Access V4.X Configuration manual

EN

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systemair

Puravent

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Introduction

This specification gives a general overview description of the software menu and web interface.

Italic text in the left margin indicate an action, the following text describes the breadcrumb; the navigation path:

Activate *Configuration > Function Configuration > Function Activation*

If you click on breadcrumb, you will going up in menu structureTerminology

Abbreviation terms for software specification.

User levels

	End user When logged out	Read /write — Home page Possible actions in end user mode are to stop the air handling unit for maintenance (e.g. filter exchange), change the time for extended run and change the temperature setpoint.
	Operator mode — log in with 1111 Logged in	Read and write privileges (except Configuration).
	Service mode — log in with 0612 Logged in	Full read and write privileges.

Term	Function	Unit

Explanation input step values

Range of input value	*Selectable step*
0..10	Value is selectable in integer 0, 1, 2, 3 and so on up to 10
0.0..10.0	Value is selectable in one decimal 0.0, 0.1, 0.2 and so on up to 10.0
0,2,4,6,8	Value for input is only 0 or 2 or 4 or 6 or 8. No other values are allowed to use

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Explanation numbers of units/variable/variants etc.

Varable	*Description*
Device 1	The first device in the list
Device 2	Second device in the list
Device n	Some other number of all available numbers or rest of all available numbers in the list.

Changing of values

Values	*Description*
3 ~~2~~	Set value 3 (old value was 2)
3 ~~Off~~	Set value 3 (old value was Off)

Configuration

Principal

Configuration order of control system and menu

Description	*Flow*	*The navigation path*
Select function to activate: e. g. Heater 2, cooler 2, Support control, Free cooling, fire function etc	Activation	Configuration►Function Configuration►Function Activation
How should the fucntion be designed: e. g. Electric, water, frost protection, fire damper etc	Configuration	Configuration►Function Configuration
Select I/o's for actiated function: e. g. AO2, DI4, DO6, UI4	Allocation	Configuration►I/O allocation
How will the function work: e. g. Min limit value, max limit value, setpoint etc	Operation settings	Data & Settings

1 Temperature control

Activate: *Configuration > Function Configuration > Function Activation*

Temperature control type

- Supply air
- Outdoor compensated supply air
- Room cascade

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- Extract air cascade]
- Outdoor dependent supply air or room
- Outdoor dependent supply air or extract air
- Outdoor compensated room cascade
- Outdoor compensated extract air cascade
- Extract air depending supply air

The supply air temperature is kept at the setpoint value by controlling the output signals for "Heating (Sequence-A)", "Exchanger (Sequence-B)", "Cooling (Sequence-C)", "Heating 2 (Sequence-G)" and "Cooling 2 (Sequence-H). Up to 10 sequences (Sequence-A..J) with separate PID control settings for each sequence can be used.

A neutral zone can be set around the setpoint value.

Example:

If the setpoint is 18 °C and the neutral zone is 2 K, the cooling setpoint will be 19 °C and the heating setpoint will be 17 °C. If the supply air temperature is in the neutral zone, the heating and cooling will be blocked. If the supply air temperature decreases below the setpoint –NZ/2 the heating signal will be active until setpoint is fulfilled. If the supply air temperature increases above the setpoint +NZ/2 the cooling signal will be active until setpoint is fulfilled.

The setpoint value is set using the NaviPad or alternatively using an external setpoint device. Alarms which are activated when the supply air temperature is too high or too low are active. Alarm for control offset of the supply air temperature is active.

Supply air

The supply air temperature is kept at the setpoint value by controlling the output signals. The controller is reverse acting, i e. the output will increase for decreasing temperature.

Outdoor compensated supply air

The supply air temperature setpoint is outdoor temperature compensated using a control curve with 4 node points.

Room cascade

Cascade control of room temperature and supply air temperature to achieve a constant, settable room temperature. The room controller output signal generates the supply air controller's setpoint value. The room controller used an own PI loops.

1..4 room sensors can be connected. If 2..4 sensors are connected, the average of their values will be used.

Extract air cascade

Cascade control of extract air temperature and supply air temperature to achieve a constant, settable room temperature. The extract air controller output signal generates the supply air controller's setpoint value. The extract controller used an own PI loop.

Outdoor dependent supply air or room

Outdoor temperature dependent switching between supply air temperature control and room temperature control.

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When the outdoor temperature is lower than a settable limit (winter), outdoor compensated supply air temperature control will be active, otherwise (summer) cascaded room temperature control as in room cascade type.

Outdoor dependent supply air or extract air

Outdoor temperature dependent switching between supply air temperature control and extract air temperature control.

When the outdoor temperature is lower than a settable limit (winter), outdoor compensated supply air temperature control will be active, otherwise (summer) cascaded extract air temperature control as in extract air cascade type.

Outdoor compensated room cascade

The room temperature can be compensated when the outdoor temperature increases. One can, for instance, imagine accepting a slightly higher room temperature if it is warm outside or, conversely, a slightly lower temperature if it is chilly. This function is included to conserve energy.

Outdoor compensated extract air cascade

The extract air temperature can be compensated when the outdoor temperature increases. One can, for instance, imagine accepting a slightly higher extract air temperature if it is warm outside or, conversely, a slightly lower extract air temperature if it is chilly. This function is included to conserve energy.

Extract air depending supply air

A difference between extract air temperature and supply air temperature can be configured to maintain the supply air temperature setpoint to follow extract air temperature with this difference (+10°C to -10°C). Supply air temperature setpoint = extract air temperature + difference.

Temperature control settings

Configure: *Configuration > Function Configuration*

Room temperature sensor

- None
- 1
- 2
- 3
- 4

Select the number of room sensors.

The average value of selected sensors is used in the control loop.

Outdoor sensor

- No
- Intake
- Outdoor
- Outdoor + Intake

Select the type of outdoor temperature sensor.

If only Intake is selected then it will have the same characteristics as the outdoor temperature sensor.

Extract air temperature sensor

- No
- Yes

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Supply air temperature sensor

- No
- Yes

Summer/Winter setpoints

- No
- Yes

A special summer main setpoint (Supply/Extract/Room) can be activated by entering a supply setpoint at summer time:

External setpoint device

- No
- TG-R4-PT100
- TBI-PT1000

An external setpoint device, e.g. TBI-PT1000 or TG-R4/PT1000 can be connected. The setpoint device must follow the PT1000 resistance curve. The unit is connected to the analogue input signal ”External setpoint device”.

Control input switch Summer/winter

- No
- Yes

To control from BMS system if the building should be in Summer or Winter control mode. This is then controlled via Digital input

Cooling recovery mode

- Off
- On

If the cooling recovery has been configured, there is a cooling requirement and the extract air temperature is a settable amount lower than the outdoor temperature, cooling recovery can be activated. When cooling recovery is activated the heat exchanger and damper sequence output signal will be activated in the cooling demand. The function also activates the heating function “Free heating”: if heating is required and the outdoor temperature is higher than the extract air temperature, outdoor air will primarily be used.

Cooling recovery Limit

- Difference limit value

Temperature difference between Extract air and Outdoor (intake) air.

Temperature compensation related fan speed

- None
- Low
- High
- Low & High

Setpoint adjustement for Low speed and/or high speed.

Operation settings: Data & Settings > Temperature control

Setpoint Cascade controller (extract/room)

Setpoint adjustments (outdoor temp compensation, fan speed compensation etc.)

Setpoint Supply controller, min/max-limits and setpoint adjustments

Setpoint Extra controller

Settings Supply controller sequence

Settings heating/cooling pump & pump-kick

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Settings Frost protection (1/2/3)

Settings for stopped and running mode

Settings Exchanger & defrosting

Step control settings for Step start/stop points, min switch time, outdoor temp/fan speed block of steps etc.)

Step settings

Fan heat/cool settings (Fan compensation)

Pretreatment

2 Fan control

Activate: *Configuration > Function Configuration > Function Activation*

Fan control type

1. Pressure
2. Flow
3. Manual
4. External
5. Supply air pressure and extract air slave
6. Supply air pressure and extract air flow slave
7. Extract air pressure and supply air slave
8. Extract air pressure and supply air flow slave

The rotational speed is controlled by output signal (0 – 100%).

A digital Activate signal is normally used for each fan (“Supply air fan start” and “Extract air fan start”), for sending a start signal to the frequency converters/EC-motor. The start signal is activated as long as the fan is expected to be running.

For the supply and extract air fans, there are 1..3 individually settable setpoint values, one corresponding to Low speed, one corresponding to normal speed and one corresponding to high speed. Changing between the setpoint values is done using the timer channels for normal low and high speed or using digital input signals. Extended Operation, Low, normal and high speed, see chap.14.

Pressure

During pressure control, two separate analogue output signals are used for supply and extract air and two separate analogue input signals for supply and extract air for pressure transmitters. The fan speeds are controlled via frequency converters, thereby maintaining constant pressure. The pressure transmitter inputs are scalable using “Volt minimum/Minimum (pressure)” and “Volt maximum/Maximum (pressure)”.

Flow

Instead of giving a pressure setpoint value, it is possible to use an airflow volume value. The value from the pressure transmitter is recalculated to a volume flow using the formula below and the fans will be controlled to give a constant flow.

$\text{Flow} = K * \Delta P^{X}$

Where K and X are settable constants dependent on the fan size and Δ P is the differential pressure, measured over the fan. Each fan has its own set of parameters.

X is normally 0.5 indicating that the flow is proportional to the square root of the differential pressure.

Flow presentation can be selected, when fan control type not are “Flow”.

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Manual

Frequency controlled fans can be controlled at a fixed rotational speed. The rotational speed is selected by setting a fixed output signal (0 – 100%). Values for normal and reduced speed can be configured for each fan.

Fans that are run with a fixed output signal can also be compensated (see the section above). In this mode, pressure sensors are not needed.

External

Two 0…10 V input signals are used for direct control of frequency controlled fans. The signal is received from e.g. a VAV unit. The signal controls the fans 0…100% (0…10 V on the analogue output). Pressure transmitters are not used in this control mode.

Supply air pressure and extract air slave

The rotational speed of the supply air fan is controlled by a pressure transmitter (”Pressure supply air”) which is placed in the supply air duct. The extract air fan does not have a pressure transmitter, instead you let the output for the extract air fan follow the control signal for the supply air fan. A scaling factor can be added if the characteristics of the extract air fan are not the same as the characteristics of the supply air fan. (Only pressure control of the supply air fan is possible using this function.) The extract air fan will start directly at 50% after the start delay. Then the heating of the exchanger will work for this operating mode as well. When the supply air fan starts, the extract air fan will be slave controlled by the supply air flow.

Supply air pressure and extract air flow slave

The rotational speed of the supply air fan is controlled by a pressure transmitter (“Pressure supply air”) which is placed in the supply air duct. The extract air fan is controlled by the supply air flow, in order to achieve a balanced ventilation. A pressure transmitter ("Flow supply air") which is placed in the supply air fan cone gives a measured value of the present supply air flow. A corresponding pressure transmitter (”Flow extract air”) is placed in the extract air fan cone and gives a measured value of the extract air flow.

The supply air flow is the setpoint used for control of the extract air fan. A scaling factor can be added if the extract air fan does not have the same characteristics as the supply air fan.

Extract air pressure and supply air slave

The rotational speed of the extract air fan is controlled by a pressure transmitter (“Pressure extract air”) which is placed in the extract air duct. The supply air fan has no pressure transmitter. Instead, the supply air fan output is made to follow the extract air fan control signal. A scaling factor can be added if the supply air fan characteristics are not the same as the characteristics of the extract air fan (only pressure control of the extract air fan is possible using this function).

Extract air pressure and supply air flow slave

The rotational speed of the extract air fan is controlled by a pressure transmitter (”Pressure extract air”) which is placed in the extract air duct. The supply air fan is controlled by the extract air duct flow in order to achieve a balanced ventilation. A pressure transmitter (“Flow extract air”) placed in the extract air fan cone provides a measurement of the current extract air flow. A corresponding pressure

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transmitter (“Flow supply air”) is placed in the supply air fan cone, providing a measurement of the supply air flow.

The supply air fan is controlled using the extract air flow as a setpoint. A scaling factor can be added if the supply air fan does not have the same characteristics as the extract air fan.

Configure: *Configuration > Function Configuration > Fan control*

Fans

- Supply+Extract
- Supply
- Extract

Flow presentation

- No
- Yes

Possibility to showing current flow on both fans even when pressure control or slave control is used.

Alarm / Run indication

Digital input signals are used to supervise fans. They can be configured either for indication of the motor running or for monitoring of motor alarm contacts.

An input configured for run indication should normally be closed during operation.

Open input when the motor is running, i.e. motor control output is activated, will generate an alarm.

For supply air fans and extract air fans, there is also a conflict alarm, i. e. an alarm if the run indication input is closed even though the motor control output is not activated.

An input configured as motor protection should be normally open, i. e. closed contact when the motor is running, i.e. motor control output is activated, will generate an alarm.

When running frequency controlled fans, the pressure signal from each respective fan’s pressure transmitter is normally used as run indication signal. If the pressure falls below the set value during normal operation, a malfunction alarm is activated.

Alarm from frequency converter

When running frequency controlled fans, you sometimes want to use both a pressure signal from a pressure transmitter and a digital alarm signal from a frequency converter. An analogue input for a pressure transmitter and a digital input for "Monitoring supply air fan" or "Monitoring extract air fan" must then be configured. The setting Fan indication "Run indication/Alarm” on supply and extract air fan must be set to "Alarm". A fan alarm will be activated both when there is no pressure signal from the pressure transmitter, and when the digital signal " Monitoring supply air fan " or " Monitoring extrct air fan " is activated.

Supply air fan indication

- None
- Alarm
- Run indication

Extract air fan indication

- None
- Alarm
- Run indication

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Flow transmitter

DESCRIPTION

$$Flow = [K - factor] * [Pressure]^{[X-factor]}$$

$$IF \quad X = o,5$$

$$Pressure^{0,5} = \sqrt{pressure}$$

Flow transmitter supply air

- K-factor
- X-factor Default 0,5

Flow transmitter extract air

- K-factor
- X-factor Default 0,5

Exchanger supply air pressure sensor

- K-factor
- X-factor Default 0.96…0.98

Operation settings: *Data & Settings > Fan control*

3 Sequence Configure types

Activate/configure: *Configuration > Function Configuration > Function Activation*

10 different sequence

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Menu function	Value	Comments
Step controller 1	> (Sub menu for step controller 1 settings)	Visible only if Heater electric and/or cooler DX are configure
Step controller 2	> (Sub menu for step controller 2 settings)	Visible only if Heater electric and/or cooler DX are configure
Heating sequence step to start at 100% when normal start	Step 1	
Full heating when outdoor temperature is below	3 °C	
Heating sequence step to start at 100% when heating start	Step 2	

Description on heating sequence ('B' column 'Heating') and cooling sequence ('C' column 'Cooling'). See example below.

Start Heating and Start cooling ('D' column 'Start Heating' and 'E' column 'Start Cooling') it starts before (-x%) or after (+x%) of the control signal.

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Adjustable range -100…100%.

Example: *Start Cooling*

If you want Cooling (Sequence-C / configured as DX) to start earlier than the PID loop, then set -10% in "Start cool" then will DX cooling start when Exchanger signal is 90% (PID loop signal for exchanger, if "cool recovery" = active).

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	-10% ~~0%~~	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

3.1 Heating

Activate: *Configuration > Function Configuration > Function Activation> Sequence Configure type*

Example: *Order heating sequence:*

1. ”Exchanger”
2. ”Heating”
3. ”Heating 2”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	3 ~~Off~~	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

: *Order heating sequence:*

1. ”Exchanger”
2. ”Heating 2”
3. ”Heating”

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Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	~~3~~ ~~2~~	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	~~2~~ ~~Off~~	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Heating (Heating 2)*

Heating type:

- Water
- Electric
- Combi battery
- Condenser (DX)

Water heating

Control

When the unit is in running mode the heating valve is controlled by the analogue output and digital output (“Sequence-A pump”) for pump control and/or signal (“Sequence-A start”) for start heating.

Pump indication

A feedback from pump (“Feedback sequence-A”) can be used, “running indication or alarm indication.

Frost protection temperature sensor

The heater return water temperature is measured using the analogue input (”Frost protection sensor”). Low temperatures will generate an internal, proportional signal that is used to force the heating valve open thereby preventing freeze-up of the heater.

The internal signal will begin to rise as the frost protection temperature falls below “Alarm limitation running mode” + “P-band running mode” in order to reach 100 % output when the signal has fallen to “Alarm limitation running mode”.

Frost guard

When ”Internal signal” reaches 100 % or the digital input (”Defrost switch”) is activated, the unit is shut down, the heating output is set to completely open mode and an alarm is activated. The unit is restarted when the alarm has been acknowledged and the temperature for the frost protection sensor has risen above “Alarm limit frost” + “P-Band”.

The frost protection alarm limits is set in the Data & settings > Temperature control > Heating and/or Heating 2.

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Standby mode

If frost protection is activated, the controller will go into ”Standby mode” when the running mode switches to ”Off”. The “Standby mode” will control the heating output to maintain a constant settable temperature at the frost protection sensor “Setpoint Standby mode”.

Electric heating

Control

The heating is controlled using the analogue output and/or signal for start heating or step controller to control 1..4 digital output steps.

Overheat protection

On Activate of the digital input “Overheated electric heater” the unit will be shut down, either according to the stop sequence described in section Start/stop of unit or as an emergency shutdown. The unit will restart after the alarm has been acknowledged and “Electric heating is overheated” has reset.

Flow switch

Note that Activate of the input signal “Flow switch” will also stop the unit. Note: It is important that the high temperature thermostat is hardwired to disconnect the power to the heater. That is to ensure that the heating is shut down when the thermostat is activated even if the Access controller should be faulty.

Fast stop on overheating

If the function "Fast stop on overheating" is active, the fans will be immediately stopped when there is an overheating alarm, regardless of the set cool-down time.

Step controller heating

Activate: *By configuring the electrical heater the step switch will be activated in the menu.*

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Step controller 1 (Step controller 2)*

Step controller 1 (2)

Input

- Select sequence to connect to step controller 1

Step control type

- Sequential
- Binary

Number of step

- 1
- 2
- 3
- 4

Select number of digital outputs

Hysteresis if low outdoor temperature block

- 1 °C

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Block step signal if alam

- No
- Yes

Operation settings: *Data & Settings > Temperature control > Heating (Heating 2)*

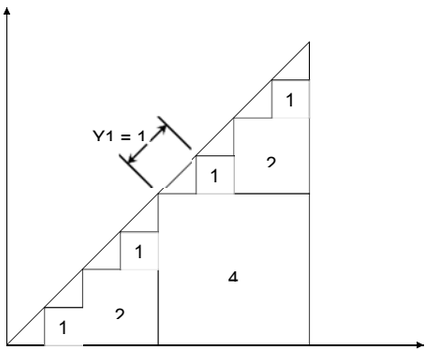
Sequential control

Each output step has individually settable on and off values in percent of the control signal. The number of steps is equal to the number of heater/chiller groups. Minimum on and off times can be set, i.e. the minimum time the step has to be inactive or active for a change to occur.

Binary control

The heater power outputs should be binary weighted (1:2:4:8 for heating). The number of loads to be controlled is set. Thereafter the program will automatically calculate the individual Activate levels. Switching differential and minimum on/off times can be set. The number of heating steps will be: 2no. of groups-1. In binary mode, the analogue output signal may be used to fill out between the steps. The signal will go 0…100 % between the Activate of each step. The load connected to the analogue signal should have the same size as the smallest of the binary groups. In the example below there are 4 heater groups (1:1:2:4) and the total number of heating steps is eight.

As alternative or complement to the above mentioned analogue control, heating and cooling can be activated in steps. The internal signal is then used to activate digital outputs for control of the heaters/chillers. Up to four heater outputs and three cooler outputs can be configured. There are two possible modes:



3.2 Exchangers

Activate: *Configuration > Function Configuration > Function Activation> Sequence Configure type*

Example

Order heating sequence:

1. ”Exchanger”
2. ”Exchanger extract”

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3. ”Heating”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	3 ~~2~~	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	2 ~~Off~~	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Exchanger (Exchanger extract)*

Exchanger types

- Rotating
- Plate
- Liquid

Operation settings: *Data & Settings > Temperature control > Exchanger (Exchanger extract)*

Outdoor temp control of exchanger

Instead of using Exchanger AO for analogue control of the heat exchanger it can be set to run on-off against outdoor temperature. The function controls a digital output “Outdoor controlled exchanger”, which is activated when the outdoor temperature falls below a set value.

Rotating exchanger

Control

Rotational speed is controlled by the analogue signal ”Exchanger”. A rotatry controller alarm feedback can be connected to the digital input ” Rotary exchanger alarm”. An alarm is generated if this input is activated.

Function to prevent the heat exchanger from frost:

A temperature sensor, exhaust air, outdoor air or extra controller sensor can be used as a prevention sensor. It is possible to set a starting temperature. This represents both the minimum time that the function should be active, the supply air fan and extract air fan compensation, as well as the minimum time before the next prevention cycle should begin. While the cycle is active, ”Defrosting” is shown in the NaviPad.

Plate exchanger

Control

The airflow through the exchanger is controlled by a shut-off damper and a by-pass damper. Both dampers are controlled by the same analogue output ”Exchanger”.

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Defrosting 1

Defrosting is activated either when the digital signal ”Defrosting” is activated or when the value of the analogue input ”Defrosting temperature” falls below the defrosting limit (-3°C), or when the analogue signal ”Exchanger extract air pressure sensor” rises above the set value for the current pressure. It is deactivated when the digital signal is reset, or alternatively when the analogue signal exceeds/falls below the limit value plus a settable differential.

When defrosting:

A PID-controller compares the defrosting setpoint with the signal ”Defrotsing exchanger”. The smallest of the output signal from this controller and the output from the ordinary controller is used as output to the dampers.

Defrosting 2

Defrosting is activated by measuring the pressure difference over the exchangers extract/exhaust side. The differential pressure transmitter is auto calibrated by the system to obtain the correct pressure in relation to the airflow.

Manual calibration is possible, e. g. after cleaning of exchanger. Defrosting is possible with by-pass or stop defrosting, adjustable in the display.

Defrosting is stopped when the desired, adjustable decrease in pressure over the heat exchanger is obtained.

If the decrease of pressure does not happens during defrost cycle, the air handling unit is stopped and an alarm is shown in the display.

Liquid exchanger

Control

A mixing valve in the exchanger circulation system is controlled by the analogue signal ”Exchanger” and digital output (“Sequence-A pump”) for pump control and/or signal (“Sequence-A start”) for start heating.

Defrosting 1

Deicing is activated either when the digital input sensor ”Defrosting temperature” is activated, when the value falls below the deicing limit (-3°C). It is deactivated when the digital input is reset or the analogue input rises above the limit value plus a settable differential.

On deicing:

A PI-controller compares the deicing setpoint with the signal ”Defrotsing Exchanger”. The lesser of the output signal from this controller and the output from the ordinary controller is used as output to the actuator.

Pump indication

A feedback from pump (“Pump sequence-B”) can be used, running indication or alarm indication (“Feedback sequence-B”).

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3.3 Cooler

Activate: *Configuration > Function Configuration > Function Activation> Sequence Configure type*

Activate extra cooler coil

Example: *Order cooling sequence:*

1. ”Exchanger”
2. ”Cooler”
3. ”Cooler 2”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	3 ~~Off~~	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Example: *Order cooling sequence:*

1. ”Exchanger”
2. ”Cooler 2”
3. ”Cooler”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	3 ~~2~~	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	2 ~~Off~~	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Cooling (Cooling 2)*

Cooling type:

- Water

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- DX
- DX with exchanger control

Operation settings: *Data & Settings > Temperature control > Cooling (Cooling 2)*

Water cooler

Control

When the unit is in running mode the heating valve is controlled by the analogue output and digital output for pump control and/or signal for start heating.

Pump indication

A feedback from pump can be used, running indication or alarm indication.

DX cooler

Step controller Heating / DX cooling

As alternative or complement to the above mentioned analogue control, heating and cooling can be activated in steps. The internal signal is then used to activate digital outputs for control of the heaters/chillers. Up to four heater outputs and three cooler outputs can be configured. There are two possible modes:

Sequential control

Each output step has individually settable on and off values in percent of the control signal. The number of steps is equal to the number of heater/chiller groups. Minimum on and off times can be set, i.e. the minimum time the step has to be inactive or active for a change to occur.

Binary control

The heater power outputs should be binary weighted (1:2:4:8). The number of loads to be controlled is set. Thereafter the program will automatically calculate the individual Activate levels. Switching differential and minimum on/off times can be set.

DX cooling with room or extract air control

If DX cooling is used in conjunction with room temperature control or extract air temperature control, there are two Configure alternatives, DX cooling or DX cooling with exchanger control.

DX cooling without exchanger control

When running cascade control, the supply air controller setpoint is normally controlled by the room/extract air controller output signal.

When DX cooling is activated, the supply air controller setpoint is lowered to five degrees (adjustable) below the setpoint given by the room/extract air controller. This prevents the DX cooling from being activated/deactivated too often.

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DX cooling with exchanger control

When running cascade control, the supply air controller setpoint is normally controlled by the room/extract air controller output signal.

When DX cooling is activated, the supply air controller setpoint is lowered to five degrees (adjustable) below the setpoint given by the room/extract air controller. This prevents the DX cooling from being activated/deactivated too often. If the supply air temperature falls below the setpoint given by the room/extract air controller, the heat exchanger output will be activated in order to try to maintain the supply air setpoint given by the room/extract air controller. The output uses P-control with a P-band of half the setpoint lowering (adjustable, 2.5°C as default). The setpoint given by the room/extract air controller cannot drop below the set min limit. When there is no longer a cooling demand, the supply air controller setpoint will return to the value given by the room/extract air controller.

Note: The function cannot be used if the exchanger signal controls a mixing damper.

Example:

The room controller gives a supply air setpoint of 16°C. If there is a cooling demand, the supply air controller setpoint is lowered to 11°C (16 – 5) and DX cooling is activated. Should the supply air temperature fall below 16°C, the exchanger output will be activated and reach 100 % output when the supply air temperature has fallen to 13.5°C (16 - 2.5).

Blocking of DX cooling at low outdoor temperature

DX cooling can be blocked when the outdoor temperature is low. It is possible to block the three cooling steps individually or to block all DX cooling. The temperature limits are adjustable (+13°C default) and have a fixed one degree hysteresis.

When two DX cooling steps are used with binary function, the cooling effect is divided into three steps. The desired blocking level can be set individually for each of these steps.

When three DX cooling steps are used with binary function, the cooling effect is divided into seven steps. However, the controller still only has three blocking level settings. Therefore, Blocking step 1 will apply to binary steps 1 and 2, Blocking step 2 to binary steps 3 and 4, and Blocking step 3 to binary steps 5, 6..etc.

Blocking of DX cooling at low supply air fan speed

When DX cooling is used in conjunction with pressure controlled or flow controlled fans it is possible to block DX cooling if the supply air fan control signal falls below a preset values. For sequential control, the blocking level is individually settable for each DX cooling step.

When two DX cooling steps are used with binary function, the cooling effect is divided into three steps. The desired blocking level can be set individually for each of these steps.

When three DX cooling steps are used with binary function, the cooling effect is divided into seven steps. However, the controller still only has three blocking level

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settings. Therefore, Blocking step 1 will apply to binary steps 1 and 2, Blocking step 2 to binary steps 3 and 4, and Blocking step 3 to binary steps 5, 6 and 7.

Blocking of DX cooling on cooling pump alarm Corrigo can be configured to block DX cooling on cooling pump alarm. In- and outputs

Override of reduced speed for DX cooling

Override to normal quantity of air for DX cooling when the unit runs on reduced quantity of air. The fans can be set to normal operation when cooling is required at high outdoor temperatures (e.g. >14°C, the same temperature limit as for blocking of DX cooling).

Step controller

Activate: *By configuring Cooler DX, the step switch will be activated in the menu.*

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Step controller 1 (Step controller 2)*

Step controller 1 (2)

Input

- Select sequence to connect to step controller 1

Step control type

- Sequenciel
- Binary

Number of step

- 1
- 2
- 3
- 4

Select number of digital outputs

Hysteresis if low outdoor temperature block

- 1 °C

Block step signal if alam

- No
- Yes

Operation settings: *Data & Settings > Temperature control > Cooling (Cooling 2)*

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3.4 Damper

Activate: *Configuration > Function Configuration > Function Activation> Sequence Configure type*

Activate Recirculation (Recirculation 2)

Example: *Order heating sequence:*

1. ”Exchanger”
2. ”Heating”
3. ”Recirculation”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	3 ~~Off~~	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Activate Recirculation and Recirculation 2

Example: *Order heating sequence:*

1. ”Exchanger”
2. ”Heating”
3. ”Recirculation 2”
4. “Recirculation”

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	4 ~~Off~~	Off	0%	0%	Recirculation 1
Sequence-E	3 ~~Off~~	Off	0%	0%	Recirculation 2
Sequence-F	Off	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Recirculation (Recirculation 2)*

Operation settings: *Data & Settings > Temperature control > Recirculation (Recirculation 2)*

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Mixing dampers (Recirculation and/or Recirculation 2 dampers)

Control

The analogue output signal (”Recirculation 1” & “Recirculation 2”), control two dampers in separate sequence (“Recirculation 1” & “Recirculation 2”) for gradual mixing of outdoor air and recirculated air. In this mode the output signal decreases with increasing heat demand.

CO2

If Recirculation and CO2 controlled ventilation is activated in combination with mixing dampers, and the CO2-value rises above the setpoint value, the dampers will let in more outdoor air. The function is controlled by a PID-controller. Factory settings: P-band 100ppm and I-time 100 seconds. These values can bee changed under menu PID-controllers.

3.5 Fan heating/cooling

Activate: *Configuration > Function Configuration > Function Activation> Sequence Configure type*

Example: *Order heating sequence:*

1. ”Exchanger”
2. ”Heating”
3. ”Fan heating/cooling””

Sequence	Heating	Cooling	Start Heating	Start Cooling	Sequence name
Sequence-A	2	Off	0%	0%	Heating
Sequence-B	1	1	0%	0%	Exchanger
Sequence-C	Off	2	0%	0%	Cooling
Sequence-D	Off	Off	0%	0%	Recirculation 1
Sequence-E	Off	Off	0%	0%	Recirculation 2
Sequence-F	3 ~~Off~~	Off	0%	0%	Fan heating/cooling
Sequence-G	Off	Off	0%	0%	Heating 2
Sequence-H	Off	Off	0%	0%	Cooling 2
Sequence-I	Off	Off	0%	0%	Exchanger extract
Sequence-J	Off	Off	0%	0%	Extra heating/cooling capacity

Configure: *Configuration > Function Configuration > Function Activation> Sequence Configure type > Fan heating/cooling*

Operation settings: *Data & Settings > Temperature control > Fan heating/cooling*

It is possible to select whether the compensation (0...10000) should increase or decrease the fan setpoint. The 0...10000 compensation follows the current control quantity for the fans.

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4 Fan levels

Activate *Configuration > function Configuration > Function Activation*

Fan levels

- Normal
- Low-Normal
- Normal-High
- Low-Normal-High

Select the fan stages to use in operation.

The time settings in the scheduler show only the selected steps.

Setpoints for Fans need to be updated.

5 Changeover

Configure: *Configuration > Function Configure*

- Changeover 1 sequence for heating Heater
- Changeover 1 sequence for cooling Cooler
- Changeover 2 sequence for heating disable
- Changeover 2 sequence for cooling desible

Operation settings: *Data & Settings > In-/output status > Digital input (Analogue output)(digital output)*[1]

Change-over is a function for installations with 2-pipe systems. It makes it possible to use the same pipe for both heating and cooling, depending on whether heating or cooling is required.

A special analogue output signal, "Changeover 1 (2)*[2]", is used for Change-over control. Switching between heating and cooling can be done in two ways. A digital Change-over input signal “Cooling/(heating) changeover 1(2) is normally used. Open contact gives heating control and closed contact gives cooling control. If the input has not been configured, change-over is handled by the internal controller signal. The output signal (AO “changeover 1(2)” and DO “changeover 1(2)”) will follow the two regular output signals "Heating" and "Cooling". For heating control, the digital outputs Heating “Sequence-A start” or “Sequence-A pump” are active. For cooling control the digital outputs Cooling “Sequence-C start” or “Sequence-C pump” are activate.

If frost protection sensor has been configured, it will function in the usual way when heating is active. However, when cooling is active, it will only be used for indicating temperature.

*[1] Digital input (Analogue output)(digital output) = Digital input, Analogue outputs and Digital outputs

*[2] *Changeover 1(2) = Changeover 1 and Changeover 2*

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6 Fan compensation

Activate: *Configuration > Function Configuration > Function Activation*

Fan compensation

- No
- Yes

Enables the fan compensation via temperature, pressure, CO2, RH sensor.

There are 3 different compensation curves to use in the sub menu.

Configure: Configuration > Function Configuration > Fan compensation

There are three compensation functions called Fan compensation curve 1-3. Which can be used to set a compensation based on the configured analogue input signal (temperature, pressure, flow humidity, CO2). The curve has three parameter pairs which correspond to the value of the compensation at three different temperatures.

The compensation can be selected to apply to both fan or only one of the fan, to slow, normal, high or all speeds and only when defrosting.

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Fan compensation curve 1, 2, 3

Speed

- All speeds
- Only low speed
- Only normal speed
- Only high speed
- Low and normal speed
- Normal and high speed

Select the fan steps were the compensation shall be active

Mode

- Off
- In all modes
- Only when defrosting

Fan

- Supply air fan and extract air fan
- Supply air fan only
- Extract air fan only

Sensor

- “Temperature sensor”
- “Pressure sensor”
- CO2 sensor
- RH sensor

All active temperature sensors and differential pressure sensors will be included in the "scroll list" for selectable sensors

Operation settings: *Data & Settings > Fan control > Fan compensation*

Settings to set up the compensation curve

Fan compensation curve 1, 2, 3

Low point

- Input value — break point for selected sensor
- Compensation — compensation value (negative or positive adjustment)

Middle point

- Input value — break point for selected sensor
- Compensation — compensation value (negative or positive adjustment)

High point

- Input value — break point for selected sensor
- Compensation — compensation value (negative or positive adjustment)

7 Support control

Activate *Configuration > Function Configuration > Function Activation*

Support control

- No
- Yes

Configure *Configuration > Function Configuration > Support control*

Enable support control when ventilation unit is shut down

- No
- Yes

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Minimum time for support control and demand control

- 20 min

Extract air fan running during support control

- No
- Yes

Operation settings: *Data & Setings > Demand control > Support Control*

Support control is normally used when room temperature control or extract air control has been configured. When extract air control is configured a room sensor must be installed. “Support control Heating” or “Support control Cooling” will run if Support control is configured, the running mode is in Off-state (timer control OFF and not in extended running) and if conditions call for support control (see below). Minimum run time is settable 0 to 720 minutes (FS= 20 minutes).

Support control can also be configured when supply air temperature control is used, if a room sensor is installed. The controller uses the configured min. (FS=15°C) and max. (FS=30°C) limitation values as support control setpoints. However, in this case the min. and max. limitation values cannot be changed. To change the values, temporarily configure room control, change the min. and max. values and then change back to supply air control.

Support control can also be configured to start only with the supply air fan. In this mode, the extract air fan is not active. This requires a digital output to be configured, which controls the recirculation damper to open completely so the supply air fan can circulate the air to and from the room. The digital output is called “recirculation damper”.

Support control heating

Demand for support control heating is when the room temperature is lower than the start value which is settable 0 to 30°C. The fans will run at the preset speed, the heater and the heat exchanger are controlled by the supply air temperature controller with the configured max limitation for the supply air (FS=30°C) as setpoint and the cooling is shut off (0%). Support control heating stops when the room temperature rises to the stop value and the minimum run time has been exceeded or the running mode changes to ”On”.

Support control cooling

Demand for support control cooling is when the room temperature is higher than the start value which is settable 20 to 50°C. The fans will run at the preset speed, the heater and the heat exchanger are shut down (0 %) and the cooling is controlled by the supply air temperature controller with the configured minimum limitation (FS=15°C) as setpoint. Support control cooling stops when the temperature falls below the stop value and the minimum run time has been exceeded or the running mode changes to ”On”.

8 CO2 control

Activate: *Configuration > Function Configuration > Function Activation*

- Off
- Start/Stop function
- Mixing damper function
- Both start/stop and mixing

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In applications with varying occupancy the fan speeds or mixing dampers can be controlled by the air quality as measured by a CO2 sensor.

With the CO2 function it's possible to start and stop the fans, compensate the fan speed and in combination with mixing damper let in more outdoor air depending on the CO2 value.This can be configured with the CO2 control setting:

- Off
- Start/stop function (with fan speed compensation)
- Mixing damper function (with fan speed compensation)
- Both start/stop and mixing damper function (with fan speed compensation)

When the function is activated with start/stop function and the CO2 value rises above settable start value (default: 800ppm) the fans will start at configured speed (default: reduced speed), if they are not already running. Should the CO2 value continue to rise, the fan speed can increase if compensation with CO2 value is configured (see function "Extra comp 1 curve pressure/flow setpoint"). The fans will stop when the CO2 value falls to a settable hysteresis (default: 160 ppm) below the start value.

If demand controlled ventilation is activated in combination with mixing dampers, and the CO2-value rises above the setpoint value the dampers or exchanger controlled by a sequence with CO2 function will be overtaken by the CO2 controller and let in more outdoor air. The function is controlled by a PI-controller.

The function has a settable minimum running time.

Configure: *Configuration > Function Configuration > CO2 Control*

Run exhaust air fan when active

- No
- Yes

Supply air fan mode

- Low speed
- Normal speed
- High speed

Exhaust air fan mode

- Low speed
- Normal speed
- High speed

Operation settings: *Data & Settings > Demand Control > CO2 Control*

In buildings with strongly varying occupancy the fan speeds or mixing dampers can be controlled by the air quality measured by a CO_2 sensor.

If demand controlled ventilation is activated in combination with mixing dampers, and the CO_2-value rises above the setpoint value, the dampers will let in more outdoor air. The function is controlled by a PID-controller. Default: P-band 100ppm and I-time 100 seconds. CO_2 control can be used on a damper sequence, "Recirculation 1" and "Recirculation 2".

9 Free cooling

Activate: *Configuration > Function Configuration > Function Activation*

- No

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- Yes

Configure: *There is no configurations settings, only operation settings on Free cooling*

Operation settings: *Data & Settings > Demand Control > Free cooling*

This function is used during the summer to cool the building night-time using cool outdoor air, thereby reducing the need for cooling during the day and saving energy.

Free cooling requires an outdoor sensor (or an inlet temperature sensor) and either a room sensor or an extract air sensor. The outdoor sensor can be placed in the fresh air inlet duct. Free cooling is only activated when all the start conditions are fulfilled.

Start conditions:

- Less than four days have passed since the unit was last in running mode.
- The outdoor temperature during the previous running period exceeded a set limit (22°C).
- It is between 00:00 and 07:00:00 in the day (settable).
- The timer outputs for "normal speed", "Extended running, Normal" and "External switch" are Off.
- A timer channel will be On sometime during the recently started 24 hours.

If the outdoor sensor is located in the fresh air inlet duct and/or an extract air sensor is selected and ALL the start conditions are fulfilled, free cooling is activated and will run for 3 minutes to ensure that the temperature measurement when using an extract air sensor reflects the corresponding room temperature and that the outdoor temperature sensor senses the outdoor temperature even if it is placed in the fresh air inlet duct. If the outdoor sensor is not located in the fresh air inlet duct and a room sensor is selected, the unit will not start free cooling as long as all the temperatures are not within the start and stop temperature intervals.

After three minutes, the stop conditions will be controlled. Stop conditions:

- Outdoor temp above the set max. value (18°C) or below the set min. value (condensation risk, 10°C).
- The room temp/extract air temp. is below the set stop value (18°C).
- The timer outputs for "normal speed", "Extended running, Normal" or "External switch" are On.
- It is past 07:00:00 in the day.

If any stop condition is fulfilled after three minutes, the unit will stop again. Otherwise, operation will continue until a stop condition is fulfilled.

When free cooling is active, the fans run at normal speed or the set value for pressure/flow control. An offset can also be entered for the fan setpoints during free cooling. The digital output ”Free cool run” is active. The outputs Sequences (temperature) are interlocked. After free cooling has been active, the heating output is blocked for 60 minutes (configurable time).

10 Recirculation

Activate: *Configuration > Function Configuration > Function Activation*

- Yes
- No

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Configure: *Configuration > Function Configuration > Recirculation*

Enable supply air temperature control when recirculation running

- No temperature control
- Heating/cooling
- Heating
- Cooling

Enable the night cooling function when recirculation

- No
- Yes

Use Extra time channel 4 to start recirculation run

- No
- Yes

Exhaust air fan operation during recirculation run

- Not running
- Running

Fixed setpoint or setpoint adjustment when recirculation run

- Fixed setpoint
- Setpoint adjustment

Operation settings: *Data & Settings > Demand control > Recirculation*

Recirculation is a function for distributing the air in the room using the supply air fan. The function can be used even when there is no heating or cooling demand. When using recirculation control, the extract air fan stops (but can also be set to run) and a recirculation damper opens which allows the air to circulate through the unit.

If timer input for Extended operation is activated during recirculation via “Extra timer group 4”, normal/reduced speed gets priority. If timer output for normal/reduced speed is activated during recirculation via a digital input, recirculation gets priority.

Analogue output (Recirculation 1 or Recirculation 2) is used as an output signal.

Recirculation control can be configured as either air circulation (temperature control inactive) or air circulation with temperature control. (Only heating, only cooling or both heating and cooling). Recirculation control has its own setpoint. However, the other settings are the same as for normal operation, i. e. if normal operation has been configured as room control, room control will also be used during recirculation.

The recirculation setpoint can be configured as constant or offset. Constant means that the recirculation setpoint will be used. Offset is based on an offset from the supply air setpoint.

To lower the temperature, it is possible to configure free cooling to be used during recirculation, if the conditions for free cooling are fulfilled. Then, the recirculation damper closes, the supply and extract air dampers open and the extract air fan starts (the supply air fan also starts, if it is not already running). If the free cooling function is not configured for recirculation control and you want to cool down the supply air via a low recirculation setpoint, the cooling battery will be used. A max. room temperature can be configured for recirculation control. If the room temperature rises above the set value (FS 25°C), recirculation will be stopped.

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When the room temperature has fallen 1 K below the set max limit, recirculation will start again if the start conditions are still fulfilled.

Frequency controlled fans and using recirculation control you can, depending on the type of fan control, configure a special pressure/flow offset for the setpoint or a manual output signal for the supply air fan.

11 Fire/Smoke

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Fire
- Smoke
- Fire+Smoke

Fan settings for Fire function

Configure: *Configuration > Function Configuration > Fire/Smoke > Fans*

Operation mode when fire alarm

- Stopped
- Continuons run
- Running via normal start/stop conditions
- Supply air fan run
- Extract air fan run

Supply air fan setpoint type when fire alarm

- Off/Auto normal setpoint
- Manual setpoint
- Manual outputs
- Low speed setpoint
- Normal speed setpoit
- High speed setpoint

Manual setpoint or output (supply air fan)

- 0..100%
- 0..

Extract air fan setpoint type when fire alarm

- Off/Auto normal setpoint
- Manual setpoint
- Manual outputs
- Low speed setpoint
- Normal speed setpoit
- High speed setpoint

Manual setpoint or output (Extract air fan)

- 0..100%
- 0..

Fire damper

Configure: *Configuration > Function Configuration > Fires/Smoke > Fire damper*

Mode

- Not active
- Dampers normally closed
- Damper normally opened

Test

- No test
- Test with unit running
- Test with unit stopped

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Outdoor air damper function when fire alarm

- Normal function (follow the fan)
- Always open
- Always closed

Exhaust air damper function when fire alarm

- Normal function (follow the fan)
- Always open
- Always closed

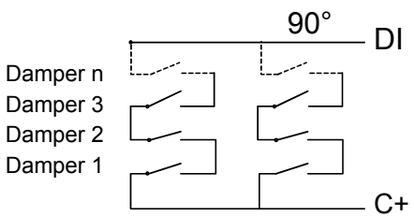
Fire dampers

Fire dampers are normally configured to open (normally closed) on fire alarm. However, they can be configured to be normally open instead via NaviPad.

Fire damper exercising

Fire damper exercising can be configured. The exercise interval is settable. To be able to use this function, all the dampers must have end-position switches.

The digital input: "Fire damper end-switch monitoring" should be wired to all the fire damper end position switches.



When the test cycle is initiated, the output "Fire dampers" will be activated and the dampers will begin to move. Within the set time (90 sec) the signal on "Fire damper end-switch monitoring" must change to indicate that the dampers have left their normal positions. If not an alarm will be triggered.

Then, within the set time, “Fire damper end-switch monitoring” must change again to indicate that all the dampers have reached the other end position. If not an alarm will be triggered.

When all dampers have reached the end position the output "Fire dampers" will be reset to drive the dampers back to normal position. Again, within the set time (90 sec) the signal on the input "Fire damper end-switch monitoring" must change to indicate that the dampers have left the end positions. If not an alarm will be triggered.

Then, within the set time, "Fire damper end-switch monitoring" must change again to indicate that all the dampers are back to their normal positions. If not an alarm will be triggered.

The controller can be configured to stop the air handling unit during the damper testing.

All dampers must be wired to the same output in order to get correct results.

The fire alarm input can be configured as normally closed or normally open.

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Smoke function

Configure: *Configuration > Function Configuration > Fires/Smoke > Smoke function*

Operation mode when smoke alarm

- Stopped
- Continuons run
- Running via normal start/stop conditions
- Supply air fan run
- Extract air fan run

Supply air fan setpoint type when smoke alarm

- Off/Auto normal setpoint
- Manual setpoint
- Manual outputs
- Low speed setpoint
- Normal speed setpoit
- High speed setpoint

Manual setpoint or output (supply air fan)

- 0..100%
- 0..

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Extract air fan setpoint type when smoke alarm

- Off/Auto normal setpoint
- Manual setpoint
- Manual outputs
- Low speed setpoint
- Normal speed setpoit
- High speed setpoint

Manual setpoint or output (Extract air fan)

- 0..100%
- 0..

Outdoor air damper function when fire alarm

- Normal function (follow the fan)
- Always open
- Always closed

Exhaust air damper function when fire alarm

- Normal function (follow the fan)
- Always open
- Always closed

Operation settings: *Data & Settings > Fire/Smoke*

12 Humidity/Dehumidity

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Humidity
- Dehumidity
- Humidity+Dehumidity

Configure: *Configuration > Function Configuration > humidity/Dehumidity*

Operation settings: *Data & Settings > Humidity controller*

General

Humidity control can be configured as Humidification, Dehumidification or both Humidification and Dehumidification.

Two humidity sensors can be connected, a room sensor for control and an optional duct sensor for maximum limiting. The limit sensor can be omitted.

The humidity control is handled by a PI-controller.

The humidity sensors must give 0…10 V DC for 0…100 % RH.

Humidification

An analogue output is used to control a humidifier. The output will increase on decreasing humidity. A digital output can also be used to start a humidifier.

Maximum limitation function using duct humidity sensor:

If the maximum limitation is 80 % RH and the hysteresis is 20 % RH, the controller output signal will begin decreasing at 60 % RH. When halfway to 80 % RH (i.e. when at 70 % RH), half the output signal will be damped. If the humidity in the duct still reaches 80 % RH, the entire output signal will be damped.

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Dehumidification

An analogue output is used to control a dehumidifier. The output will increase on increasing humidity. A digital output can also be used to start a dehumidifier.

Humidification/dehumidification

An analogue output is used to control a humidifier. The output will increase on decreasing humidity.

The cooling output Y3 will be activated for dehumidification through condensation. The output will increase on increasing humidity. This signal overrides the cooling signal from the temperature controller so the output can be activated for dehumidification even if the temperature controller demand is zero.

For good temperature control when using cooling for dehumidification it is important that the cooler is placed first in the air stream so that the exchanger and heater can be used to reheat the air after dehumidification.

Digital humidity signal

A digital output signal, "Dehumidification/Humidification", can be used for on/off control of humidifiers/dehumidifiers. The output signal has an Activate value and a Deactivate value which are connected to the humidity controller output. The signal is activated when the humidity controller output rises above the set Activate value and is deactivated when the humidity controller output drops below the set Deactivate value.

If a start signal is needed for a cooling unit or a magnetic valve for DX dehumidification, the digital output signal “Start P1-Cooling” should be used. In this case, the “pump” stop delay should be set to 0 s.

13 Filter monitor

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Yes

Configure: *Configuration > Function Configuration > Filter monitor*

Type

- DI Digital pressure guard
- AI Analog pressure transmitter

Placement

- Supply
- Extract
- Supply & Extract

Filter alarm reset

- No
- Yes Reset the calender counter.

Fiter alarm time (month)

- Time to next filter replacement

Analogue filter monitoring may be made air flow dependent. This means that a higher pressure drop is permitted across a filter at a higher air flow. For this purpose, X and Y coordinates are used to set the linear function that should be

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followed at a pressure drop alarm. These are found under “Alarm configuration”. FS = X1:0 m^3/h, Y1:10 Pa : X2:2000 m^3/h, Y2:150 Pa.

If a constant pressure drop alarm level is wanted, Y1 and Y2 should be set to the same value.

14 Extended operation

Activate: *Configuration > function Configuration > Function Activation*

- No
- Yes

Configure: *Configuration > function Configuration > Extended operation*

Extended operation low

- No
- Yes

Extended operation normal

- No
- Yes

Extended operation high

- No
- Yes

Operation settings: *Data & settings > Operation overview > Control overview*

Extended operation

Actual level of digital inputs for Extended operation.

Extended operation conditions in priority

1. Extended operation high
2. Extended operation normal
3. Extended operation high

Extended operation time

- 0,30,60..

The unit will run for the set time. If the running time is set to 0 the unit will only run as long as the digital input is closed.

The time are “off delay time”

Extended operation time left

Run time left to end the extended operation

15 Pretreatment

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Yes

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Configue: *Configuration > Function Configuration > Pretreatment*

Pretreatment activation during free cooling

- No
- Yes

Control of dampers and pump for preheated or pre-cooled outdoor air via an underground intake channel. The digital output ”Pretreatment” is set to preheating when the unit is started and the outdoor temperature is below the set heating start limit (default 8°C) or to precooling when the outdoor temperature is above the set cooling start limit (default 19°C).

If the outdoor temperature exceeds the set heating start limit by more than 1°C (fixed), preheating will be aborted, as well as if the outdoor temperature falls below the cooling start limit by 1°C.

If a sensor is configured in the intake duct (”intaketemp”) this temperature will be compared with the outdoor temperature. If the temperature in the intake duct does not exceed the outdoor temperature by more than 1°C (adjustable) 5 minutes (adjustable) after start-up when using preheating, preheating will be aborted. The same conditions apply to precooling, i.e. if the intake temperature is not more than 1°C (adjustable) cooler than the outdoor temperature, precooling will be aborted.

Pretreatment always starts at start-up of the unit, if the outdoor temperature so permits. If pretreatment is aborted due to a small difference between the intake temperature and the outdoor temperature, pretreatment will be blocked for 6 hours. Then pretreatment will start (if the outdoor temperature so permits) and run for at least 5 minutes (adjustable)

Operation settings: *Data & Settings > Temperature control > Pretreatment*

16 Extra controller

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Yes

Configure: *Configuration > Function Configuration > Extra controller*

Start/Stop function extra controller

- Off
- Always running
- Running if unit is running
- Defrosting

Control mode extra controller

- Heating
- Cooling

An independent temperature control circuit for control of for example after-heaters. The circuit can be configured to heating or cooling. It has an analogue input signal for temperature sensors and an analogue output signal 0…10 V. There is also a digital output signal which is activated when the analogue output signal is above 1 V and deactivated when the analogue signal is below 0.1 V. The circuit can be configured to be active all the time or to be active only when the main unit is running at normal speed.

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The extra controller can also be used for humidity control. The cooling battery will be used for dehumidification if the room/extract air humidity is too high. The function uses the sensor “Extra unit temp” and is placed immediately after the cooling battery. The function also requires use of a room humidity or extract air humidity sensor.

Example:

If the room humidity exceeds the setpoint for the function, the cooling battery will be controlled by the external controller. The heater is controlled normally. When the room humidity falls below the setpoint once more, the cooling control will return to normal control. A hysteresis of 1 % is added to the function.

The function can be used for “Cascaded room temperature control”, “Cascade connected extract air temperature control”, “Outdoor compensated room temperature control” as well as “Outdoor compensated extract air control”.

An alarm will be triggered if “Extra controller” is in manual position or if a sensor error occurs.

Operation settings: *Data & settings > Temperature control > Supply air controller*

Setpoint extra controller

- 18 °C

Temperature extra controller

- Actual value for Extra temperature controller

17 External switch (External stop)

Activate: *Configuration > Function Configuration > Function Activation*

- No
- Yes

The signal “External stop” will stop the unit, even if the time channel or one of the signals “Extended Operation, Low, “Extended Operation, Normal” or “Extended Operation High” says it should stay in running mode.

18 External motor control

Activate: *Configuration > Function Configuration > Function Activation*

- No
- One fan control
- Two fan control

Extra fan motor control

Configure: *Configuration > Function Configuration > Extra fan motor control*

Motor control 1

- None
- Motor protection
- Run indication

Mode motor control 1

- Only Digital input
- Normal time channel

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- Extra time channel 4

Stop delay motor control 1

- 0.. s

Motor control 2

- None
- Motor protection
- Run indication

Mode motor control 2

- Only Digital input
- Normal time channel
- Extra time channel 4

Stop delay motor control 2

- 0.. s

Operation settings: *Data & Settings > Fan control > Extra fan motor control*

19 Damper

Activate: *Configuration > Function Configuration > Function Activation*

- None
- Outdoor
- Outdoor+Exhaust
- Exhaust

Outdoor damper follow supply air fan and exhaust damper follow extract air fan

Outdoor air damper stop delay

Operation settings: *Data & Settings > Fan control > Supply air fan*

- 0 s

Exhaust air damper stop delay

Operation settings: *Data & Settings > Fan control > Exhaust air fan*

- 0 s

20 Extra Indication & outputs

Activate: *Configuration > Function Configuration > Extra Indication & outputs*

Extra time channel

- None
- 1
- 2
- 3
- 4

Note! *Time channel 4 are used also for recirculation*

Running indication

- No
- Yes

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Alarm outputs

- None
- A/B-alarm 1 pcs Digital output
- A-alarm + B-alarm 2 pcs digital outputs
- A-alarm + B/C-alarm 2 pcs digital outputs

Alarm priorities

Alarms can be given different priority levels, A-alarm, B-alarm, C-alarm or not active. Digital outputs can be bound to act as alarm outputs for A/B-alarms on one digital output or both A- and B alarms (or B/C-alarm) on different digital ouptuts. The digital outputs can be inverted, so that an inoperative alarm gives a high output and vice versa. A- and B-alarms must be acknowledged to reset. C-alarms automatically reset as soon as there is no longer a cause for alarm.

Digital outputs

Selection A/B-alarm

A-alarm and B-alarm indicates on digital output Alarm 1

Selection A-alarm + B-alarm

A-alarm indicates on digital output Alarm 1

B-alarm indicates on digital output Alarm 2

Selection A-alarm + B/C-alarm

The A-alarm indicate on digital output Alarm 1

B-alarm and C-alarm indicate on digital output Alarm 2

Free cooling running

- No
- Yes

To use digital output too indicate when free cooling running.

21 Extra sensors & inputs

Activate: *Configuration > Function Configuration > Extra sensors & inputs*

Alarm achnowledgement

- No
- Yes

Activate Digital input for remote control of acknowledgment

Extra temperature sensor

- None
- 1
- 2
- 3
- 4
- 5

The input signals ”Extra Sensor 1”, ”Extra Sensor 2”, ”...”, ”Extra Sensor 5”, can be used to add extra temperature sensors for supervision of temperatures that are not

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related to any control functions. “Extra Sensor 1” should be used for external setpoint input.

Extra alarm

- No
- Yes

If selection are yes, 1..10 extra alarm can be configured under I/O allocation

22 I/O allocation settings

Configure: *Configuration*

22.1 Analog inputs

Configure: *Configuration > I/O allocation*

Analog inputs shows only sensors/signals that are activated by configuration

Note! *If the sensor/signal is not in the list, please activate and configure the function and go back in this list to set up a physical position of I/O’s*

Analouge inputs	Device	Signal
e.g Supply air temperature	Controller	AI1

Avalible analogues inputs

- Outdoor temperature
- Intake air temperature
- Supply air temperature
- Exhaust air temperature
- Extract air temperature
- Room temperature 1
- Room temperature 2
- Room temperature 3
- Room temperature 4
- Pressure supply air
- Pressure extract air
- Flow supply air
- Flow extract air
- Flow exchanger supply air
- Pressure exchanger extract air
- Defrosting temperature
- Frost protection temperature 1
- Frost protection temperature 2
- Frost protection temperature 3
- CO2 room/extract air
- Humidity sensor room/extract air
- Humidity sensor supply air
- Humidity outdoor
- Extra controller temperature
- External control supply air fan
- External control extract air fan
- Extra sensor 1
- Extra sensor 2
- Extra sensor 3
- Extra sensor 4
- Extra sensor 5
- External setpoint temperature
- External setpoint flow
- Pressure filter supply air
- Pressure filter extract air
- Efficiency temperature exchanger

Device

Select controller or some off the other device.

Note! *If you not find your device, se 25.2 to configure/activate your device*

Signal

Select I/O for signal on selected device.

Note! *It’s possible to select an already used I/O position.*
Please select the same ouputs as wiring diagram describe.
Or select a free I/O’s position.

22.2 Digital inputs

Configure: *Configuration > I/O allocation*

Digital inputs shows only sensors/signals that are activated by configuration

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Note! *If the sensor/signal is not in the list, please activate and configure the function and go back in this list to set up a physical position of I/O's*

Analouge inputs	Device	Signal
e.g Minitoring supply air fan	Controller	DI1

Avalible digital inputs

- Monitoring supply air fan
- Monitoring extract air fan
- Extended operation low speed
- Extended operation normal speed
- Extended operation high speed
- Fire alarm
- Smoke sensor alarm
- External alarm
- Fire damper position switch
- Feedback sequence-A
- Feedback sequence-B
- Feedback sequence-C
- Feedback sequence-D
- Feedback sequence-E
- Feedback sequence-F
- Feedback sequence-G
- Feedback sequence-H
- Feedback sequence-I
- Feedback sequence-J
- Overheated electric heater
- External stop
- Alarm acknowledgement
- Flow switch
- Defrost switch
- Rotary exchanger alarm
- Frost protection switch
- Recirculation operation
- Cooling/(heating) changeover 1
- Cooling/(Heating) changeover 2
- Filter guard supply air
- Filter guard extract air
- Alarm extra fan motor 1
- Alarm extra fan motor 2
- Indication extra fan motor 1
- Indication extra fan motor 2
- Extra alarm 1
- Extra alarm 2
- Extra alarm 3
- Extra alarm 4
- Extra alarm 5
- Extra alarm 6
- Extra alarm 7
- Extra alarm 8
- Extra alarm 9
- Extra alarm 10
- Lock PID controller supply
- Summer/(winter) mode

Device

Select controller or some off the other device

Note! *If you not finde your device, se 25.2 to configure/activate your device*

Signal

Selecta I/O for signal on selected device.

Note! *It's possible to select an already used I/O position.*
Please select the same ouputs as wiring diagram describe.
Or select a free I/O's position.

22.3 Analogue outputs

Configure: *Configuration > I/O allocation*

Analogue outputs shows only actuator/signals as are activade by configuration

Note! *If the sensor/signal is not in the list, please activate and configure the function and go back in this list to set up a physical position of I/O's*

Analouge inputs	Device	Signal
e.g Heating	Controller	AO1

Avalible analogue outputs

- Heating
- Exchanger
- Cooling
- Recirculation 1
- Recirculation 2
- Fan heating/cooling
- Heating 2
- Cooling 2
- Exchanger extract
- External heating/cooling capacity
- Changeover 1
- Changeover 2
- Supply air fan
- Extract air fan
- Humidity
- Step controller 1
- Step controller 2
- Extra controller
- Temperature output

Device

Select controller or some off the other device as are active and configure under *Configuration > System settings > Device List*

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Note! *If you not finde your device, se 25.2 to configure/activate your device*

Signal

Selecta I/O for signal on selected device.

Note! *It's possible to select an already used I/O position.*
Please select the same ouputs as wiring diagram describe.
Or select a free I/O's position.

22.4 Digital outputs

Configure: *Configuration > I/O allocation*

Digital outputs shows only actuator/signals as are activade by configuration

Note! *If the sensor/signal is not in the list, please activate and configure the function and go back in this list to set up a physical position of I/O's*

Digital outputs	Device	Signal
e.g Sequence-A start	Controller	DO1

Avalible analogue outputs

- Sequence-A start
- Sequence-B start
- Sequence-C start
- Sequence-D start
- Sequence-E start
- Sequence-F start
- Sequence-G start
- Sequence-H start
- Sequence-I start
- Sequence-J start
- Sequence-A pump
- Sequence-B pump
- Sequence-C pump
- Sequence-D pump
- Sequence-E pump
- Sequence-F pump
- Sequence-G pump
- Sequence-H pump
- Sequence-I pump
- Sequence-J pump
- Supply air fan start
- Extract air fan start
- Recirculation air damper
- Outdoor air damper
- Exhaust air damper
- Fire damper
- Alarm 1
- Alarm 2
- Summary Alarm
- Extra fan motor 1 start
- Extra fan motor 2 start
- Extra time channel 1
- Extra time channel 2
- Extra time channel 3
- Extra time channel 4
- Free cooling running
- Pretreatment start
- Running indication
- Step controller 1 step 1
- Step controller 1 step 2
- Step controller 1 step 3
- Step controller 1 step 4
- Step controller 2 step 1
- Step controller 2 step 2
- Step controller 2 step 3
- Step controller 2 step 4
- Dehumidify/(Humidify)
- Changeover 1
- Changeover 2
- Outdoor controlled exchanger

Device

Select controller or some off the other device

Note! *If you not finde your device, se 25.2 to configure/activate your device*

Signal

Selecta I/O for signal on selected device.

Note! *It's possible to select an already used I/O position.*
Please select the same ouputs as wiring diagram describe.
Or select a free I/O's position.

23 Alarm configuration

Configure *Configuration > Alarm configuration*

Information about individually configuring each unique alarm settings

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Action

- No action
- Fast stop
- Normal stop
- Low speed
- Normal speed
- High speed

Level

- A-alarm
- B-alarm
- C-alarm
- disabel

Delay

- 0.. sec

No.

Alarm identity number

Editable text

Possible to change the alarm name

Original text

Not possible to change the original text

Som alarms have alarm limits to set

List of all alarm

ID	Alarm name
1.	Malfunction supply air fan 1
2.	Malfunction supply air fan 2
3.	Malfunction supply air fan 3
4.	Malfunction supply air fan 4
5.	Malfunction supply air fan 5
6.	Malfunction extract air fan 1
7.	Malfunction extract air fan 2
8.	Malfunction extract air fan 3
9.	Malfunction extract air fan 4
10.	Malfunction extract air fan 5
11.	Alarm supply air fan 1
12.	Alarm supply air fan 2
13.	Alarm supply air fan 3
14.	Alarm supply air fan 4
15.	Alarm supply air fan 5
16.	Alarm extract air fan 1
17.	Alarm extract air fan 2
18.	Alarm extract air fan 3
19.	Alarm extract air fan 4
20.	Alarm extract air fan 5
21.	Warning supply air fan 1
22.	Warning supply air fan 2
23.	Warning supply air fan 3
24.	Warning supply air fan 4
25.	Warning supply air fan 5
26.	Warning extract air fan 1
27.	Warning extract air fan 2
28.	Warning extract air fan 3
29.	Warning extract air fan 4
30.	Warning extract air fan 5
31.	External operation supply air fan
32.	External operation extract air fan
33.	External fan 1 run
34.	External fan 2 run
35.	Malfunction pump heater
36.	Malfunction pump cooler
37.	Malfunction pump exchanger
38.	Malfunction fire damper
39.	Malfunction damper
40.	Malfunction external fan 1
41.	Malfunction external fan 2
42.	Error fire damper position
43.	Malfunction pump sequence-A
44.	Malfunction pump sequence-B
45.	Malfunction pump sequence-C
46.	Malfunction pump sequence-D
47.	Malfunction pump sequence-E
48.	Malfunction pump sequence-F
49.	Malfunction pump sequence-G
50.	Malfunction pump sequence-H
51.	Malfunction pump sequence-I
52.	Malfunction pump sequence-J
53.	Filter alarm supply air
54.	Filter alarm extract air
55.	Alarm low air flow
56.	Extra freeze protection
57.	Defrost protection exchanger alarm
58.	Fire alarm
59.	Smoke detector alarm
60.	External stop
61.	External alarm
62.	Service stop
63.	Electric heater is overheated
64.	Warning freeze protection
65.	Low efficiency exchanger
66.	Defrosting alarm
67.	Rotary exchanger alarm
68.	Extra alarm 1
69.	Extra alarm 2
70.	Extra alarm 3
71.	Extra alarm 4
72.	Extra alarm 5
73.	Extra alarm 6
74.	Extra alarm 7
75.	Extra alarm 8
76.	Extra alarm 9
77.	Extra alarm 10
78.	Internal battery error

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79. Alarm service interval
80. Restart blocked after power on
81. Deviation alarm supply temperature
82. Deviation alarm Flow/pressure supply air
83. Deviation alarm Flow/pressure extract air
84. Deviation alarm humidity
85. Deviation alarm extra controller
86. High supply air temperature
87. Low supply air temperature
88. Supply air temperature max limit
89. Supply air temperature min limit
90. High room temperature
91. Low room temperature
92. High extract air temperature
93. Low extract air temperature
94. High outdoor air temperature
95. Low outdoor air temperature
96. Frost protection alarm 1
97. Frost protection alarm 2
98. Frost protection alarm 3
99. High temperature extra sensor 1
100. Low temperature extra sensor 1
101. High temperature extra sensor 2
102. Low temperature extra sensor 2
103. High temperature extra sensor 3
104. Low temperature extra sensor 3
105. High temperature extra sensor 4
106. Low temperature extra sensor 4
107. High temperature extra sensor 5
108. Low temperature extra sensor 5
109. High temperature selected sensor 1
110. Low temperature selected sensor 1
111. High temperature selected sensor 2
112. Low temperature selected sensor 2
113. Manual operation air handling unit
114. Manual operation supply air
115. Manual operation supply air fan
116. Manual operation extract air fan
117. Manual operation heater
118. Manual operation exchanger
119. Manual operation cooler
120. Manual operation damper
121. Manual operation pump heater
122. Manual operation pump exchanger
123. Manual operation pump cooler
124. Manual operation damper recirculation
125. Manual operation damper outdoor air
126. Manual operation damper exhaust air
127. Manual operation fire damper
128. Sequence in manual operation
129. Sequence in manual operation
130. Sequence in manual operation
131. Sequence in manual operation
132. Sequence in manual operation
133. Sequence in manual operation
134. Sequence in manual operation
135. Sequence in manual operation
136. Sequence in manual operation
137. Sequence in manual operation
138. Output in manual operation
139. Input in manual operation
140. Manual operation extra controller
141. Manual operation external fan motor 1
142. Manual operation external fan motor 2
143. Manual operation pretreatment
144. Sensor error outdoor air temp
145. Sensor error intake air temp
146. Sensor error supply air temp
147. Sensor error exhaust air temp
148. Sensor error extract air temp
149. Sensor error room temp 1
150. Sensor error room temp 2
151. Sensor error room temp 3
152. Sensor error room temp 4
153. Sensor error pressure supply air
154. Sensor error pressure extract air
155. Sensor error flow supply air
156. Sensor error flow extract air
157. Sensor error pressure exchanger supply air
158. Sensor error pressure exchanger extract air
159. Sensor error defrost temperature
160. Sensor error frost protection 1
161. Sensor error frost protection 2
162. Sensor error frost protection 3
163. Sensor error CO2
164. Sensor error humidity room/extract air
165. Sensor error humidity supply air
166. Sensor error humidity outdoor
167. Sensor error extra controller
168. Signal error external control supply air fan
169. Signal error external control extract air fan
170. Sensor error extra sensor 1
171. Sensor error extra sensor 2
172. Sensor error extra sensor 3
173. Sensor error extra sensor 4
174. Sensor error extra sensor 5
175. Sensor error external setpoint device temperature
176. Signal error external flow setpoint
177. Sensor error filter monitoring supply air
178. Sensor error filter monitoring extract air
179. Sensor error efficiency temperature
180. Communication error supply air fan
181. Communication error extract air fan
182. Communication error device 1
183. Communication error device 2
184. Communication error device 3
185. Communication error device 4
186. Communication error device 5
187. Communication error device 6
188. Communication error device 7
189. Communication error device 8
190. Communication error device 9
191. Communication error device 10

24 PID controllers

Settings for all different loop controllers

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P-band

I-time

D-time

25 System settings

25.1 Communication

Path: *Configuration > System settings > Comunication*

Port 1

Configure *Configuration > System settings > Comunication > Port 1*

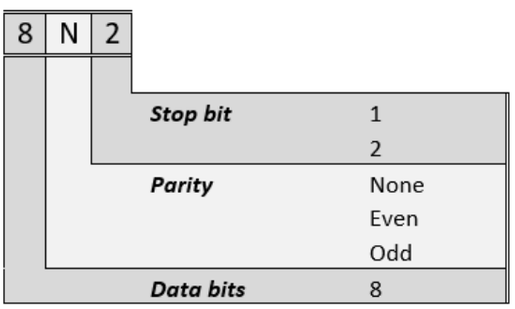
Function

- EXOline slave
- EXOline master
- Modbus slave
- Modbus master
- BACnet MSTP slave
- External display
- EFX master

Format

- 8N1
- 8E1
- 8O1
- 8N2
- 8E2
- 8O2

Description format Modbus RTU (Master or Slave)



Baud rate

- 9k6 bps
- 14k4 bps
- 19k2 bps
- 28k8 bps
- 38k4 bps
- 57k6 bps
- 76k8 bps
- 115k2 bps

Baud rate	Description
9k6 bps	9 600 BPS
14k4 bps	14 400 bps
19k2 bps	19 200 bps
28k8 bps	28 800 bps
38k4 bps	38 400 bps

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Baud rate	Description
57k6 bps	57 600 bps
76k8 bps	76 800 bps
115k2 bps	115 200 bps

Port 2

Port 3

Ethernet

IP settings on Ethernet communication

Cloud

Enable cloudigo connection

- No
- Yes

Serial number

Unique serial number on the controller

25.2 New device

Path: *Configuration > System settings > Device List*

Device 1..20

Configure: *Configuration > System Settings > Device List > Device n*

Type

- Fan (Modbus) *1
- Rotary exchanger (Modbus)
- Pressure transmitter
- Damper (Modbus)
- Expansion unit (EXOline)

Model

Configure: *Configuration > System Settings > Device List > Device (n) > Type > ….*

Device type	Device type: Fan (Modbus)	Device type: Rotary exchanger (Modbus)	Device type: Pressure transmitter	Device type: Damper (Modbus)	Device type: Expansion unit (EXOline)
Model	Vacon	RHC200	PDTxxC-2 (Modbus)	Belimo	E8
	LS iG5A	IBC VariMax	HK DPT-Dual-MOD-2500 (Modbus)		E15
	LS iS7		PDTxxC (EXOline)		E28
	EBM-PAPST		PDTxxC-2 (EXOline)		
	DANFOSS FC101				
	ABB ACSxxx				
	Ziehl blue				

Address

Configure: *Configuration > System Settings > Device List > Device (n) > Address*

- 0..

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Function

Configure: *Configuration > System Settings > Device List > Device (n) > Functin > ….*

Model	Fan (Modbus)	Rotary exchanger (Modbus) *1	Pressure transmitter	Damper (Modbus)	Expansion unit (EXOline)
Function	Supply air fan	Heating *1	Exp1	Heating *1	Exp1
	Exhaust air fan	Exchanger*1	Exp2	Exchanger*1	Exp2
		Cooling *1	Exp3	Coolingc *1	Exp3
		Recirculation 1 *1	Exp4	Recirculation 1 *1	Exp4
		Recirculation 2 *1	Exp5	Recirculation 2 *1	Exp5
		Fan heating/cooling *1	Exp6	Fan heating/cooling *1	Exp6
		Heating 2 *1	Exp7	Heating 2 *1	Exp7
		Cooling 2 *1	Exp8	Cooling 2 *1	Exp8
		Exchanger extract *1	Exp9	Exchanger extract *1	Exp9
		Extra heating/cooling capacity *1	Exp10	Extra heating/cooling capacity *1	Exp10
				Recirculation air	
				Outdoor air	
				Exhaust air	

*1 Only active sequence are selecteble

Name

Configure: *Configuration > System Settings > Device List > Device (n) > Name*

- Device (n)

Select a unique device name.

This name will be used in Device “drop down list” when you select Device under I/O allocation.

25.3 Preference unit settings

Configure: *Configuration > System Settings*

Temperature unit

- Celsius
- Fahrenheit

Flow unit

- m³/h
- CFM
- m³/s
- l/s

Pressure unit

- Pa
- In.wg(x100)

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25.4 Save and restore

Activate: *Configuration > System Settings*

Save settings local

- No
- Yes

Commissioning settings can be stored in a local memory.

Reset settings to local

- No
- Yes

Reset to commissioning saved settings

Warning! *All current value and settings will be lost when you do a “Total reset to settings to local”*

Total restore to factory settings

- No
- Yes

Restore to factory delivered configuration settings

Warning! *All current value and settings will be lost when you do a “Total restore to factory settings”*

25.5 Software

Path: *Configuration > System Settings*

Software version

- 4.0-1-02 Build 2480

Version date

- 2018-06-15

Build version

- 2480

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