Operation and Maintenance Instructions for the GOLD Air Handling Unit, Sizes 04-80

Applicable to program version 5.08 and newer versions

GOLD CX

GOLD PX

GOLD RX

GOLD SD

Contents

1 GENERAL

1.1 Field of Application

The GOLD units are designed for use in comfort ventilation applications. Depending on the variant selected, GOLD units can be utilised in buildings such as office buildings, schools, day nurseries, public buildings, shops, residential buildings, etc.

GOLD units equipped with plate/coil heat exchanger (PX/CX) and separate GOLD supply air and extract air handling units (SD) can also be used for the ventilation of moderately humid buildings; however not where the humidity is continuously high, such as in indoor swimming baths.

The separate GOLD supply air and extract air handling units (SD) are designed for applications in which the supply air and extract air flows need to be completely separated from one another or where, due to limited available space, separate units for supply air and extract air are needed. They can also be used individually if only one of the variants is needed.

In order to fully obtain all the benefits the GOLD system has to offer, it is important to take the special characteristics of the air handling units into account when planning them into the project, installing, adjusting and operating them.

The unit in its basic version should be installed indoors.

If the air handling units are installed outdoors, they shall be fitted with the TBTA accessory.

Important!

Always read the safety precautions in Section 2 about what generally applies concerning risks involved and who is qualified to carry out the work, and carefully follow the installation instructions that are given in each section.

The product identification plates are located on the end panels of the air handling unit (one on each end panel). Refer to the particulars on the product identification plate when you contact Swegon.

1.2 Mechanical Design

The GOLD is available in 7 physical sizes and for 13 airflow ranges.

Its sheet steel exterior is painted in a beige colour. NCS-2005Y30R. Its door handles and the upper part of the junction hood are painted light grey. NCS 53502-B. Its interior material is mainly galvanized sheet steel with 50 mm thick intervening insulation.

The size 14-30 GOLD units with plate heat exchanger (PX) or rotary heat exchanger (RX) with air intake from above and the separate size 04-08 supply air and extract air units (SD) are equipped with pleated, Class F7 filters. The other variants/sizes have supply air and extract air filters made of glass fibre that conform to filter class F7.

The type RECOnomic rotary heat exchanger is variable speed controlled and has a temperature efficiency of up to 85%.

The plate heat exchangers are as standard equipped with by-pass and shut-off damper for variable and automatic control of the heat exchanger's efficiency on heat recovery.

The coil heat exchangers in the one-piece units (CX) are supplied complete from the factory; including mounted the pipework package with all the necessary components. The system is normally filled with liquid, vented, adjusted and performance-tested prior to delivery, but can be ordered in unfilled condition e.g. for housing improvement projects or if a liquid mixture other than 30 % ethylene glycol is required. The pipework package is available loose as an accessory for separate, size 14-80 supply air and extract air handling units (SD)

The supply air and extract air fans are of GOLD Wing type, an axi-centrifugal fan with backward-curved blades. The fans are direct-driven and each has its own frequency inverter for continuous variable control.

1.3 Control System

The control system is microprocessor-based and is integrated into the unit. It controls and regulates the fans, heat exchanger, temperatures, airflows, operating times and a large number of internal and external functions as well as alarms.

1.4 Environmental Documentation

Environmental documentation with the Dismantling instructions for recycling and the Environmental Declaration are included as appendices in these instructions.

The air handling unit is designed for simple to dismantling into its natural parts. When the unit has reached the end of its useful product life, engage an approved recycling company for scrapping.

Approximately 94% of the total weight of the GOLD is can be recycled.

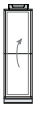
Swegon AB is associated with the REPA Register, no. 5560778465.

Get in touch with Swegon AB, phone: +46 (0)512-322 00, if you have any questions regarding the dismantling instructions or the air handling unit's impact on the environment.

1.5 Type of heat exchanger

The GOLD one-piece air handling units are supplied with either rotary heat exchanger (RX), plate heat exchanger (PX) or coil heat exchanger (CX). Coil heat exchangers are optional for the separate supply air and extract air handling units (SD).

Sections, functions, etc. that deal with one specific type of heat exchanger are preceded by an appropriate symbol. The three symbols used are as follows:



Rotary heat exchanger (RX)

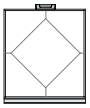


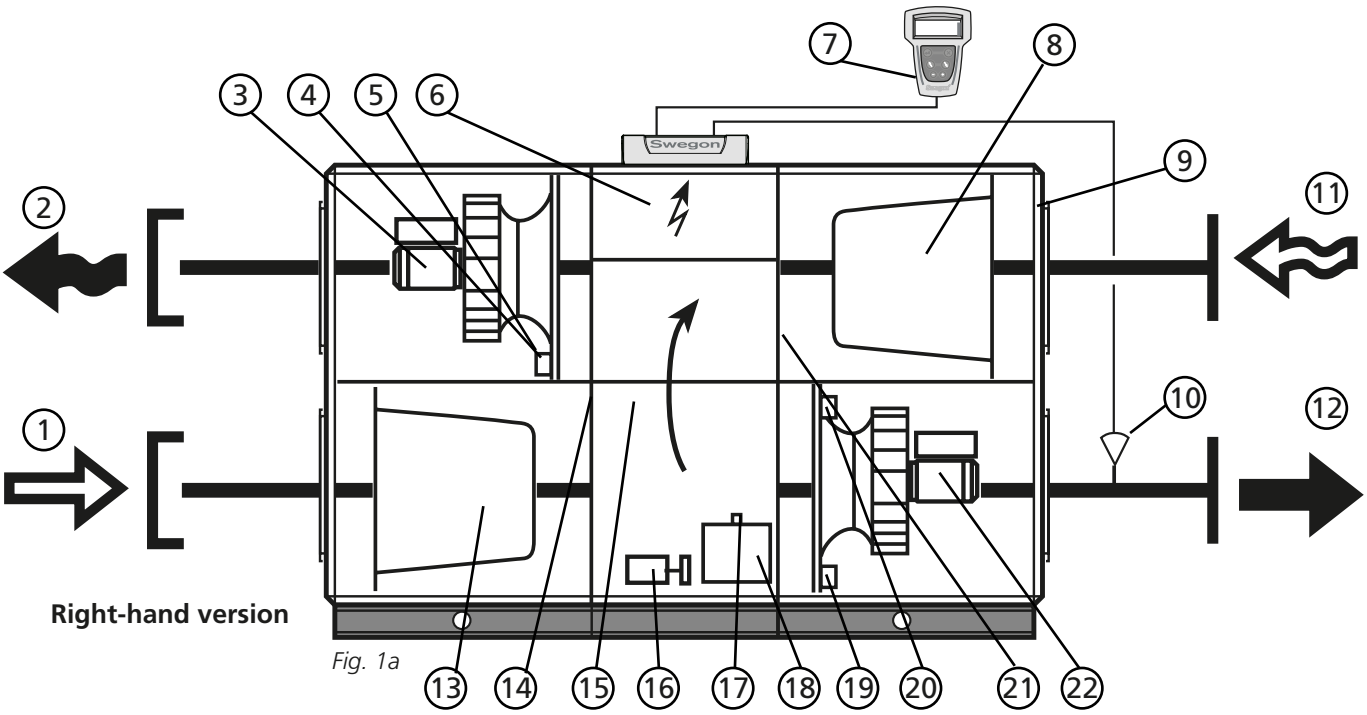
Plate heat exchanger (PX)

Coil heat exchanger (CX)

1.6 The Components of the Air Handling Units

1.6.1 GOLD RX One-piece air handling unit with rotary heat exchanger

The specific components are outlined below each individually in a simplified and schematic specification.



Right-hand version

Fig. 1a

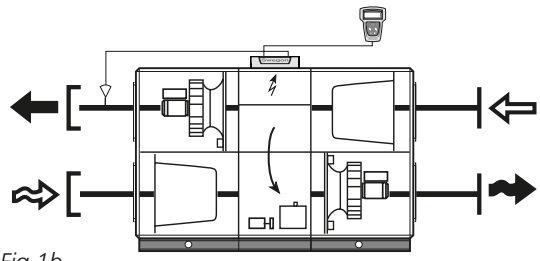


Fig 1b

Left-hand version

Outdoor air Supply air Extract air Exhaust air

GOLD 04-40: The air handling units are supplied in the right-hand version as shown in Fig. 1a.

GOLD 50-80: The air handling units can be ordered in the right-hand version as shown in Fig. 1a or in the left-hand version as shown in Fig. 1b.

GOLD 14-80: The air handling unit in Fig 1a shows Fan Arrangement 1. The units can also be ordered with Fan Arrangement 2; the fans and filters are then vertically mirror-inverted.

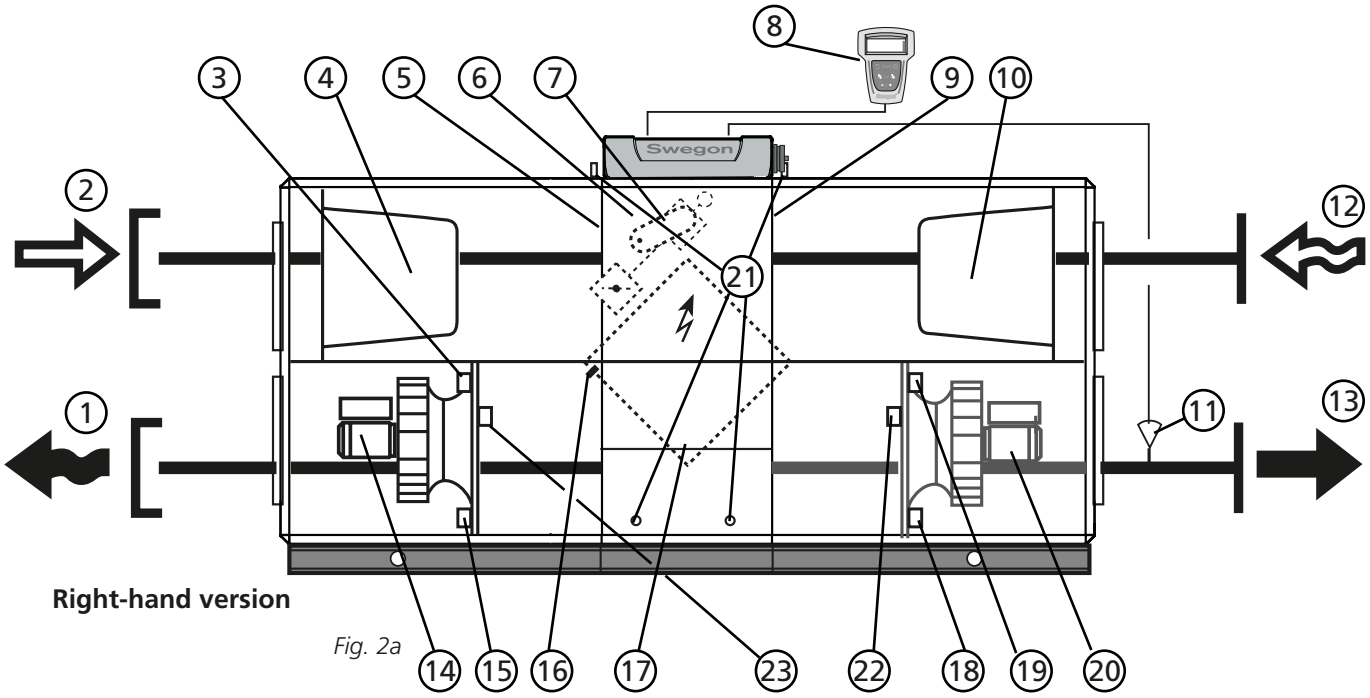
In the left-hand version (Fig. 1b), the components marked with an asterisk change function and designation (the components are named according to whether they are for supply air or extract air).

The location of the components and their designation

1 OUTDOOR AIR* (Left-hand version: Extract air)
2 EXHAUST AIR* (Left-hand version: Supply air)
3 Extract air fan* with motor and frequency inverter
4 Pressure transducer by extract air fan*
(Position on function selector switch = 1)
5 Pressure transducer by supply air filter*
(Position on function selector switch = 3)
6 Electrical equipm. cubicle with control unit
7 Hand-held micro terminal
8 Extract air filter*
9 Adjustment plates (For left-hand version: by left-hand filter section)
10 Supply air temp. sensor (to be mounted in supply air duct)
11 EXTRACT AIR* (Left-hand version: Outdoor air)
12 SUPPLY AIR* (Left-hand version: Exhaust air)
13 Supply air filter*
14 Outdoor temperature sensor*
15 Heat exchanger
16 Heat exchanger drive motor
17 Sensor for rotation monitor
18 Control unit for the heat exchanger
19 Pressure transducer by supply air fan*
(Position on function selector switch = 2)
20 Pressure transducer by extract air filter*
(Position on function selector switch = 4)
21 Extract air temperature sensor*
22 Supply air fan* with motor and frequency inverter

1.6.2 GOLD PX One-piece air handling unit with plate heat exchanger

The specific components are outlined below each individually in a simplified and schematic specification.



Right-hand version

Fig. 2a

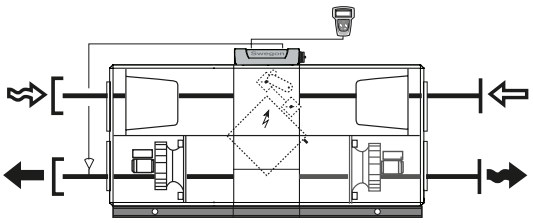


Fig 2b

Left-hand version

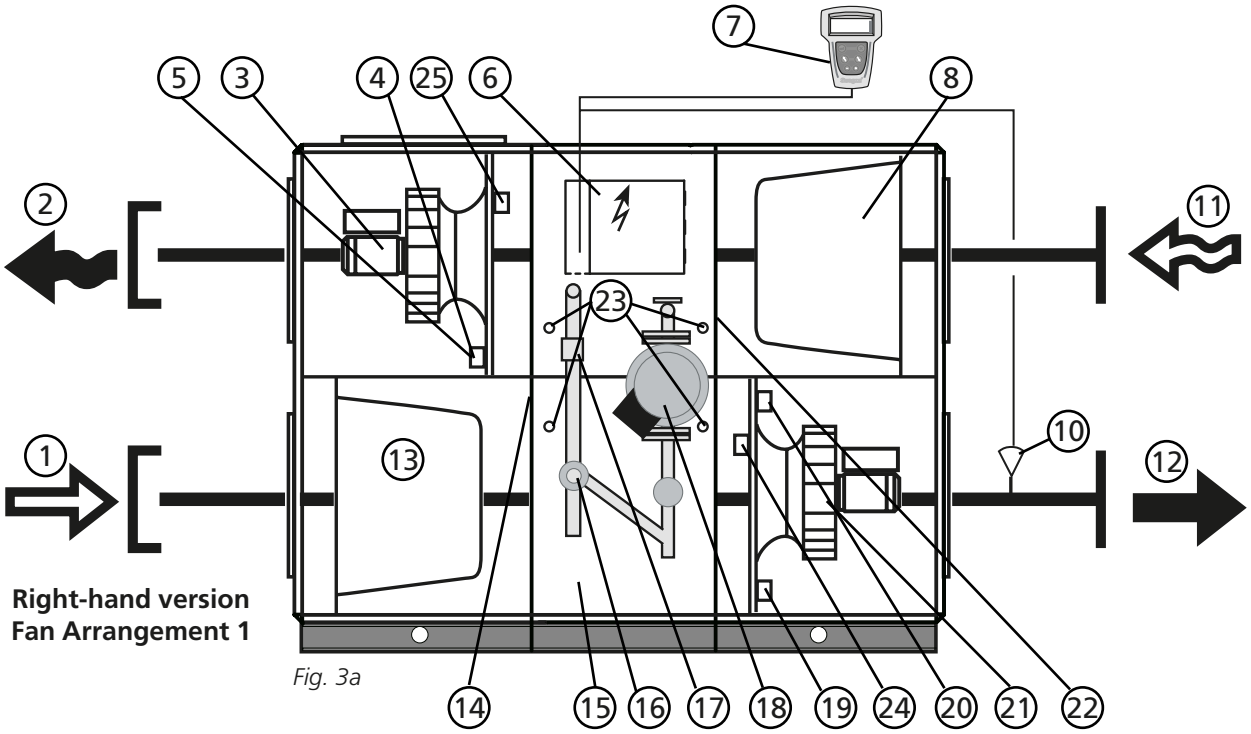
The air handling units are supplied in the right-hand or left-hand version as shown in Fig. 2a and 2b. In the left-hand version, the components marked with an asterisk change function and designation (the components are named according to whether they are for supply air or extract air.).

The location of the components and their designation

1 EXHAUST AIR* (Left-hand version: Supply air)
2 OUTDOOR AIR* (Left-hand version: Extract air)
3 Pressure transducer by supply air filter*
(Position on function selector switch = 3)
4 Supply air filter*
5 Outdoor temperature sensor*
6 Electrical equipm. cubicle with control unit
7 Shut-off and by-pass valve actuator
8 Hand-held micro terminal
9 Temperature/relative humidity sensor in extract air*
10 Extract air filter*
11 Supply air temp. sensor (to be mounted in supply air duct)
12 EXTRACT AIR* (Left-hand version: Outdoor air)
13 SUPPLY AIR* (Left-hand version: Exhaust air)
14 Extract air fan* with motor and frequency inverter
15 Pressure transducer by extract air fan*
(Position on function selector switch = 1)
16 Sensor for anti-frosting protection
17 Plate heat exchanger with by-pass and shut-off damper
18 Pressure transducer by supply air fan*
(Position on function selector switch = 2)
19 Pressure transducer by extract air filter*
(Position on function selector switch = 4)
20 Supply air fan* with motor and frequency inverter
21. Measurement tappings for measuring the pressure drop across the heat exchanger.
22. Temperature/density sensor, supply air.
23. Temperature/density sensor, extract air.

1.6.3 GOLD CX One-piece air handling unit with coil heat exchangers

The specific components are outlined below each individually in a simplified and schematic specification.



Right-hand version
Fan Arrangement 1

Fig. 3a

The air handling units can be ordered in the right-hand version as shown in Fig. 3a or in the left-hand version as shown in Fig. 3b.

The air handling unit in Fig. 3a shows Fan Arrangement 1. The units can also be ordered with Fan Arrangement 2; the fans and filters are then vertically mirror-inverted.

In the left-hand version (Fig. 3b), the components marked with an asterisk change function and designation (the components are named according to whether they are for supply air or extract air).

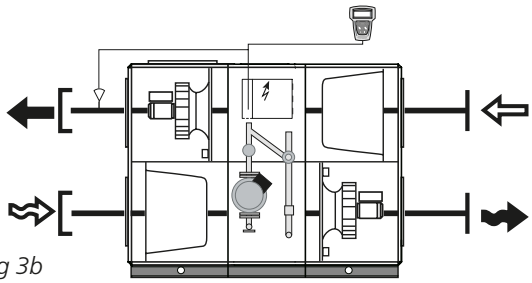


Fig 3b

Left-hand version
Fan Arrangement 1

The location of the components and their designation

1 OUTDOOR AIR* (Left-hand version: Extract air)
2 EXHAUST AIR* (Left-hand version: Supply air)
3 Extract air fan* with motor and frequency inverter
4 Pressure transducer by extract air fan*
(Position on function selector switch = 1)
5 Pressure transducer by supply air filter*
(Position on function selector switch = 3)
6 Electrical equipm. cubicle with control unit
7 Hand-held micro terminal
8 Extract air filter*
10 Supply air temp. sensor (to be mounted in supply air duct)
11 EXTRACT AIR* (Left-hand version: Outdoor air)
12 SUPPLY AIR* (Left-hand version: Exhaust air)
13 Supply air filter*
14 Outdoor temperature sensor*
15 Coil heat exchanger with pipework package
16 Valve actuator
17 Temperature sensor for anti-frosting protection
18 Circulation pump
19 Pressure transducer by supply air fan*
(Position on function selector switch = 2)
20 Pressure transducer by extract air filter*
(Position on function selector switch = 4)
21 Supply air fan* with motor and frequency inverter
22 Temperature/relative humidity sensor in extract air*
23. Measurement tappings for measuring the pressure drop across the heat exchanger.
24. Temperature/density sensor, supply air.
25. Temperature/density sensor, extract air.

1.6.4 Separate GOLD SD supply air and extract air handling units, sizes 04-08

The individual components are specified below in a simplified and diagrammatical description.

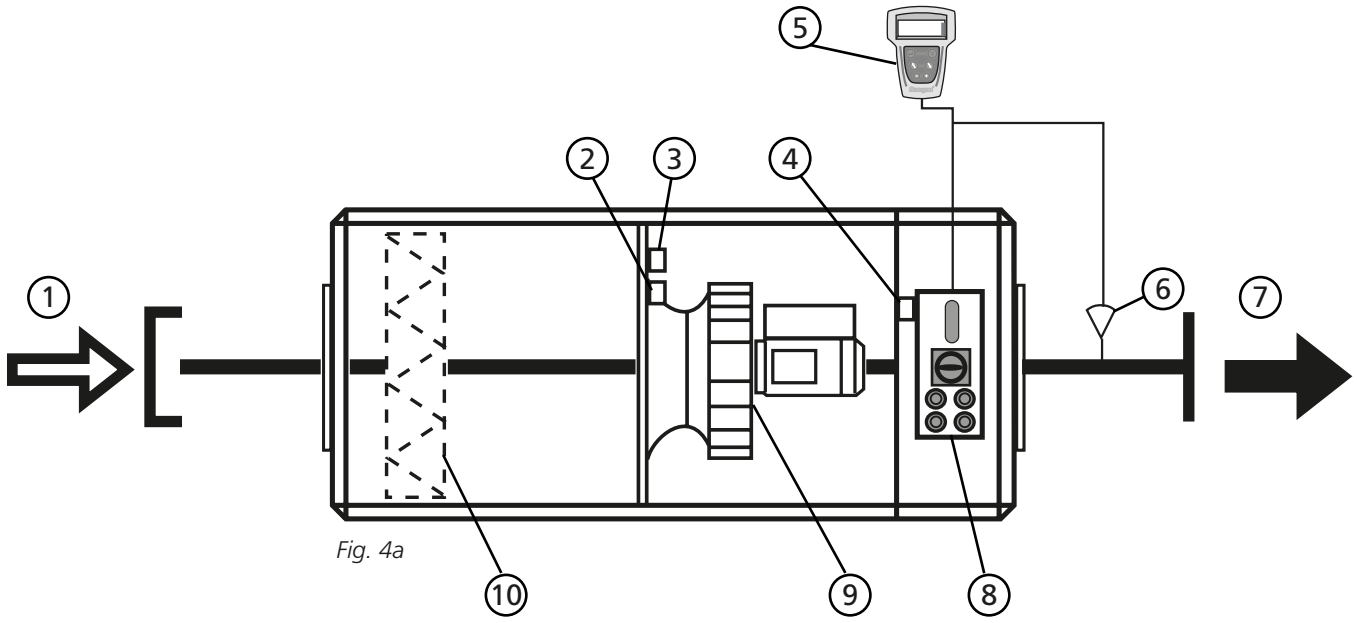


Fig. 4a

Outdoor air Supply air

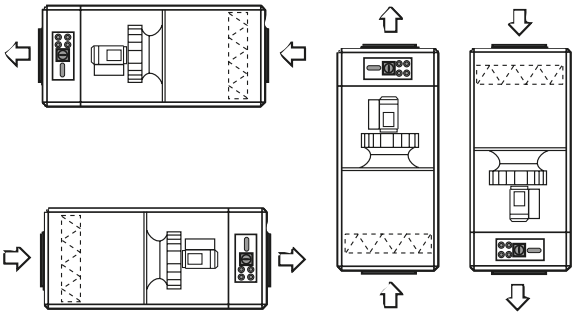


Fig. 4b

The air handling unit is supplied in the version shown in Fig. 4a. This variant can be positioned in several different ways as shown in the figure. 4b.

The unit shown here is a supply air handling unit. If the unit used as an extract air handling unit, the components marked with an asterisk change function and designation (the components are named according to whether their function is for supply air or extract air).

The arrangement of the components and their designation

1 OUTDOOR AIR*
(In extract air handling units: Extract air)

2 Pressure sensor - supply air filter*
(Position on function selector switch = 3)
(In extract air handling units: Pressure sensor - extract air filter)

3 Pressure sensor - supply air fan*
(Position on function selector switch = 2)
(In extract air handling units: Pressure sensor - extract air fan)

4 Temperature sensor, outdoor air/air density sensor, supply air*
(In extract air handling units: Temperature sensor, extract air/air density sensor, exhaust air)

5 Hand-held micro terminal

6 Supply air temp. sensor (to be mounted in supply air duct)
(Not used in extract air units)

7 SUPPLY AIR*
(In extract air handling units: Exhaust air)

8 Electrical equipm. cubicle with control unit

9 Supply air fan* with motor and frequency inverter
(In extract air handling units: Extract air fan* with motor and frequency inverter)

10 Supply air filter* if fitted
(In extract air handling units: Extract air filter)

1.6.5 Separate GOLD SD supply air and extract air handling units with coil heat exchangers, sizes 14-80

The individual components are specified below in a simplified and diagrammatical description.

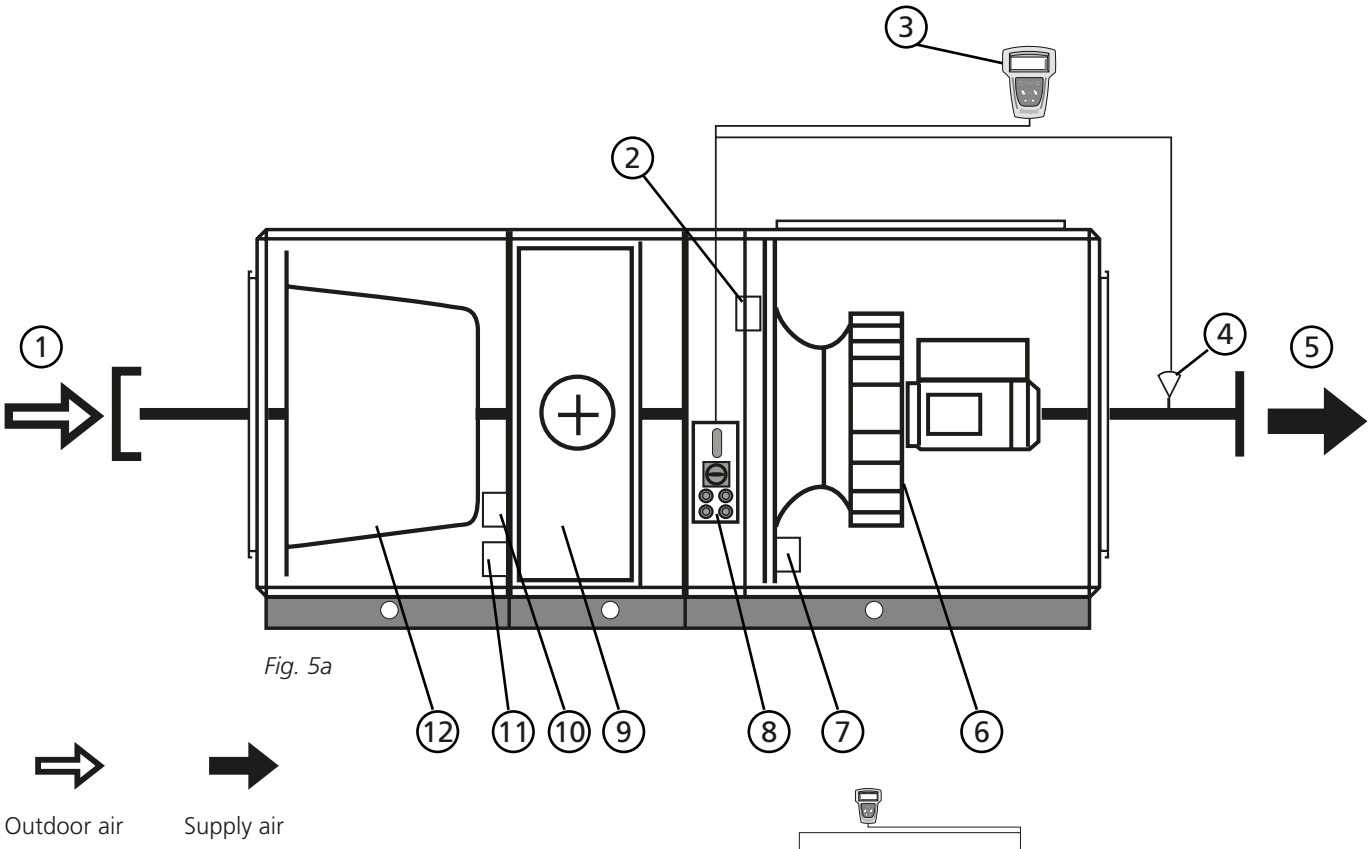


Fig. 5a

The air handling unit can be ordered in the right-hand version as shown in Fig. 5a or in the left-hand version as shown in Fig. 5b. The unit can also consist of filter and fan only or fan only.

The unit shown here is a supply air handling unit. If the unit used as an extract air handling unit, the components marked with an asterisk change function and designation (the components are named according to whether their function is supply air or extract air).

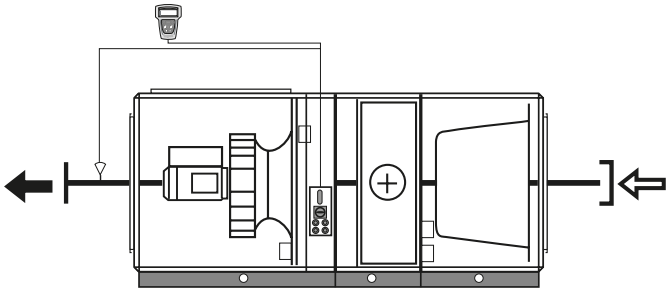


Fig. 5b

The arrangement of the components and their designation

1 OUTDOOR AIR*
(In extract air handling units: Extract air)

2 Temperature sensor, outdoor air/air density sensor, supply air*
(In extract air handling units: Temperature sensor, extract air/air density sensor, exhaust air)

3 Hand-held micro terminal

4 Supply air temp. sensor (to be mounted in supply air duct)
(Not used in extract air units)

5 SUPPLY AIR*
(In extract air handling units: Exhaust air)

6 Supply air fan* with motor and frequency inverter
(In extract air handling units: Extract air fan* with motor and frequency inverter)

7 Pressure sensor - supply air fan*
(Position on function selector switch = 2)
(In extract air handling units: Pressure sensor - extract air fan)

8 Electrical equipm. cubicle with control unit

9 Coil heat exchanger – supply air* if fitted
(In extract air handling units: Coil heat exchanger - extract air)

10 Outdoor temperature sensor*
(Applicable to air handling units with coil heat exchanger)
(For extract air handling units: Temperature/relative humidity sensor in extract air)

11 Pressure sensor - supply air filter*
(Position on function selector switch = 3)
(In extract air handling units: Pressure sensor - extract air filter)

12 Supply air filter* if fitted
(In extract air handling units: Extract air filter)

2 SAFETY PRECAUTIONS

All staff concerned shall acquaint themselves with these instructions before beginning any work on the unit. Any damages to the unit or its components caused by improper handling or misuse by the purchaser or the fitter cannot be considered subject to guarantee if these instructions have not been followed correctly.

Warning

Only an authorised electrician or qualified service personnel trained by Swegon shall be permitted to modify the air handling unit in conjunction with electrical installations or the wiring of external functions.

2.1 Safety Isolating Switch/Main Switch

Size 04/05, 08, 14/20 and 25/30 one-piece GOLD units with rotary (RX), plate (PX) or coil (CX) heat exchanger: The safety isolating switch is located externally on the junction hood.

Size 35/40, 50/60 and 70/80 one-piece GOLD units with rotary heat exchanger (RX): The safety isolating switch is externally located on the door of the centre section of the unit.

Size 35/40 one-piece GOLD units with coil heat exchanger (CX): The safety isolating switch is located on the left side of the electric equipment cubicle in the centre section of the unit. Size 50/60 and 70/80 air handling units: The safety isolating switch is located in a plastic enclosure below the electrical equipment cubicle in the centre section of the unit.

Separate supply air and extract air handling units (SD): The safety isolating switch is located on the inspection side by the inspection door of the fan section.

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

Always switch off the safety isolating switch before servicing the unit if not otherwise specified in the pertinent instructions.

2.2 Risks

Warning

Before carrying out any work, make sure that the power supply to the unit has been isolated.

Risk areas with rotating parts

Moving parts are the fan impeller, drive pulleys of the rotary heat exchanger, if fitted, and by-pass/shut-off damper of the plate heat exchanger, if fitted.

The lockable inspection doors serve as protection from contact with the fans and the heat exchanger. If the fan outlets aren't connected to any duct, they must be fitted with a protective screen (wire mesh).

Warning

The inspection doors on the filter/fan sections must not be opened while the unit is in operation.

Under normal operating conditions, use the stop button on the hand-held terminal to stop the air handling unit.

Wait until the fans have stopped rotating before opening the inspection door.

The air pressure inside the filter/fan section is positive, which means that the door can fly open.

2.3 Safety Guards

The cover of the electric equipment cubicle serves as a safety guard in the size 04/05 and 08 one-piece air handling units with rotary heat exchanger (RX), as well as on all the other variants (PX/CX/SD). On size 14/20, 25/30, 35/40, 50/60 and 70/80 one-piece air handling units with rotary heat exchanger (RX), the lockable door over the electrical equipment cubicle serves as a safety guard.

Only a qualified electrician or trained service technicians shall be allowed to remove the safety guards.

Warning

The power supply to the unit shall be isolated by switching off the safety isolating switch before removing the safety guard.

As long as the air handling unit is operating, the safety guards must always be mounted, all inspection doors must be closed, and the junction hood on the top of the unit must be mounted.

2.4 Glycol

Glycol is used in the GOLD air handling units with coil heat exchanger. Never pour glycol down a drain; collect it in a receptacle and leave it at a recycling centre, petrol station, or the like. Glycol is highly dangerous to consume and can cause fatal poisoning or damage the kidneys. Contact a doctor! Avoid breathing glycol vapour in confined spaces. If you get glycol in your eyes, flush them thoroughly with water (for about 5 minutes). If glycol splashes on your skin, wash with soap and water.

3 COMMISSIONING

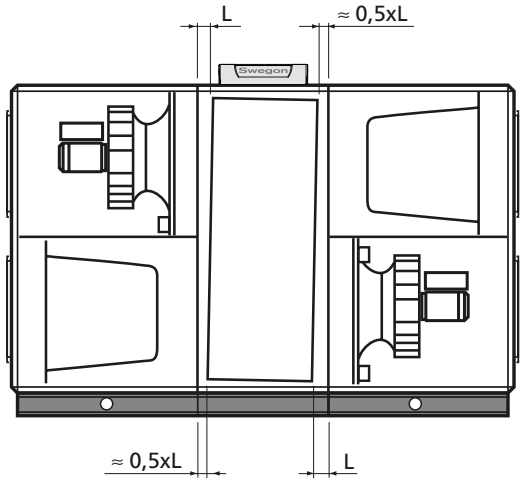
3.1 General

Sequence for commissioning:

1. Check that there are no foreign objects in unit, ducting system or functional sections.

2. Check that rotating heat exchangers (only GOLD RX) rotate easily. On sizes 50-80, the rotating heat exchanger must be angled slightly towards the filter, see diagram below.

If the angle needs adjusting, see special instructions for angle adjustment, rotating heat exchangers.



GOLD RX,, sizes 50-80: The illustration shows the factory-preset rotor inclination in a unit with Fan Arrangement 1. The inclination must always be towards the filter, which means that the inclination for Fan Arrangement 2 is in the other direction.

3. Turn the safety isolating switch to the ON position (I).

4. Select the language desired, if you have not already done so. See Section 5.2 or 13.1.

5. The unit has factory settings which make it ready to use. See Section 19.2 Commissioning record.

However, in many cases, these settings need to be adjusted to suit the current installation.

Program the switch clock, operating conditions, temperatures, airflows and functions according to the procedures in Sections 4-15.

Select whether l/s, m3/s or m3/h shall be used as the flow unit.

(INSTALLATION LEVEL in the HAND-HELD MICRO TERMINAL menu).

Fill out the Commissioning Record and save it in the document pocket of the unit.

6. Activate, if needed, manual or auto operation (MAIN MENU) or lock the speed of the fans (AIR ADJUSTMENT menu).

Adjust the ducting system and air devices as described in Section 3.2.

7. Check and adjust, if required, the pressure balance in the unit as described in Section 3.3.

8. Finish off with a filter calibration as described in Section 6.4.2.

3.2 Adjusting the Duct System and Air Devices

In order to prevent the fans from consuming more power than necessary, it is important to keep the pressure drop in the system as low as possible.

It is also important that ducting systems and air devices are correctly adjusted to provide the comfort expected.

When adjusting air devices and the duct system installed in combination with the GOLD, it is appropriate to follow the proportionality method.

This means that the proportion between the airflows in branch ducts stays constant even if the airflow in the main ducts is changed. The same proportion applies to the air devices in the installation.

When adjusting the ducting system there is provision for locking the speed of the fans in the unit to a specific preset flow rate, see Section 6.5.

3.2.1 Adjustment Sequence

The system should be adjusted in the following order:

1. Adjust of the air devices in each branch duct.
2. Adjust the branch ducts.
3. Adjust the main ducts.

3.2.2 Adjustment Procedure

1. Set all the air devices and dampers to the fully open position.

2. Calculate the ratio of the airflow reading to the design airflow of all the air devices, branch ducts and main ducts.

The air device in every branch that has the lowest ratio should be fully open. Use this air device as an INDEX AIR DEVICE. The same applies to branch dampers and main dampers.

When you've completed the adjustments, one air device in every branch, one branch damper and one main damper should consequently be fully open.

3. Start adjusting the main duct that has the highest ratio and the branch duct in the main duct that has the highest ratio. Starting from this point enables you to "press" the air in front of you toward the sections of the system that have the least air.

4. Adjust the last air device on the duct branch so that it will have the same ratio as the index device. This air device will serve as the REFERENCE AIR DEVICE. Often it is the last air device on the branch that has the lowest ratio and should be open. In this case, the same air device serves as the index device and reference device.

5. Throttle the other air devices in the branch to the same ratio as the reference device.

Note! The ratio in the reference device will change every time another air device is throttled, so in practice the ratio for the reference device can be set slightly higher. The reference device must be measured in between each air device throttled.

6. Go to the branch that had the next highest ratio and adjust the air devices there, etc.

Note! All branch dampers should be fully open until all air devices have been adjusted.

7. Throttle the branch damper that had the highest ratio to the same ratio that the branch of the lowest ratio had.

Note! Keep in mind that the index damper changes ratio; proceed as described in item 5.

8. When all branches have been adjusted, throttle the main dampers in the same manner.

Also see the example below on how to carry out adjustments.

Example on how to carry out adjustments

– Start adjusting duct branch B, since this one has the highest ratio.

– The last air device, B3, has the lowest ratio and should be fully open.

Adjust the other air devices, B1 and B2, so that these will have the same ratio as air device B3 (see item 5 above).

– Now adjust the air devices in branch duct C. Air device C4 should be fully open; throttle the others to the same ratio.

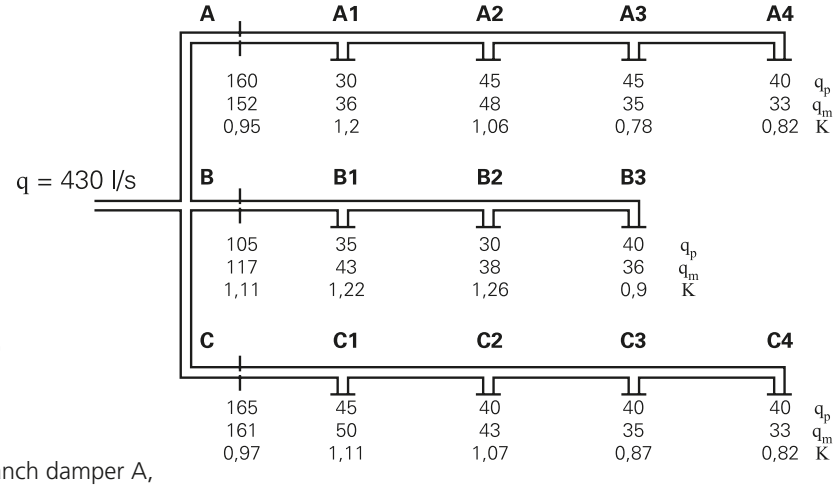
– Adjust the air devices in branch duct A. The index air device here is air device A3, which means that you first throttle air device A4 (the reference device) to device A3:s ratio.

Thereafter the others are adjusted to the same ratio as air device A4.

– Throttle branch damper B to the same ratio as branch damper A, throttle branch damper C to the same ratio as branch damper A.

Check that all dampers have the same ratio.

When the adjustment has been completed, 3 air devices and one branch damper should stand fully open to obtain the lowest possible pressure in the system.



q_p = design airflow (l/s)
q_m = airflow reading (l/s)

$$K\ (\text{Ratio}) = \frac{q_m}{q_p}$$

3.3 To Adjust the Pressure Balance
(applicable to air handling units with rotary heat exchanger)

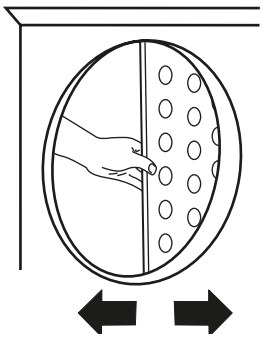
3.3.1 General

The pressure in the extract airflow path should be slightly lower than that in the supply airflow path to ensure correct air leakage direction and that the purging sector in the heat exchanger will work correctly. This ensures that extract air will not be carried over to the supply air.

The pressure balance in the unit should be adjusted when the ventilation system has been fully installed, all the air devices have been adjusted and the supply air and extract air flows are as they should be while the air handling unit is operating normally.

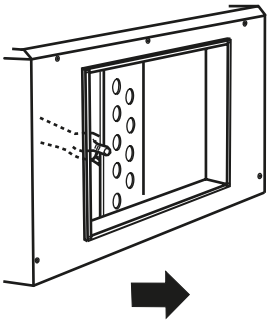
Adjustment plates

GOLD 04-08
1 plate



CLOSE OPEN

GOLD 14-80
1-3 plates



CLOSE
(Push in one or
several adjustment plates)

OPEN (Take out adjustment plates)

3.3.2 To Ensure the Correct Leakage Direction

The adjustment plates fitted in the extract air inlet are used for adjusting the pressure balance in the unit. The adjustment plates are supplied separately and should be fitted in the unit by the fitter when he connects the extract air ducting to the air handling unit.

Connect a pressure gauge to the pressure measurement tappings of the unit.

The unit has four pressure measurement tappings; the two closest to the extract air duct should be used. The blue pressure measurement tapping measures the negative pressure in the extract air section and the white pressure measurement tapping measures the negative pressure in the supply air section.

On the size 04-08 units, the pressure measurement tappings are by the junction hood and on the size 14-80 units they are inside in the centre section of the unit.

See illustration to the right.

Note that both pressure measurement tappings measure negative pressure.

MEASURED VALUES

The negative pressure in the extract air section should be greater or the same as the one in the supply air section.

If the negative pressure in the extract air section is the same or up to 20 Pa more than the negative pressure in the supply air section, then you've finished this adjustment.

DEVIATIONS

If the negative pressure in the extract air section is less than that in the supply air section, the adjustment plates must be readjusted as follows:

1. Stop the unit, open the inspection door to the extract air filter and push forward (close) the adjustment plates slightly in the extract air intake.

3. Close the inspection door and restart the unit.

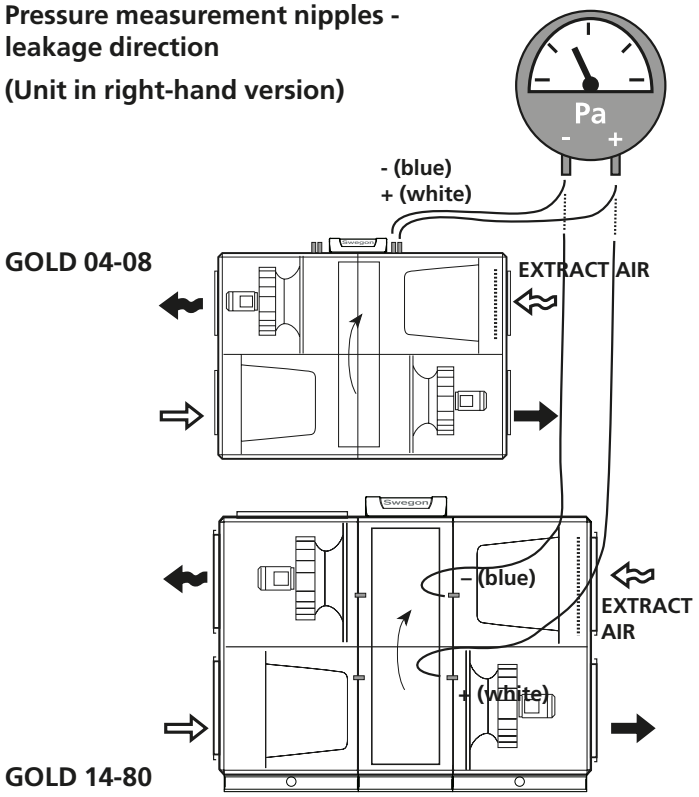
4. Measure the pressures.

Repeat until the negative pressure in the extract air section is the same or up to 20 Pa higher than the negative pressure in the supply air section (0–20 Pa).

5. If the negative pressure in the extract air section is higher than 20 Pa compared to the supply air section, although the adjustment plates are completely open, the leakage and purging air flow will be more than anticipated. This means that the actual extract air flow will deviate from the preset extract airflow. The deviation increases with increased pressure differential.

Pressure measurement nipples - leakage direction

(Unit in right-hand version)



4 HAND-HELD MICRO TERMINAL AND HOW TO USE THE MENUS

4.1 HAND-HELD MICRO TERMINAL

4.1.1 General

The hand-held micro terminal consists of an encapsulated control box with a 3-metre long cable for connection to the air handling unit by means of a quick connector.

The hand-held terminal has an illuminated display, 6 push-buttons and a red LED for indicating alarms.

4.1.2 Buttons

The buttons have the following functions:

ENTER confirms your selection and proceeds to next menu level.

ESCAPE reverts to the previous menu.

ADVANCE UPWARD or to the LEFT.

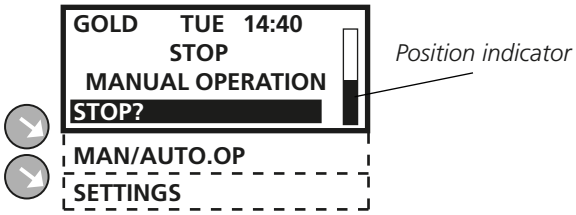
ADVANCE DOWNWARD or to the RIGHT.

DECREASES the value of the highlighted setting.

INCREASES the value of the highlighted setting.

4.3.1 Display Screen

The display screen has 4 lines. Many of the menus however have several lines and these are shown line for line as you press the ADVANCE DOWNWARD button. The position indicator shows where you are in the menu.



4.1.4 Abbreviations

The following abbreviations are used in the menus

SA = Supply air (E.g. SA FAN = Supply air fan)

EA = Extract air

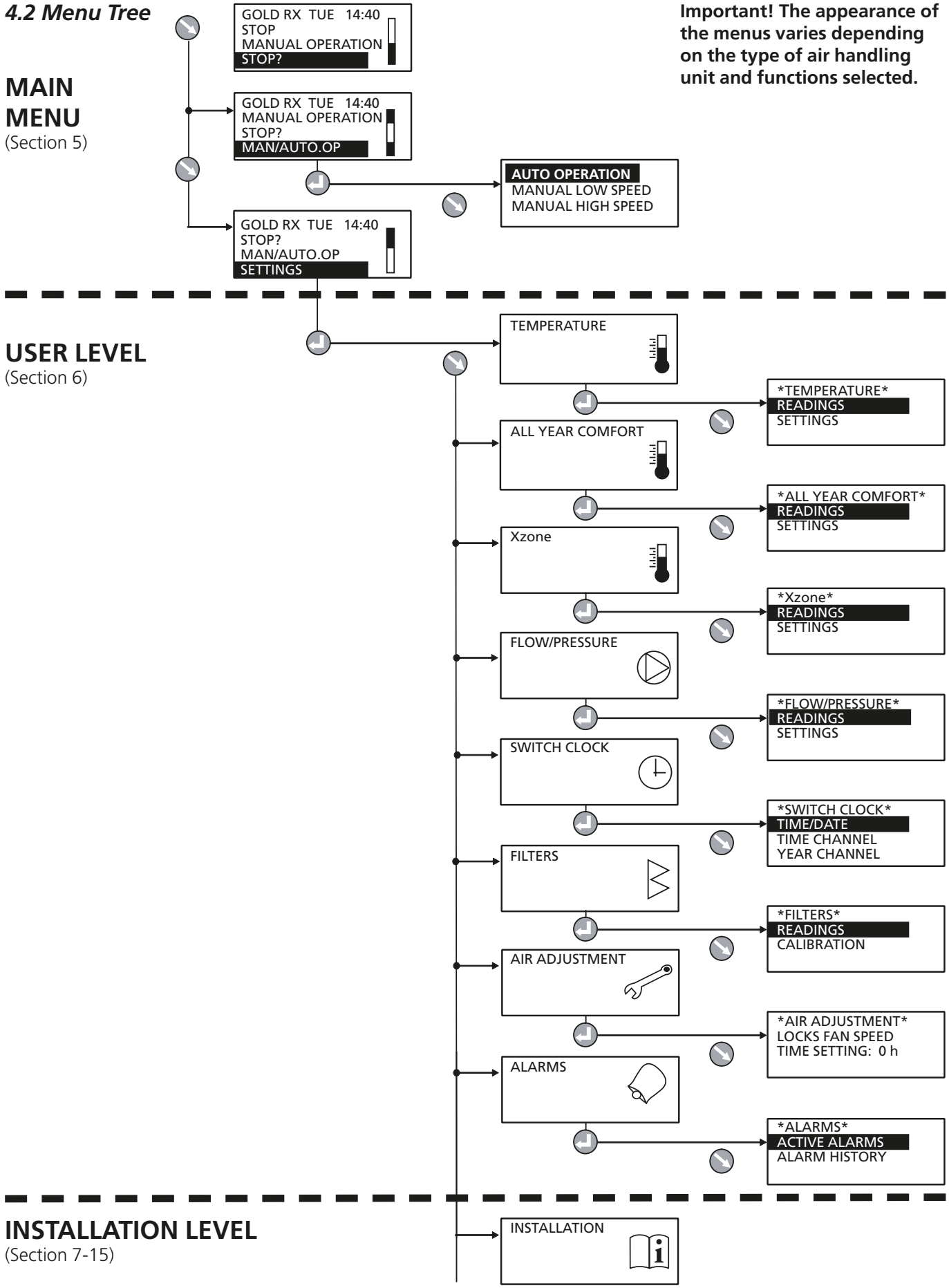
OUTD = Outdoor air

FV = Anti-frosting monitor

HEAT EXCH = Heat exchanger

4.2 Menu Tree

Important! The appearance of the menus varies depending on the type of air handling unit and functions selected.



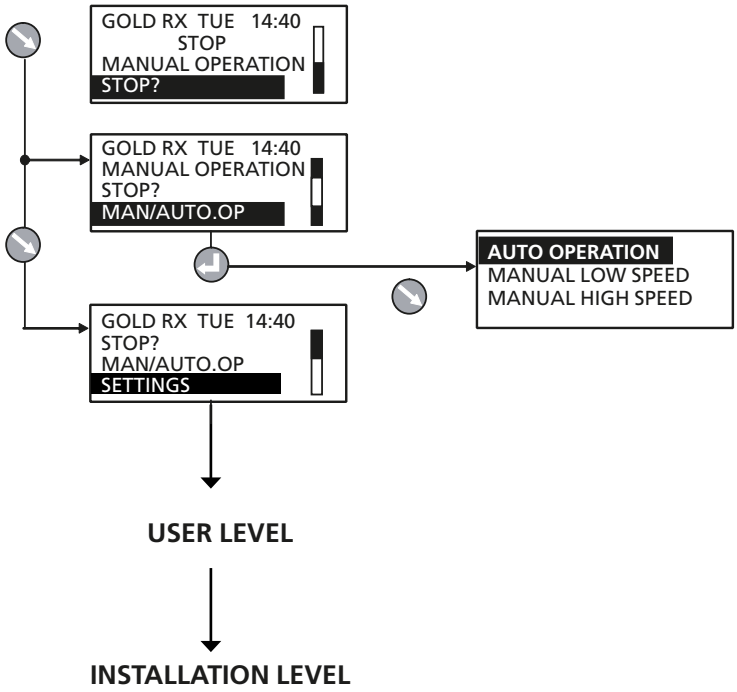
5 MAIN MENU

5.1 General

The main menu is normally shown if no other menu has been selected.

The display automatically returns to the main menu after 30 minutes.

The content in the menu changes depending on the operating mode selected other functions that affect the present operating mode and possible tripped alarms.



5.2 Selection of Language

When the air handling unit is started up for the first time, a language selection menu is displayed.

Select the language desired.

If you want to change language at a later opportunity – or if you've selected the wrong language – you can change the language at INSTALLATION LEVEL under HAND TERMINAL. See Section 13.1.

5.3 Changing Operating Mode

You can start and stop the air handling unit or change over to manual or automatic operation from the main menu.

⚠ The air handling unit should normally be started and stopped from the hand-held micro terminal; not by switching the safety isolating switch on and off.

When the air handling unit is started up, menus for the various delays that are part of the starting sequence are shown.

See also Section 9.1.1, Starting Sequence.

5.4 Settings

When selecting SETTINGS in the main menu, you will advance to User Level and Installation Level.

See Section 6.

6 USER LEVEL

6.1 Temperature

The basic functions can be preset at INSTALLATION LEVEL and the values can be read and set at USER LEVEL.
See also Section 8.2 in which the functions for temperature are described in detail.

IMPORTANT! If you intend to substantially alter the temperature settings, you should first stop the air handling unit before doing so.

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

6.1.1 Readings

Used for checking the performance.

6.1.2 Settings

ERS REGULATION 1
The control unit regulates the relationship between the supply air and the extract air temperatures according to a factory preset curve.

Settings *(see the chart to the right as well):*

Value	Setting range	Factory settings
Step	1 - 4	2
EA/SA Differential	1-5 °C*	3 °C
Breakpoint (refers to extract air temperature)	15-23 °C*	22 °C

ERS REGULATION 2
The control unit regulates the relationship between the supply air and extract air temperatures according to a custom-plotted curve. The curve has three adjustable breakpoints.

Settings *(see the chart to the right as well):*

Value	Setting range	Factory settings
Extract air temperature		
X1	10-40 °C	15 °C
X2	10-40 °C	20 °C
X3	10-40 °C	22 °C
Supply air temperature		
Y1	10-40 °C	20 °C
Y2	10-40 °C	18 °C
Y3	10-40 °C	14 °C

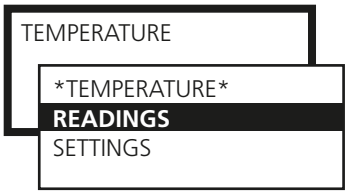
SUPPLY AIR REG.
Settings:

Value	Setting range	Factory settings
Supply air temperature setpoint	15-40 °C*	21.5 °C

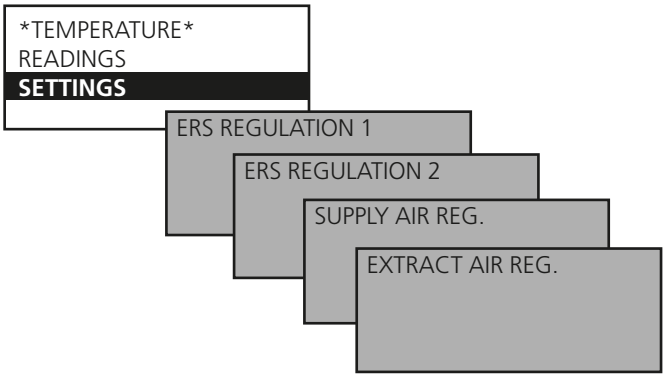
EXTRACT AIR REG.
Settings:

Value	Setting range	Factory settings
Extract air/room temp. Setpoint	15-40 °C*	21.5 °C
Min. supply air temperature	13-25 °C*	15 °C
Max. supply air temperature	18-45 °C*	28 °C

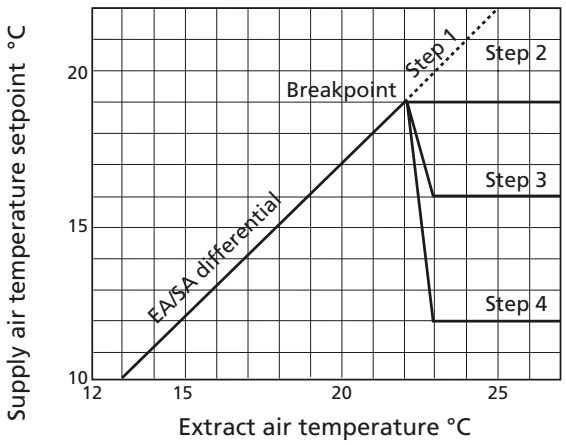
**) The setting range can be changed. See 13.3, Min/Max Adjustment.*



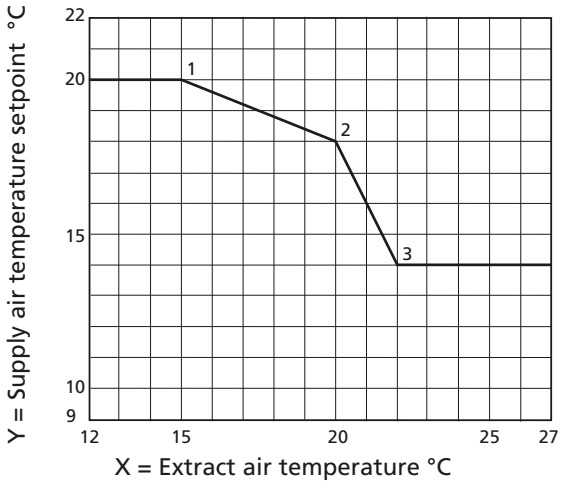
Important! The appearance of the menus varies depending on the type of air handling unit and functions selected.



ERS Regulation 1



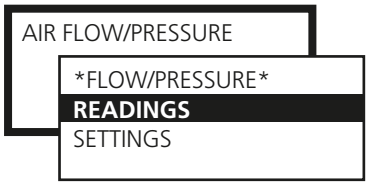
ERS Regulation 2



6.2 Air flow/Pressure

Basic functions are set at INSTALLATION LEVEL and values are read and set at USER LEVEL.

Therefore see also Section 8.3, in which the functions for flow/pressure are described in detail.



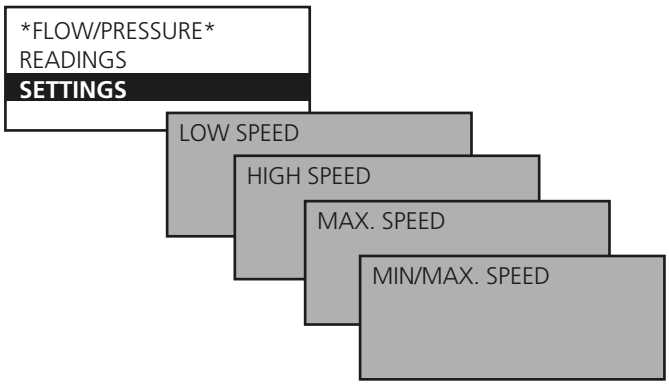
6.2.1 Readings

Used for performance checks.

6.2.2 Settings

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

Values for airflow (l/s, m3/s, m3/h), pressure (Pa) or input signal strength (%) can be preset depending on the function selected.



LOW SPEED
Must always be preset! The value for low fan speed cannot be higher than the value for high speed. Low speed can be set to 0, which means that the fan is standing still.

HIGH SPEED
Must always be preset! The value or pressure for high fan speed cannot be lower than the value for low fan speed.

MAX SPEED
Max speed is only appropriate for functions such as pressure regulation, flow boost, Heating BOOST or Cooling BOOST. The value for max fan speed cannot be lower than the value for high fan speed.

MIN/MAX SPEED
Min/max fan speed is only appropriate for demand-controlled operation. The lowest and highest permissible flows are preset for each of the fans. This means that the fans will not operate outside these limits, regardless the load.

** When entering settings, round off the values to the nearest adjustable step.*

*** Air handling unit incl. coil heat exchanger may give rise to a lower max. flow.*

Min/Max Airflows

AIRFLOW	MIN. FLOW ALL VARIANTS		MAX. FLOW ONE-PIECE UNITS ROTARY EXCH (RX)		MAX. FLOW ONE-PIECE UNITS PLATE EXCH (PX)		MAX. FLOW ONE-PIECE UNITS COIL EXCH (CX)		MAX. FLOW SA AND EA UNITS (SD)**		SMALLEST STEP	
SIZE	m^3/h *	m^3/s	m^3/h	m^3/s	m^3/h	m^3/s	m^3/h	m^3/s	m^3/h	m^3/s	m^3/h	m^3/s
GOLD 04	288	0,08	1620	0,45	1870	0,52			1870	0,52	36	0,01
GOLD 05	288	0,08	2232	0,62	2450	0,68			2450	0,68	36	0,01
GOLD 08	360	0,10	3240	0,90	3600	1,00			3780	1,05	36	0,01
GOLD 14	720	0,20	3960	1,10	5040	1,40			5760	1,60	36	0,01
GOLD 20	720	0,20	6480	1,80	6840	1,90			9000	2,50	36	0,01
GOLD 25	1080	0,30	7920	2,20	9360	2,60			9720	2,70	36	0,01
GOLD 30	1080	0,30	10800	3,00	12240	3,40			13320	3,70	36	0,01
GOLD 35	2160	0,60	11160	3,10			12240	3,40	14040	3,90	180	0,05
GOLD 40	2160	0,60	14760	4,10			15840	4,40	18000	5,00	180	0,05
GOLD 50	2880	0,80	16560	4,60			18000	5,00	19440	5,40	180	0,05
GOLD 60	2880	0,80	21600	6,00			23400	6,50	26280	7,30	180	0,05
GOLD 70	3600	1,00	22680	6,30			25200	7,00	28440	7,90	180	0,05
GOLD 80	3600	1,00	29520	8,20			32400	9,00	36000	10,00	180	0,05

6.3 Switch clock

Basic functions for the switch clock can be preset at INSTALLATION LEVEL under FUNCTIONS/OPERATION and the values can be read and set at USER LEVEL.

TIME/DATE
The current date and time can be set and adjusted whenever required.

The switch clock automatically takes leap years into consideration.

Automatic changeover between summer time/winter time to EU Standard has been preset.

This changeover function can be blocked at INSTALLATION LEVEL under FUNCTIONS/OPERATION.

TIME CHANNEL
Times and days can be set when the unit is to run at high speed, low speed or be stopped.

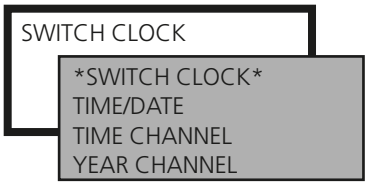
Eight different time channels can be set. If the same in-operation times are to apply every day of the week (Mon-Sun), you need only program one time channel. Different operation times for each day of the week can be programmed by programming a time channel for each day (Mon-Fri, Sat-Sun or Mon, Tues, Wed, etc)

The time can be set as 00:00-00:00 if the deviating in-operation period is desirable for the entire 24 hours period.

YEAR CHANNEL
The year channels make it possible to set deviating in-service times for parts of the day during certain parts of the year. Eight different year channels (yearly time schedules) can be set. The year channels over-modulate the time channel during the hours of the day and the days that the year channel is active. The year channel dates indicate the dates between which the year channel shall apply and the year channel hours indicate the hours of the day between which the year channel will steer the controller to operate the rotary heat exchanger at a specified speed. Other times within the year channel still apply to that time channel.

The time can be set as 00:00-00:00 if the deviating in-operation period is desirable for the entire 24 hours period.

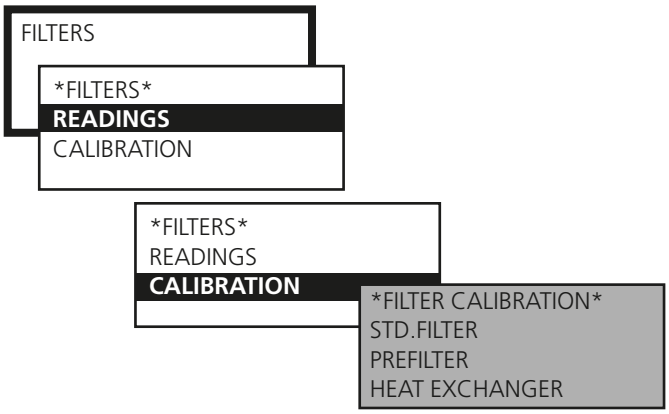
Functions for summer night cooling, prolonged operation, etc., operate also when the year channel is active.



Settings:

Value	Setting range	Factory setting
TIME/DATE		
Day	Mon-Sun	Automatic
Time	00:00-23:59	Current
Date	Day/Month/Year	Current
TIME CHANNEL 1-8		
Operation	Low speed/High speed*	High speed
Time	00:00-23:59	00:00-00:00
Period	Not active	Not active
	Mon, Tues, Wed etc	
	Mon-Fri	
	Mon-Sun	
	Sat-Sun	
YEAR CHANNEL 1-8		
Operation	Not active	Not active
	Stop/Low sp./High sp.	
Time	00:00-23:59	00:00-00:00
Period	From Day/Month/Year	01/01/2005
	To Day/Month/Year	01/01/2005

*) Shows Stop/Low speed/High speed if this function is selected at INSTALLATION LEVEL under FUNCTIONS/OPERATION.



6.4 Filters
(and anti-frosting function of rotary heat exchanger)

6.4.1 Readings

When reading of filter status the first value shows current pressure and the second value shows current alarm limit.

6.4.2 Calibration - Filters

The filters should be calibrated for the first time in conjunction with commissioning, when the duct system, air devices and eventual adjustment plates have been fitted and adjusted; after that every time the filter media are changed.

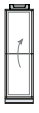
Calibration should be activated for both the supply air and the extract air if both filters are changed or for only for one airflow direction if only one filter has been changed.

When filter calibration is enabled, the air handling unit operates in the high speed or max. speed mode (depending on the functionality selected) for approx. 3 minutes.

After the filters have been calibrated, a pressure rise of up to 100 Pa is permissible (=as the filters arrest impurities). Higher pressure will cause the fouled filter alarm to trip.

The alarm limit can be changed at INSTALLATION LEVEL under ALARM SETTINGS.

The filter function must be activated in order to make it possible to obtain filter calibration and alarm functions in GOLD SD supply air and extract air handling units, see Section 8.4, Filters.



6.4.3 Calibration - Rotary Heat Exchanger

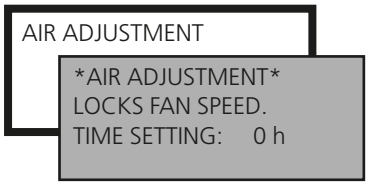
If the anti-frosting function accessory for heat exchanger is installed (see 8.5.1.1) calibration can be selected from this menu.

When calibration R-HX is activated the fans are accelerated to high speed for about 3 minutes.

6.5 Air Adjustment

The speed of the fans can be locked for up to 72 hours. This is practical when making air adjustments in the duct system and air devices.

The period desired is preset but can be interrupted earlier by selecting STOP in the menu or by changing the time setting to 0.



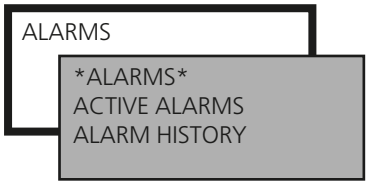
6.6 Alarms

If an alarm is initiated, this is shown in the hand-held terminal both as clear text and by a blinking red diode.

This menu enables you to read alarms quickly.

ACTIVE ALARMS
Shows alarms that are active but have not initiated an alarm signal in the display. This applies to alarms that have a long delay, i.e. airflow or temperature alarms.

ALARM HISTORY
The 10 most recent tripped alarms are shown.



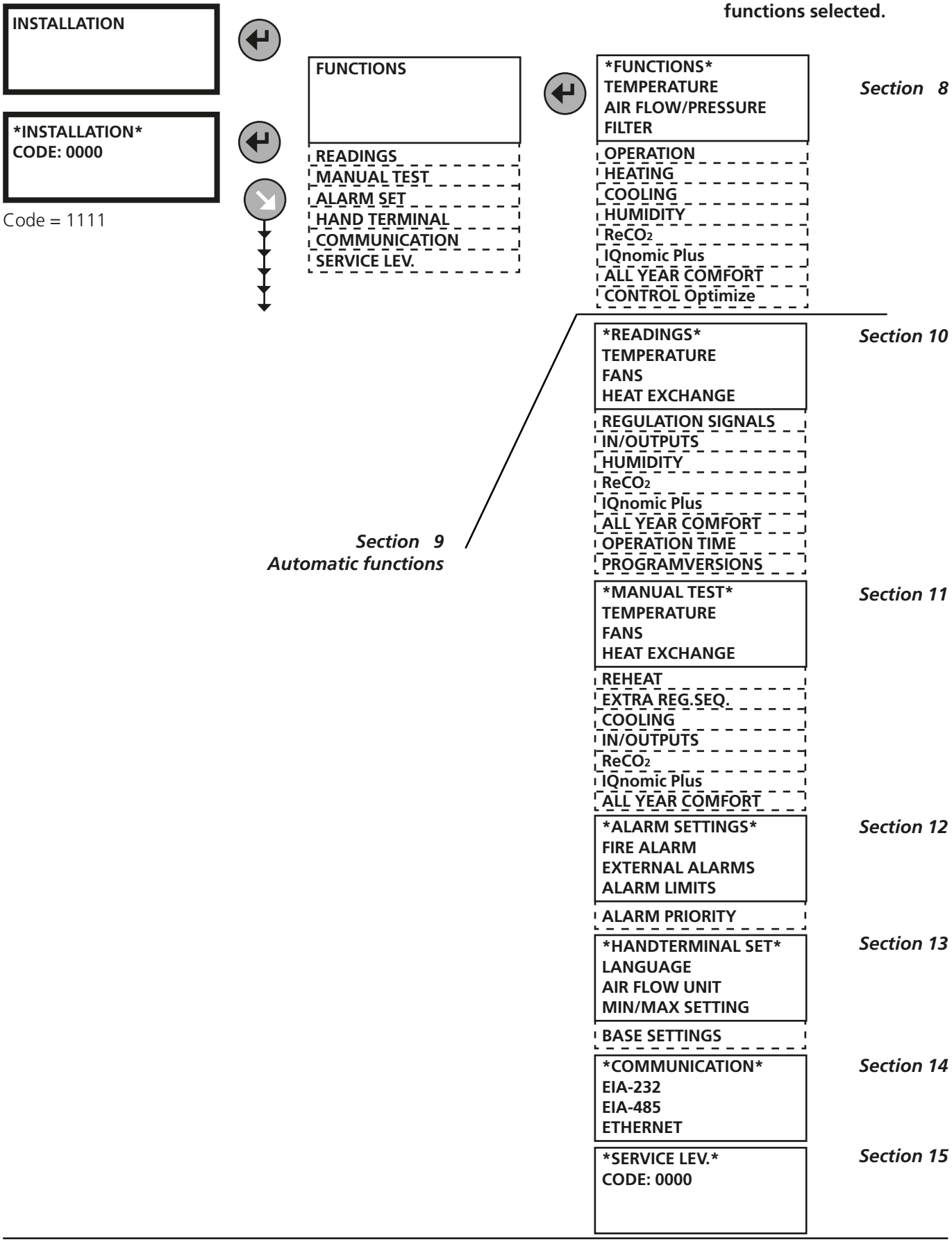
⚠ Alarm settings can be entered at INSTALLATION LEVEL under ALARM SETTINGS.

For complete description of alarms, see Section 17.

7 INSTALLATION LEVEL

7.1 Menu Survey

Important! The appearance of the menus varies depending on the type of air handling unit and functions selected.



8 FUNCTIONS

8.1 Temperature

Basic functions can be set at INSTALLATION LEVEL and values are read and set at USER LEVEL.

IMPORTANT! If you intend to substantially alter the temperature settings, you should first stop the air handling unit before doing so.

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

8.2 Temperature Regulation

Select ERS Regulation, Supply air regulation or Extract air regulation.

If ERS Regulation is selected, select between 1 and 2.

Control sequence for ERS regulation and Supply air regulation:

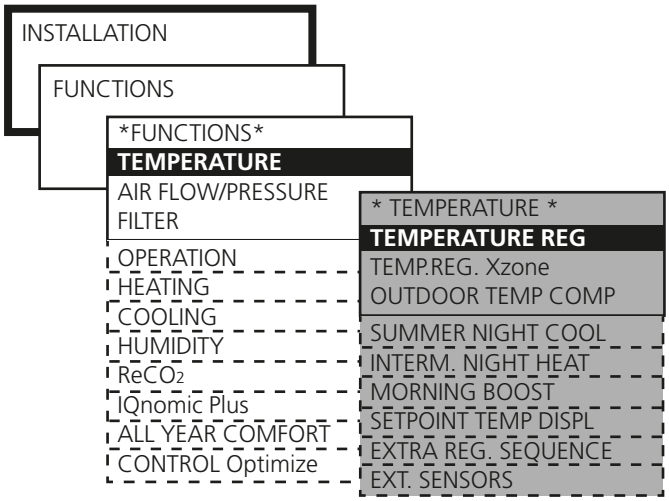
1. The temperature efficiency of the air handling unit's heat exchanger is modulated to provide max. heat recovery. (Not applicable to GOLD SD without heat exchanger).
2. After that the air heater, if installed, will begin to generate heat.
3. If a downstream heating coil is not installed, or if the its output is not adequate, the supply air fan will be automatically and variably downspeed-regulated to convey air at a lower flow rate. (If the unit is a GOLD SD without heat exchanger, this function can be deacti vated).

A neutral zone can be preset, which allows a lower supply air temperature setpoint before regulation to a lower flow rate begins. See 8.3.4

When the supply airflow is regulated to a lower rate, the heat exchanger will have "excess heat", i.e. warm extract air, giving it capacity to maintain the supply air temperature required.

As the supply airflow is regulated to a lower rate, the air pressure in the premises will become negative and this will instead cause outdoor air to be sucked in through leakage spots such as doors and windows. This outdoor air will then be heated by the ordinary heating system of the premises. (Not applicable if only a GOLD SD supply air or extract air handling units are installed)

Downspeed regulation to lower the airflow rate occurs from the current preset flow (high speed or low speed), down to half of this flow rate. The degree of regulation to a lower rate is also limited by the min flow setting of the unit. When preset flow for low speed is near the min flow rate, the effect of this regulation to a lower rate will be small.



Important! The appearance of the menus varies depending on the type of air handling unit and functions selected.

Control sequence for Extract air regulation:

1. The temperature efficiency of the air handling unit's heat exchanger is modulated to provide max. heat recovery. (Not applicable to GOLD SD without heat exchanger).
2. After that, the re-heating coil, if installed, will begin to generate heat.

8.2.1.1 ERS Regulation

ERS regulation means 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. In this way, the heat exchanger will provide optimal performance, and this means excellent operating economy. ERS regulation is suitable for use when there is excess heat in the premises generated, for example, by machinery, lighting or people and the supply air devices in the premises are suitable diffusing air below room temperature.

ERS REGULATION 1

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

See the chart to the right.

The steps, breakpoint and EA/SA differential plotted in the curve can be changed at USER LEVEL under TEMPERATURE/SETTINGS.

Settings:

Value range	**Setting setting**	**Factory**
Step	1 – 4	2
Breakpoint (refers to extract air temp.)	15-23 °C	22 °C
EA/SA-Differential	1-5 °C	3 °C

The setting range for the breakpoint and EA/SA differential is limited by the Min. and Max. settings at *INSTALLATION LEVEL under HAND TERMINAL.*

ERS REGULATION 2

This is used when special needs and conditions are such that the factory preset ERS regulation 1 curve cannot provide the results required. Conditional on which settings are made, it may be necessary to install a post-heating coil.

An individually adapted curve regulates the relationship between the supply air and extract air temperature.

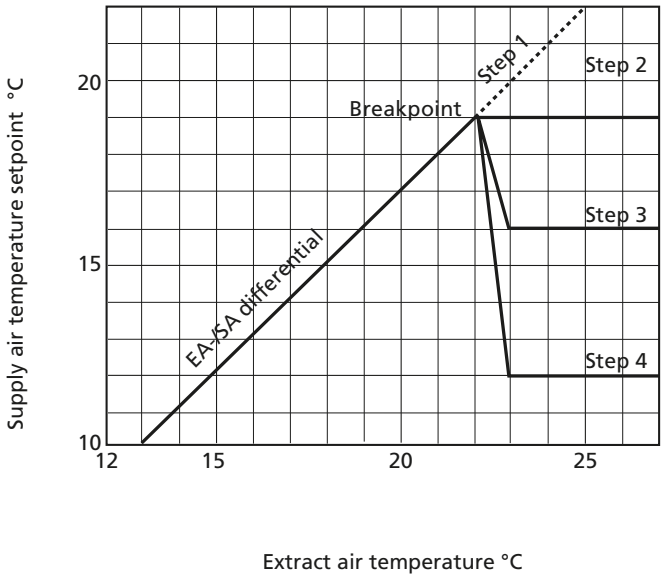
See the chart to the right.

The following settings are possible at USER LEVEL under TEMPERATURE/SETTINGS:

Value	**Setting range**	**Factory setting**
Extract air temperature		
	X1 10-38 °C	15 °C
	X2 11-39 °C	20 °C
	X3 12-40 °C	22 °C
Supply air temperature setpoint		
	Y1 10-40 °C	20 °C
	Y2 10-40 °C	18 °C
	Y3 10-40 °C	14 °C

The setpoint displacement and summer night cooling functions can also affect the preset temperatures.

ERS regulation 1

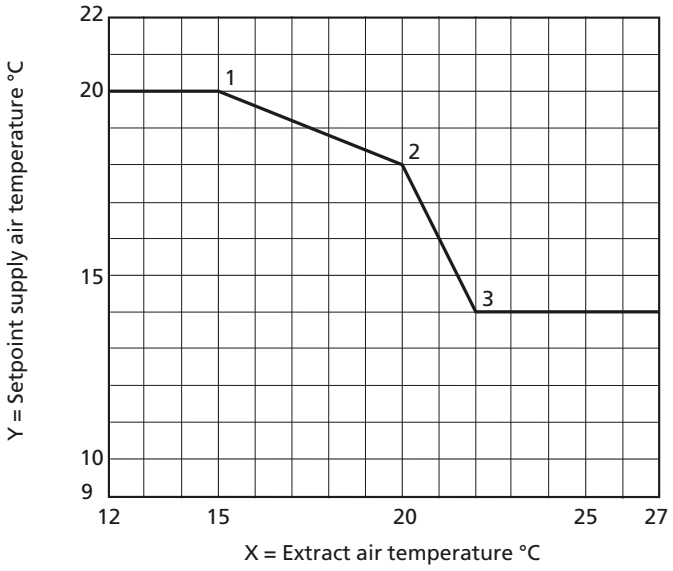


Factory setting means:

If the extract air temperature is below 22 °C (breakpoint), the supply air temperature setpoint will be automatically regulated to be 3 °C (EA/SA differential) lower.

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

ERS regulation 2



Breakpoints according to factory setting means:

If the extract air temperature is below 15 °C (X1) the setpoint for supply air temperature is constant 20 °C (Y1).

If the extract air temperature is 20 °C (X2) the supply air temperature set point will be 18 °C (Y2).

If the extract air temperature is above 22 °C (X3), the supply air temperature setpoint will be constantly 14 °C (Y3).

8.2.1.2 Supply Air Regulation

Supply air regulation involves keeping 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. In most cases a reheating coil needs to be installed; possibly a cooling coil as well.

The following settings can be entered at USER LEVEL under TEMPERATURE/SETTINGS:

Value	Setting range	Factory setting
Supply air temperature setpoint	15-40 °C	21.5 °C

Setting range for the setpoint is limited by Min. and Max. settings at INSTALLATION LEVEL under HAND TERMINAL.

8.2.1.3 Extract Air Regulation

Extract air regulation involves keeping a constant temperature in the extract air duct (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 a reheating coil; possibly a cooling coil as well.

The extract air temperature is measured by the temperature sensor inside the GOLD unit. If this internal temperature sensor does not give adequate representative extract air temperature readings, an external room temperature sensor can be installed and wired to terminals 40-41 on the control unit.

The following settings can be entered at USER LEVEL under TEMPERATURE/SETTINGS:

Value	Setting range	Factory setting
Extract air-/room temp. setpoint	15-40 °C	21.5 °C
Min. Supply air temperature	13-18 °C	15 °C
Max. Supply air temperature	25-45 °C	28 °C

Setting range for the various values is limited by Min. and Max. settings at INSTALLATION LEVEL under HAND TERMINAL.

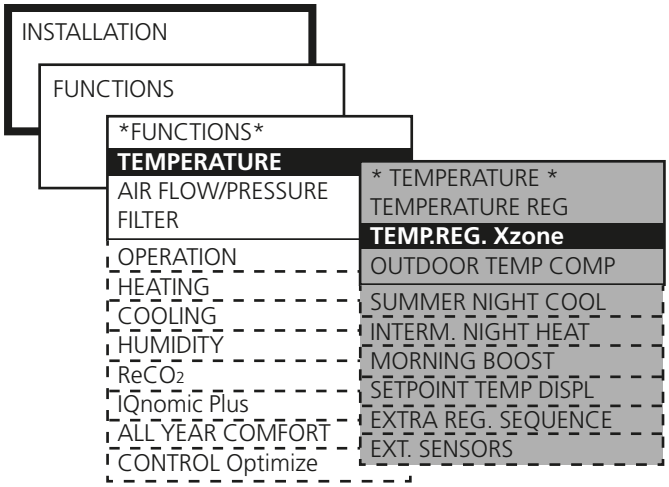
8.2.1.4 Temperature control, Xzone

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

Xzone can be used for all types of GOLD air handling units. The function can control both reheating and cooling in the extra zone.

The type of temperature control used for the extra zone must be selected separately and can be different to that used in the main zone.

For particulars of the settings, see 8. Temperature control.



8.2.2 Outdoor Temperature Compensation

Temperature
Outdoor temperature compensation can be activated if the premises are abnormally subjected to the effects of seasonal cold air or hot air due to leakage through large windows, for instance.

The supply air temperature setpoint is compensated if the air handling unit is operating in the supply air regulation mode, and the extract air temperature setpoint is compensated if the air handling unit is operating in the extract air regulation mode. This function will have no effect if the unit is operating in the ERS regulation mode.

The preset temperature setpoint is influenced if the outdoor temperature drops below the preset X2 breakpoint (winter compensation) and above the preset X3 breakpoint (summer compensation).

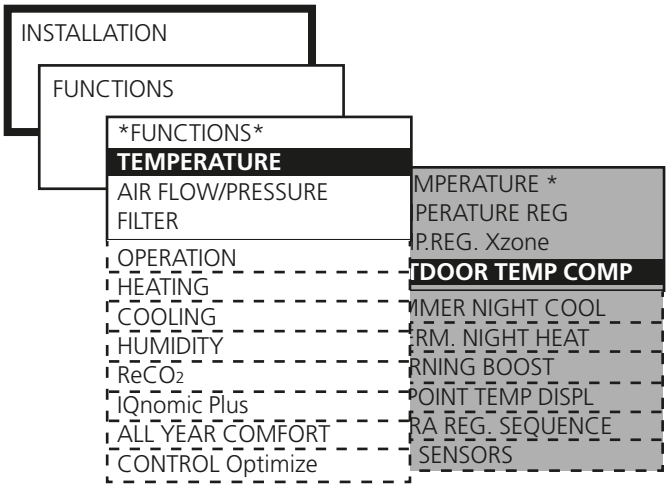
The settings are also applicable to one extra temperature zone (Xzone), if required.

See the chart to the right.

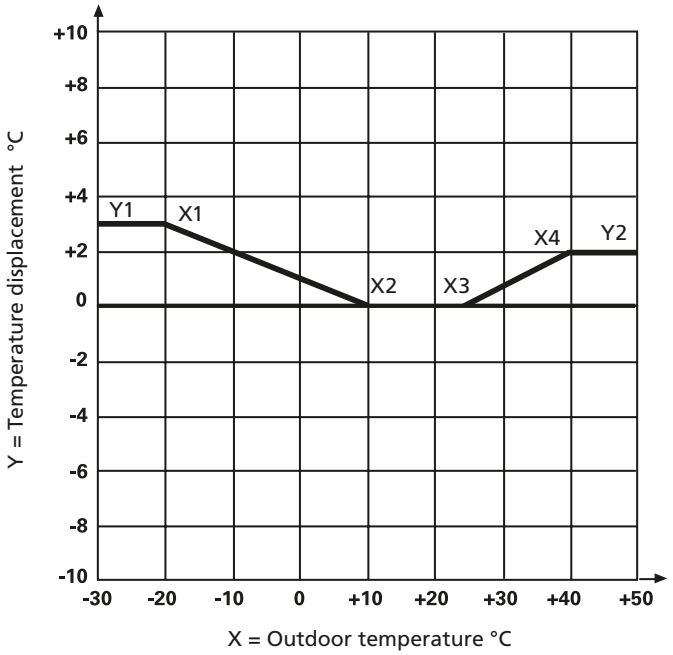
It is possible to set negative summer compensation.

Settings:

Value	Setting range	Factory setting
Winter compensation		
Temperature displacement Y1	+0 – +10 °C	+3 °C
Breakpoint X1	-30 – -10 °C	-20 °C
Breakpoint X2	-10 – +15 °C	+10 °C
Summer compensation		
Breakpoint X3	+15 – +25 °C	+25 °C
Breakpoint X4	+25 – +40 °C	+40 °C
Temperature displacement Y2	-10 – +10 °C	+2 °C



Outdoor temperature compensation



Winter compensation in accordance with factory setting involves:

Outdoor temperature +10 °C (Breakpoint X2): Compensation starts and gradually takes place between 0–3 °C down to outdoor temperature -20 °C.

Outdoor temperature -20 °C (Breakpoint X1): Constant compensation takes place with 3 °C (temperature displacement Y1).

Summer compensation in accordance with factory setting involves:

Outdoor temperature +25 °C (Breakpoint X3): Compensation starts and gradually takes place between 0–2 °C up to outdoor temperature +40 °C.

Outdoor temperature +40 °C (Breakpoint X4): Constant compensation takes place with 2 °C (temperature displacement Y2).

8.2.3 Summer Night Cooling

The lower temperature at night is utilized to cool down the building structure. This reduces the cooling load during the first hours of the day. If a cooling unit is installed, its in-operation hours will be minimized, thus offering savings. If no cooling unit is installed, a certain cooling effect will still be realized.

When summer night cooling function is activated, the unit fans operate at high speed, with a supply air setpoint of 10°C, from the preset time until the conditions necessary for stop are satisfied.

The extra temperature zone (Xzone), if any, will obtain the same supply air set point if summer night cooling is in operation.

Conditions to be met to start summer night cooling at the preset time:

- The extract air temperature should be higher than the preset value
- The extract air should be at least 2°C warmer than the outdoor air.
- The outdoor temperature should be above the preset value.
- Heating has not been required between 12.00–23.00 hours.
- The unit must not operate in the high speed mode or be stopped from an external source or manually from the hand-held micro terminal.

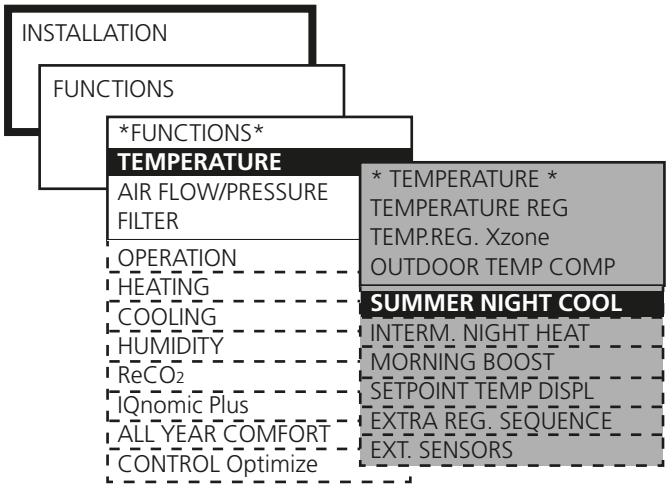
Conditions to be met to stop summer night cooling at the preset time:

- The extract air temperature drops below the preset value.
- The outdoor temperature drops below the preset value.
- Switch clock or external input calls for high speed.
- The extract air is less than 1 °C warmer than the outdoor air.

The function starts once per set time period.

Settings:

Value	Setting range	Factory setting
Extract air temperature for start	17 - 27 °C	22 °C
Extract air temperature for stop	12 - 22 °C	16 °C
Outdoor temperature for stop	5 - 15 °C	10 °C
Supply air setpoint	10 - 20 °C	10 °C
Operating period	00:00-00:00	23:00-06:00



8.2.4 Intermittent Night-time Heating

The unit is utilized to heat the premises when it is normally stopped by the switch clock.

The function requires that an external room sensor is connected (control unit terminals 40-41) and that a reheating coil be installed downstream of the air handling unit. The function works best if the GOLD is equipped with an air recirculation section and shut-off dampers for the outdoor air and the 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 setpoint.

If extract air fan operation is not desirable, the extract airflow can be set to 0.

The damper output can be set to 0. This means that the connected dampers (such as shut-off dampers for outdoor air and extract air) will not be affected. These dampers are normally closed when the air handling unit is stopped and they also remain closed. The damper in the air recirculation section is opened at the same time, if one is installed.

Intermittent nighttime heating does not affect a possible extra temperature zone (Xzone) that regulates according to its ordinary set point, if intermittent nighttime heating is in operation.

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

• The unit should operate in a time channel/switch clock stop.

• The room temperature should be below set start temperature.

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

• High speed or external/manual stop should be activated.

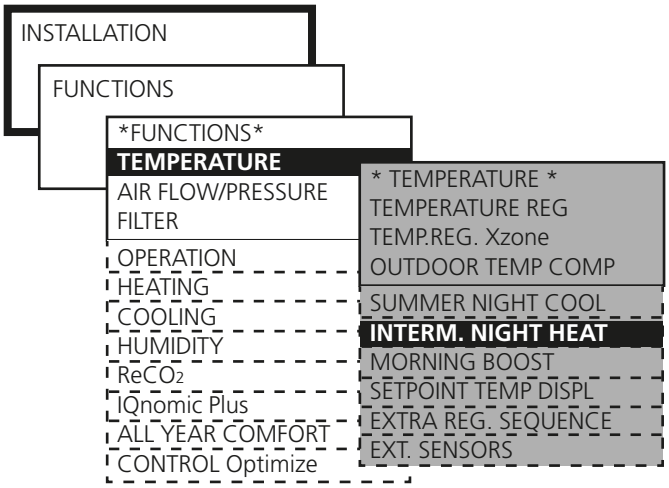
• Room temperature should be above the preset stop temperature.

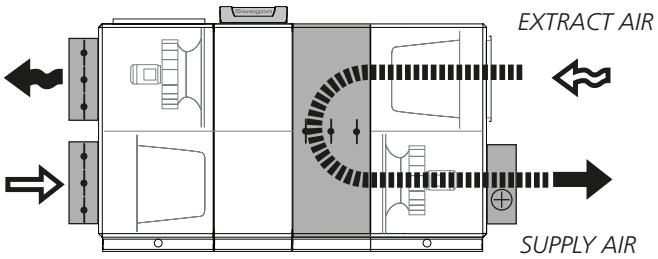
• Alarm with preset stop priority has tripped.

If the needed, the air handling unit fans will continue to operate to cool the electric air heater although other conditions for stop have been met.)

Settings:

Value	Setting range	Factory setting
Room temperature for start	5 - 25 °C	16 °C
Room temperature for stop	5 - 25 °C	18 °C
Supply air temperature setpoint	10 - 40 °C	28 °C
Supply airflow	*) m3/s/Pa	**) m3/s/Pa
Extract airflow	*) m3/s/Pa	0 m3/s/Pa
Damper output	0=not activated 1= activated	0
Control output***	0=IQnomic 1 =IQnomic Plus	0





Intermittent night-time heating with air recirculation section:

If the extract airflow is set to 0 and the damper output is not activated, the following takes place:

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

The supply air fan operates according to the preset supply airflow and the heating coil downstream of the air handling unit operates according to the supply air temperature setpoint, until the conditions for stop are met.

*) The setting range is the same as the min/max settings of the air handling unit.
**) According to the setting for low speed at USER LEVEL under FLOW/PRESSURE.
*** If IQnomic Plus is selected, extra control sequence and intermittent nighttime heating can be used at the same time.

8.2.5 Morning BOOST

The unit is utilised to heat the premises during a preset period prior to the switch-in time set on the switch clock.

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

The unit starts early and uses the same operation and temperature regulation settings as it would at the regular start time.

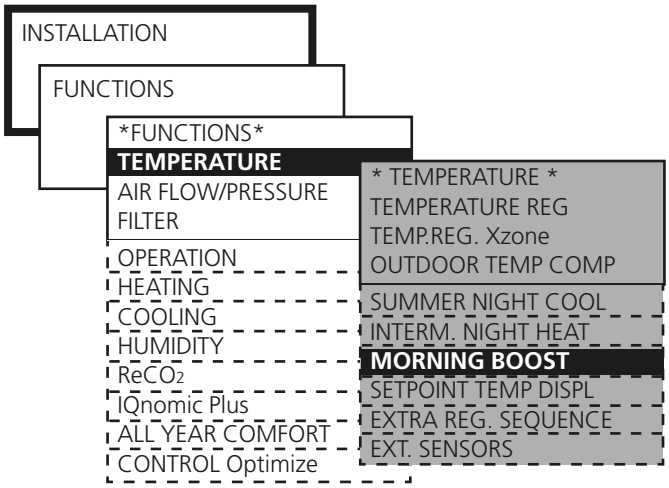
If the extract air fan is not required to operate, the extract airflow can be set to 0.

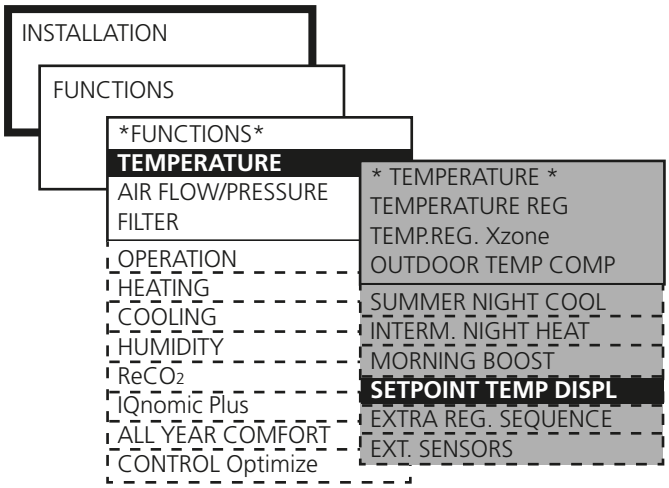
Damper output can be set to be inactive. This means that connected dampers (e.g. outdoor air and exhaust air shut-off dampers) are not affected. Normally these dampers are closed when the unit is stopped and thus they remain closed. At the same time damper in the air recirculation section opens, if one is installed.

Settings:

Value	Setting range	Factory setting
Time for start prior to regular start time according to switch clock 00:00		hour, min.
Damper output	Inactive	Inactive
Extract air fan	Inactive	Inactive
Control output***	0=IQnomic 1=IQnomic Plus	0
Max. flow, supply air	*	**
Max. flow, extract air	*	**

*) The adjusting range is the same as the unit's min./max. setting.
**) According to the setting for max. speed at the USER LEVEL under FLOW/PRESSURE.
*** If IQnomic Plus is selected, extra control sequence and Morning BOOST can be used at the same time.





8.2.6 Setpoint Temperature Displacement

Used for changing the supply air and extract air temperature setpoints by means of an external 0-10 VDC signal (control unit terminals 34-35). The temperature can be increased or decreased at certain times of the day by means of an external switch clock or potentiometer, for instance.

The setpoint can be influenced ±5 °C.

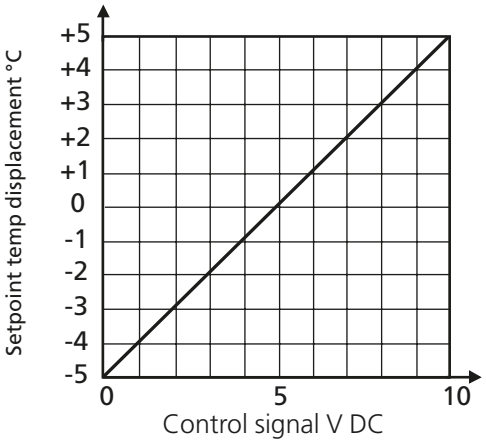
If the unit is operating in the supply air regulation mode, the supply air temperature is displaced and if the unit is operating in the extract air regulation mode, the extract air temperature is displaced.

When the unit 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 unit is operating in the ERS regulation 2 mode, the supply air setpoint will be offset.

When the function is activated, the setpoint is offset as illustrated in the chart to the right.

Set point displacement does not affect a possible extra temperature zone (Xzone) that regulates according to its ordinary set point, if set point displacement is in operation.



Setpoint temp displacement involves:
Control signal 0 V DC: The setpoint is lowered by 5 °C.
Control signal 5 V DC: Unchanged setpoint.
Control signal 10 V DC: The setpoint is increased by 5 °C.

Settings:

Value	Setting range	Factory setting
Setpoint temp displacement	Inactive/active	Inactive

8.2.7 Extra Regulation Sequence

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

The function can be used for utilizing existing heating or cooling sources, such as from a refrigerating plant. The function can also be used for an extra cooling or heat coil.

The out signal for the extra regulation sequence is transmitted via the same terminals on the control unit as for an air recirculation damper, if fitted (terminals 44-45).

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

It is possible to combine extra control sequence with intermittent nighttime heating or Morning BOOST (requires the IQnomic Plus accessory).

Extra regulation sequence can be selected to work in four different positions as follows:

Cooling operation

• Comfort: 0-10 V output signal sequence after the cooling function is controlled to 100 %.

• Economy: 0-10 V output signal sequence before the regular cooling function.

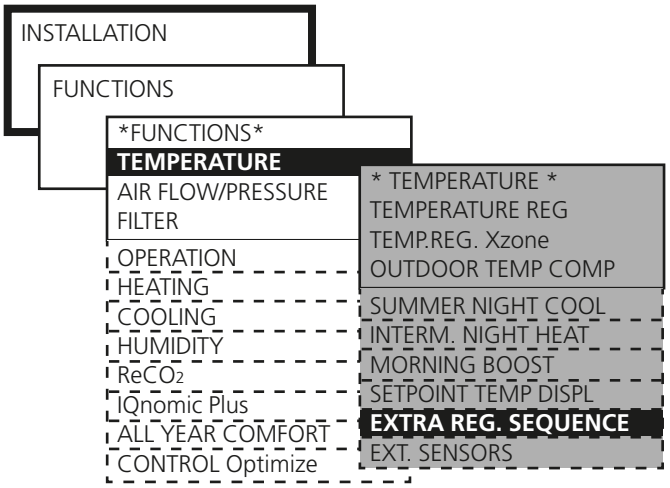
Heating operation

• Comfort: 0-10 V output signal sequence after the reheating function is controlled to 100 %.

• Economy: 0-10 V output signal sequence before the regular reheating function.

Settings:

Value	Setting range	Factory setting
Max output signal	0-100%	100%
Cooling function	Inactive Comfort Economy	Inactive
Heating function	Inactive Comfort Economy	Inactive



8.2.8 External Temperature Sensors

There are two inputs on the IQnomic for external sensors, which can be used when the internal sensor of the unit does not provide representative values.

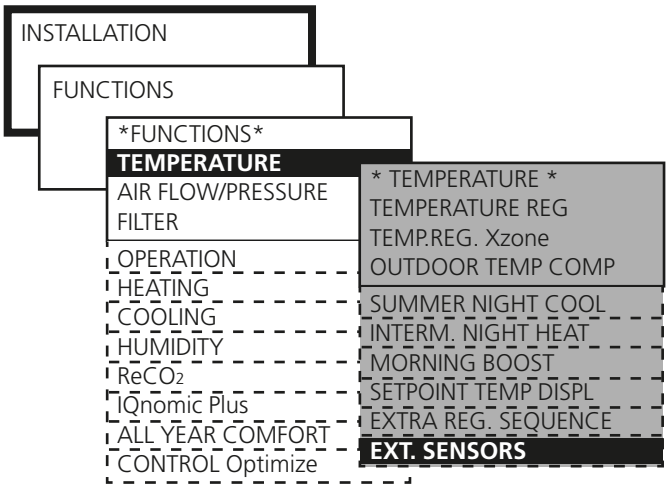
External Extract air/Room (control unit terminals 40-41) measures the extract air temperature in a larger room or in the duct system, instead of the temperature inside the air handling unit.

External Outdoor (control unit terminals 38-39) measures the outdoor air temperature outdoors, instead of the temperature inside the air handling unit.

As an alternative, a temperature reading can be communicated to the air handling unit from a supervisory system, for instance.

Settings:

Value	Setting range	Factory setting
External Extract air/Room	Inactive//IQnomic Communication	Inactive
External Outdoor	Inactive//IQnomic Communication	Inactive
Alarms	0 - 9990 min.	5 min.



8.3 Flow/Pressure

Basic functions are set at INSTALLATION LEVEL and the values are read and set at USER LEVEL.

8.3.1 Fan Regulation

The type of regulation used for the supply air fan and the extract air fan respectively can be selected individually.

8.3.1.1 Flow Regulation

Flow regulation involves 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, air devices are blocked, etc.

Constant airflow is advantageous, since the airflow always is exactly as it was 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 in the form of noise.

8.3.1.2 Pressure Regulation

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

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

The duct pressure is measured by an external in-duct pressure transducer which is wired to the BUS communication of the control unit. The setpoint setting required (separate for low speed and high speed) is entered in Pa.

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

8.3.1.3 Demand Control

The airflow required is regulated in response to 0-10 V input signals from an external sensor, such as a carbon dioxide sensor, connected to control unit terminals 30-33. Required setpoint (separate for low speed and high speed) is set as a percentage of the input signal.

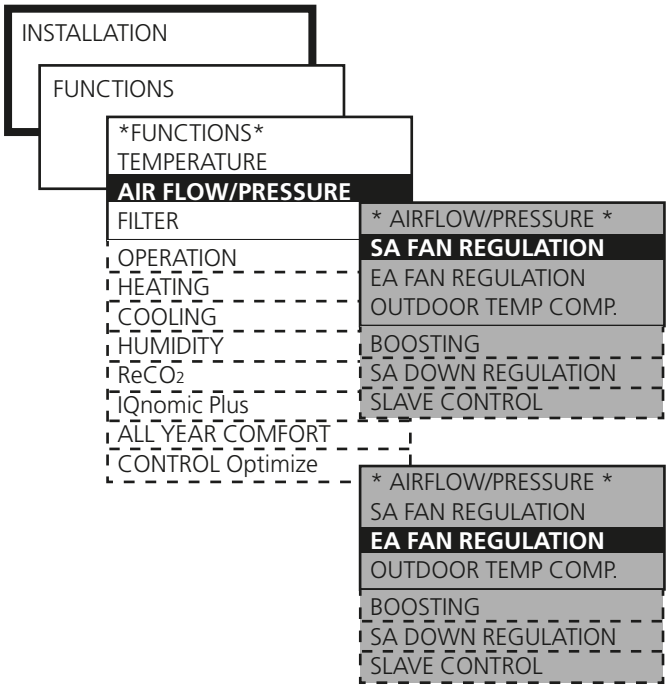
The function can be limited so that the flow will not be higher or lower than the preset max. and min. permissible values respectively.

8.3.1.4 Slave Control

The flow is constantly regulated to be the same from the one fan as from the other fan. If one fan is pressure-controlled or demand-controlled, the other one can be controlled as a slave to generate the same airflow.

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

Both fans cannot be controlled as slaves. If both are selected by mistake, the extract air fan will be forced to operate in the flow regulation mode.



Settings:

Value	**Detting**
Fan regulation (SA/EA)	Flow regulation
	Pressure regulation
	Demand control
	Slave control

8.3.2 Outdoor Temperature Compensation

Airflow

Outdoor temperature compensation of the airflow can be activated if it is desired to reduce the airflow in the winter-time.

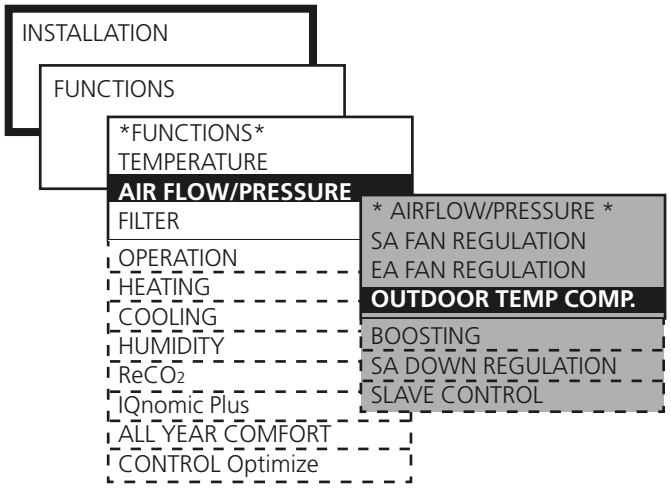
In the flow regulation mode, the current airflow is reduced. In the pressure regulation mode, the current setpoint for pressure is reduced.

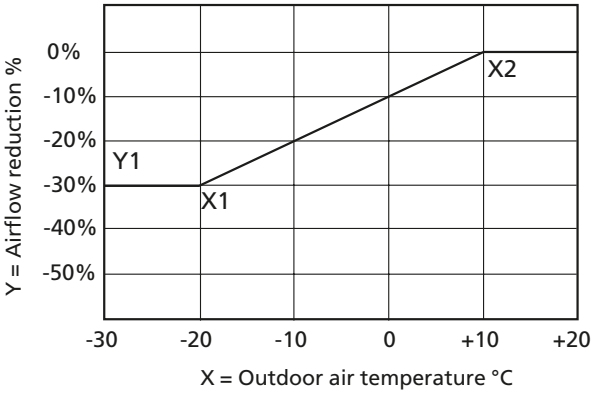
The function has no effect if the airflow is demand-controlled.

The airflow is reduced as a percentage of the current airflow/pressure.

Settings:

Value	Setting range	Factory setting
Y1, max permissible reduction	0-50%	30 %
X1, breakpoint	-30 – -10 °C	-20 °C
X2, breakpoint	-10 – +15 °C	+10 °C





Outdoor air compensation according to factory settings involves:

Outdoor temperature +10 °C (Breakpoint X2): Compensation starts and gradually proceeds between 0–30 % down to outdoor air temperature -20 °C.

Outdoor air temperature -20 °C (Breakpoint X1): Constant compensation proceeds at 30 % (max reduction Y1).

8.3.3 Boosting

The airflow is regulated between two flows in response to a 0-10 V DC input signal from an external source, such as a potentiometer (connected to control unit terminals 30-33).

Boosting can be used, for example, in assembly halls, where a higher rate of air change is needed under full-load conditions.

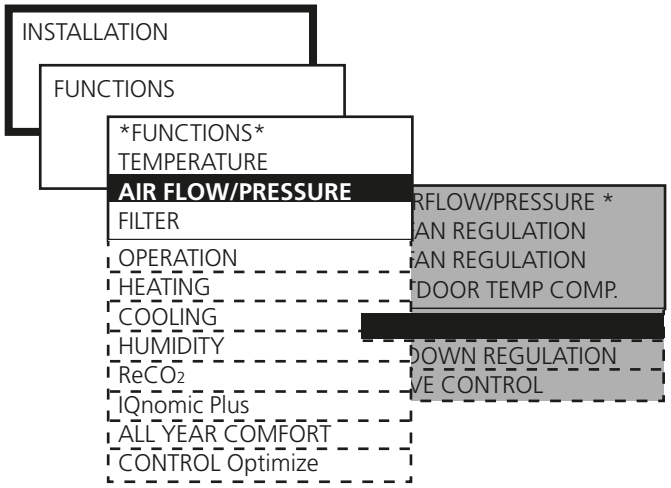
The function is activated only when the unit fans operate at high speed.

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

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

Settings:

Value	Setting range	Factory settings
Supply air fan	Inactive/active	Inactive
Extract air fan	Inactive/active	Inactive



8.3.4 Downspeed Control of Fan Speed to Min. Set Point, Airflow/pressure

Regulation of the supply airflow to a lower flow rate is the last step in the regulation sequence on increasing heating load for ERS regulation or supply air regulation. The extract air fan cannot be selected alone; only the supply air fan or both the supply air and extract air fans can be selected.

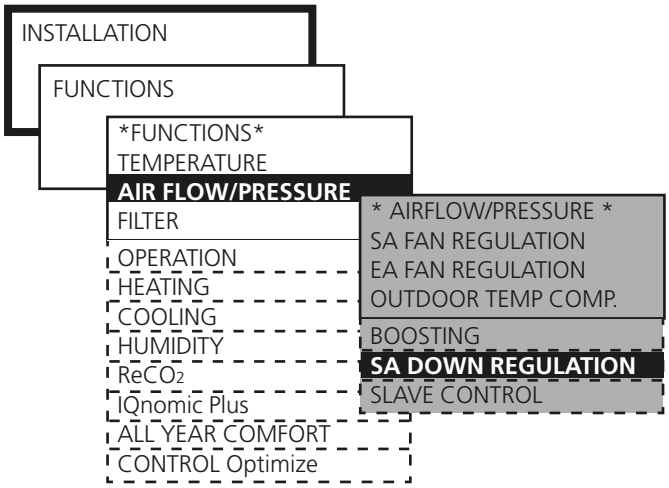
See Section 8.2 as well.

An adjustable temperature decrease allows a lower supply air temperature setpoint, before down regulation begins.

This neutral zone can be set on line NZ SA DOWN REGULATION in the appropriate menu.

Settings:

Value	Setting range	Factory settings
Function	Inactive/SA/SA+EA	Active
Neutral zone	0.0-10.0 °C	0.0 °C



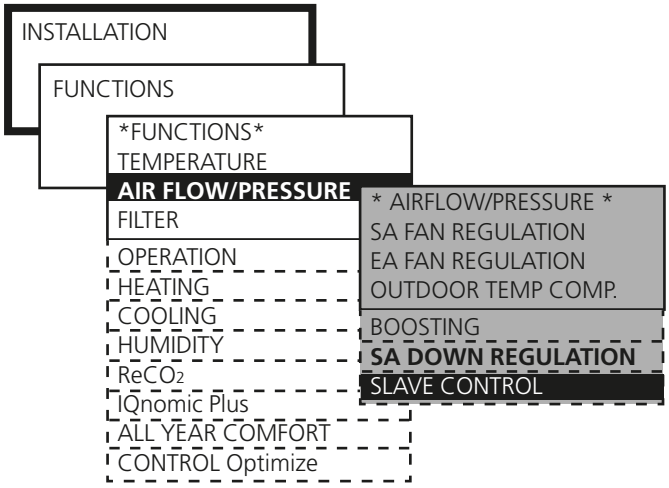
8.3.5 To adjust the flow of the slave fan

It is possible to preset the set point of the slave fan to provide a higher or lower airflow than the current airflow of the controlling fan.

The deviation from the airflow of the controlling fan can be preset by entering a COP. A cooling COP of 0.5 denotes that the airflow of the slave will be 50% of the master fan's airflow.

Settings:

Value	Setting range	Factory settings
Cooling COP	0.5-2,0	1,0

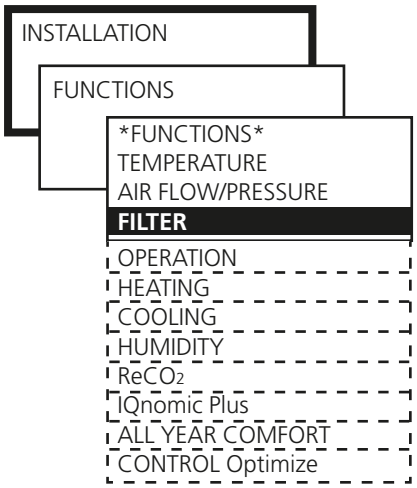


8.4 To Activate the GOLD SD Filter Monitoring Function

The filter monitoring function must be activated for the filters that are to be monitored.

Settings:

Value	Setting range	Factory settings
Standard filter	Inactive/SA/EA SA+EA	Inactive
Prefilter	Inactive/SA/EA SA+EA	Inactive



8.5 Operation

8.5.1 Switch clock

Basic functions are set at INSTALLATION LEVEL and the values are read and set at USER LEVEL.

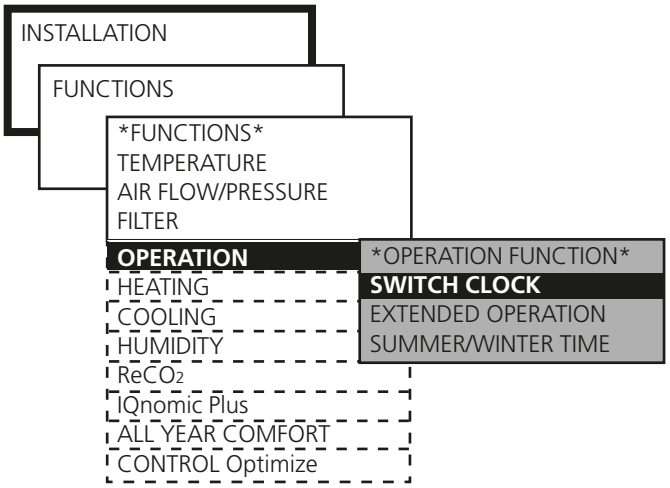
The switch clock controls the operating times of the unit. The following two basic functions can be set:

LOW SPEED – HIGH SPEED
Low speed is the basic level and times for high speed operation are set at USER LEVEL under SWITCH CLOCK.

STOP – LOW SPEED – HIGH SPEED
Stop is basic level and times for low speed and high speed operation are set at USER LEVEL under SWITCH CLOCK.

Settings:

Value	Setting range	Factory settings
Function	Low speed/High speed Stop/Low speed/High speed	Low speed/High speed



8.5.2 Extended Operation

The inputs for external low speed (control unit terminals 46-47) and external high speed (control unit terminals 48-49) respectively, can be supplemented with extended operation. They can be used for overtime running activated by a pushbutton, for example.

Desired time in hours and minutes can be set as follows.

Settings:

Value	Setting range	Factory settings
External low speed	0:00 - 23:59	0:00
External high speed	0:00 - 23:59	0:00
	(hour:min)	(hour:min)

8.5.3 Summer time/Winter time

The time and date readings include factory-preset automatic changeover from summer time to normal time and vice versa, thus conforming to EU standard (the last Sunday in March and the last Sunday in October respectively).

This automatic changeover can be blocked and set as inactive.

Settings:

Value	Setting range	Factory settings
Summer time/Winter time	Inactive/active	Active

8.6 Heating

8.6.1 Heat exchanger

8.6.1.1 Defrosting the rotary heat exchanger

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 condensate from freezing in the rotor passages and clogging them.

The function requires a separate pressure transducer (preset for heat exchanger defrosting) wired to the control unit inputs for external BUS communication and connected by hoses to the pressure measuring tappings of the unit.

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. See 6.4.3 Calibration - Heat exchanger.

When the 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 carried out. This involves, decreasing the rotor speed to approx. 0.5 rpm to allow warm extract air to melt possible frost.

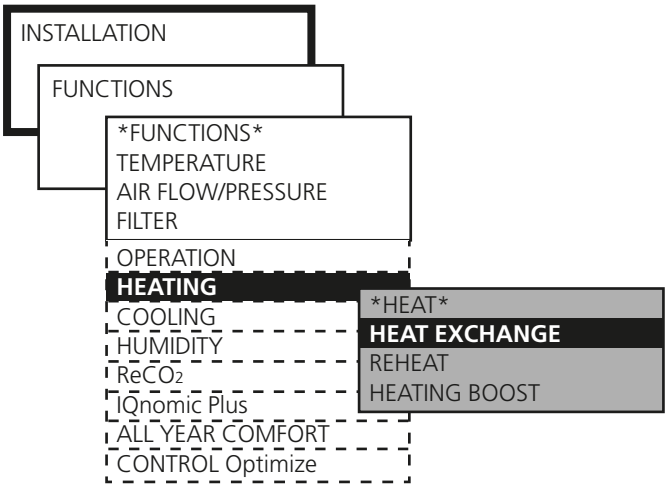
The defrosting sequence will be cancelled when the pressure drop has fallen to half the limit value. The defrosting operates for a max permissible period of 30 minutes.

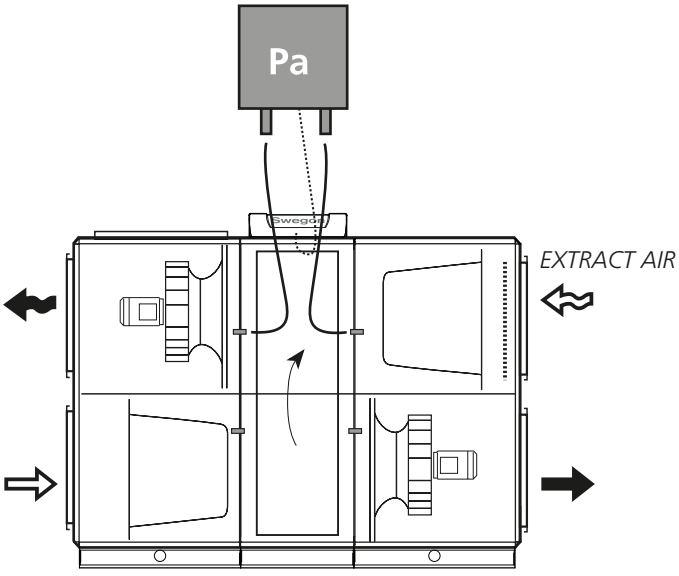
If the pressure drop has not decreased within that max permissible period after six tries during a 24-hour period, an alarm will be initiated.

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

Settings:

Value	Setting range	Factory settings
Defrosting	Inactive/active	Inactive





Defrosting function with separate pressure transducers, in principle

8.6.1.2 Exhaust air regulation, rotary heat exchanger

The exhaust air regulation 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 required value. The function decelerates the heat exchanger rotor speed from the current level, until the exhaust air temperature drops to the preset min. permissible setting.

Exhaust air regulation requires a separate temperature sensor (TBLZ-1-58-aa; accessory) fitted in the air handling unit exhaust air path.

See special installation instructions for the internal TBLZ-1-58-aa temperature sensor.

Settings:

Value	Setting range	Factory settings
Exhaust air regulation	Inactive/Activated	Inactive
Min. exhaust air temperature	-10 – + 20.0 °C	5.0 °C

8.5.2 Reheating

AIR HEATER FOR HOT WATER
If the "pump or pump + valve" exercising mode is selected, the relay output is activated (control unit terminals 5 and 6) whenever heating is required and this starts the circulation pump of the air heater.

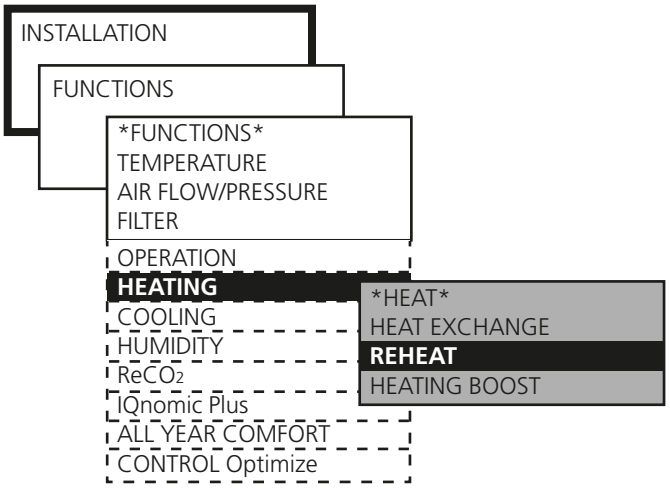
If the outdoor temperature is low (colder than +12 °C), the pump output contact is continuously activated. During other times, the pump output contact is activated 2 min/24 hours for exercising of circulation pump.

ELECTRIC AIR HEATER
If "pump exercising mode inactive" has been selected, the relay output is activated (control unit terminals 5 and 6) whenever heating is required.

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

EXERCISING MODE
Settings:

Value	Setting range	Factory settings
Function	Inactive/pump/ pump+valve/ valve	Pump
Exercise period	1 – 60 min.	3 min.
Interval	1 – 168 hrs.	24 hrs.



8.5.3 Heating BOOST

Heating boost 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 allowed to work in the range between current flows (low speed, high speed) and preset max speed flow.

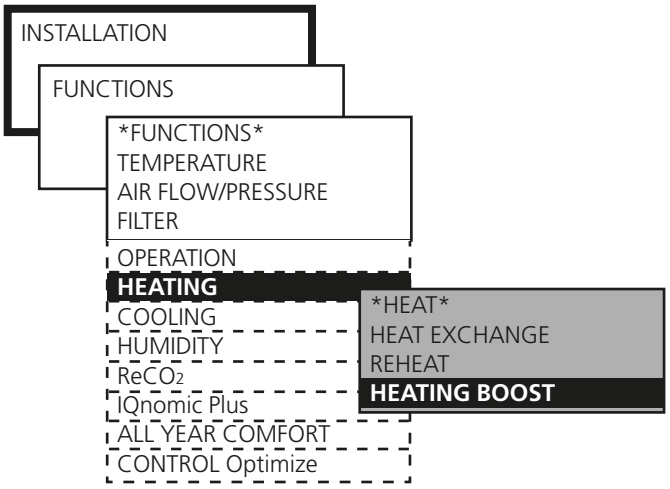
The function only works if the air handling unit is operating in the extract air regulation mode. If demand control or boost is selected in combination with heating boost, the flow is controlled by the function that transmits the highest output signal to the fans.

This function cannot be combined with pressure regulation.

The flow increase starts steplessly when there is a difference of 2-10°C (3°C is factory preset) to preset max supply air temperature. When max supply air temperature has been reached, the unit runs at preset max flow (For particulars of how to set the max flow, see Section 6.3.2).

Settings:

Value	Setting range	Factory settings
Heating BOOST	Inactive/active	Inactive
Start limit	2-10 °C	3 °C



8.7 Cooling

8.7.1 Operation

Activate the cooling function.

8.7.2 Cooling Regulation

CoolDX -Economy (without heat exchanger)
Used when the CoolDX cooling unit is connected via bus cable.
Both cooling relays of the air handling unit operate in parallel with each relay on the IQnomic plus module in the CoolDX cooling unit.

CoolDX - Comfort
Used when the CoolDX cooling unit is connected via bus cable. The heat exchanger in the GOLD unit operates in sequence with the cooling unit to even out the supply air temperature. Important! Requires an extra outdoor temperature sensor.
Use the TBLZ-1-30 accessory for mounting an outdoor air temperature sensor in the ductwork upstream of the CoolDX. Use the TBLZ-1-2 4/5 accessory for installing the outdoor air temperature sensor outdoors.

Stepless 0-10 V DC
Used when variable cooling control is connected. The air handling unit cooling controller modulates a 0-10 V DC signal that is linear with the cooling load (control unit terminals 42-43).
Both the cooling relays of the unit operate in parallel with the signal and are energized when the cooling signal exceeds 0.5 V DC and are de-energized when the signal drops below 0.2 V DC.
The output for cooling relay 1 is connected to terminals 7-8 and for cooling relay 2 to terminals 9-10.

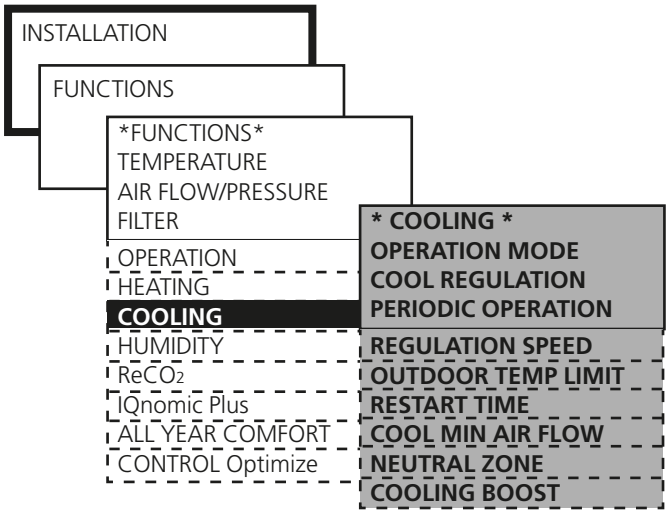
Stepless 10-0 V DC
Same as above, but the control signal is inverted where a 10 V output signal means a 0 % cooling load.

On/off, 1 Step
Used if cooling in one step is connected. The air handling unit's cooling controller regulates the cooling load at 0-100 %. Cooling relays 1 and 2 are energized when the cooling load exceeds 5 % and are de-energized when the cooling load is less than 2 %.
The output contact for 0-10 V DC control signals (terminals 42-43) operates in parallel with the 0-100 % cooling demand and can be used for indicating the cooling demand, for instance.

On/off, 2 steps
Used when cooling in 2 steps is connected. The air handling unit's cooling controller regulates the cooling load at 0-100 %. Cooling relay 1 is energized when the cooling load exceeds 5 % and is de-energized when the cooling load is less than 2 %. Cooling relay 2 is energized when the cooling load exceeds 55 % and is de-energized when the cooling load is less than 50 %.
The 0-10 V DC control signal output (terminals 42-43) operates in parallel with the 0-100 % cooling demand and can be used for indicating the cooling demand, for instance.

On/off, 3 Steps - Binary
Used when cooling with two inputs controlled with three binary steps is connected. The cooling controller of the unit regulates the cooling demand at 0-100 %.
On an increasing cooling load:
Cooling relay 1 is energized when the cooling load is above 5 % and is de-energised when the cooling load is between 40-70 %. Cooling relay 2 is energized when the cooling load is above 40 %. Cooling relay 1 is energized again (together with cooling relay 2) when the cooling load is above 70%.

On a decreasing cooling load:
Cooling relay 1 drops when cooling load is below 60 %, it is energized again when cooling load is below 30 % and drops again when cooling load is below 2 %. Cooling relay 2 drops when cooling load is below 30 %.



The output for 0-10 V DC control signals (terminals 42-43) operates in parallel with the 0-100 % cooling load and can be used for indicating the cooling demand, for instance.

Settings for cooling functions on this page and the next:

Value	Setting range	Factory settings
Operation mode	Inactive/active	Inactive
Cooling regulation	CoolDX Stepless 0-10 V Stepless10-0 V On/Off 1 step On/Off 2 step On/Off 3 step binary COOL DXS	Stepless 0-10 V
Periodic operation		
Cooling relay 1	Inactive/pump/ pump+valve/valve	Inactive
Cooling relay 2	Inactive/pump/ pump+valve/ valve	Inactive
	Exercise period	1 – 60 min.
	3 min.	
Interval	1 – 168 hrs.	24 hrs.
Regulation speed between steps	0-600 sec	300 sec
Outdoor temperature limit		
Step 1	0-25 °C	3 °C
Step 2	0-25 °C	5 °C
Step 3	0-25 °C	7 °C
Restart time	0-900 sec	480 sec
Cooling min air flow		
Supply air	0-Max flow	–
Extract air	0-Max flow	–
Neutral zone	0-10 °C	2.0 °C
Cooling BOOST	Inactive Comfort Economy Sequence Comfort+economy Economy+ sequence	Inactive
Start limit in connection to min supply air temp	2-10 °C	3 °C

See preceding page for possibilities of setting.

8.7.3 Periodic Operation

Can be selected to run pumps if cooling relay 1 and/or 2 are used.

The exercising mode can be selected for "pump, pump + valve" or "valve" only (0 - 10 V output). The pumps are exercised 2 minutes per day if this is activated.

8.7.4 Regulation Speed

The required delay period between the various cooling steps can be set.

This is done so that a compressor, for instance, will have time generate required cooling capacity before the next cooling step is switched in.

This applies to changeover from step 1 to step 2 and from step 2 to step 3; and only on an increasing cooling load.

8.7.5 Outdoor Temperature Limit

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.

This function also restricts the 0-10 V output signal to transmission in steps.

Step 1 maximises the output signal to 2.5 V, step 2 to 5.0 V and step 3 to 7.5 V.

8.7.6 Restart Time

The time should be set in such a way that it follows the recommendations of the cooling machine supplier for the number of starts per hour.

The restart time is calculated from the time when a relay is energized to when it is allowed to be energized again.

The 0-10 V signal is delayed during the same period.

8.7.7 Cooling Min Air Flow

In order for the cooling function to operate the supply air and extract air airflows must be greater than their respective limit values (preset at USER LEVEL under FLOW/PRESSURE).

The cooling min flow function can be blocked by setting both flow limits to 0.

8.7.8 Neutral Zone

The neutral zone prevents the cooling and heating systems from counteracting each other.

Preset neutral zone is added to the setpoint for heating and the sum of these provides the setpoint for cooling.

8.7.9 Cooling BOOST

Cooling BOOST means that the supply air and extract air airflows are increased to convey more cooling energy to the premises.

Cooling BOOST cannot be combined with pressure regulation.

The flow increase takes place between current flow and preset max flow.

The function can be selected in three variants as follows:

Comfort
The cooling outputs are activated if there is a cooling load.

When the cooling function is active and the temperature in the supply air drops toward the preset SA min temperature, the flow will steplessly increase.

The GOLD runs at preset max flow when the supply air temperature is same as the min. temperature.

Economy
Cooling BOOST Economy first uses a higher airflow to cool the premises, before a start signal is transmitted to the cooling machines.

The function can also operate without the cooling function being activated.

On a cooling load, the flows are slowly increased up to preset maximum flow. When the flows are up to max and if a cooing load is still present, the output contacts for cooling are activated.

The cooling boost function requires an outdoor air temperature of at least 2 °C lower than the extract air temperature for it to be activated. Normal cooling operation is activated if the temperature difference is too small.

Sequence
The cooling BOOST Sequence is used if a cooling machine is sized for a higher than normal cooling flow.

If there is a cooling load, the flow is increased up to the preset max flow before the cooling function is activated. The cooling function is delayed 1 minute after the airflow is increased.

The cooling boost sequence is blocked if no cooling function has been selected.

8.8 Humidity

Dehumidification control

The dehumidification function controls the moisture in the supply air duct by switching in and switching out a cooling coil and a postheating coil.

The function requires that a cooling coil be mounted upstream of a postheating coil in the supply air duct, see the example to the right.

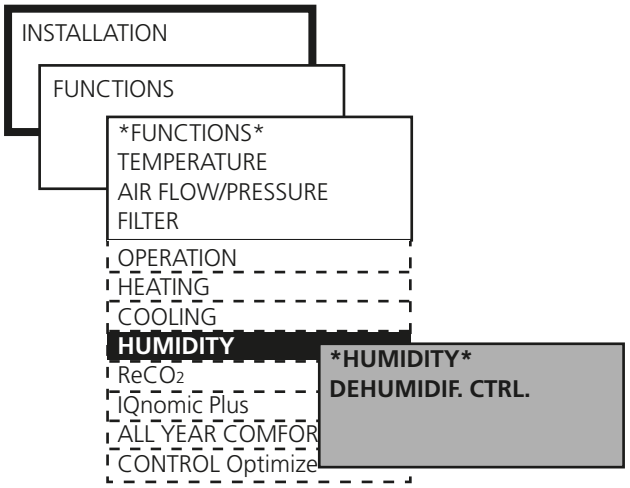
The TBLZ-1-31-1 moisture sensor is mounted in the supply air duct and its cable is connected to the appropriate terminal on the GOLD unit.

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

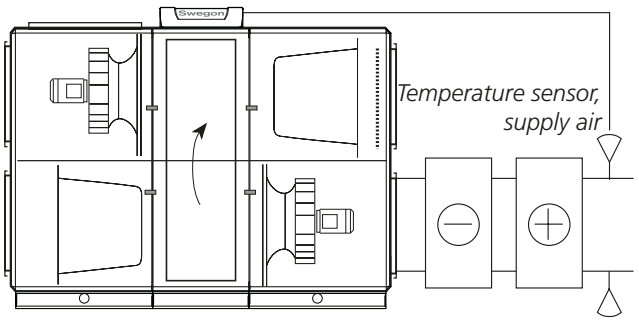
The cooling unit used must be sized so that the temperature of the supply air will be below the dew point, otherwise no condensation will arise and no dehumidification will occur.

Settings:

Value	**Setting range**	**Factory settings**
Dehumidification	Inactive/active	Inactive
Supply air – rel. humidity (%RH)	10-90%	50%



Example of dehumidification control



Moisture sensor, TBLZ-1-31-1

8.9 ReCO$_2$

The ReCO$_2$ function is used for controlling the TBBR air recirculation section in sequence with CO$_2$ control or temperature control, for instance.

If both the CO2 and the temperature functions are selected, the function with the presently lowest signal (highest outdoor air set point) will apply.

CO$_2$ function:
The air recirculation rate increases if the input signal for CO$_2$ (0-10 V DC) is low and decreases if the input signal is high.

CO$_2$ + flow function:
The air recirculation rate increases if the input signal for CO$_2$ (010 V DC) is low and decreases if the input signal is high. If the input signal for CO$_2$ still is too high without air recirculation, the airflow will be steplessly increased to the max. preset flow setting.

Temperature function for heating, economy:
Recirculation takes place upstream of the reheater.

Temperature function for heating, comfort:
Recirculation takes place downstream of the reheater.

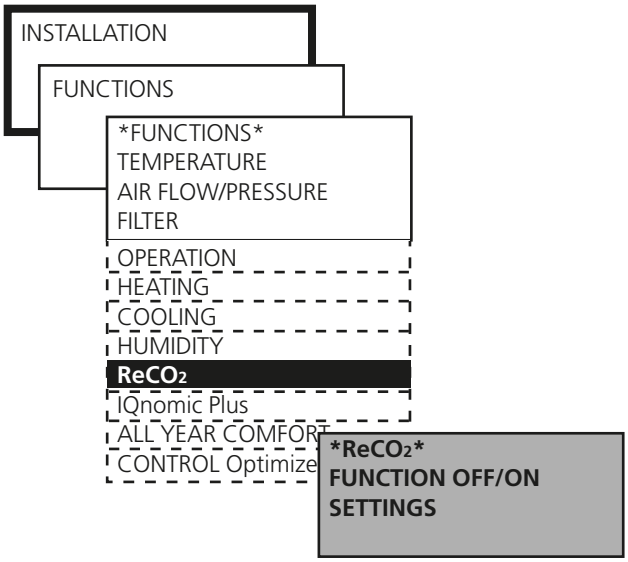
Temperature function for cooling, economy:
Recirculation takes place upstream of air cooler.

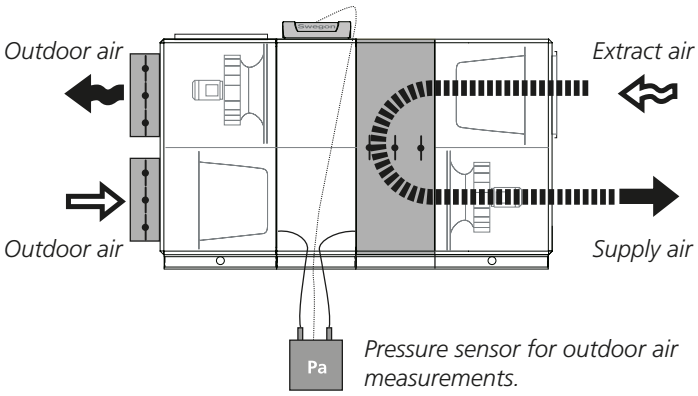
Temperature function for cooling, comfort:
Recirculation takes place downstream of the air cooler.

Settings:

Value	Setting range	Factory settings
CO$_2$ function	Inactive/CO$_2$ / CO$_2$ +flow	Inactive
Temp. function – heating	Inactive/ economy/ comfort	Inactive
Temp. function – cooling	Inactive/ economy/ comfort	Inactive
Min. outdoor air	* m³/s	* m³/s
Min. exhaust air	* m³/s	* m³/s

** The setting range is equivalent to the min./max. setting range of the air handling unit.*





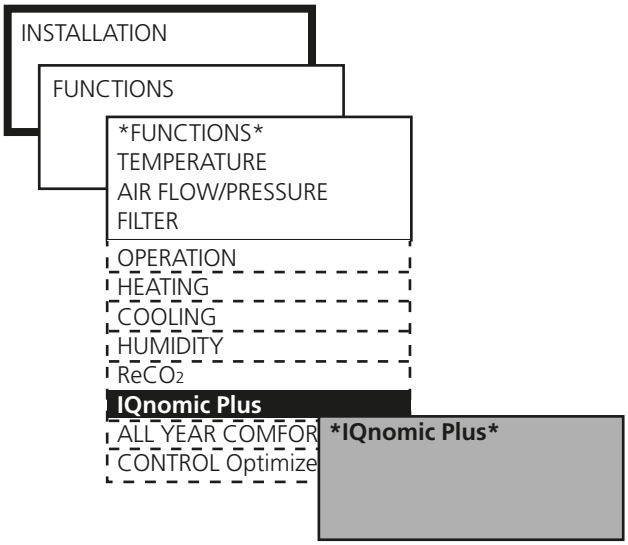
The outdoor airflow is kept constant in response to pressure sensor readings. See special installation instruction for the TBLZ-1-23-aa Pressure sensor.

When the recirculation damper opens, the speed of the extract air fan is reduced and vice versa.

8.10 IQnomic Plus

IQnomic Plus is a name given to additional modules for extra control functions.

See the special instructions for the IQnomic Plus, and wherever applicable the relevant Function Guide.



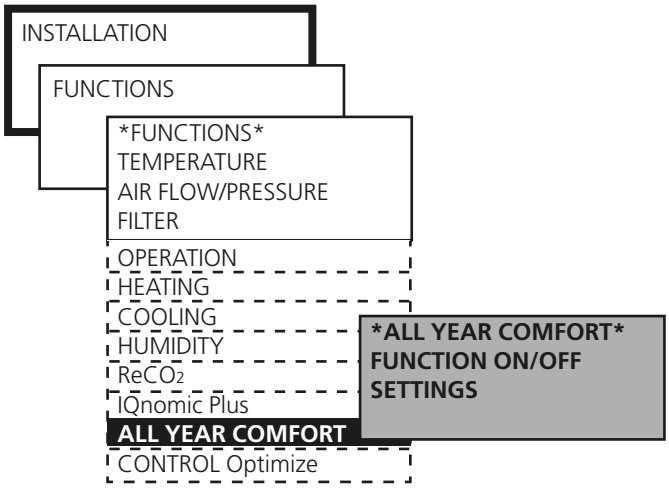
8.11 All Year Comfort

The All Year Comfort function controls the supply flow temperature to comfort modules, chilled beams, perimeter climate systems, etc. via regulating valves. Two strap-on temperature sensors fitted either to the water pipe or the regulating valve are used for measuring the water temperature.

The function requires the electrical equipment cubicle accessory (TBLZ-1-59-a-b-cc) for controlling the supply flow water temperature. The function selector switch of the electrical equipment cubicle must be set to position 7.

All Year Comfort has functions for outdoor compensation, room compensation, night compensation, dew point compensation and for controlling pump and valve exercising.

For further information, see the Guide to the All Year Comfort Function.

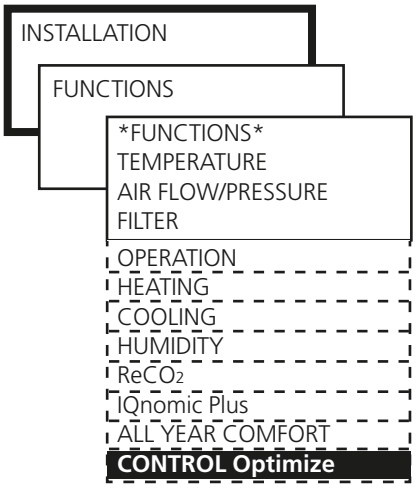


Settings:

Value	Setting range	Factory settings
All Year Comfort	Inactive Cooling Heating Cool.+Heat.	Inactive
Heating water temperature (°C)	10-80°C	30
Cooling water temperature (°C)	5-30°C	14
Outdoor comp. Heat. water	Active Inactive	Inactive
Outdoor temp. (X1) (°C)	-40 - 40°C	-20
Heating water (Y1)(°C)	10 - 80°C	40
Outdoor temp. (X2)(°C)	-40 - 40°C	5
Heating water (Y2)(°C)	10 - 80°C	30
Outdoor temp. (X3)(°C)	-40 - 40°C	15
Heating water (Y3)(°C)	10 - 80°C	20
Outdoor comp., Cool. water	Active Inactive	Inactive
Outdoor temp. (X1) (°C)	-40 - 40°C	10
Cooling water (Y1)(°C)	5 - 30°C	22
Outdoor temp. (X2)(°C)	-40 - 40°C	20
Cooling water (Y2)(°C)	5 - 30°C	18
Outdoor temp. (X3)(°C)	-40 - 40°C	25
Cooling water (Y3)(°C)	5 - 30°C	14
Room comp., Heating water	Active Inactive	Inactive
Room temperature (°C)	0 - 40°C	21
P-band (°C)	1 - 10°C	5
Night blocking	Active Inactive	Active
Room comp., Cooling water	Active Inactive	Inactive
Room temperature (°C)	0 - 40°C	21
P-band(°C)	1 - 10°C	5
Night blocking	Active Inactive	Active
Night comp., heating water	Active Inactive	Inactive
Temp. comp. (°C)	-10 - +10°C	-2
Night comp., Cooling water	Active Inactive	Inactive
Temp. comp. (°C)	- 10 - 0°C	2
Night comp.	Inactive Monday Tuesday Wednesday Thursday Friday Saturday Sunday Monday-Friday Monday-Sunday Saturday-Sunday	Inactive
Channel	1-2	
Pump op., Heating water Outdoor temp. Start (°C)	-40 - 40°C	15
Pump op., Heating water Outdoor temp. Stop (°C)	-40 - 40°C	18
Pump op., Cooling water Outdoor temp. Start (°C)	-40 - 40°C	-20
Pump op., Cooling water Outdoor temp. Stop (°C)	-40 - 40°C	-25
Pump/valve		
Pump alarm, heating water	Inactive Normally closed Normally open Contactor	Inactive
Valve, heating water	Active Inactive	Inactive
Pump alarm, cooling water	Inactive Normally closed Normally open Contactor	Inactive
Valve, cooling water	Active Inactive	Inactive
Exercising, heating water	Inactive Pump Pump+Valve Valve	Inactive
Exercising period, (min)	1-60 min	3
Interval (h)	1-168 h	24
Exercising, Cooling water	Inactive Pump Pump+Valve Valve	Inactive
Exercising period, (min)	1-60 min	3
Interval (h)	1-168 h	24
Dew point comp.	Active Inactive	Inactive
Neutral zone(°C)	0-5°C	2
Comp. flow (%)	0-30%	10

8.12 CONTROL Optimize

The CONTROL Optimize function optimizes the GOLD unit's airflow rates for the connected WISE system. See the special documentation for WISE.



9 AUTOMATIC FUNCTIONS

9.1 General

The GOLD has a number of automatic functions. The operation of the unit is influenced when certain functions are activated.

9.1.1 Starting Sequence

The GOLD has a starting sequence with factory-preset time delay between every step as follows:

1. The damper relay is energized and opens the shut-off damper (if installed).

Time delay: 30 seconds.

2. The extract air fan starts (not applicable if only GOLD SD supply air handling units are installed) and the heat exchanger is controlled to provide max. heat recovery (Not applicable to GOLD SD units without heat exchanger). Additional heating (if installed) is activated to generate 40% of its max capacity.

Time delay: 90 seconds.

3. The supply air fan starts (not applicable if only GOLD SD extract air handling units are installed)

Time delay: 180 seconds (from the time when the extract air fan has started).

4. The temperature regulation function begins according to its regular settings.

The starting sequence prevents the extract air fan from starting if the shut-off damper is closed. By starting the extract air fan first, and the heat exchanger as well, the system also avoids chilling the premises with cool supply air under cold weather conditions.

9.1.2 Cooling Recovery

Cooling energy recovery is an automatic function that helps the air handling unit utilize the relative "cooling energy" that may be present indoors if cooling is required and the outdoor temperature is high.

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 is switched out when the cooling load ceases to exist or when the outdoor temperature is the same as that of the extract air.

The text COOLING RECOVERY is shown in the hand-held micro terminal.

9.1.3 Zero Point Calibration

The pressure transducer of the unit is automatically calibrated. This calibration is carried out 3 minutes after the unit has been stopped.

The text ZERO PT CALIBR is shown in the hand-held micro terminal.

The fans cannot start while calibration is in progress.

9.1.4 Anti-frost Monitoring Function – Air Heater for Hot Water

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

The function activates a heating device that maintains 13 °C in the coil while the air handling unit is in operation and 25 °C in the coil when the unit is stopped. An alarm is initiated and the unit is stopped if the temperature sensor senses a temperature below 7 °C.

9.1.5 Additional cooling – Electric Air Heater

The fans continue to operate at min speed for 3 minutes after the air handling unit has been stopped to cool the electric heating elements if the electric air heater has been operating.

The text ADD COOLING appears in the hand-held micro terminal.

9.1.6 Reduction in output, electric air heater

A min. permissible air velocity of 1.5 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 1.5 m/s across the heat exchanger the heating output of the air heater will be automatically reduced.

The text REDUCTION IN OUTPUT appears in the hand-held micro terminal.

9.1.7 Additional running - Heat Exchanger

The rotary heat exchanger automatically continues to rotate ca 1 minute after the air handling unit has been stopped.

It takes a little time for the fans to stop rotating after a stop order has been entered in the micro terminal. This prevents the admission of cool supply air into the premises.

9.1.8 Density-corrected Airflow

The density of the air is different at different temperatures. This means that a specific volume of air will change at different air densities.

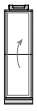
The GOLD automatically corrects this, so that correct air volume is always obtained.

The control equipment always shows the corrected airflow.

9.1.9 Purging Operation

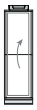
Purging is an automatic function that prevents the rotary heat exchanger from standing still in the same position for a longer period when no heating is necessary.

Purging operation is activated when the unit 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.



9.1.10 Carry-over Control

Whenever the fans generate low airflows, the speed of the rotary heat exchanger is reduced to an appropriate level for correct purging airflow through the heat exchanger.



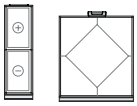
9.1.11 Calculaton of the efficiency of the rotary heat exchanger

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

9.1.12 Pump control for the 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.



9.1.13 Anti-frosting protection for the plate/coil heat exchanger

In cold weather, and if the extract air is humid, there is risk of frosting in plate/coil heat exchangers. The GOLD PX/CX is equipped with anti-frosting protection.

GOLD PX (plate heat exchanger)
The temperature inside the heat exchanger's "cold corner" and the humidity in the extract air are measured.

Taking the humidity into consideration, the control system calculates the lowest permissible temperature without risk of frosting inside the heat exchanger. The by-pass damper is then controlled to prevent the temperature from dropping below this limit.

GOLD CX (coil heat exchanger) and GOLD SD with coil heat exchanger
The temperature of the liquid circulated 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 temperature without risk of frosting inside the coil.

The valve in the pipework package is then controlled to prevent the temperature from dropping below this limit.

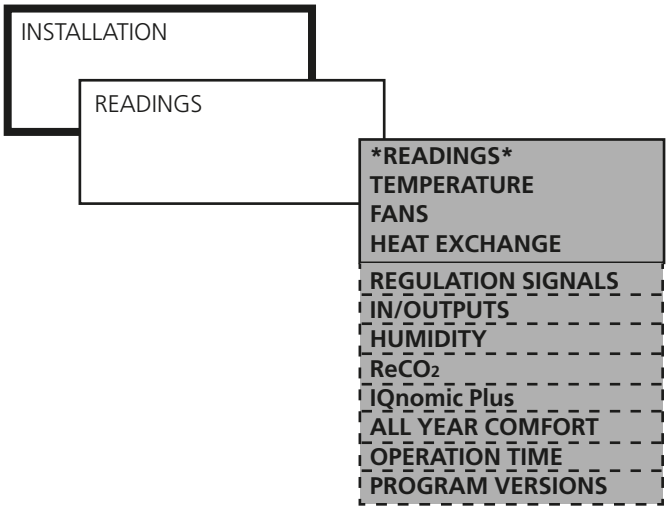
10 READINGS

The operating status and the values can be read. Used for performance checks and for generally checking values, settings, power consumption, etc.

No values can be altered in this menu group.

Each menu indicates which values can be read.

The operation times per 24 hour period are given under the OPERATION TIME menu.



11 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.

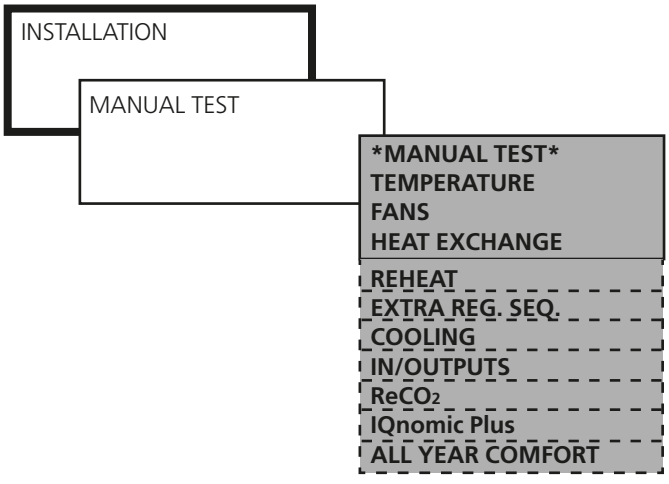
Manual test run can take place for testing the inputs and outputs, fans and heat exchanger, etc.

Used when the air handling unit is first installed to make sure that all the connections have been correctly wired.

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

On a return to the other menu groups, the controller resumes normal operation and all settings for manual testing will be terminated.

Each menu indicates which functions can be test run.



12 ALARM SETTINGS

12.1 Fire Alarms

EXTERNAL FIRE ALARM
Inputs 54 and 55 are used for external fire protection equipment. The resetting of alarms can be selected to occur manually or automatically.

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 50 °C.

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

FANS IN THE EVENT OF A FIRE
The fans in the air handling unit can be used for evacuating gases, etc.

The activated function works together with the External fire/smoke function or Internal fire alarm.

If the air handling unit is idle, the pre-selected fans will start up regardless of whether External Stop or Manual Stop has been activated in the hand-held micro terminal.

The damper relay in the air handling unit is energized and the operating relay drops.

The dampers pre-selected for service in the event of a fire, should be wired to the damper relay (control unit terminals 22-24) and these dampers will open.

The dampers that are meant to close in the event of a fire, should be wired to the in-operation relay (control unit terminals 19-21) and these dampers will close.

FAN SPEED IN THE EVENT OF FIRE
Will be activated automatically if the fans have been activated in event of fire (see above), and make it possible to restrict the max speed of the fans.

Settings:

Value	Setting range	Factory setting
Internal fire alarm	0=inactive 1=activated	0
External fire alarm	auto/manual	manual
Fan in event of fire	Inactive/EA/SA/ SA+EA	Inactive
Fan speed in event of fire, SA	10-100%	100%
Fan speed in event of fire, EA	10-100%	100%

12.2 External Alarms

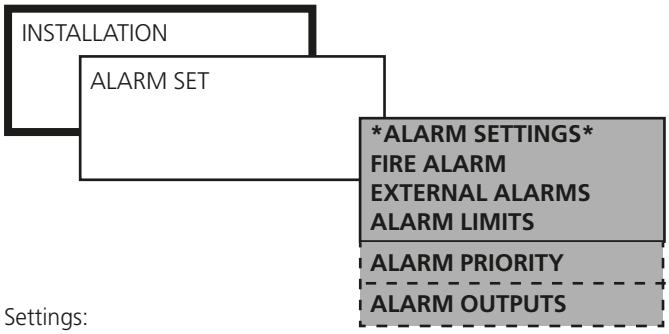
EXTERNAL ALARMS 1 and 2
The external alarms can be used for external functions (control unit terminals 50-51 and 52-53).

Typical uses:

– Motor protection for the circulation pump in the heating or cooling circuit.

– Service alarm actuated by smoke detectors.

Set the time delay and set whether the alarm shall be activated on closure or disconnection of the input.



Settings:

Value	Setting range	Factory settings
Time delay	1-600 sec	10 sec
Alarm at closure	1=closure 0=disconnection	1
Alarm reset	0=auto/1=man	0

12.3 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.

TEMPERATURE
DEVIATION SA-TEMP (deviating supply air temperature) indicates how much the supply air temperature is allowed to be below the supply air temperature setpoint before an alarm is initiated.

MIN EA-TEMP (min extract air temperature) indicates how low the extract air temperature is allowed to be before alarm is initiated.

FILTERS
SUPPLY AIR/EXTRACT AIR indicates at which level of contamination in the supply air filter that an alarm will trip.

HEAT EXCHANGER
ALARM LIMIT indicates at which pressure rise an alarm will trip, if there is an extra installed pressure transducer for the defrosting function of the heat exchanger.

SERVICE PERIOD
SERVICE PERIOD indicates the period until the next service.

Settings:

Value	Setting range	Factory settings
TEMPERATURE		
Deviating supply air temp.	2-15 °C	5 °C
Min extract air temp.	8-20 °C	15 °C
FILTERS		
Supply air	50-300 Pa	100 Pa
Extract air	50-300 Pa	100 Pa
Supply air, prefilter.	50-300 Pa	100 Pa
Extract air, prefilter.	50-300 Pa	100 Pa
HEAT EXCHANGER		
Alarm limit	30-100	Pa 50 Pa
SERVICE PERIOD		
Alarm limit	0-99 months	12 months

12.4 Alarm Priority

There should be special reasons for alteration of alarm priority and you should be aware of the consequences.

Changes in priority should only be made if you have special reasons for doing so and you should be aware of the consequences. The priority of certain alarms cannot be changed.

Settings:

See 17.2 Alarm Descriptions.

12.5 Alarm outputs

Alarm outputs A and B can be selected with normally open or normally closed function.

Settings:

Value	**Setting range**	**Factory setting**
Output A	NO/NC	Normally open
Output B	NO/NC	Normally open

13 HAND-HELD TERMINAL

13.1 Language

The language desired can be set here. Normally this setting is entered when the air handling unit is started for the first time and the question ÄNDRA/CHANGE? automatically appears in the hand-held terminal.

However, the language setting can be changed at any time.

Settings:

Value	Setting range	Factory settings
Language	Current languages is listed in the menu.	English

13.2 Air flow unit

The air flow unit desired can be set here.

Settings:

Value	Setting range	Factory settings
Flow unit	l/s m3/s m3/h	m3/s

13.3 Min/Max Adjustment

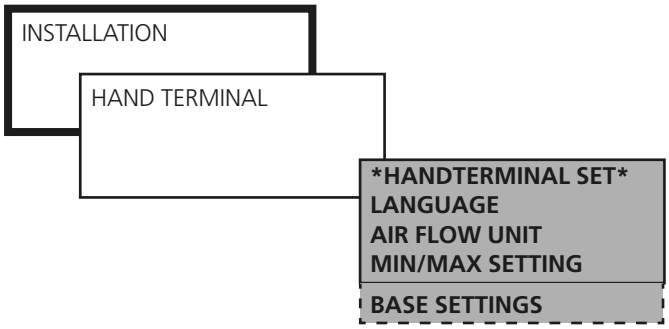
Used for restricting the setting range at user level for setpoints as well as for min. and max. temperature limits.

Settings:

Value	Setting range	Factory settings
For EA and SA regulation		
Setpoint, min	10-30°C	15°C
Setpoint, max	10-40°C	40°C
For EA regulation		
Min SA, min	8-20°C	13°C
Max SA, min	8-20°C	18°C
Min SA, max	16-50°C	25°C
Max SA, max	16-50°C	45°C
For ERS regulation 1		
Breakpoint, min	12-26°C	15°C
Breakpoint, max	12-26°C	23°C
EA/SA Diff, min	1-7°C	1°C
EA/SA Diff, max	1-7°C	5°C

EA = Extract air
SA = Supply air

ERS= Extract air temperature-related supply air temperature-regulation



13.4 Base Settings

Used for saving and resetting the settings.

BASE SETTINGS 1 and 2 are two levels where the user him-/herself saves current settings and activates them when needed.

The two base settings can be used as a summer setting and as a winter setting of the air handling unit.

The values in INITIAL SETTING 1 and 2 saved in the internal memory can be transferred to the external MMC memory by entering SAVE SETTINGS. EXTERNAL MEMORY.

The values can be transferred from the external MMC memory to the internal memory by entering FETCH EXTERNAL MEMORY.

INITIAL SETTING 1 and 2 must be downloaded into the control unit by entering INTERNAL MEMORY, LOAD NEW SETTINGS.

Under SAVE EXTERNAL MEMORY, there is a function that can save current settings to the MMC memory.

Current settings can be stored directly in the control unit under FETCH EXTERNAL MEMORY

FACTORY SETTINGS resets the air handling unit's settings to the original values it had when it was supplied (See 19.2 Commissioning Record).

The preset values for communication and alarm priority are not reset if the factory settings are reinstated.

Settings:

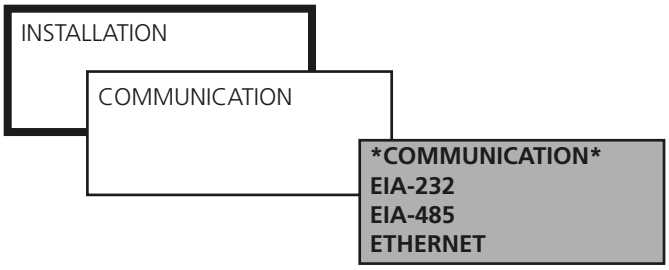
Value	Setting range
Save/fetch setting	
Save setting – internal memory	Save new setting 1
	Save new setting 2
external memory	Save setting 1
	Save setting 2
	Save current setting
	Save all
Load/fetch – internal memory	Load new setting 1
	Load new setting 2
external memory	Fetch setting 1
	Fetch setting 2
	Fetch current setting
	Fetch all
Factory setting	Activate

14 COMMUNICATION

Provision for communication and supervision is integrated as standard into the GOLD. The unit is ready to be connected via EIA-232, EIA-485 and Ethernet. For particulars of connecting and wiring the air handling unit, see Section 19.5 Wiring to Terminals, Sizes 04-80.

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

Further information about interfaces, protocol and configuration is available at www.swegon.se (com) under Products/Air handling units/GOLD air handling units/Documentation.



14.1 EIA-232

Protocol and settings for EIA-232 is specified.

Settings:

Value	Setting range
Modbus RTU	Address, speed, parity, stop bits
GSM-modem	
Analogue modem	

14.2 EIA-485

Protocol and settings for EIA-485 is specified.

Settings:

Value	Setting range
Modbus RTU	Address, speed, parity, stop bits
Metasys N2 OPEN	
Lon Works/TREND	
Exolinc	

14.3 Ethernet

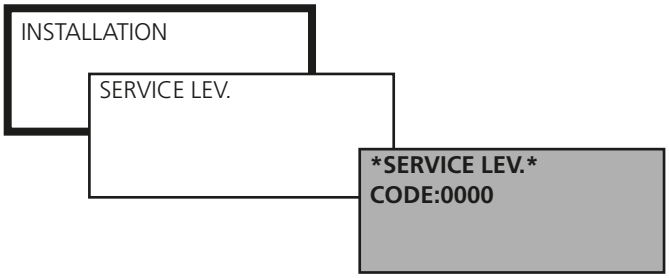
Protocol and settings for Ethernet is specified.

Settings:

Value	Setting range
Ethernet	MAC ID DHCP SERVER (active or inactive) IP ADDRESS (static or dynamic) SUBNETM. GATEWAY DNS-SERVER MODBUS TCP CLIENT (IP address and mesh) BACNet IP (active or inactive, Device ID, Port no.)

15 SERVICE LEVEL

A code and special training are required for access to this menu group.



16 MAINTENANCE

Warning

Before carrying out any work, make sure that the power supply to the unit has been isolated.

16.1 Filter Change

The filters should be changed when the filter alarm has been activated.

Order new filters from Swegon or its representative!

State the size of the GOLD unit and whether the change involves one or two air directions.

16.1.1 To remove the Filters

Pull out the handles (A) to free the filters from the filter holder. Withdraw the filters.

It is advisable to clean inside the filter space while the filters are gone.

16.1.2 To fit new filters

Insert the filters into the filter holder. At the same time, stretch out the filter bags, so that they will not get caught, hurt or become folded.

Insert the filters as far as possible into the unit and press lightly on the filter frames, so that they will fit tightly.

Push in the handles (A) so that the filters are clamped in place in the filter holder.

Carry out a filter calibration as described in Section 6.4.2.

16.2 Cleaning and Inspection

16.2.1 General

Clean the interior of the air handling unit as the need arises.

Inspect the air handling unit thoroughly at the same time that you replace the filters or at least twice a year.

16.2.2 Filter Space

Cleaning is most appropriate when you change the filters.

16.2.3 Heat exchangers

Check at least twice a year whether cleaning is necessary.

The cleaning work is carried out from the filter space.

Rotary heat exchanger
The heat exchanger should preferably be cleaned by vacuum cleaning with a soft nozzle to prevent damaging the air passages in the rotor.

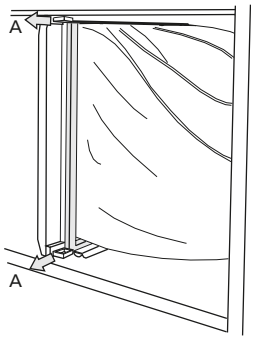
Turn the rotor by hand to enable you to vacuum clean its entire surface.

If the heat exchanger is substantially fouled, it can be blown clean with compressed air.

If necessary, the heat exchanger can be withdrawn from the unit casing and washed with degreasing solvent. Only service personnel trained by Swegon shall be permitted to use this cleaning method.

FABRIC SEAL
Lift up the fabric seal and inspect its underside. Clean if needed by brushing or vacuum cleaning.

If the fabric seal is worn or substantially fouled, it should be replaced. Do not lubricate it!



BELT TENSION
Replace the drive belt if it feels loose or worn and slightly slips if it meets resistance. Contact service personnel trained by Swegon!

Plate heat exchanger
Always clean against the regular direction of airflow.

Cleaning shall only be done by blowing with compressed air, vacuum cleaning with a soft nozzle or wet cleaning with water and/or solvent. Before you begin cleaning, cover adjacent functional sections to protect them.

If cleaning solvent is used, do not use solvent that will corrode aluminium or copper. Swegon's cleaning agent is recommended.

This cleaning agent is sold by Swegon Service.

Inspect the condensate drain to make sure that it isn't clogged. The by-pass and shut-off dampers do not require maintenance.

Coil heat exchanger
Make sure that the coils are purged of air. If a droplet eliminator is fitted, remove it and flush it clean with water.

Always clean against the regular direction of airflow.

Cleaning shall only be done by blowing with compressed air, vacuum cleaning with a soft nozzle or wet cleaning with water and/or solvent. Before you begin cleaning, cover adjacent functional sections to protect them.

If cleaning solvent is used, do not use solvent that will corrode aluminium or copper. Swegon's cleaning agent is recommended.

This cleaning agent is sold by Swegon Service.

While cleaning, check the content of glycol in the water and the condition of the coil for tightness. Also check that the condensate drain is not clogged.

16.2.4 Fans and Fan Space

Inspect and clean the fan impellers to remove possible dirt deposits.

Check the impeller to make sure that it is not out of balance.

Clean or brush off the fan motor. It can also be cleaned by carefully wiping it with a damp cloth that has been dipped in a solution of water and dishwashing detergent.

Clean the fan space, if needed.

16.3 Performance Checks

General performance checks should be carried out in conjunction with filter change or at least once a year.

It is then appropriate to compare the current performance values of the unit with the Commissioning Record. Eventual deviations should be remedied.

16.4 To change the pump, pipework package, GOLD CX, sizes 35-80

Before the pump can be replaced, the coils will have to be partially emptied.
An electrician or a duly qualified person skilled in electrical installations is required to disconnect and connect the power supply cable to the pump.

To empty the coils:
It isn't necessary to completely empty the system; it will be sufficient to empty to a level just below the pump.

For the variants in which the pump is arranged above the expansion vessel, the system can be emptied from the header by the expansion vessel.
For the other variants, the venting or drain nipples on the lower coils should be used for emptying.
Open the venting valve on the upper coil as well.

To remove the old pump:
Remove the insulation material around the pump and make note of the direction of liquid flow.
Disconnect the electrical connections from the pump.
Remove the bolts on the pump's flange connections and remove the pump.
Remove the old gaskets and clean the surfaces where they have been seated.

To mount the new pump:
Fit the new gaskets.
Check the direction of flow of the new pump and mount it so that the direction of liquid flow will be the same as before.
Tighten the bolts on the pump's flange connections.
Wire the electrical connections to the pump.

To refill the coils:
When refilling, fill with glycol of the type used in brine systems; not the type used in motor vehicles! The glycol content is always 30% from the factory.

The total volume of glycol/water is 122 litres in size 35/40, 176 litres in size 50/60 and 231 litres in size 70/80 units.

Open the valve on the header by the expansion vessel and connect the filling hose.

Start the external filling pump and refill the coils. The filling pump should hold a pressure of approx 1 bar .

Use the venting valves to vent both the upper and lower coils.

Close the lower venting valve when liquid, free of air bubbles, flows out.

Close the upper venting valve when liquid, free of air bubbles, flows out.

Start the internal circulation pump and make sure that the direction of rotation is correct.

The green LED on the terminal box of the pump shall be lit while the pump is operating. If the red LED is lit, the pump impeller is rotating in the wrong direction.

Operate the unit for approx. 10 minutes, then vent both the upper and lower coils.

Close the filling valve and switch off the pump.

Remove the hoses and re-insulate the pump.

Operate the unit for approx. 1 week, then vent both the upper and lower coils again.

17 ALARMS AND FAULT TRACING

17.1 General

Alarms are indicated by an alarm text and flashing LED in the hand-held micro terminal.

Fire alarms and frost alarms are shown in all the menu images. Other alarms are only shown if you are in the Main menu.

Active, but time-delayed alarms can be viewed quickly at USER LEVEL under ALARMS. The 10 most recently initiated alarms can also be read in this menu.

A fault can be traced by examining the function or function section indicated in the alarm text.

Faults can also be traced via the READINGS menu or the MANUAL TEST menu at Installation level.

If the fault cannot immediately be remedied:

Consider whether the air handling unit can continue to operate until the fault has been remedied. Choose to block the alarm and/or to change it from STOP to OPERATION (See Section 12, Alarm settings).

17.1.1 A and B-alarms

Type A alarms transmit an alarm signal to the alarm relay A output (control unit terminals 15-16).

Type B alarms transmit an alarm signal to the alarm relay B output (control unit terminals 17-18).

From these terminals, alarms can be forwarded with different priority.

The alarm relays can be selected to have normally open or normally closed function.

17.1.2 Resetting of alarms

Alarms that require manual resetting can be reset from the hand-held micro terminal. Select RESET in the current alarm menu.

Alarms that reset themselves automatically do so as soon as the fault has been remedied.

Alarms can also be reset via a communication network.

17.1.3 Changing Alarm Settings

See Section: 12 Alarm Settings.

17.1.4 Start up after a power failure

Automatic or manual start up after a power failure can be selected.

17.2 Alarm Descriptions with Factory Settings

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
1	EXTERNAL FIRE ALARM TRIPPED For the fire protection function connected to terminals 54-55.	A****	1*	1	3 s	M
2	INTERNAL FIRE ALARM TRIPPED The air handling unit's supply air sensor measures a temperature more than 70 °C and/or its extract air sensor measures a temperature more than 50 °C. The function must be activated manually in the ALARM SETTINGS menu.	A ****	1*	1	3 s	M
3	FROST PROTECTION BELOW ALARM LIMIT The anti-frosting monitor sensor measures a temperature lower than the preset temperature. Factory setting: 7 °C.	A ****	1*	1	3 s	M
4	R.HX.SPEED MONITOR TRIPPED No impulses from the rotation detector are registered with the heat exchanger controller. The air handling unit will be switched out only if the outdoor temperature drops below 5 °C.	A	0**	1	3 s	M
5	FROST PROTECTION SENSOR DEFECTIVE The anti-frosting monitor temperature sensor is lacking, is not connected or is faulty; an air heater for hot water is connected.	A ****	1*	1	3 s	A
6 7	SUPPLY AIR TEMP SENSOR DEFECTIVE EXTRACT AIR TEMP SENSOR DEFECTIVE The supply air/extract air temperature sensor is not connected or is faulty. (Not applicable if only GOLD SD supply air or extract air handling units are installed, see Alarm No. 82)	A A	1 1	1 1	3 s 3 s	A A
8	OUTDOOR AIR TEMP SENSOR DEFECTIVE The outdoor air temperature sensor is not connected or is faulty. (Not applicable to GOLD SD units, see Alarm No. 81)	B	0	1	3 s	A
9	NO COMMUNICATION TO R.HX. CONTROLLER The air handling unit's control unit cannot establish correct communication with the heat exchanger controller.	A***	1	1	10 s	A
10 11	NO COMMUNICATION TO SA FREQUENCY CONV. NO COMMUNICATION TO EA FREQUENCY CONV. The air handling unit's control unit cannot establish correct communication with frequency inverter.	A *** A ***	1 1	1 1	10 s 10 s	A A
12 13	OVER CURRENT IN SA FREQUENCY CONV. OVER CURRENT IN EA FREQUENCY CONV. Current above the normal level is supplied to the motors.	A *** A ***	1 1	1 1	3 s 3 s	M M
14 15	UNDER VOLTAGE IN SA FREQUENCY CONV. UNDER VOLTAGE IN EA FREQUENCY CONV. Voltage below the normal level is supplied.	A *** A ***	1 1	1 1	3 s 3 s	M M
16 17	OVER VOLTAGE IN SA FREQUENCY CONV. OVER VOLTAGE IN EA FREQUENCY CONV. Voltage above the normal level is supplied.	A *** A ***	1 1	1 1	3 s 3 s	M M

** Not adjustable, always stops the air handling unit.*
*** Not adjustable, stops the air handling unit if the temperature to below +5 °C.*
**** Blocked if the hand terminal does not display the main menu.*
***** Cannot be blocked.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
18 19	OVER TEMPERATURE IN SA FREQUENCY CONV. OVER TEMPERATURE IN EA FREQUENCY CONV. High temperature inside the inverter.	A *** A ***	1 1	1 1	3 s 3 s	M M
20 21	NO COMMUNICATION TO SA-2 FREQUENCY CONV. NO COMMUNICATION TO EA-2 FREQUENCY CONV. The air handling unit's control unit cannot establish correct communication with slave frequency inverter. Applicable to only sizes 50-80.	A *** A ***	1 1	1 1	10 s 10 s	A A
22 23	OVER CURRENT IN SA-2 FREQUENCY CONV. OVER CURRENT IN EA-2 FREQUENCY CONV. Current above the normal level is supplied to slave motor. Applicable to sizes 50-80 only	A *** A ***	1 1	1 1	3 s 3 s	M M
24 25	UNDER VOLTAGE IN SA-2 FREQUENCY CONV. UNDER VOLTAGE IN EA-2 FREQUENCY CONV. Voltage below the normal level is supplied to slave frequency inverter. Applicable to sizes 50-80 only.	A *** A ***	1 1	1 1	3 s 3 s	M M
26 27	OVER VOLTAGE IN SA-2 FREQUENCY CONV. OVER VOLTAGE IN EA-2 FREQUENCY CONV. Voltage above the normal level is supplied to slave frequency inverter. Applicable to sizes 50-80 only.	A *** A ***	1 1	1 1	3 s 3 s	M M
28 29	OVER TEMPERATURE IN SA-2 FREQUENCY CONV. OVER TEMPERATURE IN EA-2 FREQUENCY CONV. High temperature inside the slave frequency inverter. Applicable to sizes 50-80 only	A *** A ***	1 1	1 1	3 s 3 s	M M
30	EXT.EA/ROOM TEMP SENSOR DEFECTIVE Temperature sensor in extract air duct or room is not connected (terminals 40-41) or is faulty; or has been selected with communication. Applicable if the External sensor, extract air/room or Intermittent night-time heating function is selected.	A ***	1	1	3 s	A
31	EXT.OUTDOOR TEMP SENSOR DEFECTIVE Temperature sensor for outdoor temperature is not connected (terminals 38-39) or is faulty; or has been selected with communication. Applicable if the External outdoor sensor function is selected.	B ***	0	1	3 s	A
32	PLATE HEAT EXCH SENSOR FAULTY The temperature sensor in the exchanger cube for the anti-frosting monitor is absent or is faulty.	A ***	0	1	3 s	A
33	COIL HEAT EXCH SENSOR FAULTY The temperature sensor on the coil heat exchanger's pipework package for the anti-frosting monitor is absent or is faulty.	A ***	0	1	3 s	A
34	OVER CURRENT IN R.HX. CONTROLLER Current above the normal level is supplied to the rotary heat exchanger's drive motor.	A ***	1	1	3 s	M
35	UNDER VOLTAGE IN R.HX. CONTROLLER Feed voltage (25V) is supplied to the rotary heat exchanger's drive motor.	A ***	1	1	3 s	M
36	OVER VOLTAGE IN R.HX. CONTROLLER Voltage above the normal level (55 V) is supplied to the rotary heat exchanger's drive motor.	A ***	1	1	3 s	M

**** Blocked if the hand terminal does not display the main menu.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
37	OVER TEMPERATURE IN R.HX. CONTROLLER High internal temperature (90°C for the rotary heat exchanger's controller).	A ***	1	1	3 s	M
38	R.HX. PRESSURE DROP ABOVE ALARM LIMIT The heat exchanger's defrosting function has operated for the full max period 6 times during one 24-hour period.	B ***	0	1	3 s	M
39	EL.HEATING COIL TRIPPED The thermal overload protection has tripped or is not connected.	A ***	1	1	3 s	M
40	EXTRACT AIR TEMP BELOW ALARM LIMIT The extract air temperature is below preset alarm limit for more than 20 minutes.	A ***	1	1	20 m	M
41	SUPPLY AIR TEMP BELOW SETPOINT The supply air temperature is below the preset setpoint (for ERS and Supply air regulation) or Min SA temp (for Extract air regulation) longer than 20 minutes.	A ***	1	1	20 m	M
42	EXT. ALARM No.1 TRIPPED External alarm, connected to control unit terminals 50-51, has tripped.	A ***	1	1	Set time	M
43	EXT. ALARM No.2 TRIPPED External alarm, connected to control unit terminals 52-53, has tripped..	B ***	0	1	Set time	M
44 45	SA DUCT PRESSURE BELOW SETPOINT EA DUCT PRESSURE BELOW SETPOINT Pressure in supply/extract air duct, if pressure transducers are connected, has been more than 10% below its setpoint for more than 20 minutes.	B *** B ***	0 0	1 1	20 m 20 m	M M
46 47	SA DUCT PRESSURE ABOVE SETPOINT EA DUCT PRESSURE ABOVE SETPOINT Pressure in supply/extract air duct, if pressure transducers are connected, has been more than 10% above its setpoint for more than 20 minutes.	B *** B ***	0 0	1 1	20 m 20 m	M M
48 49	SUPPLY AIRFLOW BELOW SETPOINT EXTRACT AIRFLOW BELOW SETPOINT The supply/extract airflow has been more than 10% below its setpoint for more than 20 minutes.	B *** B ***	0 0	1 1	20 m 20 m	M M
50 51	SUPPLY AIRFLOW ABOVE SETPOINT EXTRACT AIRFLOW ABOVE SETPOINT The supply/extract airflow has been more than 10% above its setpoint for more than 20 minutes.	B *** B ***	0 0	1 1	20 m 20 m	M M
52 53	SUPPLY AIR FILTER DIRTY EXTRACT AIR FILTER DIRTY The pressure across the supply /extract air filters has exceeded the preset alarm limit for more than 10 minutes.	B *** B ***	0 0	1 1	10 m 10 m	M M

**** Blocked if the hand terminal does not display the main menu.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
54	SERVICE PERIOD PAST ALARM LIMIT The preset service period has expired. If the alarm is RESET via the hand-held micro terminal, the alarm will be initiated again after 7 days. A new service period can be set in the ALARM SETTINGS menu.	B ***	0	1	Set time	M
55 56	NO COMM. SA AIR FLOW PRESSURE SENSOR NO COMM. EA AIR FLOW PRESSURE SENSOR The air handling unit's control unit cannot establish correct communication with the supply/extract air flow pressure transducer.	A *** A ***	1 1	1 1	10 s 10 s	A A
57 58	NO COMM. SA FILTER PRESSURE SENSOR NO COMM. EA FILTER PRESSURE SENSOR The air handling unit's control unit cannot establish correct communication with the supply/extract air filter pressure transducer.	B *** B ***	0 0	1 1	10 s 10 s	A A
59 60	NO COMM. SA DUCT PRESSURE SENSOR NO COMM. EA DUCT PRESSURE SENSOR The air handling unit's control unit cannot establish correct communication with the pressure transducer connected in the supply/extract air ducting. Applicable to SA /EA pressure regulation only.	A *** A ***	1 1	1 1	10 s 10 s	A A
61	NO COMM. R.HX. PRESSURE SENSOR The air handling unit's control unit cannot establish correct communication with the pressure transducer connected for the heat exchanger. Applicable to the defrosting function only.	B ***	0	1	10 s	A
62-71	NO COMMUNICATION TO I/O-MODUL NR 1–9 The air handling unit's control unit cannot establish correct communication with the connected I/O module 1–9	B ***	0	1	10 s	A
72	Correct communication can be established between the CPU circuit card and the control unit*s I/O processor.	A	1	1	30 s	A
73	PLATE HEAT EXCH, DAMPER MOTOR FAULTY The damper motor does not move to the right position. The position-confirming output signal from the damper is not equivalent to the input control signal.	A ***	1	1	10 m	M
74	COIL HEAT EXCH, PUMP TRIPPED No response is received from the contactor. The motor prot. or the contactor may be faulty.	A ***	1	1	20 s	M
75	SUPPLY AIR HUMIDITY SENSOR FAULTY The communication with the humidity sensor in the supply air duct is faulty or the sensor reading is erroneous.	A ***	1	1	10 s	A
76	EXTRACT AIR HUMIDITY SENSOR FAULTY The communication with the humidity sensor in the extract air duct is faulty or the sensor reading is erroneous.	A ***	1	1	10 s	A

**** Blocked if the hand terminal does not display the main menu.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
77	SUPPLY FLOW TEMP SENSOR, I/O - 7 DEFECTIVE Temperature sensor on main line for chilled water to beams/chilled ceiling is not connected or is defective.	A***	1	1	3 s	A
78	HUMIDITY SENSOR, HEAT EXCH FAULTY Communication with the humidity sensor in the extract air upstream of the heat exchanger is faulty or the sensor reading is erroneous.	B ***	0	1	10 s	A
79	COIL HEAT EXCH, VALVE FAULTY The valve actuator does not move to the right position. The position-confirming output signal from the actuator is not equivalent to the input control signal.	A ***	1	1	10 m	M
80	TEMPERATURE MONITOR - BELOW ALARM LIMIT The temperature reading from the sensor in the inlet of the supply air fan is below the preset alarm limit.	A ***	1	1	30 s	A
81	SUPPLY AIR-D TEMP SENSOR FAULTY (RX/PX/CX) The temperature sensor in the supply air fan inlet has no comm. or its reading is erroneous.	B ***	0	1	10 s	A
	OUTD. AIR TEMP SENSOR DEFECTIVE (SD) The sensor for outdoor temperature is not connected or is faulty.	B	0	1	3 s	A
82	EXTRACT AIR-D TEMP SENSOR FAULTY **Air handling unit with coil or plate heat exch.** The temperature sensor in the extract air fan inlet has no comm. or its reading is erroneous. **Air handling unit with rotary heat exch.** Exhaust air regulation has been selected, but the temperature sensor in the exhaust air is not connected or is faulty.	B ***	0	1	10 s	A
	SA SENSOR DEFECTIVE (SD, supply AHU only) EA SENSOR DEFECTIVE (SD, extract AHU only) The sensor for supply air/extract air temperature is not connected or is faulty.	A A	1 1	! 1	3 s 3 s	A A
83	SA PREFILTER FOULED The pressure across the supply air prefilter has constantly exceeded the preset alarm limit for 0 minutes.	B ***	0	1	10 m	M
84	EA PREFILTER FOULED The pressure across the extract air prefilter has constantly exceeded the preset alarm limit for 0 minutes.	B ***	0	1	10 m	M
85	COOLDX, C1 TRIPPED No contactor replay received at DI1 I/0-module 6 in cooling unit. The motor protection or the pressure switch may have tripped.	A	0	1	20 s	M
86	COOLDX, C2 TRIPPED No response is received from the contactor at DI2 I/0-modul 6 in cooling unit. The motor prot. or the pressure switch may have tripped.	A	0	1	20 s	M
87	COOLDX C1 TOO MANY RESTARTS Compressor 1 has started more than 23 times in 2 hours.	A	0	1	3 s	M
88	COOLDX C2 TOO MANY RESTARTS Compressor 2 has started more than 23 times in 2 hours.	A	0	1	3 s	M

**** Blocked if the hand terminal does not display the main menu.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
89	NO COMM. SA PREFILTER PRESS. SENSOR The air handling unit's control unit cannot establish correct communication with supply air prefilter pressure sensor.	B***	0	1	10 s	A
90	NO COMM. EA PREFILTER PRESS. SENSOR The air handling unit's control unit cannot establish correct communication with extract air prefilter pressure sensor.	B***	0	1	10 s	A
91	FROST PROTECTION, PREHEATING, BELOW ALARM LIMIT The sensor for the frost protection monitor, preheating, has measured a temperature lower than the preset temperature. Factory setting: 7 °C.	A	1	1	3 s	M
92	FROST PROTECTION PREHEATING SENSOR DEFECTIVE The sensor for the frosting protection monitor, preheating, is lacking, is not connected or is faulty, if an air heater for hot water is connected.	A	1	1	3 s	A
93	PREHEATING SENSOR DEFECTIVE The sensor for preheating is lacking, is not connected or is faulty, if an air heater for hot water is connected.	A	1	1	3 s	A
94	EL. AIR HEATER, PREHEATING, TRIPPED The thermal overload protection for the connected electric air preheater, has tripped or is not connected.	A***	1	1	3 s	M
95	PREHEATING BELOW SETPOINT The preheating temperature is below the preset setpoint (for ERS and Supply air control) or Min SA temp (for Extract air control) longer than 0 minutes.	A***	1	1	20 m	M
96	SPARE					
97	NO COMMUNICATION ReCO PRESSURE SENSOR The air handling unit's control unit cannot establish correct communication with the flow pressure sensor for ReCO.	A***	1	1	10 s	A
98	ReCO DAMPER MOTOR FAULTY The damper motor does not actuate damper to the right position. The position-confirming output signal from the damper is not equivalent to the input control signal.	A***	1	1	10 m	M
99	TIME LOCK TRIPPED Contact Swegon or their representative.	–	–	–	–****	M
100-101	SPARE					
102	COOLING VALVE I/O-7 DEFECTIVE Controls of the Cooling valve do not obtain the same signal on AI 1 as on AU1 on I/O-module.	B***	1	0	10 m	M
103	HEATING VALVE I/O-7 DEFECTIVE Controls of the Heating valve do not obtain the same signal on AI 2 as on AU2 on I/O-module	B***	1	0	10 m	M
104	COOL. CIRCUIT PUMP I/O-7 TRIPPED. Controls of the cooling circuit pump do not obtain correct signal according to set function.	B***	1	0	30 s	M

**** Blocked if the hand terminal does not display the main menu.*
***** Adjustable: 0-99 months.*

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
105	HEAT. CIRCUIT PUMP I/O-7 TRIPPED Controls of the heating circuit pump do not obtain correct signal according to set function.	A***	1	1	30 s	M
106	COOLING WATER TEMP I/O-7 BELOW SET POINT Temperature for cooling water control on I/O module is continuously 7°C below its current set point.	B***	1	0	30 m	M
107	HEATING WATER TEMP I/O-7 BELOW SET POINT. Temperature for heating water control on I/O module is continuously 7°C below its current set point.	A***	1	0	30 m	M
108	COOLING WATER TEMP I/O-7 ABOVE SET POINT Temperature for cooling water control on I/O module is continuously 7°C above its current set point.	0***	1	0	30 m	M
109	HEATING WATER TEMP I/O-7 ABOVE SET POINT Temperature for heating water control on I/O module is continuously 7°C above its current set point.	0***	1	0	30 m	M
110	COOLING WATER TEMP SENSOR I/O-7 DEFECTIVE Obtained if the cooling water temperature sensor temp is not connected or is defective.	B	1	0	3 s	A
111	HEATING WATER TEMP SENSOR I/O-7 DEFECTIVE Obtained if the heating water temperature sensor is not connected or is defective.	A	1	0	3 s	A
112-142	SPARE					
143	NO COMMUNICATION W CONTROL OPTIMIZE The AHU control unit cannot establish correct communication with CONTROL Optimize.	B***	0	1	10 s	A
144-149	NO COMMUNICATIONI/O-MODULE No. A-F The air handling unit's control unit cannot establish correct communication with the connected I/O module A–F	B***	0	1	10 s	A
150	FROST PROTECTION, EXTRA ZONE, BELOW ALARM LIMIT The sensor for the frost protection monitor, extra zone, has measured a temperature lower than the preset temperature. Factory setting: 7 °C	A	1	1	3 s	M
151	FROST PROTECTION, EXTRA ZONE, FAULTY The sensor for the frosting protection monitor, extra zone, is lacking, is not connected or is faulty, if an air heater for hot water is connected.	A	1	1	3 s	A
152	SUPPLY AIR SENSOR, EXTRA-ZONE, FAULTY The supply air sensor for the extra zone, is lacking, is not connected or is faulty, if an air heater for hot water is connected.	A	1	1	3 s	A

Alarm no.	Alarm text Function	Priority	Stop	Indication LED	Delay	Resetting
		0=blocked	0=In operat.	0=Off	s=seconds	M=manual
		A=A alarm	1=Stop	1=On	m=minutes	A=automatic
		B=B alarm				
153	EXTRACT AIR SENSOR, EXTRA-ZONE, FAULTY The extract air sensor for the extra zone, is lacking, is not connected or is faulty, if an air heater for hot water is connected.	A	1	1	3 s	A
154	EL. AIR HEATER, EXTRA-ZONE, FAULTY The thermal overload protection for the connected electric air heater for the extra zone has tripped or is not connected.	A	1	1	3 s	A
155	EA TEMP IN EXTRA ZONE BELOW ALARM LIMIT The extract air temperature in the extra zone is below preset alarm limit for more than 0 minutes.	A***	1	1	20 m	M
156	SA TEMP IN EXTRA ZONE BELOW ALARM LIMIT The supply air temperature in the extra zone is below the preset setpoint (for ERS and Supply air control) or Min SA temp (for Extract air control) longer than 0 minutes.	A***	1	1	20 m	M
157-159	SPARE	A***	1	1		M
160-199	SPARE					

**** Blocked if the hand terminal does not display the main menu.*

18 INFORMATIVE MESSAGES

Informative messages are displayed in the hand-held micro terminal. Informative messages are displayed only when the user is viewing the Main menu.

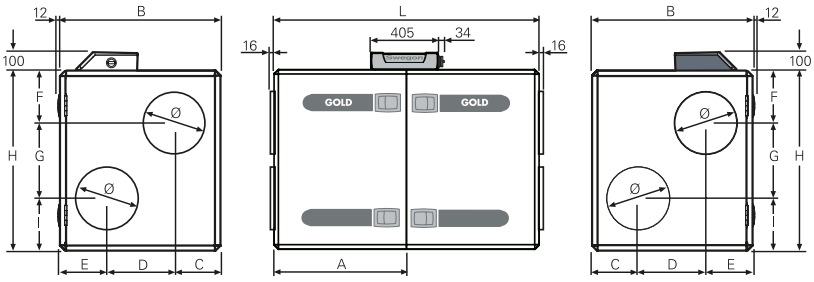
Informative messages provide particulars about necessary settings that have not been entered or unfavourable operating scenarios, for instance.

Message No.	Message Text
1	FILTER CALIBRATION NOT EXECUTED The pressure across the filters was not calibrated after the first start. Recurrent at 24-hour intervals. The message will not be received after the pressure across the filters has been calibrated.
2	H EXCH CALIBRATION NOT EXECUTED The pressure across the heat exchanger was not calibrated after the function was activated for the first time. Recurrent at 24-hour intervals. The message will not be received after the pressure across the heat exchanger has been calibrated.
3	NONCONFORMING PHASE VOLTAGE High voltage difference between the phase wires (3-phase, 400 V), causes rippling. Has a negative effect on the useful life of the frequency inverter.
4	INCORRECT DIP SWITCH SETTINGS DIL switches on the control circuit card are set in a forbidden combination.
5	SPARE
6	MODEM/E-MAIL ERROR Error in communication to the modem or error when e-mail is being delivered. The message will be displayed after ten attempts.
7	PREFILTER CAL NOT EXECUTED The pressure across the prefilters was not calibrated after the first start. Recurrent at 24-hour intervals. The message will not be received after the pressure across the prefilters has been calibrated.
8	$ReCO_2$ CALIBRAT NOT EXECUTED ReCO was not calibrated after the function was activated for the first time. Recurrent at 24-hour intervals. The message will not be received after the RecCO has been calibrated.
9	INCORRECT $ReCO_2$ SETTING Pressure control, slave control or wrong type of air handling unit has been selected. Recurrent at 5-minute intervals

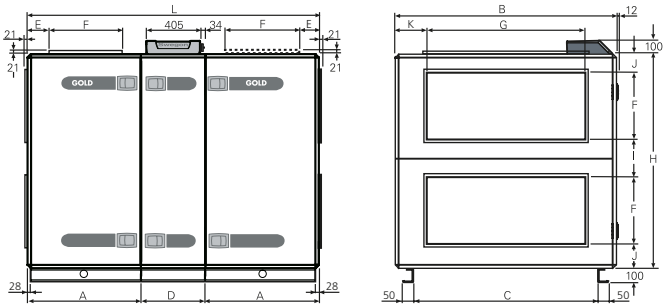
19 TECHNICAL DETAILS

19.1 Dimensions, GOLD RX one-piece unit with rotary heat exchanger

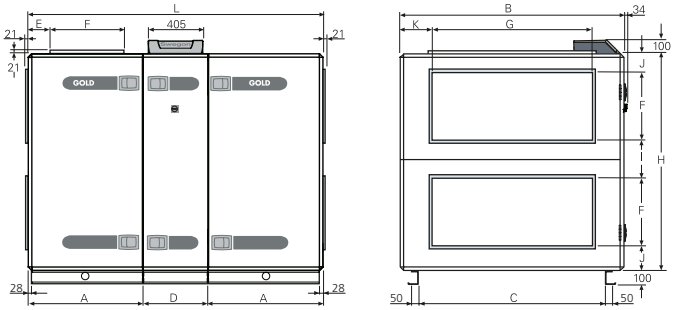
GOLD
04/05, 08



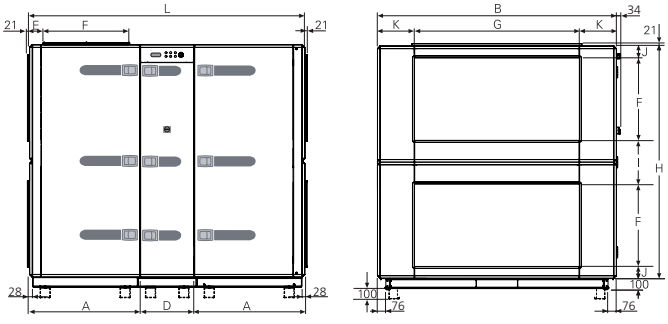
GOLD
14/20, 25/30



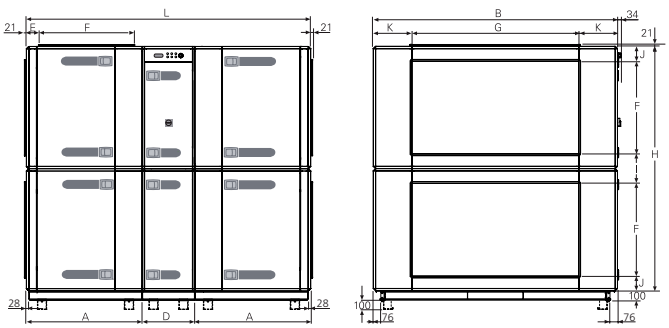
GOLD
35/40



GOLD 50/60



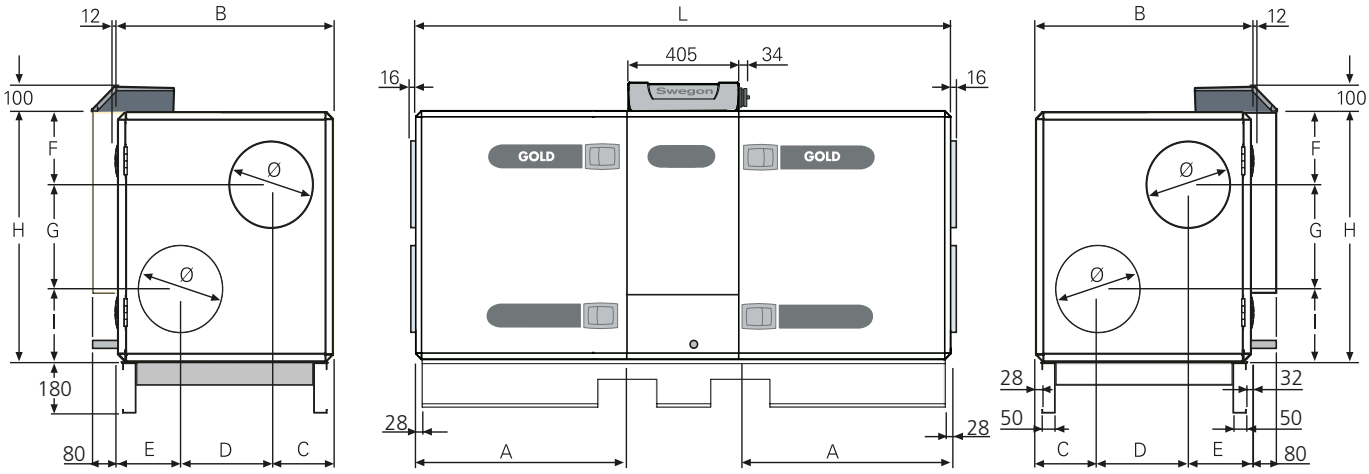
GOLD 70/80



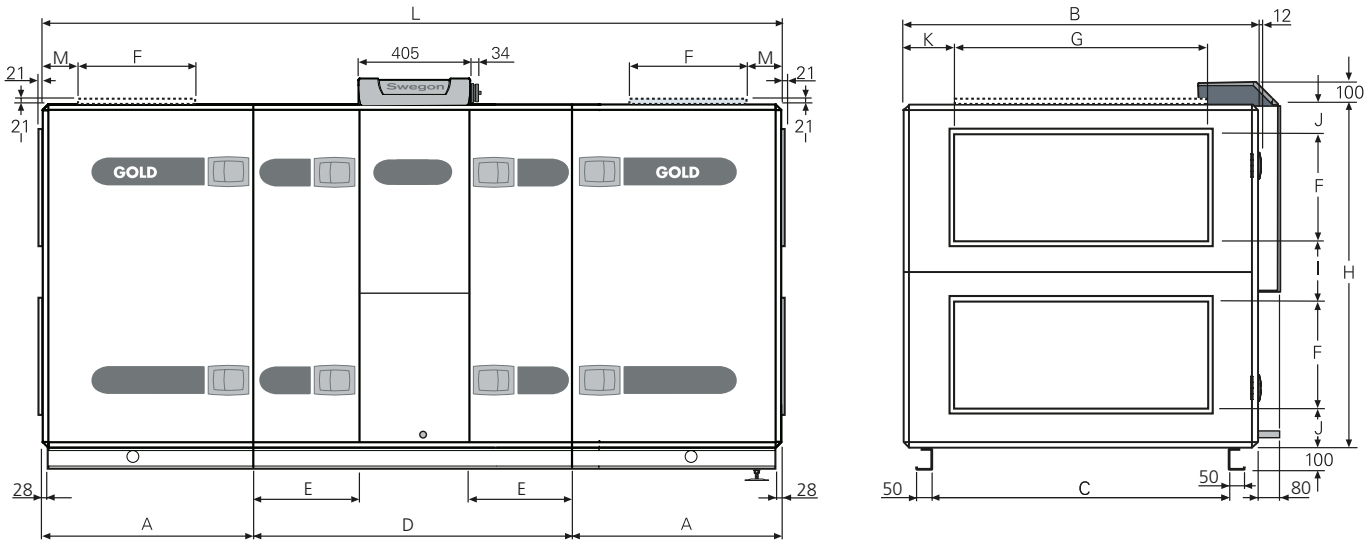
Size	A	B	C	D	E	F	G	H	I	J	K	L	Ø	Weight, kg
04/05	750	820	236	345	239	268	385	920	267	–	–	1500	315	258
08	800	990	273	440	276	293	500	1085	292	–	–	1600	400	313
14/20	765	1295	1036	550	196	400	1000	1295	252	122	146	2080	–	634
25/30	835	1595	1336	550	180	500	1200	1595	300	148	194	2220	–	836
35/40	875	1885	1626	550	125	600	1400	1885	300	192	242	2300	–	1100
50/60	1050	2318	–	570	150	800	1600	2253	423	115	360	2670	–	1690
70/80	1250	2637	–	570	150	1000	1800	2640	319	161	419	3070	–	2379

19.2 Dimensions, GOLD PX one-piece unit with plate heat exchanger

GOLD
04/05, 08



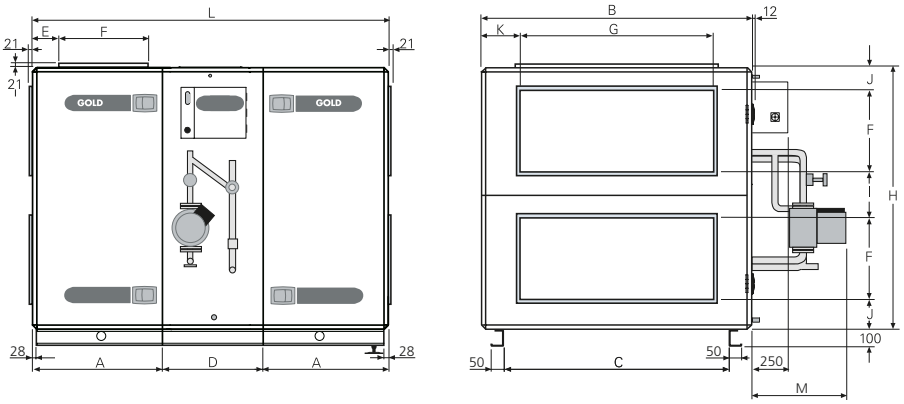
GOLD
14/20, 25/30



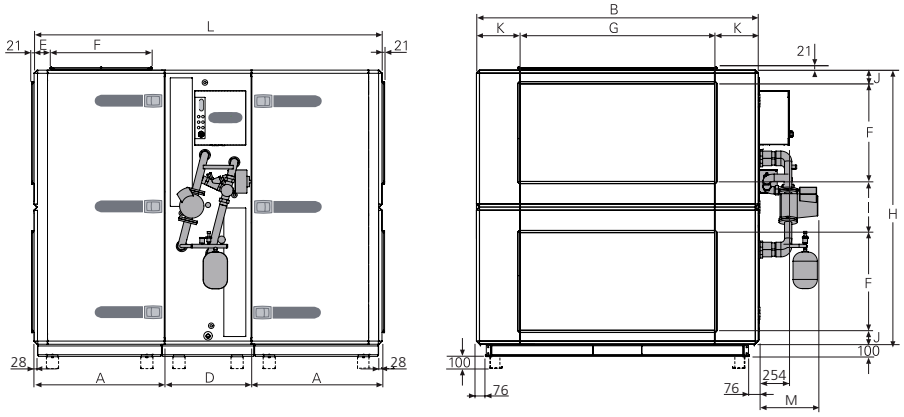
Size	A	B	C	D	E	F	G	H	I	J	K	L	M	Ø	Weight, kg
04/05	800	820	236	345	239	268	385	920	267	–	–	2000	–	315	355
08	915	990	273	440	276	293	500	1085	292	–	–	2230	–	400	455
14/20	765	1295	1036	1200	400	400	1000	1295	252	122	146	2730	196	–	760
25/30	835	1595	1336	1500	550	500	1200	1595	300	148	194	3170	180	–	1020

19.3 Dimensions, GOLD CX one-piece unit with coil heat exchangers

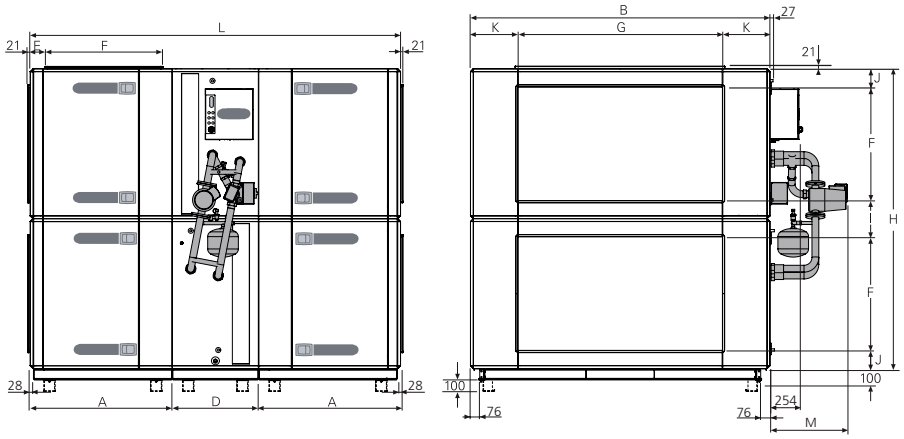
GOLD 35/40



GOLD 50/60



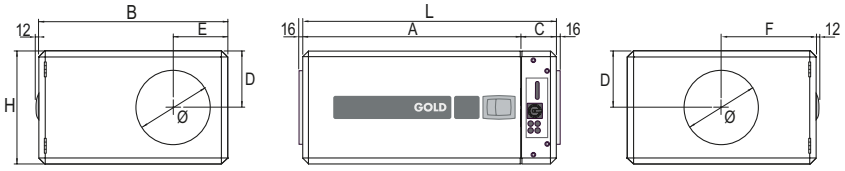
GOLD 70/80



Size	A	B	C	D	E	F	G	H	I	J	K	L	M	Weight, kg
35/40	875	1885	1626	680	125	600	1400	1885	300	192	242	2430	600	1450
50/60	1050	2318	–	760	150	800	1600	2253	423	115	360	2860	650	2237
70/80	1250	2637	–	760	150	1000	1800	2640	319	161	419	3260	800	3092

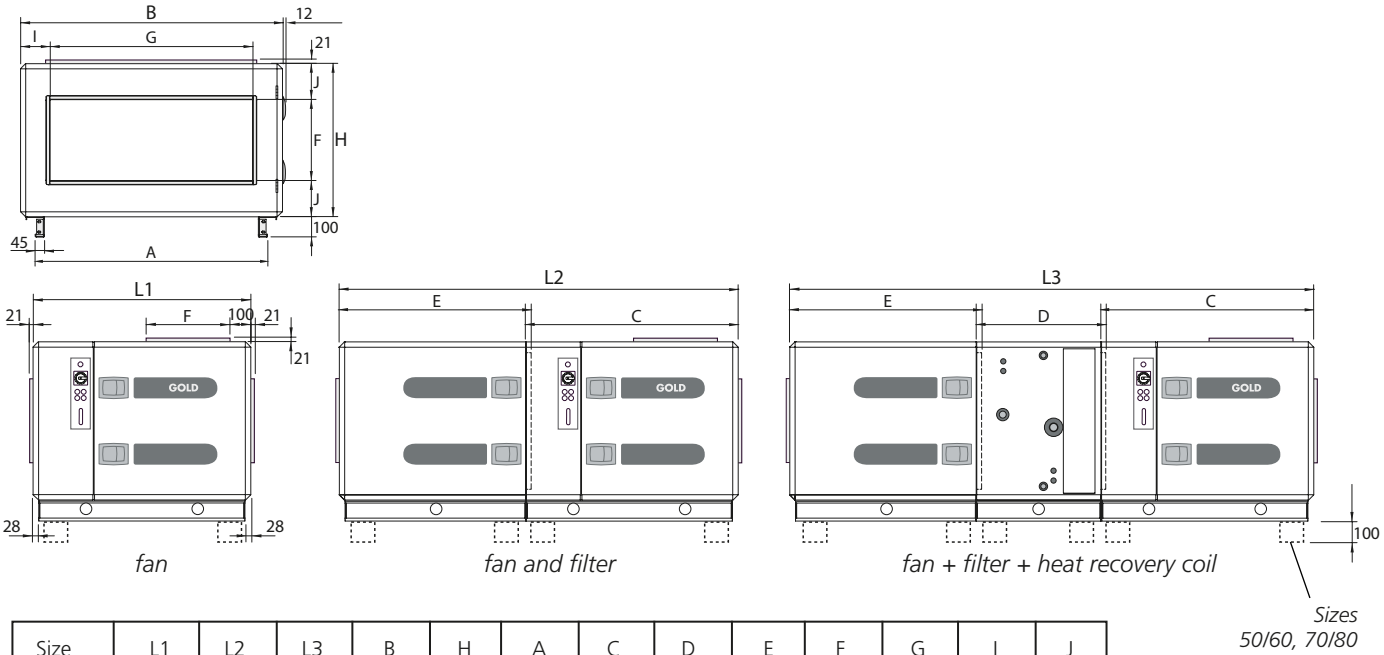
19.4 Dimensions, separate GOLD SD supply air and extract air handling units

GOLD 04/05, 08



Size	L	B	H	A	C	D	E	F	Ø	Weight, kg
04/05	1100	820	490	948	152	245	236	410	315	115
08	1175	990	575	1023	152	288	321	495	400	150

GOLD 14/20, 25/30, 35/40, 50/60, 70/80



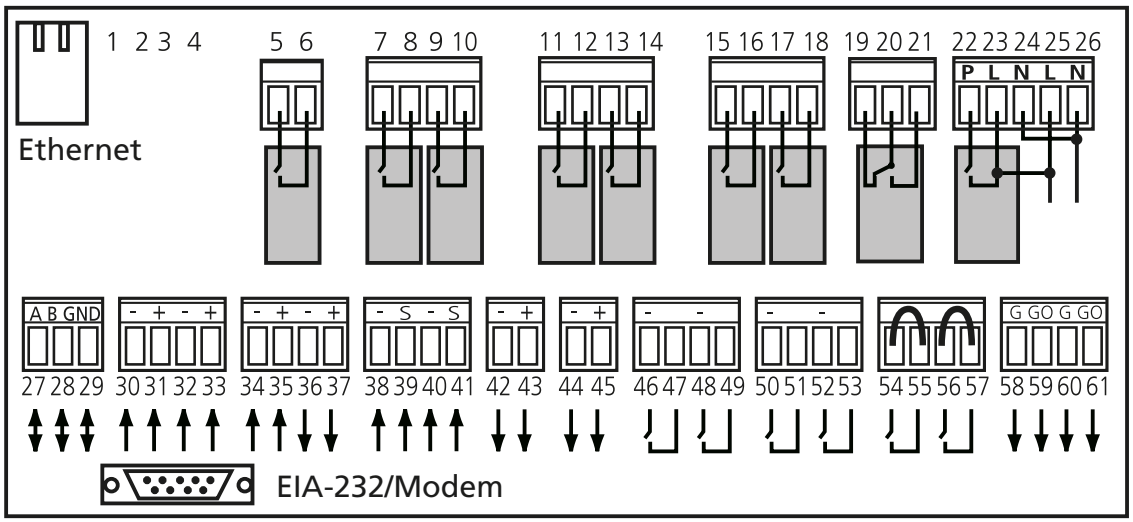
fan *fan and filter* *fan + filter + heat recovery coil*

Size	L1	L2	L3	B	H	A	C	D	E	F	G	I	J
14/20	1040	1909	2505	1295	756	1146	1012	619	919	400	1000	146	178
25/30	1145	2014	2610	1595	1026	1446	1117	619	919	500	1200	194	263
35/40	1145	2014	2610	1885	1026	1736	1117	619	919	600	1400	242	213
50/60	1145	2014	2610	2313	1320	2165*	1117	619	919	800	1600	355	260
70/80	1278	2500	3260	2637	1320	2484*	1250	760	1250	1000	1800	419	160

**) The size 50–80 GOLD units have transverse base beams supporting their ends.*

Size	Weight, kg fan	Weight, kg fan + filter	Weight, kg fan + filter + coil
14/20	230	340	475
25/30	310	450	670
35/40	365	520	760
50/60	550	760	1170
70/80	675	945	1700

19.5 Terminal Connections, Sizes 04-80



Digital inputs, terminals 46-57, are of low voltage type.
Analogue inputs, terminals 30-35, have input impedance 66 kΩ.

Terminals	Function	Remarks
1 and 2	Not used	
3 and 4	Not used	
5 and 6	Circulation pump, heating	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Close when heating is needed.
7 and 8	Cooling, on/off, step 1	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Close when cooling is needed.
9 and 10	Cooling, on/off, step 2	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Close when cooling is needed.
11 and 12	In-op. indication, low speed	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Close when the fans operate at low speed.
13 and 14	In-op. indication, high speed	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Close when the fans operate at high speed.
15 and 16	Group alarm A (1)	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Closes or opens (setting) if an A alarm trips.
17 and 18	Group alarm B (2)	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. Closes or opens (setting) if an B alarm trips.
19 , 20 and 21	In-operation indication	Independent contacts, max 12A/AC1, 5A/AC3, 250VAC. 19 NC, 20 C, 21 NO. Close when AHU is in operation.
22 , 23 and 24	Damper control	230VAC. 22: controlled phase, 23: fixed phase, 24: zero conductor. 22 is energized while the AHU operations.
25 and 26	Control voltage, output	Control voltage 230VAC. Max load 1.5A. Interrupted by safety switch and burdens the supply voltage fuse.
27, 28 and 29	Connections for EIA-485 network	27 communication connection A/RT+, 28 communication connection B/RT-, 29 GND/COM.
30 and 31	Supply air boost	Input for 0-10VDC. Input signal acts upon the supply air flow/pressure setpoint.
32 and 33	Extract air boost	Input for 0-10VDC. Input signal acts upon the extract air flow/pressure setpoint.
34 and 35	External	0-10VDC input. Acts on the supply air setpoint if the AHU is operating in the supply air regulation mode. Acts on the extract air setpoint if the AHU is operating in the extract air regulation mode. Effect: ±5°C. If the AHU is operating in the ERS regulation mode, it acts on the EA/SA differential. The differential cannot be <0°C. The EA/SA differential decreases on an increasing input signal. Can be activated from the hand-held micro terminal.
36 and 37	Reference voltage	Output for constant 10VDC. Max. permissible load: 2mA.
38 and 39	External outdoor temperature sensor	38 GND, 39 signal. Connection for externally mounted digital outdoor temperature sensor.
40 and 41	External EA/room temperature sensor	40 GND, 41 signal. Connection for externally mounted digital extract air/room temperature sensor.
42 and 43	Variable control, cooling	Output for cooling, 0-10VDC. Max. permissible load: 2mA at 10VDC.
44 and 45	Control: extra control sequence/recirculation damper	Use of the control output steered by the function selected in the hand-held micro terminal. Max. permissible load: 2mA at 10VDC.
46 and 47	External low speed	External contact function. Overrides the switch clock from stop to low speed operation.
48 and 49	External high speed	External contact function. Overrides the switch clock from stop or low speed to high speed operation.
50 and 51	External alarm 1	External contact function. Optional normally open/normally closed. External alarm is available in the GOLD.
52 and 53	External alarm 2	External contact function. Optional normally open/normally closed. External alarm is available in the GOLD.
54 and 55	External fire/smoke function	External fire and smoke function. On delivery, this function is fitted with a jumper. The contacts connected between 54 and 55 are closed while the unit is operating. If they open, the function will trip and initiate an alarm.
56 and 57	External stop	Stops the AHU via normally-closed contacts. Fitted with jumper on delivery. AHU operation presupposes connection between 56 and 57. If the connection is interrupted, the AHU will stop.
58 and 59	Control voltage	24VAC control voltage. Terminals 58-61 can bear a combined total load of max 16VA all total. Can be interrupted by safety switch.
60 and 61	Control voltage	24VAC control voltage. Terminals 58-61 can bear a combined total load of max 16VA all total. Can be interrupted by safety switch.

19.6 Electrical Data

19.6.1 Air handling unit

MIN. POWER SUPPLY, ONE-PIECE GOLD UNIT WITH ROTARY (RX), PLATE (PX) OR COIL (CX) HEAT EXCHANGER

GOLD 04: 1-phase, 3-conductor, 230 V -10/+15%, 50 Hz, 10 AT
or 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 05: 1-phase, 3-conductor, 230 V -10/+15%, 50 Hz, 16 AT
or 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 08: 1-phase, 3-conductor, 230 V -10/+15%, 50 Hz, 20 AT
or 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 14: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 20: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 16 AT
GOLD 25: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 16 AT
GOLD 30: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 20 AT
GOLD 35: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz,
16 AT (RX), 20 AT (CX)
GOLD 40: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 32 AT
GOLD 50: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 25 AT
GOLD 60: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 40 AT
GOLD 70: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 32 AT
GOLD 80: 3-phase, 5-conductor, 400 V -10/+15%, 50 Hz, 50 AT

MIN. POWER SUPPLY, SEPARATE SUPPLY AIR AND EXTRACT AIR GOLD UNTS (SD)
GOLD 04/05 and 08:
1-phase, 3-wire, 230 V -10/+15%, 50 Hz, 10 AT
GOLD 14-35:
3-phase, 5-wire, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 40-50:
3-phase, 5-wire, 400 V -10/+15%, 50 Hz, 16 AT
GOLD 60: 3-phase, 5-wire, 400 V -10/+15%, 50 Hz, 10 AT
GOLD 70: 3-phase, 5-wire, 400 V -10/+15%, 50 Hz, 16 AT
GOLD 80: 3-phase, 5-wire, 400 V -10/+15%, 50 Hz, 15 AT

19.6.2 Fans

RATED DATA PER FAN

GOLD 04: 3 x 230 V, 50 Hz, 1.1 kW (0.55 kW)*
GOLD 05: 3 x 230 V, 50 Hz, 1.1 kW
GOLD 08: 3 x 230 V, 50 Hz, 1.4 kW
GOLD 14: 3 x 400 V, 50 Hz, 3.0 kW (1.2 kW)*
GOLD 20: 3 x 400 V, 50 Hz, 3.0 kW
GOLD 25: 3 x 400 V, 50 Hz, 4.6 kW (2.3 kW)*
GOLD 30: 3 x 400 V, 50 Hz, 4.6 kW
GOLD 35: 3 x 400 V, 50 Hz, 6.5 kW (3.1 kW)*
GOLD 40: 3 x 400 V, 50 Hz, 6.5 kW
GOLD 50: 3 x 400 V, 50 Hz, 4.6 kW (2.3 kW)* two parallel
GOLD 60: 3 x 400 V, 50 Hz, 4.6 kW two parallel
GOLD 70: 3 x 400 V, 50 Hz, 6.5 kW (3.7 kW)* two parallel
GOLD 80: 3 x 400 V, 50 Hz, 6.5 kW two parallel

**) The frequency inverter restricts the output power to the values specified.*

19.6.3 Electrical Equipment Cubicle

SAFETY ISOLATING SWITCH

GOLD RX/PX/SD** 04-08:	20 A	
GOLD RX/PX** 14-30 and GOLD SD* 14-80:	25 A	
GOLD RX/CX** 35-40:		40 A
GOLD RX/CX** 50-80:		63 A

FUSES IN THE ELECTRICAL EQUIPMENT CUBICLE

GOLD 04-08:	One 2-pole 6A Automatic circuit breaker for 230V control current
*RX/PX***	Two 2-pole 10A Automatic circuit breakers for fans (Not applicable to GOLD SD)
GOLD 14-20:	One 2-pole 6A Automatic circuit breaker for 230V control current
*RX/PX***	Two 6.3A protective motor switches for the fans
*SD***	One 6.3A protective motor switch for the fans
GOLD 25-30:	One 2-pole 6A Automatic circuit breaker for 230V control current
*RX/PX***	Two 10A protective motor switches for the fans
*SD***	One 10A protective motor switch for the fans
GOLD 35-40:	One 2-pole 6 A Automatic circuit breaker for 230V control current
*RX/CX***	Two 12,5A protective motor switches for the fans
*CX***	One 1.8 A protective motor switch for the circulation pump
*SD***	One 12,5A protective motor switch for the fans
GOLD 50-60:	One 2-pole 6 A Automatic circuit breaker for 230V control current
*RX/CX***	Four 10A protective motor switches for the fans
*CX***	One 1.8 A protective motor switch for the circulation pump
*SD***	Two 10A protective motor switches for the fans
GOLD 70-80:	One 2-pole 6 A Automatic circuit breaker for 230V control current
*RX/CX***	Four 12.5A protective motor switches for the fans
*CX***	One 2.35 A protective motor switch for the circulation pump
*SD***	Two 12.5A protective motor switches for the fans

FUSES IN THE CONTROL UNIT

3.15 AT, incoming 230V.

19.6.4 Motor, rotary heat exchanger

GOLD RX 04-30: 2-phase step motor, 2 Nm. On starting: max 3.2 A/160 W. During operation: max 2.5 A/125 W.
GOLD RX 35-40: 2-phase step motor, 4 Nm. On starting: max 4.1 A/205 W. During operation: max 3.5 A/175 W.
GOLD RX 50-80: 2-phase step motor, 6 Nm. On starting: max 5.1 A/255 W. During operation: max 4.5 A/225 W.

19.6.5 Control Accuracy

Temperature ± 1° C

Airflow ± 5%

*** RX = One-piece air handling unit with rotary heat exchanger*
PX = One-piece air handling unit with plate heat exchanger
CX = One-piece air handling unit with coil heat exchangers
SD = Separate supply air and extract air handling units

20 APPENDICES

20.1 Compliancy Declaration

We at:

Swegon AB
Box 300
S-535 23 KVÄNUM

assure on our own responsibility that the air handling unit of the following type:

AT4 (fitted with control system)	LLVD
CoolDX	LPMA-1
GOLD	LTCE
LLVC	LTCW (fitted with control system)

covered by this declaration, comforms to the following Standards:

EN ISO 12100-1, 2; EN ISO 13857:2008; EN 61000-6-2; EN 61000-6-3 and EN 60204-1

according to the provisions in Directives: **98/37/EC , 2004/108/EC and 2006/95/EC.**

This assurance is applicable only if the air handling unit has been installed according to the instructions and if the air handling unit has not been altered in any way.

Kvänum, April 06, 2009

Thord Gustafsson,
Quality and Environmental Policy Manager

20.2 Commissioning Record

Company

Handling officer

Customer	Date	SO no.:
Plant	**Item/AHU**	**Item no.:**
Plant address	**Type/size**	**Program version:**

Filters calibrated ☐

Switch clock, current time preset ☐

Other control system _____

Switch clock time channel settings

Channel	Operating mode	Times	Week day
1	Low ☐ High ☐	: – :	:
2	Low ☐ High ☐	: – :	:
3	Low ☐ High ☐	: – :	:
4	Low ☐ High ☐	: – :	:
5	Low ☐ High ☐	: – :	:
6	Low ☐ High ☐	: – :	:
7	Low ☐ High ☐	: – :	:
8	Low ☐ High ☐	: – :	:

Switch clock year round settings

Channel	Operating mode	Times	Period
1	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
2	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
3	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
4	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
5	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
6	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
7	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –
8	☐ Inactive ☐ Stop ☐ High ☐ Low	: – :	/ – – / –

Function	Factory preset value	Adjusted value
Temperature *8)*		
Temp. regulation function	[X] ERS 1 [ ] ERS 2 [ ] SA [ ] EA	[ ] ERS 1 [ ] ERS 2 [ ] SA [ ] EA
Differential SA/EA (°C)	3.0	
Step	2	
Breakpoint (°C)	22.0	
X1	15.0	
Y1	20.0	
X2	20.0	
Y2	18.0	
X3	22.0	
Y3	14.0	
Setpoint (°C)	21.5 21.5	
Min SA temp (°C)	15.0	
Temperature control Xzone *8)*		
Temp control function	[ ] ERS 1 [ ] ERS 2 [X] SA [ ] EA	[ ] ERS 1 [ ] ERS 2 [ ] SA [ ] EA
Difference TL/FL (°C)	3,0	
Steps	2	
Breakpoint (°C)	22,0	
X1	15,0	
Y1	20,0	
X2	20,0	
Y2	18,0	
X3	22,0	
Y3	14,0	
Setpoint (°C)	21,5 21,5	
Min. SA temp. (°C)	15,0	
Max. SA temp. (°C)	28,0	
Max SA temp (°C)	28.0	
Outdoor temp. compensation *8)*	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Temperature		
Winter comp. Y1 (°C)	3.0	
End point, winter X1 (°C)	-20.0	
Start point winter X2 (°C)	10.0	
Start point, summer X3 (°C)	25.0	
End point, summer X4 (°C)	40.0	
Summer comp. Y2 (°C)	2.0	
Summer night cooling *8)*	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
EA temp. start (°C)	22.0	
EA temp. stop (°C)	16.0	
Outd. air temp. stop (°C)	10.0	
SA Setpoint (°C)	10.0	
Op. period start (hh:mm)	23:00	
Op. period stop (hh:mm)	06:00	
Intermittent nighttime heating *8)*	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
SA/Room start (°C)	16.0	
EA/Room stop (°C)	18.0	
SA Night setpoint (°C)	28.0	
SA flow (m²/s / Pa)	*1)*	
EA flow (m²/s / Pa)	0.0	
Control output	[X] IQnomic [ ] IQnomic+	[ ] IQnomic [ ] IQnomic+
Damper output	=0	

Function		Factory preset value		Adjusted value	
Morning Boost *8)*					
Period (hh:mm)		00:00			
Damper		[X] Inactive [ ] Active		[ ] Inactive [ ] Active	
EA fan		[X] Inactive [ ] Active		[ ] Inactive [ ] Active	
Max. flow, supply air		*3)*			
Max. flow, extract air		*3)*			
Control output		[X] IQnomic [ ] IQnomic+		[ ] IQnomic [ ] IQnomic+	
Setpoint displacement *8)*		[X] Inactive [ ] Active		[ ] Inactive [ ] Active	
Extra control sequence *8)*					
Max output signal (%)		100			
Cooling function		[X] Inact. [ ] Comf. [ ] Econ.		[ ] Inact. [ ] Comf. [ ] Econ.	
Heating function		[X] Inact. [ ] Comf. [ ] Econ.		[ ] Inact. [ ] Comf. [ ] Econ.	
External sensor					
External SA/Room		[X] Inact. [ ] IQnom [ ] Comm.		[ ] Inact. [ ] IQnom [ ] Comm.	
External Oudoor		[X] Inact. [ ] IQnom [ ] Comm.		[ ] Inact. [ ] IQnom [ ] Comm.	
Alarm delay		5 min			
Flow/pressure					
Fan regulation SA		[X] Flow [ ] Press. [ ] Reqd. [ ] Slave		[ ] Flow [ ] Press. [ ] Reqd. [ ] Slave	
Fan regulation EA		[X] Flow [ ] Press. [ ] Reqd. [ ] Slave		[ ] Flow [ ] Press. [ ] Reqd. [ ] Slave	
Flow, low speed	SA	*1)*	*1)*		
	EA	*1)*	*1)*		
Flow, high speed	SA	*2)*	*2)*		
	EA	*2)*	*2)*		
Flow, max speed	SA	*4)*	*3)* *4)*		
	EA	*4)*	*3)* *4)*		
Flow, min. speed	SA		*5)*		
	EA		*5)*		
Pressure, low speed	SA Pa		100		
	EA Pa		100		
Pressure, high speed	SA Pa		200		
	EA Pa		200		
Max. fan speed	SA (%)		100%		
	EA (%)		100%		
Pressure, max. speed	SA Pa		400 *7)*		
	EA Pa		400 *7)*		
Demand-cont. low speed	SA (%)		25		
	EA (%)		25		
Demand-cont. high speed	SA (%)		50		
	EA (%)		50		

Function	Factory preset value	Adjusted value
Outdoor temp. compensation	Inactive	
Flow		
Winter comp. Y1 (%)	30	
End point, winter X1 (°C)	-20	
Start point winter X2 (°C)	10	
Boosting		
SA	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
EA	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Down-regulation *8)*		
Function	[ ] Inact. [X] SA [ ] SA+EA	[ ] Inact. [ ] SA [ ] SA+EA
Neutral zone (°C)	0.0	
Operation		
Switch clock function	[X] 1. Low - High [ ] 2. Stop - Low - High	[ ] 1. Low - High [ ] 2. Stop - Low - High
Slave control *9)*		
Cooling COP	1.0	
Filter function **GOLD SD**	[X] Inact. [ ] SA [ ] EA [ ] SA+EA	[ ] Inact. [ ] SA [ ] EA [ ] SA+EA
Prefilter	[X] Inact. [ ] SA [ ] EA [ ] SA+EA	[ ] Inact. [ ] SA [ ] EA [ ] SA+EA
Prolonged operation		
Ext. low speed (h:mm)	0:00	
Ext. high speed (h:mm)	0:00	
Summer/wintertime	[ ] Inactive [X] Active	[ ] Inactive [ ] Active
Heating		
Heat exchanger **GOLD RX**		
Defrosting	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Exhaust air regulation		
Function	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Min. temp (°C)	5	
Re-heating *8)*		
Pumpexercizing	[ ] Inact. [X] Pump [ ] Valve [ ] P+V	[ ] Inact. [ ] Pump [ ] Valve [ ] P+V
Exercizing period	3 Min.	
Interval	24 h	
"Heating boost" *8)*		
Function Off/On	[X] Inactive [ ] Auto op.	[ ] Inactive [ ] Auto op.
Start limit SA Temp. (°C)	3.0	

Function		Factory preset value	Adjusted value
Cooling *8)*		[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Refr. Machine control		[X] Steppless 0-10 V [ ] Steppless 10-0 V [ ] CoolDX Economy [ ] CoolDX Comfort [ ] On/off 1 step [ ] On/off 2 steps [ ] On/off 3 steps binary	[ ] Steppless 0-10 V [ ] Steppless 10-0 V [ ] CoolDX Economy [ ] CoolDX Comfort [ ] On/off 1 step [ ] On/off 2 steps [ ] On/off 3 steps binary
Exercising	Cooling relay 1	[X] Inact. [ ] Pump [ ] Valve [ ] P+V	[ ] Inact. [ ] Pump [ ] Valve [ ] P+V
	Cooling relay 2	[X] Inact. [ ] Pump [ ] Valve [ ] P+V	[ ] Inact. [ ] Pump [ ] Valve [ ] P+V
Exercise period		3 min.	
Interval		24 hrs.	
Response speed			
Step period (s)		300	
Outd. temp limit	Step 1 (°C)	3.0	
	Step 2 (°C)	5.0	
	Step 3 (°C)	7.0	
Reset period (s)		480 (CoolDX: 300)	
Cool. - min SA flow (m³s)		*6)*	
Cool. - min EA flow (m³s)		*6)*	
Neutral zone (°C)		2.0	
"Cooling Boost" *8)*		[X] Inact. [ ] Comf. [ ] Econ. [ ] Sequ. [ ] Comf.+Econ. [ ] Econ.+Sequ.	[ ] Inact. [ ] Comf. [ ] Econ. [ ] Sequ. [ ] Comf.+Econ. [ ] Econ.+Sequ.
Start limit SA temp (°C)		3.0	
Hunidity *8)*			
Dehumidification control		[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Rel. hum., SA (%RH		50%	

Function	Factory preset value	Adjusted value
All Year Comfort *8)*	[X] Inact. [ ] Cool. [ ] Heat. [ ] C+H	[ ] Inact. [ ] Cool. [ ] Heat. [ ] C+H
Heating water temp. (°C)	30	
Cooling water temp. (°C)	14	
Outdoor comp., Heating water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Outdoor temp. (X1) (°C)	-20	
Heating water (Y1)(°C)	40	
Outdoor temp. (X2)(°C)	5	
Heating water (Y2)(°C)	30	
Outdoor temp. (X3)(°C)	15	
Heating water (Y3)(°C)	20	
Outdoor comp., Cooling water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Outdoor temp. (X1) (°C)	10	
Cooling water (Y1)(°C)	22	
Outdoor temp. (X2)(°C)	20	
Cooling water (Y2)(°C)	18	
Outdoor temp. (X3)(°C)	25	
Cooling water (Y3)(°C)	14	
Room comp., Heating water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Room temperature (°C)	21	
P-band (°C)	5	
Night blocking	[ ] Inact. [ ] Active	[ ] Inact. [ ] Active
Room comp., Cooling water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Room temperature (°C)	21	
P-band (°C)	5	
Night blocking	[ ] Inact. [ ] Active	[ ] Inact. [ ] Active
Night comp., Heating water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Temp. comp. (°C)	-2	
Night comp., Cooling water	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Temp. comp. (°C)	2	
Night comp.	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Channel 1, Start, Stop, Weekday	Inactive	
Channel 2, Start, Stop, Weekday	Inactive	
Pump operation, Heating water		
Outdoor temp. Start (°C)	15	
Outdoor temp. Stop (°C)	18	
Pump operation, Cooling water		
Outdoor temp. Start (°C)	-20	
Outdoor temp. Stop (°C)	-25	
Alarm function, Heating water		
Pump alarm	[X] Inact. [ ] Open [ ] Close [ ] Cont.	[ ] Inact. [ ] Open [ ] Close [ ] Cont.
Valve	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Alarm function, Cooling water		
Pump alarm	[X] Inact. [ ] Open [ ] Close [ ] Cont.	[ ] Inact. [ ] Open [ ] Close [ ] Cont.
Valve	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Exercising, Heating water	[X] Inact. [ ] Pump [ ] P+V [ ] Valve	[ ] Inact. [ ] Pump [ ] P+V [ ] Valve
Exercising period, (min)	3	
Interval (h)	24	
Exercising, Cooling water	[X] Inact. [ ] Pump [ ] P+V [ ] Valvev	[ ] Inact. [ ] Pump [ ] P+V [ ] Valve
Exercising period, (min)	3	
Interval (h)	24	
Dew point comp.	[X] Inact. [ ] Active	[ ] Inact. [ ] Active
Neutral zone (°C)	2	
Comp. air flow (%)	10	

Function		Factory preset value	Adjusted value
CONTROL Optimize *8)*		[X] Inactive [ ] Active	[ ] Inactive [ ] Active
Upper damper limit (%)		90	
Lower damper limit (%)		70	
Step size (Pa)		20	
Interval (min)		2	
Permissible deviation (Pa)		10	
Power up start delay (min)		15	
"IQnomic Plus"			
I/O module Nr 0	ReCO2	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 1	Coil heat exch.	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 2	Plate heat exch.	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 3	Ext. monitoring	[X] Inactive [ ] Active	[ ] Inactive [ ] Active If active, function:
I/O module Nr 6 *8)*	Ext. cooling	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 7	All Year Comfort	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 8 8)	Swegon Factory	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr 9	Preheating	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr A	Heating zone	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
I/O module Nr B	Cooling zone	[X] Inactive [ ] Active	[ ] Inactive [ ] Active

Function	Factory preset value	Adjusted value
ReCO$_2$		
CO_2 function	[X] Inact. [ ] CO_2 [ ] Co_2+flow	[ ] Inact. [ ] CO_2 [ ] Co_2+flow
Temperature function Cooling	[X] Inact. [ ] Comf. [ ] Econ.	[ ] Inact. [ ] Comf. [ ] Econ.
Temperature function Heating	[X] Inact. [ ] Comf. [ ] Econ.	[ ] Inact. [ ] Comf. [ ] Econ.
Min. outdoor air	*6)*	
Min. exhaust air	*6)*	
Alarm setting		
Fire alarm function		
Internal fire alarms	[X] Inactive [ ] Active	[ ] Inactive [ ] Active
External fire alarms Alarm Reset	[X] Man. [ ] Auto	[ ] Man. [ ] Auto
Fans in event of fire	[X] Inact. [ ] SA [ ] EA [ ] SA+EA	[ ] Inact. [ ] SA [ ] EA [ ] SA+EA
SA fan speed in event of fire (%)	100	
EA fan speed in event of fire (%)	100	
External alarm		
Time delay - alarm 1 (s)	10	
Alarm on closure, alarm 1	1	
Alarm Reset	[X] Man. [ ] Auto	[ ] Man. [ ] Auto
Time delay- alarm 2 (s)	10	
Alarm on closure, alarm 2	1	
Alarm Reset	[X] Man. [ ] Auto	[ ] Man. [ ] Auto
Alarm limit temp. *8)*		
Deviation - SA setpoint	5.0	
Min EA temperature	15.0	
Filter alarm limit		
SA (Pa)	100	
EA (Pa)	100	
Heat exch. defrosting		
Alarm limit (Pa) GOLD RX	50	

Function	Factory preset value	Adjusted value
Service period		
Alarm limit (Mon)	12	
Alarm priority *See also pages that follow*	–	
Alarm output A	[X] NO [ ] NC	[ ] NO [ ] NC
B	[X] NO [ ] NC	[ ] NO [ ] NC
Hand-held terminal settings		
Language	English	
Flow unit	[ ] l/s [X] m^3/s [ ] m^3/h	[ ] l/s [ ] m^3/s [ ] m^3/h
Min/max adjustment *8)*		
Setpoint SA/EA (°C) *8)*	15.0/40.0	
Min. limit SA (°C) *8)*	13.0/18.0	
Max. limit EA (°C) *8)*	25.0/45.0	
Breakpoint- ERS regulation (°C) *8)*	15.0/23.0	
Differential SA/EA (°C) *8)*	1.0/5.0	
Base settings	–	
Communication		
EIA-232		
Protocol	GSM modem	
Address	1	
Speed	9600	
Parity	None	
Stop bit	1	
EIA-485		
Protocol	Modbus RTU	
Address	1	
	PLA (Exoline) 1	
	ELA (Exoline) 1	
Speed	9600	
Parity	None	
Stop bit	1	
Ethernet		
Mac Id	Individual	
DHCP server	Inactive	
IP-adress	10.200.1.1	
Port No.	80	
Netmask	255.0.0.0	
GateWay	000.000.000.000	
DNS Server		
No. 1	000.000.000.000	
No. 2	000.000.000.000	
Modbus TCP		
IP	000.000.000.000	
Port No.	502	
Netmask	000.000.000.000	
BACNet IP		
Function	Inactive	
Device ID	0000000	
Port nr.	47808	

The values refer to the sizes in due succession: 04, 05, 08, 14, 20, 25, 30, 35, 40, 50, 60, 70 and 80.
1) 0.15, 0.20, 0.30, 0.40, 0.55, 0.75, 0.85, 0.90, 1.1, 1.5, 1.7, 2.0, 2.2
2) 0.25, 0.30, 0.40, 0.60, 1.0, 1.3, 1.65, 1.85, 2.2, 2.8, 3.4, 3.5, 4.6
3) 0.35, 0.50, 0.60, 0.90, 1.4, 1.8, 2.5, 2.6, 3.3, 3.5, 4.3, 5.0, 5.8
4) Only in combination with Heating BOOST, Cooling BOOST and Flow BOOST.
5) Only in combination with Demand control. 0.08, 0.08, 0.10, 0.20, 0.20, 0.30, 0.30, 0.60, 0.60, 0.80, 0.80, 1.0, 1.0
6) 0.10, 0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.80, 0.90, 1.2, 1.5, 1.8, 2.0
7) Only in combination with Flow BOOST.
8) Not applicable if only GOLD SD extract air handling units are installed
9) Not applicable if only GOLD SD supply air or extract air handling units are installed

Alarm No.:	Function	Factory preset value			Adjusted value		
		Priority	**Indication**	**Effect**	**Priority**	**Indication**	**Effect**
		0=blocked	**LED**	0=Operat.	0=blockedt	**LED**	0=Operat.
		A=A alarm	0=Off	1=Stop	A=A alarm	0=Off	1=Stop
		B=B alarm	1=On		B=B alarm	1=On	
1	External fire alarm tripped	A****	1	1*			
2	Internal fire alarm tripped	A****	1	1*			
3	Frost protection below alarm limit	A****	1	1*			
4	R.hx. speed monitor tripped	A	1	0**			
5	Frost protection sensor defective	A****	1	1*			
6	Supply air temp sensor defective	A	1	1			
7	Extract air temp sensor defective	A	1	1			
8	Outdoor air temp sensor defective	B	1	0			
9	No communication to r.hx. controller	A ***	1	1			
10	No communication to SA frequency conv.	A ***	1	1			
11	No communication to EA frequency conv.	A ***	1	1			
12	Over current in SA frequency conv.	A ***	1	1			
13	Over current in EA frequency conv.	A ***	1	1			
14	Under voltage in SA frequency conv.	A ***	1	1			
15	Under voltage in EA frequency conv.	A ***	1	1			
16	Over voltage in SA frequency conv.	A ***	1	1			
17	Over voltage in EA frequency conv.	A ***	1	1			
18	Over temperature in SA frequency conv.	A ***	1	1			
19	Over temperature in EA frequency conv.	A ***	1	1			
20	No communication to SA-2 frequency conv.	A ***	1	1			
21	No communication to EA-2 frequency conv.	A ***	1	1			
22	Over current in SA-2 frequency conv.	A ***	1	1			
23	Over current in EA-2 frequency conv.	A ***	1	1			
24	Under voltage in SA-2 frequency conv.	A ***	1	1			
25	Under voltage in EA-2 frequency conv.	A ***	1	1			
26	Over voltage in SA-2 frequency conv.	A ***	1	1			
27	Over voltage in EA-2 frequency conv.	A ***	1	1			
28	Over temperature in SA-2 frequency conv.	A ***	1	1			
29	Over temperature in EA-2 frequency conv.	A ***	1	1			
30	Ext. EA/room temp sensor defective	A ***	1	1			
31	Ext. outdoor temp sensor defective	B ***	1	0			
32	Plate heat exch. sensor faulty	A ***	1	0			
33	Coil heat exch. sensor faulty	A ***	1	0			
34	Over current in r.hx. controller	A ***	1	1			
35	Under voltage in r.hx. controller	A ***	1	1			
36	Over voltage in r.hx. controller	A ***	1	1			
37	Over temperature in r.hx. controller	A ***	1	1			
38	R.hx pressure drop above alarm limit	B ***	1	0			
39	El.heating coil tripped	A ***	1	1			
40	Extract air temp below alarm limit	A ***	1	1			
41	Supply air temp below setpoint	A ***	1	1			
42	Ext.alarm No.1 tripped	A ***	1	1			

Alarm No.:	Function	Factory preset values			Adjusted value		
		Priority 0=blocked A=A alarm B=B alarm	Indication LED 0=Off 1=On	Effect 0=Operat. 1=Stop	Priority 0=blocked A=A alarm B=B alarm	Indication LED 0=Off 1=On	Effect 0=Operat. 1=Stop
43	Ext. alarm No.2 tripped	B ***	1	0			
44	SA duct pressure below setpoint	B ***	1	0			
45	EA duct pressure below setpoint	B ***	1	0			
46	SA duct pressure above setpoint	B ***	1	0			
47	EA duct pressure above setpoint	B ***	1	0			
48	Supply airflow below setpoint	B ***	1	0			
49	Extract airflow below setpoint	B ***	1	0			
50	Supply airflow above setpoint	B ***	1	0			
51	Extract airflow above setpoint	B ***	1	0			
52	Supply air filter dirty	B ***	1	0			
53	Extract air filter dirty	B ***	1	0			
54	Service period past alarm limit	B ***	1	0			
55	No comm. SA air flow pressure sensor	A ***	1	1			
56	No comm. EA air flow pressure sensor	A ***	1	1			
57	No comm. SA filter pressure sensor	B ***	1	0			
58	No comm. EA filter pressure sensor	B ***	1	0			
59	No comm. SA duct pressure sensor	A ***	1	1			
60	No comm. EA duct pressure sensor	A ***	1	1			
61	No comm. r.hx. pressure sensor	B ***	1	0			
62	No communication to I/O-module No:0	B ***	1	0			
63	No communication to I/O-module No:1	B ***	1	0			
64	No communication to I/O-module No:2	B ***	1	0			
65	No communication to I/O-module No:3	B ***	1	0			
66	No communication to I/O-module No:4	B ***	1	0			
67	No communication to I/O-module No:5	B ***	1	0			
68	No communication to I/O-module No:6	B ***	1	0			
69	No communication to I/O-module No:7	B ***	1	0			
70	No communication to I/O-module No:8	B ***	1	0			
71	No communication to I/O-module No:9	B ***	1	0			
72	No communication to main controller I/O	A	1	1			
73	Plate heat exch., damper motor faulty	A ***	1	1			
74	Coil heat exch. pump tripped	A ***	1	1			
75	Supply air humidity sensor faulty	A ***	1	1			
76	Extract air humidity sensor faulty	A ***	1	1			
77	Supply flow temp. sensor 1/0-7defective	A***	1	1			
78	Humidity sensor for heat exch. faulty	B ***	1	0			
79	Coil heat exch. valve faulty	A ***	1	1			
80	Temperature monitor below alarm limit	A ***	1	1			
81	Supply air-d temperature sensor faulty	B ***	1	0			
82	Extract air-d temperature sensor faulty	B ***	1	0			
85	CoolDX, C1 tripped	A	1	0			

Alarm No.:	Function	Factory preset values			Adjusted value		
		Priority	**Indication**	**Effect**	**Priority**	**Indication**	**Effect**
		0=blocked	**LED**	0=Operat.	0=blocked	**LED**	0=Operat.
		A=A alarm	0=Off	1=Stop	A=A alarm	0=Off	1=Stop
		B=B alarm	1=On		B=B alarm	1=On	
86	CoolDX, C2 tripped	A	1	0			
87	CoolDX, C1 too many restarts	A	!	0			
88	CoolDX, C2 too many restarts	A	1	0			
89	No comm. with press. sensor by SA prefilter	B***	1	0			
90	No comm. with press. sensor by EA prefilter	B***	1	0			
91	Frost prot. for preheating, below alarm limit	A	1	1			
92	Frost prot. for preheating sensor, faulty	A	1	1			
93	Preheating sensor faulty	A	1	1			
94	Electric air heater for preheating, tripped	A***	1	1			
95	Preheating below setpoint	A***	1	1			
97	No comm. with ReCO2 pressure sensor	A***	1	1			
98	ReCO2 damper motor faulty	A***	1	1			
99	Time lock tripped	A	1	1			
102	Cooling valve I/O-7 defective	B***	1	0			
103	Heating valve I/O-7 defective	B***	1	0			
104	Cool. circuit pump I/O-7 tripped	B***	1	0			
105	Heat. circuit pump I/O-7 tripped	A***	1	1			
106	Cooling water temp. I/O-7 below set point	B***	1	0			
107	Heat. water temp. l I/O-7 below set point	A***	1	0			
108	Cooling water temp. I/O-7 above set point	0***	1	0			
109	Heating water temp. I/O-7 above set point	0***	1	0			
110	Cooling water temp. sensor I/0-7 defective	B	1	0			
111	Heating water temp. sensor I/0-7 defective	A	1	0			
143	No communication - CONTROL Optimize	B***	1	0			
144	No communication – I/O Module No. A	B***	1	0			
145	No communication – I/O Module No. B	B***	1	0			
146	No communication – I/O Module No. C	B***	1	0			
147	No communication – I/O Module No. D	B***	1	0			
148	No communication – I/O Module No. E	B***	1	0			
149	No communication – I/O Module No. F	B***	1	0			
150	Frost prot. in extra zone, below alarm limit	A	1	1			
151	Frost protection sensor in extra zone, faulty	A	1	1			
152	Supply air sensor in extra zone faulty	A	1	1			
153	Extract air sensor in extra zone faulty	A	1	1			

Alarm No.:	Function	Factory preset values			Adjusted value		
		Priority 0=blocked A=A alarm B=B alarm	**Indication LED** 0=Off 1=On	**Effect** 0=Operat. 1=Stop	**Priority** 0=blocked A=A alarm B=B alarm	**Indication LED** 0=Off 1=On	**Effect** 0=Operat. 1=Stop
154	Electric air heater for extra zone, tripped	A	1	1			
155	EA temp. in extra zone below alarm limit	A***	1	1			
156	Supply air in extra zone below alarm limit	A***	1	1			

** Not adjustable, always stops the air handling unit*
*** Not adjustable, stops the air handling unit at temperature below +5 °C*
**** Blocked if the hand terminal does not display the main menu.*
***** Cannot be blocked.*

Adjustments carried out by:

Date _____

Company _____

Name _____

All documentation is also available in digital form and
can be downloaded from our website:

www.swegon.com