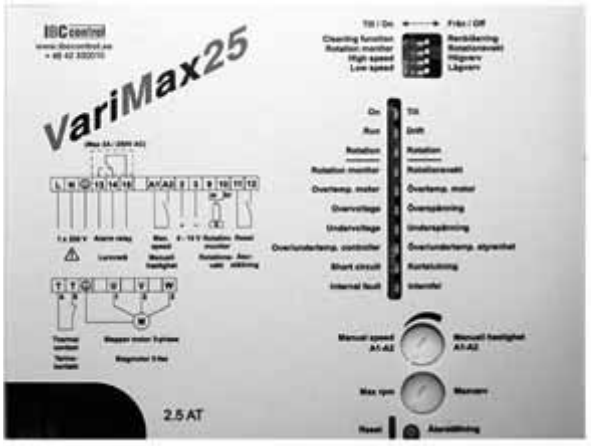
Two LED lights indicate operation.
The alarm is triggered for the following reasons:

- Rotation monitor
- Motor temperature
- Overvoltage
- Undervoltage
- Over/under temperature, control unit
- Short circuit
- Internal fault

Connection diagram:



Functions:



← DIP switches ON to the left

← Operational indications

← Alarm indications

← Adjustments

← Push buttom for Reset

Operation indication in the control unit:

On/alarm	"Voltage on" will glow steadily. Flashes when the control unit has been tripped.
Operation	Illuminates when the motor will rotate, i.e. when the input signal exceeds the threshold value
Rotation	Flashes every time the magnet passes the magnet sensor, regardless the setting of the DIP switch "Rotation monitor". Also flashes if the input signal is lower than the threshold value.

Troubleshooting, alarm:

Observation indication	Cause/action
Check that the DIP switches are correctly set	DIP switch "ON" to the left.
No LED illuminates	Check that 230 VAC ±10% is on the mains terminal. If the mains voltage is correct, replace the control unit.
Rotation alarm	• Belt broken • Belt dislodged • Rotor stuck • Magnet sensor or magnet not intact
Overvoltage	The feed voltage is above 265 V. Ensure correct voltage to the unit.
Undervoltage	The feed voltage is below 190 V. Ensure correct voltage to the unit.
Over/under temperature	The temperature in the control unit is above +85°C or below -30°C.
Short circuit	• Short circuit between phases in cable or motor • Earth fault between phase-earth in cable or motor • Interrupt in one phase in cable or motor (measure motor resistance, should be the same on all windings)
Internal fault	Internal control fault has occurred.
The motor is difficult to start-up, weak	Check that the phase order is correct according to the wiring diagram.

TIME SWITCH PROGRAM

GENERAL

11.2

This section describes functions and settings for time switch programs and calendars.

When no object with higher priority (for example Manual mode <> Auto) is enabled, the unit can be switched off or the stage changed (stage1...3) via the time switch program. Up to six switching times can be specified for each day of the week.
Calendar stop overrides calendar exception, which in turn overrides the normal time switch program (only in operating mode). Up to 10 periods or exception days can be specified for each calendar.

Note!

Time switch program.funct. = Stage+Temp: Setpoints for both fan stage and temperature (comfort/economy) are controlled by the time switch program.

WEEK SCHEDULE

11.3

Main index > Unit > Operating functions > Time switch program > Schedule

Parameter	Value	Function
Current value	–	Switch over according to schedule.
Monday		Shows current command when the current day is Monday. The latest time that can be entered for a day is 23:59. Go to the daily switching schedule for Mondays.
Copy schedule	– Mon. to – Tue–Fri	Copy times for the time switch program from Monday to Tuesday-Friday. – Passive (no copying). – Copying starts. Returning to the display screen.
Tuesday		Same functions as for Monday.
Sunday		Same functions as for Monday.
Exception		Shows current command when the current day is an exception day. Go to daily switching schedule for exception days.
Period: Start		(Only authority level 2.) Start date for week schedule. *,* *.00 means that the week schedule is always enabled. --> Activate week schedule.
Period: End		(Only authority level 2.) Start date and start time for inactivating week schedule.

DAY SCHEDULE

11.4

Main index > Unit > Operating functions > Time switch program > Schedule

Parameter	Value	Function
Current value	–	Switching according to schedule when current day of the week is the same as the switching day.
Day schedule	– Passive – Active	Status for current week or exception day: – Current day of the week (system day) is not the same as switching day. – Current day of the week (system day) is the same as switching day.
Time-1		Special case: This time may not be changed; it must always be 00:00.
Value-1		Switching command for Time-1.
Time-2		Switching time 2. *: * ---> Time disabled.
Value-2...Value-6		Analogue value 1.
Time-3 ... Time-6		Analogue time 2.

11.5 CALENDAR (exception and stop)

Exception days can be defined in the calendar. These may include specific days, periods or days of the week. Exception days override the weekly schedule.

Calendar exceptions:
Switching follows the weekly schedule and the exceptions specified in the daily schedule when a switching time is enabled in the Calendar exception.

Calendar stop:
The unit is switched off when the Calendar stop is enabled.

- **Main index > Unit > Main overview > Time switch program > Calendar exceptions**
- **Main index > Unit > Main overview > Time switch program > Calendar stop**

Parameter	Value	Function
Current value	– Passive – Active	Shows if a calendar time is enabled: – No calendar time enabled. – Calendar time enabled.
Choice-x	– Date – Interval – Weekday – Passive	Specification of exception type: – A certain day (e.g. Friday). – A period (e.g. holiday). – A certain day of the week. – Times are disabled. This value must always be placed last, after the date.
– (Start) Date		– Choice-x = interval: Enter the start date for the period. – (Choice-x = date: Enter specific date.)
– End date		Choice-x = interval: Enter the end date for the period. The end date must be later than the start date.
– Weekday		Choice-x = only day of the week: Enter a day of the week.

Example: Choice-x = Date
Only the time for (start) is relevant.

- – (Start)Date = *,01.01.09
  Result: 1 January 2009 is an exception date.
- – (Start)Date = Mon,*.*.00
  Every Monday is an exception date.
- – (Start)Date = *,*.Jämn.00
  All days in even months (February, April, June, etc) are exception days.

Example: Choice-1 = Interval
The times for (Start)Date and End Date are applied.

- – (Start)Date = *,23.06.09 / –End Date = *,12.07.09
  23 June 2009 to 12 July 2009 are exception days (holidays, for example).
  – (Start)Date = *,23.12.00 / –End Date = *,31.12.00
  23–31 December is an exception period every year. Time End Date = *,01.01.00 does not work, because 1 January comes before 23 December.
- – (Start)Date = *,23.12.09 / –End Date = *,01.01.10
  23 December 2009 to 1 January 2010 are exception days.
- – (Start)Date = *,*.*.00 / –End Date = *,*.*.00
  Warning! This means that the exception is always active!
  The unit is constantly in exception mode or switched off.

Example: Choice-1 = Day of the week
The times for days of the week are applied.

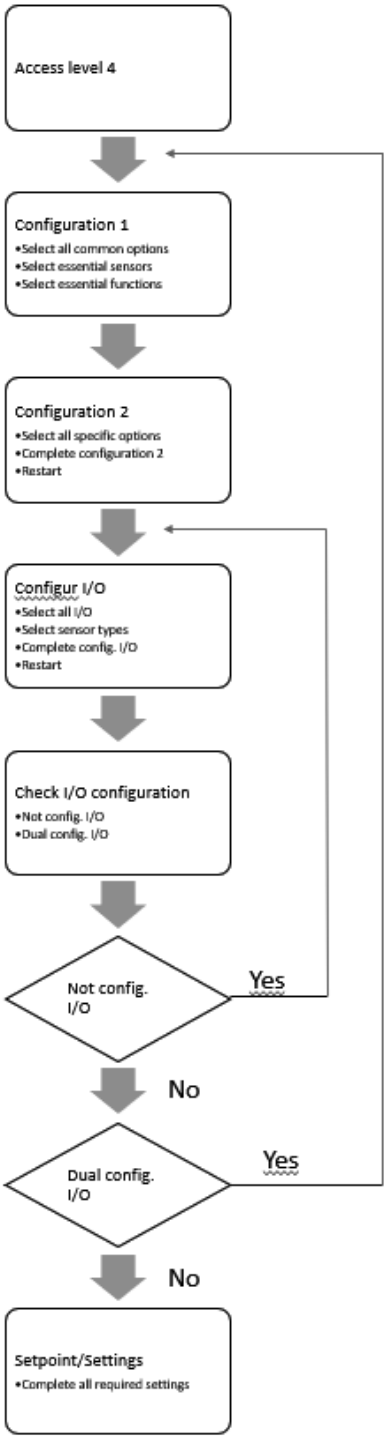
- Day of the week = *Fr.*
  Every Friday is an exception day.
- Day of the week = *,Fr, Jämn
  Every Friday in even months (February, April, June, etc) is an exception day.
- Day of the week = *,*,*
  Warning! This means that the exception is always active!
  The unit is constantly in exception mode or switched off.

CONFIGURATION

The unit is configured according to preferences.
Configuration includes the following three steps:

- Configuration 1
- Configuration 2
- Configuration with inputs and outputs

Execute these three steps in this order:



Preparations:

1. Select *Start page > Log in --->*
2. Enter the password for level 4: 2000.
3. Change language if needed. *Main index > System overview > Language selection*
4. Select *Main index > Configuration --->*
5. Start *Configuration 1…. Connect with Restart*
6. Continue with *Configuration 2…. Connect with Restart*

If no ALARM: Unconfigured I/O's or Double-configured IO's will come up at start-up.
When Configuration 2 is finished, the unit can start-up and commissioned.
If ALARM: Unconfigured I/O's or Double-configured I/O's come up, see chapter 11.1.

11.7 GENERAL

Different forms of communication are available, depending on controller and on what external communication modules are connected.

Type of controller	Included in HERU®CX	Accessory
Modbus RTU via RS485 *	X	---
Modbus TCP/IP	X	---
Simple web in text form (same as in HMI)	X	---
Modbus RTU	–	POL902.00/STD
BACnet IP	–	POL908.00/STD
LON	–	POL906.00/STD
OPC (does not require any hardware)	–	OPC-Licens
AWM (Advanced Web Module)	–	POL909.50/STD

** Modbus RTU may be unavailable when GP/GF sensors are connected via Modbus Master.*
If BMS wants to connect via RTU, external communication module POL902.00/STD must be used.

Main index > System overview > Communications

Parameter	Value	Function
Comm.module overview	–	Go to the parameter settings page for all external communication modules.
Process bus	– OK – xxx Not OK	–Go to the parameter settings page for the process bus (for control panel and room unit).
TCP/IP	xxx.xxx.xxx.xxx	Address of controller on the bus. Name of controller on the bus. Go to the parameter settings page for integrated TCP/IP connection (see HMI).
Modbus	–	Go to the parameter settings page for internal MODBUS.
Modem	–	Go to the parameter settings page for modem connection.
SMS	–	Go to the parameter settings page for SMS function via modem.
IO expansion bus	–	Go to overview page for I/O expansion bus.
Web language	– English – Swedish – German	Language for Advanced Web Module.

Climatix-600 Modbus RTU, 2x output comm.-module POL902.00/STD..... Art.no 994020651
Climatix-600 BACnet IP comm.-module POL908.00/STD..... Art.no 994020649
Climatix-600 LON comm.-module POL906.00/STD..... Art.no 994020650
Climatix-600 OPC-licens ..... Art.no 994020785
Climatix-600 AWM Web comm.-module POL909.50/STD ..... Art.no 994020648

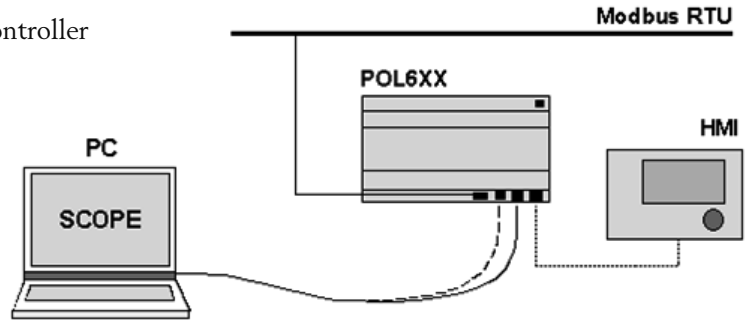
For more information about external communication modules, see separate document, Climatix Basic Documentation.

MODBUS 11.8

A MODBUS interface is always available in the controller, RS485 or TCP/IP can be selected.

INITIATION OF INTERNAL MODBUS INTERFACE: 11.9

Included units
– Climatix POL 6xx controller



Prerequisites for initiation:

- Functional application (for example, standard application for air handling system) read and started in the Climatix controller.

Name	Type	Description
Communication module	POL902.00/STD	External Modbus module 2 Modbus slave outputs (RTU/RS485)
Internal Modbus RTU	PROC1 Climatix POL63x.00/STD	Internal Modbus Master, used for Pressure sensor or Internal Modbus Slave Used for BMS (if Pressure sensor is not used).
Internal Modbus TCP/IP	PROC1 Climatix POL63x.00/STD	Internal Modbus Slave via RJ45/Ethernet connection labelled T-IP

** Modbus RTU may be unavailable when GP/GF sensors are connected via Modbus Master.*
If BMS wants to connect via RTU, an external communication module POL902.00/STD must be used.

Main index > System overview > Communications > Modbus

Parameter	Value	Function
Communication	– OK – Alarm	– Status for Modbus communication.
Internal	– None – Master – Slave	– Internal interface disabled. – Master, used for Modbus pressure sensor. – Internal interface as slave, designed for communication to BMS.
Internal slave adr.	0…247	Address of controller on the bus.
Internal settings		
RS485	–	Go to parameter page for RS485 settings.
TCP/IP	–	Go to parameter page for TCP/IP settings.
Module 1 Modbus	–	Go to page for Modbus module settings.
Module 2 Modbus	–	Go to parameter page for Modbus module settings.
Module 3 Modbus	–	Go to parameter page for Modbus module settings.

Main index > System overview > Communications > Modbus > RS485

Parameter	Value	Function
Baud rate	– 2400 – 4800 – 9600 ←DEFAULT – 19200 – 38400	Bus transfer speed. All units must have the same setting.
Parity	– Even – Uneven – None ←DEFAULT	Parity.. All units must have the same setting.
Stop bit	– One ←DEFAULT – Two	Number of stop bits. All units must have the same setting.
Delay time	– 0…2147483647 [ms] – O mS ←DEFAULT	– Delay of response time to master.
Response timeout	– 0…2147483647 [ms] – O mS ←DEFAULT	Setting of max response time for master. Information must be read within this time; otherwise an alarm will be triggered.
Termination	– Passive ←DEFAULT – Active	Internal bus connection for controller: – No bus connection resistance. – With bus connection resistance.
Restart	– ✓ – Execute	The controller must be restarted after changes are made in order for the new settings to apply.

Detailed information about the MODBUS interface (transfer data, initiation, function) is available in the document CB1P3934.

Note!

Main index > System overview > Communications > Modbus > TCP/IP
Main index > System overview > Communications > TCP/IP > Change set

Parameter	Value	Function
DHCP	– Passive – Active ←DEFAULT	– Fixed IP address (must be entered). – Automatic address assigned via DHCP server.
IP	192.168.001.099	IP address on the BUS.
Subnet Mask	255.255.255.000	Subnet mask on the BUS.
Gateway	192.168.001.001	Gateway
Restart required!!	– ✓ – Execute	– The controller unit must be restarted after changing the settings to adopt the data.
Username	–	Enter username on the network.
Password	–	Enter password on the network.

CHECKING IO CONFIGURATION

Diagnostics table for checking inputs and outputs.

11.10 UNCONFIGURED IO'S

Inputs and outputs that have not been configured, cannot be represented in plain text, but only as a number. See the tables on the following pages.
1st unconfigured IO no. = 82 => External control input 2 is not allocated to any input (Select output under Config. IOs).

Checking IO config.	
Not Config.IO	Yes
1st unconfig.IO no.	82
Double config.IO	No
Double config.IO	0
Double config.IO pos	0

Warning!

There must be no IO's that are not connected to an input/output, otherwise the system will remain locked and cannot be started!

11.11 DOUBLE CONFIGURED IO'S

Inputs and outputs that have not been configured, cannot be represented in plain text, but only as a number. See the tables on the following pages.
Double config. IO = Yes
Double config. IO = 82 & 81
Double config. IO pos = DI3
External control input 1 and 2 allocated the same output, DI3.

Checking IO config.	
Not Config.IO	No
1st unconfig.IO no.	0
Double config.IO	Yes
Double config.IO	82 81
Double config.IO pos	DI3

Warning!

There must be no IO's that are duplicated to one and the same input/output, otherwise the system will remain locked and cannot be started!

Analogue inputs:

Name	Type	Position (IO cont)	Name	Type	Position (IO cont)
Supply air temperature	AI	1	Temperature, aux-input	AI	12
Room temperature 1	AI	2	Supply air pressure	AI	21
Room temperature 2	AI	3	Extract air pressure	AI	22
Extract air temperature	AI	4	Supply air flow	AI	23
Outside air temperature	AI	5	Extract air flow	AI	24
Freezing temperature	AI	6	Differential pressure, recovery	AI	25
Temperature, water heat exchanger	AI	7	Supply air humidity	AI	31
Extract air temperature	AI	8	Room air humidity	AI	32
Supply air temperature, heat recovery	AI	9	Outside air humidity	AI	33
Supply air temperature, extra seq.	AI	10	Air quality	AI	35
Freezing temperature, extra heating	AI	11	External set point	AI	36

Digital inputs:

Name	Type	Position (IO-kont)
Freeze thermostat/external freeze protection sensor input	DI	41
Heating pump alarm	DI	42
Return for heating pump	DI	43
Electric heating/overheating alarm	DI	44
Freeze thermostat for recovery	DI	45
Alarm for recovery pump	DI	46
Return for recovery pump	DI	47
Recovery alarm/rotation monitor	DI	48
Cooling pump alarm	DI	49
Cooling pump return	DI	50
Alarm (DX cooling)	DI	51
Return (DX cooling)	DI	52
Humidification pump alarm	DI	53
Humidification pump return	DI	54
Humidification return	DI	55
Freeze thermostat, extra heating	DI	56
Pump alarm, extra heating	DI	57
Pump return, extra heating	DI	58
Alarm, extra elvärme/överhettning	DI	59
Pump alarm, extra cooling	DI	60
Pump return, extra cooling	DI	61
Alarm for extra DX cooling	DI	62

Name	Type	Position (IO-kont)
Return for extra DX cooling	DI	63
Fan alarm	DI	64
Supply air fan alarm	DI	65
Supply air fan return (com-bined)	DI	66
Extract air fan alarm	DI	67
Extract air fan return	DI	68
Filter alarm	DI	69
Alarm for supply air filter	DI	70
Alarm for extract air filter	DI	71
Fire/smoke alarm	DI	72
Supply air damper return (combined)	DI	73
Extract air damper return	DI	74
Fire damper return (open)	DI	75
Fire damper return (closed/ combined)	DI	76
AUX alarm input	DI	77
External control 1 (e.g. timer)	DI	81
External control 2	DI	82
Emergency stop	DI	83
Summer/winter changeover	DI	84
Aux-input	DI	85
Acknowledgement/reset of alarm	DI	86

Analogue outputs:

Name	Type	Position (IO-kont)
Frequency regulated supply air fan	AO	91
Frequency regulated extract air fan	AO	92
Electric heating	AO	95
Heating valve	AO	96
Mixing damper	AO	97
Recovery	AO	98

Name	Type	Position (IO-kont)
Cooling valve	AO	99
Extra electric heat	AO	100
Valve for extra heating	AO	101
Valve for extra cooling	AO	102
AUX output	AO	111
Humidification	AO	116

Digital outputs:

Name	Type	Position (IO-kont)
Supply air damper (com-bined)	DO	131
Extract air damper	DO	132
Fire damper	DO	133
Output 1 for supply air fan	DO	136
Output 2 for supply air fan	DO	137
Output 3 for supply air fan	DO	138
Output 1 for extract air fan	DO	139
Output 2 for extract air fan	DO	140
Output 3 for extract air fan	DO	141
Output 1 for electric heat-ing	DO	145
Output 2 for electric heat-ing	DO	146
Heat pump	DO	147
Pump/control, recovery	DO	148
Cooling pump	DO	149

Name	Type	Position (IO-kont)
Output 1 for DX cooling	DO	150
Output 2 for DX cooling	DO	151
Output 1 for extra elec-tric heating	DO	152
Output 2 for extra elec-tric heating	DO	153
Pump for extra heating	DO	154
Pump for extra cooling	DO	155
Output 1 for extra DX cooling	DO	156
Output 2 for extra DX cooling	DO	157
AUX time switch pro-gram	DO	165
AUX operating mode indicator	DO	166
Output for priority alarm (A / A+B)	DO	168
Output for non-priority alarm (B)	DO	169
Humidification	DO	171
Humidification pump	DO	172

11.12 HERU®CX I/O CONFIGURATION

Controller 1:

Physical positioning for controller POL683x

IO	Function	IO type	Connection	Comments
Digitala outputs				
DO1	Outside air damper	Digital	T6 (Q13,Q14)	ST1/ST2
DO2	Pump Heating, Electric heating command (stage-1)	Digital	T6 (Q23,Q24)	CP1, EHC
DO3	Pump cooling, HCP start heating	Digital	T6 (Q33,Q34)	CP2, DX-CHP
DO4	Common alarm A+B, alarm A	Digital	T6 (Q43,Q44)	
DO5	Alarm B	Digital	T7 (Q53,Q54)	
DO6	AUX operating mode indication	Digital	T7 (Q63,Q64)	
Analogue outputs				
AO1	Supply air signal 0-10 V DC	0...10 V DC	T3 (Y1,M)	TF-EC
AO2	Extract air signal 0-10 V DC	0...10 V DC	T3 (Y2,M)	FF-EC
Binary inputs				
DI1	Alarm fans (common alarm Sup-ply+Extract)	Digital	T4 (D1,M)	TF-EC+FF-EC
DI2	Alarm HRW recovery	Digital	T4 (D2,M)	EMS
DI3	External control input 1 (Timer input), presence detector	Digital	T4 (D3,M)	TM1, GN1
DI4	External control input 2, Alarm filter, Quick stop	Digital	T4 (D4,M)	TM2, GP3/GP4
DI5	Alarm fire/smoke	Digital	T4 (D5,M)	
Universal inputs				
X1	Supply air temperature	NI1KLG	T2 (X1,M)	GT1
X2	Extract air temperature, room temperature	NI1KLG	T2 (X2,M)	GT2, GTR
Universal inputs/outputs				
X3	Outside temperature	NI1KLG	T2 (X3,M)	GT3
X4	Freeze protection sensor, Alarm electric heater/ overheating	NI1KLG	T2 (X4,M)	GT8, GT9 (GT9-A/ GT9-M)
X5	Exhaust air temperature, min limit recovery	NI1KLG	T2 (X5,M)	GT42
X6	Recovery signal	AO 0… 10 V DC	T2 (X6,M)	EMS
X7	Heating valve signal, electric heater signal	AO 0… 10 V DC	T2 (X7,M)	SV1
X8	Cooling valve signal, cooling unit signal, signal HCP	AO 0… 10 V DC	T2 (X8,M)	SV2, KM1, HCP

Expansion module 1:

Physical positioning expansion module POL955 with address 1

IO	Function	IO type	Connection	Comments
Digital outputs				
DO11	Cooling unit 1-stage, DX stage-1	Digital	T3 (Q13,Q14)	KM1, DX-1
DO12	DX stage-2	Digital	T3 (Q23,Q24)	DX-2
DO13	Indication supply air stage 2	Digital	T3 (Q33,Q34)	Supply air Stage-2 Ind
DO14	Indication supply air stage 3	Digital	T4 (Q43,Q44)	Supply air Stage-3 Ind
Analogue outputs				
AO11	Back-up	0...10 V DC	T5 (Y1,M)	
AO12	Back-up	0...10 V DC	T5 (Y2,M)	
Universal inputs/outputs				
X11	Supply air pressure (GP1)	AI 0… 10 V DC	T1 (X1,M)	GP1
X12	Extract air pressure (GP2)	AI 0… 10 V DC	T1 (X2,M)	GP2
X13	Supply air flow (GF1)	AI 0… 10 V DC	T1 (X3,M)	GF1
X14	Extract air flow (GF2)	AI 0… 10 V DC	T1 (X4,M)	GF2
X15	CO2 (GQ1), Humidity sensor room (GM1), Ext. setp. 0-10V (TU1)	AI 0… 10 V DC	T2 (X5,M)	GQ1, GM, TU1
X16	Alarm/return Cooling pump/DX/KM	Digital Input	T2 (X6,M)	
X17	Alarm/return Heating pump	Digital Input	T2 (X7,M)	
X18	DI summer/winter switch	Digital Input	T2 (X8,M)	

Note 1) **DX-CHP** = DX- Cooling & Heating Pump

11.13 HERU® ADDRESS LIST MODBUS MASTER

			Description I/O designation		
Type of function	**Pressure sensor unit**	**I/O type**	**Pxxx**	**x40x**	**xxx1**
Supply air flow, GF1	QBM68.2500	P411	Pressure	MB address 41	1=P1
Extract air flow, GF2	QBM68.2500	P421	Pressure	MB address 41	1=P1
Supply air pressure, GP1	QBM68.2525	P401	Pressure	MB address 40	1=P1
Extract air pressure, GP2	QBM68.2525	P402	Pressure	MB adress 40	2=P2

PROGRAM VERSIONS

BSP AND APPLICATION IN THE CONTROLLER 11.14

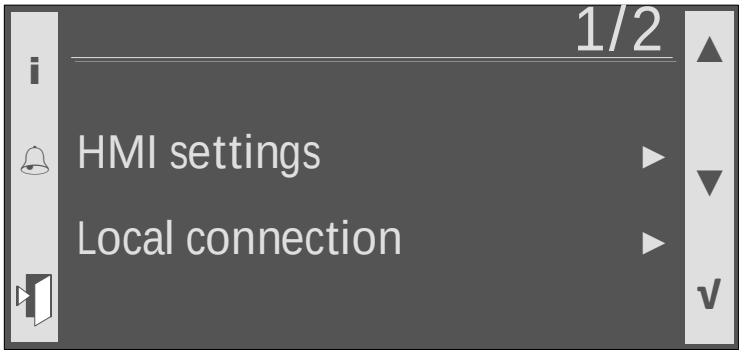
The controller consists of a BSP (like firmware) and application software.
To see the current version number in the controller:
Start page > Main index > System overview > Versions

Parameter	Value	Function
Application info.	– Siemens (or H. Östberg AB) – AHU V2.48 – Date of version	Siemens (or H. Östberg AB)
BSP version	10.26	

BSP IN HMI 11.15

The control panel has its own BSP.
To see the current version number in the HMI unit:

Press ESC on the HMI unit for about 3 seconds; a new menu will appear.



Select HMI settings for info about the BSP version in the HMI unit.
To return to the regular menu, press ESC ; then choose Local connection to get to the Start menu.

ALARM HANDLING

GENERAL 11.16

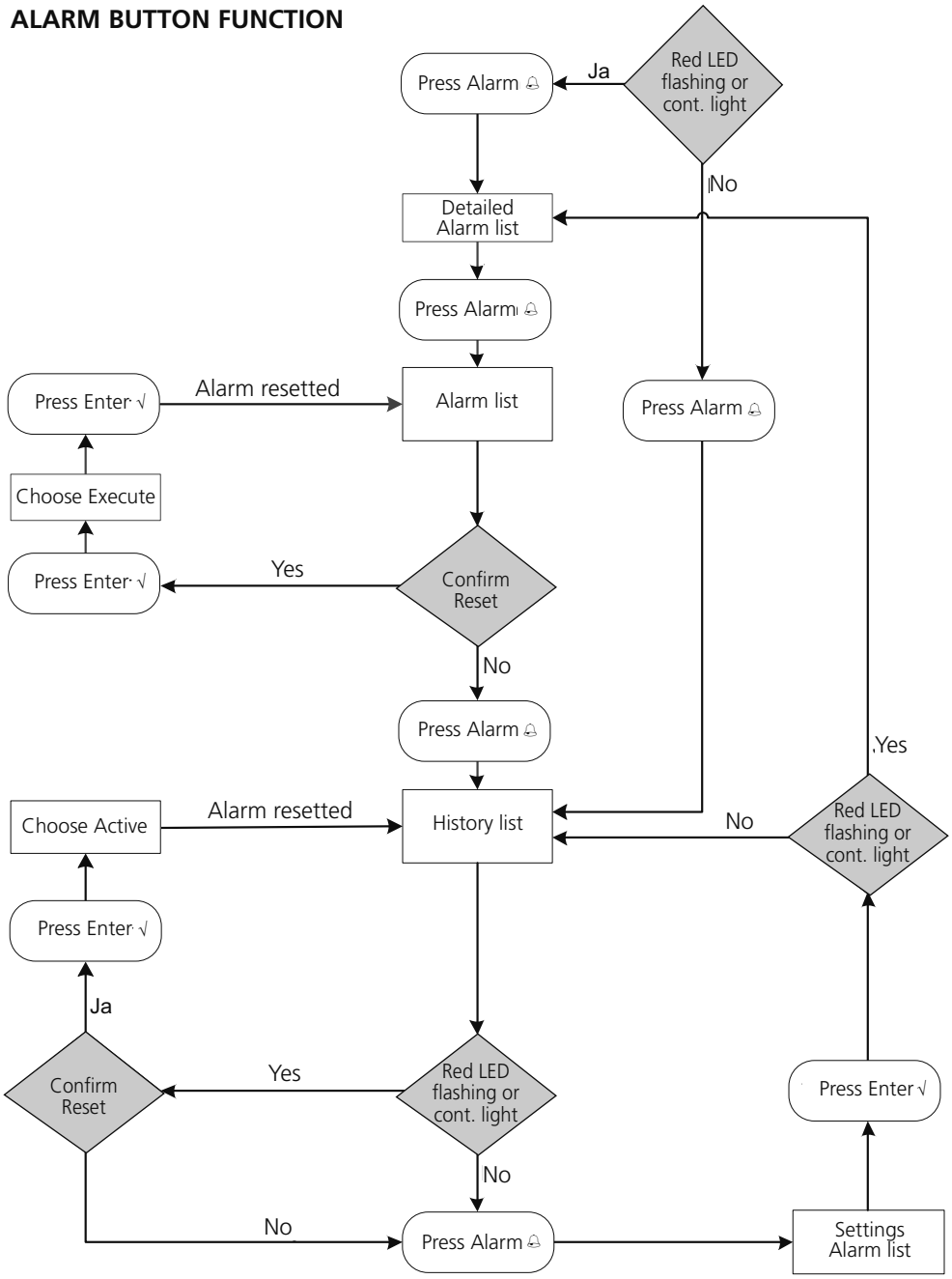
This chapter describes the following functions:

- Alarm.
- Alarm lists
- History lists
- Acknowledged alarms
- Reset alarms

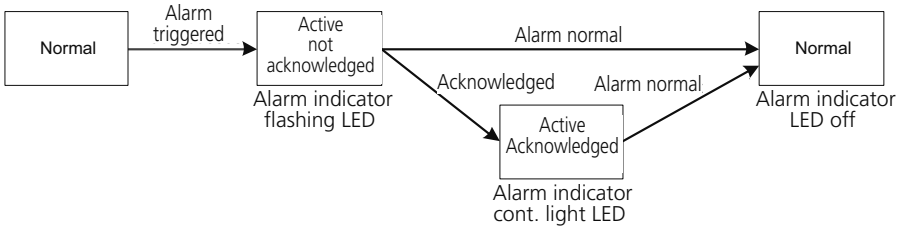
PRINCIPLES 11.17

- Alarm and history lists can hold up to 50 entries.
- Each alarm entry includes description, deviation class, alarm group, date and time.
- Each new alarm generates an entry in the alarm list and in the history list.
- Active alarm:
  – Alarm indicator on the external control panel/room unit flashes.
  – Red LED in the HMI flashes.
- Acknowledged but still active alarm:
  – Alarm indicator on the external control panel/room unit is lit.
  – Red LED in the HMI is lit.
- Reset alarm:
  – Alarm list: alarm entry is deleted.
  – History list: displayed as normal alarm.

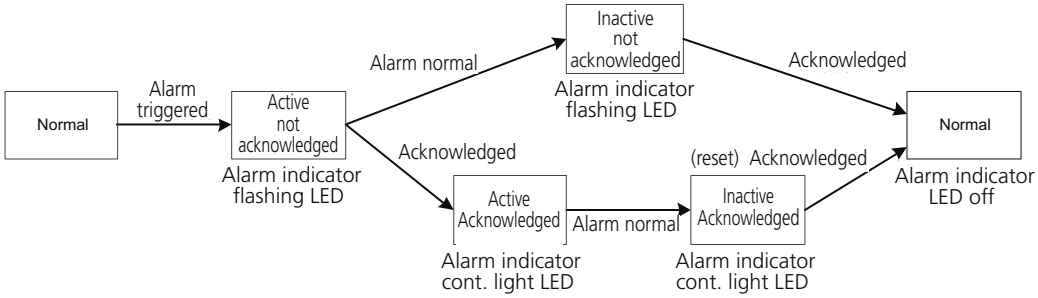
11.18 ALARM BUTTON FUNCTION



11.19 PROCEDURE FOR NON-SAVING ALARMS



11.20 PROCEDURE FOR SAVING ALARMS



ALARM LIST INFORMATION

11.21

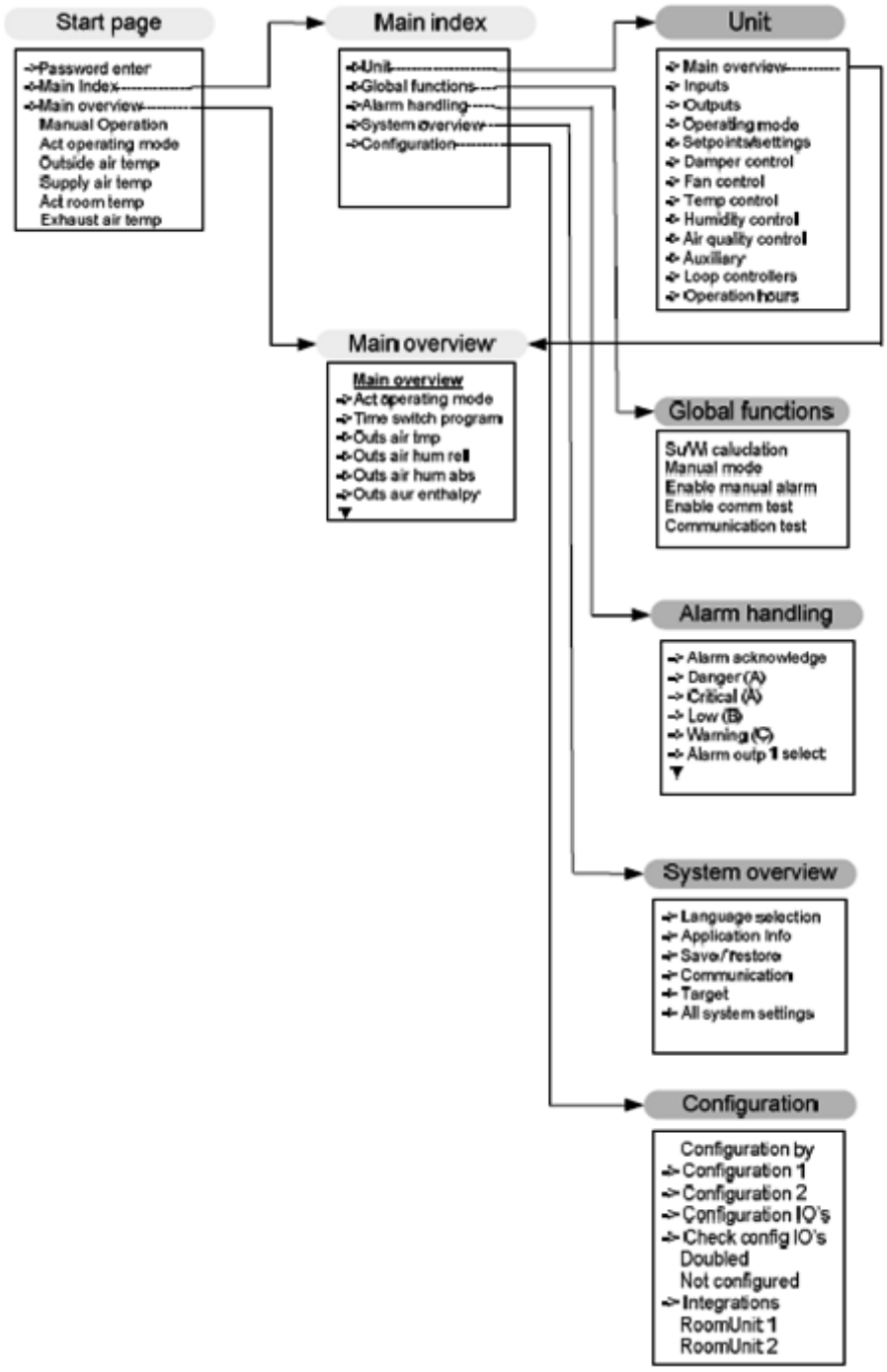
The alarm list contains the following information about the latest alarm:

Row 1	+ Alarm name	Status
Row 2	Input status	Alarm class
Row 3	Date	Time
	Example: *+ Alarm electric heating:* *0* *15.10.2009*	 *Alarm* *High (A)* *21:32*

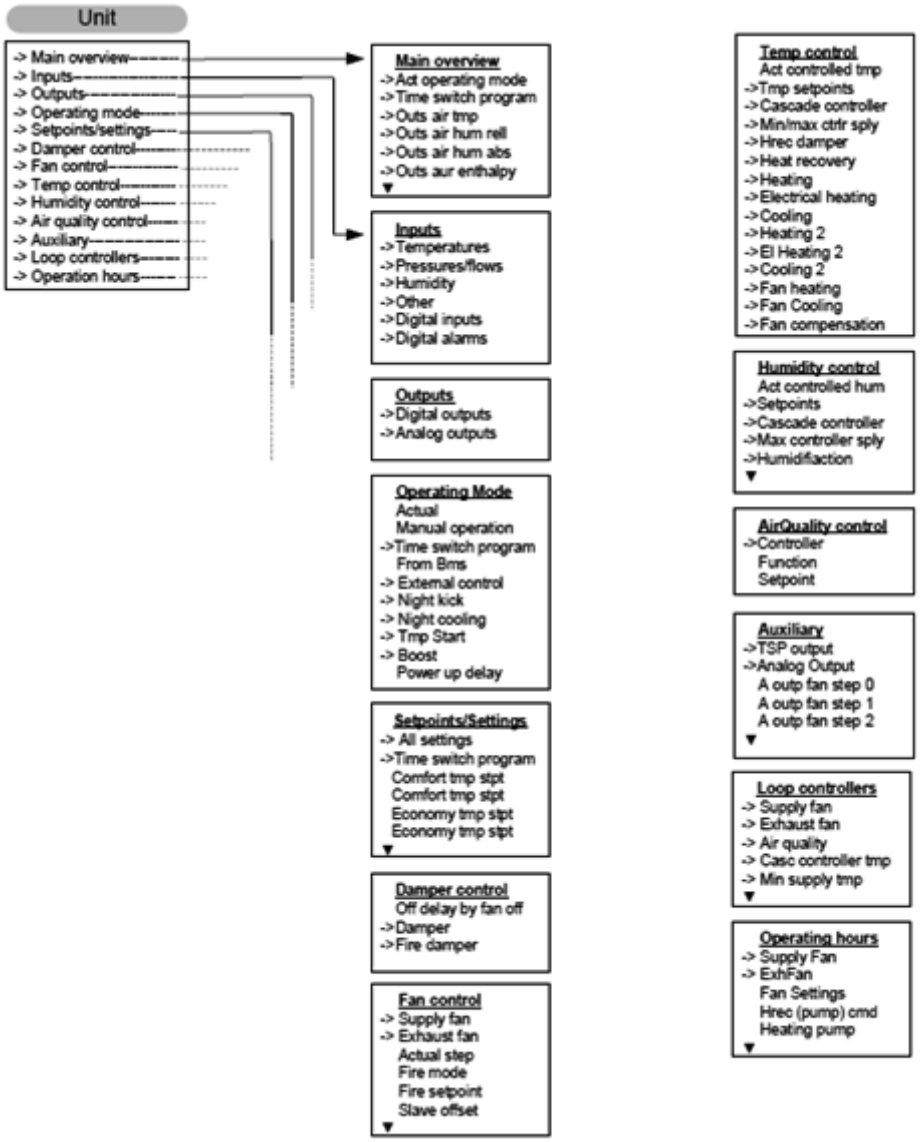
MENU STRUCTURE

MENU OVERVIEW

11.22

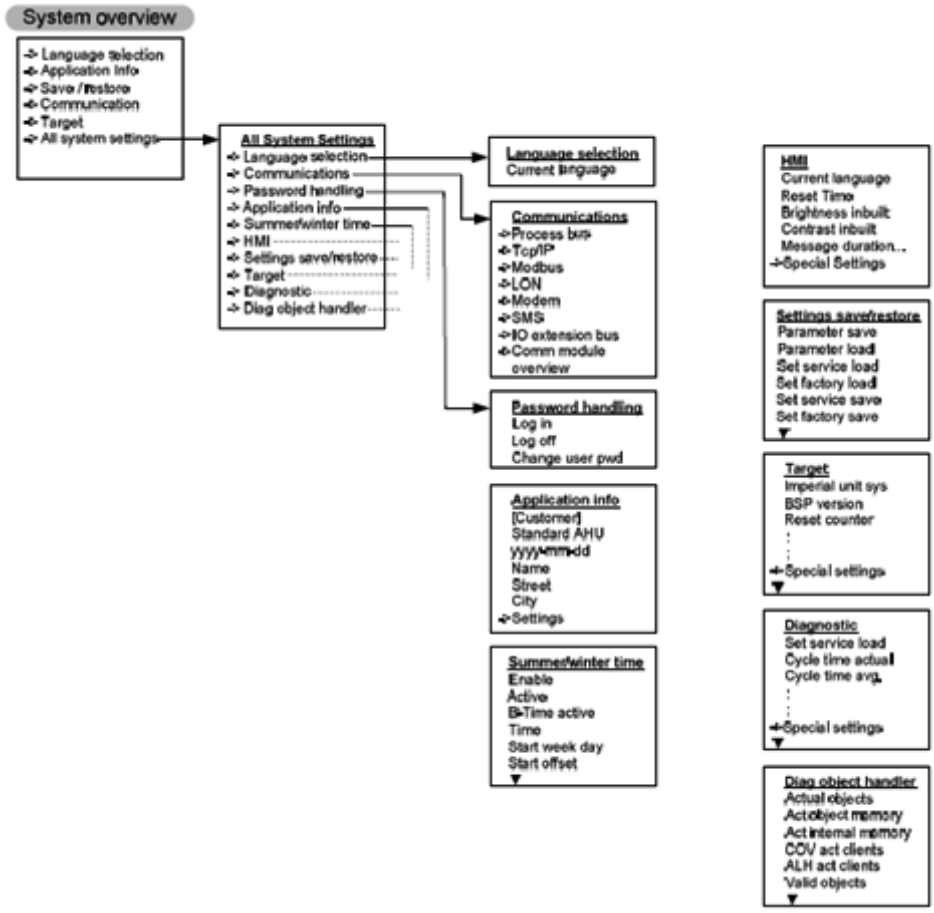


11.23 START PAGE > MAIN INDEX > UNIT



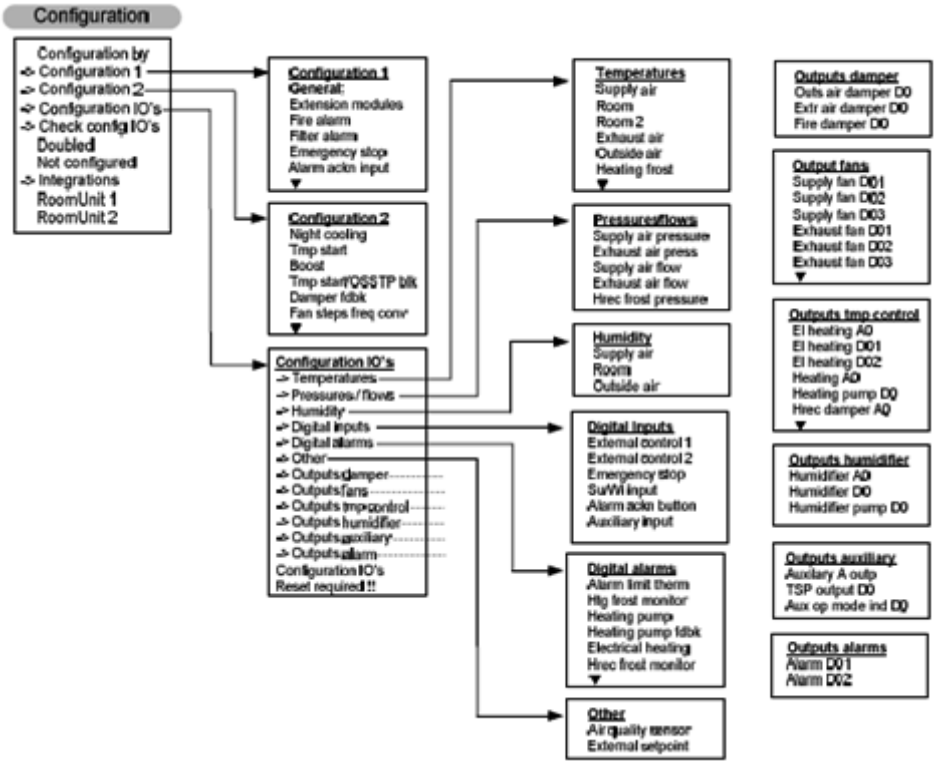
START PAGE > MAIN INDEX > SYSTEM OVERVIEW

11.24



START PAGE > MAIN INDEX > CONFIGURATION

11.25

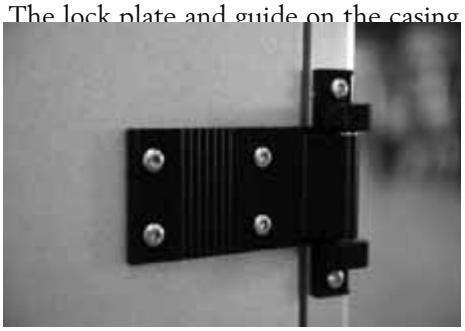


12.1 SERVICE INTERVAL

Component	Comments	Rec. interval	Rec. date/time
Casing		6 months	Before winter
Filter	Rek slutpressu-refall	6 months	Before winter
Rotary heat exchanger		6 months	Before winter
Fans and motors		6 months	Before winter
Water Coil		6 months	Before winter
Electric heater		6 months	Before winter
Control equipment		6 months	Before winter
Sensors, etc.		6 months	Before winter
Accessories, e.g. shunts, silencers, etc.		6 months	Before winter

12.2 SERVICE

The hinges are adjustable.
The lock plate and guide on the casing should be greased every 12 months.



12.3

SPJÄLL

The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
Normally, the function of the damper is to close the airways at the outside and exhaust air ducts when the unit is switched off. It is important for operating and energy reasons that the dampers working properly.

Check:

- Check visually, e.g. through the filter part or another inspection hatch, that the damper completely seals when the unit is switched off using the normal On/Off function. (Not with switch disconnector).
- Make sure the damper opens and closes by starting and stopping the unit.
- Make sure the sealing strips on the damper blades are intact.

Action:

- Adjust the damper blade and actuator until the blade fully seals.
- Check the control equipment to make sure everything is correctly connected.
- Change the sealing strips if needed.

Note!

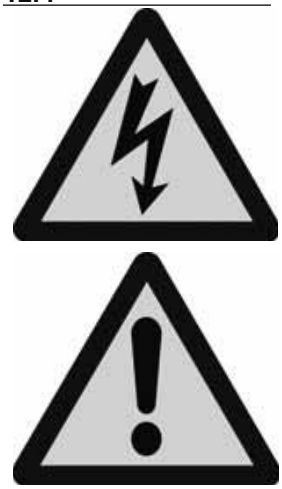
Never drill or screw in the end of the damper where the motor shelf and shaft ends are located!

Rectangular damper

Circular damper

DUCT COOLING COIL

12.4



The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
The air cooler uses water to cool the supply air to the desired outgoing temperature. The cooler consists a number of copper pipes with aluminium slats. For circulation and regulation of the water, the cooler is usually equipped with a shunt group. Condensation usually forms on the cooler, which is therefore fitted with a tray and drainage. A water trap with a check valve should be connected to the drainage.

Check:

- That the front surface of the coil is not dirty.
- That the pump is running and that the water is circulating and has the correct temperature for the season. Make sure the sensor is working.
- That the slats are intact.
- That the coil is not damaged and is not leaking.
- That the drainage tray is free of contamination.
- That the water trap is working and is full of water.
- That the ping-pong ball is not stuck and can float freely.

Action:

- Clean with a vacuum cleaner fitted with a soft brush.
- Adjust the slats with a “slat comb”.
- Turn off the water and empty the system through the coil’s drain valve. Change the coil.
- Clean. If necessary, adjust the coil’s incline toward the condensation pipe.

Duct cooling coil

Water trap

12.5 ELECTRIC HEATER

The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
The function of the electric heater is to heat supply air to the desired outgoing temperature. The heater consists of a number of electric coils (stainless steel) for 3 x 230 V and 3 x 400 V. The electric heater is equipped with two overheating guards. One is automatic return (approx. +60 °C), and the other is permanently installed fire protection (setting approx. +120 °C), with manual reset GT9, designed to prevent overheating when airflow is insufficient or there is a fault in the unit.
It is very important for operating reliability and fire safety that the electric heater is carefully inspected and kept in good condition. Dirty parts can lead to odours and, in the worst case, even cause a fire. The electric heater is blocked, via a pressure monitor in the GP5 supply air duct, so that it cannot be operated unless the fan is running. Therefore, do not switch off the voltage to the fan using the switch disconnector. Instead, use the control panel. Note that the fan is equipped with delayed stop for cooling down the components.

Check:

- That there is no dust or other flammable substance in the heating part or on the components.
- That the elements are not damaged.
- That the airflows are normal and at least 1 m/s.
- That the electric heater's automation is working.

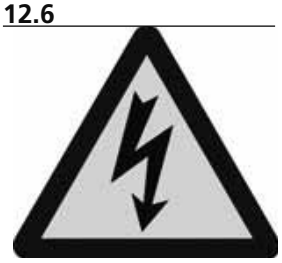
Action:

- Vacuum and dry clean when needed (at least twice a year).
- If a component is defect, it must be changed.
- Reprogram the control equipment so the air speed is at least 1 m/s.
- Check all electrical cables. Consult a service technician when needed.

Resetting triggered overheating protection:
The reset button is visible on the service side of the electric heating coil. However, before the unit is reset the reason for the fault must be corrected. The wiring diagram for the electric heating coil is located inside the electric heater.
Unscrew the screws to dismantle the electric heater.

FANS

12.6



The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
The function of the plug fans is to transport the correct amount of air in and out of the premises.
It is very important for both unit performance and operating costs that the right air-flow is maintained. An incorrect flow balance may cause transfer of extract air to supply air, cause damage to the building and lead to increased energy costs. Accurate inspection and care are therefore important.

Check:

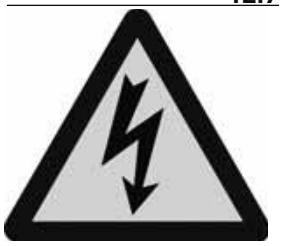
- That the fan is rotating freely without scratching the inlet cone and that there is no noise from the bearings.
- That all electrical cables are securely connected and that the protective casing is intact.
- That the fan is not dirty.
- That the vibration dampers are intact.
- That the sealing strip between the inlet cone and the fan wall is intact; see image.

Action:

- Adjust inlet cone if necessary.
  Replace fan if there is a problem with the bearings.
- Replace cables when needed.
- Rengör fläkt med dammsugare and våt trasa med lite diskmedel.
  Rengör alla skovlar.
- To remove the fans, loosen the triangular knob on the fan rails and pull out the entire fan unit.

- Replace the sealing strips when needed.
- Replace the vibration dampers of the fans when needed.

12.7 FILTER



The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
The filter prevents dust and dirt from entering the unit and into the supply air. The function of the filter is therefore important for the service life of the unit, as well as for economic and occupational safety reasons.

Check:

- If the filters needs to be replaced. H. Östberg AB recommends changing the filters at least two times a year.
- If the filter locker is dirty.
- That the filter locking is functioning properly.
- That the filter seal strip is intact.

Action:

- Remove the filter by pulling the handles for the two filter rails.
  Pull out the filter carefully so the dust and dirt doesn't come off.

- Vacuum the area around the filter if needed and/or wipe with a cloth with a few drops of detergent. Never use solvent to clean the unit.
- Lubricated the eccentric washers when needed. These should move easily.
- Replace the filter seal strip if it is damaged or has been dislodged.

ROTARY HEAT EXCHANGER

12.8

The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:

The rotary heat exchanger is a regenerative aluminium recovery unit that recovers heat/cooling between the supply and extract air ducts. Outside air and extract air flow through the rotor in counterflow.

The rotor consists of a large number of small channels, which means that it is very important to check, clean and care for the rotor and air filter. Stopped or impaired function may cause considerable heating and/or repair costs.

The rotor is normally selfcleaned by switching the air direction when the rotor goes in or out of the intermediate plane. The rotor is equipped with a blow-out sector that prevents the extract air from transfer into the supply air during rotation.

It is important for the blow-out function that the extract air part has a greater underpressure than the supply air part. There should be 20–30 Pa greater underpressure on the extract air side.

Rotormotor, växel samt rotoraxel är permanentsmorda and behöver inte smörjas.

Check:

- That the rotor surface is free of dirt.
- That the rotor can be easily rotates by hand and that there is no noise.
- That the brush strip is intact and tightly secured.
- That the rotor belt is intact, tight and free of cracks/damage.
- That the rotor motor and pulley are undamaged and clean.

Action:

- Before cleaning, first loosen the rotor belt. Vacuum with a soft brush while spinning the rotor manually, or use compressed air to blow the area clean.

- To adjust the rotor if it is not straight, adjust the height on the underside of the rotor bar. First unscrew the centre screw.
  Then adjust the height and retighten the centre screw.

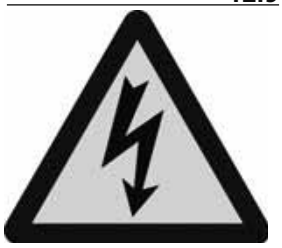
- For lateral adjustment, loosen the centre screw and then adjust the rotor laterally. Then retighten the centre screw.
  If there is a problem with the rotor bearings, contact your retailer to see if the rotor needs to be replaced.

Loosen the hatch to access the adjustment point.

- To replace the brush strip around the rotor, remove the existing brush strip by unscrewing the screws. Install the new brush strip while spinning the rotor by hand.

- To replace the rotor belt, remove the old rotor belt. Tape one end of the new rotor belt firmly and then spin the belt so you can join the two ends together with the supplied rivet.

12.9 HEATING COIL



The safety switches must be switched off and locked after the unit has been switched off before starting any service work.

Function:
The air heater uses water to heat the supply air to the desired outgoing temperature. The heater consists of a number of copper pipes with aluminium slats.
For circulation and regulation of the water, the heater is usually equipped with a shunt group. To protect the heater from freezing, a strap-on freeze protection sensor is mounted on the collection pipe.

Check:

- That the coil front surface is not dirty.
- That the pump is running and that the water is circulating and has the correct temperature for the season. Check the sensor function.
- Function of freeze protection.
- That the slats are intact (not damaged).
- That the coil is not damaged and is not leaking.

Action:

- Clean with a vacuum cleaner fitted with a soft brush.
- Make sure that the strap-on sensor is correctly positioned. Replace the strap-on sensor when needed.
- Adjust the slats with a “slat comb”.
- Turn off the water and empty the system through the coil’s drain valve. Change the coil.

Remove the coil:

1. Turn off the unit via the control panel and place the main power switch in position 0.
2. Switch off the shunt and close the cutoff valves.
3. Empty the system through the coil’s drain valve.
4. Remove the coil’s screw caps in the unit.
5. Pull out the coil.

13. Accessories

Function is only guaranteed with accessories from H. Östberg AB's product range.

Temperature sensor internal GT2, GT3, GT42	994020613
Duct sensor temp. supply GT1	995010002
Room sensor temp. GTR	994020773
Temp.sensor out GTU	994020774
Damper motor with spring return ST1, ST2	993061001
Damper motor On/Off	993061004
Actuators SSC61 ST1, ST2	994030060
Actuators SQS65 ST1, ST2	994030062
Freeze protection sensor anliggningssensor GT8	995010004
Pressure switch 30-300Pa with hose package GP5	994020617
Pressure switch (EHC) 30-300Pa + 5 m cable GP5	995010010
Filter monitor 30-300Pa with hose package GP3, GP4	994020617
Filter monitor 30-300Pa + 5 m cable GP3, GP4	995010011
Filter monitor 30-300Pa with display with hose package GP3, GP4	994020625
Filter monitor 30-300Pa with display + 5 m cable GP3, GP4	995010014
Timer TM1	994022053
Presence detector	994020782
Room unit CX-600	995010018
Climatix external HMI-DM display	994020653
Adjustable foot (4 pcs needed)	994060027
Novibra mat (4 pcs needed)	994060005

OPTIONS	
Pressure sensor (Modbus) P1, P2	995010040

14. Spare parts list

Climatix basic unit PROC1	994020643
Anti vibration kit for rotor RF400, HERU®400–1200 T/S	993050103
Door hinges, HERU®400–1200 T/S	994010038
Handle with lock, HERU®400–1200 T/S	994010004
Handle without lock, HERU®400–1200 T/S	994010003
Brush strip, HERU®400/600 T/S	993050122
Brush strip, HERU®800/1200 T/S	993050123
EC fan 315 1x230, HERU®400 T/S	993080089
EC fan RH31V 1x230V HERU®600 T/S	993080605
EC fan 355 3x400V, HERU®800 T/S	993080004
EC fan 355 3x230V, HERU®800 T/S	993080005
EC fan 355 3x400V HERU®1200 T/S	993080317
Electric heater 6,3kW 400V, HERU®400/600 T/S	995000016
Electric heater 6,3kW 230V, HERU®400/600 T/S	995000017
Electric heater 9,9kW 230V, HERU®800/1200 T/S	995000019
Electric heater 9,9kW 400V, HERU®800/1200 T/S	995000018
Filter ISO ePM1 65%, 385x335x370-8, HERU®400/600 S	993030063
Filter ISO ePM1 65%, 385x287x370-8, HERU®400/600 T	993030511
Filter ISO ePM1 65%, 530x390x420, HERU®800/1200 T (2 pcs) S (4 st)	993030513
Filter ISO ePM1 65%, 530x340x420, HERU®800/1200 T (2 pcs)	993030515
Filter seal strip, HERU®400/600 T/S	994010015
Filter seal strip, HERU®800/1200 T/S	994010016
Rotor motor, HERU®400–1200 T/S	993050143
Rotor belt and peg, HERU®400/600 T/S	993050116
Rotor belt and peg, HERU®800/1200 T/S	993050117
Rotor pulley 75 mm, HERU®400/600/800/1200 T/S	993050147
Rotor spare part, HERU®400/600 T/S	993050002
Rotor spare part, HERU®800/1200 T/S	993050001
Heating coil water left , HERU®400/600 T/S	993040031
Heating coil water right, HERU®400/600 T/S	993040032
Heating coil water left , HERU®800/1200 T/S	993040033
Heating coil water right, HERU®800/1200 T/S	993040034
Duct pressure sensor QBM68.2500	994020911
Flow spressure sensor QBM68.2525	994020913

Contact your installer/retailer to order.

15. Troubleshooting

Type av problem/error	Cause	Check/Action
Operation will not start in Auto mode (schedule control)	The date or time may have the wrong settings	See chap. 7.2.
Operation will not start in Auto mode (schedule control)	Manual control may be in mode: Off	See chap. 7.8.
The value in the HMI cannot be changed	To change the value, you must be logged in	See chap. 7.1.
No "key/keys" symbol in the HMI display	Probably not logged in with password. After a period of time, you are logged out from password level	See chap. 5 and 7.1.
Cannot acknowledge alarm	You must be logged in to reset an alarm	See chap. 5 and 7.1.
The circulation pump do not start, even though operating information says that the pump is ON	There is probably no voltage (230 V AC) to the pump's supply. A jumper cable connection was missed when the pump was connected	Make sure the cable is connected on the terminal. Heating circulation pump CP1: between terminals 1 and 2. Cooling circulation pump CP2: between terminals 5 and 6. ***IMPORTANT! Make sure there is no power to HERU®CX before this action. Switch off the external load switch and make sure that there is no voltage in the incoming power feed before work.***
Recovery alarm	Check for an alarm on the speed control for the rotary heat exchanger, EMS (see chap. 12.1)	• Check the rotor belt. • Make sure the rotor motor is spinning freely (mechanically). • Make sure that EMS indicates that the rotation monitor signals when it passes the magnet. See chap. 12.8.
HMI alarm Fan alarm	The connector between the unit joint is probably not connected	Check the connectors on the extract air fan. On some models, the fan cabling for the extract air has a connector located next to the dividing line of the unit. Power and signal are of different types so that there can be no cross-connection. ***IMPORTANT! Make sure there is no power to HERU®CX before this action. Switch off the external load switch and make sure that there is no voltage in the incoming power feed before work.*** • HERU®400 CX: Problem does not apply to this size, as size 04 is delivered in one unit and therefore does not have a connector to the extract air fan. • HERU®800 CX: Check the unit connection (follow the extract air's fan cables).
HMI Alarm – Fan alarm	The EC motors may have triggered an alarm	Switch off the main switch for power supply to HERU®CX. Then reset the alarm in the HMI, see chap. 7.5.
HMI Alarm – Fan alarm	The fuse to the fans may have blown	Check fuse F4, reset when needed.
HMI Alarm – Supply air temp. – Fire alarm (Extract air temp. Fire alarm)	The fire alarm is configured for temperature alarm on supply air and extract air. The temperature has now risen above the set value and triggered the alarm.	Check the settings on Fire alarm temp. setpoint. Main index > Unit > Setpoints/Settings > All settings > Fire alarm. temp. set.
HMI Alarm – Recovery alarm	Cannot reset alarm in HMI unit.	The alarm must first be reset in EMS. This is done by breaking line voltage to HERU®CX. To keep in mind: Check what type of error EMS indicates before acknowledging the alarm, see chap. 12.1.
HMI Alarm – Temperature alarm – Supply air temp. – Extract air temp. – Outside air temp. – Exhaust air temp. – Freeze protection sensor temp.	***E.g. Outside : 82.88°C*** The temperature has risen above the max temperature limit. The temperature when the alarm was triggered is displayed in the alarm text.	Acknowledge the alarm and check if the temperature of the affected sensor seems reasonable.

If none of the above actions help to rectify the problem, please contact your installer/retailer.

HMI Alarm – Temperature alarm – Supply air temp. – Extract air temp. – Outside air temp. – Exhaust air temp. – Freeze protection sensor temp.	***Ex. "E.g. Outside temp.: No conn."*** The affected sensor is not connected or there has been an interruption, i.e. sensor broken	Check the wiring diagram to see that the affected sensor is connected. Measure the resistance of the sensor (disconnect sensor) see chap. 9.
HMI Alarm – Low efficiency	The calculated efficiency is below the set limit value	• Check the function of the rotary heat exchanger • Make sure the limit value is set correctly: Main index > Unit > Temperature regulation > Heat recovery > Efficiency > Low limit
HMI Alarm – Exp. modules: Alarm	Alarm on expansion modules is not plugged in or not connected	Configuration requires an expansion module EXP1. At HERU®CX EXP1 is located in a plastic enclosure and delivered separately for mounting on the wall near the unit. Plug it in between 97-97, 98-98, 99-99, 100-100 (same number in HERU®CX to same number in EXP1). Then acknowledge the alarm, see chap. 7.5.
HMI Alarm – Not config. IO: Yes	An active program function is not dedicated to any output or input.	See chap. 11.10.
HMI Alarm – Double config.	Several active program functions are dedicated to the same output or input.	See chap. 11.11.
HMI Alarm – Supply air pressure: under range (Extract air pressure: under range)	PROC1 believes the pressure sensor for the supply air (extract air) pressure is not connected (under range = < 0 Pa)	The supply air (extract air) pressure sensor GP1 (GP2) is probably not connected, see chap. 9.
HMI Alarm – Supply air pressure: under range (Extract air pressure: under range)	PROC1 believes the pressure sensor for the supply air (extract air) pressure is not connected (under range = < 0 Pa)	The supply air (extract air) pressure sensor GF1 (GF2) is probably not connected, see chap. 9.
HMI Alarm – Electric heating	Overheating protection in EHC is triggered.	• Make sure necessary airflow through HERU®CX can be obtained, and that no object not designed to be included in the system is preventing airflow. Check the following: o Intake grille in the outside air duct system. ➢ Clean intake grille when needed. o Damper motor in outside air not opening at start-up. ➢Troubleshoot to see if the motor is damaged. o Supply air filter clogged or not replaced at final pressure drop. ➢ Change when needed. • Reset the manual overheating protection on EHC GT9, press the red button with a pen or similar. • Check the cables between the control cabinet and EHC. There must not be any damaged cables. ➢ Change when needed.

If none of the above actions help to rectify the problem, please contact your installer/retailer.

EU DECLARATION OF CONFORMITY

We hereby confirm that our products comply with the requirements in the following EU-directives and harmonised standards and regulations.

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Products: Bidirectional ventilation unit RVU: HERU® 95 T EC, HERU® 100 T EC, HERU® 160 T EC, HERU® 200 T EC, HERU® 300 T EC, HERU® 100 S EC, HERU® 160 S EC, HERU® 200 S EC HERU® 300 S EC, HERU® 70 K EC, HERU® 50 LP EC, HERU® 90 LP EC, HERU® 180 S EC 2, HERU® 250 T EC, HERU® 130 S EC, HERU® 250 S EC
Bidirectional ventilation unit NRVU: HERU® 400 T EC, HERU® 600 T EC, HERU® 800 T EC, HERU®, 1200 T EC, HERU® 400 S EC, HERU® 600 S EC, HERU® 800 S EC, HERU® 1200 S EC

This EU declaration is applicable for products including our accessories for mounting and installation only if the installation is made in accordance with the enclosed installation instructions and that the product has not been modified.

Radio Equipment Directive (RED) 2014/53/EU
Harmonised standards:
- EN 300 220-2:2018 V3.1.1
- EN 303 446-1:2019 (EN 55014-1:2017, A11, EN 55014-2:2015, EN IEC 61000-3-2:2019, EN 61000-3-3:2013, A1)
- EN 301 489-3:2019

Machinery Directive (MD) 2006/42/EC
Harmonised standards:
- EN ISO 12100:2010
- EN ISO 13857:2019
- EN 60204-1:2018
- EN 60335-1:2012, AC 1, A 13 R1, A 11, A 12, A 13, A 1, A 14, A2
- EN 60335-2-40:2003, A13, A2, A12, A1, A11, C1, C2
- EN 60335-2-30:2010, A11, A1, A12

Ecodesign Directive 2009/125/EC
Harmonised regulation:
- 1253/2014 Ecodesign requirements for ventilation units
- 1254/2014 Energy labeling of residential ventilation units

Standards:
- RVU: SS-EN 13141-7:2010 or NRVU: SS-EN 13053:2019

RoHS Directive 2011/65/EU
Harmonised standards:
- EN IEC 63000:2018

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This document is digitally signed.

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