FUNCTION MANUAL, INSTALLATION & COMMISSIONING

GLOBAL RX/RX Top/PX/PX Top/PX LP

ESENSA RX Top/PX Top/PX Flex*

Applicable to TAC7 generation controls

* Not available in all countries. Please contact your sales representative.

Swegon

Table of content

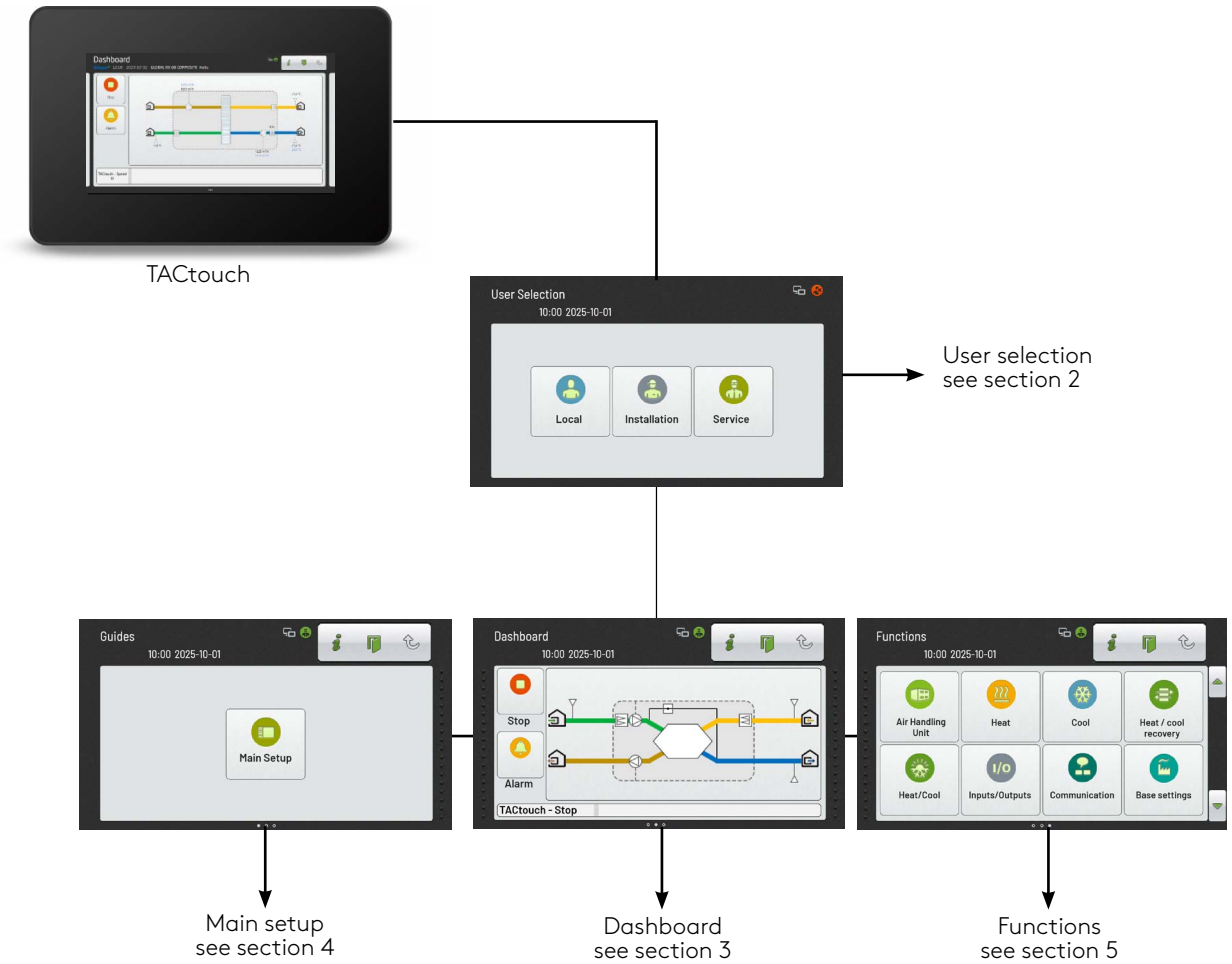
Installation wiring diagrams

Wiring diagrams can be found in the AHU Design printout.

You can also find all wiring diagrams in the document "Wiring diagrams TAC7" available on the Swegon website (swegon.com) or scan the QR code below.

1. Image management

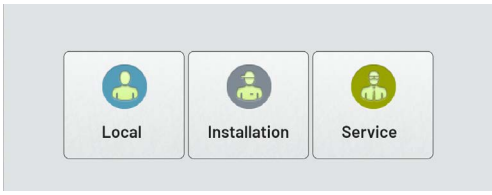
If the hand-held terminal is in standby, press the screen to activate it.



2. User selection

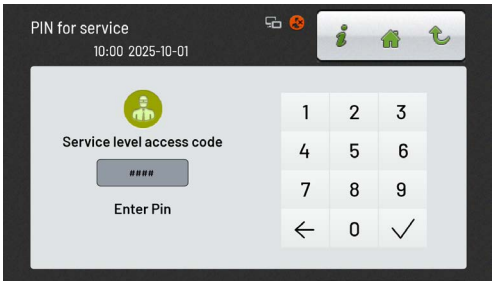
Select user type according to authorisation level, from lowest to highest: local, installation, service.

Enter the associated 4 digits PIN code.

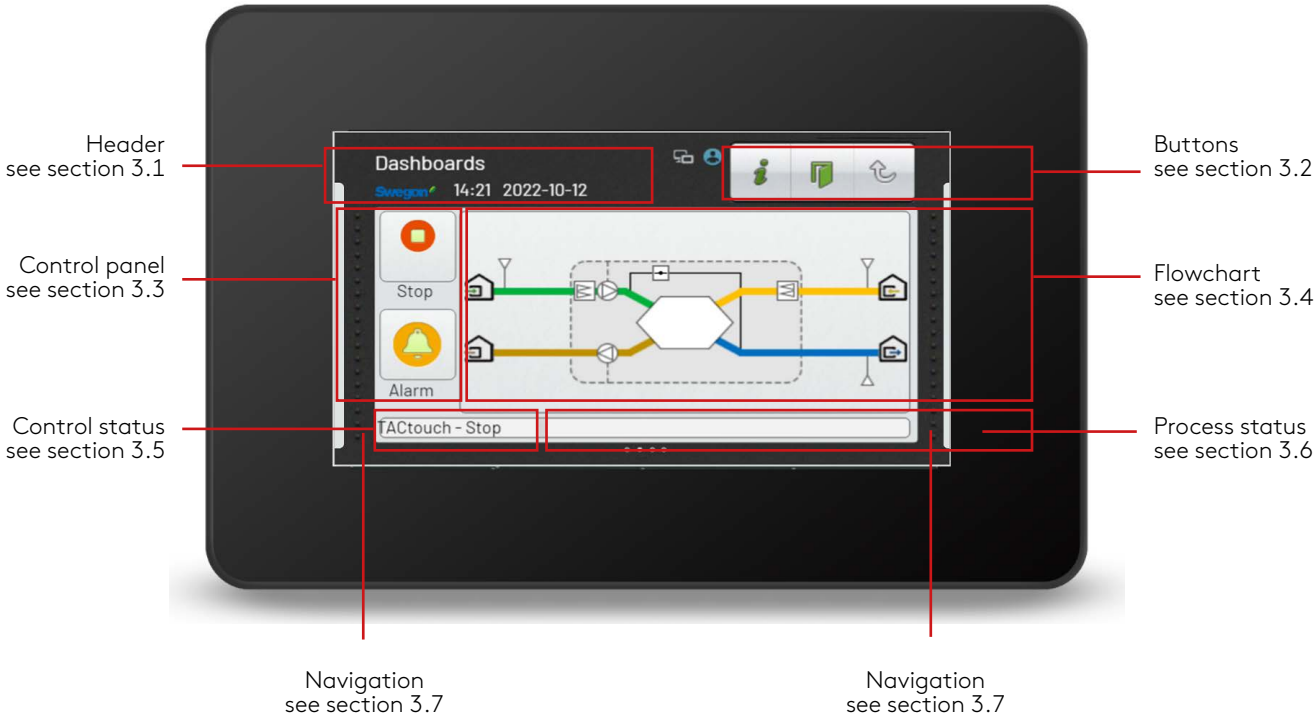


Default values:

Local profile: 0000
Installation profile: 1111
Service profile: for authorised persons only.



3. Dashboard



3.1. Header

Contains information common to almost all screens, from left to right:

- Date and time (stored in the control board).
- Specific name of the air handling unit (ex: room name) to ease the identification of the unit when several units are installed on the same site. This name can be defined during commissioning.
- Status of communication with the control board: Connected/No connection
- Selected user: local, installer, service or offline.


Hand-held terminal connected.


The hand-held terminal has no connection.


Logged on installation.


Logged on user (local).


Logged on service.


Not logged on.

3.2. Buttons

Buttons along the upper edge of the touch screen have the following functions.

Press this button to log out and/or switch to user selection screen.

Press this button to go one step upward in the image tree.

Press this button to return to the dashboard.

Help texts for functions and alarms.

3.3. Control panel

- Start/Stop:

Possibility to start the unit at desired level or to stop it.

The button allows to start the unit in Boost mode or automatic mode if the time schedule has been configured in section Functions/Time and schedule/Day schedule.

Button is greyed if the air handling unit is not controlled by the TACtouch (see section "Control status" for more details).

- Alarms:

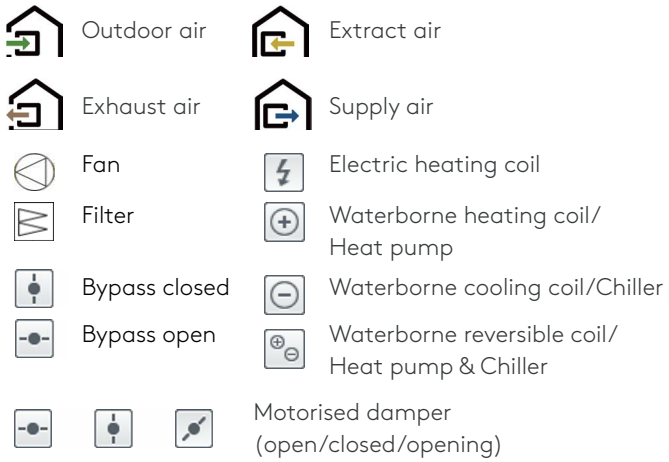
When alarms are active, display of the number of fatal alarms in the red circle, and of the medium/low priority in the blue circle (The alarm screen appears by pressing the button).

3.4. Flowchart

By default the Dashboard screen including the Flowchart is displayed if no other screen has been selected by the user.

The Flowchart is a schematic representation of the unit and the main options (integrated or ducted).

Airflow, temperature setpoints and current values are also displayed.



3.5. Control status

Indicates what is controlling the fans' setpoint:

K1-K2-K3: External electrical contacts on the control circuit (default control status). It can be selected via TACtouch in the I/O function or via IN5 input on the control board.

TACtouch: Setpoint selection on the speed control screen of the TACtouch reachable by pressing the Start/Stop button on the Dashboard screen.

AUTO: Setpoints following the Time and schedule configuration.

Communication: Control via Modbus, BACnet or KNX.

BOOST: Boost is activated and forces Boost setpoints.

Summer night cooling: Summer night cooling is activated and forces Summer night cooling setpoints.

Fire alarm: Fire alarm is activated and forces Fire alarm setpoints.

ERROR: A fatal alarm is activated and the unit is stopped.

Control status and priority:
If several control status are active simultaneously, priority levels have been defined (1 is the highest priority):

1. Fire Alarm (will override also Anti-frost/Defrost airflow reduction and post-ventilation).
2. ERROR
3. Defrost DX (will override also Anti-frost airflow reduction)
4. BOOST (will not override Anti-frost/Defrost airflow reduction)
5. K1-K2-K3
6. Communication
7. AUTO
8. TACtouch

3.6. Process status

Indicates additional running processes like heating, cooling, Summer night cooling, post-ventilation, anti-freeze.

3.7. Navigation

Press the bars to go to "Functions screen" on the right and to "Main setup" on the left.

4. Main setup

This menu contains basic parameters and is an aid for configuring and starting up the air handling unit.

Detailed settings can be found in the function sections.

Time and date

Commissioning settings

4.1. Time and date

Set the time and date.

4.2. Commissioning settings

Language: Select the language for TACtouch.

Air flow unit: Select the unit of measurement (m³/h or l/s).

Regulation mode: Select the airflow control mode:

- OFF
- Constant airflow
- Demand control
- Constant pressure

N.B.: Please refer to section "5.1.3 Operation level" for extra parameters for selected control mode.

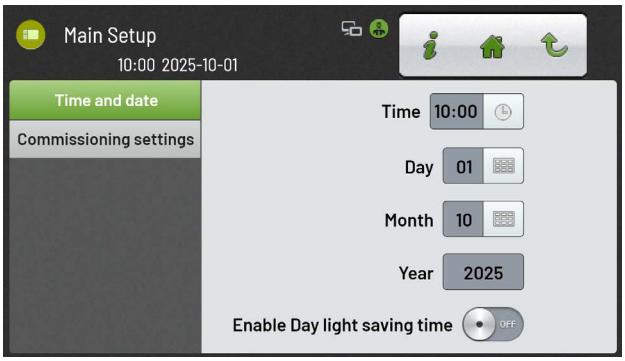
Damper: Select "YES" if there are damper(s) at the air inlet or outlet. This function will activate a start-up delay.

3-month maintenance: Select "ON" to activate a preventive maintenance message every 3 months.

Contacts K1-K2-K3 Master: Select "YES" to control the fan speed by external electrical contacts on the control circuit.

AHU layout: Select "Right" or "Left" if you want the unit flowchart of the main screen to be displayed with supply flow on the right or on the left.

Save data: Save parameters and status variables to external memory (SD card) if present. It is then saved in a CSV file named "DataSaved.csv".
It is advised to archive this file and rename it with the serial number of the air handling unit.



5. Functions

- Status
- Status-Air quality sensors
- Operation level
- Settings-Air quality sensors-Type
- Settings-Air quality sensors-Analogue
- Settings-Air quality sensors-Modbus/Serial
- Fan with backward curved blades
- Regulation mode
- Units
- Stop fans outside set limits
  - Pressure sensor
- Constant pressure algorithm
  - BOOST
  - BOOST-Air quality sensors-Type
  - BOOST-Air quality sensors-Analogue
  - BOOST-Air quality sensors-Modbus/Serial

- Status
- Settings
- Regulation mode*
- Summer night cooling
- Changeover

- Time and date
- Time schedules automatic operations
- Day schedule

- Periodic maintenance
- Pressure alarm
- Fouling of filters
- Pressure-Modbus sensors

* Visible but not modifiable by local profile. ** Not visible by local profile.

- Fire alarm**
- Periodic maintenance - 12 months
- Operating time*
- Low level alarms

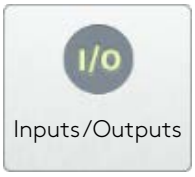
- Settings
- Damper

- Status
- Pre-heat
- Cold Climate Pre-heater*
- Reheat
- Post-ventilation
- Season heat

- Status
- Settings*
- Season management

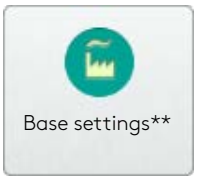
- Status
- Anti-freeze & defrost*
- Settings

- Status
- Settings*
- Season management

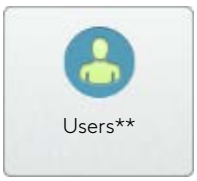


- Status-Inputs
- Status-Outputs
- Settings**
- 0-10V output*
- Pressure-Modbus sensors

- Connection setup
- SAT MODBUS* configuration
- Configuration of the SAT LAN*
- Bus settings**



- Restore factory settings
- TACtouch



* Visible but not modifiable by local profile. ** Not visible by local profile.

5.1. Airflow

5.1.1. Status

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

Status

5.1.2. Status-Air quality sensors

N.B.: This section appears only if air quality sensors have been configured, either to be used in demand control (via Operation level function) or Constant airflow (via the Boost function), see below.

Current values are read by configured air quality sensors.

Status-Air quality sensors

5.1.3. Operation level

Settings: Depend on the chosen mode for airflow regulation in "Regulation mode" function.

Operation level

5.1.3.1 Constant airflow mode

The fan speed will be modulated to give the requested airflow. You can configure 3 airflows and a ratio between extract and supply fans to have a balanced or unbalanced airflow.

Airflow 1: Airflow setpopint 1 - Activated via K1 contact or by selecting speed I on TACtouch speed control.

Airflow 2: Airflow setpoint 2 - Activated via K2 contact or by selecting speed II on TACtouch speed control.

Airflow 3: Aiflow setpoint 3 - Activated via K3 contact or by selecting speed III on TACtouch speed control.

Extract/Supply: Percentage of extract airflow compared to the supply air flow.

5.1.3.2 Demand control mode

The requested airflow is linearly linked to a 0-10V signal or to the measurement of one or several air quality sensors (up to 3).

The fan speed will be modulated to give the requested airflow.

WITHOUT AIR QUALITY SENSOR:

Air quality sensors: Using an external 0-10V signal - Select "None".

Vmin: Voltage at which to begin increasing airflows.

Vmax: Voltages at or below this value will provide the Vmin airflow.

Aiflow at Vmin: Requested airflow for Vmin.

Airflow at Vmax: Requested airflow for Vmax.

Activation of the 2nd 0-10V: If supply is controlled to a 0-10v on K2 and extract independent controls to a 0-10v on K3. The signal/flow link must be the same for the extract air and the supply air.

Extract/Supply (Only if "activation of the 2nd 0-10V" = No): Ratio (in %) of extract air flow compared to the supply air flow.

Reduction factor: Reduction factor applied to the setpoint. Activated via K3 contact or by selecting "Reduced" on TACtouch speed control (Example: If this is set to 110%, exhaust fan set point will be 10% higher than supply fan).

WITH AIR QUALITY SENSOR:

Air quality sensors: Enter a specific quantity of air quality sensors (up to 3) used for Demand control (Configuration of the air quality sensor is mentioned under "Settings" sections below "Air quality sensors-Type"; "Air quality sensors-Analogue" or "Air quality sensors Modbus/ Serial").

Extract/Supply: Ratio (in %) of extract air flow compared to the supply air flow.

Reduction factor: Reduction factor applied to the setpoint. Activated via K3 contact or by selecting "Reduced" on TACtouch speed control.

5.1.3.3 Constant pressure mode

The fan speed will be modulated to keep the measured pressure in the supply and/or extract duct to the requested setpoint.

This setpoint can be defined pressure-based by entering a pressure value or airflow-based with an initialisation of the measured pressure with the unit running at a selected airflow.

Reduction factor: Reduction factor applied to the setpoint. Activated via K3 contact or by selecting "Reduced" on TACtouch speed control.

Initialisation mode: Select between "Pressure-based" or "Airflow-based".

If Pressure-based:

Supply reference pressure: Pressure setpoint for the supply air.

Extract reference pressure: Pressure setpoint for the extract air.

If Airflow-based:

Supply airflow initialisation: Airflow setpoint used during pressure initialisation on supply flow.

Extract airflow initialisation: Airflow setpoint used during pressure initialisation on extract flow.

Reference pressure initialisation: Select "ON" to start the initialisation of the reference pressure on airflow-based mode. The fans will run and the pressure reference will be stored after the airflows are stable for during one minute.

5.1.4. Settings-Air quality sensors-Type

N.B.: This section appears only if air quality sensors have been configured to be used in demand control (via Operation level function).

Settings-Air quality sensors-Type

Measure: Physical parameter measured by the sensor.

Type: Selection of the signal type: Analogue, Modbus or Serial.

Scale Factor: Scale factor to obtain readable and converted measured value from sensor in desired physical unit. Ratio between the range of measurement and a 0-100% range.
Ex: range of 0-2000 means a scale factor of 20, range of 0-10 means a scale factor of 0.1.

Airflow at minimum level: Requested airflow at minimum level of the sensor.

Airflow at maximum level: Requested airflow at maximum level of the sensor.

5.1.5. Settings-Air quality sensors-Analogue

N.B.: This section appears only if air quality sensors have been configured to be used in demand control (via Operation level function) with the option Analogue.

Settings-Air quality sensors-Analogue

I/O: Selection of analogue input (K2 or K3) used for the sensor.

Vmin: Minimum voltage of the sensor connected to Analogue Input.

Vmax: Maximum voltage of the sensor connected to Analogue Input.

Min.Level: Measured value for Vmin.

Max.Level: Measured value for Vmax.

5.1.6. Settings-Air quality sensors-Modbus/Serial

N.B.: This section appears only if air quality sensors have been configured to be used in demand control (via Operation level function) with the option Modbus/Serial.

Settings-Air quality sensors-Modbus/Serial

Measure: Physical parameter measured by the sensor.

Bus*: Bus on which the sensor is connected to.

In case of Modbus type:

Address: Modbus address of the sensor.

Register: Modbus register number to access to the measured value of the sensor.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.1.7 Fan with backward curved blades

Fan with backward cuved blades

Specific settings for fans like K-factor and presence of pressure sensor at fan inlet for the calculation of the current airflow.

Constant Air Flow Sensor: Select "YES" if a pressure sensor is fitted on the fan inlets for airflow calculation.

Sensor for "Constant air flow": Select "0-10V" if it is a sensor with analogue output, select "Modbus" if it is a sensor with Modbus communication.

Advanced settings for pressure sensors of kit CA*: To get access to advanced configuration of pressure sensors like type of sensor and Modbus parameters. For configuration, see the service manual

K-Factor Supply air**: Enter the supply air K-Factor.

K-Factor Exhaust air**: Enter the exhaust air K-Factor.

K factor allows calculation of the airflow based on pressure at fan inlet using the formula $Q = k.\sqrt{dP}$.

Where:

Q: airflow [m³/h] / [l/s].

dP: pressure variation at fan inlet [Pa].

k: characteristic constant k factor of the fan type in use.

5.1.8. Regulation mode

Regulation mode

Regulation mode: select the airflow regulation mode:

1. Constant airflow
2. Demand control
3. Constant pressure

Rule for multiple sensors: In "Demand control" with at least 2 sensors (selected in "Operation level" function), select how to determine the airflow setpoint:

1. **Max**: The setpoint is given by the highest airflow value of connected sensors.
2. **Min**: The setpoint is given by the lowest airflow value of connected sensors.
3. **Average**: the setpoint is given by the average of the airflows from each connected sensor.

5.1.9. Units

Units

Airflow unit: select the preferred unit of measurement (m³/h or l/s).

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.1.10. Stop fans outside set limits

Stop fans oustide set limits

N.B.: This section appears only if air quality sensors have been configured to be used in demand control (via Operation level function).

This function allows to stop the ventilation when the value measured by an air quality sensor is higher and/or lower than the threshold value.

Min. level: Minimum value of measured signal under which the fan has to stop. Disabled with 0.

Max. level: Maximum value of measured signal above which the fan has to stop. Disabled with 0.

5.1.11. Pressure sensors

Pressure sensors

N.B.: This section appears only if Constant Pressure regulation mode has been configured (via Operation level function).

Sensors in airflow: Selection of the flows where the pressure sensors are located.

Sensor for "Constant pressure (CP)": Select "0-10V" if it is a sensor with analogue output, select "Modbus" if it is a sensor with Modbus communication.

Advanced settings for pressure sensors in CP mode*: Select "ON" to get access to advanced configuration of the pressure sensors like type of sensor and Modbus parameters.

5.1.12. Constant pressure algorithm**

Constant pressure algorithm

Control speed: Control speed of the fan speed modulation. Default speed=T. Slower modulation for the higher values, faster modulation for the lower values. Only change this value if there is a pressure stability problem.

Logic:

- Negative logic: The airflow decreases if the measured pressure is higher than pressure setpoint, the airflow increases if the measured pressure is lower than pressure setpoint (Default value).
- Positive logic: The airflow increases if the measured pressure is higher than pressure setpoint. the airflow decreases if the measured pressure is lower than pressure setpoint.

* Visible but not modifiable by local profile. ** Not visible by local profile.
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5.1.13. BOOST

BOOST

Configuration of the supply and extract airflows if the Boost function is activated. Boost has higher priority than TACtouch, K1-K2-K3 contacts and time schedules. Therefore, it will overrule these regulation modes.

Supply air flow*: Supply air flow when the Boost function is active. In m³/h or l/s according to configured air flow unit and modulation type.

Extract air flow*: Extract air flow when the Boost function is active. In m³/h or l/s according to configured air flow unit and modulation type.

Boost factor* (Only in "Constant pressure mode"):
If Boost factor is different from 0: An increasing factor is applied on requested setpoint during Boost.
If Boost factor is 0: This factor is disabled and it reactivates the fixed airflows during Boost.

Boost duration: Time in minutes that the Boost function will last.

This time will start when Boost contact reopens, or when measured value becomes lower than Boost threshold.

Value -1 will disable this feature.

Air quality sensors: Enter number of air quality sensors (up to 2) used for Boost function.

5.1.14. BOOST-Air quality sensors-Type

BOOST-Air quality sensors-Type

N.B.: This section appears only if air quality sensors have been configured to be used in Boost function.

Measure: Physical parameter measured by the sensor.

Type: Selection of the signal type: Analogue, Modbus or Serial.

Scale Factor: Scale factor to obtain readable and converted measured values from the sensor in desired physical unit. Ratio between the range of measurement and a 0-100% range.
Ex: range of 0-2000 means a scale factor of 20, range of 0-10 means a scale factor of 0.1.

High level BOOST on: Threshold for Boost activation.

Low level BOOST off: Threshold for Boost deactivation.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.1.15. BOOST-Air quality sensors-Analogue

BOOST-Air quality sensors-Analogue

N.B.: This section appears only if air quality sensors have been configured to be used in Boost function with the option Analogue.

I/O: Selection of analogue input (K2 or K3) used for the sensor.

Vmin: Minimum voltage of the sensor connected to Analogue Input.

Vmax: Maximum voltage of the sensor connected to Analogue Input.

Min.Level: Measured value for Vmin.

Max.Level: Measured value for Vmax.

5.1.16. BOOST-Air quality sensors-Modbus/Serial

BOOST-Air quality sensors-Modbus/Serial

N.B.: This section appears only if air quality sensors have been configured to be used in Boost function with the option Modbus/Serial.

Measure: Physical parameter measured by the sensor.

Bus*: Bus on which the sensor is connected to.

In case of Modbus type:

Address: Modbus address of the sensor.

Register: Modbus register number to access to the measured value on the sensor.

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5.2. Temperature

In this section you find all relevant information about temperature status, temperature settings, temperature regulation mode, Summer night cooling and Changeover.

5.2.1. Status

Actual values of all connected temperature sensors.
Status of Heating/Cooling/Summer night cooling/Changeover.

Status

5.2.2. Settings

In this menu the heating and/or cooling temperature setpoints are defined.

If the Changeover function is activated: select the Temperature setpoint (see details in the Changeover section below).

If the Changeover function is not activated: Enter the heating and/or cooling setpoint.

Settings

5.2.3. Regulation mode*

Parameters to define include:

Manual selection of "Heating/Cooling/OFF" if the Changeover function is deactivated.

Stop if supply air temperature <5°C: Select "ON" to stop the fans when the supply temperature is lower than +5°C.

Temperature regulation air: Select which sensor is used to compare the actual temperature value with the temperature setpoint (Supply/Extract/TACtouch temperature sensor/Ambiant temperature sensor).

Regulation speed: This parameter affects the control response time.
Preset on 8xT fitting well when the temperature control is based on supply temperature. If the temperature sensor used for the temperature comfort control is not located in the supply ducting, it can be necessary to adapt the reaction speed of the control loop. The adjustment can be made from T (the fastest value) up to 512xT (the slowest value). This time is corresponding to a waiting period between 2 adjustment steps to reach the temperature setpoint.

When the temperature control is not based on the supply temperature sensor. The supply air temperature is limited to avoid blowing too hot or too cold. The acceptable MIN/MAX supply air temperature range can be defined.

Supply air temperature MIN:Minimum requested supply air temperature.

Supply air temperature MAX: Maximum requested supply air temperature.

Regulation mode

* Visible but not modifiable by local profile. ** Not visible by local profile.
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5.2.4. Summer night cooling

The Summer night cooling functionality is based on the heat exchanger bypass modulation. Summer night cooling is active if following conditions are fulfilled:

- The actual date is included in the Calendar period defined during commissioning (from - to).
- Time is between the set start and end time.
- Outdoor temperature is at least 1°C lower than the extract temperature.

This condition is checked every 60 minutes when the fans are running. This check requires fans in operation. It is possible to define how to act if the fans are stopped:

- If an automatic start of the fans is not needed for this temperature check, set the time to 0.
- If an automatic start of the fans at low speed is needed for this temperature check, select the required time as fans operation time parameter ("Try time with fans on").

This time is defined in the Temperature/Summer night cooling menu.

When Summer night cooling conditions are achieved the fans will run at specific setpoints and the bypass position is automatically controlled to achieve the Summer night cooling temperature setpoint (see "temperature control airflow" parameter).

Temperature Summer night cooling: It is the temperature setpoint when Summer night cooling is active.

In Constant pressure mode*: Summer night cooling factor: setup point multiplicator active during Summer night cooling.

In Constant airflow or Demand control mode*:
Supply air flow: Supply airflow setpoint when Summer night cooling is active.
Extract air flow: Extract airflow setpoint when Summer night cooling is active.

Start/end date From (DDMM)/To (DDMM): Start and end date for Summer night cooling.

Start/end time From/To: Start and end time for Summer night cooling.

Try time with fans on*: Defined time interval, when fans are stopped, to start the fans and measure the temperature to check if bypass conditions are achieved.

Retry delay: Defines the time interval between two bypass activation temperature checks.

* Visible but not modifiable by local profile. ** Not visible by local profile.
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5.2.5. Changeover

This function manages the automatic changeover between heating and cooling.

3 different cases can be distinguished:

- Heating and cooling coils.

- Combi coil (Reversible waterborne coil or Heat pump/Chiller).

- Heating coil only (in this case the cooling is performed by the Summer night cooling (bypass) if the changeover is set at ON in the Temperature/Changeover menu).

Commissioning:

- In the Temperature/Settings menu: Define the Setpoint temperature.

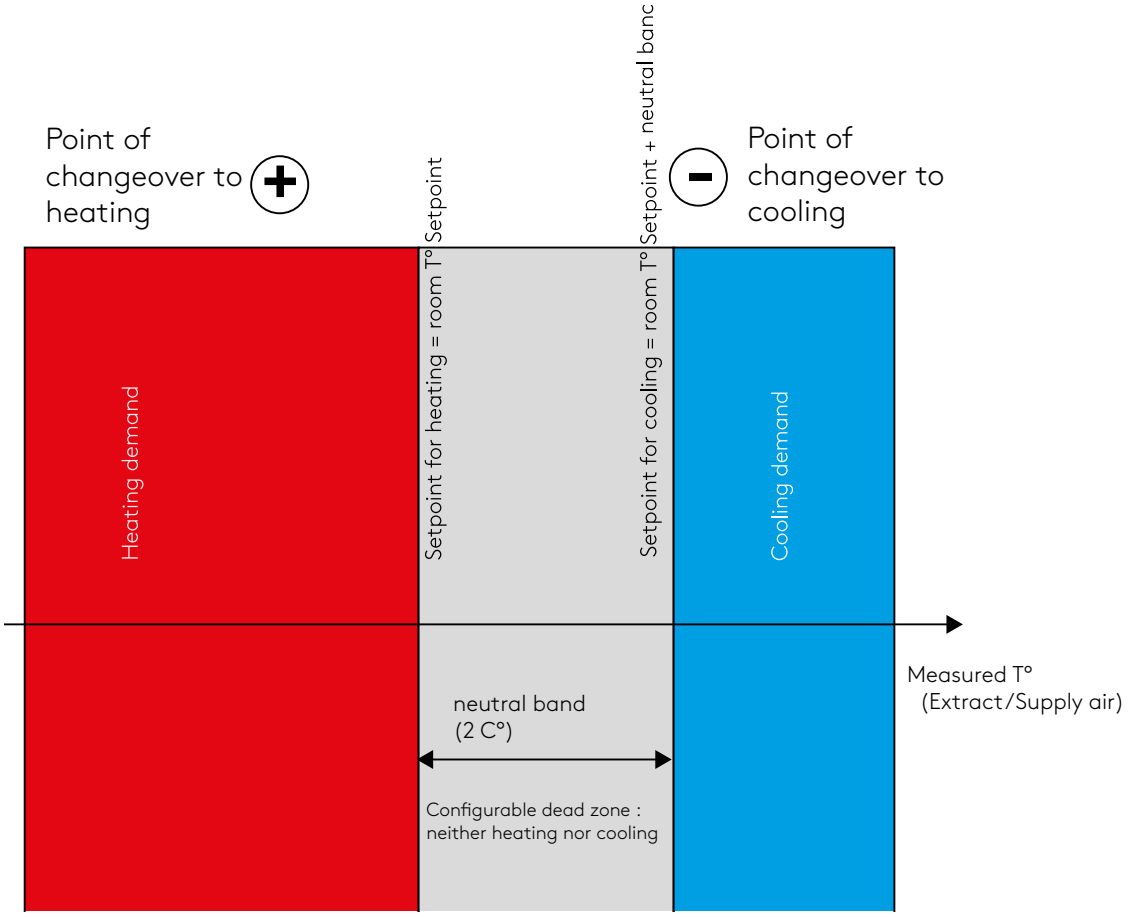
- In the Temperature/Regulation mode menu: Define which measured temperature is used to define the setpoint (Supply, Extract, TACtouch, temperature sensor n°4).

- In the Temperature/Changeover menu you can define*: The activation of the changeover (ON/OFF) and the Neutral band value (also called hysteresis, 2°C by default).

The heating setpoint: Temperature Setpoint.

The cooling setpoint: Temperature Setpoint + Neutral band value.

Following schematic illustrates how the changeover function works:



- When the actual Measured (Supply/Extract) air temperature is lower than the setpoint, heating mode is active.

- Between the setpoint and setpoint + Neutral band, there is no heating or cooling active.

- When the actual Measured (Supply/Extract) air temperature is higher than setpoint + Neutral band, cooling mode is active.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.3. Time and schedule

The built-in timer allows to control the air handling unit following a program based on a 7-day time scheduler.

This time scheduler function can be activated on the speed control screen of the TACtouch or by communication (for example by a BMS control system).

5.3.1. Time and date

Time and date

Set the time and date.

5.3.2. Time schedules automatic operations

Time schedules automatic operations

Automatically set/reset time interval parameters:

Reset all time intervals: Reset all time intervals and parameters from the time scheduler.

It is possible to copy time intervals and parameters from one day to another using following steps:

- The day of week to copy: The day of the week that should be copied to another day.
- The day of week that is to be filled: The day of the week that will be filled with copied values. **Important**: Days inbetween will be filled too.
- Copy time schedule: Press this button to make the copy.

Overwrite heating/comfort temperature setpoint in all time intervals with default value: Press this button to fill in every heating setpoint in the time scheduler with the heating temperature setpoint from the "temperature" function.

Overwrite cooling temperature setpoint in all time intervals with default value: Press this button to fill every cooling setpoint of the time scheduler with the cooling temperature setpoint from the "temperature" function.

5.3.3. Day schedule

Day schedule

For each day of the week, define following parameters:

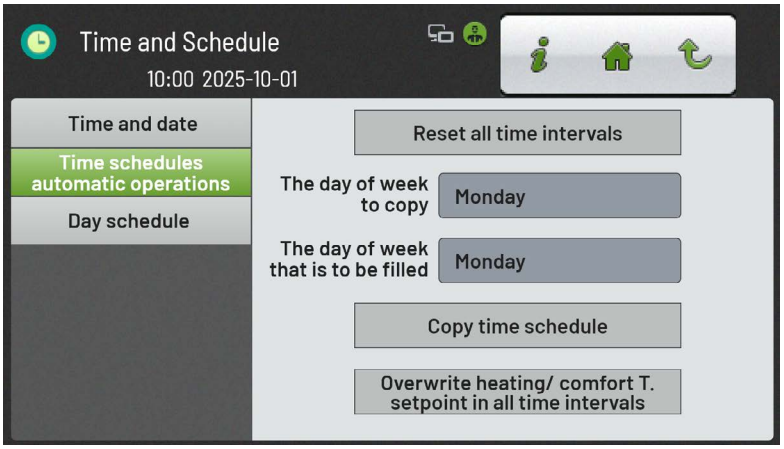
Time: Select the start time of each period.

Mode: Select the regulation mode between OFF, constant airflow (CAF), demand control (DC) or constant pressure (CP). Available modes depend on the unit configuration.

Fan speed: Select between "Stop", available fan speeds (depending on the control mode) or Boost.

Temperature setpoints: Heating and/or cooling.

N.B.: Check that each day of the time scheduler is filled in.



5.4. AHUs Network

It is possible to connect several AHUs to one single TACtouch. These must have different addresses to work correctly and it is possible to differentiate them by giving them a name.

You can select the unit to communicate with in the network by select "YES" on the selection button in the list of addresses and names of units available in the network.

The name is given in the "Air handling unit" function (It is strongly advised to name each unit in the network to easily find and distinguish them).

To add an extra unit in the list, press the "Add to network" button in the "Communication/ Connection setup" function.

To remove the last air handling unit of the network list, press the "Remove from network" button.

N.B.: This function will appear only if at least one air handling unit has been added to the network.

5.5. Filters

Maintenance of the filters is needed on ventilation units. There are several tools available to help the user to know when to perform maintenance: a periodic maintenance notification or an alarm based on the pressure drop of the filter.

N.B.: Make sure that the main supply to the unit is disconnected before performing any maintenance or electrical work.

Periodic maintenance

Pressure alarm

5.5.1. Periodic maintenance

It is possible to activate a notification for a periodic maintenance every 3 months. Once the 3-month period is reached, an alarm is generated on the TACtouch.

3 months: Select "ON" to activate a preventive maintenance notification every 3 months.

Days remaining: Displays the number of days remaining before next maintenance notification.

Reset: Press button to reset the day counter for the periodic maintenance.

For 12-month maintenance information: see section 5.8.2.

5.5.2. Pressure alarm

5.5.2.1. Alarm based on contact from pressure switch.

If a differential pressure switch is mounted on each filter and its contact is connected to the control board, an alarm notification will be displayed on the TACtouch when the contact is closed.

5.5.2.2. Alarm based on calculated pressure without sensor

If the unit integrates the calculation of the fan pressure, it is possible to activate an alarm based on the calculated pressure of the fan: the detection of a pressure increase will be considered as a filter fouling. This pressure alarm can not be used if constant pressure mode has been selected in "operation level" function.

5.5.2.3. Alarm based on measured pressure with sensor

If a pressure sensor is mounted on each filter for fouling monitoring, it can be used to activate a pressure alarm.

N.B.: No alarm will be activated if airflow < 40% of intialised airflow or if the bypass is active.

Pressure revelation (Calculated/Sensors): Select "ON" if pressure sensors are mounted on the filters.

Pressure alarm: Select "ON" to activate the pressure alarm function.

Computed pressure alarm stop fan: It is possible to stop the unit in case of pressure alarm. Select "ON" to activate the stop of the fans in case of pressure alarm.

Supply pressure increase: Pressure increase value from the reference pressure to define the alarm threshold on supply air.

Extract pressure increase: Pressure increase value from the reference pressure to define the alarm threshold on extract air.

Supply air flow initialisation: Supply airflow setpoint used during pressure reference initialisation.

Reference pressure initialisation: Select "ON" to start the initialisation of the reference pressure. The fans will run and the pressure reference will be stored after the airflows are stable for +/- one minute.

Visualisation of the pressure alarm threshold and reference airflow for supply and extract air.

5.5.3. Fouling of filters

If a pressure sensor has been selected, a coloured indication of the filter fouling level based on the pressure reference and the alarm threshold will be displayed.

- Clogging of the supply filter: Level of clogging for supply filter:

green= 0 – 33% of filter fouling

orange= 33 – 66% of filter fouling

red= Above 66% of filter fouling

- Clogging of the extract filter: Level of clogging for extract filter:

green= 0 – 33% of filter fouling

orange= 33 – 66% of filter fouling

red= Above 66% of filter fouling

Fouling of the supply filter: display of the measured pressure on the supply filter.

Fouling of the extract filter: display of the measured pressure on the extract filter.

5.5.4. Pressure-Modbus sensors

If pressure sensors hase been selected, measured values and Modbus errors count will be displayed.

5.6. Software version

Display of the software version of the TACtouch and the main control board.

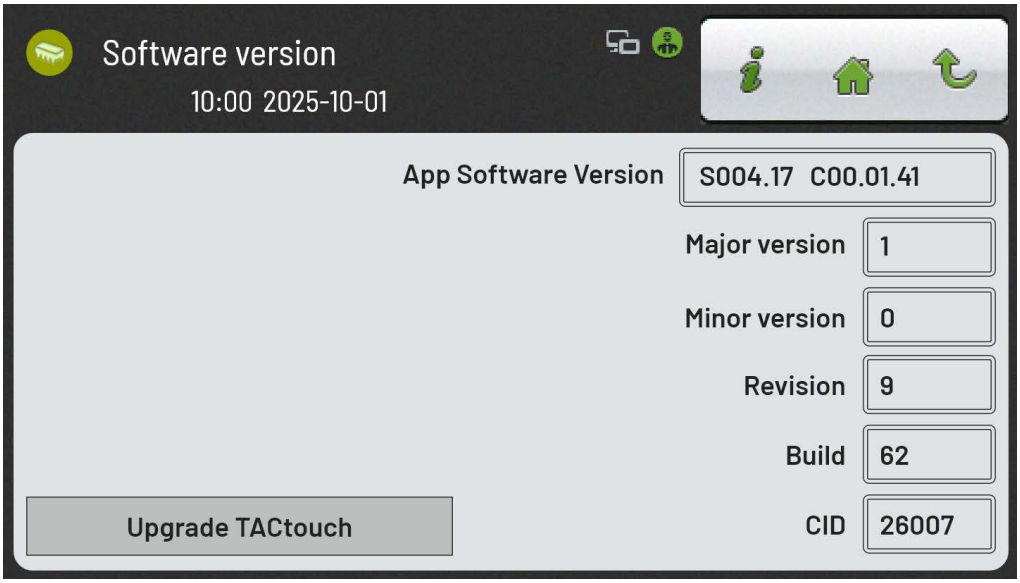
- Version of the TACtouch Software Version.

- Version of the control board:

  - Major version
  - Minor version
  - Revision
  - Build

Article number of the control board*: CID.

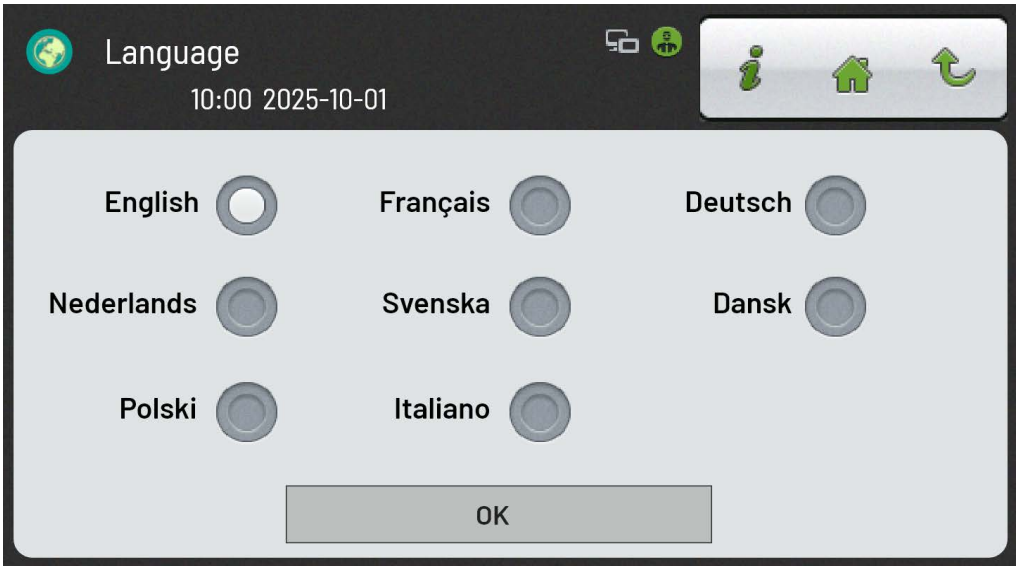
An update of the software version for the TACtouch (via SD card) and of the control board (via SAT Modbus) is possible. See the Swegon website for more details.



* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.7. Language

The TACtouch interface language can be selected here.



5.8. Alarm settings

Several alarms are managed by the control board. Settings can be configured in this section.

5.8.1. Fire alarm**

A fire alarm contact can be connected to the control board to stop the fans or to force specific airflows.

Fire alarm

Type of switch: Select if the contact connected on fire alarm input is Normally Closed (N.C.) or Normally Open (N.O.).

Supply air: Supply airflow setpoint in case of fire alarm.

Extract air: Extract airflow setpoint in case of fire alarm.

Fire Alarm auto reset: A manual reset is requested by default to reset the fire alarm. The notification "end of fire alarm" is displayed if the fire alarm is removed. Select "ON" for an automatic reset once the fire alarm input has been cleared.

5.8.2. Periodic maintenance-12 months

Periodic maintenance -12 months

It is possible to activate a notification for a periodic maintenance every 12 months. Once the 12-month period is reached, an alarm is generated on the TACtouch.

12 months: Select "ON" to activate a preventive maintenance notification every 12 months.

Days remaining: Displays the number of days remaining before next maintenance notification.

Reset: Press button to reset the days counter for the periodic maintenance.

For 3-month maintenance information : see section 5.5.1.

5.8.3. Operating time**

Operating time

It is possible to count the effective operating time (= time when the fans are running). You can activate a notification or a stop of the unit for a maintenance after a defined operating time. The operating time limit for notification can be different than the one to stop the unit.

Operating time activation: Select "ON" to activate the fan's operating time counter.

Reset: Press this button to reset the operating time counter.

Operating time alarm activation: Select "ON" to activate an alarm based on the operating time.

Operating time hours for alarm: Enter the fans working time value which will trigger the alarm.

Operating time activation for stopping fans: Select "ON" to activate stopping the unit based on the operating time.

Operating time hours for the fans to stop: Enter the number of hours before the fans are stopped.

5.8.4. Low level alarms

Low level alarms

Hide: Option to hide low level alarms. A low level alarm is a level 0 alarm as explained in the section "Alarms in TACtouch".

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.9. Log

It is possible to log data from the unit for a period. The data will be saved on a SD card (if present) in a text file named TAClog.txt.

When the memory is full, new data will overwrite the oldest saved data.

This data can be analysed using the Log Result software available with the TAC simulator.

Logging Period: Time interval (in seconds) for data logging.

It is also possible to save all parameters and currents values of the unit on a SD card (if present) in a file named DataSaved.csv.

- **Save Data**: Saves parameters and status variables to external memory if present in to a CSV file named "DataSaved", where new data will gradually overwrite the oldest saved data.

  After the unit commissioning, it is recommended to save and rename this file using for example the unit serial number. If needed, it will be easy to recover the data corresponding to a specific unit.

It is also possible to use all parameters from a previously saved file on a SD card to configure the unit with the same parameters.

- **Write Data**: Writes all parameters previously saved to the control circuit board.
- **Log analyser button in Dashboard** (only on TAC simulator): A button appears on the Dashboard to launch the software for log data analysis.

5.10. Air handling unit

This section contains settings to configure and save the unit identity, such as its name and its RECtype. It also allows to indicate the presence of dampers.

5.10.1. Settings

Settings

Name*: Specific name of the air handling unit. It will be saved in the TACtouch and displayed on the header and network function.

RECtype***: Enter the RECtype of the air handling unit. This parameter affects the factory settings of the unit. See service manual.

Air handling unit layout: Select "Right" or "Left" for the unit flowchart in the main screen to be displayed with supply flow on the right or on the left.

Fan start-up delay*: Waiting time before fans start when controlled from stop status.

5.10.2. Damper

Damper

Damper*: This function will activate a start-up delay.

Damper opening time*: Opening time of motorized dampers.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.11. Heat

Status monitoring and settings for internal electric pre-heater (KWin), external waterborne pre-heater (EBAin), external electric pre-heater (Cold Climate Pre-heater), internal/external waterborne reheater (IBA, EBA), internal/external electric reheater (KWout, KWext) and for external heat pump.

5.11.1. Status

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

5.11.2. Pre-heat

Optional pre-heater is used for anti-freeze of the plate heat exchanger. Its power is modulated to keep exhaust temperature above anti-freeze threshold temperature (1°C by default).

See Function Heat Recovery/Anti-freeze for more details.

Select electric pre-heater (KWin) if there is an internal electric pre-heater installed, or EBAin in case of an external waterborne pre-heater.

5.11.2.1.Electric pre-heater (KWin)***:

Electric pre-heater: None or KWin.

PID settings: Activation to access PID settings.

Important: Only change these settings if you are authorised to do so. For configuration, see service manual.

5.11.2.2. External waterborne pre-heater (EBAin)*:

External waterborne pre-heater: None or EBAin.

Control speed: Control speed of the 3-ways valve.

Default speed=T.

Slower control for the high values, faster control for the lower values.

Only change this value if there is a temperature stability problem.

Anti-freeze temperature: temperature setpoint for starting the anti-freeze protection cycle. In case of water as fluid, 4°C recommended for a sensor in the air flow, 12°C for a contact sensor. It is highly recommended to use fluid with lower freezing temperature than water, glycol for example, then this temperature may be reduced according to the fluid freeze characteristic.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.11.3. Cold Climate Pre-heater*

Cold Climate Pre-heater

The Cold Climate Pre-heater (CCP), supported on plate (PX)/rotary (RX) echanger units, will keep the outdoor air temperature measured by T1 at a configurable setpoint defined as parameter Cold Climate pre-heater setpoint (default value: -9°C), when fans are operating.

The physical external coil is electrical, controlled with 0-10V signal (AO2) or PWM (DO12).

All anti-frost options can still be used (supply air flow reduction, electric pre-heater, bypass modulation) except external waterborne pre-heater (EBAin).

Post-ventilation parameter is NOT forced to be set unlike for other electric coils, but can still be set.

When fans are operating, if T1 falls under Cold Climate Pre-heater setpoint minus 5°C (configurable) for more than 15 minutes (configurable), then a critical alarm for CCP failure is activated (Disabled if timeout is 0).

Type of cold climate pre-heater:

0= None
1=Electric 0-10V
2=Electric PWM

Temperature setpoint: Temperature setpoint for the Cold Climate Pre-heater compared with outdoor air temperature to keep its temperature above the setpoint.

Temperature tolerance: Tolerance for the temperature setpoint of the Cold Climate Pre-heater when fans are "ON". When T1 falls below dedicated setpoint minus this tolerance for more than the set time, a critical alarm is triggered. Default value = 5°C.

Out of tolerance temperature timeout: Time during which the outdoor air temperature can be lower than the setpoint minus the tolerance when fans are operating. After this time, if greater than 0, a critical alarm is triggered. Default value = 15 minutes.

Alarm is disabled if timeout is 0.

PID settings*:** Activation to access PID settings.

Important: only change these settings if you are authorised to do so. For configuration, see service manual.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.11.4. Reheat

Reheat

Select the installed reheater type.

Select one or more installed reheater types with cascade possibility:

- Electrical (internal KWout or external KWext).
- Waterborne (internal IBA or external EBA).
- Heat pump (external).

Main functions of the reheater:

- Modulation of heating power to reach desired comfort temperature setpoint.
The position of the temperature sensor used for the reheater temperature control can be defined in Functions/Temperature/Regulation mode (Supply temperature by default, can also be extract air temperature or the temperature sensor in the room).
- Activation of a circulator pump contact.
- Heating is automatically disabled if the fans are OFF or if the bypass is activated.
- Interaction between reheating and cooling when both are present:
  - Automatic changeover: Only 1 setpoint for heating/cooling: COMFORT temperature set point.
  - Manual changeover: 2 setpoints that may differ for heating/cooling and the selection of heating/cooling: via contact, communication or hand-held terminal.

5.11.4.1.Reheating with waterborne coil*

Select internal or external coil:

0 = None
1 = INTERNAL (IBA)
2 = EXTERNAL (EBA)

Control of the opening of a 3-ways valve when heat is required. At fan start-up, before that fan status is ON, the valve is commanded at 50% opening, if in heat mode to prevent cold droughts.

Anti-freeze temperature: Temperature setpoint for starting the anti-freeze protection cycle. 4°C recommended for sensor in the airflow, 12°C for the contact sensor.

Anti-frost protection of the coil through the opening of the valve when the temperature of the coil is below a threshold.

Possible generated alarms: Alarm group 10 - Alarm indicating waterborne coil anti-frosting alert.

Control speed: Control speed of the 3-ways valve. Default speed=T. Slower control for the higher values, faster control for the lower values. Only change this value if there is a temperature stability problem.

Waterborne reheater cascade level: When using multiple reheaters, you can select the level of the reheater in the cascade. Activated means that the reheater is on first level of the cascade. Reheaters with same level start in parallel, so at least one reheater must be set at the first level to create a cascade.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.11.4.2.Reheating with electric coil*

Control of the power sent to the coil through the command of solid-state relay with PWM signal (configurable period) or 0-10V controlled module. The control is a PID type, and the parameters gain, time derivative and time integrative are configurable.

Select internal or external coil and PWM or 0-10V control:

0 = None
1 = Internal PWM (ex: KWout)
2 = Internal 0-10V
3 = External PWM
4 = External 0-10V (ex: KWext)

PID settings***: Activation to access PID settings.

Important: Only change these settings if you are authorised to do so. For configuration, see service manual.

PWM period for external electric reheater: If 0, works as ON/OFF.

Electric reheater cascade level: When using multiple reheaters, you can select the level of the reheater in the cascade. Activated means that the reheater is on first level of the cascade. Reheaters with same level start in parallel, so at least one of them must have been set at the first level to create a cascade.

5.11.4.3. Reheating with heat pump*

Main functions of the heat pump:

Control the power sent to reheating/cooling with heat pump through modulation of 0-10V output signal.

Enable output contact (ON/OFF).

Summer/winter output contact for heat available.

Defrost input contact: In case of defrost, fans will run at dedicated low/reduced speed unless another reheater is present. In that case, it will be activated for the duration of the defrost cycle of the heat pump.

Selection of heat pump:

Control speed: Control speed of the control signal. Default speed=T. Slower control for the higher values, faster control for the lower values. Only change this value if there is a temperature stability problem.

Defrost supply airflow: If regulation mode = constant airflow and no other reheater: Select the supply airflow setpoint when activating the heat pump defrost function.

Defrost reduction factor: If regulation mode = demand control or constant pressure and no other reheater: Select the reduction factor for the fan setpoint when activating the heat pump defrost function.

Heat pump cascade level: When using multiple reheaters, you can select the level of the reheater in the cascade. Activated means that the reheater is on first level of the cascade. Reheaters with same level start in parallel, so at least one of the reheaters must have been set at the first level to create a cascade.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.11.5. Post-ventilation

The fans continue to run for a period of time after the unit is switched off to cool down electric coils.

If electric pre-heating and/or reheating is installed, the post-ventilation is activated and cannot be deactivated. The default time is 90 sec.

Activation of post-ventilation: ON/OFF.

Post-ventilation time: 90 sec.

5.11.6. Season heat

Select the periods of the year for which the reheating is deactivated.

5.12. Cool

Status monitoring and settings for external waterborne air cooler (EBA-) or for chiller.

Main functions of the cooler:

- Modulation of cooling power to reach desired comfort temperature setpoint. If the conditions are suitable (outdoor air lower than temperature setpoint), the control board will always activate the cooling via the bypass before starting the recooler.

The position of the temperature sensor can be defined in Functions/Temperature/Regulation mode (Supply temperature by default, can be also the extract air temperature).

- Activation of a circulator pump contact.

- Cooling power can be forced off by the hand-held terminal/communication or contacts (Cooling allowed by default).

Cooling is automatically disabled if the fans are OFF.

- Interaction between reheating and cooling when both are present:

  - Automatic changeover: Only 1 setpoint for heating/cooling: COMFORT temperature setpoint.

  - Manual changeover: 2 setpoints that may differ for heating/cooling and selection of heating/cooling: via contact, communication or hand-held terminal 6.

5.12.1 Status

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

Status

5.12.2. Settings*

Settings

Select the type of air cooler: Post-cooling or Chiller

Control speed: Control speed of the 3-ways valve. Default speed=T. Slower control for the higher values, faster control for the lower values. Only change this value if there is a temperature stability problem.

Anti-freeze temperature (not for chiller): Temperature setpoint for starting the anti-freeze protection cycle. 4°C recommended for sensor in the airflow, 12°C for the contact sensor.

Anti-frost protection of the coil through the opening of the valve when the temperature on the coil is below a threshold.

Possible generated alarms: Alarm group 10 - Alarm indicating waterborne coil anti-frosting alert

5.12.3. Season management

Select the periods of the year for which the post-cooling is deactivated.

Season management

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.13. Heat/cool recovery

Settings of the anti-frost protection and the bypass management of the heat exchanger.

5.13.1. Status

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

Status

5.13.2. Anti-freeze & defrost*

Anti-freeze: Prevention of freezing risk of the heat exchanger that could block or damage it.

Defrost: Defrosting cycle of the heat exchanger.

Anti-freeze & defrost

Anti-frost protection strategies:

For rotary heat exchanger (RX): reduction of the rotating speed of the rotor.

For plate heat exchanger (PX):

Supply airflow reduction.

Use of an internal electric pre-heater (KWin option).

Use of an external waterborne pre-heater (EBAin option).

Use of bypass modulation.

Supply temperature limit for Defrost: Lower limit of the supply temperature: when this temperature stays below this limit for more than 5 minutes, then the defrost process of the heat exchanger will start. Minimum is 0°C.

Defrost pressure sensor: Select "YES" if a pressure sensor is installed for the defrost detection.

5.13.2.1.Defrost

The ice detection, when the outdoor temperature (T1) is lower than 0°C, is based on a too low value of the supply temperature or on the pressure drop of the heat exchanger if a defrost pressure sensor is selected.

- Without Modbus pressure sensor on the heat exchanger: The monitoring of the supply temperature after the reheater (T5): the defrost process will begin when T5 drops under 11°C for more than 5 minutes.

- With Modbus pressure sensor on the heat exchanger: The defrost process will begin when the pressure drop of the heat exchanger in the exhaust flow has reached a predetermined threshold for more than 3 minutes. Can work only with airflow modulation of the fan speed, not with torque modulation.

Generated alarms: Alarm group 21: Alarm indicating communication error for one of the Modbus pressure sensor.

Defrost process:

The supply flow is stopped and the exhaust flow stays at its nominal level.

After 30 minutes, the exhaust flow will be stopped too for 5 minutes to drain the water formed by the melted ice.

Then the unit restarts with both flows at nominal setpoint. When using an electric pre-heater, it is powered at 100% and both flows restart at 30% of the nominal setpoint and increase to 100% step by step.

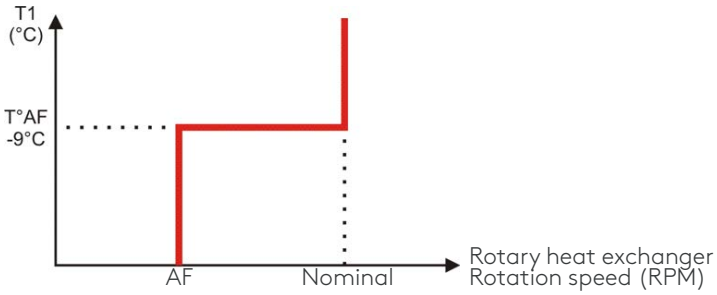
Generated alarms: Alarm group 11 – Alarm indicating that the defrost process is active.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.13.2.2. Anti-freeze-RX RPM reduced*

For rotary heat exchanger (RX) units: When the temperature of fresh incoming air T1 falls under the configured setpoint temperature for anti-frost protection, the rotation speed of the rotor will change to the setup anti-frost rotation speed. When T1 stays greater than the anti-frost setpoint temperature for more than 5 minutes, the rotation speed will be turned back to its nominal value.

Generated alarms: Alarm group 12 - Alarm indicating heat exchanger anti-frosting alert.

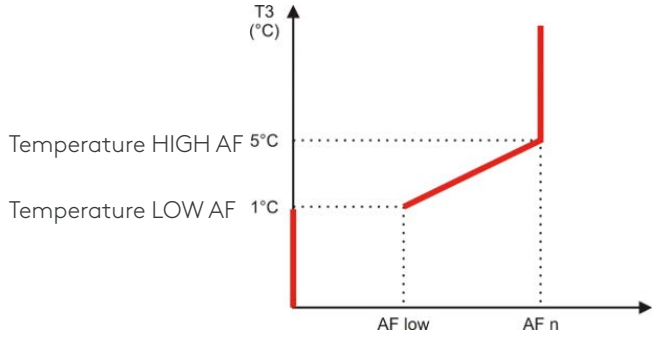


Parameters:

- **Anti-freeze enabled**: Caution: risk of heat exchanger freezing
- **Anti-freeze temperature**: Default value = -9.9°C.
- **Speed of rotation**: Reduced speed in anti-freeze. Default value = 2rpm.

5.13.2.3. Anti-freeze-Supply airflow reduction*

For plate heat exchanger (PX) units: Anti-frost protection of the heat exchanger by supply airflow reduction: if the temperature of exhaust air at the exchanger output (T3) becomes lower than 5°C, the setpoint for the supply airflow is reduced in a linear way from 100% to 33% (CA, TQ, LS mode) or 50% (CP mode) respect to the current setpoint. Under 1°C for 5 minutes, the supply fan is stopped and it will start up again if T3 becomes higher than 2°C for more than 5 minutes.



Parameters:

- **Low temperature**: Default value = 1°C.
- **High temperature**: Default value = 5°C.
- **Stop supply airflow**: Possibility to avoid the supply fan to stop when temperature lower than 1°C (caution: risk of heat exchanger freezing).

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.13.2.4. Anti-freeze-Pre-heater*

Using an electric pre-heater (KWin)

Anti-freeze temperature: default value = 1°C.

Anti-frost protection of the heat exchanger by using internal electric pre-heater (KWin): This coil will warm up the incoming outdoor air when the exhaust air at the exchanger output (T3) is lower than 1°C (default value of parameter "Anti-freeze temperature").

Control of the power sent to the coil is controled by the command of the solid state relay. The PID parameters and post-ventilation time are configurable with the service manual.

Extra protection:

- If pre-heater is powered at 100% and T3 < 1°C, both airflows will be reduced step by step from nominal airflow down to 33%.

If T3 is still < 1°C, the defrost process is started for 30minutes: electric pre-heater and supply flow will be stopped while exhaust will be back at nominal airflow. After the defrost period, the unit will start again in anti-frost mode with pre-heater at 100% and both flows at 30% of nominal setpoint and increase to 100% step by step.

Generated alarms: Alarm group 12 - Alarm indicating heat exchanger anti-frosting alert

- If the temperature T3 stays under -5°C for more than 5 minutes, the fans will stop and a RESET is necessary to restart the unit.

Generated alarms: Alarm group 13 - Alarm indicating anti-frosting alert.

Using waterborne pre-heater (EBAin)

Anti-freeze temperature: default value = 1°C.

Anti-frost protection of the heat exchanger by external coil (EBAin): This coil will warm up the incoming outdoor air when the exhaust air at the exchanger output (T3) is lower than 1° (default value of parameter "Anti-freeze temperature".

Control of the opening of a 3 ways valve to reduce the gap between setpoint and actual value (AO2). The speed of the control and the anti-freeze temperature of the waterborne coil (on T4) are configurable in "Heat" menu (5.11.). At fan start-up, before fan status is ON, the valve is set at at 50% opening.

Anti-frost protection of the waterborne coil through the opening of the valve when the temperature on the coil, measured by T4, is below a configurable threshold: by default 4°C but can be adapted in "Heat" menu. It is strongly recommended to use very low temperature freezing fluid like glycol.

Extra protection:

- If pre-heater is powered at 100% and T3 < 1°C, both airflows will be reduced step by step from nominal airflow down to 33%.

If T3 is still < 1°C, the defrost process is started for 30minutes: electric pre-heater and Supply flow will be stopped while exhaust will be back at nominal airflow. After the defrost period, the unit will start again in anti-frost mode with pre-heater at 100% and both airflows at 30% of nominal setpoint and increase to 100% step by step.

Generated alarms: Alarm group 12 - Alarm indicating heat exchanger anti-frosting alert

- If the temperature T3 stays under -5°C for more than 5 minutes, the fans will stop and a RESET is necessary to restart the unit.

Generated alarms: Alarm group 13 - Alarm indicating anti-frosting alert.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.13.2.5. Anti-freeze-Bypass modulation

Anti-freeze temperature: default value = 1°C.

Anti-frost protection of the heat exchanger by the modulating bypass: the control will open the bypass to divert a part of the incoming outdoor air to the side of the exchanger when the exhaust air at the exchanger output (T3) is lower than 1° (default value of parameter "Anti-freeze temperature").

When using reheater, if the reheater is at 100% and supply temperature (T5) is lower than 16°C, both airflows will be reduced step by step from nominal airflow down to 33%. If the flows stay at the minimum of 33% for more than 5 minutes, alarm 12 is activated.

If a defrost pressure sensor is selected (see 5.13.2), the maximum opening is limited to allow maximum 50% of the airflow to go into the bypass section to avoid too cold airflow in the supply duct.

Generated alarms:

- Alarm group 12 - Alarm indicating anti-frosting alert.

- Alarm group 18: Alarm indicating that the comfort temperature is too low relative to setpoint temperature.

- Alarm group 15 - Alarm indicating a faulty position of the modulating by-pass relative to the commanded position.

5.13.3. Settings

Settings

On plate heat exchanger (PX):

Delta temperature minus for cooling setpoint: Delta of temperature to withdraw from the cooling temperature setpoint when the bypass is activated.

Enable delay after heating: Time to wait after the end of the activation of a reheater before opening the bypass for Summer night cooling.

Input for drain pump: Select "ON" if an alarm contact from a drain pump is connected to the control board.

Season management - Bypass OFF: Select the periods of the year for which the bypass Summer night cooling of the heat exchanger is deactivated.

On rotary heat exchanger (RX):

Nominal rotor speed*: Nominal speed of rotor in RPM.

Rotor speed at 10V***: For configuration, see service manual.

Season management - Bypass OFF: Select the periods of the year for which the bypass freecooling of the heat exchanger is deactivated.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.14. Heat/Cool

Status monitoring and settings for external reversible waterborne combicoil (EBA+-) or for reversible Heat pump/Chiller.

5.14.1. Status

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

Status

5.14.2. Settings*

Selection of “Reversible waterborne coil” or “Heat pump and Chiller”.

Settings

5.14.2.1. Reversible waterborne coil*

The selection of a reversible waterborne coil will reset any internal waterborne coil or any external heating or cooling coil already configured.

Control speed: Control speed of the 3 ways valve signal. Default speed=T. Slower regulation for the higher values, faster regulation for the lower values. Only change this value if there is a temperature stability problem.

Anti-freeze temperature: Temperature setpoint for starting the anti-freeze protection cycle. 4°C recommended for sensor in the airflow, 12°C for the contact sensor.

Reversible water cascade level: When using multiple reheaters, you can select the level of the reheater in the cascade. Activated means that the reheater is on first level of the cascade. Reheaters with same level start in parallel, so at least one of them must be set at the first level to create a cascade.

5.14.2.2. Heat pump and Chiller

The selection of a heat pump and chiller will reset any external cooling coil or heating heat pump already configured.

Control speed: Control speed of the control signal. Default speed=T. Slower regulation for the higher values, faster regulation for the lower values. Only change this value if there is a temperature stability problem.

Defrost supply airflow: Select the supply airflow setpoint when activating the heat pump defrost function.

Heat pump cascade level: When using multiple reheaters, you can select the level of the reheater in the cascade. Activated means that the reheater is on first level of the cascade. Reheaters with same level start in parallel, so at least one of them must be set at the first level to create a cascade.

5.14.3. Season management

Select the periods of the year for which the reheating and post-cooling are deactivated.

Season management

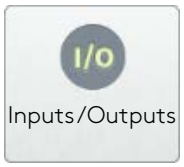
Season management - Heating OFF: Select the periods of the year for which the reheating is deactivated.

Season management - Cooling OFF: Select the periods of the year for which the post-cooling is deactivated.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.15. Inputs/Outputs

This menu presents Inputs/Outputs status visualisation, commissioning of Inputs/Outputs mapping (this requires a training before starting to change the default mapping and is for advanced users only), and air quality sensors if used.



5.15.1. Status-Inputs

Inputs: Displays actual status of all inputs.

5.15.2. Status-Outputs

Outputs:Displays actual status of all outputs.

5.15.3. Settings**

Contacts K1-K2-K3 Master: Select Yes to control the unit with electrical contacts K1-K2-K3 instead of the speed selection buttons of the TACtouch.

SAT IO present: Indicates of the presence of the optional SAT IO board.

SAT Relay present: Indicates of the presence of the optional SAT Relay board.

Select the number of sensors for measurement: If used, select the number of air quality sensors (up to 5): CO2, relative humidity, VOC, Fine dust ppm, temperature.

User Digital I/O Mapping: Activate this function if you want to change the position on the control board for one or several input or output signals. Caution: Change mapping should be done only by trained people for a clear purpose. Updated diagram with changed mapping should be provided. It is strongly recommended to make a copy of all parameters before any changes have been made so they can be restored in case of errors during mapping.

5.15.4. 0-10V output*

When SAT IO is present: Configuration of the 0-10V OUT1 and OUT2 outputs linearly proportional to fan airflow or pressure (when available).

OUT1: Information provided by the 0-10V OUT1 signal.

OUT2: Information provided by the 0-10V OUT2 signal.

* Visible but not modifiable by local profile. ** Not visible by local profile.
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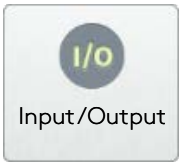
5.15.5. Air quality sensors - measure



Air quality sensors - measure

If using Air Quality Sensor for measurement in the I/O settings, Air Quality Sensors data has to be configured:

Measure: Physical parameter measured by the sensor.

Location **measured**: position of the sensor (Supply/Extract/Exhaust/Incoming outdoor air, Inside/outside (of the building)).

Type: Type of signal selection: Analogue, Modbus or Serial.

Scale Factor: Scale factor to obtain readable and converted measured value from sensor in desired physical unit.

Read value: displays the current value of the sensor

In case of analogue sensor:

I/O: Selection of analogue input (K2 or K3) used for the sensor.

Airflow at Vmin: Minimum voltage of the sensor connected to Analogue Input.

Airflow at Vmax: Maximum voltage of the sensor connected to Analogue Input.

Min.Level: measured value corresponding to Vmin.

Max.Level: measured value corresponding to Vmax.

In case of Modbus sensor:

Measure: Physical parameter measured by the sensor.

Bus: Bus to which the sensor is connected.

Address: Modbus address of the sensor.

Register: Modbus register number to access to the measured value on the sensor.

In case of Serial sensor:

Measure: Physical parameter measured by the sensor.

Bus: Bus to which the sensor is connected.

5.15.6. Pressure - Modbus sensors

Pressure - Modbus sensors

If Modbus pressure sensors are configured for constant airflow fan control, constant pressure or defrost of the heat exchanger: actual measured values and number of communication errors since the last alarm reset are displayed.

5.16. Communication

In this menu, visualise and commission all communications buses and interfaces: TACtouch, SAT Modbus, SAT WIFI/Ethernet, Field buses.

N.B.: Make sure that the main power supply to the unit is disconnected before performing any maintenance or electrical work.

5.16.1. Connection setup

Connection setup

The control board can be connected in different ways using the different communication possibilities. In this case, connection has to be made.

Modbus type: Selection between RTU (for Modbus RTU) or TCP/IP (for Modbus TCP/IP). Reset the COM to apply the modification

TAC Modbus address: Enter the TAC Modbus address (1...247).

IP (only for TAC simulator): IP address of the SAT WIFI/Ethernet. If not known because the SAT is client into a DHCP network, then the discovery function can be used to identify the SAT into the network.

Port (only for TAC simulator): Communication port. After change, a COM reset is necessary to apply new communication settings (see dedicated parameter).

Discover: Discover TAC units connected to the network.

Reset COM: Reset Communication with TAC.

Resume control via TACtouch: If the unit was previously controlled via Modbus, WIFI, KNX or Ethernet connection, this functionnality will reset the configuration and the control will move to the TACtouch.

Add to Network: Add this air handling unit to the network list.

5.16.2. SAT Modbus configuration*

SAT MODBUS configuration

Setup of the communication between the SAT Modbus and the control board.

TAC Modbus address: Enter the TAC Modbus address (1...247).

Baudrate: Modbus Baudrate (1200, 4800, 9600, 19200; 38400).

Parity and stop bits:
Modbus Parity and stop bits (N1 = No parity and 1 stop bit, E1 = Even parity and 1 stop bit, O1 = Odd parity and 1 stop bit; N2 = No parity and 2 stop bits, E2 = Even parity and 2 stop bits, O2 = Odd parity and 2 stop bits).

Configuration of the SAT LAN

5.16.3. Configuration of the SAT LAN*

Setup of the communication between the SAT WIFI/Ethernet and the control board.

IP configuration.

N.B.: to validate the changes of settings, it is necessary to reset the control board.

- IP 1: IP description	- Netmask 3: Netmask
- IP 2: IP description	- Netmask 4: Netmask
- IP 3: IP description	- Gateway 1: Gateway
- IP 4: IP description	- Gateway 2: Gateway
- Netmask 1: Netmask	- Gateway 3: Gateway
- Netmask 2: Netmask	- Gateway 4: Gateway

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.

5.16.4. Bus settings**

Bus settings

Configuration of internal and external serial bus.

RJ1 (TACtouch) - Address: BUS RJ1 (mainly used for TACtouch)
Modbus Address: 0, TACtouch/Hand-held terminal is a slave; if set to 1..247, then TACtouch/Hand-held terminal is a master. Default value is 1.

RJ1 (TACtouch) - Baudrate: BUS RJ1 (TACtouch) -
Modbus Baudrate (1200, 4800, 9600, 19200; 38400).

RJ1 (TACtouch) - Parity and stop bits: BUS RJ1 (TACtouch) - Modbus Parity and stop bits (No parity and 1 stop bit, Even parity and 1 stop bit, Odd parity and 1 stop bit; No parity and 2 stop bits, Even parity and 2 stop bits, Odd parity and 2 stop bits).

RJ2 (EXT) - Baudrate: BUS RJ2 (EXT) - Modbus Baudrate (1200, 4800, 9600, 19200; 38400).

RJ2 (EXT) - Parity and stop bits: BUS RJ2 (EXT) - Modbus Parity and stop bits (No parity and 1 stop bit, Even parity and 1 stop bit, Odd parity and 1 stop bit; No parity and 2 stop bits, Even parity and 2 stop bits, Odd parity and 2 stop bits).

RJ3 (INT2) - Address: BUS INT2 Modbus Address: 0, TAC7 is master; if set to 1..247, TAC7 is slave. Default value is 1.

RJ3 (INT2) - Baudrate: BUS RJ3 (INT2) - Modbus Baudrate (1200, 4800, 9600, 19200; 38400).

RJ3 (INT2) - Parity and stop bits: BUS RJ3 (INT2) - Modbus Parity and stop bits (No parity and 1 stop bit, Even parity and 1 stop bit, Odd parity and 1 stop bit; No parity and 2 stop bits, Even parity and 2 stop bits, Odd parity and 2 stop bits).

RJ4 (INT1) - Baudrate: BUS RJ4 (INT1) - Modbus Baudrate (1200, 4800, 9600, 19200; 38400).

RJ4 (INT1) - Parity and stop bits: BUS RJ4 (INT1) - Modbus Parity and stop bits (No parity and 1 stop bit, Even parity and 1 stop bit, Odd parity and 1 stop bit; No parity and 2 stop bits, Even parity and 2 stop bits, Odd parity and 2 stop bits).

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5.16.5. Swegon INSIDE

Swegon INSIDE

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

Air handling units GLOBAL & ESENSA with TAC7 control version can be equipped with SAT MQTT (SAT WIFI/ETHERNET/MQTT) and a certificate from the factory, to enable connection to Swegon INSIDE.

Air handling units with earlier TAC control versions and equipped with the SAT WIFI/ETHERNET can be supplied with a certificate afterwards (retrofit), see below.

Also see the separate instruction regarding safety recommendations.

In order to read data, an account must be created.
1. Create an account in Swegon INSIDE Portal by going to Swegon's website (swegon.com). Click on "SUPPORT & SOFTWARE" in the menu. Scroll down and click on the link "Create account for INSIDE Portal".
2. Fill in the form, including the serial number, and then press "Send".
3. Wait for a response by e-mail.
4. Log into INSIDE Portal to view current products.

Air handling unit supplied with a certificate from the factory
There are 2 options to connect the SAT:
- LAN connection (local area network) which is connected to internet through a router. Make sure that the assigned and configured IP address is not blocked from internet access by the router (possibly contact your IT organisation).

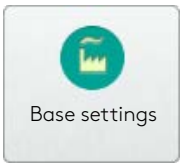
- Optional Swegon 4G router (see specific manual).

Retrofit
There are 2 options to connect the SAT:
- LAN connection (local area network) which is connected to internet through a router. Make sure that the assigned and configured IP address is not blocked from internet access by the router (possibly contact your IT organisation).

- Optional Swegon 4G router (see specific manual).

Download activation code
1. Go to Swegon's website (swegon.com). Click on "SUPPORT & SOFTWARE" in the menu. Scroll down and click on the link "Make your product INSIDE Ready".
2. Fill in the form, select product GLOBAL or ESENSA, enter serial number and the MAC address for the SAT (see label on the SAT: "WMAC").
3. Wait for a response by e-mail.
4. Activate Swegon INSIDE. Connect your computer to the same network as the SAT. Install the software "SAT WIFI/ETHERNET TAC7 certificate" available on Swegon's website (Swegon.com).
5. Fill in ID and the activation code (see the e-mail) in the application.

*5.17. Base settings***



5.17.1. Restore factory settings

Restore factory settings:

Press on RESET, then validate "Are you sure you want to reset the air handling unit to the factory settings?" to apply the factory reset. All parameters will be reinitialised with initial factory settings.

5.17.2. TACtouch

TACtouch settings.E.g.: Brightness, sound, etc.

Brightness: Change the brightness of the TACtouch.

Time Standby screen.

Brightness Standby screen.

Tone: Activate a tone when buttons are touched.

Audible alarm: Activation of a sound when an alarm is triggered.

*5.18. Users***

Possibility to modify PIN code for each access level.

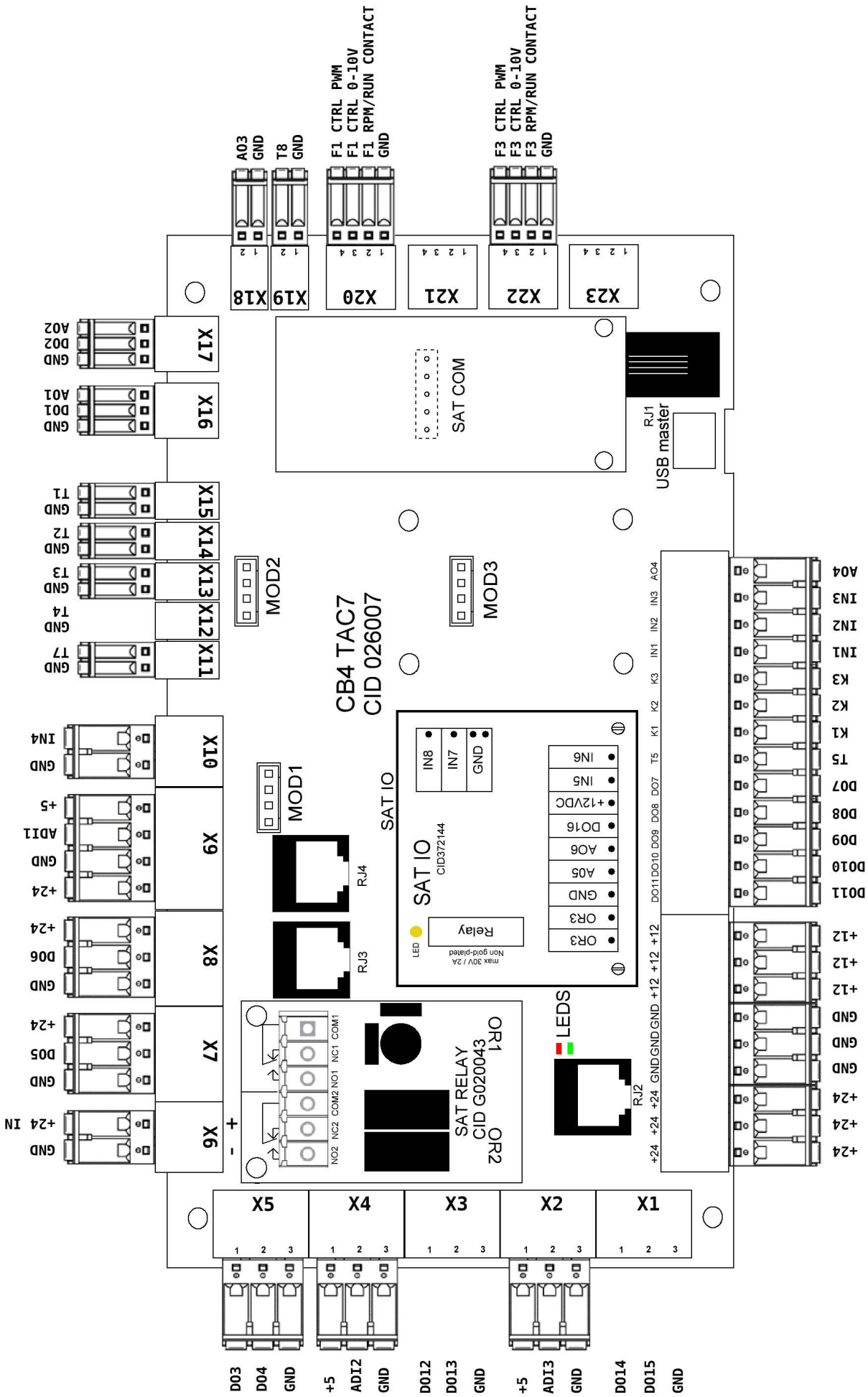
Local level access code: Enter the 4 digits code to access with local level.

Installation level access code: Enter the 4 digits code to access with installer level.

Service level access code: Enter the 4 digits code to access with service level.

Direct access for local user: Allow codeless access to the local user.

* Visible but not modifiable by local profile. ** Not visible by local profile.
*** Visible by local and installation profiles, modifiable only by service profile.



6. Main board

AO1 = output 0-10V for external waterborne reheater (Prewired or option)	T1 = from outdoor T° sensor (prewired)	
DO1 = KWout = output PWM for electric reheater power control (Prewired or option)	T2 = from indoor T° sensor (prewired)	
DO2 = KWin- PX: output PWM for electric pre-heater power control (Prewired or option) | RX SPEED PWM - RX	T3 = to outdoor T° sensor (prewired)	
	T4 = Waterborne pre-heater (EBAin) T° sensor (option)	
AO2 = RX SPEED 0-10V - RX (option)	T5 = supply T° sensor for waterborne reheater (IBA)/electric reheater coil (KWout) (option)	
AO3 = 0-10V output to control cooling capacity or reversible heat/cool	T7 = Waterborne reheater (IBA)/waterborne pre-heater (EBA) anti freeze protection T° sensor (option)	
AO4 = outpout 0-10V for internal waterborne reheater (option)	T8 = Cooling coil frost protection sensor	
DO3 = BYPASS OPEN- PX (with rotary actuator) (prewired)	IN1 + 12/24V = FIRE ALARM	
DO4 = BYPASS CLOSE - PX (with rotary actuator) (prewired)	IN2 + 12/24V = BOOST	
DO5 = DAMPER 1 (with or without spring return, Imax = 0.5A DC) (Prewired or option)	IN3 + 12/24V = BYPASS ACTIVATION OVERRIDE	
DO6 = DAMPER 2 (with or without spring return, Imax = 0.5A DC) (Prewired or option)	IN4 + GND = Drain pan full contact (only for LP Unit - prewired)	
DO7 = HEAT OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	K1 + 12/24V: Airflow MODE	= m³/h or l/s K1
DO8 = COOL OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	Demand/Pressure control	= START/STOP
DO9 = ALARM OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	K2 + 12/24V: Airflow control	= m³/h or l/s K2
DO10 = AL dPA OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	Demand/Pressure control	= 0-10V INPUT
DO11 = FAN ON OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	K3 + 12/24V: Airflow control	= m³/h or l/s K3
ADI1 = BYPASS POS - PX | RX SPEED FEEDBACK - RX (prewired)	Demand/Pressure control	= % ON K3 or 0-10V INPUT
ADI2 = SUPPLY FILTER dPa	RJ1 = RJ12 connector for TACtouch (opion)	
ADI3 = EXTRACT FILTER dPa	RJ2 = RJ12 connector for Modbus Pressure CP mode (option); Modbus Air quality sensors for demand control mode (option); Modbus Air quality sensors for BOOST in all modes (option)	
F1 = FAN 1 (SUPPLY)	RJ3 = RJ12 connector for ESENSA or GLOBAL PX LP: free; for GLOBAL PX/RX: Modbus Pressure sensors kit CA (prewired) and/or filters monitoring (option - prewired), on supply flow	
F3 = FAN 3 (EXHAUST)	RJ4 = RJ12 connector for Modbus Pressure sensors kit CA (prewired) and/or defrost detecting (option - prewired) and/or filters monitoring (option - prewired); NB: for GLOBAL PX/RX: sensor used for extract flow only	
SAT COM = SAT MODBUS or SAT KNX or SAT WIFI-ETHERNET - (option)		
GREEN LED ON = POWERED ON RED LED ON = ALARM		

Electronic boards contains ESD sensitive components. Wear antistatic wrist strap connected to protective earth before to manipulate them.
In alternative, discharge by touching the unit, handle boards at corners only and use antistatic gloves.

The document was originally written in English. **CID050447**