GOLD

Air handling unit

Function manual, installation

GOLD RX/PX/CX/SD version G

Applicable to Program Version 3.01 and newer versions

Swegon

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The document was originally written in Swedish.

Swegon reserves the right to alter specifications. GB.GOLDSKGFI.20261001

1. IQNavigator hand-held terminal

1.1 General

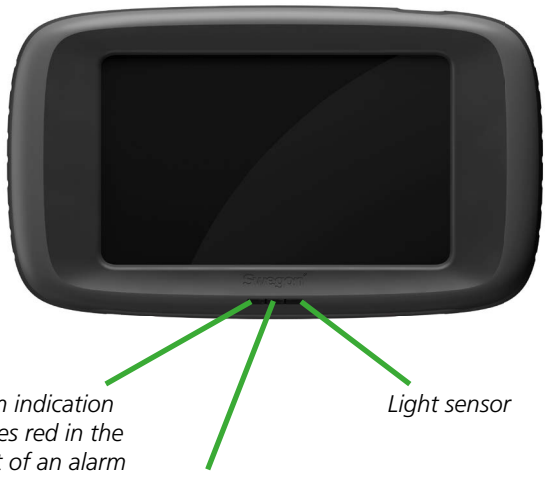
The hand-held terminal consists of a 7" capacitive touch screen with a 3 metre long cable that is connected to the control board of the air handling unit using a quick-fit connector.

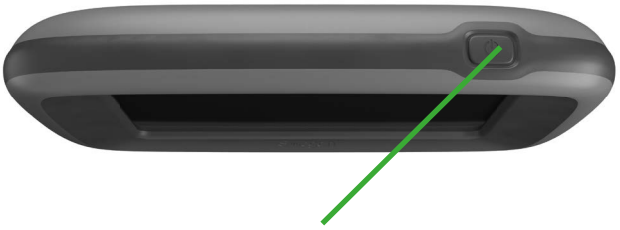
The hand-held terminal is switched on/off with an on/off button located on the top side of the hand-held terminal. If the hand-held terminal is not used for 45 minutes, it switches over to sleep mode.

See the illustrations below for details of the connections, buttons and LED.

IQNavigator can be used outdoors, but it must be stored in a weatherproof place.

Data:
Operating temperature: -20°C–+50°C
Height from which it can be dropped without damage: 1 metre

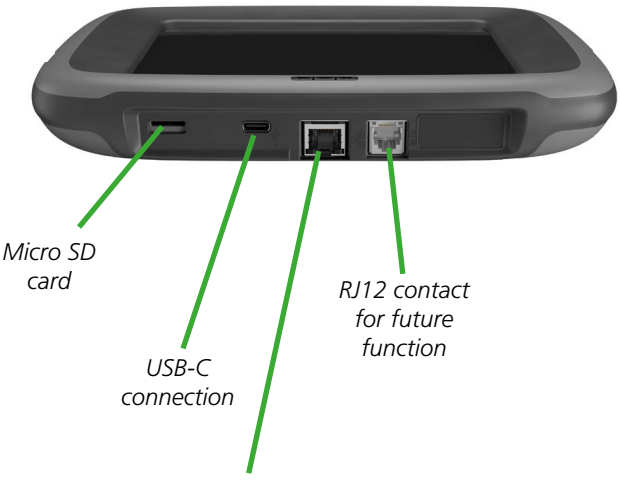




On/off button:

When the touchscreen is in sleep mode or switched off:
By briefly pressing the On/Off button, the touchscreen switches on or starts up

When the touchscreen is on:
Briefly press the On/Off button to put the touchscreen into sleep mode
Long press displays the question, "Do you want to power off IQnavigator?" press OK to switch the touchscreen off



2. Connection

2.1 Hand-held terminal

Connect the hand-held terminal to the control circuit board of the air handling unit, see installation instructions for the air handling unit concerned.

2.2 Website

The air handling unit has a built-in web server that enables monitoring, making settings and changing values in the air handling unit. The interface is the same for the website as for the hand-held terminal.

2.2.1 Connections

The computer and air handling unit can be connected in two different ways: using a crossover cable or with a network hub (HUB, switch or router).

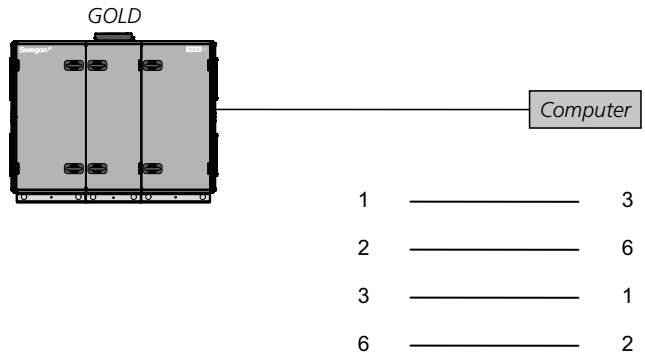
For example, the deciding factor for whether or not a network hub is used might be the number of air handling units that are to be connected. Two units can be connected without a network hub.

An example of two units being connected is a computer being connected with an air handling unit. Two or more units can be connected with a network hub.

The network connection, Port B is located on the control board of the air handling unit (see the Installation Instructions or the Operation and Maintenance Instructions).

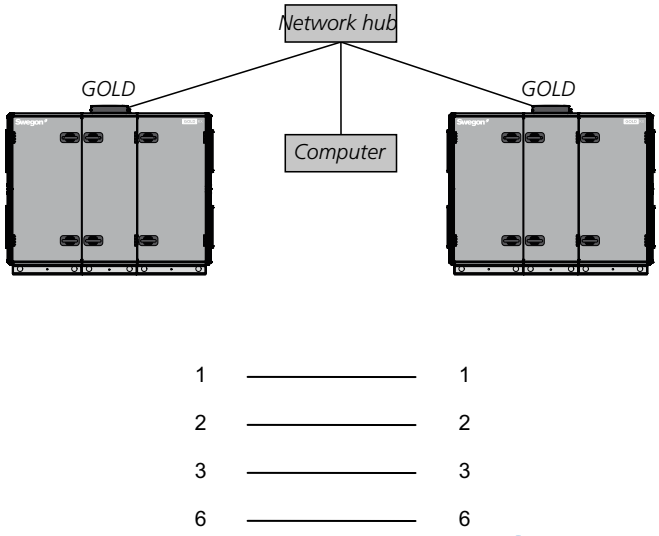
2.2.1.1 Connecting two units

A cross-connected CAT5 cable with RJ45 connectors should be used for connecting an air handling unit to a computer/network, see figure. The cable should be of twisted-pair type, and can be shielded or unshielded.



2.2.1.2 Connecting two or more units

Connection between several air handling units and a computer/network, or between one air handling unit and a computer/network via hub, switch or router, should be done using a straight (not cross-connected) CAT5 cable with RJ45 connectors. See figure. The cable should be of twisted-pair type, and can be shielded or unshielded.



2.2.2 Air handling unit settings

On delivery, the control board inside the air handling unit has a static IP-address set to 10.200.1.1. To assign the board a different static address, change the Subnet mask and Gateway or enable DHCP, log in to the hand-held terminal (installation or service level) and go to Functions/Settings/Communication/External Port B and make changes.

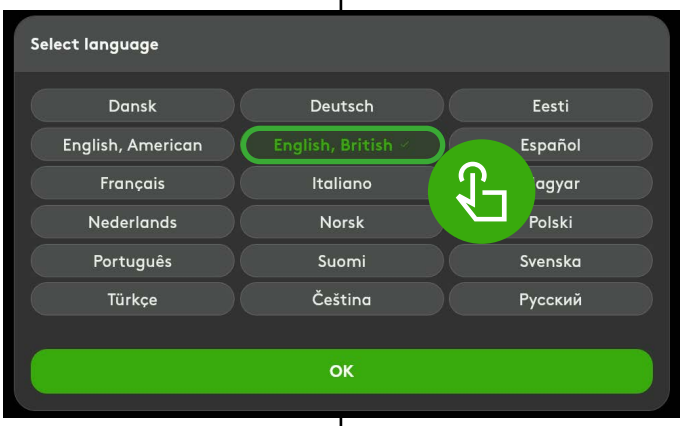
Swegon reserves the right to alter specifications.

3. First start and login

3.1 Hand-held terminal



Start-up display



Select required language (displayed when starting for first time). Language can be changed at any time, see Section 4.1.

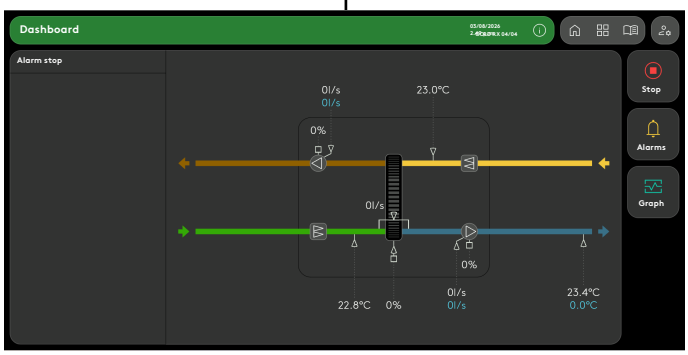


Select the required authorisation level.

Local.
Password not required. See Function Manual user.

Installation.
Password =1111. See these instructions.

Service.
Password and special training are required to gain access to this view group.



Dashboard landing view.

***NOTE!** The view's appearance depends on the type of air handling unit and functions selected.*

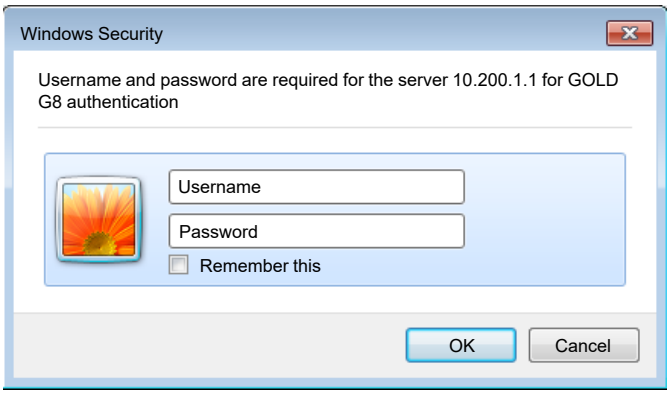
For further navigation, see Sections 4.1 and 5.

3.2 Home page

Password for local and installation are deactivated by default. They can be activated, see Section 8.2.7.

The password for service level can be found on the label on the control circuit board and is unique to each unit.

Language is automatically selected according to the preset language of the browser.



4. View management

4.1 Navigation

Diagram below shows navigation between menus via icons at the top right of the Dashboard.

Navigation can also be done by swiping sideways between menus.

Navigating to Dashboard, see Section 5.

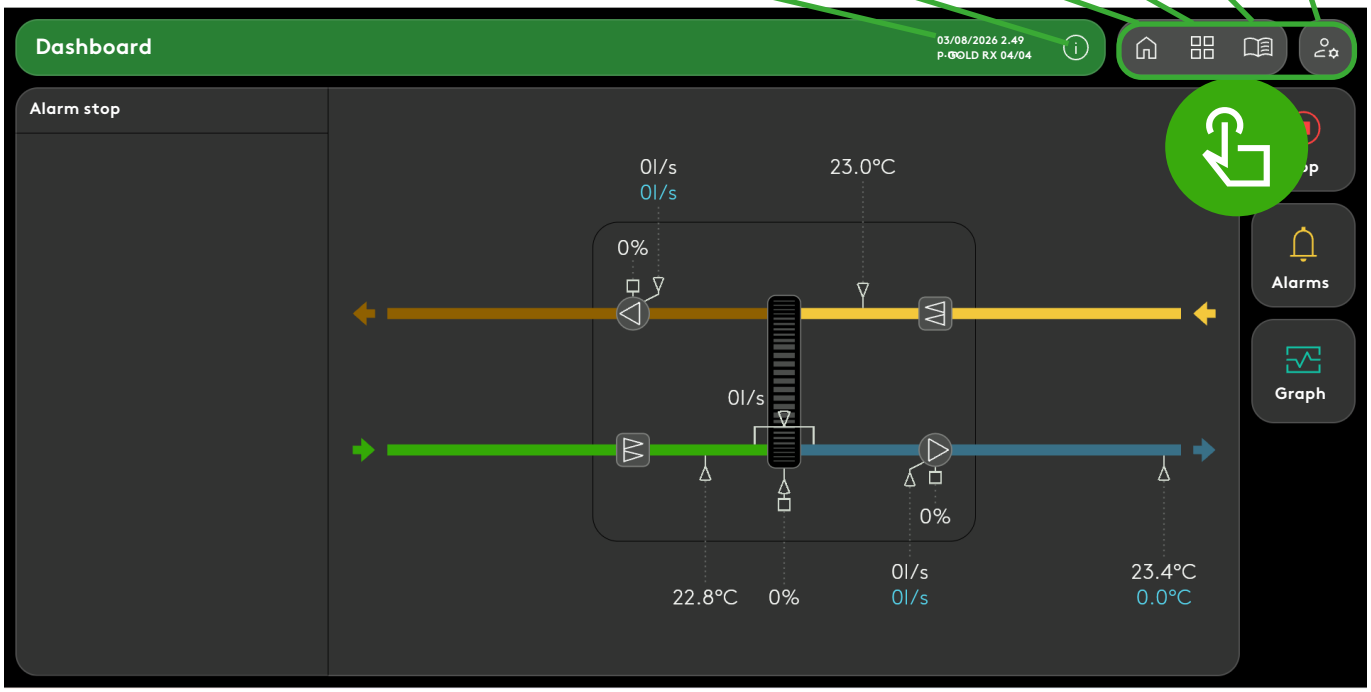
Navigating to Functions. See below and Section 8.

Navigating to Guides for Main Setup and Filter Calibration. See Sections 6 and 7.

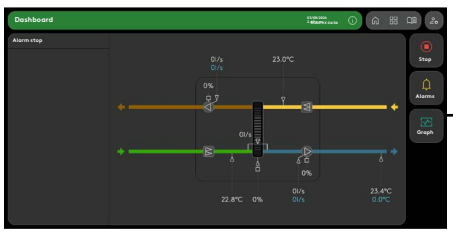
Here you can change dark and light mode, select language, see the programme version for the hand-held terminal and log in or out. Also indicates login level, see Section 4.2.

Help texts for functions.

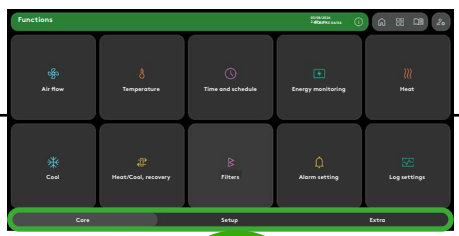
Type of air handling unit, name of air handling unit and date.



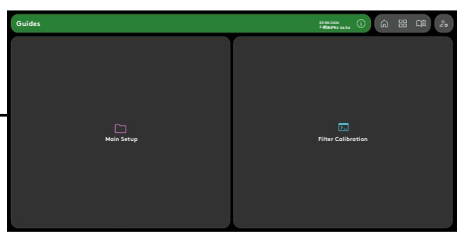
Dashboard



Functions

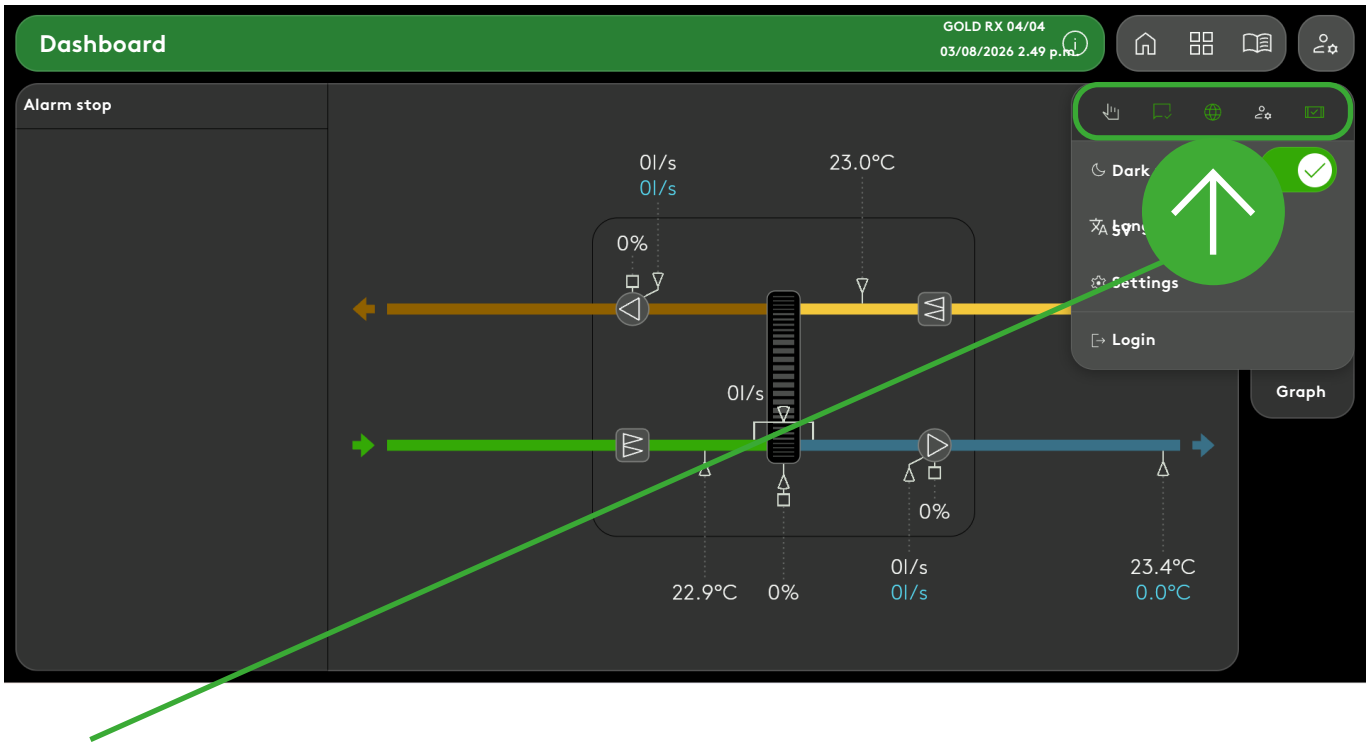


Guides



Navigating to Functions Core, Settings and Extra is done here.

4.2 Indicator symbols



Manual test

Indicates that a communication protocol is active

Indicates that the website is active

Logged in at user level (local)

Logged in at installation level

Logged in at service level

Indicates that hand-held terminal is connected

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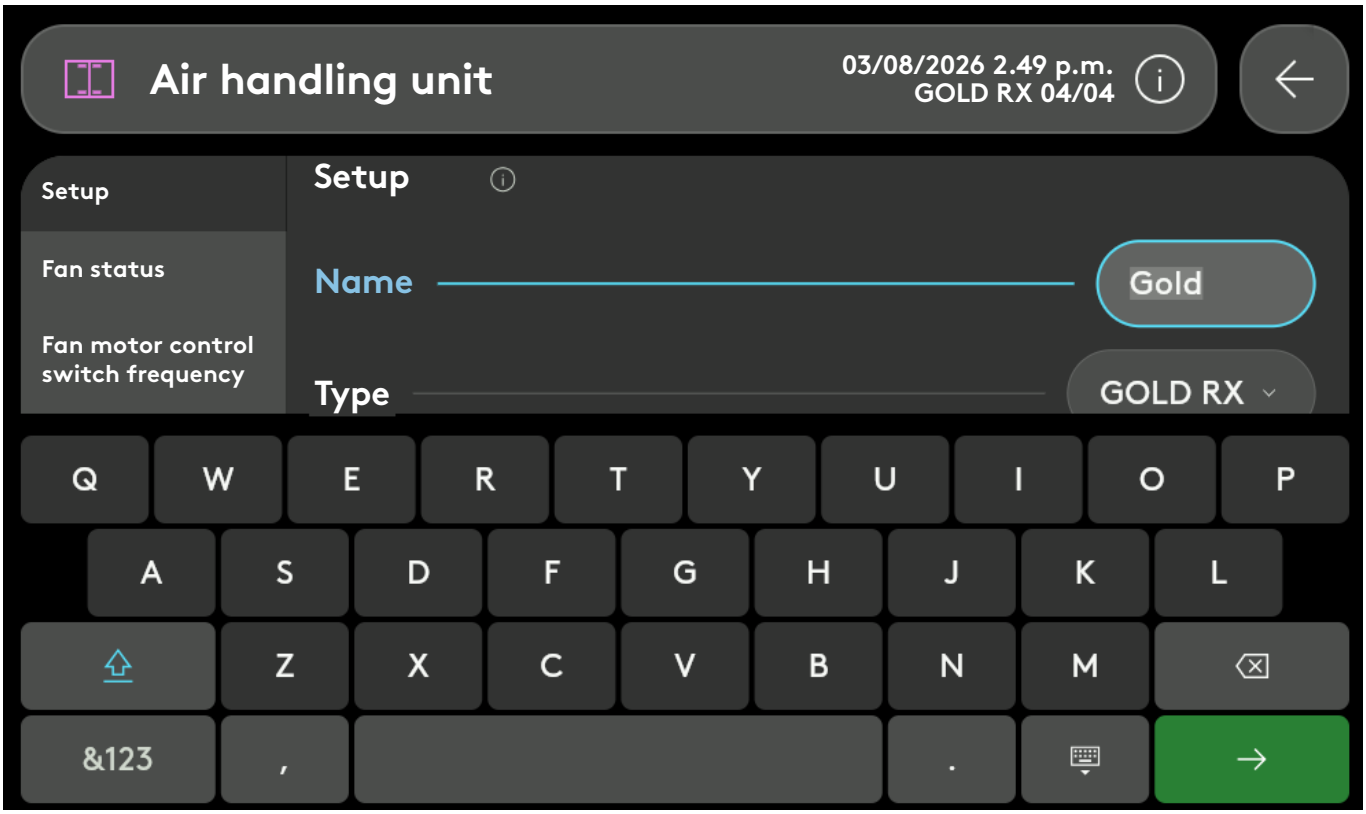
4.3 Keyboard

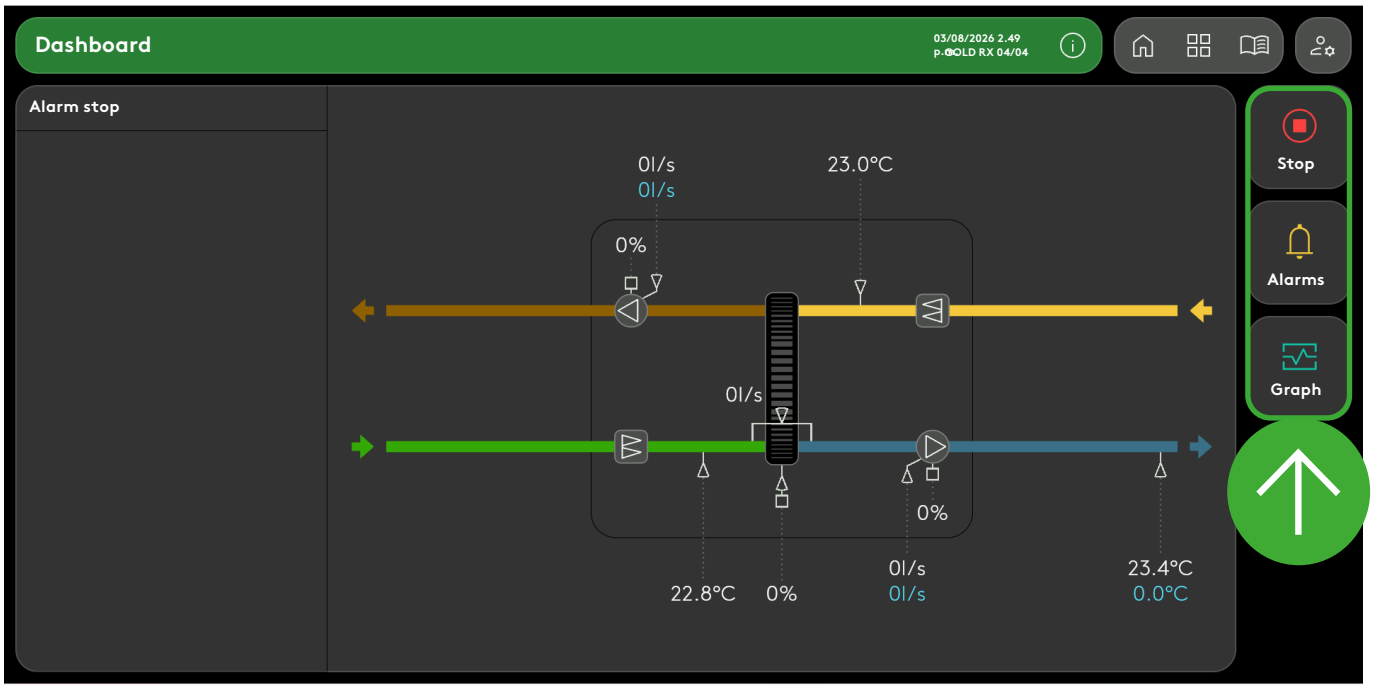


When entering a value or text, a keyboard is displayed at the bottom of the touchscreen.

A value or text that needs to be changed should be highlighted by pressing the touchscreen. The value/text will then be highlighted in blue.

The required value or text is entered and saved by pressing the green button with an arrow at the bottom right

5. Dashboard



5.1 General

The dashboard is normally displayed if no other view has been selected.

The touchscreen switches to sleep mode after 45 minutes. To leave sleep mode, press the On/Off button on the touchscreen.

The content in the flow chart changes depending on the type of air handling unit selected and other functions that affect the relevant operating conditions. Click on the flow chart to display flow chart in full view. The flow chart can be edited.

Symbol names can be selected to be hidden, to be shown with the original Swegon designations or as adapted. Adapted designations can be imported from AHU Design.

5.2 Changing operating mode

You can start and stop the air handling unit or switch to manual or automatic operation from the dashboard.

The air handling unit should normally be started and stopped from the hand-held terminal, not via the safety switch.

5.3 Alarms

The alarm log shows all active alarms, pending alarms and alarm history (50 most recent). See also Section 5 in the Operation & Maintenance Instructions.

It is also possible to get in-depth information about active alarms on the touchscreen.

5.4 Graph

To make this function possible, an SD card must be fitted into the control circuit board of the air handling unit (installed from the factory). Does not apply to the real-time log.

A number of parameters can be read in diagram form. Up to six signals can be selected and read in the hand-held terminal or via the embedded website. The following log diagram time intervals can be selected: 4 hours, day, week, month or customised interval.

It is possible, via a cursor, to read values for selected signals for specific dates and times.

It is also possible to hide or display one of the signals in the log diagram by clicking on it.

The program automatically adjusts the resolution of the signals. This means that the program adapts the amplitude of the signal to the height of the diagram within the selected time interval.

Two types of Log diagram can be selected, Historical or Realtime.

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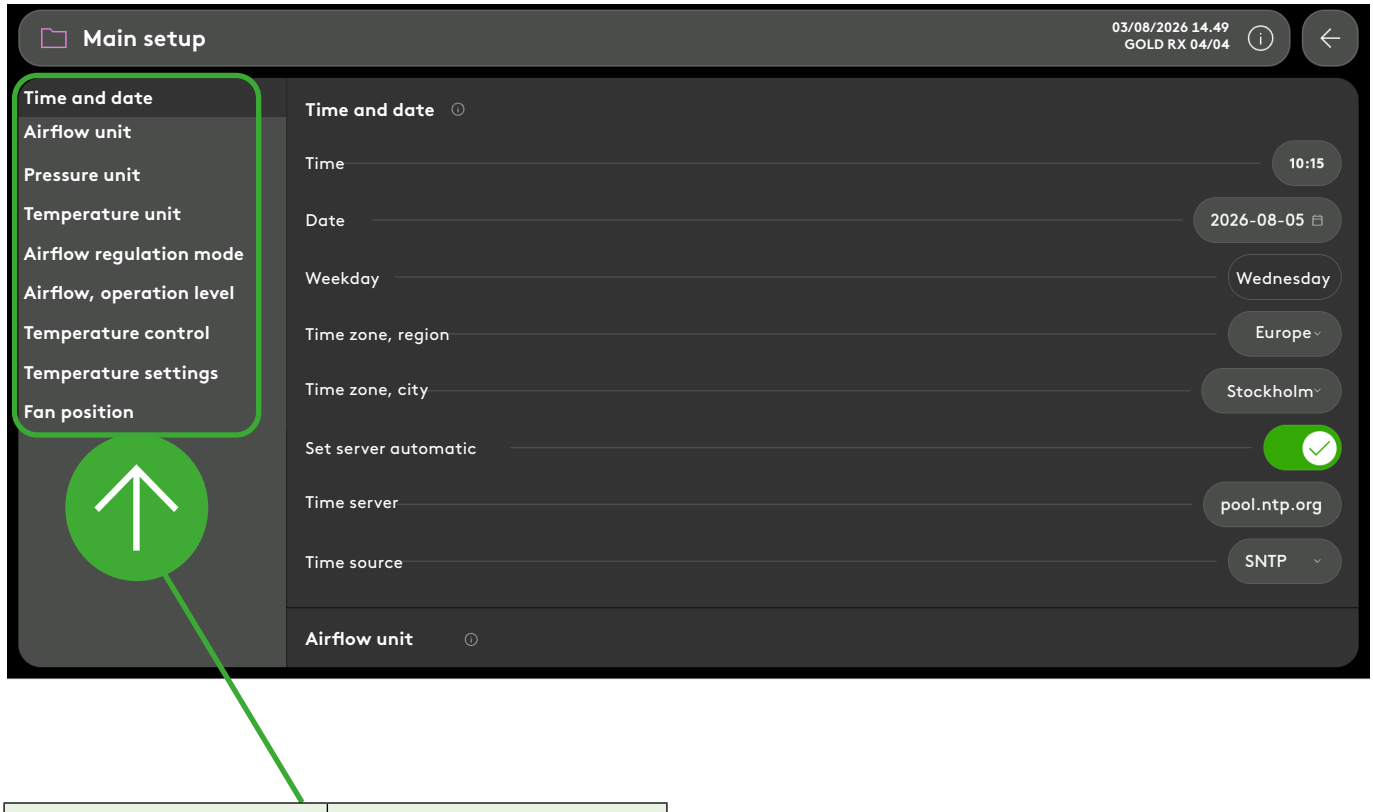
6. Main Setup

Main Setup can be selected when installing the AHU and is an aid for configuring and starting up the AHU.

Time and date, airflow unit, airflow regulation mode, airflow operation level, temperature regulation, temperature settings and fan position settings are entered here.

For more detailed information, see the relevant function below.





Function	See Section
Time and date	8.1.3
Airflow unit	8.1.1.6
Pressure unit	8.1.1.6
Temperature unit	8.1.2.4
Airflow regulation mode	8.1.1.3
Airflow operation level	8.1.1.2
Temperature regulation	8.1.2.3
Temperature settings	8.1.2.2
Fan position	8.2.2.1

7. Filter calibration

All the filters should be calibrated when the fans are started up for the first time and when the duct system, air terminals and commissioning plates, if required, have been installed and commissioned.

After that every time filters are replaced. Calibration should then be activated for the filter or filters that are new. Relevant filters are the supply air prefilter, extract air pre-filter, supply air AHU filter, extract air AHU filter, and supply air end filter.

When filter calibration is activated, the unit attempts to achieve the set max. flow/pressure (depending on the type of regulation). In order for the calibration to start, a stable air flow must be achieved. Filter calibration continues until the right conditions occur or for max. 15 minutes.

An indication of ongoing filter calibration can be sent via communication and/or I/O module (digital output signal).

When the flow has been stable (variation of less than +/- 3%) for 30 seconds (adjustable), the calibration starts.

The calibration continues for three minutes.

The calibration fails if:

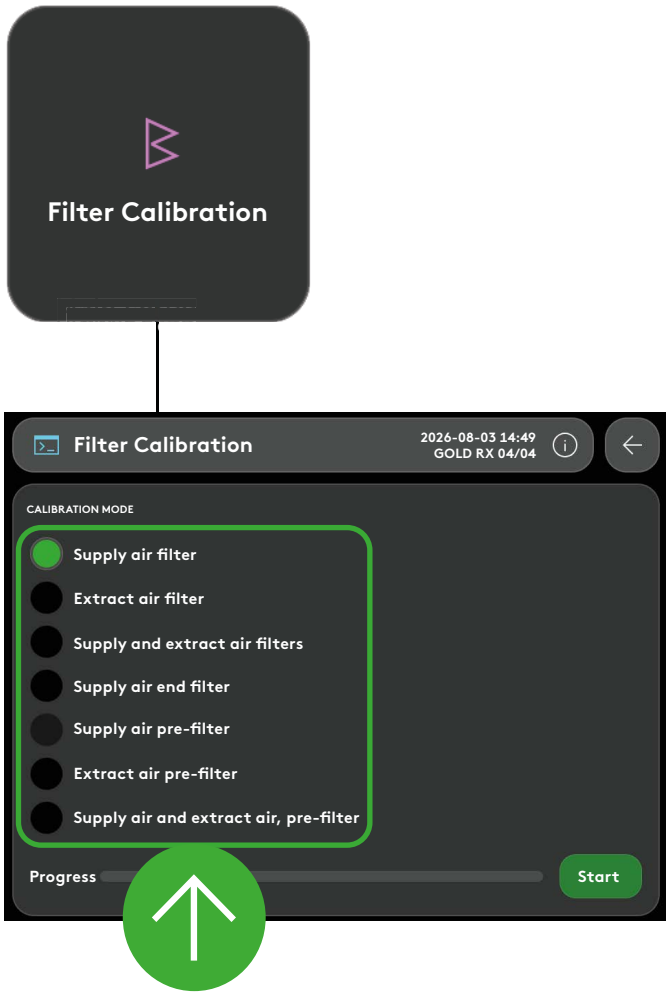
- The flow does not remain stable for 12 minutes.

- The filter pressure drop is not greater than 5 Pa.

- The flow does not exceed the minimum flow.

After the filters have been calibrated, a pressure rise of up to 100 Pa is permissible (as the filters arrest impurities) after which an alarm indicating fouled filter is initiated. The alarm limit can be changed under Installation, Functions, Filters.

The filter function must be activated (see Section 8.1.8) for it to be possible to enable filter calibration and alarm functions in the supply air and extract air, as well as for the end filter and pre-filter in GOLD SD air handling units.



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8. Functions
8.1 Core

8.1.1 Airflow

8.1.1.1 Status

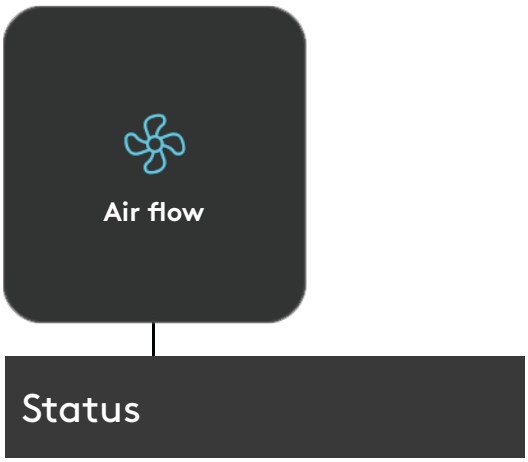
All the current values can be read here. Used for function checks.

Reading of internal leakage rotary heat exchanger
The internal leakage is read and reported in accordance with EN 16798-3.

OACF (Outdoor Air Correction Factor) is the relation between outdoor air/supply air. It shall normally be between 1.0-1.1. The value should not be below 1.0 as it indicates that the leakage direction is incorrect (= return air).

EATR (Exhaust Air Transfer) shows the transfer of exhaust air to supply air and is shown in%. The lowest reported value is 0.5, which means the transfer is equal or less than 0.5%.

Other values are shown as whole percentages (1, 2, 3, etc.).



8.1.1.2 Operation level

The functions selected and the min. and max. airflows of each AHU size (see the table below) determine which values can be set.

Depending on the function selected, flows can be set as follows (l/s, m3/s, m3/h, cfm), pressure (Pa, psi, in.wc) or input signal strength (%).

Low speed
Should always be preset. The value for low speed cannot be higher than the value for high speed. Low speed can be set to 0, which means that the AHU is idle.

High Speed
Should always be preset. The value or pressure for high speed cannot be lower than the value for low speed.

Max. speed
Should always be preset. Used mainly for filter calibration. While filter calibration is in progress, the max. speed setting should be as high as the ventilation system permits without causing any breakdown. Also used for the pressure regulation, boosting, Heating Boost and Cooling Boost functions. The value for max speed cannot be lower than the value for high speed.

Min./Max. speed
Used for the demand control function (the previous section also applies to max. speed). Preset the lowest and highest permissible flows for each fan. This means that the fans will not operate outside these limits, regardless the load.

Slave
The flow difference for any slave controlled fan can be set between the slave controlled fan and the other fan. The setting occurs in a fixed flow difference and/or a percentage difference.

Operation level

Min./Max. flows

AIR FLOW	MIN. FLOW FOR AIRFLOW REG., ALL VARIANTS[2]		MAX. FLOW AIR HANDLING UNIT. ROTARY EXCHANGER (RX, RX+) STE, MPE		MAX. FLOW AIR HANDLING UNIT. ROTARY EXCHANGER (RX, RX+) MTE		MAX. FLOW AIR HANDLING UNIT. PLATE HEAT EXCH. (PX)		MAX. FLOW AIR HANDLING UNIT COIL EXCH.(CX)		MAX. FLOW, SUPPLY AND AND EXTRACT AIR HANDLING UNIT (SD)	
SIZE	m³/h [1]	m³/s	m³/h	m³/s	m³/h	m³/s	m³/h	m³/s	m³/h	m³/s	m³/h	m³/s
GOLD 004	288	0.08	1,620	0.45	1,370	0.38	1,620	0.45			2,160	0.6
GOLD 005	288	0.08	2,340	0.65	1,980	0.55	2,340	0.65			2,880	0.8
GOLD 007	288	0.08	2,700	0.75	2,300	0.64	2,700	0.75			2,880	0.8
GOLD 008	720	0.20	3,600	1.00	3,060	0.85	3,600	1.00			4,320	1.2
GOLD 011	720	0.20	3,960	1.10	3,380	0.94	3,960	1.10			4,320	1.2
GOLD 012	720	0.20	5,040	1.40	4,280	1.19	5,040	1.40			6,480	1.8
GOLD 014	720	0.20	5,940	1.65	5,040	1.40	5,940	1.65			6,480	1.8
GOLD 020	1,080	0.30	7,560	2.10	6,440	1.79	7,560	2.10			10,080	2.8
GOLD 025	1,080	0.30	9,000	2.50	7,200	2.00	9,000	2.50			10,080	2.8
GOLD 030	1,800	0.50	11,520	3.20	9,210	2.56	11,520	3.20			14,400	4.0
GOLD 035	1,800	0.50	14,040	3.90	11,230	3.12	14,040	3.90	14,040	3.90	14,400	4.0
GOLD 040	2,700	0.75	18,000	5.00	14,400	4.00	18,000	5.00	18,000	5.00	21,600	6.0
GOLD 040+	2,700	0.75	-	-	-	-	19,800	5.50	-	-	-	-
GOLD 050	2,700	0.75	18,000	5.00	14,400	4.00	-	-	18,000	5.00	20,160	5.6
GOLD 050+	2,700	0.75	-	-	-	-	21,600	6.00	-	-	-	-
GOLD 060	3,600	1.00	23,400	6.50	18,720	5.20	23,400	6.50	23,400	6.50	28,800	8.0
GOLD 070	3,600	1.00	28,800	8.00	27,360	7.60	28,800	8.00	27,000	7.50	28,800	8.0
GOLD 080	5,400	1.50	34,200	9.50	27,360	7.60	34,200	9.5	34,200	9.50	43,200	12.0
GOLD 100	5,400	1.50	39,600	11.0	31,680	8.80			39,600	11.0	43,200	12.0
GOLD 120	9,000	2.50	50,400	14.0	40,320	11.2			50,400	14.0	64,800	18.0

1) When adjusting the flow, round off the value to the nearest settable step.
2) If pressure regulation is used, the airflow can be regulated to zero, however this presupposes a certain static pressure drop in the ducting (approx. 50 Pa).

Swegon reserves the right to alter specifications.

8.1.2.3 Regulation mode

Regulation mode

The regulation mode can be selected individually for the supply air or the exhaust air respectively.

Air flow

Flow regulation means operating the air handling unit to keep the preset airflow constant. The speed of the fans is automatically regulated to provide correct airflow even if the filters begin to become clogged, if air diffusers become blocked, etc.

A constant airflow is advantageous, since the airflow is always at the level adjusted from the beginning.

It should however be noted that everything that increases the pressure drop in the ventilation system, such as the blocking of air devices and dust accumulating in the filters, causes the fans to run at a higher speed. This causes higher power consumption and may also cause discomfort to the occupants such as excessive sound.

Duct pressure

The airflow automatically varies to provide constant pressure in the ducting. This regulation mode is therefore also called VAV Regulation (Variable Air Volume).

Pressure regulation is used when e.g. damper operations increase the air volume in sections of the ventilation system.

The duct pressure is measured by an external in-duct pressure sensor which is connected to the control unit's BUS communication. The set point required (separate for low speed and high speed) is preset in Pa.

The function can be limited so that the fan speed will not exceed the preset max. values.

Demand

The airflow required is regulated via 0-10V input signals from an external sensor, for example a carbon dioxide sensor connected to control unit terminals 18-19. The required set point is set as a percentage of the input signal or in ppm.

The function can be limited so that the flow will not be higher or lower than the preset max. and min. values respectively.

Slave

Normally the flow is constantly regulated to the same value as the other fan. If one fan is pressure-controlled or demand-controlled, the other one is controlled to generate the same airflow.

The performance of the slave fan can be restricted if its maximum flow is set to a lower airflow rate.

It is also possible to set a flow difference between the slave-controlled fan and the other fan. The setting occurs in a fixed flow difference and/or a percentage difference. For example, this can be used when there is a separate exhaust air fan and balanced ventilation is wanted.

It is not possible to control both fans as slaves. If you select one fan to operate as a slave, you lose the option to select the other fan as a slave.

Settings:

Value	Settings
Supply air	Air flow Duct pressure Demand Slave
Extract air	Air flow Duct pressure Demand Slave

8.1.1.4 Optimize

Optimize

The Optimize function optimises the air handling unit's airflow for the connected WISE system; see separate documentation for the WISE.

The function requires that the duct pressure setting is preset regulation type.

Settings:

Value	Setting range	Factory settings
Optimize	On/Off	Off

8.1.1.5 Set point displacement

Setpoint displacement

The airflow is regulated between two flows in response to an 0-10 V DC input signal from an external signal, for example a potentiometer. The TBIQ-3-2/80493002 IQlogic+ module accessory is required.

Setpoint displacement can be used e.g. in assembly halls, where a higher rate of air exchange is needed under full-load conditions.

The function is activated only when the AHU operate at high speed.

On a 0-10 V DC signal, the fans are gradually accelerated from the AHU's high speed setting to its max. speed setting. On a max. input 10 V DC signal, the AHU fans operate at max. speed.

The function must be activated separately for the supply air fan and for the extract air fan.

Settings:

Value	Setting range	Factory settings
Supply air	On/Off	Off
Extract air	On/Off	Off

8.1.1.6 Units

Units

The required unit of airflow and unit of pressure can be set.

Settings:

Value	Setting range	Factory settings
Airflow unit	l/s m^3/s m^3/h cfm	m^3/s
Pressure unit	Pa psi in.wc	Pa

8.1.1.7 Air adjustment

Air adjustment

The speed of the fans can be locked for up to 72 hours. When the function is activated, the speed is locked at the current speed of operation. This is practical when making airflow adjustments in the duct system and air diffusers. The desired period is preset, but can be interrupted earlier by selecting Stop or by changing the time setting to 0.

Swegon reserves the right to alter specifications.

8.1.1.8 Outdoor air compensation

Outdoor air compensation of the airflow can be activated if you want to change the airflow for specific outdoor air temperatures. An individually adjusted curve regulates the ratio between the airflow and the outdoor air temperature. The curve has four adjustable breakpoints.

If the function is selected solely for low speed or high speed operation, the curve will regulate only one of these. The airflow for the operating case that has not been selected will then be according to the preset set point for airflow/duct pressure.

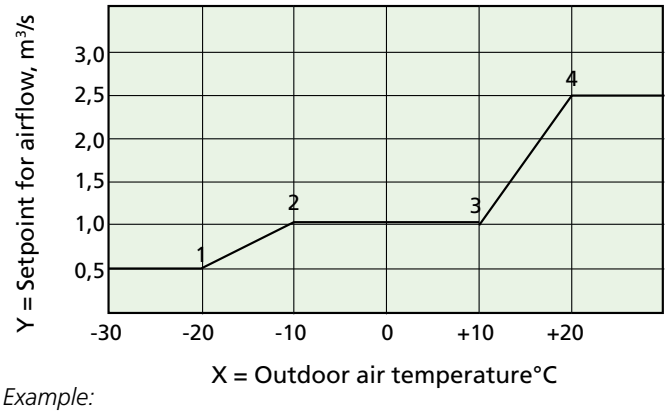
In the flow regulation mode, the current set point for airflow is changed. When pressure regulation is selected, the current set point for pressure is changed. The function has no effect if the airflow is demand-controlled.

The airflow change is expressed in the preset airflow unit and pressure in Pa.

Settings:

Value	Setting range	Factory settings
Outdoor air compensation mode	Inactive/Low speed/High speed/Low speed and High speed	Inactive
X1, breakpoint, outdoor air temp.	-50°C–+50°C	-20°C
X2, breakpoint, outdoor air temp.	-50°C–+50°C	-10°C
X3, breakpoint, outdoor air temp.	-50°C–+50°C	+10°C
X4, breakpoint, outdoor air temp.	-50°C–+50°C	+20°C
Supply air, flow		
Y1, breakpoint, supply air	[1]	25% of max. airflow for air handling unit
Y2, breakpoint, supply air	[1]	25% of max. airflow for air handling unit
Y3, breakpoint, supply air	[1]	25% of max. airflow for air handling unit
Y4, breakpoint, supply air	[1]	25% of max. airflow for air handling unit
Extract air, flow		
Y1, breakpoint, extract air	[1]	25% of max. airflow for air handling unit
Y2, breakpoint, extract air	[1]	25% of max. airflow for air handling unit
Y3, breakpoint, extract air	[1]	25% of max. airflow for air handling unit
Y4, breakpoint, extract air	[1]	25% of max. airflow for air handling unit

Outdoor air compensation



Example:

Flow-regulated air handling unit. The same principle can be applied to a pressure-regulated AHU, but then a reduction in pressure in Pa occurs.

If the outdoor temperature is below -20°C (X1), the flow set point is constant 0.5 m³/s (Y1).

If the outdoor temperature is between -20°C (X1) and -10°C (X2), the airflow is increased from 0.5 m³/s (Y1) to 1.0 m³/s (Y2) as shown in the curve.

If the outdoor air temperature is between -10°C (X2) and 10°C (X3), the flow set point will be a constant 1.0 m³/s (Y2 and Y3).

If the outdoor temperature is between 10°C (X3) and 20°C (X4), the airflow is increased from 1.0 m³/s (Y3) to 2.5 m³/s (Y4) as shown in the curve.

If the outdoor air temperature is over 20°C (X4), the flow set point will be a constant 2.5 m³/s.

Supply air, pressure		
Y1, breakpoint, supply air	20-750 Pa	100 Pa
Y2, breakpoint, supply air	20-750 Pa	100 Pa
Y3, breakpoint, supply air	20-750 Pa	100 Pa
Y4, breakpoint, supply air	20-750 Pa	100 Pa
Extract air, pressure		
Y1, breakpoint, extract air	20-750 Pa	100 Pa
Y2, breakpoint, extract air	20-750 Pa	100 Pa
Y3, breakpoint, extract air	20-750 Pa	100 Pa
Y4, breakpoint, extract air	20-750 Pa	100 Pa

[1] *See table for min./max. flows in Section 8.1.1.2*

8.1.1.9 Booster diffusers

The function for Booster diffusers is used for controlling the air damper inside the air terminal and can be activated for heating or cooling. Heating or cooling is modulated depending on whether the supply air is warmer or colder than the room/extract air. An indicator is displayed if heating or cooling is active.

The accessory, IQlogic+ module TBIQ-3-2/80493002, is required.

Settings:

Value	Setting *range	Factory settings
Booster diffuser	On/Off	Off

Booster diffusers

8.1.1.10 Automatic functions

Density-corrected airflow

The density of the air is different at different temperatures. This means that a specific volume of air changes at various air densities. The AHU automatically corrects this, so that correct air volume is always obtained.

The control equipment always displays the corrected airflow.

Pressure balance corrected extract airflow

The extract airflow is corrected by continuously measuring the pressure balance across the rotary heat exchanger. The extract airflow is secured with consideration given to the air purging air flow and leakage air flow.

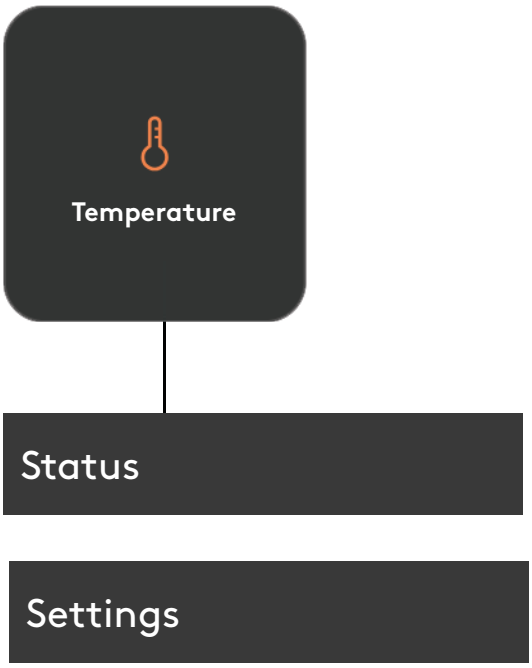
Swegon reserves the right to alter specifications.

8.1.2 Temperature

NOTE! If the entry of new temperature settings involve large changes, you should first stop the AHU before you enter the new settings.

Specific temperatures, such as set points, are specified in°C or °F, whereas displacements, deviations and differentials are specified in K (Kelvin).

If GOLD SD supply air handling units only are installed, they require an external room sensor for ERS, ORE and extract air regulation.



8.1.2.1 Status

All the current values can be read here. Used for function checks.

8.1.2.2 Settings

ERS regulation 1 (Extract air temperature-Related supply air temperature regulation)

ERS regulation refers to Extract air temperature-Related Supply air temperature regulation. This means that the temperature of the supply air is regulated in relation to the temperature of the extract air.

Under normal circumstances, the supply air temperature is regulated to be a few degrees lower than the extract air temperature. This way, the heat exchanger will provide optimal performance, which means excellent operating economy. ERS control is suitable for use when surplus heat is generated in the premises, e.g. by machinery, lighting or people, and the premises have supply air diffusers suitable for air supplied below room temperature.

ERS Regulation 1

The control unit regulates the ratio between the supply air and extract air temperature according to a factory-preset curve.

See diagram to the right.

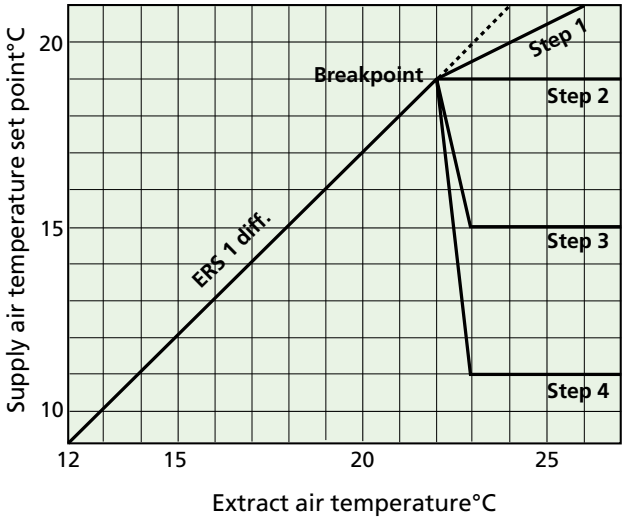
The steps in the curve, breakpoint and difference can be changed.

Settings:

Value	Setting range	Factory settings
Extract related supply air-1 step	1 - 4	2
Extract related supply air-1 diff	1-7 K	3 K
Extract-related supply air-1 breakpoint (refers to extract air temperature)	12-26°C	22°C

The setting range for breakpoint and deviation are limited by the min. and max. settings.

ERS Regulation 1



Factory setting means:

If the extract air temperature is below 22°C (breakpoint), the supply air temperature set point will be automatically regulated to be 3 K (diff.) lower.

If the extract air temperature is above 22°C, the supply air temperature set point will constantly be 19°C (step 2).

ERS Regulation 2

Used if the factory preset performance curve in the ERS Control 1 function does not provide the results desired to meet special needs and conditions. Depending on which settings have been entered, the installation of an air heater for reheating may be required.

An individually adjusted curve regulates the ratio between the supply air and the extract air temperature. The curve has four adjustable breakpoints.

See diagram to the right.

Settings:

Value	Setting range	Factory settings
Extract air temperature		
Extract related supply air-2 X1	10–40°C	15°C
Extract related supply air-2 X2	10–40°C	20°C
Extract related supply air-2 X3	10–40°C	22°C
Extract related supply air-2 X4	10–40°C	22°C
Supply air temperature set point		
Extract related supply air-2 Y1	10–40°C	20°C
Extract related supply air-2 Y2	10–40°C	18°C
Extract related supply air-2 Y3	10–40°C	14°C
Extract related supply air-2 Y4	10–40°C	12°C

The set point displacement and Summer night cool functions can also affect the preset temperatures.

Supply air regulation

Supply air regulation means maintaining a constant supply air temperature without consideration to the load in the premises.

This type of regulation can be used when the load and temperatures of the premises are predictable. The installation of an air heater for reheating is often required and also possibly an air cooler.

Settings:

Value	Setting range	Factory settings
Supply air (temp. set point)	0–40°C	21°C

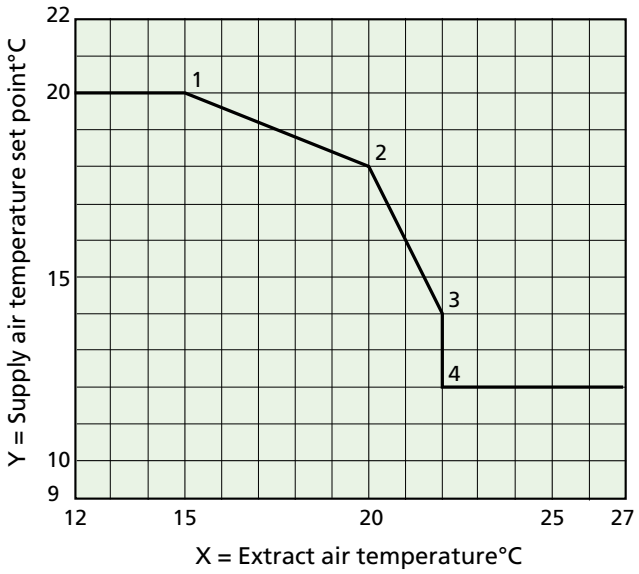
Extract air regulation

Extract air control involves maintaining a constant temperature in the extract air duct (the premises), by regulating the supply air temperature.

This provides a uniform temperature in the premises regardless of the load and this type of regulation requires the installation of an air heater for reheating; possibly a cooling coil as well.

The extract air temperature is measured by the air handling unit's internal temperature sensor. If this internal temperature sensor does not give an adequate representative extract air temperature reading, an external room temperature sensor can be installed and wired to the control unit's communications BUS (optional COM1-3). The temperature can also be read via communication (BMS).

ERS Regulation 2



Breakpoints according to factory setting means:

If the extract air temperature is below 15°C (X1), the supply air temperature set point will constantly be 20°C (Y1).

If the extract air temperature is between 15°C (X1) and 20°C (X2), the supply air temperature set point is regulated from 20°C (Y1) down to 18°C (Y2) as shown in the curve.

If the extract air temperature is between 20°C (X2) and 22°C (X3), the supply air temperature set point is regulated from 18°C (Y2) down to 14°C (Y3) as shown in the curve.

When the extract air temperature is 22°C (X4), the supply air temperature set point is regulated from 14°C (Y3) down to 12°C (Y4).

If the extract air temperature is over 22°C (X4), the supply air temperature set point will constantly be 12°C (Y4).

Settings:

Value	Setting range	Factory settings
Extract air (temp. set point)	0–40°C	21°C
Supply air, min.	0–30°C	16°C
Supply air, max.	8°C–50°C	28°C

Swegon reserves the right to alter specifications.

Seasonal controlled temperature regulation

Seasonal controlled temperature regulation makes it possible to have two temperature regulation modes that alternate at preset outdoor temperatures.

Seasonal controlled temperature regulation operates with the air handling unit's internal temperature sensor, however for the best performance we recommend external outdoor temperature sensor TBLZ-1-24-3; see separate installation instructions.

If the ordinary temperature and seasonal controlled temperature regulation are to be of different types, these can be combined freely, for example, ordinary temperature regulation = ERS 1 and seasonal controlled temperature regulation = supply air.

In instances where the same type of ordinary temperature regulation and seasonal controlled temperature regulation are desired, this can be selected for supply air control and extract air control. Values for seasonal controlled temperature regulation can then be set independently of values for ordinary temperature regulation.

Example:

If the outdoor temperature goes below 0°C (32°F) (factory setting), the seasonally controlled temperature regulation is activated.

If the outdoor temperature goes above 20°C (68°F) (factory setting), the regular temperature regulation is activated.

Settings:

Value	Setting range	Factory settings
Seasonal controlled supply air	0–40°C	21°C
Seasonal controlled extract air	0–40°C	21°C
Seasonal controlled supply air min.	0–30°C	16°C
Seasonal controlled supply air max.	8°C-50°C	28°C

ORS regulation (Outdoor air temperature-Related supply temperature regulation.

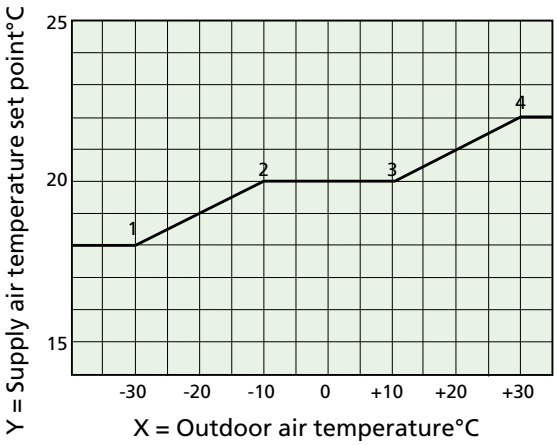
ORS regulation refers to Outdoor air temperature-Related Supply air temperature regulation. This means that the supply air temperature is regulated in relation to the outdoor air temperature.

An individually adjusted curve regulates the ratio between the supply air and the outdoor air temperature. The curve has four adjustable breakpoints.

Settings *(see also diagram to the right)*:

Value	Setting range	Factory settings
Outdoor air temperature		
Outdoor rel. supply air X1	-50°C –+50°C	-20°C
Outdoor rel. supply air X2	-50°C–+50°C	-10°C
Outdoor rel. supply air X3	-50°C–+50°C	10°C
Outdoor rel. supply air X4	-50°C–+50°C	20°C
Supply air temperature set point		
Outdoor rel. supply air Y1	10°C–40°C	21.5°C
Outdoor rel. supply air Y2	10°C–40°C	21.5°C
Outdoor rel. supply air Y3	10°C–40°C	21.5°C
Outdoor rel. supply air Y4	10°C–40°C	21.5°C

ORS regulation



Example:

If the outdoor air temperature is under -30°C (X1), the supply air temperature set point will be constant at 18°C (Y1).

If the outdoor air temperature is between -30°C (X1) and -10°C (X2), the supply air temperature set point is regulated from 18°C (Y1) up to 20°C (Y2) as shown in the curve.

If the outdoor temperature is between -10°C (X2) and +10°C (X3) the supply air set point will be constant at 20°C (Y3).

If the outdoor air temperature is between +10°C (X3) and +30°C (X4), the supply air temperature set point is regulated up from 20°C (Y3) to 22°C (Y4) as shown in the curve.

If the outdoor air temperature is over 30°C (X4), the supply air temperature set point will be constant at 22°C (Y4).

URF regulation (Outdoor air temperature-Related extract air temperature regulation)

URF regulation refers to Outdoor air temperature-Related Extract air temperature regulation. This means that the temperature of the extract air is regulated in relation to the outdoor air temperature.

An individually adjusted curve regulates the ratio between the extract air and the outdoor air temperature. The curve has four adjustable breakpoints.

Settings *(see also diagram to the right)*:

Value	Setting range	Factory settings
Supply air, min.	0 – 20°C	16°C
Supply air, max.	16°C–50°C	28°C
Outdoor air temperature		
Outdoor related extract air X1	-50°C–+50°C	-20°C
Outdoor related extract air X2	-50°C–+50°C	-10°C
Outdoor related extract air X3	-50°C–+50°C	10°C
Outdoor related extract air X4	-50°C–+50°C	20°C
Extract air temperature set point		
Outdoor related extract air Y1	10°C–40°C	21.5°C
Outdoor related extract air Y2	10°C–40°C	21.5°C
Outdoor related extract air Y3	10°C–40°C	21.5°C
Outdoor related extract air Y4	10°C–40°C	21.5°C

8.1.2.3 Regulation mode

Select ordinary temperature control ERS 1, ERS 2, Supply air, Extract air, ORS or ORE.

If desirable, seasonal controlled temperature regulation is enabled and the required temperature regulation (ERS 1, ERS 2, Supply air, Extract air, ORS or ORE) is selected.

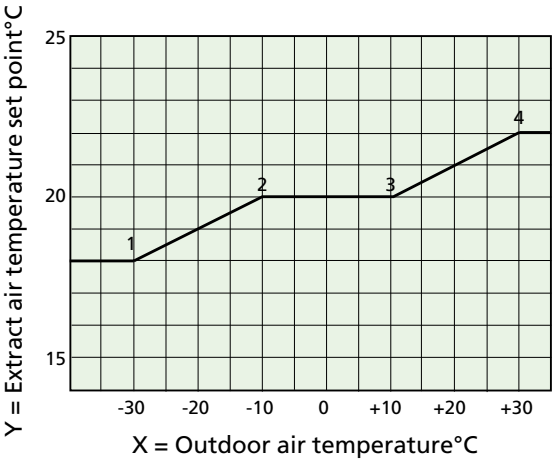
Set the temperature at which seasonal controlled temperature regulation shall be enabled and disabled respectively. By setting a span between the different temperatures, unwanted switching operations between ordinary and seasonal controlled temperature regulation can be avoided.

Note that seasonal control temperature regulation is activated at a temperature below 0°C (factory setting, adjustable) and is deactivated at 20°C (factory setting, adjustable). When the function is deactivated the temperature must drop below 0 °C (factory setting, adjustable) in order to be reactivated.

Settings:

Value	Setting range	Factory settings
Temperature control	ERS 1/ERS 2/Supply air/ Extract air/ORS/ORE	Supply air
Seasonal controlled temperature regulation	On/Off	Off
Seasonal controlled temperature regulation	ERS 1/ERS 2/Supply air/ Extract air/ORS/ORE	Extract air
Seasonal controlled temperature regulation, enabled	-20°C–+40°C	0°C
Seasonal controlled temperature regulation, disabled	-20°C–+40°C	20°C

ORE regulation



Example:

If the outdoor air temperature is under -30°C (X1), the extract air temperature set point will be constant at 18°C (Y1).

If the outdoor air temperature is between -30°C (X1) and -10°C (X2), the extract air temperature set point is regulated from 18°C (Y1) up to 20°C (Y2) as shown in the curve.

If the outdoor temperature is between -10°C (X2) and +10°C (X3) the extract air set point will be constant at 20°C (Y3).

For outdoor air temperatures between +10°C (X3) and +30°C (X4), the extract air temperature set point is regulated up from 20°C (Y3) to 22°C (Y4) as shown in the curve.

If the outdoor air temperature is over 30°C (X4), the extract air temperature set point will be constant at 22°C (Y4).

Regulation mode

Swegon reserves the right to alter specifications.

8.1.2.4 Temperature unit

Temperature unit

The desired unit of temperature can be set.

Settings:

Value	Setting range	Factory settings
Unit	°C/ °F	°C

8.1.2.5 Set point displacement

Setpoint displacement

Used for changing the supply air and extract air temperature set points by means of an external 0-10 VDC signal. For example, the temperature can be increased or decreased at certain times of the day by means of an external timer or potentiometer.

The accessory, IQlogic+ module TBIQ-3-2/80493002, is required.

The set point can be influenced by ±5°C.

If the AHU is operating in the supply air regulation or ORS regulation mode, the supply air temperature set point is displaced and the AHU is operating in the extract air regulation or ORE regulation mode, the extract air temperature set point is displaced.

When the AHU is operating in the ERS regulation 1 mode, the difference between extract air and supply air is influenced. The difference cannot be less than 0°C. The difference will decrease as the input signal increases.

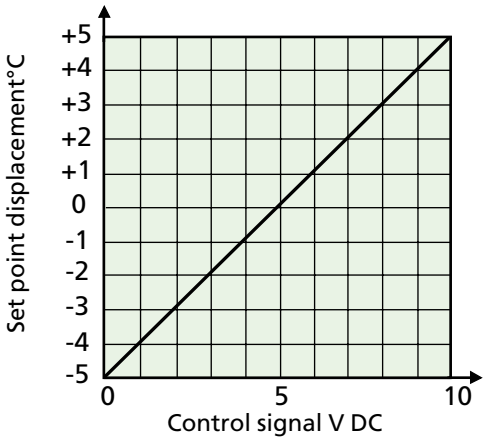
If the AHU is operating in the ERS regulation 2 mode, the supply air set point will be displaced.

When the function is activated, the set point is displaced as plotted in the diagram to the right.

Set point displacement will not affect any possible extra temperature zone (Xzone) which regulates according to its ordinary set point if set point displacement is in operation.

Settings:

Value	Setting range	Factory settings
Setpoint displacement	On/Off	Off



Set point displacement involves the following:
Control signal 0 V DC: The set point is decreased by 5°C.
Control signal 5 V DC: No change in set point.
Control signal 10 V DC: The set point increases by 5°C.

8.1.2.6 Night compensation

Night compensation

The function is enabled when a lower temperature set point value is desired at night.

The desired temperature reduction is set and the time interval for night compensation is programmed via two time channels.

The function can only be used in combination with supply air regulation or extract air/room regulation

Settings:

Value	Setting range	Factory settings
Night compensation	On/Off	Off
Night reduction	-10 – 0 K	-2.0 K
Time channel 1/2, start of night	00:00–23:59	00:00
Time channel 1/2, end of night	00:00–23:59	00:00
Time channel 1/2, period	Inactive/Monday/ Tuesday/Wednesday/Thursday/ Friday/ Saturday/ Sunday/Monday-Friday/Monday-Sunday/ Saturday-Sunday	Inactive

8.1.2.7 Neutral zone

Neutral zone

The neutral zone is the range between heating and cooling set points where the system does not heat nor cool. The purpose is to prevent the system from oscillating between heating and cooling, and to provide a smooth transition between the control steps.

For a normal ventilation unit, a neutral zone of 0.5-1.0°C is often a good compromise between comfort and energy efficiency.

The set neutral zone is added to the set point for heating and the sum of these provides the set point for cooling.

When extract air regulation is active, the supply air set point is not affected. The neutral zone has no effect if the unit is operating in the ERS 1 regulation mode.

Settings:

Value	Setting range	Factory settings
Supply air, temperature control	0.0 – 10 K	0.5 K
Extract air, temperature control	0.0 – 10 K	0.5 K

8.1.2.8 Supply air dew point compensation

Supply air dew point compensation

The function is used in installations with cooling and where the supply air duct is uninsulated.

The moisture content and temperature of the extract air are measured via the humidity sensor TBLZ-4-31-2 (accessory) to ensure that no condensation forms on cold duct surfaces.

On the basis of the measured values for relative humidity and temperature, the current dew point (the temperature at which the moisture in the air condenses) is calculated. When the dew point exceeds the supply air temperature, the supply air set point is raised to counteract condensation.

The air flow can be increased to compensate for any losses in cooling capacity with an increasing supply air temperature.

Settings:

Value	Setting range	Factory settings
Supply air dew point compensation	On/Off	Off
Air flow compensation	On/Off	Off

Swegon reserves the right to alter specifications.

8.1.2.9 External temperature sensors

External temperature sensors

One to four external room temperature sensors
An extract air duct temperature sensor, TBLZ-1-76, can be connected to the air handling unit's control circuit card. See separate instructions for installation.

Up to four external room temperature and/or outdoor temperature sensors can be wired to the air handling unit's control circuit card. The TBLZ-1-24-2 room temperature sensor or TBLZ-1-24-3 outdoor temperature sensor accessories should be used. See separate installation instructions. The sensor can be selected to control only intermittent night heat and/or summer night cooling (the AHU is then controlled during the daytime in response to signals from the internal sensor inside the AHU).

Locate the temperature sensors at suitable places to obtain representative readings.

The air handling unit is controlled in response to a computed mean value of the temperature sensors' readings, alternatively in response to signals from the temperature sensor that measures the lowest or highest value.

As an alternative, a temperature reading can be transmitted to the air handling via communication from e.g. a main system.

The same provision is available for room sensors for the Xzone function.

Settings:

Value	Setting range	Factory settings
Extract air duct, temperature sensor	On/Off	Off
Room sensor 1	On/Off	Off
Room sensor 2	On/Off	Off
Room sensor 3	On/Off	Off
Room sensor 4	On/Off	Off
Room sensor function	Medium/min./Max.	Medium
Room temperature from communication	On/Off	Off
Room temperature, for intermittent night heat only	On/Off	Off
Room temperature, for summer night cooling only	On/Off	Off
Outdoor air sensor 1	On/Off	Off
Outdoor air sensor 2	On/Off	Off
Outdoor air sensor 3	On/Off	Off
Outdoor air sensor 4	On/Off	Off
Outdoor air sensor function	Medium/min./Max.	Medium
Outdoor temperature from communication	On/Off	Off

8.1.2.10 Regulation sequence

Heating mode
The mutual order for the heating mode regulation sequence can be selected as specified below.

Functions that have not been selected have no effect on the relevant regulation sequence.

Value	Setting range	Factory settings
Heat mode	1/2/3/4/5/6*	1

** 1 = HX – Extra regulation sequence – $ReCO_2$ – HC–Reheating – Preheating – Downregulation of fan*
2 = HX – Extra regulation sequence – Preheat – Reheat – $ReCO_2$ – HC–Downregulation of fan
3 = HX – Reheating – $ReCO_2$ – HC–Extra regulation sequence – Preheating – Downregulation of fan
4 = HX – Reheat – Preheat – Extra regulation sequence – $ReCO_2$ – HC–Downregulation of fan
5 = HX – $ReCO_2$ – HC–Reheating – Extra regulation sequence Preheating – Downregulation of fan
6 = HX – $ReCO_2$ – HC–Extra regulation sequence – Reheating – Preheating – Downregulation of fan

HX (heat exchanger):
The temperature efficiency of the air handling unit's heat exchanger is modulated to provide max. heat recovery.

Extra regulation sequences:
Used in the heating mode for air heater (if required), air recirculation damper, etc.

$ReCO_2$:
Recirculated air is variably mixed in up to the lowest permissible supply airflow. Assumes inclusion of the TCBR air recirculation section accessory.

HC:
HC in the heat pump function starts to produce heating.

Re-heat:
Air heater for reheating provides heating capacity.

Pre-heat:
Air heater preheat provides heating capacity. Usually used in combination with plate heat exchanger and DX coil in the supply air.

Downregulation of fan:
Downregulation can be selected for supply air only or supply air and extract air.

Regulation sequence

Swegon reserves the right to alter specifications.

Cool mode
The mutual order for the cooling mode regulation sequence can be selected as specified below.

Functions that have not been selected have no effect on the relevant regulation sequence.

Value	Setting range	Factory settings
Cooling mode	1/2/3/4/5/6*	1

* *1 = HX - Cooling boost - Extra regulation sequence - $ReCO_2$ - HC - Cooling*
2 = HX - Cooling boost - Extra regulation sequence - Cooling - $ReCO_2$ - HC
3 = HX - Cooling Boost - Cooling - $ReCO_2$ - HC - Extra regulation sequence
4 = HX - Cooling boost - Cooling - Extra regulation sequence - $ReCO_2$ - HC
5 = HX - $ReCO_2$ - HC - Cooling Boost - Cooling - Extra regulation sequence
6 = HX - $ReCO_2$ - HC- Cooling boost - Extra regulation sequence - Cooling

HX (heat exchanger):
The temperature efficiency of the air handling unit's heat exchanger is modulated to provide max. cooling recovery.

Cooling Boost (Economy):
Means increasing the supply air and extract air airflows to convey more cooling energy to the premises. The flow increase takes place between the current flow and the preset max. flow.

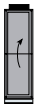
Extra regulation sequences:
Used in the cooling mode for possible air cooler, etc.

$ReCO_2$:
Recirculated air is variably mixed in up to the lowest permissible supply airflow. Assumes inclusion of the TCBR air recirculation section accessory.

HC:
HC in the chiller function starts to provide cooling capacity.

Cool:
Air cooler provides cooling capacity.

8.1.2.11 Min. exhaust air



The min. exhaust air function can be used whenever the exhaust air temperature is not permitted to be below a predetermined value.

The function controls the heat exchanger rotor speed (efficiency) in order to limit the exhaust air temperature to the desired value. The function decelerates the heat exchanger rotor speed from the current level, until the exhaust air temperature reaches the preset minimum permissible setting.

Cannot be combined with the exhaust air heating function.

Exhaust air regulation requires a separate 321063 temperature sensor (accessory) fitted in the AHU's exhaust air.

See separate installation instructions for the 321063 Internal temperature sensor.

Min. exhaust air

Settings:

Value	Setting range	Factory settings
Min. exhaust air	On/Off	Off
Min. exhaust air temperature	-40–+ 20,0°C	5.0°C

8.1.2.12 Morning Boost

Morning Boost

The unit is utilised for heating the premises during a preset period prior to the switch-in time set on the timer.

The function is used if an air recirculation section is installed.

The AHU starts up ahead of time and uses the same temperature regulation settings. The airflow / air pressure is adjustable.

When the function starts, the air recirculation damper opens and the supply air fan starts up. The exhaust air fan and the outdoor air damper remain closed.

Settings:

Value	Setting range	Factory settings
Morning Boost	On/Off	Off
Start time (before the ordinary start time according to the timer)	hour:min.	00:00
Supply air, set point	[1]	50% of max. supply air for AHU alt. 100 Pa

[1] The setting range is the same as the AHU's min./max. setting for flow regulation and 10-750 Pa for pressure regulation

8.1.2.13 Heating Boost

Heating Boost

Heating Boost (forced heating) means that the air handling unit, operating in the normal flow regulation mode, increases both the supply airflow and the extract airflow in order to carry more heat into the premises.

The fans are permitted to operate in the range between current flow modes or pressure (low speed, high speed) and the preset max. speed. See Section 8.1.1.2.

The funtion works only for extract air and ORE regulation (Outdoor- related extract air temperature). If demand control or boost is selected in combination with heating boost, the flow is controlled by the function that transmits the highest output signal to the fans.

A regulated ramp function switches in and gradually increases the airflow when there is a heating load, and the supply air temperature is 3 K (preset at factory) lower than the preset max. supply air temperature.

Settings:

Value	Setting range	Factory settings
Heating Boost	On/Off	Off
Start limit	2-10 K	3 K

8.1.2.14 Cooling Boost

Cooling Boost (forced cooling) means that the supply air and extract air airflows are increased to convey more cool air to the premises.

The fans are permitted to operate in the range between current flow modes or pressure (low speed, high speed) and the preset max. speed. See Section 8.1.1.2.

The function can be selected in seven variants as follows:

Comfort

The cooling outputs are activated if there is a cooling demand.

Works only for Extract air and ORE regulation (Outdoor related extract air temperature).

Gradually increases the airflow to the preset max. speed when the supply air temperature is 3K (factory setting) higher than the preset min. supply air temperature.

In this way, it is possible to cool using a greater volume of air instead of cooling the air.

Provides a more even temperature and better comfort.

The supply air temperature must be 2K lower than the extract air temperature for the Cooling boost Comfort to start, the boost is stopped when the temperatures are equal.

Economy

Cooling Boost Economy initially uses an increased airflow to cool the premises, by utilising free cooling, before giving the start signal to cooling units.

The function can also operate without the cooling function activated.

Uses cold outdoor air before starting the cooling unit. If the outdoor air is colder than the extract air, the ventilation flow increases to get free cooling. Saves energy and reduces the need for mechanical cooling.

In the event of a cooling demand, the airflows are slowly increased up to preset maximum flow. When the flows are up to max and if a cooling demand is still present, the outputs for cooling are activated.

The function requires that the outdoor air temperature is at least 2 K lower than the extract air temperature for it to be activated. The normal cooling function is activated if the temperature difference is too small.

Sequence

The Cooling Boost Sequence is used if a chiller is sized for a higher cooling flow than normal flow.

Used when you want increased cooling output by combining increased airflow with active cooling.

If there is a cooling demand, the flow is increased up to the preset max. flow and there after the cooling function is activated.

Increases the airflow while the cooling function is running.

The Cooling Boost Sequence is blocked if no cooling function has been selected.

Comfort and economy

The comfort variant and the economy variant can be combined. The function that has the highest signal (highest flow setpoint) applies.

Cooling Boost

Economy and sequence

The economy and sequence variants can be combined. The function that has the highest signal (highest flow setpoint) applies.

Sequence and comfort

The sequence variant and the comfort variant can be combined. The function that has the highest signal (highest flow setpoint) applies.

Comfort, economy and sequence

The comfort variant, economy variant and the sequence variant can be combined. The function that has the highest signal (highest flow setpoint) applies.

Settings:

Value	Setting range	Factory settings
Cooling Boost	Inactive Comfort/ Economy/ Sequence/ Comfort and economy/ Economy and sequence/ Sequence and comfort/ Comfort, economy and sequence	Inactive
Start limit (Comfort)	2-10 K	3 K

8.1.2.15 Intermittent night heat

The AHU is utilized for heating the premises when it is normally stopped by timer.

The function requires that an external room sensor is wired to the control unit's communication BUS (optional COM 1-3) and that the AHU is fitted with an air heater for reheating the air. The function works best if the GOLD is equipped with an air recirculation section and shut-off dampers for the outdoor air and exhaust air.

When the function is activated, the air handling unit detects when the room temperature drops below the preset start temperature. The unit starts with preset flows and the supply air temperature set point. If there is a damper installed in the air recirculation section, it opens at the same time.

If recirculation is in the Off position, the extract air fan is operating and the damper relay is open. The extract airflow setting can be decreased to the air handling unit's min. flow.

Intermittent night heat does not affect any possible extra temperature zone (Xzone) which regulates according to its ordinary set point if Intermittent night heat is in operation.

Conditions to be met for intermittent night-time heating to start:

- The air handling unit must be set to normal stop or extended normal stop.
- The room temperature must be lower than the preset start temperature.
- Summer night cooling has not been active during the day.

Conditions to be met so that Intermittent night heat will stop:

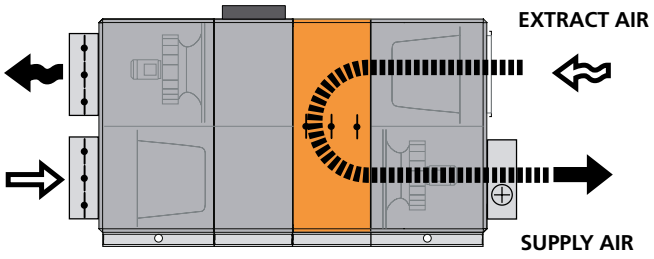
- The air handling unit is running at normal low/high speed or external/manual stop is activated.
- The room temperature exceeds the preset stop temperature.
- Alarm with preset stop priority is triggered.
  (If needed, the air handling unit fans will continue to operate to cool the electric air heater even if other conditions for stop have been met.)

Settings:

Value	Setting range	Factory settings
Intermittent night heat	On/Off	Off
Air recirculation	On/Off	On
Room temperature, start	5 - 25°C	16°C
Room temperature, stop	5 - 25°C	18°C
Supply air temperature, set point	5 - 50°C	28°C
Supply airflow, set point	[1]	50% of max. supply air for AHU alt. 100 Pa
Extract air flow, set point	[1]	50% of max. supply air for AHU alt. 100 Pa

[1] The setting range is the same as the AHU's min./max. setting for flow regulation and 10-750 Pa for pressure regulation

Intermittent night heat



Intermittent night heat with recirculation section:

Recirculation in the On position:

When conditions for start are met, outdoor air and exhaust air shut-off dampers remain closed. The damper in the air recirculation section opens. The exhaust air fan is idle.

The supply air fan operates according to the preset supply airflow and the air heater for reheating operates according to the preset supply air temperature set point, until the conditions for stop are met.

8.1.2.16 Summer night cool

The lower temperature at night is utilised to cool down the building structure. This reduces the cooling load during the first hours of the day. If a cooling unit is installed, it will not need to be operated, thus offering savings. If no cooling unit is installed, a certain cooling effect will still be achieved.

Internal activation

When the function is activated, the AHU fans operate at high speed, with a supply air set point of 10°C (factory setting) from the preset time until the conditions necessary for stop are satisfied.

The summer night cool function works when the air handling unit is in Low speed mode or stopped by Time switch Normal stop, Low speed = 0 or Communication Normal stop.

Using external outdoor and room sensors is recommended. The function is activated when the air handling unit detects an outdoor air temperature above 10°C (adjustable) and the outdoor air is at least 2°C colder than the extract air.

If neither external outdoor sensor or external room sensor are activated and the air handling unit is stationary, it starts up and runs for 10 minutes. This allows the extract air temperature to be stabilised, ensuring that the measurement is correct. Then a check is carried out to see if the conditions for summer night cool are met. If any other condition than the extract air temperature is not met, summer night cool will not start.

The start and stop dates of the period during which the air handling unit will be stopped can be preset.

The set point for flow or pressure on the supply air and extract air can be set. This then means that any outdoor compensation does not affect summer night cool.

An extra temperature zone (Xzone), if required, obtains the same supply air set point if Summer night cool is in operation.

Conditions that must be met for Summer night cool to start at the preset time:

- The time is between the preset start time and stop time.
- The outdoor air temperature is to be higher than the preset value.
- The extract air temperature is to be higher than the preset value.
- The extract air is at least 2°C warmer than the outdoor air.
- Heating requirement has not been present between 00.00 and 11.59 p.m. (heating requirement for dehumidification is not registered as heating requirement).[1)]
- The air handling unit is to be running at low speed or be in the normal stop operating mode.
- Intermittent night heat has not been active during the day.

Conditions that must be met for Summer night cool to stop:

- The time is not between the preset start time and stop time.
- The extract air temperature drops below the preset value.
- The extract air is less than 1°C warmer than the outdoor air.
- The air handling unit is running at normal high speed or external/manual stop is activated.

The function starts once per preset time period.

Summer night cool

Remote activation

Activation via communication or digital input signal. Parameters are set via communication and visualised in the interface.

Conditions that must be met for Summer night cool to start at the preset time:

- Activated signal
- The time is between the preset start time and stop time.

Settings:

Value	Setting range	Factory settings
Summer night cool	Disabled/ Internal/External	Inactive
Start time	00:00-00:00	23:00
Stop time	00:00-00:00	06:00
Outdoor air, start	-5°C - +15°C	10°C
Extract air, start	17°C - 27°C	22°C
Extract air, stop	12°C - 22°C	16°C
Supply air, set point	0 – 20°C	10°C
Start, period with stopped air handling unit[1)]	01-01 – 01-01 (month – day)	05-01
Stop, period with stopped air handling unit[1)]	01-01 – 01-01 (month – day)	10-01
Supply air, set point	Unit's minimum flow - maximum flow [2)]	50% of max. airflow for air handling unit
Supply air set point	20 – 750 Pa	100 Pa
Extract air set point	Unit's minimum flow - maximum flow [2)]	50% of max. airflow for air handling unit
Extract air set point	20 – 750 Pa	100 Pa

[1)] *The condition for heating load can be deselected during the preset period.*

[2)] *See section 8.1.1.2.*

8.1.2.17 Downregulation (airflow/pressure)

Downregulation of the supply air flow is the last step in the regulation sequence for heating. The supply air fan or both the supply air and exhaust air fan can be selected. The exhaust air fan only cannot be selected.

See also 8.1.2.8.

Downregulation can take place to max. of 50% of the preset value, however not lower than the min. flow or 20 Pa.

Settings:

Value	Setting range	Factory settings
Downregulation	Inactive/Supply air/ Supply air and extract air	Inactive

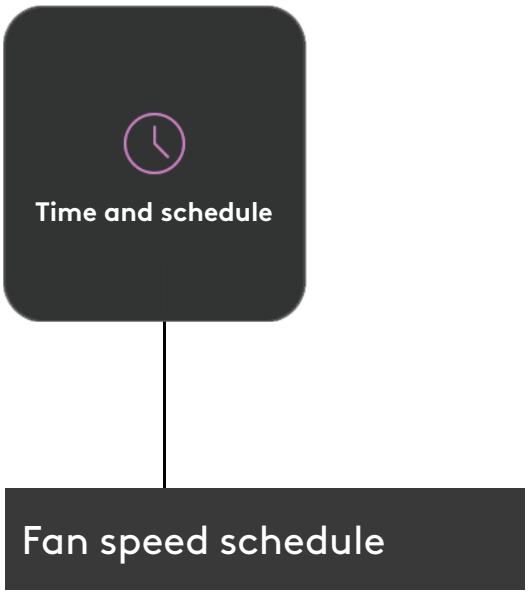


Swegon reserves the right to alter specifications.

8.1.3 Time and schedule

The built-in timer enables you to control the AHU's operating mode/time. Certain other overriding functions such as external timer, communication, etc. affect the preset operating modes.

There are five different operating modes:
Total stop = The AHU is completely stopped, no internal automatic functions or external control commands can start the AHU.
Normal Stop = The AHU has stopped, however all the internal and external automatic functions oversteer the stop.
Extended Normal Stop = The AHU has stopped, however all the internal and external automatic functions, with exception of Summer night cool, oversteer the stop.
Low speed = The AHU is running at the preset low speed setting.
High speed = The AHU is running at preset high speed setting.



8.1.3.1 Fan speed schedule

The current operating mode is displayed under schedule settings. The operating schedule is shown in an overview with weekdays and times and exceptions 1 and 2 if these are enabled. A cursor shows the current operating point.

Here a standard action, which the unit always is operating in at non programmed times under day schedule and exception schedule, is set. This setting (start and stop date not activated) is used most often and covers the majority of needs.

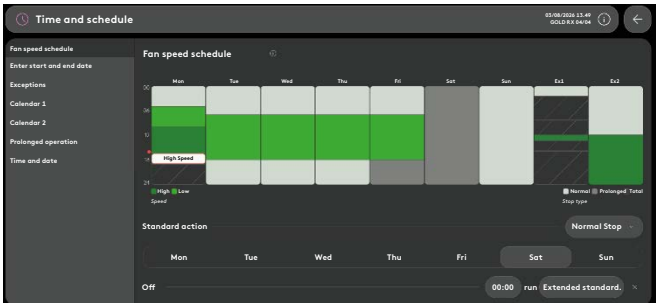
Times and days can be set when the unit is to run in the high speed mode, low speed mode or be switched off.

For every day (Monday - Sunday) six different events can be set at a given point in time.

Add the required steps for the operating schedule concerned for each day. Note that the preset event will not be carried over to the next 24-hour period. If no event is set from 00.00 hours of the next 24-hour period, the AHU will operate in the preselected operating mode preset under Schedule settings.

It is possible to copy one day's events to other weekdays.

Settings:



Value	Setting range	Factory settings
Standard action	Total stop/Low speed/High speed/Normal Stop/ Extended Normal Stop	Low speed
Day	Mon/Tues/Wed/Thur/Fri/Sat/Sun	Add action
Time	00:00 – 23:59	
Action	Add action/Total stop/Low speed/High speed/Normal stop/ Extended normal stop/Ignore	Add action

8.1.3.2 Enter start and stop date

Enter start and stop date

When the start and stop date are activated, this means that during the preset period (date) preset time applies during the day schedule and the exceptions schedule and at all other times, the air handling unit runs in the preselected operating mode.

Value	Setting range	Factory settings
Start date	Active/Inactive	Inactive
Start date	Year/Month/Day	
Stop date	Active/Inactive	Inactive
Stop date	Year/Month/Day	

8.1.3.3 Exceptions

Exceptions

Any exceptions (E1 and E2) previously preset in the exception schedule can be added and set. Here it is possible to determine the date or weekday on which the relevant exception is to apply. If Calendar 1 or Calendar 2 are selected, these are set according to details in the next section.

Settings:

Value	Setting range	Factory settings
Exception 1/2		
Exceptions method	Add action/Date/Date range/Weekday/Calendar 1/Calendar 2	Add action
Date		
Year	Enter year	Today's date
Month	Each/Odd/Even/Months 1-12	Today's date
Day	Each/Odd/Even/Last/ 1-31	Today's date
Weekday	Each day/Monday/Tuesday/ Wednesday/Thursday/ Friday/Saturday/Sunday	Today's date
Date range		
Start date	Enter date	
Stop date	Enter date	
Weekday		
Month	Each/Odd/Even/Months 1-12	Today's date
Days	Each day//Last 7 days/Days 1-7/8-14/15-21/22-28/29-31	
Weekday	Each day/Monday/Tuesday/ Wednesday/Thursday/ Friday/Saturday/Sunday	Today's date
Calendar 1	See next chapter	
Calendar 2	See next chapter	

Swegon reserves the right to alter specifications.

8.1.3.4 Calendar 1 and 2

Calendar 1

Calendar 2

The specific days when Exceptions schedule 1 or 2 shall apply can be set in Calendars 1 and 2. On condition that Calendar 1 or 2 is selected, see previous section. In other cases, these settings will have no effect.

There is a total of ten possible settings under each calendar and various functions can be selected for each.

Settings (For Calendar 1 and Calendar 2 respectively):

Value	**Setting range**	**Factory settings**
Function 1-10	Add Function/Date/Date range/ Weekday	Add Function
Date		
Year	Enter year	Today's date
Month	Each/Odd/Even/Months 1-12	Today's date
Day	Each/Odd/Even/Last 1-31	Today's date
Weekday	Each day/Monday/Tuesday/ Wednesday/Thursday/Friday/ Saturday/Sunday	Today's date
Date range		
Start date	Enter date	
Stop date	Enter date	
Weekday		
Month	Every/Odd/Even/Months 1-12	Today's date
Days	Every day/Last 7 days/Days 1-7/8-14/15-21/22-28/29-31	Days 1-7
Weekday	Each day/Monday/Tuesday/ Wednesday/Thursday/Friday/ Saturday/Sunday	Today's date

8.1.3.5 Prolonged operation

Prolonged operation

The control unit inputs for external low speed (terminals 14-15) and external high speed (terminals 16-17) respectively, can be supplemented with Prolonged operation. They can be used for overtime running activated by a pushbutton, for example.

The required time in hours and minutes can be set as follows.

Settings:

Value	**Setting range**	**Factory setting**
Ext. timer for low speed	0:00 – 23:59	00:00
Ext. timer for high speed	0:00 – 23:59 (hrs.:min.)	00:00 (hrs.:min.)

8.1.3.6 Time and date

Time and date

The current date and time can be set and adjusted if needed. The timer automatically takes leap years into consideration.

The relevant region and city can be selected, summer time/winter time changeover will then be managed automatically.

Time source can be set to manual or via SNTP (requires connection to network) and BACnet. The time format and date format can be set.

8.1.4 Energy monitoring

Here energy consumption for fans, heat exchanger, air handling unit, connected MIRUVENT roof fan, as well as collected energy values from a pulse counter can be read. SFP status for the AHU fans and connected MIRUVENT fans as well as the efficiency of the rotary heat exchanger can also be viewed. Calculated power for reheating and cooling are displayed. With an energy measurement module, liquid flow and temperature, measured powers can be shown for reheating and cooling.

Accumulated energy consumption can be reset to zero.



Swegon reserves the right to alter specifications.

8.1.5 Heat

8.1.5.1 Status

All the current values can be read here. Used for function checks.

8.1.5.2 Pre-heat

By preheating the outdoor air, it is possible to prevent moisture precipitation in the AHU's outdoor air filter, to reduce the risk of frosting in the heat exchanger and to eliminate the risk that pressure sensors and motor control systems are operating in too low ambient temperature.

Preheat can also be placed in the supply air and is used while defrosting the heat exchanger and/or DX coil at low temperatures.

Scope for setting Outdoor air temperature related preheat is available.

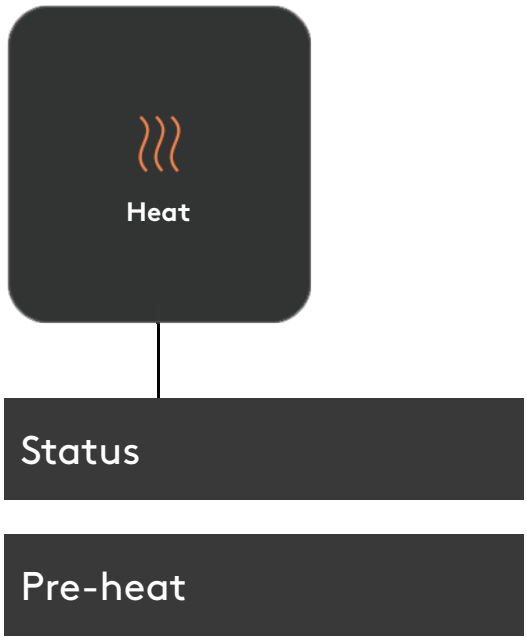
See also the Pre-heat function guide for more detailed information.

Possibility to set heating circuit A or B for SMART Link+.

See also the SMART Link+ function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Pre-heat	On/Off	Off
Preheat placement	Outdoor air/Supply air	Outdoor air
Pre-heat set point	-40°C–+40°C	5°C
Outdoor air temperature-related	On/Off	Off
Difference, outdoor air temperature	0 – 25 K	5 K
Preheat, min. limit	-40°C–+40°C	-10°C
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input, function	Inactive/Alarm on open contact/ Alarm on closed contact/Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled



8.1.5.3 Exhaust air heating

By heating the exhaust air, you can utilise the remaining energy that is already present in the exhaust air to keep warm e.g. a garage or other premises where you want to maintain a constant, frost-free temperature. By placing an air heater in the exhaust air, the temperature can be further raised.

The function cannot be activated simultaneously while Minimum Extract Air is activated.

See also the exhaust air heating function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Exhaust air heating	On/Off	Off
Exhaust air heating set point	-40°C–+40°C	5°C
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input, function	Inactive/Alarm on open contact/ Alarm on closed contact/Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled

Exhaust air heating

Swegon reserves the right to alter specifications.

8.1.5.4 Extra regulation sequence 1 and 2

Extra regulation sequence 1/2

Used for extra regulation functions controlled by a 0-10 V (10-0 V) signal with the ordinary temperature regulation sequence.

The function can be used for utilising existing heating or cooling sources, such as from a chiller. The function can also be used for an extra air heater or air cooler.

It can also be used for controlling dampers for possible recirculation. In these cases, an inverted 10-0 V output is used.

Recirculation control is used for the TBBD mixing section (GOLD SD only). The 10-0 V inverted output should be in the On position.

The maximum output signal can be limited from 100% down to 0%.

The output signal of the extra regulation sequence is controlled from the TBIQ-3-2/80493002 IQlogic⁺ module accessory, see separate installation instructions.

When the SMART Link DX function is selected, the extra regulation sequence is automatically activated. The extra regulation sequence cannot then be used for any other functionality. An IQlogic+ module is not required (alarm for missing module is blocked).

The extra regulation sequence enables you to control two air heaters simultaneously: water, electricity or DX. The air heater for hot water is available with or without anti-frost monitoring function. For switching between two different air heaters the Season Heat function can be used. See also Section 8.1.5.11.

When the output of the first air heater is not sufficient, the second one automatically starts in sequence.

A start-up sequence, frost guard function, pump control, post-cooling for electric air heater and other functionality are available.

For the start-up sequence, anti-frost monitor function, periodic operation and post-cooling, the same settings are used as for regular reheating.

Possibility to set heating circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Extra regulation sequence 1/2	Inactive/Heat/Cool/ Heat and cool	Inactive
Inverted output 10-0V	On/Off	Off
Recirculation control	On/Off	Off
Max. output signal	0-100%	100%
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input function	Inactive/Alarm on open contact/Alarm on closed contact/ Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled

8.1.5.5 Extra regulation sequence 1 and 2, combi coils

The function is used to control combi coils (heating and cooling), see separate function guide for combi coils.

Settings:

Value	Setting range	Factory settings
Combi coils, function	On/Off	Off
Temperature protection, function	On/Off	Off
Temperature protection, alarm delay	0 – 999 min.	5 min.
External signal, function	Inactive/Digital input/ BMS/SMART Link+	Inactive
External signal, indication	Heating/Cooling	Heat
Digital output, function	On/Off	Off
Digital output, indication	Heating/Cooling	Heat

Extra regulation sequence 1/2, combi coil

Swegon reserves the right to alter specifications.

8.1.5.6 Extra regulation sequence 1 and 2 step function (DX heat pump)

The function is designed to control cooling/heating or reversible DX cooling/heat pumps.

For example, you can use entry with delay and then use linear control.

With a smart heat pump control function, the 0-10V signal can be increased incrementally according to required heating/cooling needs to achieve optimal comfort and energy consumption.

A digital output signal can be set to switch between heating and cooling.

As most cooling units/heat pumps have an entry of 20-40%, the entry can be set separately, then linearly.

Available functions are Standard, Comfort or Economy, with Comfort only suitable for rotary heat exchangers.

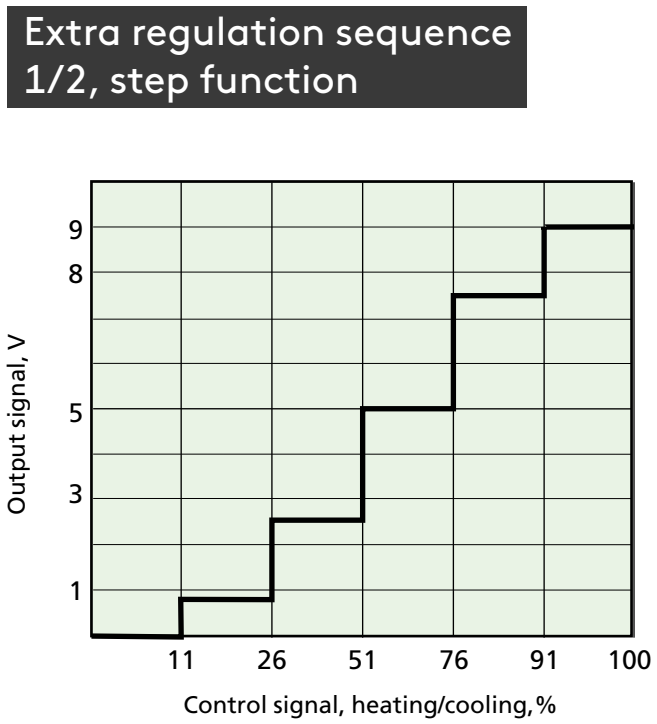
Two reversible cooling/heat pumps can be controlled in sequence.

Cannot be combined with the combi coil function.

See also the separate function guide, Heat pump DX, step control.

Settings:

Value	Setting range	Factory settings
Output level X1	5 – 100%	11%
Output level Y1	0 – 10V	0.8 V
Output level X2	5 – 100%	26%
Output level Y2	0 – 10V	2.5 V
Output level X3	5 – 100%	51%
Output level Y3	0 – 10V	5V
Output level X4	5 – 100%	76%
Output level Y4	0 – 10V	7.5 V
Output level X5	5 – 100%	91%
Output level Y5	0 – 10V	9V
Heating, operating mode.	Standard/Comfort/Economy	Standard
Cooling, operating mode.	Standard/Comfort/Economy	Standard
Number of steps.	1-5	5
Last-step linear regulation	On/Off	Off
Stop-start time	0 – 1200 sec.	300 sec.
Step switching time	0 – 1200 sec.	300 sec.
Comfort/economy operating mode	0-7200 sec.	3600 sec.



8.1.5.7 Re-heat

The air heater is equipped with a quick-fit connector for connection to the AHU's control unit which automatically senses the type of air heater in use.

Re-heat

Air heater, water

When there is a reheating load, and the function Periodic operation of pump or of pump+valve is selected , the relay output is activated (control unit terminals 20-21) and this starts the circulation pump of the air heater.

If the outdoor temperature is low (colder than +12°C), the pump output contact is continuously activated. During other times, the pump output contact is activated 3 min./day (factory setting) for exercising of the circulation pump.

Alarm inputs can be activated as alarm on open contact, alarm on closed contact or contactor function. Requires the accessory TBIQ-3-2/80493002, see the separate installation instructions.

Possibility to set heating circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Option for energy measurement with energy module, for measuring liquid flow and temperature of supply and return.

See also the separate Energy module function guide.

Settings:

Value	Setting range	Factory settings
Air heater, water		
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input, function	Inactive/Alarm on open contact/Alarm on closed contact/ Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled
Energy measurement	On/Off	Off
Valve dimensions	DN15/DN20/DN25/ DN32/DN40	DN15
Type of glycol	None/Ethylene/ Propylenes	None
Glycol proportion	20%/30%/ 35%/40%	20%

Electric air heater

When there is a reheating load, the relay output is activated (control unit terminals 20-21).

The relay output can be used for indicating or blocking the external function.

Swegon reserves the right to alter specifications.

8.1.5.8 XZone

The Xzone and Xzone combi coils temperature control functions are designed for controlling one extra temperature zone via the ventilation system.

Xzone can be used for all types of air handling units, and both reheating and cooling can be controlled in the extra zone.

See also the Xzone function guide and Xzone combi coils function guide for more detailed information.

Possibility to set heating circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Option for energy measurement with energy module, for measuring liquid flow and temperature of supply and return.

See also the separate Energy module function guide.

Settings:

Value	**Setting range**	**Factory settings**
Xzone	On/Off	Off
Xzone, combi coils	On/Off	Off
Water air heater		
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input, function	Inactive/Alarm on open contact/Alarm on closed contact/Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled
Energy measurement	On/Off	Off
Valve dimensions	DN15/DN20/DN25/ DN32/DN40	DN15
Type of glycol	None/Ethylene/ Propylenes	None
Glycol proportion	20%/30%/ 35%/40%	20%

Xzone

8.1.5.9 XZone, combi coils

Xzone, combi coils

The Xzone combi coils temperature control function is designed for controlling one extra temperature zone via the ventilation system.

Xzone combi coils can be used for all types of air handling units, and both reheating and cooling can be controlled in the extra zone.

See also the Xzone combi coils function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Xzone, combi coils	Disabled/Heating/ Heating and cooling	Inactive
Temperature monitor function	On/Off	Off
External signal, function	Disabled/Digital input/ BMS/SMART Link+	Inactive
External signal, indication	Heating/Cooling	Heat
Digital output, function	On/Off	Off
Digital output, indication	Heating/Cooling	Heat

8.1.5.10 Electric air heater

Electric air heaters

If the electric air heater has been in operation, the air heater is post-cooled for about 3 minutes (factory setting) when stop has been activated.

The text "After cool" appears in the hand-held terminal.

Settings:

Value	Setting range	Factory settings
Post-cooling	1 - 25 min	3 min.

Swegon reserves the right to alter specifications.

8.1.5.11 Season Heat

Season Heat

The Season Heat function assumes that the extra regulation sequence 1 function is activated. See Section 8.1.5.4.

When both the standard function for reheating and the extra heating sequence are activated, it is possible to alternate between these via a digital input or communication.

Example: hot water is only available in the winter; in the summer, any reheating requirement is backed up with an electric air heater. Changeover can be done manually or via external thermostat, external clock function or similar.

Settings:

Value	Setting range	Factory settings
Season Heat	Inactive/Extra reg. seq. 1 closed contact/Extra reg. seq. 1 open contact/Extra reg. seq. 1 Manual [1)]	Inactive
Extra regulation sequence 1 (manual only)	On/Off [2)]	Off

1) Extra regulation sequence 1 closed contact = When the contact is closed, only the standard re-heat function is active. When the contact is opened there is a changeover to extra regulation sequence for heating.
Extra regulation sequence 1 open contact = When the contact is open, only the standard re-heat function is active. When the contact is closed, a changeover to extra regulation sequence for heating occurs.

Extra regulation sequence 1 Manual = Changeover is done in the hand-held terminal or on the AHU's website.

2) Extra regulation sequence in Off position involves that the standard function for reheating is active and in the On positin a changeover to extra regulation sequence occurs.

8.1.5.12 Automatic functions

Anti-frost monitor function, air heater for water

The frost guard function is always active if the connected air heater for hot water has been supplied by Swegon.

The function activates the air heater heat-retaining which keeps the temperature in the coil at 13°C while the air handling unit is operating and 25°C in the coil when the unit is stopped. An alarm is initiated and stops the AHU if the temperature sensor senses a temperature below 7°C.

Capacity reduction of the electric air heater

Only in combination with Swegon's electric air heater.

A min. permissible air velocity of 2.0 m/s is required for preventing the electric heating elements from becoming overheated when they are generating full heating output.

If the air handling unit supply airflow drops below the value that corresponds to an air velocity of 2.0 m/s across the heat exchanger, the heating output of the air heater will be automatically reduced.

8.1.6 Cool

8.1.6.1 Status

All the current values can be read here. Used for function checks.

8.1.6.2 Extra regulation sequence 1 and 2

Used for extra regulation functions controlled by a 0-10 V (10-0 V) signal with the ordinary temperature regulation sequence.

The function can be used for utilizing existing heating or cooling sources, such as from a chiller. The function can also be used for an extra air heater or air cooler.

It can also be used for controlling dampers for possible recirculation. In these cases, an inverted 10-0 V output is used.

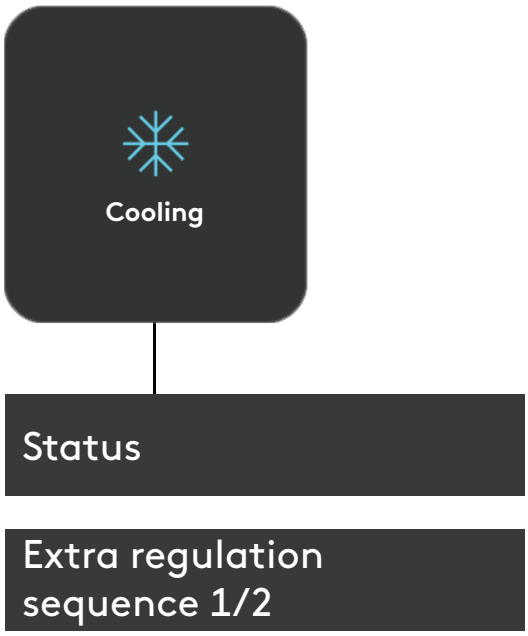
Recirculation control is used for the TBBD mixing section (GOLD SD only). The 10-0 V inverted output should be in the On position.

The maximum output signal can be limited from 100% down to 0%.

The output signal of the extra regulation sequence is controlled from the TBIQ-3-2/80493002 IQlogic+ module accessory, see separate installation instructions.

When the SMART Link DX function is selected, the extra regulation sequence is automatically activated. The extra regulation sequence cannot then be used for any other functionality. An IQlogic+ module is not required (alarm for missing module is blocked).

Possibility to set cooling circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.



Settings:

Value	Setting range	Factory settings
Extra regulation sequence 1/2	Inactive/Heat/Cool/ Heat and cool	Inactive
Inverted output 10-0V	On/Off	Off
Recirculation control	On/Off	Off
Max. output signal	0-100%	100%
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input function	Inactive/Alarm on open contact/Alarm on closed contact/ Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled

Swegon reserves the right to alter specifications.

8.1.6.3 Extra regulation sequence 1 and 2, combi coils

Extra regulation sequence 1/2, combi coil

The function is used to control combi coils (heating and cooling), see separate function guide for combi coils.

Settings:

Value	Setting range	Factory settings
Combi coils, function	On/Off	Off
Temperature protection, function	On/Off	Off
Temperature protection, alarm delay	0 – 999 min.	5 min.
External signal, function	Disabled/Digital input/ BMS/SMART Link+	Inactive
External signal, indication	Heating/Cooling	Heat
Digital output, function	On/Off	Off
Digital output, indication	Heating/Cooling	Heat

8.1.6.4 Extra regulation sequence 1 and 2 step function (DX heat pump)

The function is designed to control cooling/heating or reversible DX cooling/heat pumps.

For example, you can use entry with delay and then use linear control.

With a smart heat pump control function, the 0-10V signal can be increased incrementally according to required heating/cooling needs to achieve optimal comfort and energy consumption.

A digital output signal can be set to switch between heating and cooling.

As most cooling units/heat pumps have an entry of 20-40%, the entry can be set separately, then linearly.

Available functions are Standard, Comfort or Economy, with Comfort only suitable for rotary heat exchangers.

Two reversible cooling/heat pumps can be controlled in sequence.

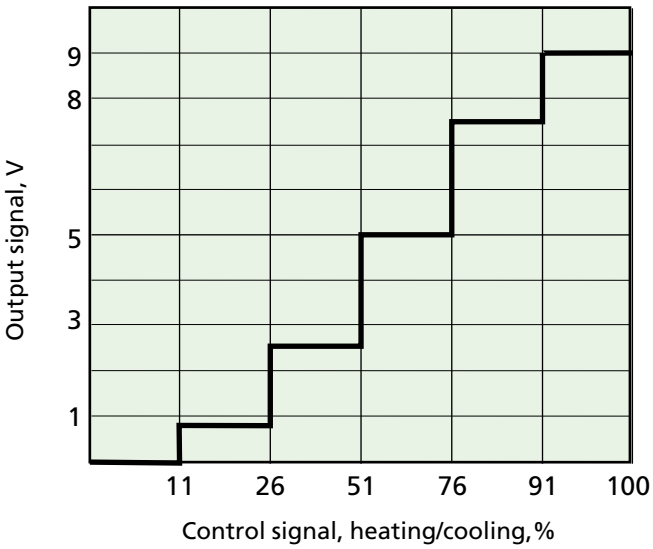
Cannot be combined with the combi coil function.

See also the separate function guide, Heat pump DX, step control.

Settings:

Value	Setting range	Factory settings
Output level X1	5 – 100%	11%
Output level Y1	0 – 10V	0.8 V
Output level X2	5 – 100%	26%
Output level Y2	0 – 10V	2.5 V
Output level X3	5 – 100%	51%
Output level Y3	0 – 10V	5V
Output level X4	5 – 100%	76%
Output level Y4	0 – 10V	7.5 V
Output level X5	5 – 100%	91%
Output level Y5	0 – 10V	9V
Heating, operating mode.	Standard/Comfort/ Economy	Standard
Cooling, operating mode.	Standard/Comfort/ Economy	Standard
Number of steps.	1-5	5
Last-step linear regulation	On/Off	Off
Stop-start time	0 – 1200 sec.	300 sec.
Step switching time	0 – 1200 sec.	300 sec.
Comfort/economy operating mode	0-7200 sec.	3600 sec.

Extra regulation sequence 1/2, step function



Swegon reserves the right to alter specifications.

8.1.6.5 Cool

The valve actuator of the air cooler for water is equipped with a quick-fit connector for connection to the AHU's control unit which automatically activates the cooling function.

1-step

Used if cooling in one step is connected. The cooling regulator of the AHU regulates the cooling demand, 0-100%. The cooling relay is energised when the cooling load exceeds 5% and is de-energised when the cooling load is below 2%.

2-step

Used when cooling in 2 steps is connected. The cooling regulator of the AHU regulates the cooling demand, 0-100%.

Cooling relay 1 is energised when the cooling load exceeds 5% and is de-energised when the cooling load is less than 2%. Cooling relay 2 is energised when the cooling load exceeds 55% and is de-energised when the cooling load is less than 50%.

3-step, binary

Used when cooling with two inputs controlled with three binary steps is connected. The cooling regulator of the AHU regulates the cooling demand, 0-100%.

On an increasing cooling load:

Cooling relay 1 is energised when the cooling load is above 5% and is de-energised when the cooling load is between 40-70%. Cooling relay 2 is energised when the cooling load is above 40%. Cooling relay 1 is energised again (together with cooling relay 2) when the cooling load is above 70%.

On a decreasing cooling load:

Cooling relay 1 releases when cooling requirement is below 60%, it is energised again when cooling requirement is below 30% and is released again when cooling requirement is below 2%. Cooling relay 2 is de-energised when cooling load is below 30%.

Alarm inputs can be activated as alarm on open contact, alarm on closed contact or contactor function. Requires the accessory TBIQ-3-2/80493002, see the separate installation instructions.

Possibility to set cooling circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Option for energy measurement with energy module, for measuring liquid flow and temperature of supply and return.

See also the separate Energy module function guide.

Cool

Settings:

Value	Setting range	Factory settings
DX air cooler		
Cooling	Inactive/1 step/ 2 steps/3 steps binary	Inactive
Air cooler for water		
Periodic operation of pump 1	On/Off	On
Periodic operation of pump 2	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input 1/2, function	Inactive/Alarm on open contact/Alarm on closed contact/ Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled
Energy measurement	On/Off	Off
Valve dimensions	DN15/DN20/DN25/ DN32/DN40	DN15
Type of glycol	None/Ethylene/ Propylenes	None
Glycol proportion	20%/30%/ 35%/40%	20%

8.1.6.6 XZone

Xzone

The Xzone and Xzone combi coils temperature control functions are designed for controlling one extra temperature zone via the ventilation system.

Xzone can be used for all types of air handling units, and both reheating and cooling can be controlled in the extra zone.

See also the Xzone function guide and Xzone combi coils function guide for more detailed information.

Possibility to set heating circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Option for energy measurement with energy module, for measuring liquid flow and temperature of supply and return.

See also the separate Energy module function guide.

Settings:

Value	Setting range	Factory settings
Xzone	On/Off	Off
Xzone, combi coils	On/Off	Off
DX air cooler		
Cooling	Inactive/1 step /2 steps/3 steps, binary	Inactive
Air cooler for water		
Periodic operation of pump 1	On/Off	On
Periodic operation of pump 2	On/Off	On
Periodic operation of valve	On/Off	On
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Alarm input 1, function	Inactive/Alarm on open contact/ Alarm on closed contact/Contactor function	Inactive
Alarm input 2, function	Inactive/Alarm on open contact/ Alarm on closed contact/Contactor function	Inactive
SMART Link+	Disabled/Circuit A/ Circuit B	Disabled
Energy measurement	On/Off	Off
Valve dimensions	DN15/DN20/DN25/ DN32/DN40	DN15
Type of glycol	None/Ethylene/ Propylenes	None
Glycol proportion	20%/30%/ 35%/40%	20%

Swegon reserves the right to alter specifications.

8.1.6.7 XZone, combi coils

Xzone, combi coils

The Xzone combi coils temperature control function is designed for controlling one extra temperature zone via the ventilation system.

Xzone combi coils can be used for all types of air handling units, and both reheating and cooling can be controlled in the extra zone.

See also the Xzone combi coils function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Xzone, combi coils	Disabled/Cooling	Inactive
Temperature monitor function	On/Off	Off
External signal, function	Disabled/Digital input/ BMS/SMART Link+	Inactive
External signal, indication	Heating/Cooling	Heat
Digital output, function	On/Off	Off
Digital output, indication	Heating/Cooling	Heat

8.1.6.8 COOL DX

COOL DX

COOL DX - Economy
Used when the COOL DX chiller is connected. Both cooling relays of the air handling unit operate in parallel with the corresponding relay on the IQlogic+ module in the COOL DX chiller.

COOL DX - Comfort
Used when the COOL DX chiller is connected. The heat exchanger in the AHU operates in sequence with the cooling unit to even out the supply air temperature (only GOLD RX).

COOL DX Top
Used when the COOL DX Top chiller is connected. Both cooling relays of the air handling unit operate in parallel with the corresponding relay on the IQlogic+ module in the COOL DX chiller.

Settings:

Value	Setting range	Factory settings
COOL DX	Inactive/Economy/ Comfort/COOL DX Top	Inactive

8.1.6.9 Delay time

Delay time

Stop drying delay is the delay time between switching off and stop of the air handling unit. Used to dry out any moisture if cooling has been operational.

Restart time is computed from when the compressor starts until it is permitted to start again.

Step switch time is the time delay between two steps.

Stop/start time is computed from when the compressor stops until it is permitted to start again.

Settings:

Value	Setting range	Factory settings
Stop, drying delay	On/Off	Off
Stop, drying delay time	1-60 min.	3 min.
Restart time	0-20 min.	5 min.
Step switching time	0-15 min.	5 min.
Stop/start time	0-15 min.	5 min.

8.1.6.10 Outdoor air, limits

Outdoor air limits

Provision is available for setting an outdoor temperature-related blocking function in 3 steps. If the outdoor temperature is below each step limit, the function of the cooling relays will be blocked. The function is used for preventing the respective compressor steps switching on and off too many times.

Settings:

Value	Setting range	Factory settings
Step 1	0 – 30°C	15°C
Step 2	0 – 30°C	18°C
Step 3	0 – 30°C	20°C

Swegon reserves the right to alter specifications.

8.1.6.11 Air flow limits

Cooling, 0-10 V:
The cooling function is blocked if the supply or extract airflows are lower than the preset limit.

If the airflow limit function is not of immediate interest, both flow limits are set to 0.

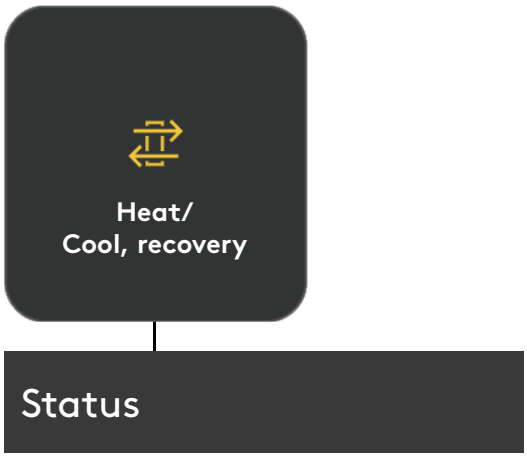
Cooling, On/Off:
The current airflow must exceed the preset airflow as a condition for the respective cooling step to be put into operation.

Settings:

Value	Setting range	Factory Settings
Cooling, 0-10 V		
Supply air, 0-10 V	0 – Max. flow	25% of max. airflow for air handling unit
Extract air, 0-10 V	0 – Max. flow	25% of max. airflow for air handling unit
Cooling, On/Off		
Supply air, On/Off, step 1	0 – Max. flow	25% of max. airflow for air handling unit
Extract air, On/Off, step 1	0 – Max. flow	25% of max. airflow for air handling unit
Supply air, On/Off, step 2	0 – Max. flow	50% of max. airflow for air handling unit
Extract air, On/Off, step 2	0 – Max. flow	50% of max. airflow for air handling unit
Supply air, On/Off, step 3	0 – Max. flow	75% of max. airflow for air handling unit
Extract air, On/Off, step 3	0 – Max. flow	75% of max. airflow for air handling unit

Air flow limits

8.1.7 Heat/Cooling, recovery



8.1.7.1 Status

All the current values can be read here. Used for function checks.

See below for designations for each PX section damper (counter-flow heat exchanger):

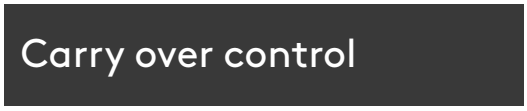
PX
Section damper 1 (furthest out) = 1A
Bypass damper (middle) = 2A
Section damper 2 (furthest in) = 3A

PX+
Bypass damper 1 (furthest out) = 2A
Section damper 1 (second furthest out) = 1A
Section damper 2 (second furthest in) = 3A
Bypass damper 2 (furthest in) = 4A

8.1.7.2 Carry over control (GOLD RX)



At low air flows, the rotary heat exchanger speed is lowered to an appropriate level to ensure a correct purging air flow through the heat exchanger.



Settings:

Value	Setting range	Factory settings
Carry over control	On/Off	On

8.1.7.3 Air Quality Control (GOLD RX)



The Air Quality Control function makes sure that extract air is not transferred to the supply air by ensuring the negative pressure in the extract air section is slightly greater than in the supply air section (adjustable 0 – 20 Pa).

The AQC function requires an extract air damper of the type TBSA with modulating actuator and pressure sensor TBLZ-1-86-aa, see the separate installation instructions.



Settings:

Value	Setting range	Factory settings
Air Quality Control	On/Off	Off
Commissioning mode	On/Off	Off
Set point	0 – 20 Pa	10 Pa

8.1.7.4 Efficiency measurement

The efficiency measurement of heat exchangers for RX/PX/CX can be enabled here.

The function requires the accessory, efficiency measurement TBLZ-1-83 (see separate instruction), which contains three sensors. Two of the sensors measures humidity/temperature in the extract air and exhaust air, the third sensor measures the outrdoor air temperature.

Measured values are specified under the humidity function.

In connection with comfort control with COOL DX the efficiency measurement, energy and output are not shown.

Settings:

Value	Setting range	Factory settings
Efficiency measurement	On/Off	Off

Efficiency measurement

8.1.7.5 Defrost (GOLD RX)



In environments where the extract air can occasionally be humid, the defrosting function can be activated to protect the heat exchanger from frosting. The function continuously monitors the condition of the heat exchanger rotor to prevent it from becoming clogged due to condensate that has frozen inside the exchanger.

The function requires a separate pressure sensor (preset for heat exchanger defrosting) wired to the control unit inputs for external BUS communication and connected to the AHU pressure measurement tappings. See special installation instruction for the TBLZ-1-23-aa pressure sensor.

The pressure drop across the rotor must then be calibrated to establish a reference pressure drop for monitoring purposes. Calibration is put into effect by setting Calibration to the On position.

When the defrosting function is activated the pressure drop across the heat exchanger is continuously measured and the reading is compared with the calibration reading. If the pressure drop exceeds the preset limit value, a defrosting sequence is implemented in which the rotor speed is gradually ramped down (ramp time max. 4 minutes). The lowest permissible speed of the rotor is 0.5 rpm. During the defrosting process, the warm extract air thaws any possible ice.

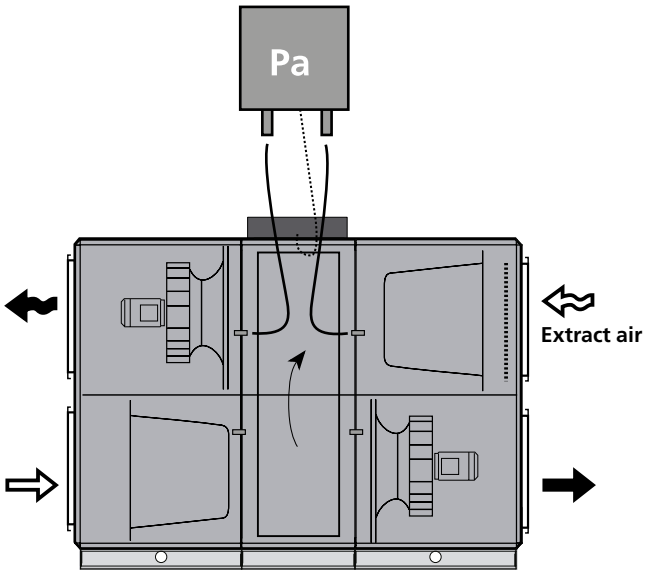
If defrosting reduces the speed to the min. speed 0.5 rpm for more than 2.5 h an alarm is generated.

Note that the heat exchanger performs less efficiently while defrosting is in progress and that the supply air temperature will also drop downstream of the heat exchanger.

Settings:

Value	Setting range	Factory settings
Defrost	On/Off	Off
Defrost limit value	30 – 100 Pa	50 Pa
Calibration	On/Off	Off

Defrost



Principle for the defrosting function with separate pressure sensor.

8.1.7.6 Calibration/Optimize (GOLD PX)



Defrosting, Standard
Calibration should be carried out when the air handling unit is started up and when necessary. When calibration is in progress, the air handling unit's limit values for alarms and defrosting are calculated.

Defrosting, RECOfrost
Calibration should be carried out when the air handling unit is started up and when necessary. When calibration is in progress, the air handling unit's limit values for alarms and defrosting are calculated.
Bypass optimisation should be carried out when the air handling unit is started up and when necessary. When bypass optimization is in progress, the damper positions of the bypass are optimized. Calibration and bypass optimization can be activated to occur at the same time or individually. If they are activated individually, whichever one is activated first is of no importance.
Settings:

Value	Setting range	Factory settings
Calibration	On/Off	Off
Bypass optimisation (RECOfrost only)	On/Off	Off

Calibration/Optimize

8.1.7.7 Automatic functions (e.g. anti-frost protection RECOfrost)

GOLD RX (rotary heat exchanger)

Purging function
Purging is an automatic function that prevents the rotary heat exchanger from standing still in the same position for a longer period when no heating is necessary.

Purging operation is activated when the AHU is operating but the heat exchanger rotor is not rotating. The heat exchanger rotor then rotates for 10 seconds every 10 minutes to purge its surfaces clean of impurities.

Calculation of the efficiency
The efficiency is calculated and displayed (0 – 100%).

Calculation of recovered energy
Recovered sensible energy is calculated and the values are displayed (instantaneous and accumulated).

Cooling recovery
Cooling recovery is an automatic function that helps the air handling unit on a cooling load and high outdoor air temperature to utilize the relative "cooling energy" that can be indoors. The heat exchanger rotates at max. speed and in this way recovers the relative cooling energy or chilliness in the extract air.

The conditions for this function to be activated are that there is a cooling demand and that the outdoor temperature is 1°C higher than the extract air. The function stops when the cooling load ceases to exist or when the outdoor temperature is the same as that of the extract air.

After-run operation heat exchanger
If the AHU stops, the heat exchanger automatically continues to recover heat for about 1 minute.

It takes a little time for the fans to stop rotating after a stop has been ordered and this prevents the supply air from cooling down.

GOLD CX/SD (coil heat exchanger)

Pump control, coil heat exchanger
The pump of the pipework package starts when heat recovery is needed. If heat recovery is not needed for more than 24 hours, the pump is exercised once a day.

Anti-frost protection
In cold weather, and if the exhaust air is humid, there is risk of frosting in the coil heat exchanger. The GOLD CX/SD is equipped with anti-frosting protection.

The liquid temperature to the extract air coil and the humidity in the extract air are measured.

Taking the humidity into consideration, the control system calculates the lowest permissible liquid temperature without risk of frosting in the coil. The valve in the pipework package is then regulated so that this temperature is not fallen below.

GOLD PX (plate heat exchanger)

In cold weather, and when the extract air is humid, there is risk of frosting in the plate heat exchanger. The GOLD PX is therefore equipped with anti-frost protection.

Anti-frost protection, standard
The pressure drop across the heat exchanger and the outdoor air temperature are measured.

With consideration given to the pressure drop across the heat exchanger and the outdoor air temperature, the control system regulates dampers for bypass and heat exchanger (interlinked) in order to prevent the formation of frost.

RECOfrost anti-frost protection
The pressure drop across the heat exchanger, extract air temperature, moisture content in the extract air and outdoor air temperature are measured.

With consideration given to the pressure drop across the heat exchanger, the extract air temperature, the moisture content in the extract air and the outdoor air temperature, the control system individually regulates dampers for bypass and the heat exchanger for section-by-section defrosting without the formation of frost.

Swegon reserves the right to alter specifications.

8.1.8 Filters



Status
The current filter status and the current alarm limit can be viewed here. Used for function checks.

Calibration
The filters should be calibrated when the fans are started up for the first time and when the duct system, air terminals and commissioning plates, if required, have been installed and commissioned. After that every time filters are replaced. See also Section 7.

In order for filter calibration to start, a stable air flow must be achieved for 30 seconds (adjustable).

Settings:

Value	Setting range	Factory settings
Stable air flow	1 - 180 sec.	30 sec.

Pre-filter/AHU filter (GOLD SD)/End filter
Filter monitoring must be activated for the filter (in addition to the internal filter in the GOLD RX/PX/CX) to be monitored.

Settings:

Value	Setting range	Factory settings
Pre-filters	Inactive/Supply air/Extract air/ Supply air and extract air	Inactive
Internal filters	Inactive/Supply air/Extract air/ Supply air and extract air	Inactive
End filter	On/Off	Off

Alarm limits
Alarm limit for installed filters can be changed.

Setting:

Value	Setting range	Factory settings
Installed filters	0-500 Pa	100 Pa

8.1.9 Alarm settings

8.1.9.1 Fire alarms

Internal fire alarm
The air handling unit's internal temperature sensors serve as fire protection thermostats. An alarm is initiated if the supply air temperature sensor registers more than 70°C or when the extract air temperature sensor registers more than 45°C. Alarm limits can be set.

If an external extract air/Room temperature sensor is connected and activated, this works in parallel with the extract air temperature sensor of the AHU.

External fire alarm 1 and 2
External fire alarm 1 (Terminals 6-7) and external fire alarm 2 (Terminals 8-9) are used for external fire-control equipment. For example, a differential pressure monitor TBLZ-2-92 (accessory) can measure the pressure over filter or over filter and heat exchanger.

Alarm resetting
The resetting of internal fire alarms as well as the external fire alarms 1 and 2 can be individually selected to manual or automatic.

Post-cooling
The post-cooling function for electric air heaters, COOL DX and/or SMART Link DX can be individually activated, for internal fire alarm as well as external fire alarm 1 and 2.

Fan operation on a fire alarm
The fans of the air handling unit can be used for evacuation. It is possible to individually select the type of fan operation for each separate fire alarm.

If the AHU is idle, the fans selected start up (10-100%), irrespective of whether stop (all types) is activated.

The AHU's damper relay is energized and the AHU's operation relay is de-energized.

Dampers used must be equipped with a spring return and be for a 24 VAC supply voltage.

The damper that should be open in the event of fire shall be connected to the damper relay. Connect the damper to the control unit's terminals 28 and 30.

The damper that should be closed in the event of fire shall be connected to the operation relay. Connect the damper to the control unit's terminals 26 and 30. A jumper is placed between terminals 27 and 29.

Priority
The mutual priority of the internal and the external fire alarms can be set. If automatic is selected, this means that the first input to be activated is given priority.

Fire bypass in flow diagram
The fire bypass is shown on the hand-held terminal's flow diagram when the function is activated. Fan operation for exhaust air must be active for at least one of the fire alarms. Dampers switch to fire bypass if any of the fire alarms are active and the exhaust air fan is operational.



Settings:

Value	Setting range	Factory settings
Internal fire alarm	On/Off	Off
Supply air temperature, alarm limit	10-90°C	70°C
Extract air temperature, alarm limit	10-70°C	45°C
Internal fire alarm reset	Manual/Auto	Manual
Internal fire alarm after cool	Active/Inactive	Inactive
External fire alarm 1/2, resetting	Manual/Auto	Manual
External fire alarm 1/2, after cool	Active/Inactive	Inactive
Fan operation on an internal fire alarm	Inactive/Supply air/ Extract air/Supply air and extract air	Inactive
Supply air fan on an internal fire alarm	10 – 100%	100%
Extract air fan on an internal fire alarm	10 – 100%	100%
Fan operation on external fire alarm 1/2	Inactive/Supply air/ Extract air/Supply air and extract air	Inactive
Supply air fan on external fire alarm 1/2	10 – 100%	100%
Extract air fan on external fire alarm 1/2	10 – 100%	100%
Order of priority	External fire alarm 1/External fire alarm 2/ Internal fire alarm/ Automatic/Fire alarm 1 or internal fire alarm/Fire alarm 2 or internal fire alarm	External fire alarm 1
Fire bypass in flow diagram	On/Off	Off

Swegon reserves the right to alter specifications.

8.1.9.2 External alarms

External alarms

External alarms can be used for external functions (control unit terminals 10-11 and 12-13).

Typical uses:

– Circulation pump motor protection for heating or cooling.

– Service alarm, smoke detectors.

Manual or automatic alarm reset, post-cooling for electric air heater and whether the alarm shall be activated on a closed or open circuit is set. The alarm can be time delayed. External alarms 1 and 2 can be given designations of your choice (maximum of 40 characters).

Settings:

Value	Setting range	Factory settings
External alarm 1 reset	Manual/Auto	Manual
External alarm 1 after cool	Inactive/Active	Active
External alarm 1 input	Closed circuit/ Open circuit	Closed circuit
External alarm 1 time delay	1-600 sec.	10 sec.
External alarm 1, description	Optional	External alarm 1
External alarm 2 reset	Manual/Auto	Manual
External alarm 2 after cool	Inactive/Active	Active
External alarm 2 input	Closed circuit/ Open circuit	Closed circuit
External alarm 2 delay time	1-600 sec.	10 sec.
External alarm 2, description	Optional	External alarm 2

8.1.9.3 Temperature protection

Temperature protection

In the GOLD PX and CX units, the sensor in the inlet of the supply air fan can be used as temperature protection. Alarm priority and whether the air handling unit should stop or not in the event of an alarm can be set under Alarm priority, see Section 8.1.9.6.

For the GOLD RX unit, it is possible to use a separate sensor and its wiring is routed to the control unit. Select sensor input 4 for supply air = right and select sensor input 3 for supply air = left.

The alarm limit and alarm delay can be set for the sensor.

Settings:

Value	Setting range	Factory settings
Temperature protection	On/Off	Off
Alarm delay	1-900 sec.	30 sec.
Alarm limit	3°C–+20°C	7°C

8.1.9.4 Temperature alarm limits

Changes in the factory-preset alarm limits should only be made if you have special reasons for doing so and you should be aware of the consequences.

Pre-heat below set point
How much the temperature downstream of the pre-heater should be permitted to be below the temperature set point before an alarm is initiated can be preset.

Supply air below/above set point
How much the supply air temperature shall be permitted to be below or above the supply air temperature set point before an alarm is initiated can be preset. The alarm for supply air above the set point is normally blocked. Used in the cases in which cooling is installed.

Extract air below alarm limit
Alarm limit for extract air temperature can be set. When the extract air temperature is below the alarm limit, alarm 12:6 is generated.

Outdoor temperature, stop limit
For triggered heat exchanger alarms, alarm numbers:15:1-15:4, 16;1-16:4, 17:1, 17:4-17:9 (See manual for alarms and information messages), the following applies: if the outdoor air temperature is above this stop limit an alarm only will be initiated. If it is below the stop limit, the air handling unit will stop and an alarm will be initiated.

Settings:

Value	Setting range	Factory settings
Pre-heat below set point	2 – 15 K	5.0 K
Supply air below set point	2 – 15 K	5.0 K
Supply air above set point	2 – 15 K	7.0 K
Extract air below alarm limit	-8°C - +20°C	12.0°C
Outdoor temperature, stop limit	-40°C - +50°C	5.0°C

Temperature alarm limits

8.1.9.5 Service period

The air handling unit's service period can be set here. The remaining time to alarm can be read. An alarm will be initiated after the time interval has expired. If you reset the alarm in the alarm log, the alarm will trip again after 7 days. Following completed service, the alarm must always be reset in this menu and this will launch a new service interval.

Settings:

Value	Setting range	Factory settings
Service period	0 – 99 months	12 months

Service period

Swegon reserves the right to alter specifications.

8.1.9.6 Alarm priority

Changes in alarm priority should only be made if you have special reasons for doing so and you should be aware of the consequences. The setting options are limited for some alarms with safety function.

Settings:

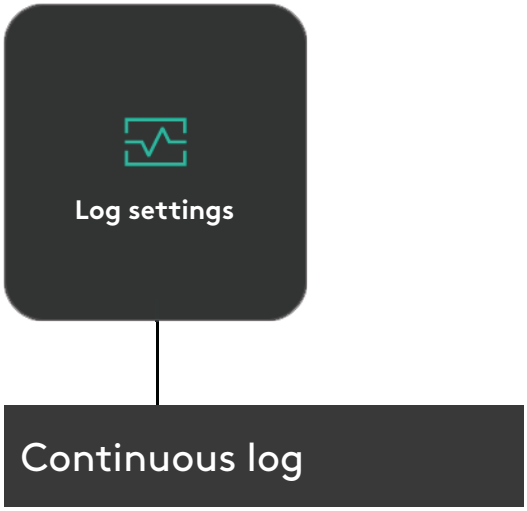
Value	Setting range
Alarm number	1:1 - 60:10
Active	On/Off
Priority	Info*/A/B
Air handling unit stop	On/Off

** Alarms are indicated as a flashing red LED on the hand-held terminal, no group alarm is forwarded.*

Alarm priority

8.1.10 Log settings

In order for the log function to work, an SD card must be installed in the air handling unit's control circuit board (32 GB SD card factory-installed).



8.1.10.1 Continuous log

The continuous log can be activated here. The login interval is one minute (1440 logins per 24-hour period). One login file is created for each 24-hour period.

Settings:

Value	Setting range	Factory settings
Log file period	On/Off	On

8.1.10.2 Log sender

The log function has a log sender function that can email the log to an optional email address and/or FTP address.

Settings:

Value	Setting range	Factory settings
Log sender active	On/Off	Off
Operating mode	E-mail/FTP/E-mail and FTP	E-mail
Email subject	Optional	
Text message	Optional	
FTP IP address	Optional	
Username	Optional	
Change password	Optional	

Other settings are entered on the website for the air handling unit.

8.2 Setup

8.2.1 Base settings



Used for saving, loading and restoring the settings.

When the installation of the GOLD unit is completed, a commissioning record can be created and a PDF document generated on the unit's website. This is done by entering the requested information and then pressing the Generate Report button.

When the commissioning protocol has been created, a new button is shown to open the protocol. When the protocol is open it can be reviewed and a PDF file can then be generated. The PDF file can then be displayed, saved and sent.

Date and time of the latest saved backup copy can be viewed.

The AHU's settings/communication settings are saved/loaded to/from the control unit's internal memory or optional SD card/USB flash drive that can be inserted into the control unit.

The calibration values for pre-filter, standard filter, end filter, ReCO2 and defrosting for RX, PX and RX/HC are included.

NOTE! Remember to restore to the regular storage medium if the retrieval/storage was from a non-regular storage medium. If this is not done, no logging parameters will be saved.

The AHU settings involve all settings except communication settings.

Communication settings involve all settings (except AHU settings).

Symbol names can be selected how they are displayed in all menus. Symbol names can be selected not to be shown, to be shown with Swegon's original designations or to be adapted. If symbol names are to be shown as customised, they are named in AHU Design and a file is exported from AHU Design. The file can then be imported and exported here.

Settings:

Value	**Setting range**	**Factory settings**
Storage medium	SD card/USB	SD card

Value	**Alternative**
Air handling settings	
Export air handling settings	Export to local backup/Export to SD card/USB
Import air handling settings	Import from local backup/Import from SD card/USB
Communication settings	
Export communication settings	Export to local backup/Export to SD card/USB
Import communication settings	Import from local backup/Import from SD card/USB

8.2.2 Air handling unit

8.2.2.1 Settings

Set the type of air handling unit here. The type of air handling unit is normally preset for the unit supplied; except the GOLD SD extract air unit which must be set here.
NOTE! Do not change the air handling unit setting to a type that differs from the one supplied. If you do so, the air handling unit will not operate satisfactorily.

The air handling unit can be given a specific name (e.g. the unit's serial number). Names can include numbers and/or letters. The given name is then shown in all the views in the hand-held terminal and on the website.

The type of AHU, size of the supply air and extract air fan respectively can be viewed.

GOLD RX/PX/CX
The AHU's fan position 1 (left-hand fan seen from the inspection side, see illustrations) can be read and preset.

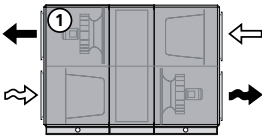
NOTE! This changes the function of the fans from supply air to extract air and vice versa. GOLD RX size 004-120/ GOLD RX Top can be changed on site. The other variants must not be changed from the factory setting.

For changes in fan position, check the filter class in the supply and extract air. If the filter classes for the supply and extract air are not equal, change the positions of the filters. RX Top 004-012 and 025/030 has supply and extract air filters in different dimensions, these must be ordered. For RX Top 004-012 another commissioning plate must also be ordered. For sizes 014-120 even the supply and extract air fans can be in different sizes/capacity variant, which must be taken into account. The rating plate shows the combinations of fan sizes and capacity variants.

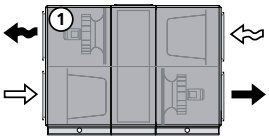
The fan position in the flow chart can be read and should be set according to the AHU's actual configuration.

Fan position 1

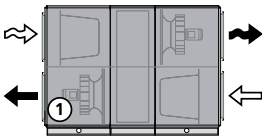
GOLD RX 004–120



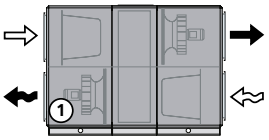
Supply air up (left-hand inspection)



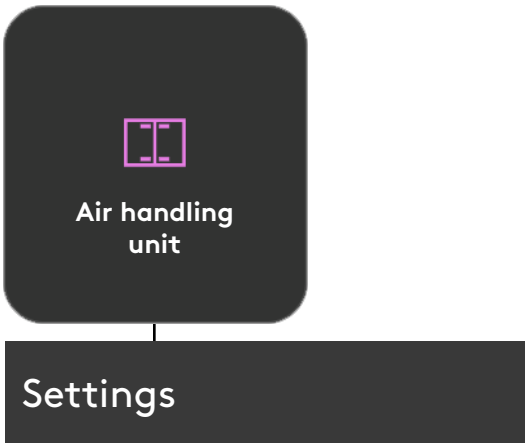
Extract air up (right-hand inspection)



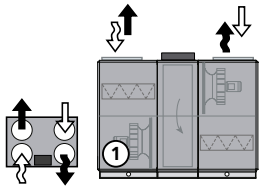
Supply air down (left-hand inspection) Not RX sizes 004–008 in shared casing.



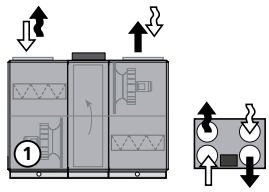
Extract air down (right-hand inspection) Not RX sizes 004–008 in shared casing.



GOLD RX Top 004–012 (011/012 in combination with COOL DX Top)

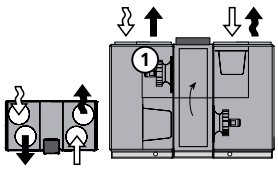


Supply air down (left-hand inspection)

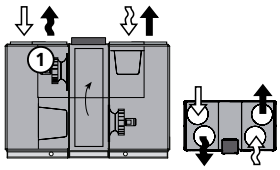


Extract air down (right-hand inspection)

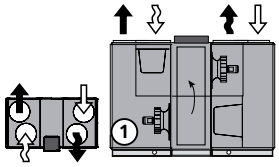
GOLD RX Top 011–012 (without COOL DX Top)



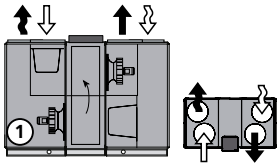
Supply air up (left-hand inspection)



Extract air up (right-hand inspection)

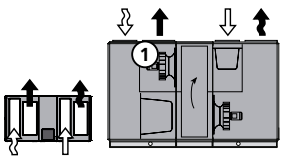


Supply air down (left-hand inspection) Not RX sizes 004–008 in common casing.

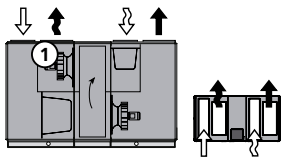


Extract air down (right-hand inspection) Not RX sizes 004–008 in common casing.

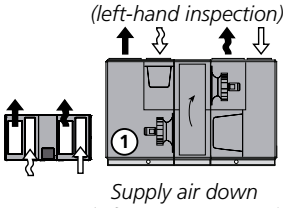
GOLD RX Top 014–030



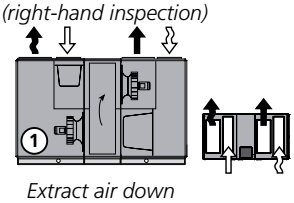
Supply air up (left-hand inspection)



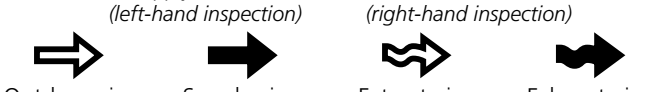
Extract air up (right-hand inspection)



Supply air down (left-hand inspection)



Extract air down (right-hand inspection)



GOLD SD
The fan position, upper or lower level, can be read and should be set according to the AHU's actual configuration.

Settings:

Value	Setting range	Factory settings
Type of air handling unit	GOLD RX/GOLD PX/ GOLD CX/GOLD SD Supply air/GOLD SD Extract air/GOLD SD Supply air+CX/GOLD SD Supply air+Extract air/GOLD SD Supply air+Extract air+CX	Type of air handling unit supplied, except the GOLD SD extract air handling unit
GOLD RX/PX/CX		
Name	Optional	
Fan position 1	Extract air/Supply air	Extract air
Flow chart, supply air fan position	Upper level/Lower level	Lower level
GOLD SD		
Name	Optional	
Flowchart fan position	Upper level/Lower level	Lower level

8.2.2.2 Fan status

The fan control speed setting can be viewed in percent of max. speed here.

Fan status

8.2.2.3 Operation time

In operation times (in days) can if applicable be viewed for fan controls, heat exchanger/cooling recovery, preheating, extra heating regulation sequence, Xzone heating, AHU reheating, ReCO$_2$ heating, extra cooling regulation sequence, Xzone cooling, AHU cooling, ReCO$_2$ cooling, AYC heating water and AYC cooling water.

Operation time

8.2.2.4 VOC/CO_2 Sensor

VOC/CO_2 sensor

You can select here the operating mode for the VOC sensor and the CO_2 unit. The VOC level can be read. The VOC sensor position in the flow chart can be selected if only monitoring has been selected.

As an alternative, a CO_2 value can be transmitted to the air handling via communication from e.g. a main system.

Settings:

Value	Setting range	Factory settings
VOC sensor mode	Inactive/Monitoring only/Monitoring and regulation	Inactive
CO_2 unit[1)]	%/ppm	%[1)]
CO_2 from communication	On/Off	Off
Flow chart, VOC sensor position	Supply air/Extract air	Supply air

[1)] *Factory set values: 0% = 500 ppm, 50% = 1000 ppm, 100% = 1500 ppm*

8.2.2.5 Automatic functions

Start up sequence

The air handling unit has a start up sequence with a factory-preset time delay between each step as follows:

1. The damper relay pulls and opens the shut-off damper (if installed). The heat exchanger is controlled to max. heat recovery (not the GOLD SD without heat exchanger). The valve for reheating opens to 40% (if installed)

   Time delay: 30 seconds.

2. The exhaust air fan starts in the current operating mode (not for ventilation systems with GOLD SD supply air handling unit only)

   Time delay: 60 seconds.

3. The supply air fan starts (not for ventilation systems with GOLD SD exhaust air handling unit only)

   Time delay: 30 seconds.

4. The reheating function is ramped up or down depending on the heating demand. Ramp time: 180 seconds. After that the heat exchanger is ramped up or down depending on the heating demand. Ramp time: 180 seconds.

The entire start up sequence can be followed in the dashboard view.

The start up sequence prevents the exhaust air fan from starting if the damper is closed. By first starting up the exhaust air fan and the heat exchanger, chilling the premises with supply air can be avoided on a start up under cold weather conditions.

Auto zero point calibration

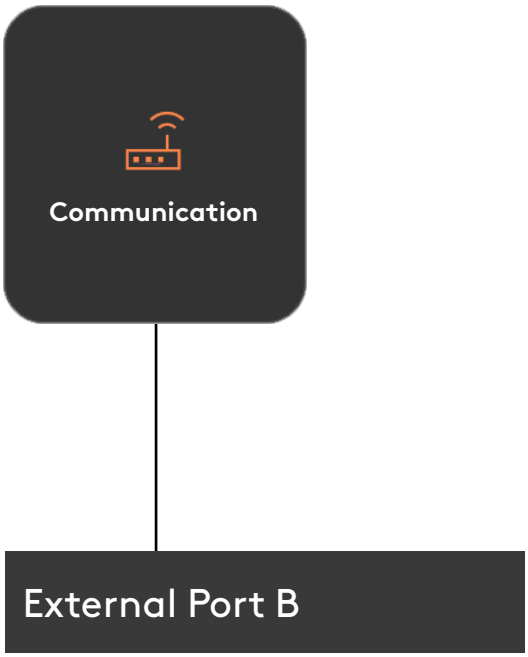
The pressure sensor of the AHU is automatically calibrated. The calibration process takes about 70 seconds after the AHU has stopped (a notification is shown if the AHU has not stopped). The zero point calibration text is displayed in the hand-held terminal.

8.2.3 Communication

The potential for communication and monitoring is integrated as standard into the AHU. The AHU is ready to be connected via EIA-485. See Section 6.2 Wiring Terminal Connections in the Operating & Maintenance Instructions.

Communication can also be established via Ethernet without software other than an ordinary web browser such as Internet Explorer.

Further information about interfaces, protocols and configuration is available at www.swegon.se (com).



8.2.3.1 External Port B

For communication with network. Specify protocol and settings for Ethernet.

Settings:

Value	Setting range	Factory Settings
DHCP	On/Off	Off
IP address (static or dynamic)		10.200.1.1
Net mask		255.255.255.0
Default GATEWAY		0.0.0.0
Primary DNS		0.0.0.0
Secondary DNS		0.0.0.0
MAC address		Not adjustable

8.2.3.2 Swegon INSIDE

Swegon INSIDE

Swegon's digital services are gathered under the name Swegon INSIDE. These services make it possible to monitor, control and visualise compatible units in a heating, ventilation and air conditioning solution, as well as the indoor climate in a building.

Air handling units manufactured during or after Week 22, 2023, are supplied with a certificate from the factory. Air handling units manufactured prior to this can be supplied with a certificate afterwards (retrofit), see below.

Also see the separate instruction regarding safety recommendations.

In order to read data, an account must be created.
Create an account in Swegon INSIDE Portal by going to Swegon's website (swegon.com). Click on "SUPPORT & SOFTWARE" in the menu. Select "Connected products" Follow the instructions "Get started – Create an account".

Air handling unit supplied with a certificate from the factory

Go to the Communication function in the hand-held terminal or on the website for the air handling unit. Make sure that standard gateway and DNS are filled in. If these are not filled in, contact your IT organisation.

Make sure that serial number is filled in.

The Swegon INSIDE function is activated. When Swegon INSIDE has been activated, data is sent to the cloud service.

Retrofit

Requires program version 2.42 or later.

Go to the Communication function in the hand-held terminal or on the website for the air handling unit. Make sure that standard gateway and DNS are filled in. If these are not filled in, contact your IT organisation.

Make sure that serial number is filled in.

Go to Swegon's website (swegon.com). Click on "SUPPORT & SOFTWARE" in the menu. Select "Connected products". Follow the instructions under the heading "Get started – Create account" "Add products to INSIDE Portal/Make your product INSIDE Ready (only retrofit).

NOTE! Serial number and MAC address must be specified (see Communication/External port B in the hand-held terminal or on the ventilation unit's home page).

Settings:

Value	Setting range	Factory Settings
Swegon INSIDE	On/Off	Off

Swegon reserves the right to alter specifications.

8.2.3.3 INSIDE Connect

Communication via Swegon INSIDE Connect router and the building's network in parallel.

INSIDE Connect

If an INSIDE Connect router is connected in parallel with the property network, you can select where and what is sent by activating the Communication via INSIDE Connect function. The router's IP address, which can be found in the INSIDE Portal, is also specified here.

Settings:

Value	Setting range	Factory Settings
Communication via INSIDE Connect	On/Off	Off
Router IP address		169.254.234.250
Swegon cloud (MQTT)	On/Off	Off
DigiCert (certificate)	On/Off	Off
SMTP-server	On/Off	Off
SNTP	On/Off	Off

8.2.3.4 Wireless LAN

Wireless LAN

The AHU's control unit is, as standard, equipped with Wi-Fi function and can be connected to e.g. a wireless hand-held terminal (accessory), portable computer or smart phone.

A new password must be entered when activating. Must not be 123456789.

The password can, via the hand-held terminal, be changed to an optional combination of digits. The password and the SSID can also be entered in alphabetical form on the AHU's website.

To connect to a portable computer or smart phone, note the settings on SSID, password and IP address. Activate Wi-Fi in the portable computer or smart phone and search for the wireless network (with the same name as the SSID). Connect by entering the password.

Open your web browser and refresh the page. The web browser will then automatically connect to the control circuit board.

Login for local and installation is deactivated by default. They can be activated, see Section 8.2.7.

The password for service level can be found on the label on the control circuit board and is unique to each unit.

Settings:

Value	Setting range	Factory settings
Wireless LAN	On/Off	Off
SSID	Optional	GOLD
Password (WPA2-PSK)	[1]	[2]
IP address	Not adjustable	169.254.233.1
Net mask	Not adjustable	255.255.255.0
MAC address	Not adjustable	Not adjustable
Channel (frequency band)	5 - 11	5

[1] Certain smart phones require at least six characters.
[2] For air handling units supplied as from March 2022, the factory-set password is the same as the air handling unit's serial number, which can be found on the unit's rating plate. For air handling units supplied before March 2022, the password is 123456789. Software version 2.48 or later requires the Wi-Fi password to be set when activating. Must not be 123456789.

8.2.3.5 E-mail

E-mail

You can select whether the AHU shall handle outgoing e-mail here.

There is a button for test transmission.

Settings:

Value	Setting range	Factory settings
SMTP-server	External/Internal	External
SMTP-server	Optional address	
SMTP port number		25
SMTP username	Optional, to be entered on the website	
SMTP password	Optional, to be entered on the website	
Encryption	On/Off	Off
E-mail sender	Optional, to be entered on the website	
E-mail reply path	Optional, to be entered on the website	

8.2.3.6 EIA-485

EIA-485

Specify protocol and settings for EIA-485.

Settings:

Value	Setting range	Factory settings
Protocol	Inactive/Modbus/EXOline/ Metasys N2 Open/LON	Modbus
Baud rate	4800/9600/19200/38400	9600
Parity	None/Even/Odd	None
Stopbits	1/2	2
Modbus ID/Metasys ID/ PLA	1 - 247	1
ELA	1-255	1
Shortest feedback delay	0 – 100 ms	0 ms

Swegon reserves the right to alter specifications.

8.2.3.7 Modbus TCP

Specify settings for Modbus TCP.

Settings:

Modbus TCP

Value	Factory settings
Port number	502
Approved client IP address	0.0.0.0
Approved client netmask	0.0.0.0

8.2.3.8 BACnet IP

Enter the BACnet IP settings.

Settings:

BACnet IP

Value	Factory settings
Network number Ext. B	0
Internal network number A	0
Device ID	0
Port number	47808
Object name	Optional
Description	Optional
Location	Optional

8.2.3.9 EXOline TCP

EXOline can be activated and enter the port number.

Settings:

EXOline TCP

Value	Setting range	Factory settings
Port number		26486
PLA	1 - 247	1
ELA	1-255	1

8.2.3.10 Operation level communication

It is possible to change the operation level communication here.

Settings:

Operation level communication

Value	Setting range	Factory settings
Operation level communication	Inactive/Total stop/Low speed/ High speed/Normal stop/ Extended normal stop	Inactive

8.2.3.11 Port A/IQnavigator

The method of connection between the IQnavigator and IQlogic can be selected here.

Settings:

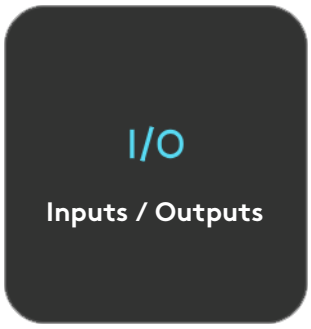
Port A/IQnavigator

Value	Setting range	Factory settings
Connection mode	IQnavigator direct/ Static IP	IQnavigator, direct
IP address		192.168.0.1
Net mask		255.255.255.0
MAC ADDRESS		Not adjustable

8.2.4 Inputs/outputs

Can for example be used if the air handling unit is to be controlled/monitored via substation controller (DUC) or a PLC system.

External operation module 3/6 requires the TBIQ-3-2/80493002 IQlogic+ module accessory; external communication module A/B/C requires the TBIQ-3-1/80493001 accessory.See separate installation instructions.



Settings:

Value	Setting range	Factory settings
External operation module 3/6		
Digital output 1/2 mode	Inactive/Air handling unit in operation/Air handling unit in auto operation/ Air handling unit in manual operation/Air handling unit in low speed operation/ Air handling unit in high speed operation/A alarm/B alarm/Damper relay/Heat exchanger/Heat exchanger defrost/Reheat/ Reheating power reduction/Heating Boost/Morning Boost/Intermittent night heat/Airflow down regulation/Extra reg. sequence 1 heat/Extra reg. sequence 1 cool/Cooling/ Cooling Boost/Summer night cool/ Supply air fan in operation/Extract air fan in operation/Internal fire alarm tripped/External fire alarm 1/External fire alarm 2/External fire alarm 1 or 2/Any fire alarm/External fire alarm 1 with priority/ External fire alarm 2 with priority//Internal fire alarm tripped with priority/Preheating/HC defrosting/HC defrosting with recirculation/HC heat/HC cool/ Filter calibration/Exhaust air heating/Dehumidification/ PX defrosting SMART Link DX defrost	Inactive
Digital input 1/2	Inactive/Alarm reset/Stop AYC heated water/Stop AYC chilled water/ MIRU 1-3 external stop/MIRU 1-3 external low speed/MIRU 1-3 external high speed/ Reheating alarm input/ Cooling alarm input 1// Cooling alarm input 2/ Summer night cooling 2	Inactive
Analogue output 1	Indicates present supply airflow, from 0 to air handling unit's max. speed (%)	
Analogue output 2	Indicates present extract airflow, from 0 to air handling unit's max. speed (%)	
Analogue input 1/2*	Inactive/Set point displacement/Set point displacement, supply air/Set point displacement, extract air	Inactive
External communication module A/B/C		
External communication module A/B/C	On/Off	Off
sensor no. 1	On/Off	Off
sensor no. 2	On/Off	Off

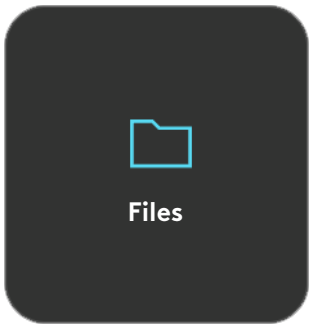
** If analogue inputs 1 and 2 are both selected for setpoint displacement, only analogue input 1 will be used.*

Swegon reserves the right to alter specifications.

8.2.5 Files

In the file manager, files on SD cards/USB memory sticks can be managed. For example log files, air handling settings and communication settings can be saved or deleted.

SD cards/USB memory sticks must be placed in the unit's control circuit board or hand-held terminal



8.2.6 Notes

Notes can be written and read here.



8.2.7. Users

8.2.7.1 Hand-held micro terminal

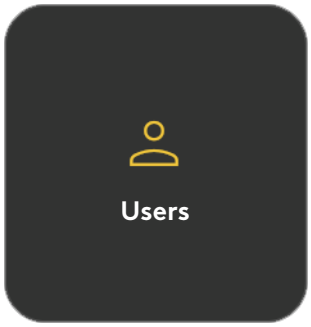
Password for user level (Local) is deactivated by default. Password can be activated, the password is always 0000.

Password for installation level (Installation) is 1111.

Password and special training are required for access to the service level (Service).

Settings:

Value	Setting range	Factory settings
Requirements for user password	On/Off	Off



8.2.7.2 Website

Passwords for user level (Local) and installation level (Installation) are deactivated by default. The password can be activated, the password must be at least 4 characters and must not contain: ~'&|;><()^?#!$` and cannot be four identical characters.

Log in at the service level (service) with the user name "service" and the password found on the label on the control circuit board.

Settings:

Value	Setting range	Factory settings
Requirements for user password	On/Off	Off
User password	-	
Require password installation	On/Off	Off
Password installation	-	

8.2.8 Software

The current program versions for the IQlogic control unit, IQnavigator hand-held terminal and the units on the communication bus can be read and updated from the SD card/USB memory stick.



Swegon reserves the right to alter specifications.

8.3 Extra



8.3.1 C/HC, chiller or reversible heat pump/chiller

The C/HC function is intended to control a chiller (RX/C) or a reversible heat pump/chiller (RX/HC) in the GOLD RX/C or GOLD RX/HC.

For further information, see the GOLD RX/C or GOLD RX/HC Function Guide.

Settings:

Value	**Setting range**	**Factory settings**
RX/HC Function		
Position HC	On/Off	Off
HC defrosting accessories	Inactive/Recirculation/ Electric air heater/ Electric air heater and recirculation	Inactive
Air heater in combination with recirculation	On/Off	Off
Max. outdoor air temperature for recirculation	-20 – 0°C	-10°C
Heating function	Standard/Comfort	Comfort
Cooling function	Standard/Comfort	Comfort
Time for comfort mode	300–1800 s	900 s
RX/HC and RX/C Outdoor temperature limits		
Heat	-50°C–+50°C	-25°C
Cooling	0–+50°C	15°C
Air flow limits		
Supply air	Min. flow*–Max. flow	40% of max. air flow for air handling unit
Extract air	Min. flow*–Max. flow	40% of max. air flow for air handling unit

**Min. flow for GOLD RX/HC, see the separate installation and maintenance instructions.*

8.3.2 SMART Link

The SMART Link function is intended for use for optimum control of temperatures and operation as well as reading of alarms and values for a Swegon chiller/heat pump.

For more information concerning waterborne heat pumps/chillers, see the SMART Link/AQUA Link function guide or the SMART Link+ function guide.

For more information concerning DX heat pumps/chillers (EPSILON Sky LE or LE/HP), see the Guide to the SMART Link DX. Functions.



Settings:

Value	Setting range	Factory settings
Version	SMART Link/ SMART Link+	SMART Link
Type of unit	Inactive/ Water, heat pump/ Water, chiller/ Water, reversible/ DX, heat pump/ DX, chiller/ DX, reversible	Inactive
Enable DX for all air handling unit variants	On/Off	Off
Water		
Heated water (set point)	10 – 80°C [1)]	40°C
Heated water, diff.	1 - 10 K	3 K
Chilled water (set point)	0 – 20°C [1)]	12°C
Chilled water, diff.	1 - 10 K	2 K
Outdoor air limit (not applicable to the chiller)	-50°C–+50°C	-20°C
Optimize, heating	On/Off	Off
Optimize, cooling	On/Off	Off
Optimize, cooling regulation speed	0.01 - 6.00 K/min	0.3 K/min
Optimze heating regulation speed	0.01 - 6.00 K/min	0.3 K/min
Valve limit, lower	5 – 90%	80
Valve limit, upper	70 – 99%	95
Delay	30 – 3,200	60
AQUA Link	On/Off	Off
Pump alarm	Inactive/Alarm on closed contact/ Alarm on open contact/Contactor function	Inactive
DX		
Number of connected units (Epsilon Sky)	1-4	1
Comfort mode heating, duration	0–180 min.	30 min.
Comfort mode cooling, duration	0–180 min.	30 min.
Outdoor air limit (not applicable to the chiller)	-50°C–+50°C	-20°C
Defrost delay	5 – 900 s	120 s
Stabilization time	60 – 600 s	240 s
Supply air flow limit	[2)] - 100% of max. air flow for air handling unit	50% of max. air flow for air handling unit

[1)]Min. and max. limited by preset values in the chiller/heat pump.
[2)] Min. limited by set value in the chiller/heat pump.

Swegon reserves the right to alter specifications.

8.3.3 ReCO2

The ReCO2 function is designed for ensuring the correct air quality or air temperature, by means of recirculating extract air and minimizing the outdoor air flow.

The function can be used in ventilation systems in which recirculated air intermixture is acceptable.

The function presupposes that the outdoor air damper and the damper in the recirculation section are equipped with modulating damper actuators.

Lower outdoor air and exhaust air flows as well as lower exhaust air fan speed enable the unit to consume less power. A separate air quality sensor continuously measures the air quality of the ventilation system.

The pressure drop across the rotor must then be calibrated to establish a reference pressure drop for the function. Calibration is put into effect by setting Calibration to the On position.

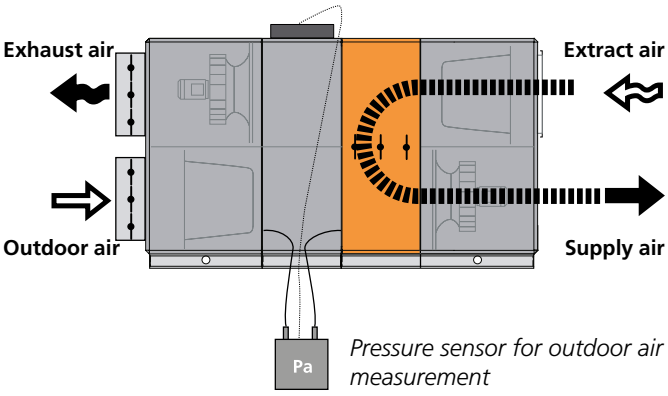
For more information, see the ReCO2 function guide.

Settings:

Value	Setting range	Factory settings
Regulation mode		
CO2/VOC, operating mode	Inactive / CO2/VOC / CO2/VOC /CO2/VOC and air flow boost	Inactive
CO2/VOC free cooling	On/Off	Off
Temperature mode	Inactive/Heat sequence/Cool sequence/Heat and cool sequence	Inactive
Temperature free cooling	On/Off	On
CO2/VOC		
Set point	0 – 100%	50%
CO2, set point	0 – 10000 ppm	1000 ppm
VOC, set point	0 – 10000 ppm	1500 ppm
Min. outdoor air	[1]	25% of max. airflow for air handling unit
Min. exhaust air	[1]	25% of max. airflow for air handling unit
Calibration	On/Off	Off
Temperature		
Min. outdoor air	[1]	25% of max. airflow for air handling unit
Min. exhaust air	[1]	25% of max. airflow for air handling unit
Calibration	On/Off	Off

[1] The setting range is the same as the AHU's min. - max. settings.





Pressure sensor for outdoor air measurement

Outdoor airflow kept constant by pressure sensor

When the recirculation damper opens the extract air fan speed decreases and vice versa.

8.3.4 All Year Comfort

The All Year Comfort function controls, via control valves, the supply flow temperature to comfort modules, cooling beams, facade appliances, etc. The water temperature is measured using two strap.on temperature sensors mounted on the water pipe to each circuit.

All Year Comfort has functions for outdoor compensation, room compensation, night compensation, dew point compensation as well as the monitoring and exercising of pumps and valves.

For more information, see the All Year Comfort Function Guide.

Possibility to set cooling/heating circuit A or B for SMART Link+. See also the SMART Link+ function guide for more detailed information.

Settings:

Value	Setting range	Factory settings
Function	Inactive/ Chilled water/ Heating water/ Cooling water and heating water	Inactive
SMART Link+ cooling	Disabled/Circuit A/ Circuit B	Disabled
SMART Link+ heating	Disabled/Circuit A/ Circuit B	Disabled
Chilled water		
Chilled water [1)]	5 - 30°C	14°C
Outdoor temp compensation	On/Off	Off
Outdoor temp X1	-40°C–+40°C	10°C
Outdoor temp X2	-40°C–+40°C	20°C
Outdoor temp X3	-40°C–+40°C	25°C
Outdoor temp X4	-40°C–+40°C	30°C
Chilled water temp Y1	5°C–30°C	22°C
Chilled water temp Y2	5°C–30°C	18°C
Chilled water temp Y3	5°C–30°C	14°C
Chilled water temp Y4	5°C–30°C	12°C
Outdoor temp for pump start	-40°C–+40°C	10°C
Outdoor temp for pump stop	-40°C–+40°C	7°C
Room temp compensation	On/Off	Off
Room temp. set point	0 – 40°C	21°C
Room temp. P-band	1 – 10 K	5 K
Room comp. night block	On/Off	Off
Night compensation	On/Off	Off
Night reduction	0 – 10 K	2 K
Time channel 1/2 start of night	00:00 – 23:59	00:00
Time channel 1/2, end of night	00:00 – 23:59	00:00
Time channel 1/2, period	Inactive/Monday/ Tuesday/Wednesday/ Thursday/Friday/ Saturday/Sunday/ Mon - Fri/Mon - Sun/ Sat - Sun	Inactive
Dew point compensation	On/Off	Off
Air flow compensation	On/Off	Off
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	Off
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Pump alarm	Inactive/Alarm on closed contact/Alarm on open contact/ Contactor function	Inactive
Valve alarm	On/Off	Off
Heated water		
Heated water[1)]	10 – 80°C	30°C
Outdoor temp compensation	On/Off	Off
Outdoor temp X1	-40°C–+40°C	-20°C
Outdoor temp X2	-40°C–+40°C	0°C
Outdoor temp X3	-40°C–+40°C	5°C
Outdoor temp X4	-40°C–+40°C	15°C
Heated water temp Y1	10 – 80°C	40°C
Heated water temp Y2	10 – 80°C	30°C
Heated water temperatue Y3	10 – 80°C	20°C
Heated water temp Y4	10 – 80°C	15°C
Outdoor temp for pump start	-40°C–+40°C	15°C
Outdoor temp for pump stop	-40°C–+40°C	18°C
Room temp compensation	On/Off	Off
Room temp. set point	0 – 40°C	21°C
Room temp. P-band	1 – 10 K	5 K
Room comp. night block	On/Off	Off
Night compensation	On/Off	Off
Night reduction	0 – -10 K	-2 K
Time channel 1/2 start of night	00:00 – 23:59	00:00
Time channel 1/2, end of night	00:00 – 23:59	00:00
Time channel 1/2, period	Inactive/Monday/ Tuesday/Wednesday/ Thursday/Friday/ Saturday/Sunday/ Mon - Fri/Mon - Sun/ Sat - Sun	Inactive
Air flow compensation	On/Off	Off
Periodic operation of pump	On/Off	On
Periodic operation of valve	On/Off	Off
Periodic operation interval	0-168 hrs.	24 hrs.
Periodic operation period	0-60 min.	3 min.
Pump alarm	Inactive/Alarm on closed contact/Alarm on open contact/ Contactor function	Inactive
Valve alarm	On/Off	Off



[1)] Omitted if the outdoor temperature compensation is selected.

Swegon reserves the right to alter specifications.

8.3.5 MIRU (Roof fan MIRUVENT)

8.3.5.1 Roof fan MIRUVENT, version MIRU-1 and -2



Up to ten power roof ventilators with MIRU Control equipment can be connected to one GOLD air handling unit by means of bus communication.

If the roof fan/roof fans are stopped via the control panel on the corresponding MIRU Control, the roof fan/roof fans cannot be started via the GOLD air handling unit hand-held terminal.

The settings in the hand-held terminal of the GOLD air handling unit override the settings in the control panel of the MIRU Control.

It is possible in the hand-held terminal to select whether the power roof ventilator should be controlled in parallel with the GOLD unit, and whether it should follow the low-speed/high-speed operating modes of the air handling unit.

The balanced ventilation function can be used if the power roof ventilators are used for variable flow. It is possible to select which power roof ventilator(s) is/are to be included in the function.

In the case of balanced extract air, all the airflows of the activated power roof ventilators are added together. The exhaust airflow in the GOLD unit is decreased by the corresponding volume. In this way the supply airflow will be the same as the total extract airflow and balanced ventilation will be achieved inside the building.

In the case of balanced supply air, all the airflows of the activated power roof ventilators are added together. The supply airflow in the GOLD unit is increased by the corresponding volume. In this way the supply air flow will be the same as the total extract air flow and balanced ventilation will be achieved inside the building.

The function presupposes that pressure sensors for flow measurement and possible pressure regulation are connected to MIRO Control.

All the time channels available in MIRU Control can be set separately for each connected power roof ventilator via the GOLD unit hand-held micro terminal. For a description of the function, see the separate Guide to the MIRU Control Functions.

Depending on the function selected in MIRU Control, it is possible to set the desired set point for pressure or flow, low speed and high speed, in the GOLD unit hand-held micro terminal. For a description of the function, see the separate Guide to the MIRU Control Functions.

Settings:

Value	Setting range	Factory settings
Quantity MIRUVENT-fans	0 -10 pcs.	0
Fan numbers 1-10, function	Inactive/Parallel start/ Parallel low speed/high speed/Parallel start and low speed/high speed	Inactive
Fan numbers 1-10, balance function	Inactive/Supply air/ Extract air	Inactive
Fans 1-10 low speed	0 – 750 Pa	100
Fans 1-10 low speed	[1] m3/s	0
Fans 1-10 high speed	0 – 750 Pa	200
Fans 1-10 high speed	[1] m3/s	0
Fans 1-10, channel 1 – 4 action	Inactive Low speed, Mon., Low speed Tue., Low speed Wed., etc. Low speed, Mon. – Fri. Low speed Sat-Sun Low speed Mon-Sun High speed Mon., High speed Tue., High speed Wed., etc. High speed, Mon. – Fri. High speed Sat-Sun High speed Mon-Sun	Inactive
Start time	00:00-00:00	00:00
Stop time	00:00-00:00	00:00

8.3.5.2 Roof fan MIRUVENT, version MIRU-3

The MIRU function can control up to three roof ventilators of the type MIRUVENT-3. All settings are made on the GOLD air handling unit's hand-held terminal.

MIRU has functions for operating levels, outdoor compensation, parallel function, balance function, control function and timer.

For further information, see the function guide MIRU.

Settings:



Value	Setting range	Factory settings
Function (number of roof fans)	0 -3 pcs.	0
Fans 1-3 operating mode		
Fans 1-3 low speed	0 – 750 Pa	100
Fans 1-3 low speed	[1] m3/s	30% of max. air flow
Fans 1-3 high speed	0 – 750 Pa	200
Fans 1-3 high speed	[1] m3/s	70% of max. air flow
Fan 1-3, percentage difference, slave	0.2 – 2	1
Fan 1-3, fixed difference, slave	0 – max. air flow (m3/s)	0
Fans 1-3 max. speed	10 – 100%	100%
Fans 1-3 outdoor compensation function	Inactive/Low speed/High speed/Low speed and High speed	Inactive
X1, outdoor temp.	-50°C–+50°C	-20°C
X2, outdoor temp.	-50°C–+50°C	-10°C
X3, outdoor temp.	-50°C–+50°C	+10°C
X4, outdoor temp.	-50°C–+50°C	+20°C
Flow		
Y1, air flow set point	[1]	25% of max. air flow
Y2, air flow set point	[1]	25% of max. air flow
Y3, air flow set point	[1]	25% of max. air flow
Y4, air flow set point	[1]	25% of max. air flow
Pressure		
Y1, pressure set point	20-750 Pa	100 Pa
Y2, pressure set point	20-750 Pa	100 Pa
Y3, pressure set point	20-750 Pa	100 Pa
Y4, pressure set point	20-750 Pa	100 Pa
Fans 1-3, function	Inactive/Parallel start/ Parallel low speed/high speed/Parallel start and low speed/high speed	Inactive
Fans 1-3, balance function	Inactive/Supply air/ Extract air	Inactive
Fans 1-3, control function	Air flow/Duct pressure/ duct pressure and air flow measurement / Slave	Air flow
Fans 1-3, size	[2]	MIRU-3-25-28-1-1
Fans 1-3, duct 1-4 action	Inactive	Inactive
	Low speed, Mon., Low speed Tue., low speed Wed., etc.	
	Low speed, Mon. – Fri.	
	Low speed Sat-Sun	
	Low speed Mon-Sun	
	High speed Mon., High speed Tue., High speed Wed., etc.	
	High speed, Mon. – Fri.	
	High speed Sat-Sun	
	High speed Mon-Sun	
Start time	00:00-00:00	00:00
Stop time	00:00-00:00	00:00

[1] *See function guide MIRU.*

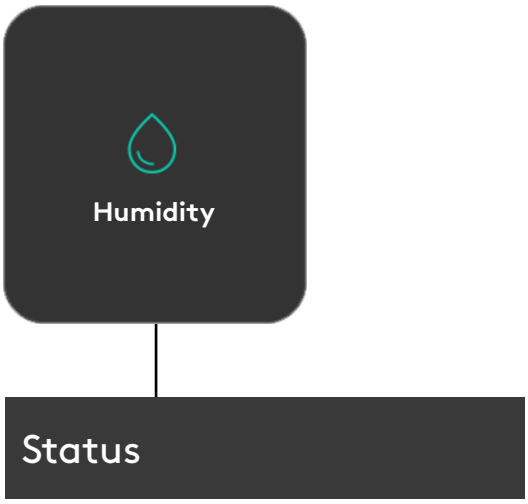
[2] *MIRU-3-25-28-1-1, MIRU-3-25-31-1-1, MIRU-3-35-35-1-1, MIRU-3-35-40-1-1, MIRU-3-35-45-1-1, MIRU-3-45-50-1-1, MIRU-3-45-56-1-1, MIRU-3-45-56-2-1, MIRU-3-56-63-1-1, MIRU-3-56-71-1-2, MIRU-3-71-80-1-2, MIRU-3-71-80-2-2, MIRU-3-71-90-1-2*

Swegon reserves the right to alter specifications.

8.3.6 Humidity

If the functions Dehumidifying regulation and Humidifying are activated at the same time, Dehumidifying regulation has priority and the possible settings for Humidifying are limited to being the same or lower than the setting for Dehumidifying regulation. There is a delay of 5 minutes between Dehumidifying regulation having stopped and Humidifying starting up (and vice versa).

Settings for any sorption rotor are activated and configured at service level.



8.3.6.1 Status

All the relevant values can be read here. Used for function checks.

8.3.6.2 Humidifying

Evaporative humidification (On/Off)

This function is suitable together with an evaporative humidifier (not Swegon).

Function requires accessories IQlogic+ module TBIQ-3-1/80493001 and 1 humidity sensor TBLZ-4-31-2 or TBLZ-4-31-6, see separate installation instructions. Install the humidity sensor in the extract air duct or in the premises, see the illustration.

The humidity in the extract air duct/premises is regulated between adjustable start and stop limits.

A weekly timer with four time channels makes it possible to switch between two configurable start and stop limits.

Steam humidification (0 – 10V)

The function is appropriate for operation together with a steam humidifier (not supplied by Swegon) and is a variable control system via 0-10 V control signal, as well as a contact function which interlocks the humidifier if the air handling unit stops, if Summer night cool is used or if the humidity in the supply air exceeds the set point by more than 10%.

The function requires accessories IQlogic Plus module TBIQ-3-1/80493001 and 1 humidity sensor TBLZ-4-31-1 (for supply air regulation) or 2 humidity sensors (for extract air regulation or room control) TBLZ-4-31-1 and TBLZ-4-31-2 or TBLZ-4-31-1 and TBLZ-4-31-6, see separate installation instructions. Install the humidity sensors in the extract air duct or in the premises as well as in the supply air duct, see the drawing.

The function keeps the humidity level constant in the extract air duct or premises by regulating the humidity in the supply air.

In order to prevent the humidity in the supply air from being too high, it is restricted to a maximum limit.

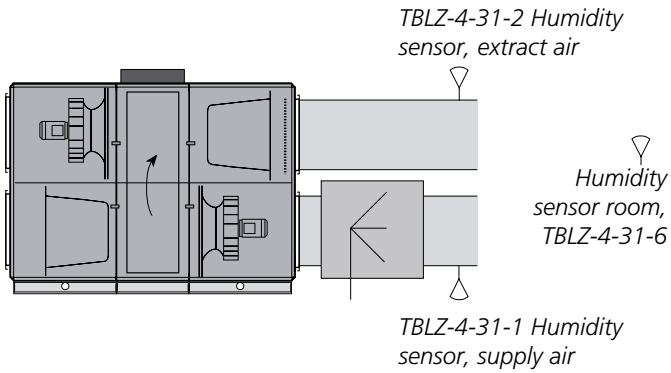
Alternatively the humidity in the supply air duct can be kept constant by selecting regulating humidity sensor in the supply air.

The set point cannot be set higher than the max limit. If the dehumidification function is activated, the max limit cannot be set higher than the set point for dehumidification.

A weekly timer with four time channels makes it possible to switch between two configurable start and stop limits.

Humidifying

Example: Steam humidification



Settings:

Value	Setting range	Factory settings
Humidification	Inactive/On/Off/ 0-10V	Inactive
Location, regulating humidity sensor	Supply air/Extract air/Room	Supply air
Evaporative		
Start limit	10 – 95% RH	40% RH
Stop limit	10 – 95% RH	45%RH
Time channel start limit	10 – 95% RH	50%RH
Time channel stop limit	10 – 95% RH	55% RH
Steam		
Set point	10 – 95% RH	30%RH
Time channel set point	10 – 95% RH	40% RH
Max. supply air	10 – 95% RH	80%RH
Week timer		
Time channel 1-4 period	Disabled/Monday/Tuesday/ Wednesday/Thursday/Friday/ Saturday/Sunday/Mon-Fri/ Mon-Sun/Sat-Sun	Inactive
Time channel 1-4 start time	00:00 – 00.00	00:00
Time channel 1-4 stop time	00:00 – 00.00	00:00

Swegon reserves the right to alter specifications.

8.3.6.3 Dehumidifying

Dehumidifying

The function is intended for dehumidifying the supply air in order to prevent condensation in the supply air duct or in connected air conditioning products.

The dehumidification regulation function controls the humidity in the supply air duct or the extract air duct by means of an air cooler and an air heater for reheating.

The function requires that an air cooler be mounted upstream of the air heater in the supply air duct. See the example to the right.

If control of the humidity in the supply air duct is required, install a TBLZ-4-31-1 humidity sensor in the supply air duct. If control of the humidity in the extract air duct is required, install a TBLZ-4-31-2 humidity sensor in the extract air duct and a TBLZ-4-31-1 humidity sensor in the supply air duct. Connect the sensor to the AHU. See separate installation instructions.

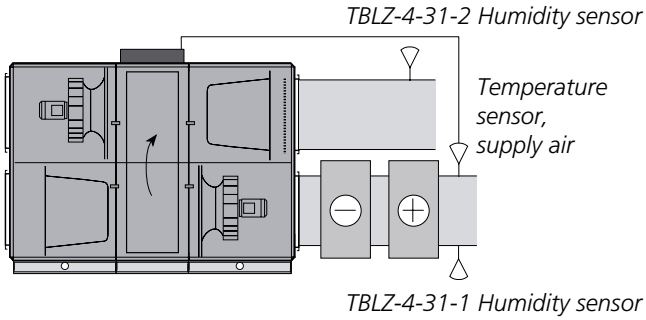
Cooling energy is emitted to condense the moisture in the supply airflow, which then is heated to the desired supply air temperature. This causes a reduction in the moisture content of the supply air.

The cooling unit used must be sized so that the temperature of the supply air will be below the dew point, otherwise no condensation will arise and no dehumidification will occur.

Settings:

Value	Setting range	Factory settings
Dehumidification	Inactive/Supply air/Extract air	Inactive
Supply air - relative humidity	10-90%RH	50%RH
Extract air - relative humidity	10-90%RH	50%RH

Example: Dehumidification control



8.3.6.4 Humidifying, alarm

Humidifying alarm

The alarm input can be selected to closed circuit, open circuit or contactor function.

Settings:

Value	Setting range	Factory settings
Alarm input	Inactive/Closed circuit/Open circuit/Contactor function [1)]	Inactive

[1)] Closed circuit involves closing the circuit in order to initiate an alarm. Open circuit involves opening the circuit in order to initiate an alarm. Contactor function involves the use of an auxiliary contact from a contactor, which controls the humidifier. The aux. contact is connected to the alarm input.

8.3.7 Manual test

NOTE! Manual test running can cause indoor comfort problems. There is also risk of overloading the system. The responsibility for discomfort and overload rests totally on the person who activates the function. Can only be used on a hand-held terminal.



When you enter manual test, select safe mode or operating mode. Safe mode means that the air handling unit stops and each installed function can be run separately or together. Operating mode means that the air handling unit continues to operate in the normal operating mode and installed functions can be influenced manually.

Manual test operation can take place for testing the inputs and outputs, fans and heat exchanger, etc.

The desired time before returning to normal operation can be set between 1 - 72 hours.

Used for installation or troubleshooting to test that connections and functions operate correctly.

Certain alarms, functions and normal control modes will be blocked while manual testing is in progress.

Each view indicates which functions can be test run.

Swegon reserves the right to alter specifications.