


Manual

Climatix HERU® 400-2400 Top/Side



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1. Important information

Information is provided for each individual function on the menu in the control unit/HMI. 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 of the rows of information 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 10.3 for more information.

Important !

This document only describes general functions and components that are directly connected to the HERU® CX unit. For more detailed information on the CLIMATIX system, i.e. processing unit, software functions and direct components, there is a user manual that only deals with the Climatix – Basic Documentation.

The software may include functions and concepts related to moisture, humidification and/or dehumidification. All such information has been omitted in this document. Suxess ERV 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, and therefore Suxess ERV AB shall not be held accountable for any discrepancies that may appear in this document, and also reserves the right to modify data and design.

1.1 Abbreviations


Abbreviation	Explanation
BMS	Building Management System (parent control system)
BSP	Board Support Package (firmware)
EXP1	EXPansion module no. 1, module for multiple outlets and inlets
EHC	Electric Heating Coil (electric air heater)
HERU® S CX	HERU® Side-connected unit with Climatix control
HERU® T CX	HERU® Top-connected 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 no. 1 (Climatix base unit)

1.2 Revision history

Revision	Date	Changes	Created by Modified by	Pages/ Chap.
0.0	2012-06-01	New document	Håkan J. Nordh	Page 1- 94

01	2013-06-10	Name change HERU® / HERU® CX	Håkan J. Nordh	Page 1- 94
01	2013-06-10	Max area [mm²] of terminal blocks	Håkan J. Nordh	6.2-7.0
01	2013-06-10	Alarm heat & cold, current positioning	Håkan J. Nordh	8.7
01	2013-06-10	Indication fan step REMOVED	Håkan J. Nordh	8.8
02	2014-08-13	Version change > V2.4x Implementation of Modbus-Master Possibility of using sensors/transmitters via Modbus, Pressure sensors, temperature sensors (connection via pressure sensor).	Håkan J. Nordh	Page 1- 94
02	2014-08-13	Reference doc. Modbus pressure sensor	Håkan J. Nordh	1.3
02	2014-08-13	Implementation of multiple languages	Håkan J. Nordh	5.3
02	2014-08-13	Clarification, Connection HMI-DM	Håkan J. Nordh	7.14
02	2014-08-13	External Modbus RTU module	Håkan J. Nordh	10.4.2

1.3 Reference document

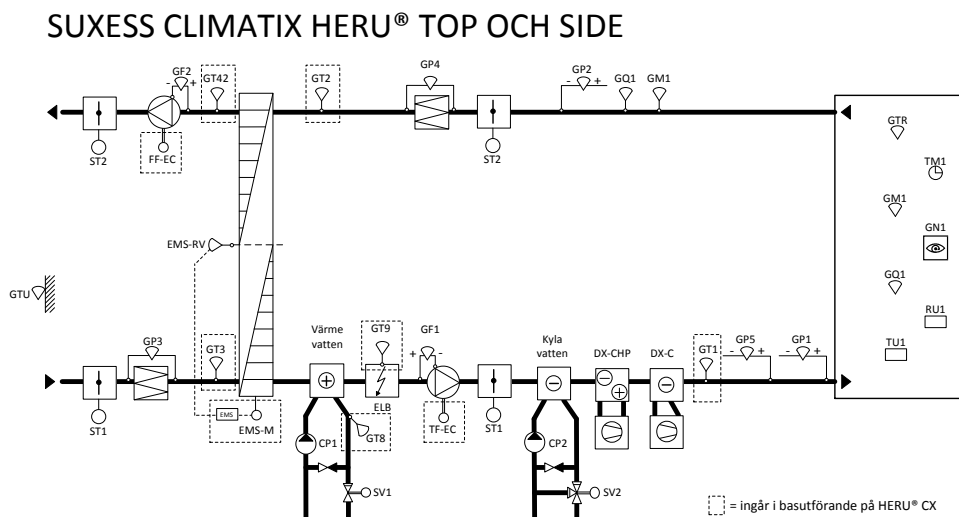
{xe "Reference document"}Document title	 Document no.
Climatix Rumsenhet POL822.60 (2-wire interface)	9720001
Climatix Basic Documentation	9720005
Climatix Modbus Guide & Reference List	9720006
Climatix LON Guide & SNVT List	9720007
Climatix BACnet/IP Guide & Object List	9720008
Climatix OPC Guide & Tag List	9720009
Climatix Advanced Web Module Guide	9720010
Climatix Modbus Pressure Sensor QBM68	9720014

2. Flow diagram and function descriptions{ XE "Flow diagram and function descriptions" }

Important information

The flow diagram and function descriptions describe most of the functions the controller can handle. With regard to unit configuration, all functions may not be available in the supplied model. Some can be selected in the HMI and are then described as Optional in the HMI. Other functions do not have the external components required for selection. Due to the incredibly high number of adjustable parameters in the processing unit, it is impossible to describe all functions in this document. If you have any questions about a specific function, please contact your nearest Suxess ERV 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.

2.1 Flow diagram



ID	Description	ID	Description	ID	Description
GT1	Supply air sensor	GP5	Pressure switch/flow detector EHC	DX-C	DX-cooling 1...3 step
GT2	Exhaust air sensor	GF1	Supply air flow	DX-CHP	Direct expansion cooling and heating pump (or Water)
GT3	Outside air temp. sensor	GF2	Exhaust air flow	GQ1	CO2 sensor, room or exhaust air
GT42	Extract air temp. sensor	ST1	Damper actuator supply/outside air	GM1	Humidity sensor, room or exhaust air
GT8	Frost temp. sensor	ST2	Damper actuator exhaust/extract air	GN1	Presence detector
GT9	Over-temp sensor	EMS	Speed control rotary heat exchanger	TM1	Timer OT/Boost
GTR	Room temp sensor	EMS-M	Drive motor EMS	TU1	Setpoint impact room pot.

GTU	Outside temp sensor	EMS-RV	Rotation sensor EMS	RU1	Room unit
GP1	Supply air pressure sensor	CP1	Circulation pump heating	TF-EC	Supply air fan EC motor
GP2	Exhaust air pressure sensor	CP2	Circulation pump cooling	FF-EC	Exhaust air fan EC motor
GP3	Supply air filter sensor	SV1	Valve actuator heating		
GP4	Exhaust air filter sensor	SV2	Valve actuator cooling		

2.2 Function descriptions

CONTROL

Operating times

The unit is controlled via a built-in timing channel.

At start-up, the ST1/ST2 dampers open. After a set time, the exhaust air fan (FF) starts and 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 normal regulation starts. When the unit is stopped, first the fans will stop and then the ST1 and ST2 dampers will close according to the set time, with control voltage or spring return.

Timer/Boost

The unit is controlled to the set fan step 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 PRC1).

Circulation pumps

Circulation pump heating CP1 switches on automatically when heating is required or at outside temperatures below the minimum setting (adjustable in HMI). Exercised once a week.

Circulation pump cooling CP2 switches on automatically when cooling is required, if pump is blocked or if outside temperature is lower than minimum value (adjustable in HMI). Exercised once a week.

Aftercooling for electric heating

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

Rotating heat exchanger

Time-controlled blow-off when unit stopped or when heating not required, integrated in EMS.

REGULATION

Temperature regulation

The supply air temperature is regulated via GT1. When heating requirement increases, temperature is regulated according to the following sequence:

Cooling valve SV2 closes or cooling unit KM1 begins decreasing output.

Heat exchanger EMS increases heat recovery if $GT2 > GT3$.

Heating valve SV1 opens for heating, or electric heater EHC begins increasing output.

For reduced heating requirements/increased cooling requirements, the above sequence is reversed.

Models with DX cooling and heating pumps and integrated heating:

The CHP cooling and heating pump begins decreasing cooling effect.

Heat exchanger EMS increases heat recovery if $GT2 > GT3$.

The CHP cooling and heating pump begins increasing heating effect.

Heating valve SV1 opens for heating, or electric heater EHC begins increasing output.

For reduced heating requirements/increased cooling requirements, the above sequence is reversed.

Exhaust air regulation (cascade control)

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 [Exh air SuWi]

Selectable in HMI, switching between exhaust air regulation 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 is also selectable [Room SuWi].

Outside-compensated temperature regulation

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

Fan compensation (fan boost/fan reduction)

Selected in HMI. Possible to compensate for fan via outside temperature, room temperature GTR, air quality GQ1, moisture GM1. All of the different fan compensations will be added to the total fan compensation value.

Temperature exercise

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 duct sensor's exhaust air temperature.

Support operation

Selected in HMI. Selectable heating, cooling or heating & cooling.

Temperature regulation support heating when unit stopped (nighttime), as follows:

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

Support cooling with cooling coil.

Night cooling (summer night cooling)

Selected in HMI. Night cooling starts automatically to cool premises at night with cool fresh air.

Heat exchanger, heating coil and cooling coil are blocked during night cooling. Conditions for automatic start:

- Timing program must be in OFF mode.
- Outside temperature must be higher than MIN outside temperature.
- Outside temperature must be lower than the difference between the room/exhaust air temperature.
-(minus) delta [1K].
- Room/exhaust air temperature is higher than room/exhaust air setpoint.

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

PROTECTION

Frost 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. Frost protection is reset in HMI.

Heat exchanger

Rotation monitor RV1 monitors the rotation of the rotary heat exchanger, EMS alarm goes to HMI.

EMS has integrated motor protection. In the event of over-current, an alarm is sent from the heat exchanger to HMI. The alarm is reset on EMS (by unplugging mains voltage/ext. switch disconnecter) and on HMI. Alarm class selectable in HMI.

EHC

GT9 consists of a low-temperature alarm (automatic return) and a high-temperature alarm (manual return). If the GT9 alarm is triggered, EHC will be blocked and aftercooling will begin. The electric heating alarm can be reset in HMI. If the high temperature protection has been triggered, GT9 must also be reset on the EHC electric heater.

In the event of fire/smoke alarm, the EHC electric heater will not be aftercooled.

GP5 monitors minimum supply air flow/pressure. If pressure falls below the set value, EHC is blocked and the alarm will not be sent.

Efficiency measurement exhaust air

Temperature efficiency is calculated via temperature sensors GT2, GT42 and GT3, provided that the heat exchanger signal is 100%.

An alarm will go off if efficiency falls below the set value.

Fire/smoke

When a signal is received from the parent fire/smoke fume system, the fire/smoke alarm will go off.

In the event of alarm, the following functions can be selected:

The unit is stopped and the damper closes.

- Exhaust fan speeds up to the fire setpoint and supply fan is stopped. Dampers ST1/ST2 remain open.

- Supply fan speeds up to the fire setpoint and Exhaust fan is stopped. Dampers ST1/ST2 remain open.

- Supply + Exhaust fans speed up to the fire setpoint. Dampers ST1/ST2 remain open.

ALARM

Deviation alarm: GT1, GT2, GT3, GP1, GP2, GP3, GP4, GF1 AND GF2

Recovery alarm (rotor control EMS)

Fan alarm

Frost guard GT8 / Overheating electric heater GT9

Low efficiency

Multifunctional input

The following functions are located on the same signal input and cannot be combined.

- Control input 2; Timer input for additional speeds / additional speeds from BMS.

- Quick (emergency) stop input

- Common filter alarm, active via pressure sensor, supplied as optional accessory.

OPTION via add-on module EXP-1 (9050054)

The following functions are optional accessories and are not included in the basic model supplied by Suxess ERV AB.

In addition to the respective sensors, an EXP1 is also required to obtain multiple I/Os (inputs/outputs).

Pressure regulation

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

Flow regulation

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

Pressure regulation with flow measurement

This model can also be combined with one fan functioning as MASTER/duct pressure regulation and the other fan as SLAVE/flow regulated.

Master/slave regulation requires GP1/GP2, GF1 & GF2.

Fan compensation

Fan compensation can be obtained via AIR QUALITY/HUMIDITY SENSOR GQ1/GM1 (duct or room model). The fan can be forced toward a greater flow at higher PPM/RH.

Pump monitoring

Monitoring carried out using current relay and feedback to PRC1. If the pump does not draw current when the pump is in operation, an alarm will go off and heat maintenance of the frost guard will take over. Monitoring is possible for both CP1 and CP2.

Direct expansion cooling unit

Can control 1-STEP (ON/OFF)/ 2-STEP step-connected (50/50 step)/ 3-STEP binary (1/3-2/3 step).

Alarm from direct expansion cooling or operation indication from direct expansion (DX) cooling.

Su/Wi switch

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

3. Password handling{ XE "Password handling" }

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

The following actions are possible on the different levels:

- Without password:
 - Read access to all menus except system parameters, config. and detailed menus.
 - Read access to alarm lists and alarm history.
- Password 1000/"User" level 6.
 - 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:
 - Same rights as for "User", plus:
 - Rights for all menus and system settings.
 -
 - **If you must use password 2000, exercise extreme caution. There is a high risk that a change may damage basic settings/configurations.**



Warning!

4. Control unit HMI-TM{ XE "Control unit HMI" }

General

HMI-TM is designed as a separate control unit. The back side has a large magnetic area for accurate placement on the HERU® CX casing. The connection cable is a semi-spiral design, i.e. the 50% nearest the HMI is a spiral, and the rest is a straight cable. The temperature operating range of the HMI is -40 to +60°C

 Part no.:

4020643 Control display / HMI-TM, IP65 [POL871.71/STD]

4.1 Functions

HMI

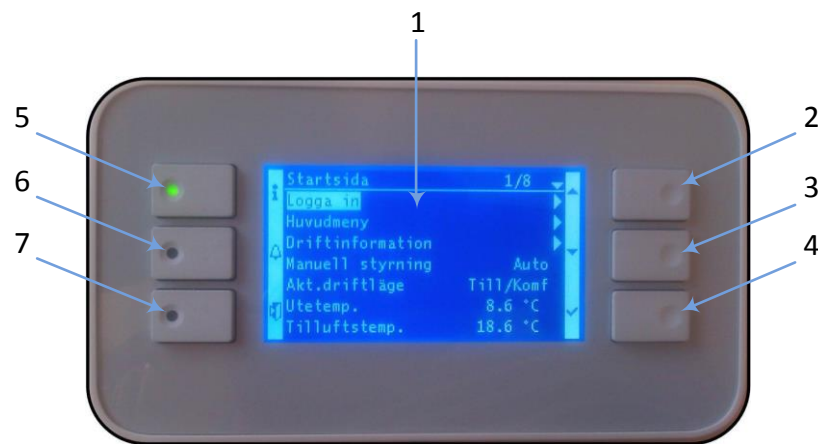


Image no. 1

4.1.1 LCD { XE "LCD" }

LCD

See image 1, pos.1

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

4.1.2 Up-▲, Down-▼ and ENTER-√{ XE "Navigation buttons:Up, down and ENTER" }

button

See image 1, pos. 2, 3 and 4

Push buttons for navigation in menu.

- Move through the menu 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, you can “take a shortcut” by pressing and holding down ENTER-√ for about 3 seconds. You will then come directly to password handling/login/logout. Once you have keyed in the password, you will automatically return to the previous menu location.

4.1.3 Info- i{ XE "Info button" }

button

See image 1, pos. 5

Push button for Quick jump to the main index and start page.

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

4.1.4 Info in LED display{ XE "Info button" }

LED display

See image 1, pos. 5

The LED display may indicate the following:

- Not lit
 - Unit not in operation
- Green/flashing
 - Startup
 - 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
 - Unit AV (See Menu: Start page > Manual operation).
 - Operation in Manual mode (see Menu: Start page > Manual operation).
 - Econ.St1
 - Comf.St1
 - Econ.St2
 - Comf.St2
 - Econ.St3
 - Comf.St3

To return to timing program mode, select Auto.

- Room unit overrides settings in HMI
- Manual control of any output or value.

Can mean that one or more of the 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 greatest caution must be exercised. 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).

4.1.5 ALARM- 🔔 { XE "Larm-knapp" }

button

See image 1, pos. 6

Push button for Alarm handling.

- Go to alarm list
 - If any alarm is active: → Alarm list, shows active alarms
 - If no alarm is active: → Alarm history
- Go in to the latest active alarms in the alarm list
 - Possibility to acknowledge/reset active alarm
- Go to alarm entry
 - Sorting of alarm list
 - Name
 - Time
 - Prio
 - Status
 - Sorting of alarm history
 - Name
 - Time
 - Prio
 - Status

Alarm handling is also listed under:

Main index > Alarm handling > Alarm reset:

For more information on alarm handling, see chapters 5.4.1/10.7.

4.1.6 ALARM -LED display { XE "Alarm button: Indication" \i }

LED display

See image 1, pos. 6

The LED display may indicate the following:

- Dark LED
 - No alarm.
- Red/Flashing LED
 - One or more alarms are active.
- Red/steady LED
 - Tried to acknowledge the alarm, but not reset.

Push button

4.1.7 ESC { XE "ESC" }

See image 1, pos. 7

ESC button:

- Takes you back one level in the menu
- Cancels any changes made.
- Go to HMI's main page (more info, see chap. 10.6.2): Hold ESC down for about 3 seconds.

4.2 Connecting HMI

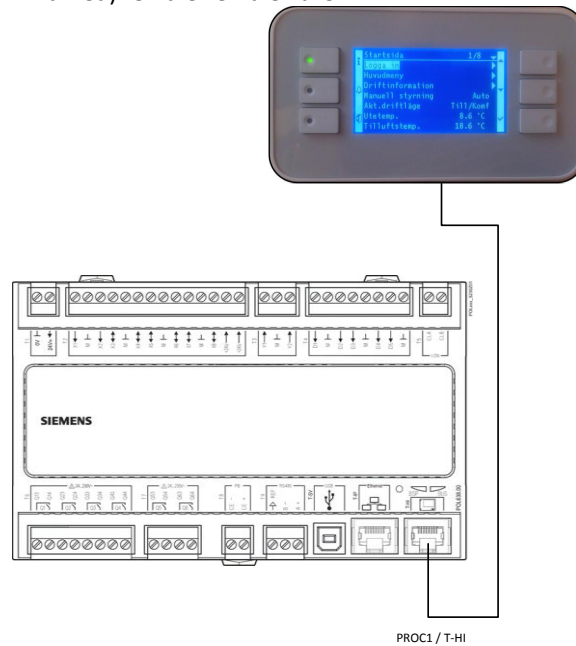
{ XE "HMI:Connection" }

HMI

If 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).

Tip!

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

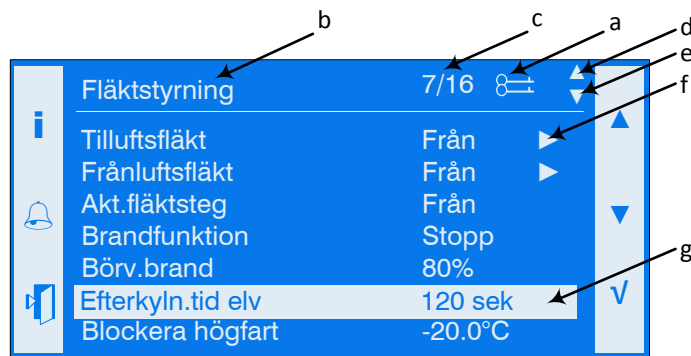


Connection

4.3 Screen layout

4.3.1 Screen

Screen overview



- Current authority level: (About authority level, see chap. 3)
 - No symbol: No authority level.
 - 1st key: authority level 6.
 - 2nd key: authority level 4.
 - 3rd key: authority level 2.
- Title of displayed pages.
- 7: Number of marked row: 16. Total number of rows on page (incl. this row).
- The page includes additional rows above; press the up arrow to display.
- The page includes additional rows below; press the down arrow to display.
- The navigation arrow shows that there is another level under this level that you can go to.
- Marked row.

4.3.2 Navigation rows



Navigation row

On the navigation rows, the option selected is shown with dark text on a light-coloured background when it is marked. In front of the navigation arrow, the current value for the option is shown.

- Go to the row to be highlighted: **Press** the up arrow/▲ or down arrow/▼.
- Access the underlying level with the the navigation arrow/► : **Press** Enter ✓.

4.3.3 Display row



Display row

The option selected is shown against 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).

4.3.4 Preferences row

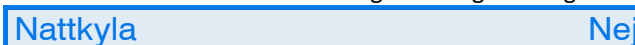


Preferences row

The parameter name and the current value are shown against a dark background.

Setting of value:

- Go to the row to be highlighted: Press the up arrow/▲ or down arrow/▼. The marked row is shown with a dark text against a light background.



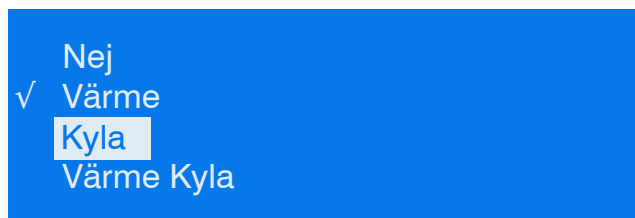
- Switch to preferences page: **Press** Enter ✓.
- Set the parameter value: Press the up arrow/▲ or down arrow/▼.
- Close the preferences page and apply the changed parameter value: **Press** Enter ✓.
- Close the preferences page without applying the changed parameter value: **Press** ESC



4.3.5 Setting discrete parameter values

Discrete parameter values

4.3.5.1 When only one value is selectable



Selecting one of several options

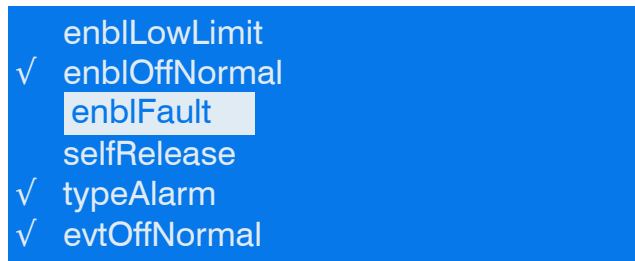
The set value is shown on the row preceded by a check mark (here, "Heating"). To change the value:

- Select the new value: Press the up arrow/▲ or down arrow/▼.
- Switch to editable mode: Press Enter ✓.
- Set the parameter value: Press the up arrow/▲ or down arrow/▼.
- Close editing mode and apply the changed parameter value: **Press** Enter ✓.

- Close the preferences page without applying the changed parameter value: **Press ESC**



4.3.5.2 When several values are selectable



Selecting several options

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

- Select the new value: Press the up arrow/▲ or down arrow/▼.
- Select or deselect the value: **Press Enter v.**
- Apply the new value(s):
 - Go to **Done** (at the bottom of the menu): Press the up arrow/▲ or down arrow/▼.
 - Select **Done**: **Press Enter v.**

or

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



4.3.6 Setting analog parameter values



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

Changing set values:

- Change the value under the arrow: Press the up arrow/▲ or down arrow/▼.
 - Increase the value in increments of 10, 100 or 1000. **Press and hold down the** up arrow ▲. 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 increase from 1000s to 100s to 10s to 1s: Do not press the up arrow ▲ or down arrow ▼ for at least a second. The cursor will then move from 1000--->100; after another second, from 100--->10, and so on.
 - Keep the new value and close the preferences page: **Press Enter v.**
- or
- Keep the old value and close the preferences page: **Press ESC**



5. Getting started, a few simple steps { XE "Getting started, a few simple steps" }

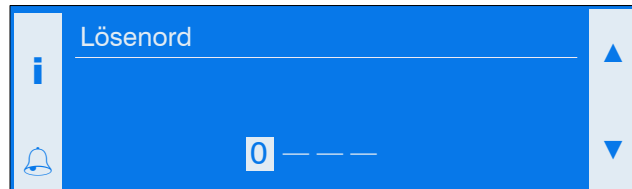
5.1 Logging in with password



Passwords in HMI

To log in:

1. Go to the main page
2. Select Log in and press ENTER- v (see chap.3).



3. Press the up arrow ▲. The number 1 will be shown. Press ENTER- v.
4. The cursor automatically moves into position, and
5. Select number 0, press ENTER- v.
6. Continue in the same way until the password 1000 has been entered.
7. Finish the 4th digit by pressing ENTER- v

A key symbol{ XE "Key symbol" } will then be shown up in the right corner, as confirmation that your are logged in as "User"

For more info on passwords, see chap. 3

Tip!

Press and hold ENTER- v for more than 3 seconds to be linked directly to password handling. From anywhere in the menu, you can hold down ENTER- v to be linked to password handling, and then log in or out. After logging in, you will be linked back to the location in the menu that you were at before you logged in/out.

5.2 Setting date and time{ XE "Setting date and time" }

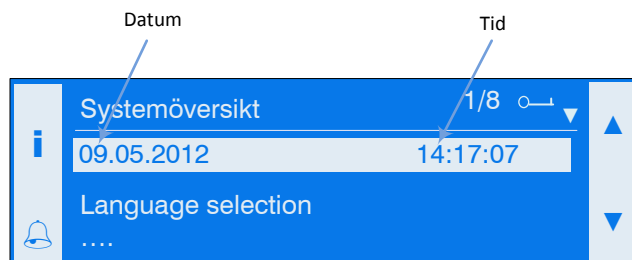
Date and time are used for:

- Annual clock in timing program
- Weekly clock in timing program
- Seasonal functions, summer/winter time.

Changing date and time:

1. Log in with 1000 (see chap. 5.1)
2. Go to main index (see chap.4.1.3)
3. Select System overview and press ENTER- v
4. You can now change the date and time.

Date and Time in HMI




5.3 Language{ XE "Language" }

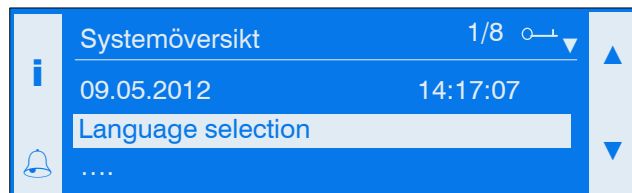
The following languages are currently available:

- English
- Swedish
- German
- Italian
- Spanish
- Chinese
- Danish
- Finnish
- Polish
- French
- Dutch

Changing language:

1. At least password level 1000 (see chap. 5.1).
2. Go to main index (see chap.4.1.3)
3. Select System overview and press ENTER- ✓
4. Now select Language selection and press ENTER- ✓
5. Choose the desired language, press ENTER- ✓

 Language selection in HMI




5.4 Alarm handling

Overview

This chapter contains simplified information on alarms and resetting alarms. For more detailed information on alarm handling, see chap. 10.7.


5.4.1 Resetting alarms{ XE "Resetting alarms" }

Resetting an alarm

1. At least password level 1000 (see chap. 5.1).
2. Press the ALARM  button (see chap. 4.1.5).
3. A detailed alarm list will now be shown in the display window
 - a. The highlighted row shows what alarm was triggered
 - b. Date the recovery alarm was enabled
 - c. Alarm class for the alarm. For other alarm classes, see chap. 10.7.

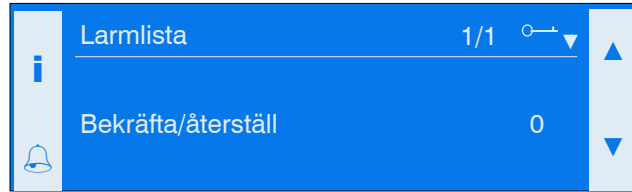
Alarm reset in HMI



4. Press the ALARM  button
5. Confirm/reset will now be shown. (The alarm list now shows all the alarms that are active.)

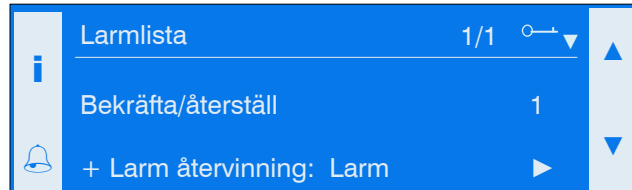
6. Press Enter ✓.
7. Select Execute and press ENTER- ✓.
8. The alarm is now confirmed/reset and the display shows:

**Alarm
Reset in HMI**



9. If any alarm is still active, the reset cannot be executed. The active alarm will be shown on the row under confirm/reset.

**Alarm
Not reset in HMI**



In this mode, the red LED on the ALARM  button will glow steadily.

Troubleshoot to determine why the alarm will not reset; for help, see chap. **Fel! Hittar inte eferenskälla.**

For more information on alarm handling, see chap. 10.7.

5.5 Changing setpoints{ XE "Changing setpoints" }

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 chap. 3 & 5.1.

Start from the main page: Select Unit > Setpoints/Settings

Temperature setpoint

5.5.1 Temperature setpoint

The temperature setpoint is selectable as 1 setpoint value or as two different setpoints. If only 1 setpoint is configured, this setpoint will be presented as either "Setp. Comf heating" or as only "Setpoint heating" with associated dead zones.

If the setpoints for temperature are divided into two types, these will be presented as comfort and economy with related dead zones. Which of these two setpoint types HERU® CX uses to regulate is determined in the timing program or in manual mode, see chap. 5.6

Comfort temp.

- Setp.comf.heating
This setpoint is usually the one used as "main setpoint". If the temperature falls below this value, HERU® CX will switch over to heat regulation to stop the temperature from falling.
- 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 rises above the cooling setpoint, HERU® CX will switch over to cooling regulation to stop the temperature from rising.
A normal dead zone value is 2 °C.

Economy temp.

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

- Setp.econ.dead zone
Same principle as comf. dead zone (see above).

Example in HMI

Börvärden	3/12	←
Börv.komf.värme	20.0 °C	
Börv.komf.dödzon	2.0 °C	
Börv.ekon.värme	18.0 °C	
Börv.ekon.dödzon	6.0 °C	
Börv.TF steg 1	30.0 %	
Börv.TF steg 2	50.0 %	
Börv.TF steg 3	80.0 %	✓

5.5.2 Fan setpoints

Setpoint fans

Setpoints for fans are divided into 1-3 steps for supply air fans and for exhaust air fans. Which of these steps HERU® CX uses to regulate is determined in the timing program or in manual mode, see chap. 5.6.

The step options are usually used as follows:

- Step 1 Reduced operation
- Step 2 Normal
- Step 3 Boost

Example in HMI

Börvärden	6/12	⇌
Börv.ekon.dödzon	-6.0 °C	
Börv.TF steg 1	30.0 %	
Börv.TF steg 2	50.0 %	
Börv.TF steg 3	80.0 %	
Börv.FF steg 1	30.0 %	
Börv.FF steg 2	50.0 %	
Börv.FF steg 3	80.0 %	✓

5.6 Manual control of HERU® CX

Stopped unit

Normally, operation is controlled by the timing program.

It is possible to override the timing program, either by stopping the unit or by controlling operation manually to any fan step and/or any setpoint type temp.regulation.

At least password level 1000 (see chap. 5.1).

Go to the start page (see 4.1.3), select manual operation and press ENTER-√.

Example HMI

Startsidan	3/7	
Huvudmeny		▶
Driftinformation		▶
Manuell styrning	Auto	
Driftläge	Komfort	
Utetemp.	14.2 °C	
Tilluftstemp.	20.2 °C	
Frånluftstemp.	22.2 °C	✓

5.6.1 Stopping the unit for service

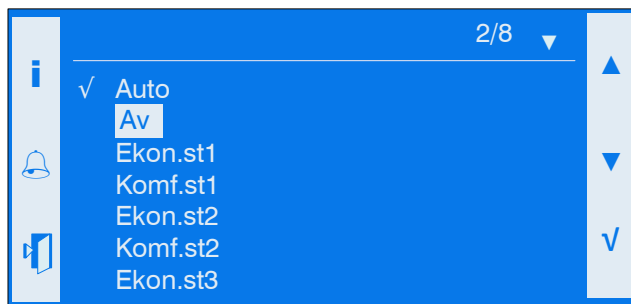
It is possible to stop HERU® CX, similar to stopping with a service switch. This is done in the HMI.

This is done via Manual mode.

Select Off and press ENTER- ✓.

The unit will now stop. If EHC is used, an afterblow period will control the supply air fan to prolonged operation before HERU® CX stops and the damper closes. The damper closes according to set time after the fans have stopped. The default time delay for the damper is about 10 seconds.

Example HMI:
Stop unit



5.6.2 Manually control HERU® CX { XE "Manually control HERU® CX " }

Manual start

To start the unit independent of the timing program start and stop times.

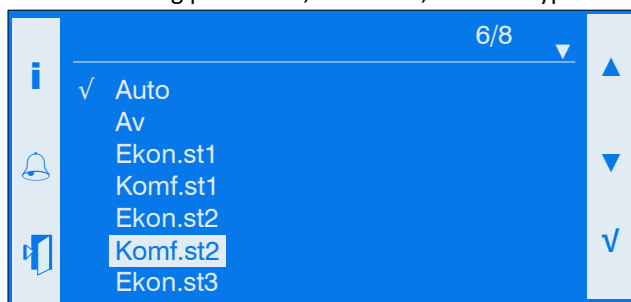
The following options can be shown:

Selections under manual operation	Temperature regulation according to setpoint	FanControl/-regulation according to setpoint
Auto	See timing program, chap. 5.7	See timing program, chap. 5.7
Off	Stopped unit, see chap. 5.6.1	Stopped unit, see chap. 5.6.1
Step 1	Only 1 Setpoint	Step 1
Step2	Only 1 Setpoint	Step 2
STEP 3	Only 1 Setpoint	Step 3
Econ.St1	Economy	Step 1
Comf.St1	Comfort	Step 1
Econ.St2	Economy	Step 2
Comf.St2	Comfort	Step 2
Econ.St3	Economy	Step 3
Comf.St3	Comfort	Step 3

Select an option and press ENTER- ✓.

The unit will now **not** follow the timing program, but will instead continue to follow the preferences that have been set. The safety functions are still active, e.g. frost protection, EHC overheating protection, fire alarm, etc. This type of alarm will still stop operation.

Example HMI:
Selection of manual mode



To return to the timing program, follow the above steps but select Auto.

5.7 Timing program{ XE "Timing program" }

5.7.1 Default programming{ XE "Timing program" }

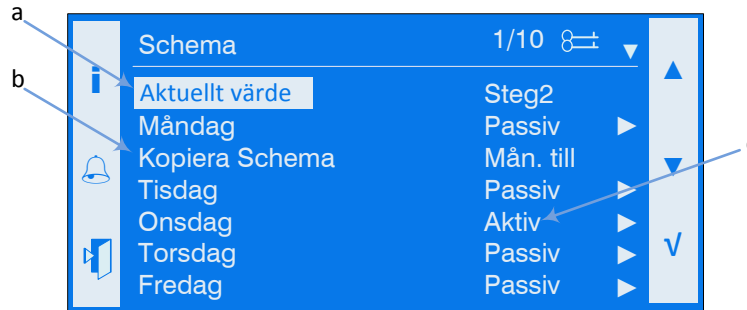
General

The timing program (time channels) are 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 6:00 pm until Monday 6:00 am.

5.7.2 Week schedule

Example in HMI:
Week schedule



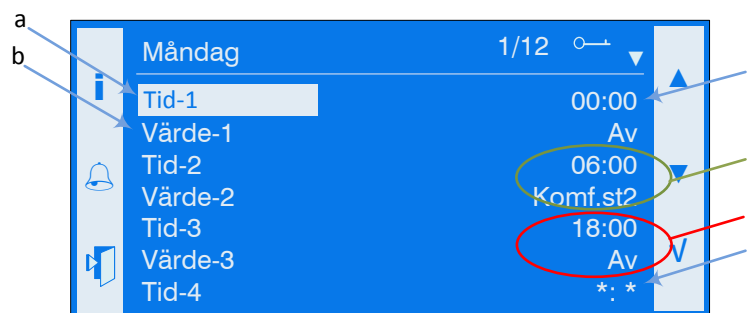
Explanation of above image:

- Current value is the operating mode that the timing program wants to control. This doesn't mean that operation is according to the value for Current value; it can be manual control or alarm on HERU® CX that controls operation to another value.
- Select copy schedule to transfer the month's programming to Tuesday... Friday. It is not possible to transfer to Saturday and Sunday; these must be programmed manually.
- The timing program controls according to this day: Active
A passive day does not have priority to control operation

5.7.3 Programming of the month's times

Times are programmed in each individual day of the week (opportunity to copy the month's times to other days of the week, see chap. 5.7.4)

Example in HMI:
Month setting



Explanation of above image:

- Time-1 is the first connection time of that day, in this case Monday.
- 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 6 different Times/Values for each day of the week.
- Must ALWAYS have value 00:00, applies to all days of the week (incl. exceptions)**
- *: *= 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.
- Time-2 with associated Value-2 (i.e. 06:00 / Comf.st2) is that which controls the start of the ventilation because 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.

Important!

- 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/Exh fan st, see chap. 5.5.2.

Choose Economy St1 if the setpoint will also be customized for nighttime, according to Temperature.setp.Econ.Heating, see chap. 5.5.1.

Copy to Tuesday-Friday

5.7.4 Copying Monday's times{ XE "Timing program:Copy Monday's times" }

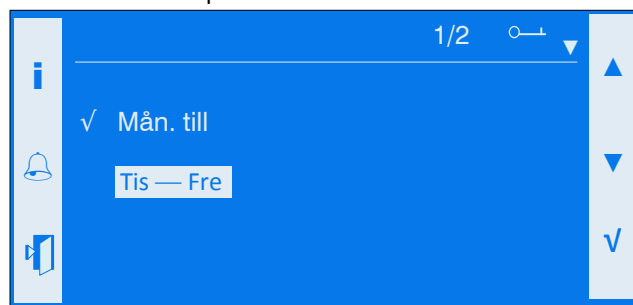
The week schedule has a function that makes it so that you don't need to enter operating times for each day of the week. It is possible to copy the month's settings over to Tuesday-Friday.

After the month's settings are done, go to Copy schedule.

Copy schedule is under Schedule, see chap. 5.7.2

Select Tue-Fri and press ENTER- v.

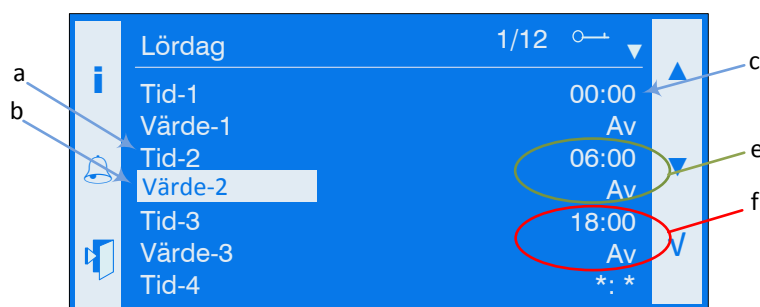
**Example in HMI:
Copy times**



5.7.5 Programming of weekends

Operating times on weekends are programmed manually (not by copying Monday's times). Example of settings for Saturday's timing program.

**Example in HMI
Weekends**



To make it simple with future times, only change Value-2 to Off, if the unit will be switched off on Saturdays. If you want to run the unit on Saturdays, Time-2/Value-2 must be start (a, b & e in the example above), and Time-3/Value-3 must be the stop time (f in the example above). In this programming, Time-1 must always be 00:00 (c in the example above)

The same thing applies for Sunday's settings.

5.7.6 Programming examples of the timing program in different units

5.7.6.1 Operation past midnight

The unit must start at 11:00am on Friday and stop no earlier than 2:00am on Saturday morning.

Program according to the following:

Example in HMI
Operation after 24:00

Friday:

Fredag	1/12	
Tid-1	00:00	
Värde-1	Av	
Tid-2	11:00	
Värde-2	Komf.st2	
Tid-3	*: *	
Värde-3	Av	✓
Tid-4	*: *	

Saturday:

Lördag	1/12	
Tid-1	00:00	
Värde-1	Komf.st2	
Tid-2	02:00	
Värde-2	Av	
Tid-3	*: *	
Värde-3	Av	✓
Tid-4	*: *	

Friday's time starts at 11:00 with comfort temperature regulation fans step 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 (2:00) and that must be stopped operation, i.e. Off.

5.7.6.2 Operation at different speeds.{ XE "Timing program:Operation at different speeds" }

Example in HMI
Multiple speeds

The unit will start at 04:00 with reduced air volume.

From 07:00-18:00, the unit operates with normal flow and then steps down to reduced flow. The unit stops again at 21:00.

Program according to the following:

Måndag	1/12	
Tid-1	00:00	
Värde-1	Av	
Tid-2	04:00	
Värde-2	Komf.s1	
Tid-3	07:00	
Värde-3	Komf.st2	✓
Tid-4	18:00	
Värde-4	Komf.st1	
Tid-5	21:00	
Värde-5	Av	
Tid-6	*: *	
Värde-6	Av	

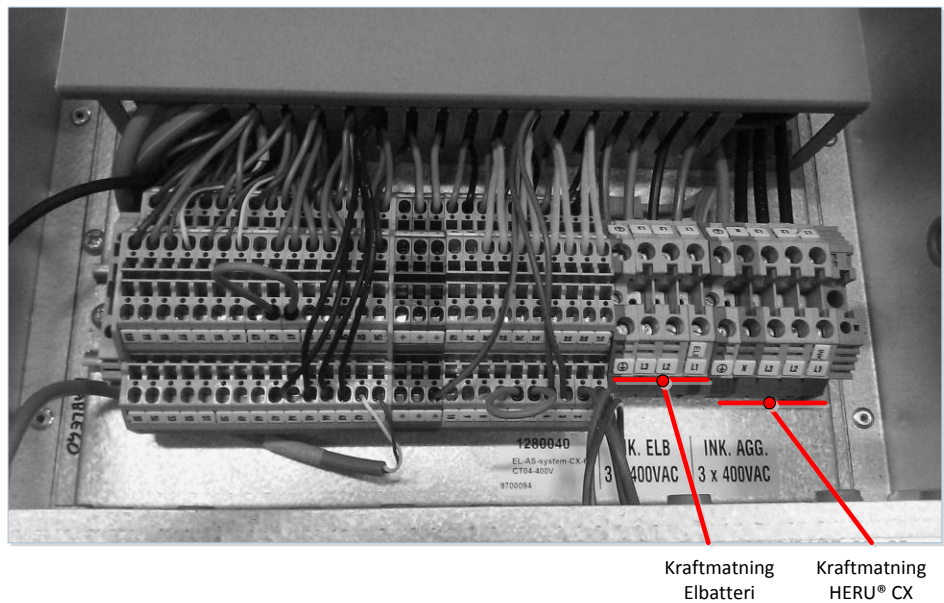
6. Connection of mains voltage{ XE "Connection of mains voltage" }

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

Important!

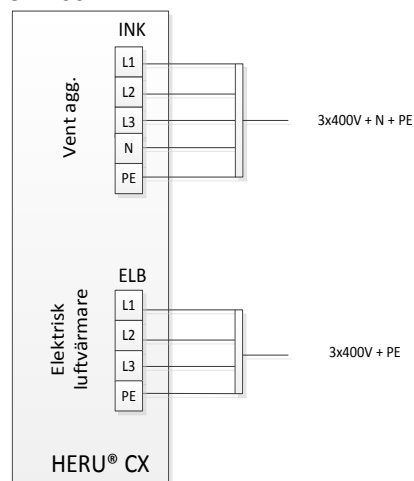
The power supply cable must always be equipped with an external load interrupter. This is not included in the delivery from Suxess ERV AB.

The model with electric duct heater (EHC) always has a separate feed for the air heater. The connection is located next to the connection for the unit. The following example shows a Compact Top:

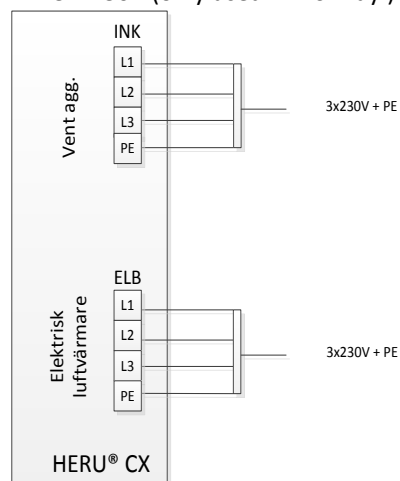


6.1 Connection of mains voltage

3 x 400V



3 x 230V (only used in Norway.)



6.2 Unit consumption and output{ XE "Unit consumption and output" }.

**Output table
Basic unit**

HERU® size	Mains voltage [VAC]	Max consumption [kW]	Max consumption [A]	Max inc. Cable [mm²]	Max prefuse [A]
400	3~ 230	1.1	4.6	6	25
400	3~ 400	1.1	4.6	6	25
800	3~ 230	2.6	8.0	6	25
800	3~ 400	2.6	4.6	6	25
1600	3~ 230	4.7	6.7	6	25
1600	3~ 400	4.7	10.6	6	25

6.3 Heating coil consumption and output{ XE "Heating coil consumption and output" }.

**Output table
EHC**

HERU® size	EHC output variant [kW]	Mains voltage [VAC]	Max consumption [A]	Max inc. Cable [mm²]	Max prefuse [A]
400	6.3	3~ 230	15.8	6	25
400	6.3	3~ 400	9.1	6	25
800	9.9	3~ 230	24.8	10	32
800	9.9	3~ 400	14.3	6	20
1600	12.6	3~ 230	31.7	16	40
1600	12.6	3~ 400	18.2	10	25
1600	19.8	3~ 230	49.7	16	63
1600	19.8	3~ 400	28.6	10	35

7. External components basic unit{ XE "External components basic unit" }

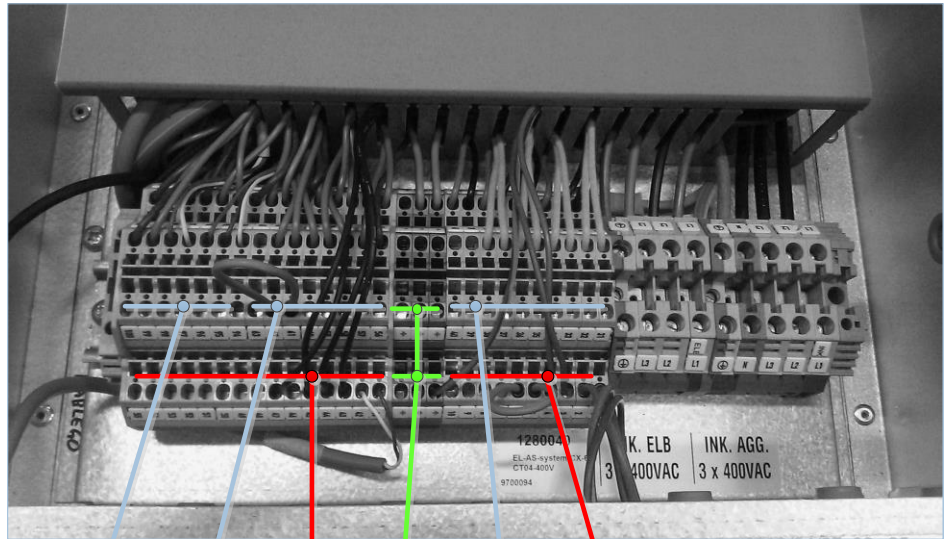
General

External sensors, actuators, etc. are connected to the HERU® CX unit or to an expansion model, supplied separately (see chap. 9.) Terminal numbers{ XE "Terminal number" } are grouped as follows:

Terminal no.	Cable's max mm ²	Group's placing	Voltage
1-10	4 mm ²	HERU® CX	≤230VAC
11-20	4 mm ²	EXP1	≤230VAC
31-40	4 mm ²	HERU® CX	≤230VAC
41-63	1 mm ²	HERU® CX	≤ 50V
71-93	1 mm ²	EXP1	≤ 50V
94-96	1 mm ²	HERU® CX	Modbus RTU - RS485
97-100	1 mm ²	HERU® CX & EXP1	≤ 50V/KNX (internal communication)

The following example shows a HERU® T CX:

Layout connection



Plint nr.: 94...100 56...63 41...55 GND 31...40 1...10

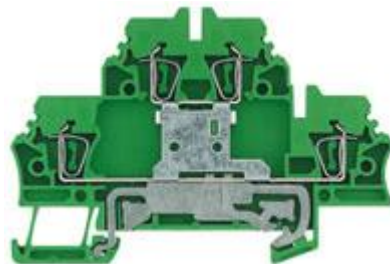
All terminals, except the feeding power connections, are type 2-level{ XE "Anslutning-splint 2-våriga" }.

Principle image
2-level
connection terminals

Beige connection terminal



Earth terminal (Green-yellow) connection terminal



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

7.1 Temperature sensors{ XE "Temperature sensors" }

Temp. 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

7.1.1 Internal temp. sensor{ XE "Intern temp. sensor" }

GT2, GT3, GT42

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

Part no.:

4020613 Temp. sensor internal 2 m cable Climatix

7.2 Supply air temperature sensor{ XE "Supply air temperature sensor" }

GT1{ XE "GT1" }

The supply air temperature sensor is designed to be mounted in the supply air duct (round 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 is 5 meters long and the recess in the duct is ~130 mm.



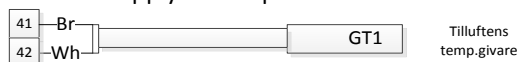
The delivery includes a flange mount for the duct, mounted with 2 screws (max 4.2 mm ø)

Part no.:

5010002 Duct temp. sensor 5 m with mounting flange Climatix

Connection

Connection of supply air temp. sensor as follows:



7.3 Room temperature sensor{ XE "Room temperature sensor" }

GTR{ XE "GTR" }

The HERU® CX unit with Climatix uses an exhaust air temperature sensor, basic model, that in most units can replace a room temperature. It is often costly to route cable to a room temperature sensor in a property. The Suxess Climatix software has therefore been equipped with functions that allow an exhaust air sensor to replace a room sensor. Night functions start up to check the exhaust air's temperature, and the controller then determines if the night function will continue to be in operation or not. In the units that require use of a room temperature sensor, the exhaust air temperature sensor can be replaced with a room temperature sensor.

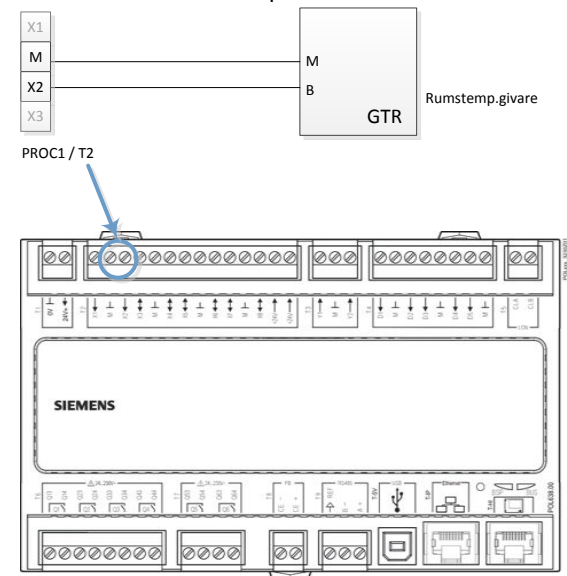


 Part no.:

The room temperature sensor is delivered as a separate unit, without a connection cable.
4020773 Room sensor HERU® CX Climatix

Connection

Connection of room temperature sensor as follows:



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

Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Room sensor temp.	No / 1 Sensor / ...	1 Sensor
Exhaust air sensor temp.	No / Yes / ...	No
Restart	√, Execute	Execute

Main index > Configuration > Config. IOs > Temperatures		
Rooms	...	Pos: X2 Ni1KLG
Restart	√, Execute	Execute

7.4 Outside temperature sensor{ XE "Outside temperature sensor" }

GTU{ XE "GTU" }

Outside air temp. sensors are in supplied model, integrated in HERU® CX. It is often costly to route cable to an outside temperature sensor in a property. The Suxess Climatix software has therefore been equipped with functions that allow an outside temperature sensor to be positioned inside a ventilation unit. In the units that require use of outside temperature sensors, the integrated outside air temperature sensor can be replaced with an external outside temperature sensor.



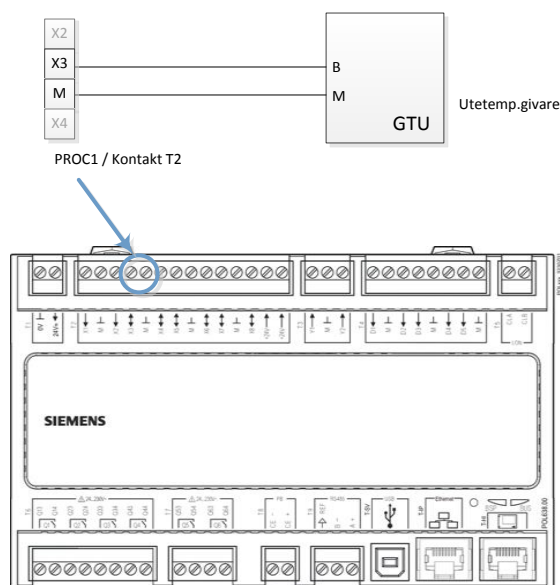
The outside air temperature sensor is delivered as a separate unit, without a connection cable.

 Part no.:

4020774 Outside temp. sensor HERU® CX Climatix

Connection of room temperature sensor as follows:

Connection



The built-in outside air temp. sensor's connection cable must be disconnected from X3+M, and replaced with the outside air sensor's cable. The terminals connected are positioned directly on the controller.

Parameter

For activation/configuration:

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

7.5 Damper motors{ XE "Damper motors" }

ST1, ST2

There are two different types of actuators for damper control.

- Spring return{ XE "Damper motors:Spring return" } (2-point)
- On/Off{ XE "Damper motors:On/Off" } (3-point)

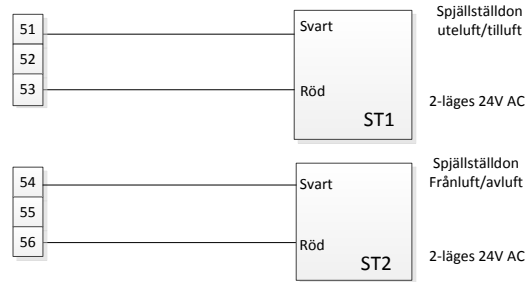
Important!

The On/Off actuator is only designed 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 frost protection regulation with related circulation pumps is put out of operation due to power failure.

7.5.1 Connection of spring-return motor

Connection



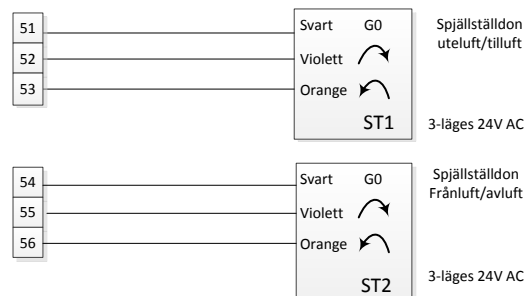
If the damper motor is turned the wrong way when HERU® CX is started, turn the damper actuator.

 **Part no.:**

3061001 Damper motor spring 24VAC

7.5.2 Connection On/Off motor

Connection



If the damper motor is turned the wrong way when HERU® CX is started, switch Violet/Orange.

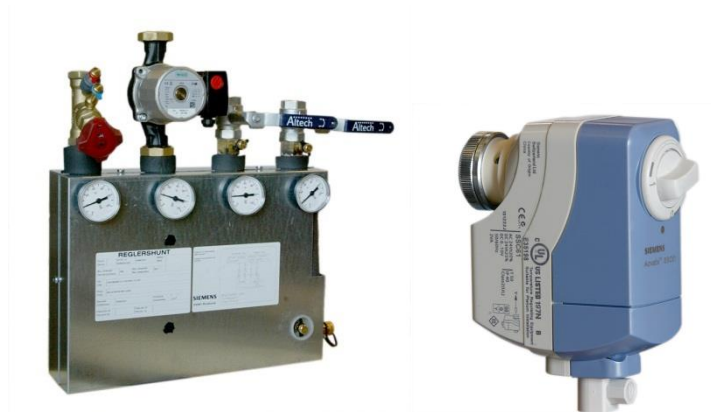
 **Part no.:**

3061004 Damper motor On/Off 3-mode 24VAC/0-10VDC

7.6 Shunt group

SHG & actuator

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



7.6.1 Connection of actuator and circulation pumps{ XE "Connection of actuator and circulation pumps" }

Max power output of circulation pumps of type 1-phase is 230V AC/2A
If the circulation pump is a 3-phase pump, the connection mentioned above is used as operating voltage to an externally circuit breaker.

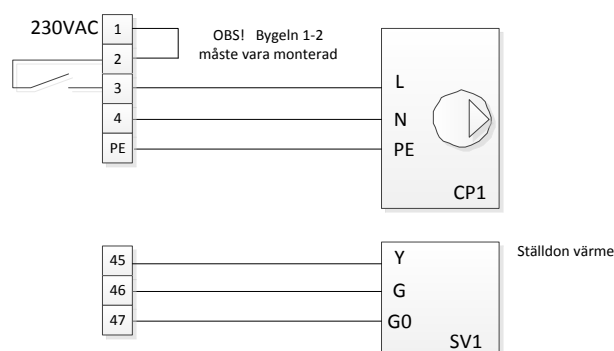
 Part no.:

4030060	Actuator SSC61 designed for VXP45/VVP45 valves
4030062	Actuator SQS65 designed for VXG44/VVG44 valve

7.6.2 Heating

CP1, SV1
Connection

Valve actuator and pump for heating are connected as follows:



Parameter

For activation/configuration:

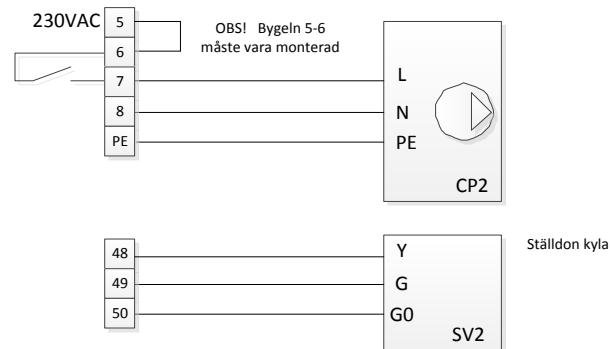
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes	Yes
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Pump heating	No / Yes / Yes+exercise	Yes+exercise
Restart	√, Execute	Execute

CP2, SV2

7.6.3 Cooling

Valve actuator and pump for cooling are connected as follows:

Connection



Parameter

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

7.6.4 Frost protection{ XE "Frost protection" }

GT8

If the heating coil is mounted in the HERU® CX unit at delivery, the frost guard will already be mounted (and connected) on the return line inside the ventilation unit.

7.6.5 Water heating external, not integrated in HERU® CX

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



5010004

Frost guard strap-on temperature detector 2 m with mounting kit Climatix

Connection of frost guard temperature sensor as follows:

Connection



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes	Yes
Electric heating	No, Analog, 1 step, ...	No
Restart	✓, Execute	Execute
Main index > Configuration > Configuration 2		
Frost guard heating	No, Sensor, Sens+2sp,...	Sens+2sp
Restart	✓, Execute	Execute

7.7 Electric heating coil{ XE "Electric heating coil" }

EHC

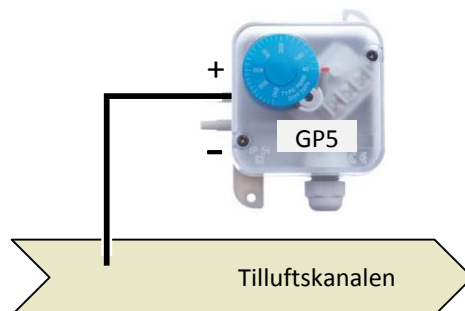
All electric air heaters must always be pre-regulated via flow in the supply air ducts. This is done using a pressure sensor that measures duct pressure in the supply air duct in relationship to atmospheric pressure. The pressure switch is normally connected, electrically, at delivery.

Part no.:

4020617	Pressure switch 3-300Pa with hose package (only pressure switch)
5010010	Flow monitor EHC 300 Pa, 5 m cable (pressure switch with cable set)

GP5

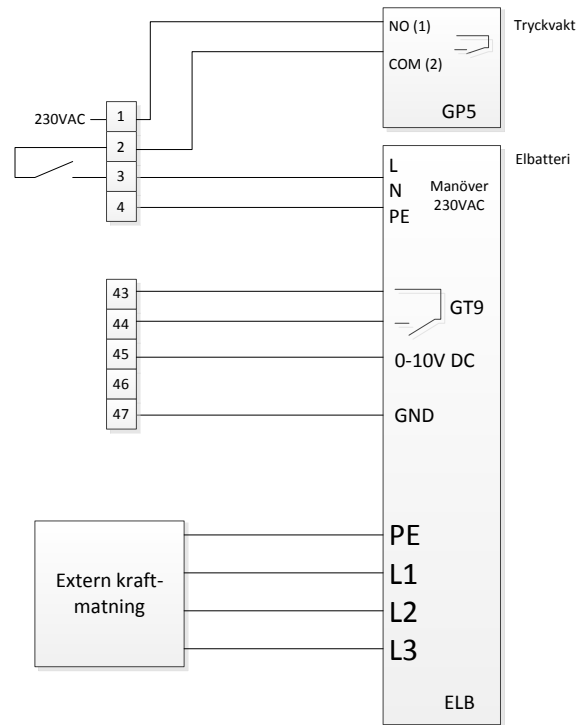
The hose is mounted as follows:



+ (plus) on GP5{ XE "GP5" }, will measure the duct pressure of the supply air
 - (minus) on GP5, must be unconnected, will measure atmospheric pressure

7.7.1 Electric heating coil external, not integrated in HERU® CX { XE "Electric heating coil external, not integrated in HERU® CX " }

The electric heating coil is normally mounted inside the HERU® CX unit at delivery from Suxess. If the electric heating coil is a duct design, it is connected as follows:



GT9 is the designation for overheating protection.

Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No, Yes, ...	No
Electric heating	No, Analog, 1 step, ...	1 step
Restart	✓, Execute	Execute
Main index > Configuration > Configuration 2		
Alarm electric heater	No, Yes	Yes
Restart	✓, Execute	Execute

GP3, GP4

7.8 Filter monitor{ XE "Filter monitor" }

The filter monitor is a differential pressure switch, pressure range 40-300 Pa. It is delivered separately with the unit from Suxess ERV.

Part no.:

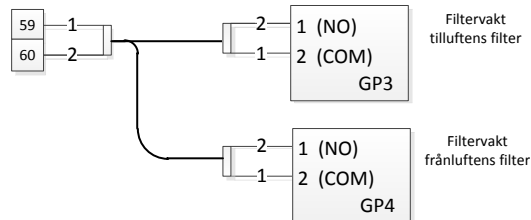
4020617	Pressure switch 0-300 Pa with hose package (only pressure switch)
5010011	Filter monitor, 300 Pa, 5 m cable (pressure switch with cable set)

Filter monitors GP3 & GP4 connected in parallel on the terminals P.59-P.60.

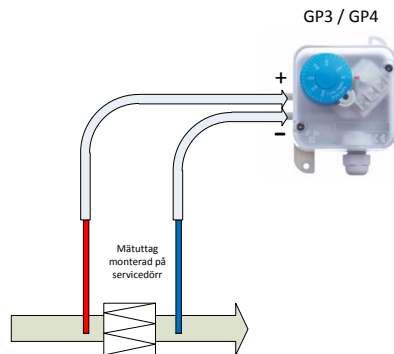
Connection of filter monitor as follows:

Connection

40 / 94



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 on the pressure switch.



Parameter

For activation/configuration:

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

7.8.1 Filter monitor with display{ XE "Filter monitor with display" }

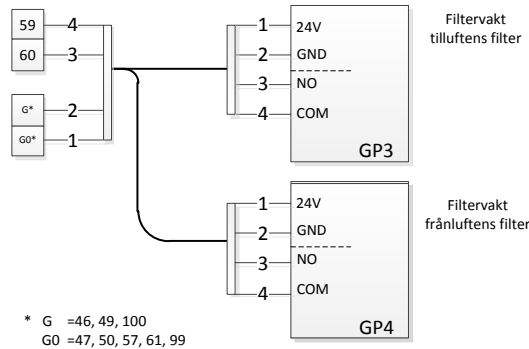
Filter monitor with display enables active reading of differential pressure over the filter while retaining the monitor's alarm function. It is sold like regular filter monitors, supplied separately with a 5-meter connection cable. Activation in Climatix, see Filter monitor.



Part no.:

4020625	Pressure switch with display (only pressure switch)
5010014	Filter monitor, with display, 5 m cable (pressure switch with cable set)

Filter monitor, with display, is connected as follows:



For activation/configuration, see chap. Filter monitor above

7.9 Cooling unit{ XE "Cooling unit" }

KM1

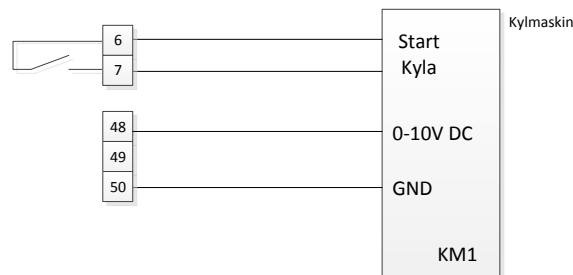
The system can control a basic model cooling unit (without EXP1). This model has no On/Off time delay (like that covered by a DX control). The start signal stops as soon as there is a cooling need.

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:

Connection



Parameter

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

7.10 Combi coil, DX cooler and heating pump{ XE "DX cooler and heating pump, combi coil" }

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:

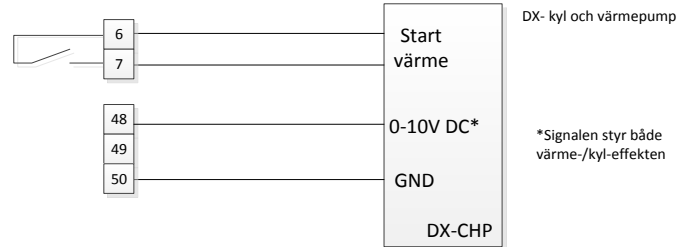
- Fujitsu

- Mitsubishi
- Panasonic
- LG

The integrated duct heater will regulate as extra heat, i.e. after the DX-CHP has controlled to 100 heat, the built-in heater will control the unit toward increasing heat.

The DX-CHP is connected as follows:

Connection



Parameter

7.10.1 Configuration when integrated heater is a water heater

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No / Yes	Yes
Cooling	No, Water, DX....	Water
Extra heat	No / Yes	Yes
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Frost guard heating	No / ... / Sens+2sp / ...	No
Pump heating	No / Yes / Yes+exercise	Yes
Combi Coil	No / 1 signal / 2 signal	1 signal
Pump cooling	No / Yes / Yes+exercise	No
Frost protection Ex-heat	No / ... / Sens+2sp / ...	Sens+2sp
Pump ex-heat	No / Yes / Yes+exercise	Yes+exercise
Ex-heat regulation	Stand-alone / Seq heat-Ex-heat	Sekv. Heat-Ex.heat Earlier versions only sequence
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Temperatures		
Frost protection Ex.heat	...	Pos: X4 Ni1KLG
Main index > Configuration > Config. IOs > Outputs temp.control		
Heating output signal	...	Pos: X8
Pump heat outp.	...	Pos: DO3
Cooling output signal	...	Pos: X8
Ex-heat output signal	...	Pos: X7
Pump Ex-heat	...	Pos: DO2

Parameter

7.10.2 Configuration when integrated heater is an electric heater:

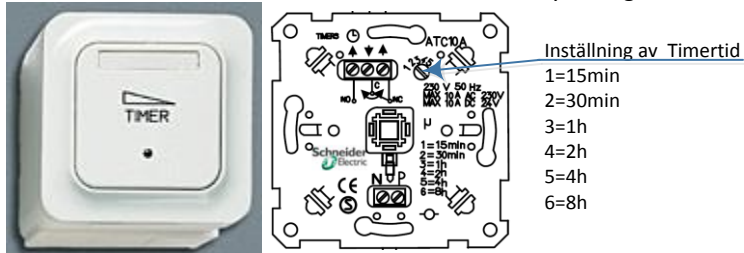
Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Heating	No / Yes	Yes
Cooling	No, Water, DX....	Water
Extra electric heat	No / Yes / 1 step /	1 step
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Frost guard heating	No / ... / Sens+2sp / ...	No
Pump heating	No / Yes / Yes+exercise	Yes
Combi Coil	No / 1 signal / 2 signal	1 signal
Pump cooling	No / Yes / Yes+exercise	No
Alarm Ex-heat	No / Yes	Sens+2sp
Ex-heat regulation	Stand-alone / Seq heat-Ex-heat	Sekv. Heat-Ex.heat Earlier versions only se- quence
Restart	√, Execute	Execute
Main index > Configuration > Config.IOs > Digital alarms		
Ex. electric heat	...	Pos: X4
Main index > Configuration > Config. IOs > Outputs temp.control		
Heating output sig- nal	...	Pos: X8
Pump heat outp.	...	Pos: DO3
Cooling output signal	...	Pos: X8
Ex-electric heater output signal	...	Pos: X7
Ex-electric heater output 1	...	Pos: DO2
Restart	√, Execute	Execute

7.11 Control inputs Timer etc.

**Outgoing model
replaced by
Siemens KOP5
TM1**

7.11.1 Timer control, make: Schneider Electric

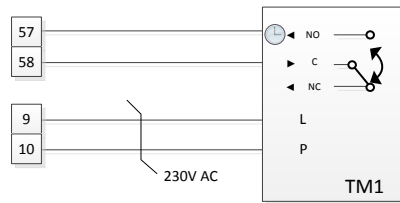
Timer control with electronic timer, OFF time-delay configuration inside the timer.



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

The timer is connected as follows:

Connection



 Part no.:

4020626 Timer external/recessed wall mounting IP44 0.25-8h
NOTE! Outgoing product, replaced by 40220053

New model,
replaces previous
model

7.11.2 Timer control, make: 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 (1h-5h) indicates the number of presses per hour, and also shows full hours left before the unit stops.

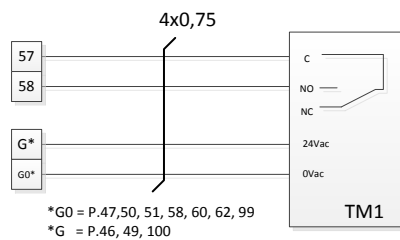
To switch off the unit (when time already started), hold the button down for three seconds to reset the timer.



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

The timer is connected as follows:

Connection



 Part no.:

4022053 Timer Electronic 1-5h 24/230VAC

7.11.2.1 Timer prolonged operation

TM1

It is possible to control operation with a timer/push button

At activation, HERU® CX is controlled to run at normal flow (usually fan step 2)

Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+exhaust	No
Emergency stop	No, Yes	No
External control input	No, One, Two	One
Restart	√, Execute	Execute
Main index > Unit > Operating functions > External control		
Fan step	Auto, Off, Step1, Step2, Step3	Step2

7.11.2.2 Timer boost operation

TM1

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

Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Filter alarm	No, supply air, Combi, Supply+exhaust	No
Emergency stop	No, Yes	No
Timing prog.step	1 step, 2 step, 3 step	3 step
External control input	No, One, Two	One
Restart	√, Execute	Execute
Main index > Unit > Operating functions > External control		
Fan step	Auto, Off, Step1, Step2, Step3	STEP 3

7.11.3 Presence detector

GN1

Settings in presence detector:

- Delay OFF: selectable 0.1-30 min.
- Delay ON: selectable 0-10 min.

At activation of the presence detector, HERU® CX is controlled to run at normal flow (usually fan step 2).

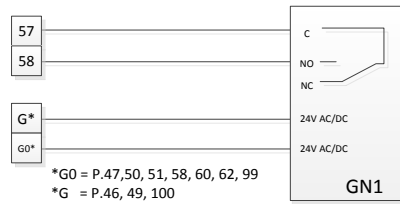


 Part no.:

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The presence detector is connected as follows:

Connection



Configuration, see chapter on Timer prolonged operation

7.11.4 External control from BMS, multiple speeds{ XE "External control from BMS, multiple speeds" }.

External control

Important!

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

- 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.

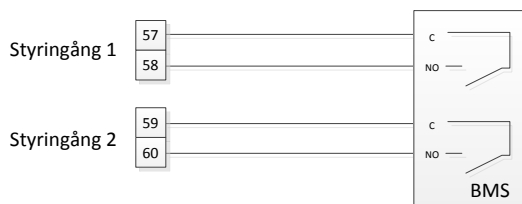
If two control inputs are active:

Control input 1	Control input 2	Fan operation is controlled to
ON	OFF	STEP 1
OFF	ON	STEP 2
ON	ON	STEP 3 Selectable in HMI (AUTO, OFF, Step1, Step2, Step3)
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 1st control input, read function and configuration according to Timer, see above.
{ XE "Extern styrning från BMS:en hastighet" }

Signals from BMS are connected as follows:

Connection



Parameter

For activation/configuration:

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

Main index > Unit > Operating functions > External control		
Fan step	Auto, Off, Step1, Step2, Step3	STEP 3
Main index > Unit > Operating functions > Timing 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.

7.11.5 Quick stop{ XE "Emergency stop, quick stop" }

Quick stop

Quick stop will always stop operation in all conditions; no afterblow in electric heating coil operation, EHC.

Quick stop is connected as follows:



Parameter

For activation/configuration:

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

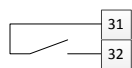
7.12 Indications for external signals

7.12.1 Operation indication{ XE "Operation indication" }

Operation contact indication

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:



7.12.2 Alarm indication{ XE "Alarm indication" }

Alarm contact indication

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.

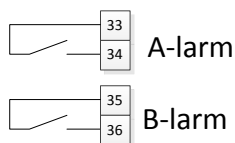
Alarm A can be described as Danger or High alarm class in the HMI.

Alarm B can be described as Low alarm class

Max load is 230V AC / max 2A

Alarm indication is connected as follows:

Connection



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 Suxess Climatix Basic Documentation.

7.12.3 AUX operation indication{ XE "AUX operation indication" }

AUX contact Indication

AUX operation indication is a selectable indication.

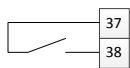
The following functions can be selected for indication of the AUX output:

Parameter name	Description of indication
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	Cooling down.
Startup	Unit's start routine enabled
Full heat	The heat signal has reached 100%
Full recovery	The recovery 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:

Connection



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

7.13 Room unit 2-wire{ XE "Room unit, 2-wire" }

RU1 **Room unit**

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



Climatix no.: POL822.60.

This 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 step and day of week
- - 2-wire interface to controller by use of Climatix process bus (KNX)
- Adjustable startup and regulator parameters
- Semi-flush mount; can be mounted on most types of flush-mounted junction boxes
- Programmable schedule

Connected directly on Climatix controller

2-wire interface, supply voltage and data in same line

+ Device supply voltage, data (positive)

- Device supply voltage, data (negative)

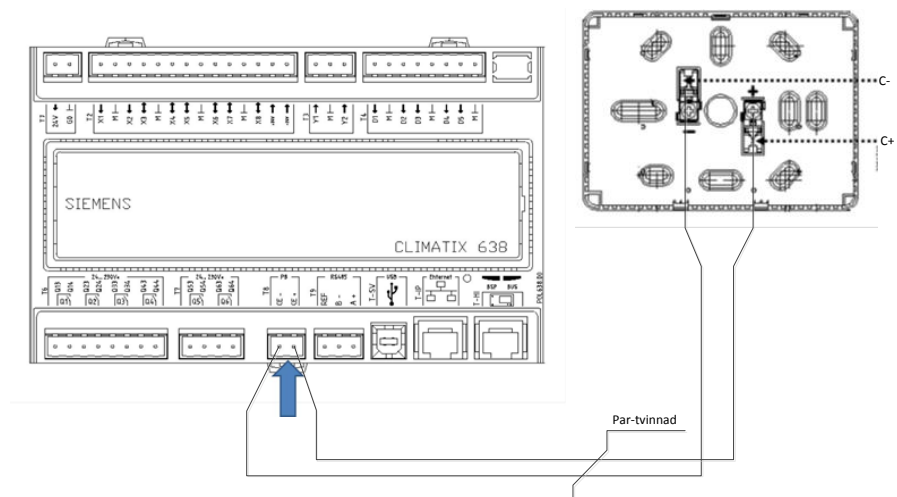
Connection terminals (screw terminal blocks) Single or multi-wire conductors 0.8 - 2.5 mm²

Part no.:

5010018 Room unit 2-wire CX-600

Connection

Connected as follows:



Parameter

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

7.14 External HMI-DM (IP31)

External HMI

An external HMI is available as an accessory for the CLIMATIX system.

HMI-DI is designed for applications where an extra HMI is needed, or for monitoring multiple HERU® CX units from one HMI.

Example:

- Monitoring conducted from utility/control room and HERU® CX is at another location on the property
- Monitoring 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

This 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, Arrow ▲, Arrow ▼ and ENTER ✓, on the HMI for HERU® CX
- Alarm button with LED
- Info button

Dimensions

144 x 96 x 26 mm

Weight, without packaging	256.7 g
Base plate, plastic	RAL7035

Connection via 2-wire interface to the controller, Climatix process bus (KNX); supply voltage and data in same line.

Terminal blocks	Connection with 2 screws
Cable length	Max. 700 m
Cable type	Twisted pair cable; 0.5 - 2.5 mm ² (according to KNX specification)

+ 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



Part no.:

4020653 CLIMATIX HMI-DM Display IP31

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:

8. Modbus pressure sensor

Important!

For versions $\geq V2.4X$, it is possible to use pressure sensors that communicate via Modbus. If pressure sensors that communicate via Modbus 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 chap. 10.4

8.1 The pressure sensor's designations and measuring ranges

GP1/GP2
GF1/GF2
GP41/GP42
Pressure sensors

This model does not need any extra expansion module, and therefore does not require multiple I/Os. The signal for each pressure transmitter goes via data bus communication. Compatible pressure sensors:

- QBM68.xxxx

These pressure sensors are available with pressure ranges 1250 Pa or 2500 Pa.

QBM68 is also available for double sensors in a unit (housing), with the 1st sensor marked P1 and the 2nd sensor marked P2.

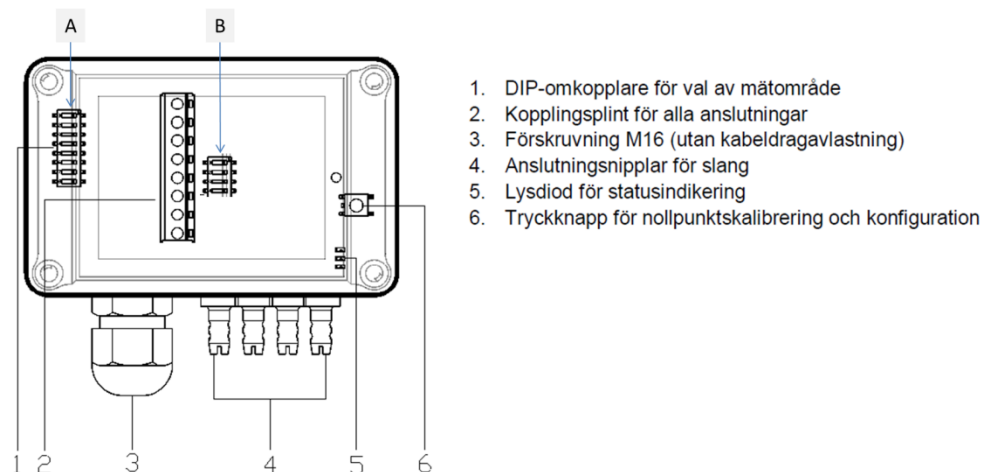
The following variants are possible:

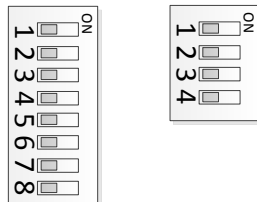
Designation	P1 pressure range	P2 pressure range	Modbus/ 0-10 V signal
QBM68.1200	0-1250 Pa	---	Yes/Yes
QBM68.1212	0-1250 Pa	0-1250 Pa	Yes/Yes
QBM68.2500	0-2500 Pa	---	Yes/Yes
QBM68.2512	0-2500 Pa	0-1250 Pa	Yes/Yes
QBM68.2525	0-2500 Pa	0-2500 Pa	Yes/Yes

8.2 Pressure sensor QBM68.xxx

Mechanical design

8.2.1 Settings and connections





8.2.2 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 tube, condensation water can collect in the sensor and cause damage.

8.2.3 Addressing of Modbus 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 to/from the pressure sensor.

Type of function	Pressure sensor unit	I/O-type	Description I/O designation		
			Pxxx	x40x	xxx1
Supply air flow, GF1	QBM68.xxxx	P401	Pressure	MB address 40	1=P1
Exhaust air flow, GF2	QBM68.xxxx	P402	Pressure	MB address 40	2=P2
Supply air pressure, GP1	QBM68.xxxx	P411	Pressure	MB address 41	1=P1
Exhaust air pressure, GP2	QBM68.xxxx	P412	Pressure	MB address 41	2=P2
Supply air filter GP31	QBM68.xxxx	P421	Pressure	MB address 42	1=P1
Exhaust air filter GP41	QBM68.xxxx	P422	Pressure	MB address 42	2=P2
Diff.pressure recovery GP42	QBM68.xxxx	P431	Pressure	MB address 43	2=P1

A Inställningar tryckområden		Svart fält markerar DIP-omkopplarens läge	
1	Dämpning <input type="checkbox"/> OFF 1 s <input type="checkbox"/> ON 4 s		
2	Tryckområde Y1 Max. 1250 Pa / 2500 Pa	A2/A5	0-100 Pa
3		A3/A6	0-200 Pa
4		A4/A7	0-300 Pa
5	Tryckområde Y2 Max. 1250 Pa / 2500 Pa	A2/A5	0-500 Pa
6		A3/A6	0-700 Pa
7		A4/A7	0-1000 Pa
8	Modbustermaningering <input type="checkbox"/> OFF <input type="checkbox"/> ON	A2/A5	0-1250 Pa
B	Inställningar Modbus	A2/A5	+/-100 Pa
1	Modbusadress 40...47	A2/A5	QBM68.1200
2		A3/A6	QBM68.1212
3		A4/A7	QBM68.2500
		A2/A5	QBM68.2512

Anm.: DIP-omkopplare A2...A4 är för enkelgivare och A5...A7 är för dubbelgivare

Applies to A setting pressure range & B settings Modbus, see image 8.2.1

5010040 contains a QBM68.xxxx, which contains 2 sensors, P1 & P2. These can be used for pressure control, flow control/display or filter measurement. Depending on which address you give the sensor, it will be used for the relevant function, provided that the function is enabled during configuration.

Connected as follows:

Connection

Parameter

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, exhaust air slave (<u>Direct</u> , <u>Direct FO</u> not applicable to HERU® CX)	Select suitable alternative See overview above
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Flow display	No / Yes	Select Yes if pressure regulation is selected and flow volume will be displayed.
Restart	√, Execute	Execute
Main index > Configuration > Config. IOs > Pressure/ Flow		
Supply air pressure	Pos: Factor: Area: Com 500 Pa* Type: P411	
Exhaust pressure	Pos: Factor: Area: Com 500 Pa* Type: P412	
Supply air flow	Pos: Factor: Area: Com 500 Pa* Type: [xx.xx] P401	[xx.xx] = K.factor (CX-Factor) Select K factor according to table below
Exhaust flow	Pos: Factor: Area: Com 500 Pa* Type: [xx.xx] P402	[xx.xx] = K.factor (CX-Factor) Select K factor according to table below
Supply air filter	Pos: Factor: Area: Com 500 Pa* Type: P421	
Exhaust air filter	Pos: Factor: Area: Com 500 Pa* Type: P422	
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.

8.3 Flow display{ XE "Flow display" }/Flow regulation{ XE "Flow regulation" }

Note

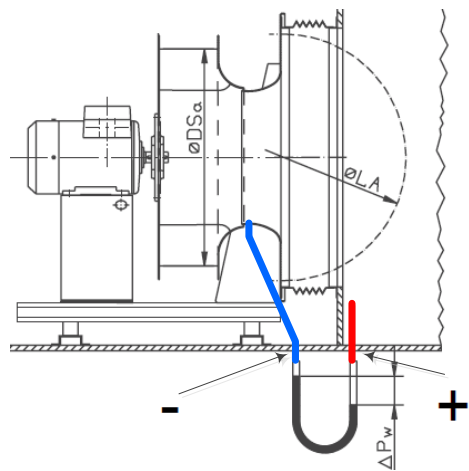
Because flow is calculated based on delta pressure [ΔP_w] (test point red and blue) for each fan, pressure sensors are used for flow display/flow regulation.

Climatix uses a factor for calculation of flow (hereafter referred to as the CX factor).

$$\text{CX-Faktor} = \frac{1}{\text{K-faktor} [\text{m}^3/\text{s}]} \quad \text{or} \quad \text{CX-Faktor} = \frac{1 \times 1000}{\text{K-faktor} [\text{l/s}]}$$

Formula {xe "K-factor" }

$$\text{CX-Faktor} \cdot \sqrt{\Delta P_w} \cdot 1000 = \text{gällande flöde i l/s}$$



Important!

The fan's specific K factor is described on the unit's type plate. Remember that the CX factor used in the controller is not the same as the K factor.

K factor{ XE "K-factor" } according to standard fans HERU® CX.

Size of HE-RU® CX	K factor $q_v = \text{K-Faktor} \cdot \sqrt{\Delta P_w} \quad [q_v = \text{l/s}]$	CX factor (called Factor in Climatix menu)
400	26.55	37.66
800	36.29	27.56
1600	54.70	18.28

9. Outer components expansion module{ XE "Outer components expansion module" }

EXP1

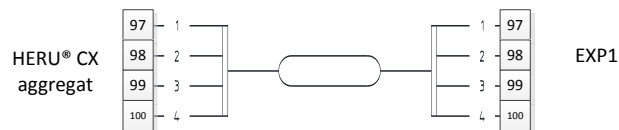
Functions that require more I/Os than those included in the basic version of the HERU® CX unit are extended via an expansion module (EXP1), supplied separately. This module is designed to be mounted on a wall near the HERU® CX unit (5-meter signal cable included in the delivery from Suxess ERV).

Part no.:

9050054 Expansion module supplied separately, HERU® CX-EXP-1

Connection

HERU® CX and EXP1 are connected as follows:



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	One
Restart	✓, Execute	Execute

9.1 Pressure sensors{ XE "Pressure sensors" }

GF1, GF2 GP1, GP2

This function is only used in combination with EXP1 and Versions > V2.4x.
The system can use pressure sensors (transmitters) for constant duct pressure or to measure flows.



- Pressure sensors for pressure regulation GP1 & GP2 are usually in the pressure range 0 - 500 Pa.
- Pressure sensors for flow regulation GF1 & GF2 are usually in the pressure range 0 - 3000 Pa.

The following overview shows what pressure sensors must be used for these different fan regulations.

Overview fan regulation:

Type of fan regulation	Sensor ID	Configuration option
Constant flow regulation	GF1, GF2	Flow reg.
Constant pressure regulation	GP1, GP2	Pressure reg.

Constant pressure regulation with display of current flow	GP1, GP2, GF1, GF2	Pressure reg. Flow display=yes
Supply air pressure reg., Exhaust air slave-controlled*	GP1, GF1, GF2	Exhaust air Slave *
Exhaust air pressure reg., Supply air slave-controlled*	GP2, GF1, GF2	Supply air Slave*

* Exhaust air Slave = Constant duct pressure on supply air, exhaust air controlled according to flow on supply air

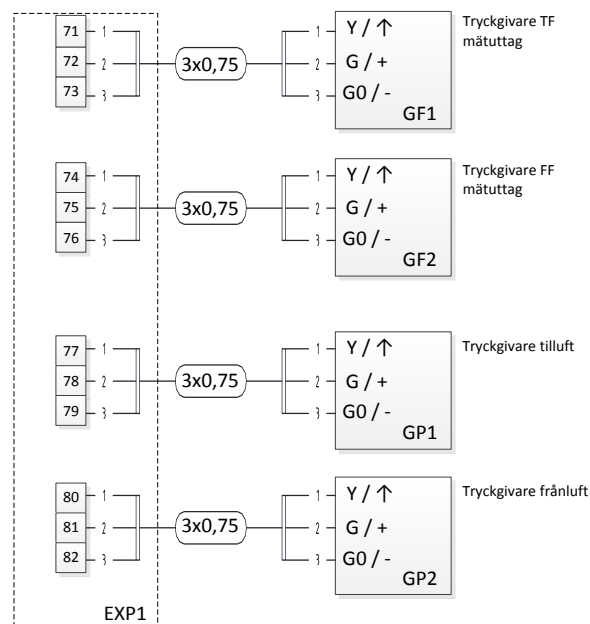
* Supply air Slave = Constant duct pressure on exhaust air, supply air controlled according to flow on exhaust air

 Part no.:

4020701	Pressure sensor 0 - 500 Pa (only pressure sensor)
4020700	Pressure sensor 0 - 3000 Pa (only pressure sensor)
5010008	Duct pressure sensor 0 - 500 Pa, 5 m cable
5010009	Flow pressure sensor 0 - 3000 Pa, 5 m cable

Connecting pressure sensor{ XE "Pressure sensors:connecting" }

Connection



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	One
Fan regulation type	Fixed frequency, pressure regulation, flow regulation, supply air slave, exhaust air slave (Direct, Direct FO not applicable to HERU® CX)	Select suitable alternative See overview above
Restart	✓, Execute	Execute
Main index > Configuration > Configuration 2		
Flow display	No / Yes	Yes
Restart	✓, Execute	Execute

Main index > Configuration > Config. IOs > Pressure/ Flow			
Supply air flow	Pos: X11	Factor [xx,yy] Area 3000 Pa	Select K factor according to table below
Exhaust air flow	Pos: X12	[K factor] 3000 Pa	Select K factor according to table below
Supply air pressure	Pos: X13	500 Pa	
Exhaust air flow	Pos: X14	500 Pa	
Restart	√, Execute		Execute

GF1, GF2

9.2 Flow display{ XE "Flow display" }/Flow regulation{ XE "Flow regulation" }

Note

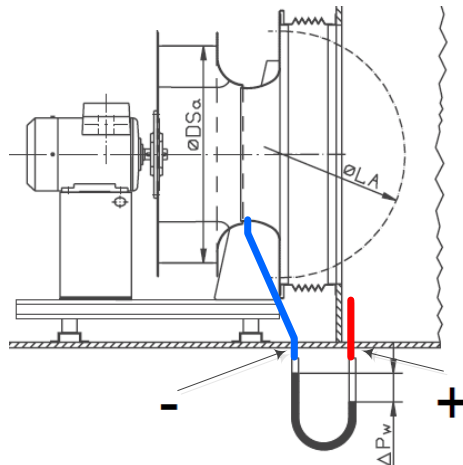
Because flow is calculated based on delta pressure $[\Delta P_w]$ (test point red and blue) for each fan, pressure sensors are used for flow display/flow regulation.

Climatix uses a factor for calculation of flow (hereafter referred to as the CX factor).

$$\text{CX-Faktor} = \frac{1}{\text{K-faktor} [\text{m}^3/\text{s}]} \quad \text{or} \quad \text{CX-Faktor} = \frac{1 \times 1000}{\text{K-faktor} [\text{l/s}]}$$

Formula { xe "K-factor" }

$$\text{CX-Faktor} \cdot \sqrt{\Delta P_w} \cdot 1000 = \text{gällande flöde i l/s}$$



Important!

The fan's specific K factor is described on the unit's type plate. Remember that the CX factor used in the controller is not the same as the K factor.

K factor{ XE "K-factor" } according to standard fans HERU® CX.

Size of HE-RU® CX	K factor $q_v = \text{K-Faktor} \cdot \sqrt{\Delta P_w}$ [$q_v = \text{l/s}$]	CX factor (called Factor in Climatix menu)
400	26.55	37.66
800	36.29	27.56
1600	54.70	18.28

9.3 DX cooling{ XE "DX cooling" }

DX-C

Important!

This function is only used in combination with EXP1.

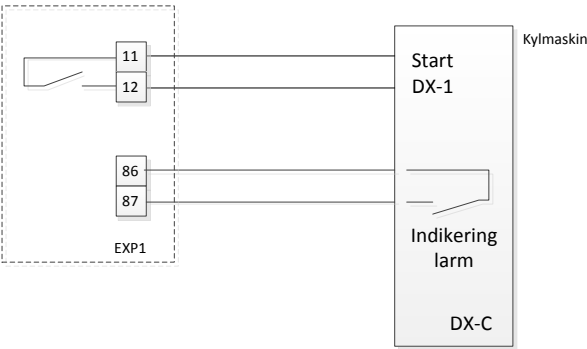
The system can control compressors for DX cooling coils.

The step breakdown for the DX coil can be as follows:

1-step (On/Off)

Step order, 1-step DX	DX-1
Cooling not active	Off
1st step	On

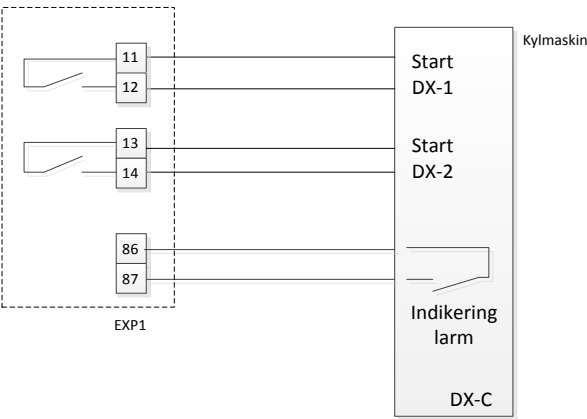
Connection



2-step (50/50% output distribution)

Step order, 2-step DX	DX-1	DX-2
Cooling not active	Off	Off
1st step	On	Off
2nd step	On	On

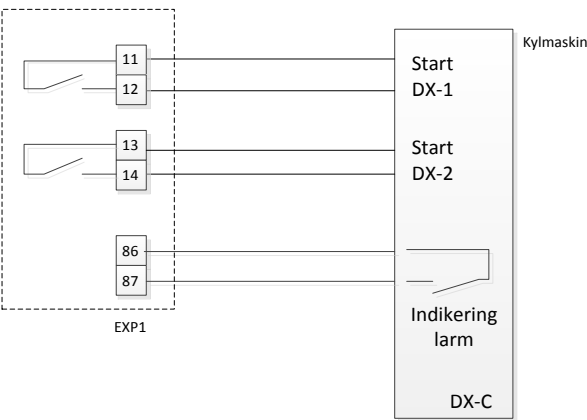
Connection



3-step (1/3 - 2/3 output distribution)

Step order, 3-step DX	DX-1	DX-2
Cooling not active	Off	Off
1st step	On	Off
2nd step	Off	On
3rd step	On	On

Connection



Alarm DX cooling{ XE "Alarm DX cooling" }

Alarm signal or operation indication (feedback) from the DX cooling unit can be used. An alarm in the DX cooling unit will then be presented as Alarm Cooling in the HMI.

Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	One
Cooling	No, Water DX 1step, DX 2step, DX 3step....	Select suitable DX step
Restart	√, Execute	Execute
Main index > Configuration > Configuration 2		
Alarm DX cooling	No / Alarm / Return / Alarm+ Return (<u>Alarm+return</u> , not applicable to HERU® CX)	<ul style="list-style-type: none"> - No If no alarm/ind. is used - Alarm Common alarm in DX cooling unit - Return Operation indication in DX cooling unit
Restart	√, Execute	Execute
Main index > Configuration > Config.IOs > Digital alarms		
DX cooling	...	X16
Main index > Configuration > Config. IOs > Outputs temp.control		
DX cooling output 1	...	DO11
DX cooling output 2	...	DO12
Restart	√, Execute	Execute

9.4 Air quality sensor CO2{ XE "Air quality sensor CO2" }{ XE "CO2" }

GQ1

This function is only used in combination with EXP1.
The system can compensate for fans using the CO2 sensor GQ1.

Room sensor



Duct sensor



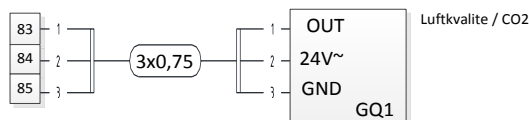
This cannot be combined with room humidity sensors or an external setpoint switch, as these three functions use the same input.

Part no.:

4020623	CO2 sensor, room model [LCN-WRF CO2V]
5010012	CO2 duct model 0 - 2000 ppm, 5 m cable

Connection

Connection in EXP1



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 2		
Expansion module	No, One, Two	One
Fan comp. air quality	No / Yes	Yes
Restart		Execute

9.5 Humidity sensor{ XE "Humidity sensor" }

GM1

Important!

This function is only used in combination with EXP1.

The system can fan compensate using humidity sensor GM1.

This is not dehumidification; only fan boost at high humidity levels.

It is possible to use a room humidity sensor or a duct sensor in the exhaust air. The sensor is connected to EXP1.

Room sensor

Duct sensor



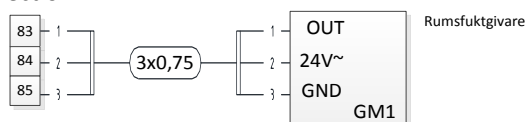
This cannot be combined with CO2 sensors or an external setpoint switch, as these three functions use the same input.

Part no.:

4020621	Humidity sensor RH, Room sensor [LCN-FW04V]
5010013	Humidity sensor RH, Duct m. 5m cable

Connection

Connection in EXP1



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	One

Room sensor humidity	No / Yes	Yes
Restart		Execute
Main index > Configuration > Configuration 1		
Fan comp. room humidity	No / Yes	Yes
Restart		Execute

9.6 External setpoint{ XE "External setpoint" }

TU1

Ext.Setp.Temp.

This function is only used in combination with EXP1.

The system can compensate for temperature setpoints via a room switch.

Compensation is a setpoint effect, i.e. correction $\pm 3K$ based on the current set value.



Room switch for external setpoint connected to EXP1.

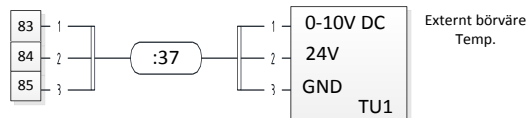
This cannot be combined with CO2 sensors or humidity sensors, as these three functions use the same input. If external setpoints will be used for effect from BMS, the signal is connected without the room potentiometer; see connection diagram below. { XE "External control from BMS:ext 0-10V. setpoint temp." }

Part no.:

4020781 Setpoint switch, Potentiometer Ext.Setp.Temp

Connection

Connection in EXP1



Parameter

For activation/configuration:

Parameter name	Area	Select
Main index > Configuration > Configuration 1		
Expansion module	No, One, Two	One
External setpoint	No / Volt / Ohm / QAA27 / BSG21	Select Volt
Restart		Execute

9.7 Alarm input heating/cooling{ XE "Alarm input heating/cooling" }

Alarm/return Heating/cooling

This function is only used in combination with EXP1.

Via the expansion module, it is possible to use input monitoring of heating and/or cooling. The input can be used for various purposes.

The function can be used for heating or for cooling.

Examples of different monitorings:

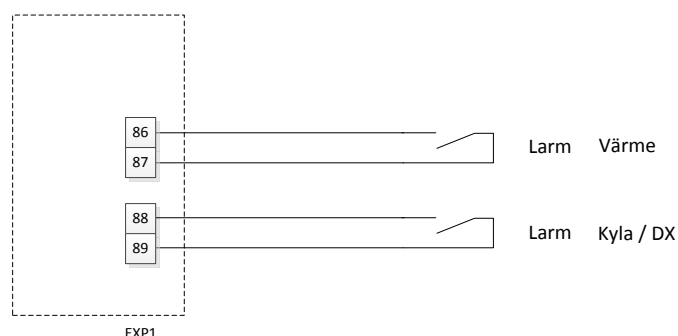
- Heating
 - Alarm circulation pump{ XE "Alarm circulation pump" }water heating
- Cooling
 - Alarm circulation pump water cooling
 - Alarm DX cooling{ XE "Alarm DX cooling" }
 - Alarm cooling unit{ XE "Alarm Cooling unit" }

Important!

The signal input can be used via an auxiliary contact in the operating switch (safety switch) and alarm contact in the circulation pump; an alarm is triggered if the operating switch is switched off or if there is an alarm on the pump.

Connected as follows:

Connection



Parameter

- For activation/configuration of cooling:

Parameter name	Area	Select
Main index > Configuration > Configuration 2		
Pump Alarm cooling	No / Alarm / Return / Alarm+ Return	Select: Alarm
Alarm DX cooling	No / Alarm / Return / Alarm+ Return	Select: Alarm
Pump Alarm heating	No / Alarm / Return / Alarm+ Return	Select Alarm after return
Restart		Execute

Return or Alarm + Return not applicable to HERU® CX.

Signal input Contact function can be changed to NC (normally closed).

This is done under Unit > Inputs.

For more information, see Suxess Climatix Basic Documentation - 9720005.

10. Miscellaneous{ XE "Miscellaneous" }

10.1 Rotating heat exchanger control unit{ XE "Rotating heat exchanger control unit" }

EMS{ XE "EMS" }

The control unit has a built-in soft start and soft stop function, which reduces wear on the equipment. At low control signal (under 1.5 V), the afterblow automatically activates the control unit. The rotor rotates about 30 degrees every 10 minutes to keep it clean. The control unit is equipped with a rotational speed monitor that sends an alarm if e.g. the belt breaks. An integrated linearization function provides linearization between the control signal and the rotor's efficiency, instead of the speed being proportional to the control signal. This provides better conditions for stable temperature regulation.



Two LED lights indicate operation. An alarm is triggered when the rotation monitor sends an alarm, when mains power is lost and at overload. Alarms from EMS can also be triggered in the HMI.

10.1.1 Operation indication in the control unit{ XE "Rotating heat exchanger control unit: Operation indication" }

Green	Red	Indication	Alarm to Climatix	Restart
Lights for 2 seconds	Lights for 2 seconds	Power on		
Slow flashing	Off	Afterblow mode		
Rapid flashing	Off	Continuous operation		
Lights for 2 seconds	Off	Magnet passes rotation sensor		
Rapid flashing	Steady light	Pre-alarm, overload Max 0.7A consumption on inc. power	No	Automatic restart 3 times, cool-off time 40 min
Off	Rapid flashing	Rotation alarm	Yes	Manual, disconnect and connect the power supply
Off	Steady light	Overload alarm	Yes	

10.1.1.1 Troubleshooting, alarm{ XE "Rotating heat exchanger control unit: Troubleshooting, alarm" }

Observation indication	Cause/action
------------------------	--------------

check that the DIP switches are correctly set	1 =ON, 2=OFF, 3=OFF, 4=ON, 5=ON
No LED lights	Check that 230 VAC $\pm 10\%$ is on the mains terminal. If the mains voltage is correct, replace the control unit.
Green LED flashes slowly/ blow off mode - low control signal	Are + and - reversed? Are the DIP switches 2-3 correctly set? Vary the control signal between min and max, can 0-10 V (2-10 V) be measured between 33(+) och 34(-)? Check EMX-P10 by jumping 36-37. The motor should now accelerate to full speed.
Red LED flashes/ rotation monitor	The motor is still running The rotation monitor has detected that input 31-32 has not been connected the past 4 rotor turns. This may be due to: <ul style="list-style-type: none"> Error on the rotation monitor. <ul style="list-style-type: none"> The rotation monitor can be controlled with the green LED. First reset the alarm by disconnecting and connecting mains supply to the control unit. The LED will light steadily for about 2 seconds when 31-32 is connected, e.g. when the magnet passes the rotation sensor. Check the distance between the magnet and the rotation monitor. The distance must be 5-8 mm; adjust as needed. Error in control unit. First reset the alarm by disconnecting and connecting mains supply to the control unit. Jumpers 36-37. Is the voltage between terminals T1 and T2 $\sim 180\text{-}230$ VAC? If not, replace the control unit.
Red LED has steady light and green is off	The motor protection has been triggered. Check that the right motor is connected, that jumper BY1 is cut if the motor capacitor will be 1.5 mF, and that the heat exchanger doesn't seize up. Also check that the tachometer cable is connected correctly and is not damaged.
Rotation monitor doesn't send alarm	Check DIP switch 4. Also check sensor/magnet.
The motor rotates in the wrong direction	Reverse the motor cables in the connection terminals T2 and T3. Varandra.
The motor runs at full speed even when the control signal is low	Check the tachometer integrated in the motor and the cables for the tachometer.
The motor runs uneven, jerky	Check that jumper BY1 in the control unit is cut off.
Motor is hard to start, sluggish	Check that the phase order is correct and matches the electrical diagram.

3050034	Emotron control EMX-P10
30500035	Rotation monitor with magnet. Emotron
3050127	Heat exchanger motor 25 W for HERU®400/800 CX (without gearbox) with contacts
3050132	Heat exchanger motor 40 W for HERU®400/800 CX (without gearbox) with contact
3050021	Gearbox for 25 W motor for HERU®400 CX (without belt pulley)
3050020	Gearbox for 25 W motor for HERU®800 CX (without belt pulley)
3050022	Gearbox for 40 W motor for HERU®1600 CX (without belt pulley)

10.2 Timing program{ XE "Timing program" }

10.2.1 General

This section describes functions and settings for timing program and calendars.

Function

When no object with higher priority (for example Manual mode <> Auto) is enabled, the unit can be switched off or the step changed (step1...3) via the timing 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 timing program (only in operating mode). Up to 10 periods or exception days can be specified for each calendar.

NOTE:

Timing program.funct. = Step+Temp: Setpoints for both fan step and temperature (comfort/economy) are controlled by the timing program.

10.2.2 Week schedule{ XE "Timing program:Week schedule" }

Parameter

Main index > Unit > Operating functions > Timing 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	<ul style="list-style-type: none"> – Mon to – Tu-Fr 	Copy times for the timing program from Monday to Tuesday-Friday. <ul style="list-style-type: none"> – Passive (no copying). – Copying starts. Return 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.

10.2.3 Day schedule{ XE "Timing program:Day schedule" }

Parameter

Main index > Unit > Operating functions > Timing 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	<ul style="list-style-type: none"> – Passive – Active 	Status for current week or exception day: <ul style="list-style-type: none"> – 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		Analog value 1.
Time-3 ... Time-6		Analog time 2.

10.2.4 Calendar (exception and fix off){ XE "Timing program:Calendar (exception and fix off)" }

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.

Parameter

- Main index > Unit > Main overview > Time switch program > Calendar exceptions
- Main index > Unit > Main overview > Time switch program > Calendar fix off

Parameter	Value	Function
Current value	<ul style="list-style-type: none"> – Passive – Active 	Shows if a calendar time is enabled: <ul style="list-style-type: none"> – No calendar time enabled – Calendar time enabled
Choice-x	<ul style="list-style-type: none"> – Date – Interval – WeekDay – Passive 	Specification of exception type: <ul style="list-style-type: none"> – A certain date (e.g. Dec. 25, 2015). – 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		<ul style="list-style-type: none"> 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.
-Week day		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 = *,*.Even.00
All days in even months (February, April, June, August, 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,Even
Every Friday in even months (February, April, June, August, etc) is an exception day.
- Week day = *,*,*
Warning! This means that the exception is always active! The unit is constantly in exception mode or switched off.

10.3 Configuration{ XE "Configuration" }

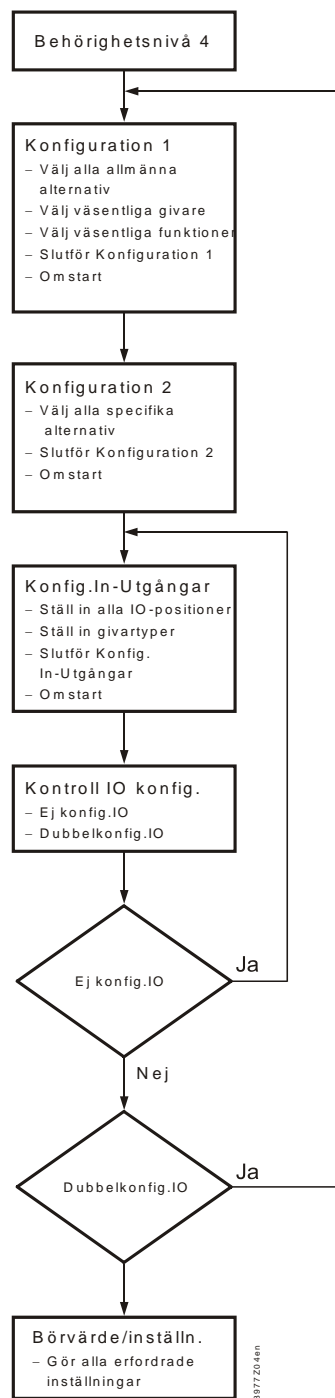
Configuration Principle

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

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

Perform these three steps in this order.

Illustration



Preparations

Select Start page > Log in --->

Enter the password for level 4: 2000.

Change language as needed. Main index > System overview > Language selection

Select Main index > Configuration --->

Start Configuration 1.... Connect with Restart

Continue with Configuration 2.... Connect with Restart

If there is no ALARM: Unconfigured I/Os or Double-configured IOs will come up at startup.

After Configuration 2 is finished, the unit can be started up and commissioned.

If there is an Alarm: Unconfigured I/Os or Double-configured I/Os come up, see chap. 10.5.

10.4 Communication{ XE "Communication" }

10.4.1 General

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

Communication with controller

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 Licence
AWM (Advanced Web Module)	---	POL909.50/STD

Part no.:

4020651	Climatix-600 Modbus RTU, 2x output comm.-module	POL902.00/STD
4020649	Climatix-600 BACnet IP comm. module	POL908.00/STD
4020650	Climatix-600 LON comm. module	POL906.00/STD
4020785	Climatix-600 OPC license	OPC Licence
4020648	Climatix-600 AWM Web comm.module	POL909.50/STD

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

Main index > System overview > Communications

Parameter	Value	Function
Comm.module over-view	—	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 Web 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{ XE "Web language" }	— English — Swedish — German	Language for Advanced Web Module
	—	

10.4.2 MODBUS{ XE "MODBUS" }

Internal interface

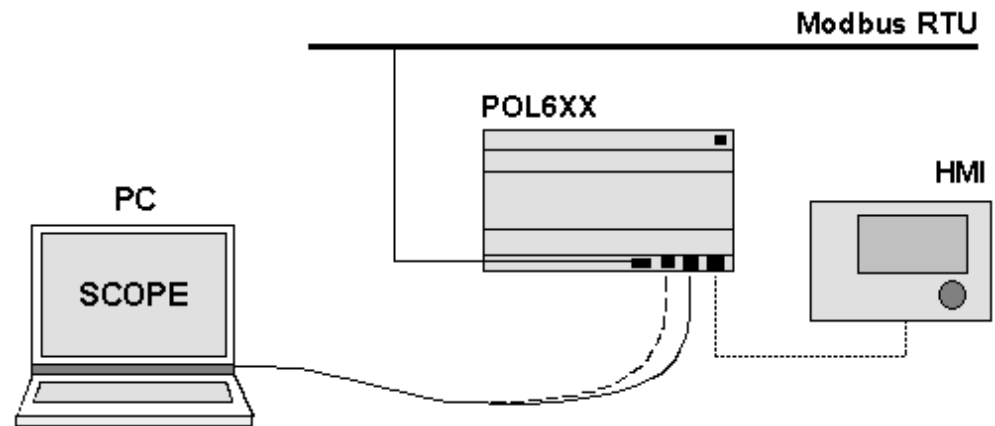
A MODBUS interface is always available in the controller, RS485 or TCP/IP can be selected.

10.4.3 Initiation{ XE "MODBUS:Initiation" } of internal MODBUS-interface

Units

Included units

- Climatix POL 6xx-controller



Prerequisites

Prerequisites for initiation:

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

Name	Type	Description
Communication module	POL902.00/STD	External modbus module 2 Modbuss slave outputs (RTU/RS485)
Internal modbus RTU	PROC1 Climatix POL63x.00/STD	Internal Modbus Slave Used for BMS or Internal Modbus Master, used for Pressure sensor
Internal Modbus TCP/IP	PROC1 Climatix POL63x.00/STD	Internal modbus slave via RJ45/Ethernet connection labelled T-IP

Parameter settings for MODBUS

Main index > System overview > Communications > Modbus

Parameter	Value	Function
Communication	<ul style="list-style-type: none">– OK– Alarm	– Status for Modbus communication.
Internal	<ul style="list-style-type: none">– None– Master– Slave	Activation and type of MODBUS function: <ul style="list-style-type: none">– 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.

**Parameter settings for
MODBUS RS485{ XE
"MODBUS:RS485" }**

Main index > System overview > Communications > Modbus > RS485

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

NOTE:

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

**Parameter settings for
MODBUS TCP/IP{ XE
"MODBUS:TCP/IP" }**

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

Main index > System overview > Communications > TCP/IP > Change sett

Parameter	Range	Function
IP	192.168.001.099	IP address on the bus.
Mask	255.255.255.000	Subnet mask on the bus.
Gateway	192.168.001.001	Gateway
DHCP	<ul style="list-style-type: none"> – Passive – Active ← DEFAULT 	<ul style="list-style-type: none"> – Fixed IP address (must be entered). – Automatic address assigned via DHCP server.
Reset required !!	<ul style="list-style-type: none"> – ✓ – Execute 	– As a matter of principle, the controller must be set after changing the settings to assume the data.
User name	–	Enter user name on the network.
Password	–	Enter user name on the network.

10.5 Checking IO configuration{ XE "Checking IO configuration" }

Diagnostics table for checking inputs and outputs

10.5.1 Not configured IOs{ XE "Not configured IOs" }

Inputs and outputs that have not been configured. Cannot be represented in plain text, but only as a number.

Kontroll IO konfigur.
Ej Konfig. IO Ja
1:a ej konfig IO nr 82
Dubbelkonfig. IO Nej
Dubbelkonfig. IO'n 0
Dubbelkonfig. IO pos 0

Warning!

See the tables on the following pages.

1st not configured IO no. = 82 => External control input 2 is not allocated any input (Select output under Config. IOs).

There may not be any IOs that are not connected to an input/output. If any are connected, the unit will be blocked and

cannot be started!

10.5.2 Double-configured IOs{ XE "Double-configured IOs" }

The inputs and outputs that use the same input or output cannot

be represented in plain text; they can only be represented 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.

There may not be any IOs that are not doubled to a single input/output. If any are connected, the unit will be blocked and cannot be started!

Kontroll IO konfigur.
Ej Konfig. IO Nej
1:a ej konfig IO nr 0
Dubbelkonfig. IO Ja
Dubbelkonfig. IO'n 82 81
Dubbelkonfig. IO pos DI3

Warning!

Analog inputs

Name	Type	Position (IO cont)
Supply air temperature	AI	1
Room temperature 1	AI	2
Room temperature 1	AI	3
Exhaust air temperature	AI	4
Outside air temperature	AI	5
Freezing temperature	AI	6
Temperature, water heat exchanger	AI	7
Exhaust air temperature	AI	8
Supply air temperature, heat recovery	AI	9
Supply air temperature, extra sequence	AI	10
Freezing temperature, extra heating	AI	11

Name	Type	Position (IO cont)
Temperature, AUX input	AI	12
Supply air pressure	AI	21
Exhaust air pressure	AI	22
Supply air flow	AI	23
Exhaust air flow	AI	24
Differential pressure, recovery	AI	25
Supply air humidity	AI	31
Room air humidity	AI	32
Outside air humidity	AI	33
Air quality	AI	35
External setpoint	AI	36

Digital inputs

Name	Type	Position (IO cont)
Frost thermostat/external frost	DI	41

Name	Type	Position (IO cont)
Return for extra DX cooling	DI	63

guard input		
Heating pump alarm	DI	42
Return for heating pump	DI	43
Electric heating/overheating alarm	DI	44
Frost 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
Frost thermostat, extra heating	DI	56
Pump alarm, extra heating	DI	57
Pump return, extra heating	DI	58
Alarm, extra electric heating/overheating	DI	59
Pump alarm, extra cooling	DI	60
Pump return, extra cooling	DI	61
Alarm for extra DX cooling	DI	62

Fan alarm	DI	64
Supply air fan alarm	DI	65
Supply air fan return (combined)	DI	66
Exhaust air fan alarm	DI	67
Exhaust air return	DI	68
Filter alarm	DI	69
Alarm for supply air filter	DI	70
Alarm for exhaust air filter	DI	71
Fire/smoke alarm	DI	72
Supply air damper return (combined)	DI	73
Exhaust 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

Analog outputs

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

Name	Type	Position (IO cont)
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 cont)
Supply air damper (combined)	DO	131
Exhaust 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 exhaust air fan	DO	139
Output 2 for exhaust air fan	DO	140
Output 3 for exhaust air fan	DO	141
Output 1 for electric heating	DO	145
Output 2 for electric heating	DO	146
Heating pump	DO	147

Name	Type	Position (IO cont)
Output 1 for DX cooling	DO	150
Output 2 for DX cooling	DO	151
Output 1 for extra electric heating	DO	152
Output 2 for extra electric 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 timing program	DO	165
AUX operating mode indicator	DO	166
Output for priority alarm (A / A+B)	DO	168
Output for non-priority alarm	DO	169

Pump/control, recovery	DO	148
Cooling pump	DO	149

(B)		
Humidification	DO	171
Humidification pump	DO	172

10.5.3 HERU® CX I/O configuration{ XE " I/O configuration" }

Controller 1				
Physical positioning for controller POL683x				
IO	Function	IO type	Connection	Comments
Digital outputs				
DO1	Outside air damper	Digital	T6 (Q13,Q14)	ST1/ST2
DO2	Pump Heating, Electric heating command (step-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)	
Analog outputs				
AO1	Supply air signal 0-10 V DC	0...10 V DC	T3 (Y1,M)	TF-EC
AO2	Exhaust air signal 0-10 V DC	0...10 V DC	T3 (Y2,M)	FF-EC
Binary inputs				
DI1	Alarm Fans (Common alarm Supply + Exhaust)	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	Exhaust air temperature, room temperature	NI1KLG	T2 (X2,M)	GT2, GTR
Universal inputs/outputs				
X3	Outside temperature	NI1KLG	T2 (X3,M)	GT3
X4	Frost guard, Alarm electric heater/Overheating	NI1KLG	T2 (X4,M)	GT8, GT9 (GT9-A/GT9-M)
X5	Extract 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-step, DX step-1	Digital	T3 (Q13,Q14)	KM1, DX-1
DO12	DX step-2	Digital	T3 (Q23,Q24)	DX-2
DO13	Indication supply air step 2	Digital	T3 (Q33,Q34)	Supply air Step-2 Ind
DO14	Indication supply air step 3	Digital	T4 (Q43,Q44)	Supply air Step-3 Ind
Analog outputs				
AO11	Reserve	0...10 V DC	T5 (Y1,M)	
AO12	Reserve	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	Exhaust air pressure (GP2)	AI 0... 10 V DC	T1 (X2,M)	GP2

X13	Flow supply air (GF1)	AI 0... 10 V DC	T1 (X3,M)	GF1
X14	Exhaust 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				

10.5.4 HERU address list Modbus master

Type of function	Pressure sensor unit	I/O-type	Description I/O designation		
			Pxxx	x40x	xxx1
Supply air flow, GF1	QBM68.xxxx	P401	Pressure	MB address 40	1=P1
Exhaust air flow, GF2	QBM68.xxxx	P402	Pressure	MB address 40	2=P2
Supply air pressure, GP1	QBM68.xxxx	P411	Pressure	MB address 41	1=P1
Exhaust air pressure, GP2	QBM68.xxxx	P412	Pressure	MB address 41	2=P2
Supply air filter GP31	QBM68.xxxx	P421	Pressure	MB address 42	1=P1
Exhaust air filter GP41	QBM68.xxxx	P422	Pressure	MB address 42	2=P2
Diff.pressure recovery GP42	QBM68.xxxx	P431	Pressure	MB address 43	2=P1

10.6 Program versions

10.6.1 BSP and application in the controller{ XE "Version of software and BSP" }{ XE "BSP: in controller" }

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

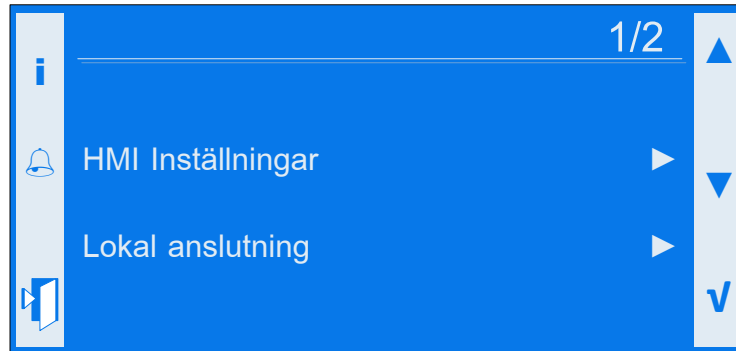
Parameter	Value	Function
Application info.	<ul style="list-style-type: none"> - Siemens (or Suxess ERV) - AHU V2.44 - Date of version 	
BSP version	10.26	

10.6.2 BSP in HMI

The control panel has its own BSP.

To see the current version number in the HMI:

Hold down ESC , on the HMI for about 3 seconds; a new menu will appear



Select HMI settings for info on the BSP { XE "BSP:i HMI" } version in the HMI.

To return to the regular menu, press ESC ; then select Local connection{ XE "Local connection" } to come to the Start menu.

10.7 Alarm handling{ XE "Alarm handling" }

General

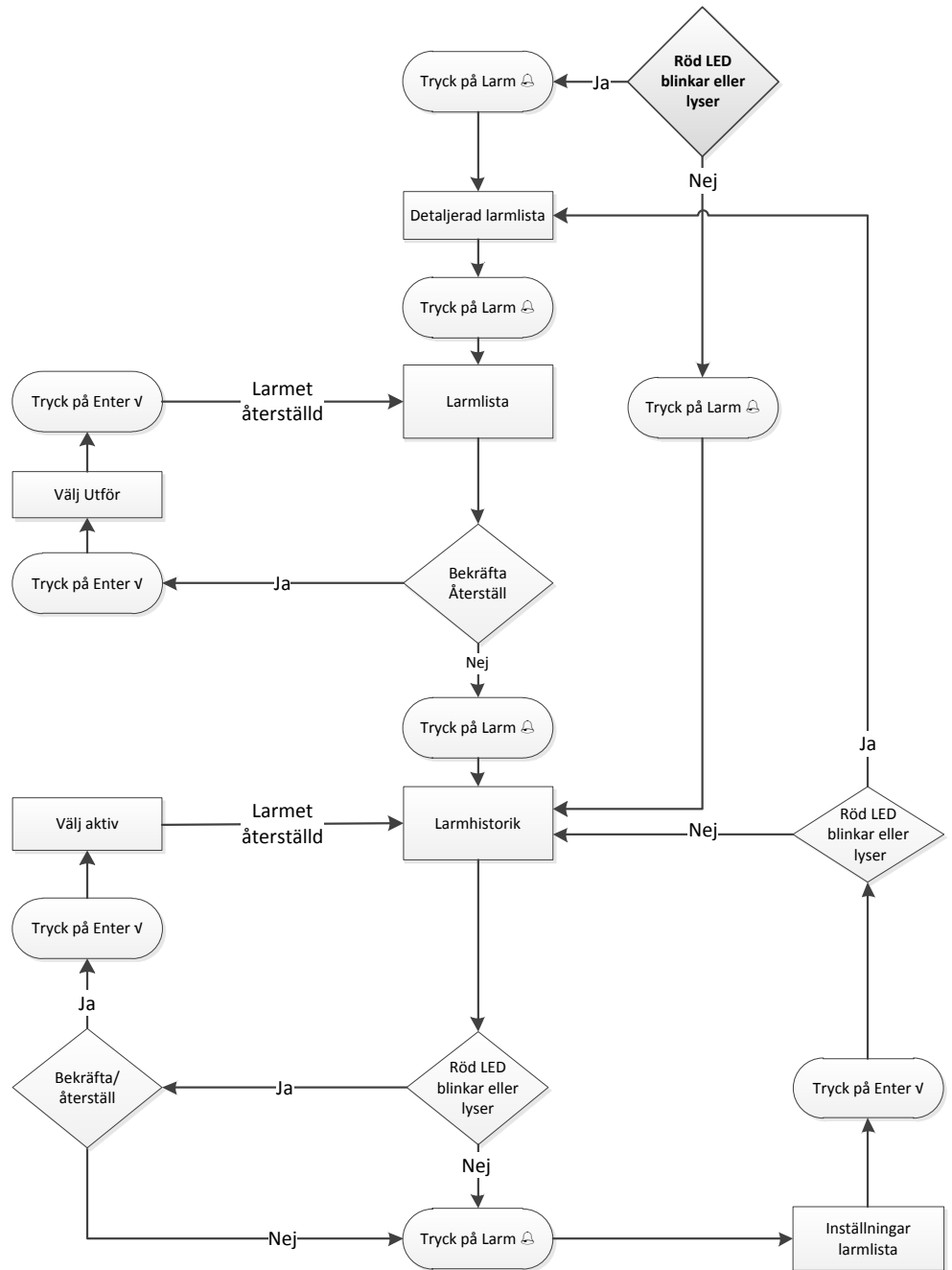
This chapter describes the following functions:

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

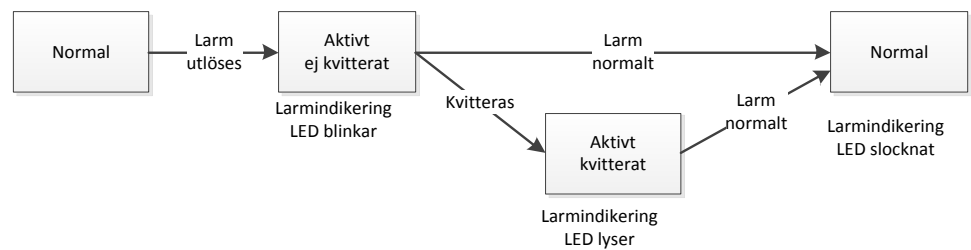
Principles

- 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.

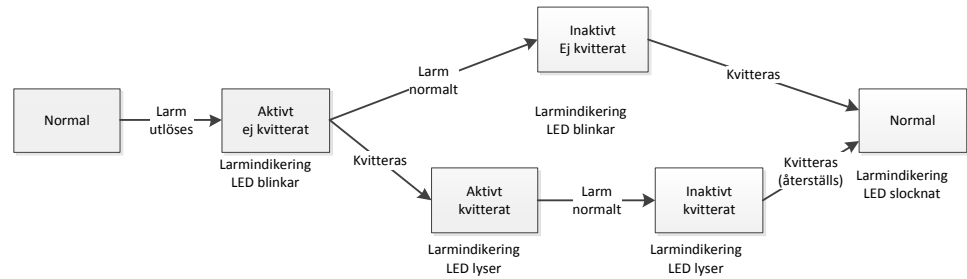
10.7.1 Alarm button function{ XE "Alarm button function" }



10.7.2 Procedure for non-saving alarms



10.7.3 Procedure for saving alarms



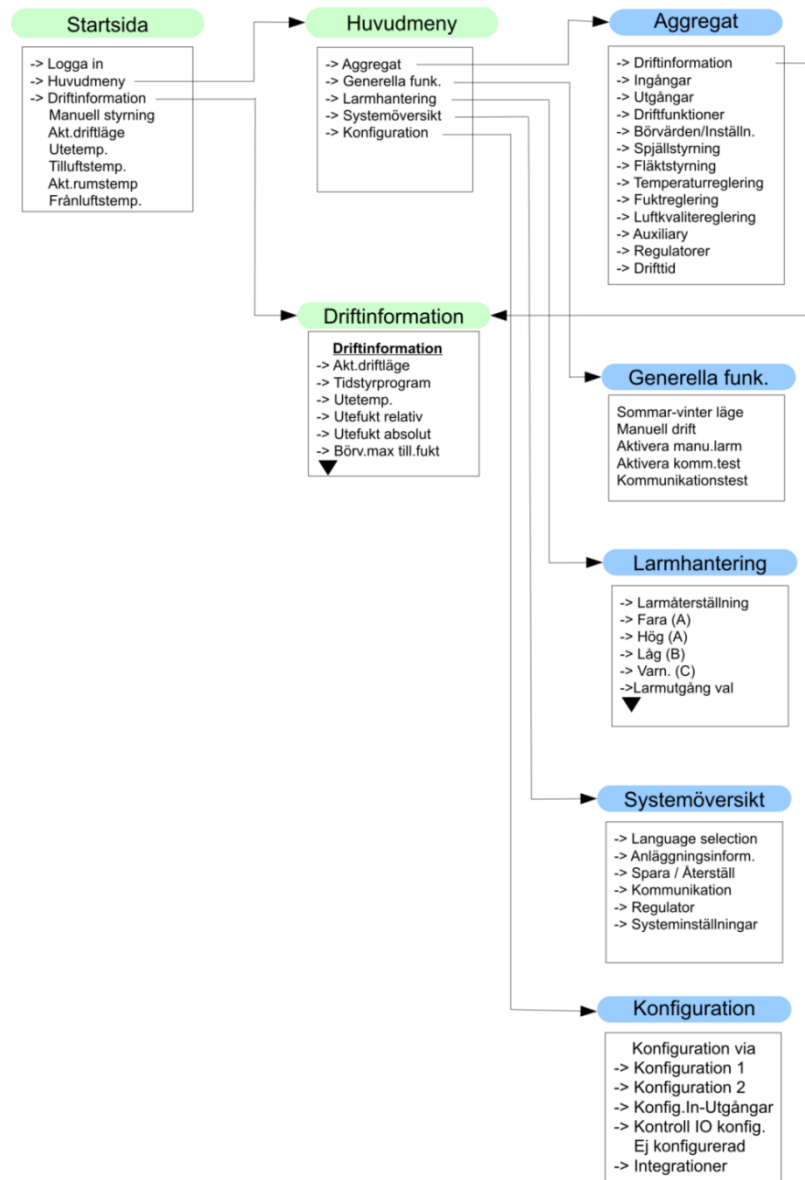
10.7.4 Alarm list information

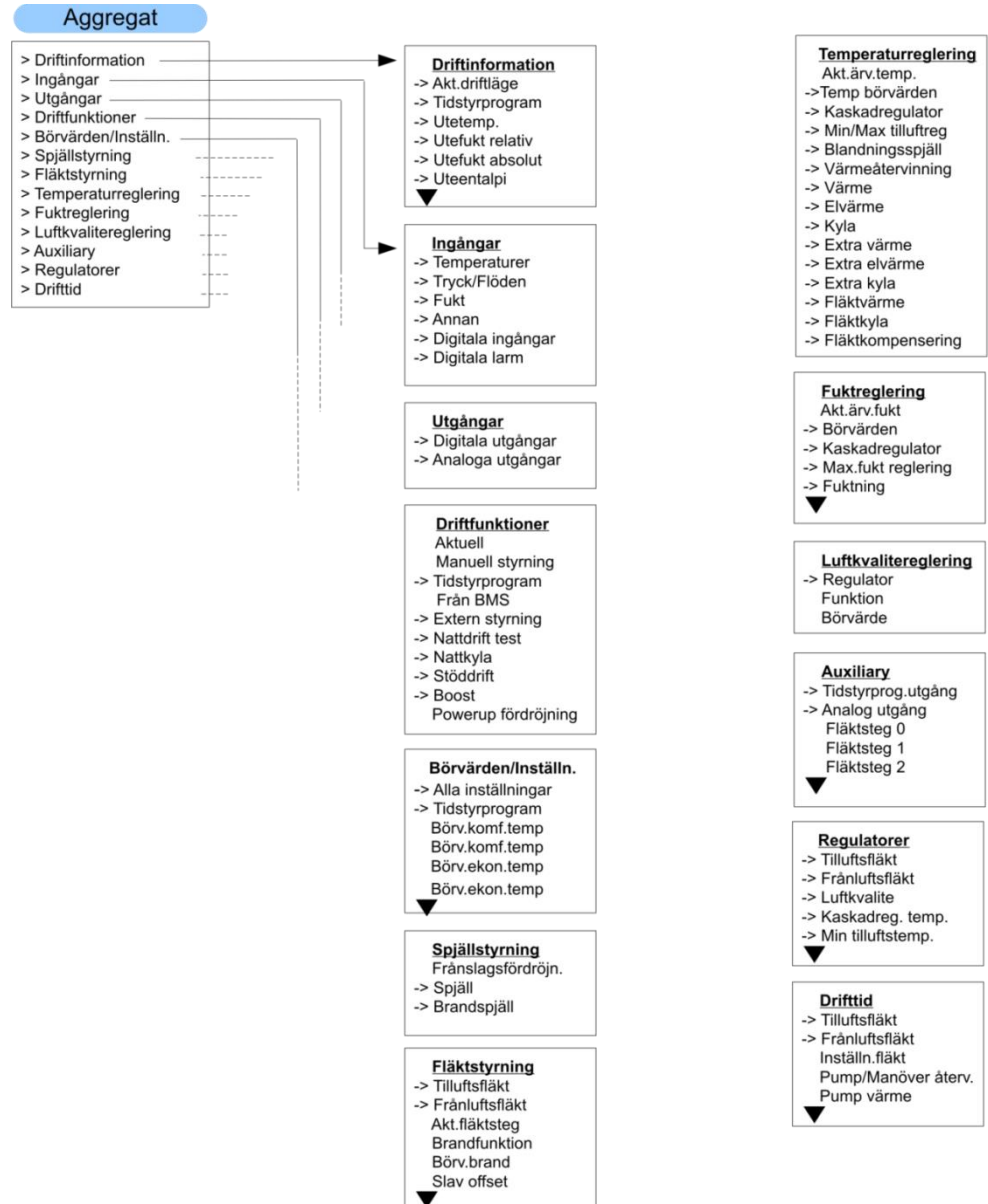
The alarm list contains the following information on the latest alarm:

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

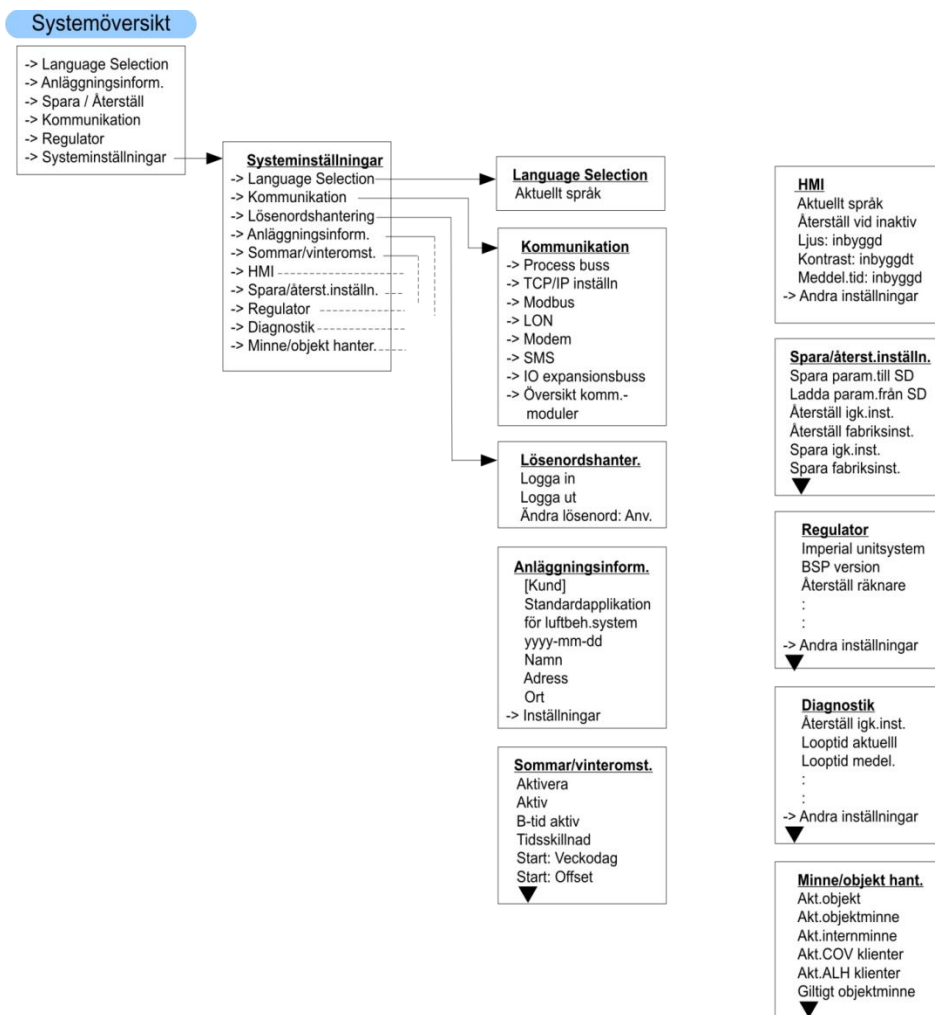
10.8 Menu structure{ XE "Menu structure" }

10.8.1 Menu overview{ XE "Menu structure" }

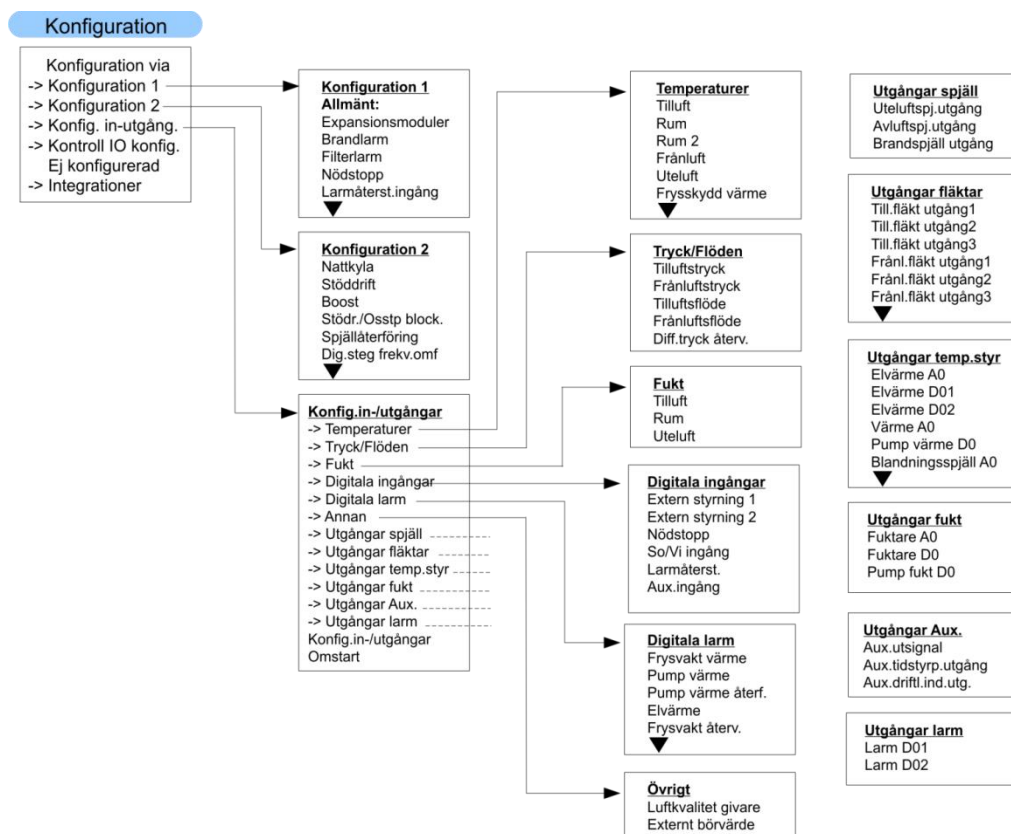




10.8.3 Start page > Main index > System overview{ XE "System overview" }



10.8.4 Start page > Main index > Configuration{ XE "Configuration" }



11. Troubleshooting{ XE "Troubleshooting" }

Problem	Cause	Check/Rectify
Operation will not start in Auto mode (schedule control)	The date or time may have the wrong settings	See chap. 5.2
Operation will not start in Auto mode (schedule control)	Manual control may be in mode: Off	See chap. 5.6
The value in the HMI cannot be changed	To change the value, you must be logged in	See chap. 3
"Key(s)" symbol is missing in the HMI display	Probably not logged in with password. After a period of time, you are logged out from password level	See chap. 5.1
Cannot acknowledge alarm	You must be logged in to reset an alarm	See chap. 5.1 / 5.4.1
The circulation pump won't start, even though operating information says that the pump is ON.	There is probably no voltage (230V AC) out to the pump's supply. A jumper cable connection was missed when the pump was connected	<p>Make sure the cable is connected on the terminal Heating circulation pump CPI: between terminals 1 & 2. Cooling circulation pump CP2: between terminals 5 & 6.</p> <p><i>IMPORTANT! Make sure there is no power to HERU® CX before performing this action. Switch off the external load switch and make sure that there is no voltage in the incoming power feed before performing work.</i></p>
Recovery alarm	Check for an alarm on the speed control for the rotary heat exchanger, EMS (see chap. 10.1)	<ul style="list-style-type: none"> • Check the belts on the rotor • 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. 10.1.

Problem	Cause	Check/Rectify
HMI alarm Fan alarm	The connector between the unit joint is probably not connected	<p>Check the connectors on the exhaust air fan.</p> <p>On some models, the fan cabling for the exhaust 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.</p> <p><i>IMPORTANT! Make sure there is no power to HERU® CX before performing this action. Switch off the external load switch and make sure that there is no voltage in the incoming power feed before performing work.</i></p> <ul style="list-style-type: none"> 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 exhaust air fan HERU® 800 CX: Check the unit connection (follow the exhaust air's fan cables). HERU®1600 CX: Check above the rotary heat exchanger (follow the exhaust 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. 5.4.1.
HMI alarm Fan alarm	The fuse to the fans may have blown	Check fuse F4; reset as needed.
HMI alarm Supply air temp. fire alarm (Exhaust air temp. fire alarm)	The fire alarm is configured for temperature alarm on supply air and exhaust 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	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 chap10.1.
HMI alarm Temperature alarm - Supply air temp. - Exhaust air temp. - Outside air temp. - Extract air temp. - Frost guard temp.	E.g. <i>Outside temp. 82.88 °C</i> 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.
HMI alarm Temperature alarm - Supply air temp. - Exhaust air temp. - Outside air temp. - Extract air temp. Frost guard temp.	E.g. <i>Outside temp.: No conn.</i> The affected sensor is not connected or there has been an interruption, i.e. sensor broken	Use the wiring diagram to check that the affected sensor is connected. Measure the resistance of the sensor (disconnect sensor), see chap. 7.1

Problem	Cause	Check/Rectify
HMI alarm Low efficiency	The calculated efficiency has fallen below the set limit value	<ul style="list-style-type: none"> 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 connected	<p>Configuration requires an expansion module EXP1. On 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)</p> <p>Then acknowledge the alarm, see chap. 5.4.1</p>
HMI alarm Not config. IO: Yes	One output (belonging to the selected function) is not dedicated to any output or input.	See chap. 10.5.1
HMI alarm Double config.		
HMI alarm Supply air pressure: under range. (Exhaust air pressure: under range.)	PROC1 believes the pressure sensor for the supply air (exhaust air) pressure is not connected (under range = <0 Pa)	The supply air (exhaust air) pressure sensor GPI (GP2) is probably not connected, see chap. 9.1
HMI alarm Supply air flow: under range. (Exhaust air flow: under range.)	PROC1 believes the pressure sensor for the supply air (exhaust air) flow is not connected (under range = <0 Pa)	The supply air (exhaust air) pressure sensor for flow GFI (GF2) is probably not connected, see chap. 9.1
HMI alarm Electric heating	Overheating protection alarm in EHC	<ul style="list-style-type: none"> Make sure necessary air flow through HERU® CX can be obtained, and that no object not designed to be included in the system is preventing air-flow. Check the following: <ul style="list-style-type: none"> Intake grille in outside air duct system. <ul style="list-style-type: none"> Clean intake grille as needed. Damper motor on outside air not opening at startup <ul style="list-style-type: none"> Troubleshoot to see if the motor is damaged. Supply air filter clogged or not replaced at final pressure drop. <ul style="list-style-type: none"> Change as needed. Reset the manual overheating protection on EHC GT9, push in the red button with a ballpoint pen or similar. Check the cables between the control cabinet and EHC; there must not be any damaged cables. <ul style="list-style-type: none"> Change as needed.

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Denna sida skall lämnas tom



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