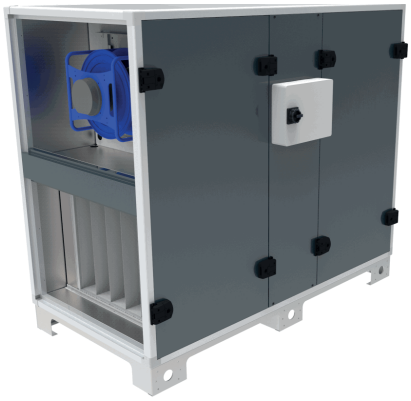
GLOBAL PX/RX/LP

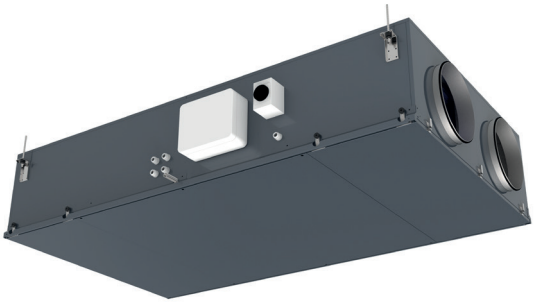
Operation and maintenance instructions

Applicable to program versions TAC6 – Version 1.0.0.5

GLOBAL PX



GLOBAL RX



GLOBAL LP

GLOBAL RX TOP

Swegon

GLOBAL PX/RX/LP
Table of content

1.0 Installation manual

Applicable for the following units

EXCHANGER	SIZES	INTEGRATED PRE-HEATING	INTEGRATED POST-HEATING	HANDING	FAN
GLOBAL PX Counterflow	04/05/08/10/12/ 13/14/16/18/20/24/26	Yes, electrical	Yes, electrical or water	Right	Forward
GLOBAL PX TOP Counterflow	05/08/10/12/14/18	Yes, electrical	Yes, electrical or water	Left / Right	Backward
GLOBAL RX Rotary	05/08/10/12/13/ 14/16/18/20/24/26	No	Yes, electrical or water	Left / Right	Backward
GLOBAL RX TOP Rotary	05/08/10/12/ 13/14/16	No	Yes, electrical or water	Left / Right	Backward
GLOBAL LP Counterflow	02/04/06/08 10/12/13/14/16/18	Yes, electrical	Yes, electrical or water	Left / Right	Backward

Disclaimer
Danger/Warning/Caution

- 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 installer cannot be considered subject to guarantee if these instructions have not been followed correctly.
- Make sure that the power supply to the unit is disconnected before performing any maintenance or electrical work!
- All electrical connections must be carried out by an authorized installer and in accordance with local rules and controls.
- Although the mains supply to the unit has been disconnected there is still risk for injury due to rotating parts that have not come to a complete standstill.
- Beware of sharp edges during mounting and maintenance. Make sure that a proper lifting device is used. Use protective clothing.
- Unit should always be operated with closed doors and panels.
- If the unit is installed in a cold place make sure that all joints are covered with insulation and are well taped.
- Duct connections/duct ends should be covered during storage and installation, in order to avoid condensation inside of the unit.
- Check that there are no foreign objects in unit, ducting system or functional sections.
- The unit is packed to prevent damage of the external and internal parts of the unit, dust and moisture penetration. If the unit is not to be installed immediately, it should be stored in a clean, dry area. If stored externally, it should be adequately protected from the weather influence.

RANGE OF APPLICATION

The GLOBAL units are designed for use in comfort ventilation applications.

Depending on the variant selected, GLOBAL units can be utilised in buildings such as office buildings, schools, day nurseries, public buildings, shops, residential buildings, etc.

GLOBAL units equipped with plate heat exchangers 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, saunas, spas or wellness centres.

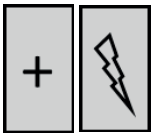
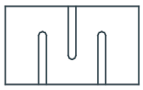
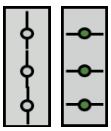
Please do contact us if you have a need for a unit that is suited for such an application.

HOW TO READ THIS DOCUMENT

Please make sure that you have read and understood the safety precautions below.

Please read chapter 2 where the Symbols and Abbreviations used for GLOBAL are listed and Chapter 5 where the operating principles of a GLOBAL air handling unit are described. The commissioning of the unit is described in chapter 6.

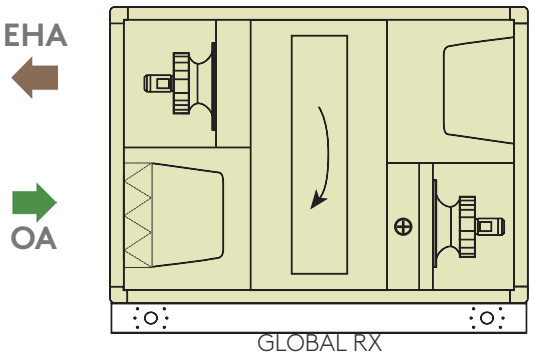
2.0 Symbols and abbreviations

	BW	BACKWARD CURVED FAN			
	BF	BAG FILTER		PF	PLEATED FILTER
	RX	ROTARY HEAT EXCHANGER		PX	PLATE HEAT EXCHANGER
	WARNING			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.	
	Must be connected by a qualified Electrician. Warning! Hazardous voltage.				
	OUTDOOR AIR		Air from outdoor to the AHU (OA)		
	SUPPLY AIR		Air from the AHU to the building (SA)		
	EXTRACT AIR		Air from the building to the AHU (ETA)		
	EXHAUST AIR		Air from the AHU to outdoor (EHA)		
	COOLING COIL	BA-		IBA/KW	HEATING COIL (WATER/ELECTRICAL)
	SILENCER	GD		CTm	MOTORIZED DAMPER
	PRESSURE SENSOR	P		Tx	TEMPERATURE SENSOR Nr = x (1,2,3...)
	SLIP CLAMP Sliding bar and screws are not included	SC		MS	FLEXIBLE CONNECTION
CIRCULAR DUCT CONNECTION		ER	For inlet	SR	For outlet

3.0 Product Overview

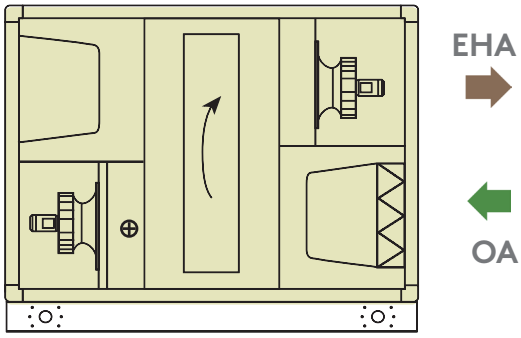
GENERAL OVERVIEW

RIGHT HAND UNIT (SUPPLY AIR TO THE RIGHT)

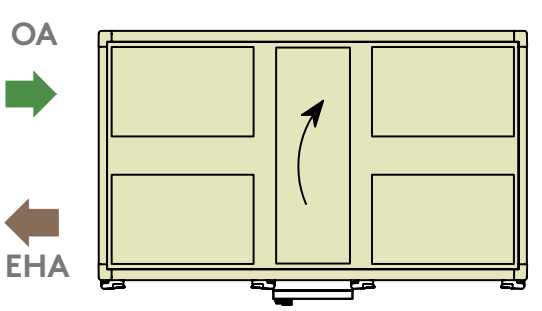


GLOBAL RX

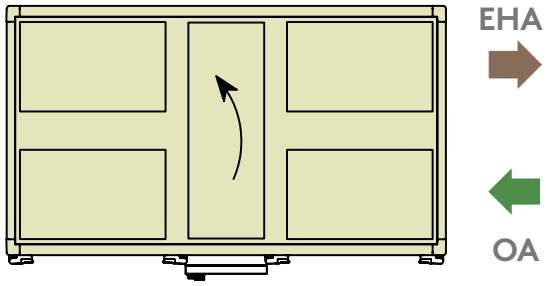
LEFT HAND UNIT (SUPPLY AIR TO THE LEFT)



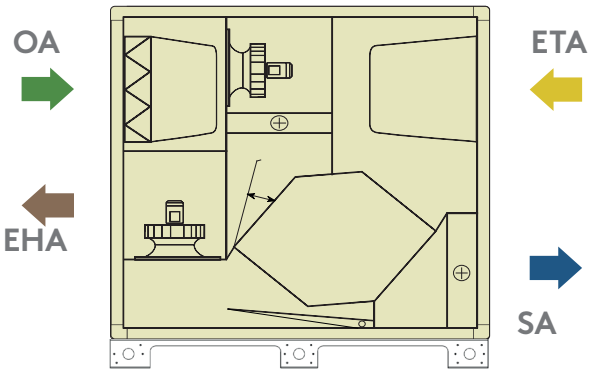
GLOBAL RX



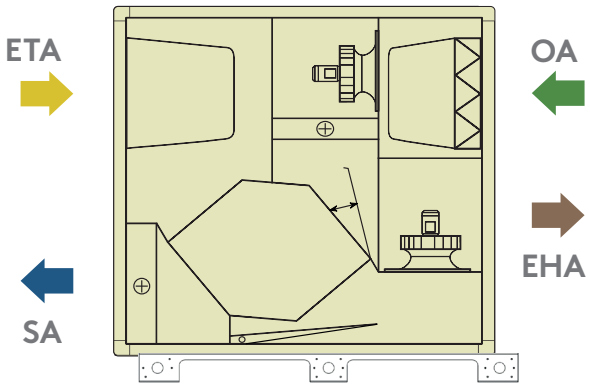
GLOBAL RX TOP



GLOBAL RX TOP

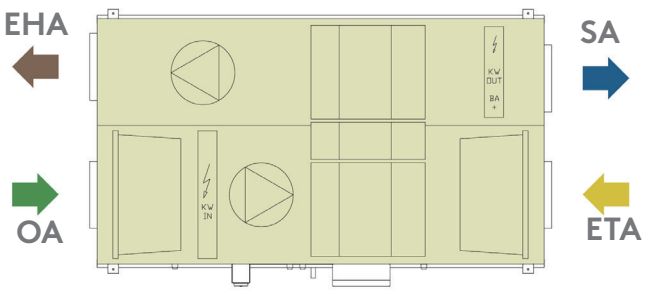


GLOBAL PX



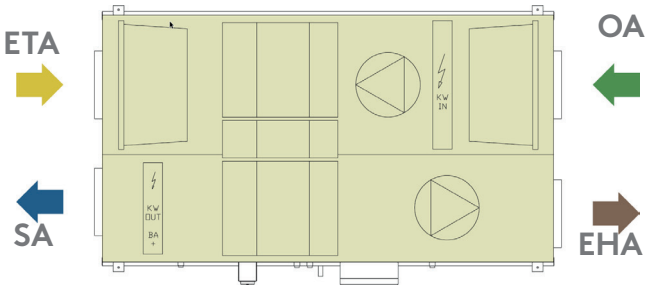
GLOBAL PX

RIGHT HAND UNIT (SUPPLY AIR TO THE RIGHT)



GLOBAL LP (TOP view)

LEFT HAND UNIT (SUPPLY AIR TO THE LEFT)



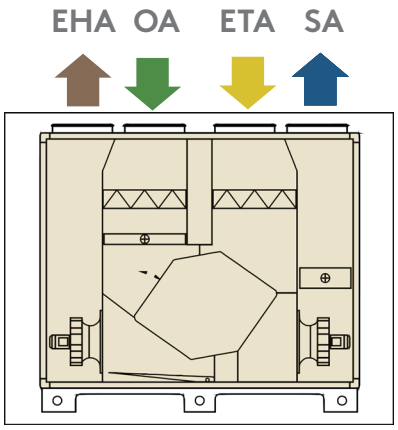
GLOBAL LP (TOP view)

ATTENTION

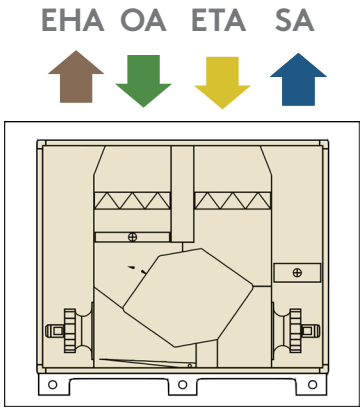
Right and left hand units have different article numbers and should be ordered accordingly.
Main version described in the manuals is always the hand right version.

The difference between left and right LP units is the factory placement of the controls box on opposite sides.

RIGHT HAND UNIT (SUPPLY AIR TO THE RIGHT)

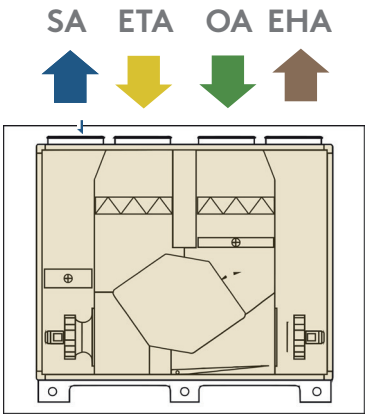


GLOBAL PX TOP 05 - 10

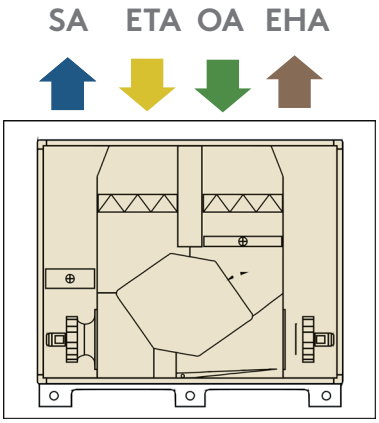


GLOBAL PX TOP 12 - 18

LEFT HAND UNIT (SUPPLY AIR TO THE LEFT)



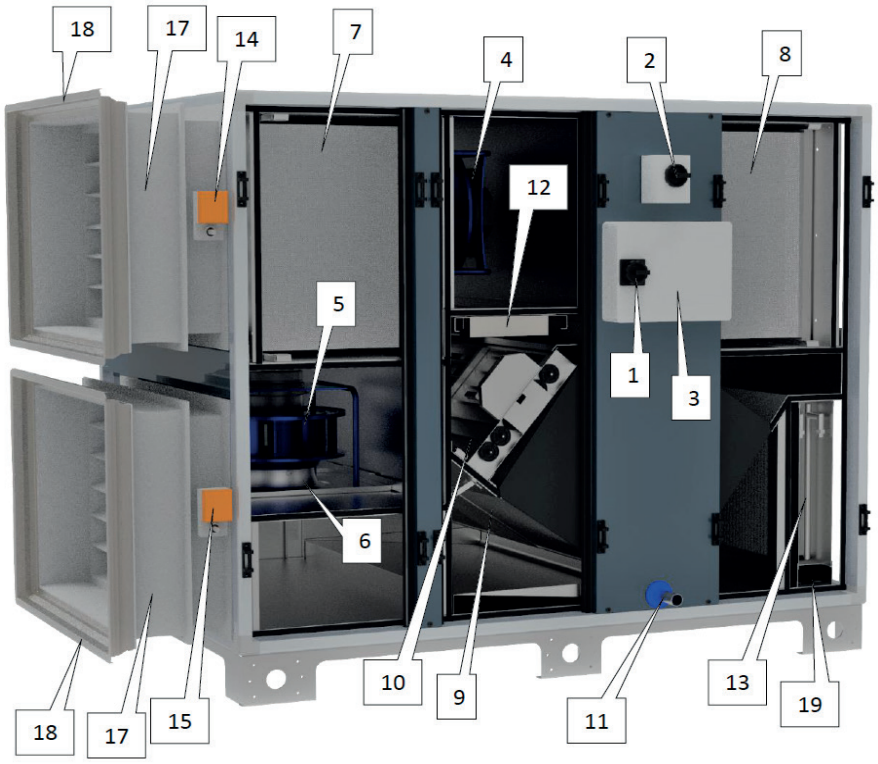
GLOBAL PX TOP 05 - 10



GLOBAL PX TOP 12 - 18

COMPONENTS GLOBAL PX

GLOBAL PX



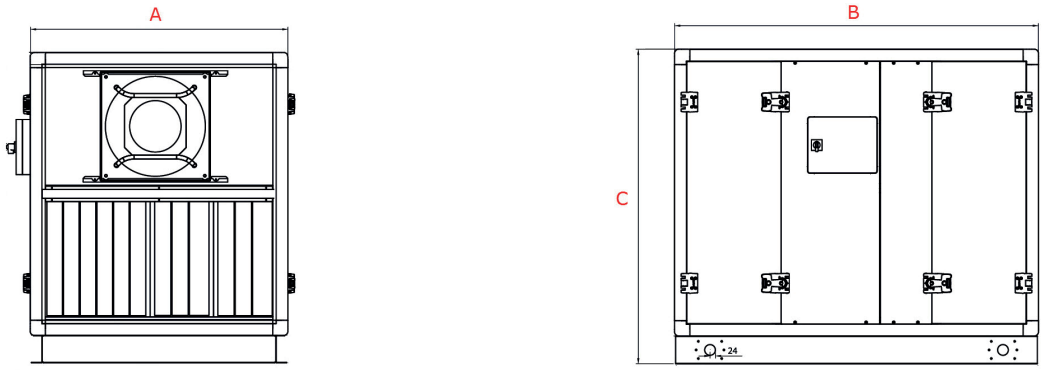
1. Main power switch
2. Main power switch for electrical coils (both internal pre-hating and post-heating)
3. Wiring box TAC controller
4. Supply fan
5. Extract fan
6. Kit CA -airflow measurement (option)
7. Outdoor air filter (bag or pleated)
8. Extract air filter (bag or pleated)
9. Heat exchanger (Plate)
10. Modulating 100% by-pass
11. Drain pan and drain pipe
12. Pre-heating electrical antifrost coil
13. Internal post-heating water or electrical coil (accessory)
14. Motorized damper (at outdoor air side - accessory)
15. Motorized damper (at exhaust air side - accessory)
17. Flexible connection(accessory)
18. Slip Clamps (accessory)
19. Water connection for postheating (accessory)

1, 2 and 3 must be installed by an accredited electrician

Note: internal electrical coils, motorized dampers, internal fan-pressure sensors, flexible connections and slip-clamps have to be ordered initially and are all pre-mounted and factory wired. Internal heating water-coil accessory is pre-mounted but has to be hydraulically and electrically connected by the installer.

AIR VOLUMES AND DIMENSIONS - GLOBAL PX

GLOBAL PX



EXCHANGER	SIZE	AIR VOLUME		A [mm]	B [mm]	C [mm]	Weight [kg]
GLOBAL PX Counterflow	04						
	05	1060 m³/h	295 l/s	610	1680	1465	330
	08	1680 m³/h	465 l/s	815	1680	1465	370
	10	1860 m³/h	515 l/s	995	1680	1465	410
	12	2300 m³/h	640 l/s	1182	1680	1465	420
	13	2530 m³/h	700 l/s	1182	1680	1465	420
	14	3000 m³/h	830 l/s	1382	1680	1465	480
	16	3230 m³/h	895 l/s	1640	1680	1465	520
	18	4200 m³/h	1200 l/s	2015	1880	1465	670
	20	4700 m³/h	1300 l/s	1640	2557	1825	930
	24	6260 m³/h	1740 l/s	2015	2557	1825	1120
	26	7080 m³/h	1960 l/s	2396	2557	1825	1260

COMPONENTS GLOBAL PX TOP

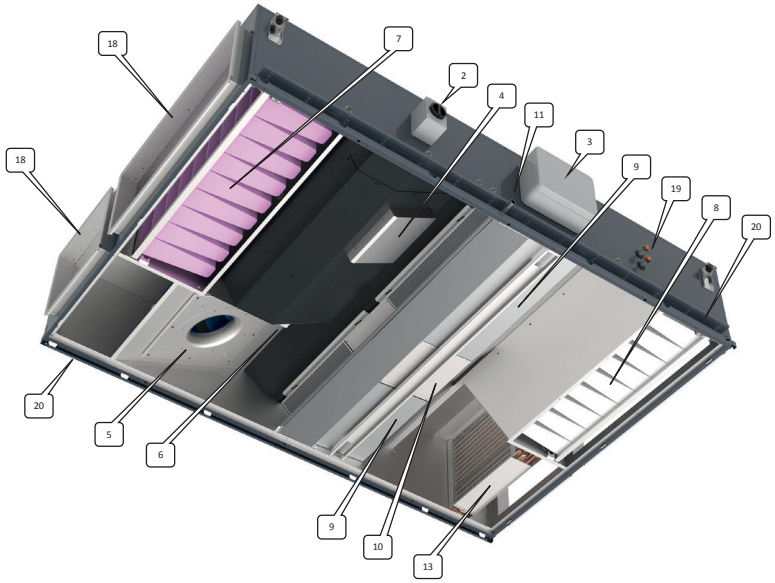
1. EC Plug fan w/ composite fan blades (aluminium blades optional)
2. Fresh air filter ePM1≥60% filter class
3. Extract air filter ePM1≥50% filter class
4. Integrated TAC controller
5. High efficiency counterflow plate heat exchanger
6. Modulating 100% BYPASS
7. Stainless steel drain pan
8. Base frame for easy on site transport
9. Integrated post-heating (water / electrical)
10. Integrated pre-heating (electrical)
11. Silencer

AIR VOLUMES AND DIMENSIONS GLOBAL PX TOP

EXCHANGER	SIZE	AIR VOLUME		A [mm]	B [mm]	C [mm]	Weight [kg]
		m²/h	l/s				
GLOBAL PX TOP Counterflow	05	200-940	60-260	610	1680	1465	330
	08	200-1500	60-410	815	1680	1465	380
	10	300-1900	80-520	815	1960	1725	470
	12	300-2550	80-700	995	1960	1725	530
	14	300-2850	80-790	1182	1960	1725	590
	18	400-3700	110-1020	1382	1960	1725	670

COMPONENTS GLOBAL LP

GLOBAL LP



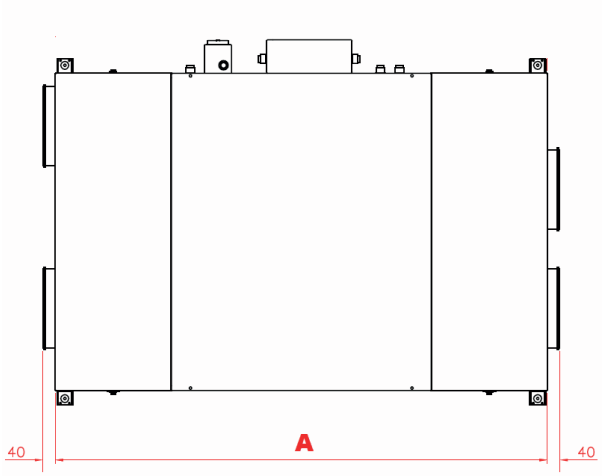
1. Main power switch
2. Main power switch for electrical coils (both internal pre-hating and post-heating)
3. Wiring box TAC controller
4. Supply fan
5. Extract fan
6. Kit CA -airflow measurement (option)
7. Outdoor air filter (bag or pleated)
8. Extract air filter (bag or pleated)
9. Heat exchanger (Plate)
10. Modulating 100% by-pass
11. Drain pan and drain pipe
12. Pre-heating electrical antifrost coil
13. Internal post-heating water or electrical coil (accessory)
14. Motorized damper (at outdoor air side - accessory)
15. Motorized damper (at exhaust air side - accessory)
16. Access panel
17. Flexible connection(accessory)
18. Slip Clamps (accessory)
19. Water connection for postheating (accessory)

1, 2 and 3 must be installed by an accredited electrician

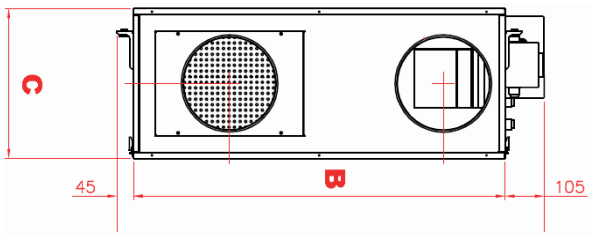
Note: internal electrical coils, motorized dampers, internal fan-pressure sensors, flexible connections and slip-clamps have to be ordered initially and are all pre-mounted and factory wired. Internal heating water-coil accessory is pre-mounted but has to be hydraulically and electrically connected by the installer.

AIR VOLUMES AND DIMENSIONS - GLOBAL LP

GLOBAL LP



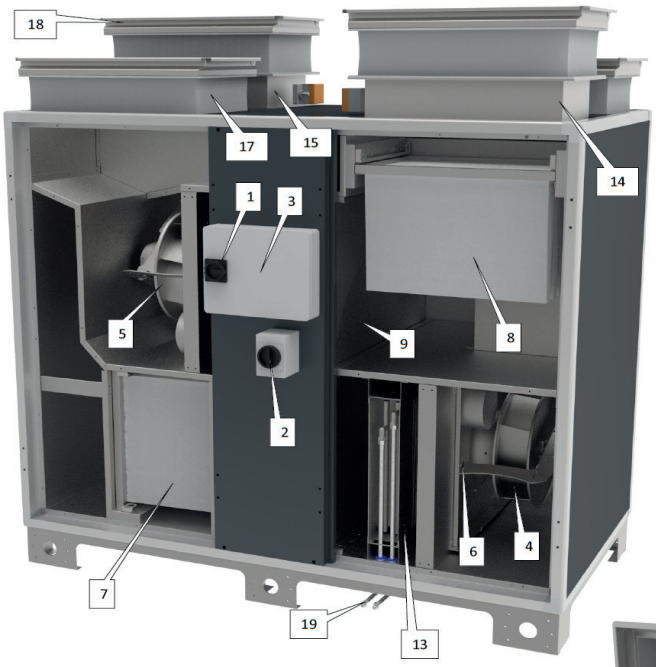
GLOBAL LP

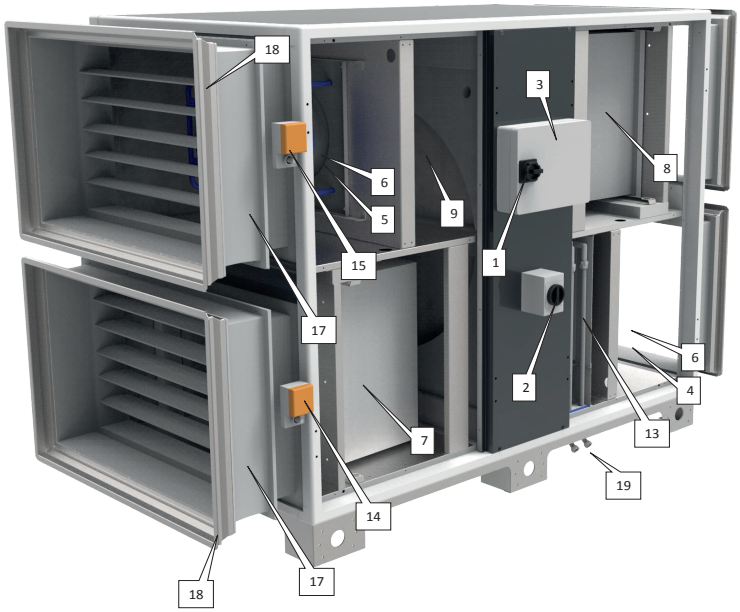


EXCHANGER	SIZE	AIR VOLUME		A [mm]	B [mm]	C [mm]	Weight [kg]
GLOBAL LP Counterflow	02	580 m³/h	160 l/s	1300	890	350	105
	04	650 m³/h	180 l/s	1300	1100	350	125
	06	1000 m³/h	280 l/s	2100	1050	435	195
	08	1420 m³/h	395 l/s	2100	1300	435	230
	10	1800 m³/h	500 l/s	2180	1600	435	285
	12	2200 m³/h	610 l/s	2350	1700	510	335
	13	2550 m³/h	705 l/s	2350	1700	510	335
	14	2870 m³/h	795 l/s	2350	1940	510	370
	16	3300 m³/h	915 l/s	2900	1935	660	610
	18	3720 m³/h	1030 l/s	2900	1935	660	610

COMPONENTS GLOBAL RX

GLOBAL RX TOP





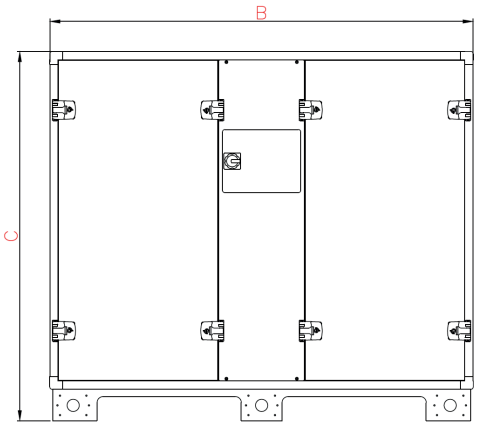
1. Main power switch
2. Main power switch for electrical coils (both internal pre-hating and post-heating)
3. Wiring box TAC controller
4. Supply fan
5. Extract fan
6. Kit CA -airflow measurement (option)
7. Outdoor air filter (bag)
8. Extract air filter (bag)
9. Heat exchanger (Rotary)
13. Internal post-heating water or electrical coil (accessory)
14. Motorized damper (at outdoor air side - accessory)
15. Motorized damper (at exhaust air side - accessory)
17. Flexible connection(accessory)
18. Slip Clamps (accessory)
19. Water connection for postheating (accessory)

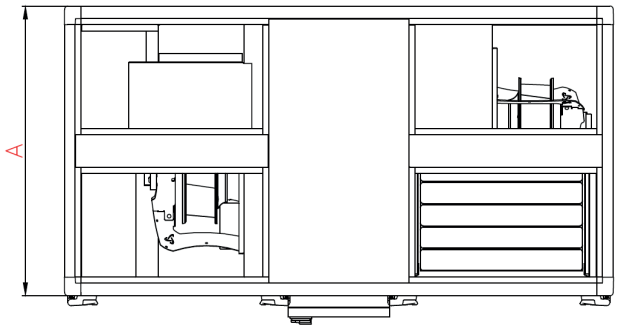
1, 2 and 3 must be installed by an accredited electrician

Note: internal electrical coils, motorized dampers, internal fan-pressure sensors, flexible connections and slip-clamps have to be ordered initially and are all pre-mounted and factory wired. Internal heating water-coil accessory is pre-mounted but has to be hydraulically and electrically connected by the installer.

AIR VOLUMES AND DIMENSIONS - GLOBAL RX

GLOBAL RX (TOP)



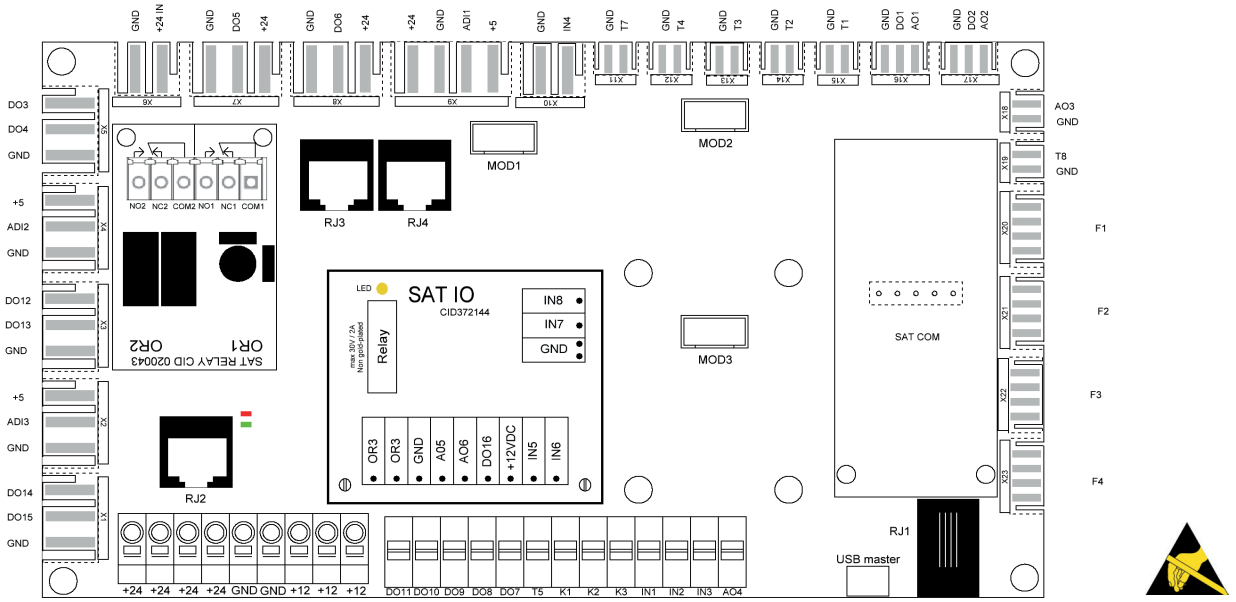


EXCHANGER	SIZE	AIR VOLUME		A [mm]	B [mm]	C [mm]	Weight [kg]
GLOBAL RX TOP Rotary	05	1050 m³/h	290 l/s	815	1530	1315	310
	08	1400 m³/h	390 l/s	815	1530	1315	315
	10	1690 m³/h	470 l/s	885	1680	1465	370
	12	2140 m³/h	590 l/s	885	1680	1465	365
	13	2430 m³/h	680 l/s	995	1680	1465	390
	14	3050 m³/h	850 l/s	1182	1680	1465	425
	16	3140 m³/h	870 l/s	1182	1680	1465	430
GLOBAL RX Rotary	05	1160 m³/h	320 l/s	815	1530	1315	305
	08	1680 m³/h	465 l/s	815	1530	1315	310
	10	1750 m³/h	485 l/s	885	1680	1465	360
	12	2350 m³/h	650 l/s	885	1680	1465	340
	13	2900 m³/h	800 l/s	995	1680	1465	365
	14	3150 m³/h	875 l/s	1182	1680	1465	385
	16	4500 m³/h	1250 l/s	1382	1880	1725	535
	18	5500 m³/h	1525 l/s	1382	1880	1725	535
	20	5500 m³/h	1525 l/s	1382	1880	1725	535
	24	6640 m³/h	1840 l/s	1640	1880	1725	575
	26	7100 m³/h	1970 l/s	1640	1880	1725	590

Duct connections: see drawings downloadable on our website.

4.0 Wiring Overview

MAIN CONTROL BOARD TAC - CID026006



AO1 = outpout 0-10V for external hydraulic postheater (option)	**T1** = from outdoors T° sensor (prewired)
DO1 = KWout = output PWM for KWout power regulation (option - prewired)	**T2** = from indoors T° sensor (prewired)
DO2 = KWin- PX: output PWM for KWin power regulation (option - prewired) | RX SPEED PWM - RX (prewired)	**T3** = to outdoors T° sensor (prewired)
AO2 = RX SPEED 0-10V - RX (option)	**T5** = supply T° sensor for IBA/KWout coil (option)
AO3 = 0-10 V output to control cooling capacity	**T7** = IBA/EBA anti freeze protection T° sensor (option - prewired for IBA)
AO4 = outpout 0-10V for internal hydraulic postheater (option - prewired)	**T8** = Cooling coil frost protection sensor
DO3 = BYPASS OPEN- PX (with rotary actuator) (prewired)	**IN1** = FIRE ALARM
DO4 = BYPASS CLOSE - PX (with rotary actuator) (prewired)	**IN2** = BOOST
DO5 = DAMPER 1 (with or without spring return, Imax = 0.5A DC) (option - prewired)	**IN3** = BYPASS ACTIVATION OVERRIDE
DO6 = DAMPER 2 (with or without spring return, Imax = 0.5A DC) (option - prewired)	**IN4** = Drain pan full contact (only for LP Unit - prewired)
DO7 = HEAT OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	**K1**: Airflow MODE = m³/h 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)	Torque MODE = %torque K1
DO10 = AL dPA OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	**K2**: Airflow control = m³/h K2
DO11 = FAN ON OUTPUT (open collector; Vmax=24 VDC; Imax=0,1 A)	Demand/Pressure control = 0-10V INPUT
ADI1 = BYPASS POS - PX | RX SPEED FEEDBACK - RX (prewired)	Torque control = %torque K2
ADI2 = SUPPLY FILTER dPa	**K3**: Airflow control = m³/h K3
ADI3 = EXTRACT FILTER dPa	Demand/Pressure control = % ON K3 or 0-10 V INPUT
	Torque control = %torque K3
F1 = FAN 1 (SUPPLY)	**RJ1** = RJ12 connector for TACtouch (option)
F3 = FAN 3 (EXHAUST)	**RJ2** = RJ12 connector for Modbus Pressure CP mode (option)
	RJ3 = RJ12 connector for Modbus Pressure CA mode on supply flow (option - prewired)
SAT COM = SAT MODBUS or SAT KNX or SAT ETHERNET or SAT WIFI - (option)	**RJ4** = RJ12 connector for Modbus Pressure CA mode on exhaust flow and defrost detecting (option - prewired)
SAT RELAY: only used for global lp, then premounted and prewired	
SAT RELAY OR1 - linear actuator for LP linear bypass actuator - forward)	**GREEN LED ON** = POWERED ON
SAT RELAY OR2 - linear actuator for LP linear bypass actuator - backward	**RED LED ON** = ALARM
	+24 = +24V DC (min: +22V DC; max: +26V DC). 0,8 A max
	+12 = +12V DC (min: +11,49V DC; max: +12,81V DC). 0,3 A max

4.1 DIGITAL OUTPUTS

The digital outputs DO7 to DO11 may be used to activate a relay (1 N/O contact. Input voltage: 24 V DC). See figure 1 for example with DO7.: output for heat circulator pump, figure 2 for DO9: output for alarm indication, figure 3 for DO10pressure alarm indication. Same principle for DO8 and DO11.

Fig. 2

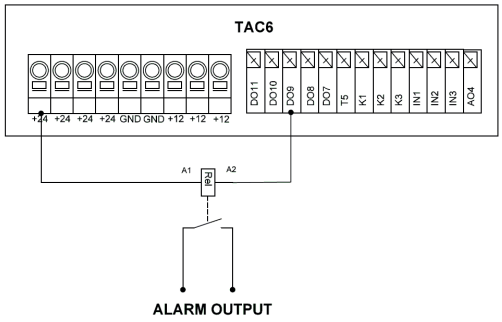


Fig. 1

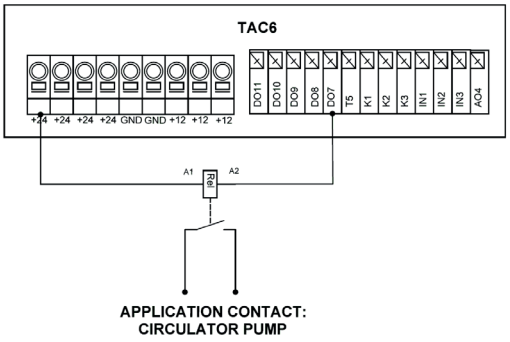
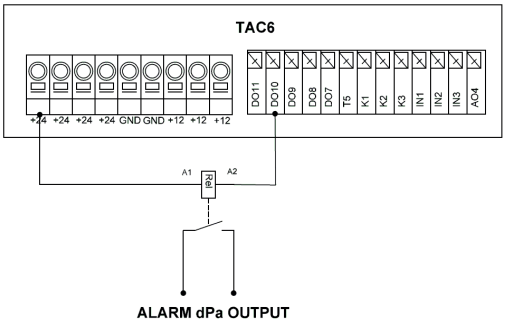


Fig. 3

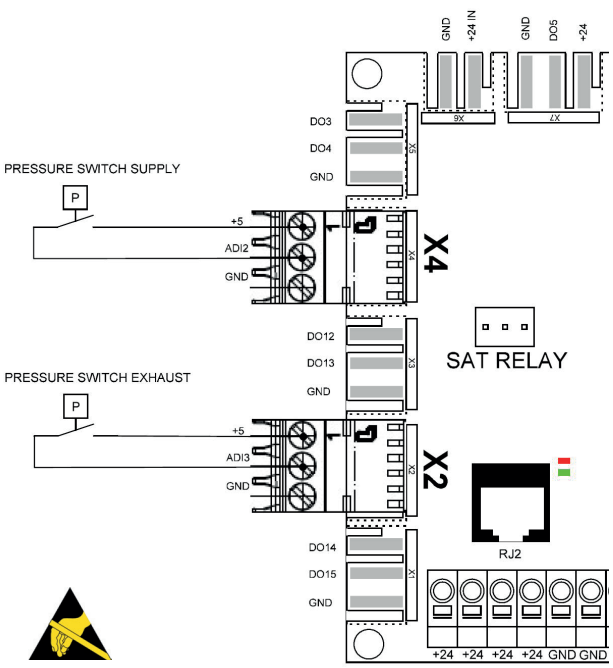


4.2 PRESSURE SWITCHES

In application where pressure switches are used, follow figure 4 wiring, with pressure switch for supply filter connected on X4 and the exhaust one on X2.

N.B.: connectors X2/X4 may be ordered separetely (CID522223) if other pressure switches are used instead of the ones in the dedicated kit CID360025.

Fig. 4



4.3 CIRCUIT BOARD SAT IO - CID372144

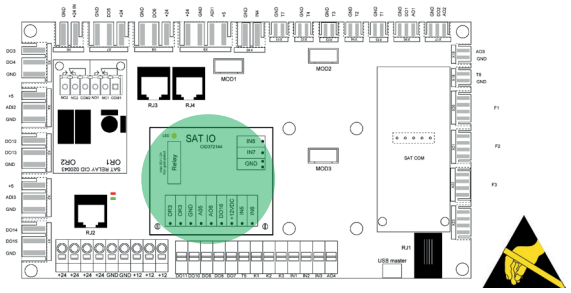
SAT IO is a satellite circuit designed to be fitted on the main control board. It permits to extend the number of inputs and outputs.

Installation

The SAT IO must be plugged onto the control board circuit (see Fig.5).

Attention: The SAT IO must be plugged in before the circuit is powered. SAT must be plugged in correctly, wrong positioning can damage both circuits permanently.

Fig. 5



Wiring

The terminals of the SAT IO are displayed in fig.6

OR3 OR3 = BYPASS STATUS. Output relay: 30VDC/42VAC max, 2A DC/2.8A AC max

AO5 = 0-10V OUTPUT (airflow/pressure).

AO6 = 0-10V OUTPUT (airflow/pressure)

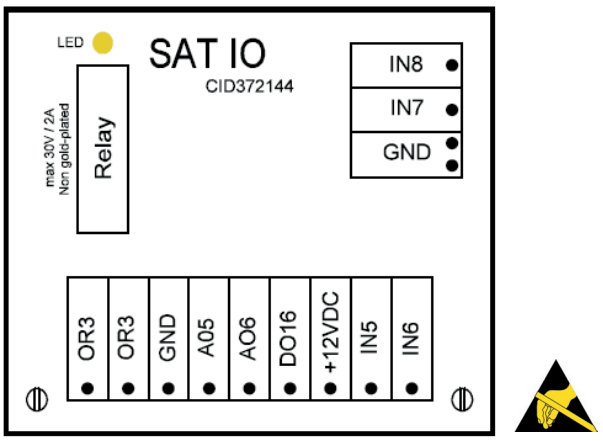
IN5 = MASTER SELECTION

IN6 = HEAT OFF

IN7 = SUPPLY RUN IN FIRE ALARM (open)

IN8 = EXHAUST RUN IN FIRE ALARM (open)

Fig. 6



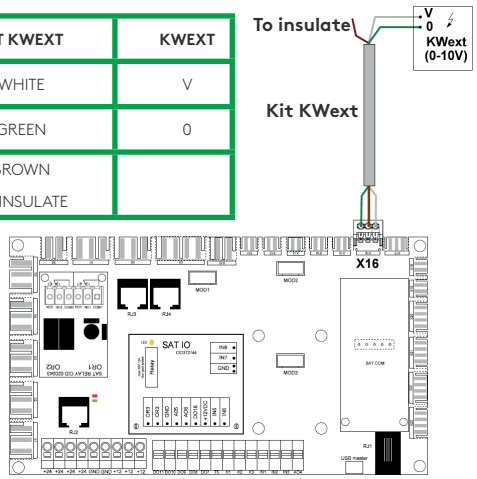
4.4 EXTERNAL COILS CONTROL

In case of addition of external coil, the kit EBA or KWext will be necessary to connect respectively the EBA (external hydraulic/evaporation/condensation battery) or KWext (external electrical coil) to the control board TAC. Both kits consist simply in extender cable, anyway necessary to reach the external battery, connectorized at the control board side extremity.

KWext (external elecrical coil) CID522128

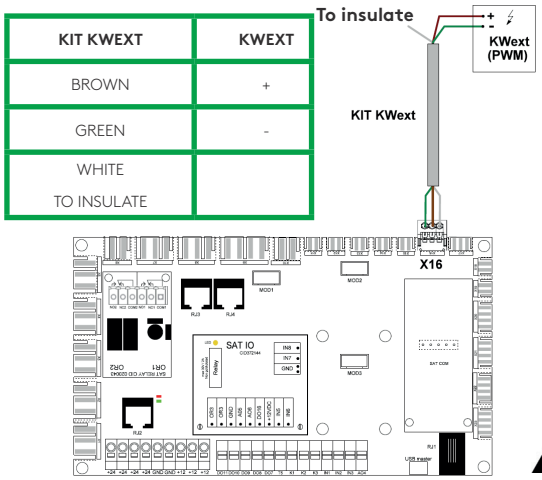
0-10V CONTROLLED

KIT KWEXT	KWEXT
WHITE	V
GREEN	0
BROWN TO INSULATE	



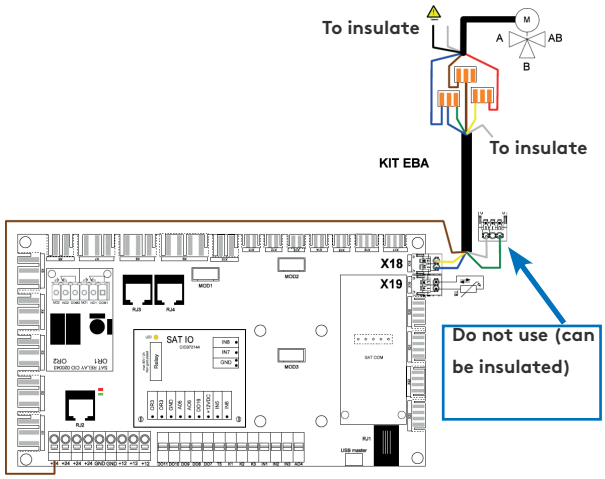
PWM CONTROLLED

KIT KWEXT	KWEXT
BROWN	+
GREEN	-
WHITE TO INSULATE	

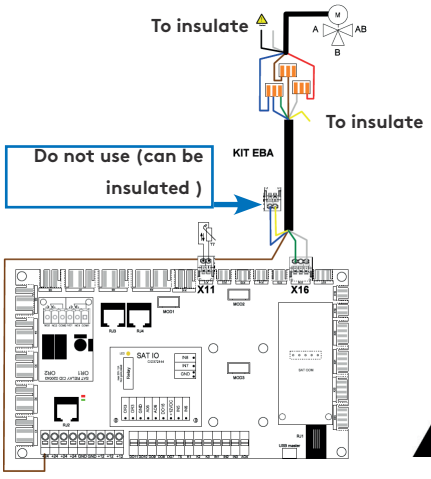


EBA (external hydraulic/evaporation/condensation coil) CID522129

COOLING / REVERSIBLE



HEATING



M : 3 WAYS VALVE SERVOMOTOR

T8 : TEMPERATURE SENSOR FOR THE FROST PROTECTION OF THE BATTERY.

KIT EBA	M
YELLOW	RED (0-10 V)
BROWN	BROWN (+24V)
BLUE & GREEN	BLUE (GND)
WHITE TO INSULATE	

M : 3 WAYS VALVE SERVOMOTOR

T7 : TEMPERATURE SENSOR FOR THE FROST PROTECTION OF THE BATTERY.

KIT EBA	M
WHITE	RED (0-10 V)
BROWN	BROWN (+24V)
BLUE & GREEN	BLUE (GND)
YELLOW TO INSULATE	

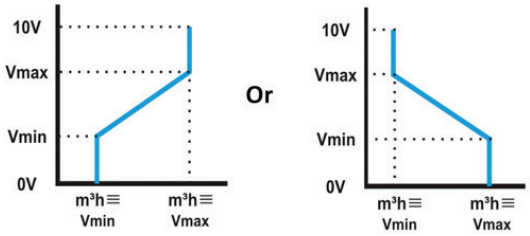
5.0 Functions

5.1 OPERATING MODE

There are five main operating modes. The operating mode determines how the airflow or the fan torque is modulated. The default operating mode is Airflow control. Exceptions are units equipped with backwards fans without the Constant Air Kit or if Constant Torque mode has been selected in the product setup menu, in both cases it is the fan torque that will be controlled and modulated.

In all the operating modes, the supply fan(s) will operate as per the assigned mode and parameters. The exhaust fan(s) will operate according to the chosen percentage of the supply fan (%EXH/SUP ratio). The five main operating modes are:

- **1 - Airflow control:**
  Flow control involves operating the air handling unit to keep the pre-set airflow constant. The speed of the fans is automatically regulated to provide correct airflow even if the filters begin to become clogged, air terminals are blocked, etc. Airflow control mode 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 blocking of air terminals and dust accumulating in filters, causes the fans to run at a higher speed. This results in higher power consumption and may also cause discomfort in the form of noise. There are three airflow setpoints to be configured by the user (m^3h K1, m^3h K2, m^3h K3).
- **2 - Torque control:**
  3 torque setpoints to be configured by the user (%TQ K1, %TQ K2, %TQ K3). The setpoint is configured in % of the maximal torque.
- **3 - Demand control 0-10V:**
  The airflow is controlled by a 0-10 V signal. The control signal is connected to terminals K2&GND. The assigned supply airflow is set as a percentage of a linear 0-10 V signal. The user defines the link with 4 parameters: Vmin, Vmax, $m^3h \equiv$Vmin and $m^3h \equiv$Vmax, applied to the following diagram. The demand control mode is also available for modulating fan torque instead of airflow (relevant for backwards fans units without Kit CA).
  The principle is identical to the demand control mode operation with the difference that Vmin and Vmax are connected to a %TQ instead of m^3/h.
- **4 - Pressure control:**
  The airflow automatically varies to provide constant pressure in the ducting system. This type of control is



  also called VAV control (Variable Air Volume).
  Pressure on supply: the airflow of the supply fan(s) is modulated to maintain a certain pressure Setting constant. The pressure is measured by a pressure sensor located in the supply air duct.
  Pressure on exhaust: the airflow of the exhaust fan(s) is modulated to maintain a certain pressure Setting constant. The pressure is measured by a pressure sensor located in the extract air duct.
- **5 - MODE OFF :**
  This stops the AHU

5.2 TEMPERATURE CONTROL

There are several options available on GLOBAL units to ensure a comfortable temperature.
The options are controlled either via supply or extract air temperature.

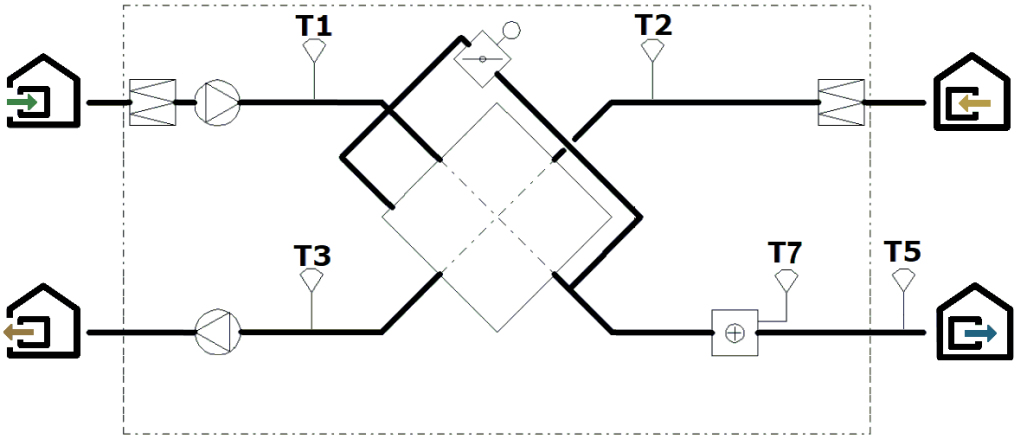
Supply Air Temperature

Supply temperature control is the default setting. This involves keeping a constant supply air temperature without consideration to the load in the premises. The supply air temperature is measured on sensor T5.

Extract Air Temperature

The default temperature control can be changed to Extract temperature control via the advanced setup.
The extract air temperature is measured on sensor T2. Extract air control involves keeping a constant temperature in the extract air duct (premises), by controlling the supply air temperature. This provides a uniform temperature in the premises regardless of the load. The internal sensor T2 can be replaced with the optional external room temperature sensor (CID370042).

Temperature sensor positioning :



5.3 FREE COOLING (RX AND PX)

The free cooling function uses the lower temperature of the outside air to cool the building.

Free cooling is realized by means of the integrated 100% modulating bypass of the heat exchanger (PX) or the stepless motor control of the rotary heat exchanger (RX). The optional output OR3-OR3 on the SATIO relay indicates the position of the bypass. The contact will open if the bypass is fully closed, or close if the bypass is fully or partially open.

The bypass (PX) or the rotary heat exchanger (RX) can be configured as on/off or modulating. This is configured in ADVANCED SETUP. In modulating mode, the temperature is configured in the base setup and the position of the bypass/stepless motor will modulate in order to maintain the setpoint. The free cooling function is activated automatically. An on/off bypass/stepless motor operates according to the logic below:

Free cooling STARTS if the following conditions are TRUE :

- The outdoor temperature (sensor T1) is lower than the extract air temperature (sensor T2)
- The outdoor temperature (sensor T1) is higher than 10°C.
- The extract air temperature (sensor T2) is higher than 22°C.

Free cooling STOPS if one of the following conditions is TRUE :

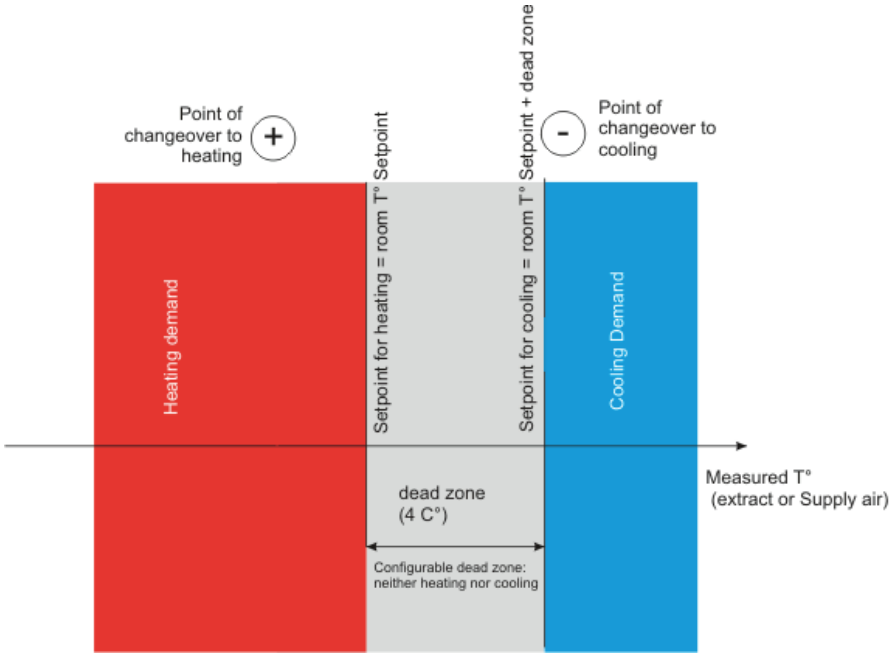
- The outdoor temperature (sensor T1) is higher than the extract air temperature (sensor T2) plus 1°C..
- The outdoor temperature (sensor T1) is lower than 9°C.
- The extract air temperature (sensor T2) is lower than 20°C.

These Settings can be configured in ADVANCED SETUP

5.4 CHANGE OVER FUNCTION

AUTOMATIC CHANGE OVER

The TAC controller allows for the control of reversible coil or both cooling and heating coil. The coils are equipped with their motorised 3-way valves. The offset between the measured temperature (supply air or extract air, to be configured) and the setpoint will determine if heating or cooling is automatically activated. When the unit is equipped with reversible coil or with both a cooling and a heating coil, only one setpoint has to be configured: Comfort temperature. The neutral band prevents the cooling and heating systems from counteracting each other. The neutral band is added to the comfort setpoint for the activation of the cooling function. The neutral bands has to be configured in the advanced setup.



5.5 FROST PROTECTION

HEATING COIL

The frost protection function is always active if the heating coil has been correctly configured in the product setup. The monitoring function uses the temperature sensor T7 for the integrated coil (IBA) or for the external coil (EBA). The function is activated when the temperature of the coil drops below 4°C. Under these conditions the pump output is activated and the three-way valve output will be 100% and the unit will shut down and generate a frost alarm.

PLATE HEAT EXCHANGER (PX)

There are four strategies to protect the plate heat exchanger from freezing :

- **1 - Reduced supply air flow :**
  The heat exchanger is supplied with a frost protection sensor on the exhaust air (T3). If the exhaust air temperature (T3) is >1°C and <+5°C :
  • In airflow control mode and demand control, the supply air flow will modulate between 100% and 33% (AFlow) of the setpoint (AFn)
  • In pressure control mode, the supply air pressure will modulate between 100% and 50% (AFlow) of the setpoint (AFn)
  If the exhaust air temperature (T3) is <1°C, the supply air fans will stop until the exhaust air temperature (T3) is >2°C for 5 minutes.
- **2 - Modulating bypass :**
  The modulating bypass is controlled by the exhaust temperature sensor (T3). If:
  • Exhaust temperature (T3) >+1°C: bypass closed or controlled by free cooling function
  • Exhaust temperature (T3) ≤ +1°C: bypass will modulate for the exhaust temperature (T3) to exceed +1°C.
  The corresponding supply air temperature will drop due to a lower airflow through the heat exchanger
- **3 - Electrical preheating coil (accessory) :**
  If an electrical pre-heating coil (KWin) is installed and configured, the pre-heating coil (KWin) will modulate so the exhaust temperature is +1°C.
- **4 - Differential pressure measurement (Cold climate option) :**
  For cold climate conditions (<=-20°C), the unit is equipped with a differential pressure sensor mounted on the heat exchanger. The pressure sensor detects when the pressure drop, due to frost, has become too high. In critical conditions, the supply air flow will be paused for a short time, to allow for defrosting.
  The frost protection strategy (down regulation supply airflow, modulating bypass or electrical pre-heating) will still be used as a first step. The defrost function will only be active if the frost protection strategy is not sufficient.

These Settings can be configured in ADVANCED SETUP

ROTARY HEAT EXCHANGER (RX)

In order to protect the rotary heat exchanger from freezing, the strategy for frost protection consists of modulating the speed of the rotating heat exchanger, which is linked to the outdoor air temperature (sensor T1).

If the outdoor air temperature < T°AF (default -9°C): the rotation speed of the heat exchanger is reduced to avoid the risk of icing. To exit this anti-frost protection: T°(T1) ≥ T°AF for 5 minutes.

These Settings can be configured in ADVANCED SETUP.

5.6 TIME SCHEDULE

The controller allows 6 time slots (channels) to be configured. For each day of the week, the operation mode can be either AUTO (operate according to time slots) or manual (selection of speed).

For each time slot select :

- start time
- Operating mode
- Speed selection: I, II, III for CA/TQ, normal/reduced for LS/CP and, for all modes, boost level
- Heating setpoint if postheater is present
- Cooling setpoint if postcooler is present

6.0 Commissioning

As a human machine interface (HMI), several options are available. The HMI will enable access to the control parameters in the integrated controller. The HMI as such does not contain any programming and therefor is not mandatory.

The possible HMIs are:

TACtouch touchscreen - CID372142

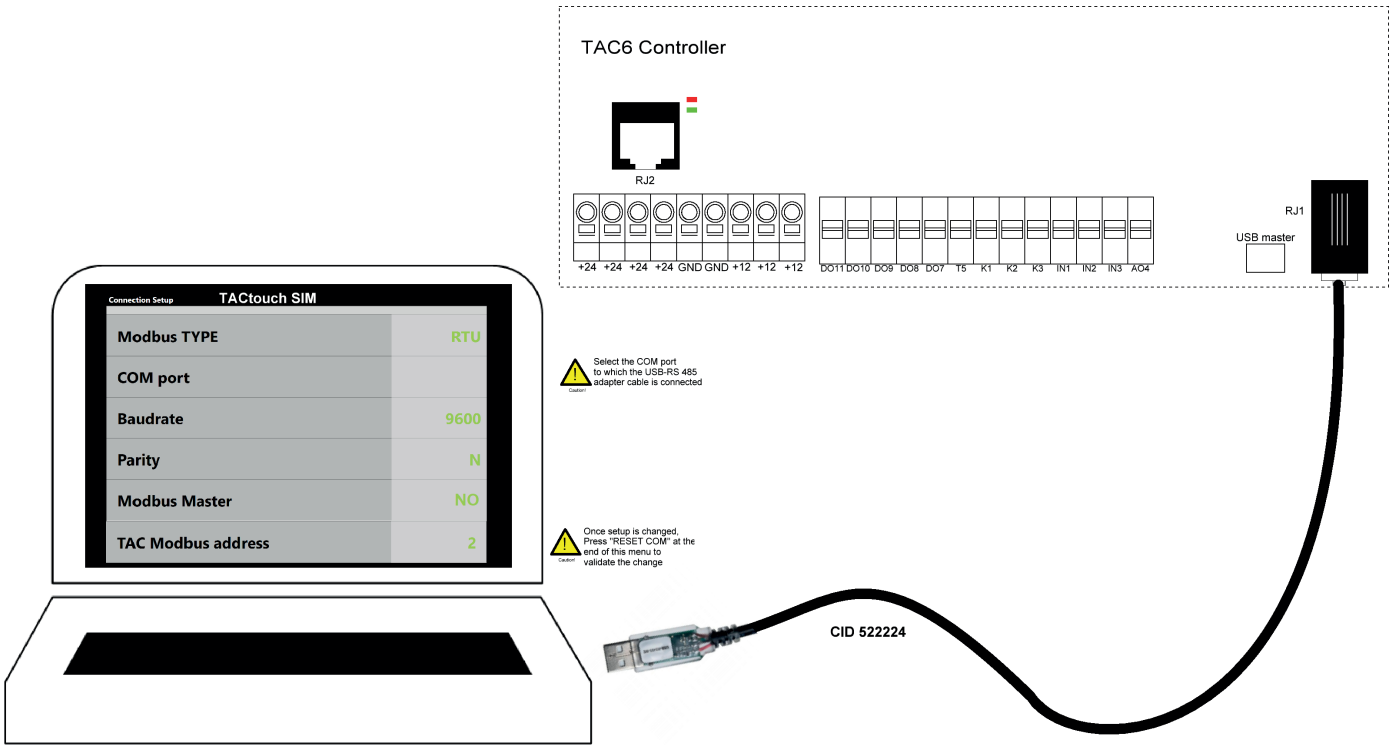
This 4.3" touchscreen display is used when there is a need for a graphical HMI. The Touchscreen touchscreen is a complete graphic monitoring system where the screens are designed to be intuitive and complete, ensuring a userfriendly experience.

4 positions switch (COM4) - CID010007

The most basic interface to control a GLOBAL air handling unit is the 4 positions switch. This swith will allow to control the unit to its three configured airflow (low, medium and high) and as a fourth position, the unit is switched off.

SOFTWARE TACTOUCH SIMULATOR

- Total control and configuration of the unit (under Windows 7-8-10).
- Need USB RS 485 cable adapter (CID 522224). In alternative, can be used with SAT-Ethernet or SAT WIFI extra board
- Same principle, navigation, menu and commissioning method as TACtouch



6.1 COMMISSIONING WITH TACtouch INTERFACE

The hand-held terminal consists of a 4.3" touch screen with a 1,5 metre long cable for connection to the air handling unit ' s control circuit board.

If the hand-held terminal is not used for 20 minutes, it switches over to the sleep mode.

The Touchscreen controller can be used outdoors, but it must be kept at a weatherproof place.

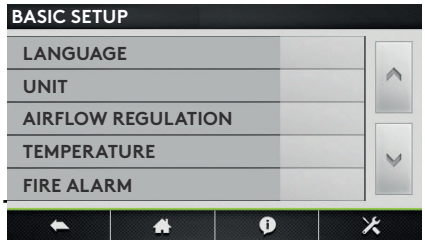
Data:	
Operating temperature:	0... + 50°C
Maximum length of the cable:	<=100 metres
Protection class:	IP20
Dimensions [mm]:	144x97x20
Power consumption:	1,8 VA

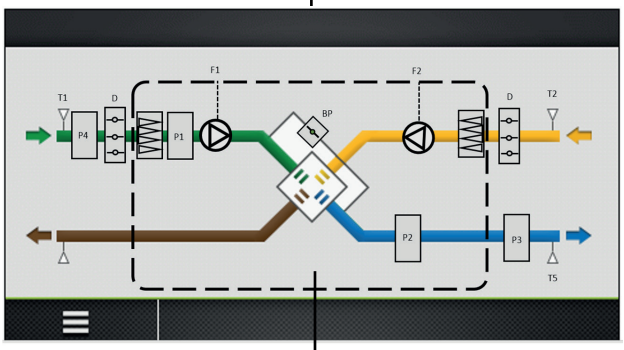
IMAGE MANAGEMENT

Start-up image

At the first start up, the basic setup menu will be activated automatically. See section 6.1.3. With also advanced parameter for master selection "contacts K1-K2-K3 master" (see point 6.1.4): set no only if the AHU is to be controlled with TACtouch control screen rather than with electrical contacts (see point 6.1.2).

After the commissioning, a message box will propose to set date and time and eventually switch automatically to the corresponding screen (see section "Time and Date" at point 6.1.2)





Home Screen. See Section 6.1.1.

By default, the home screen will be shown if no other menu is opened by the user or if selected in the main menu.

N.B.! The appearance of the image varies depending on the type of air handling unit and functions selected.

Main menu. See Section 6.1.2.

The main menu is presented as a rotary menu. After pressing the "menu"-button at the bottom left corner of the Home Screen, the rotary menu will be shown.

6.1.1 HOME SCREEN

The home screen displays the current key data for the air handling unit and is shown is normally displayed if no other menu has been selected or if selected from the main menu. The touch screen switches to the sleep mode after 20 minutes. To leave the sleep mode, press on the touchscreen.

On the main screen, the fields are:

- Status indication

  The indicated status are: Heating, Cooling, Post ventilation, Freecooling, Frost protection.

- Current date and time
- Active alarms

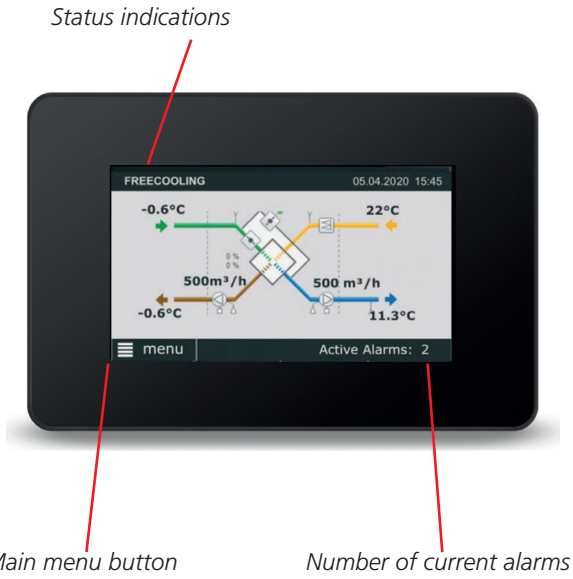
  This fields shows the number of current alarms. By clicking on this field, more detailed information about the different alarms is available

- Menu

  Accessing the main menu, see section 6.1.2

- Flow Chart

  The flow chart is not editable by the user, the configuration of the activated options and functions is done through the product setup (menu). A code and a special training are desired for access to this menu. The appearance of the image varies depending on the type of air handling unit and its selected functions and/or options. Flow chart symbols:



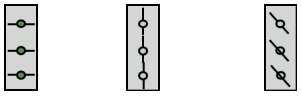
Bypass (closed/open)

Electrical heating coil

Water heating coil

Change over coil

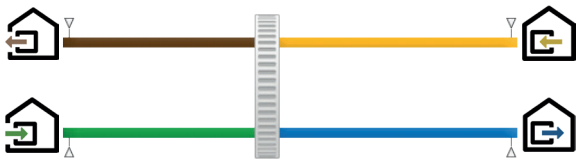
Cooling coil



Motorised damper (open/closed/opening)

Flow charts:

Plate heat exchanger

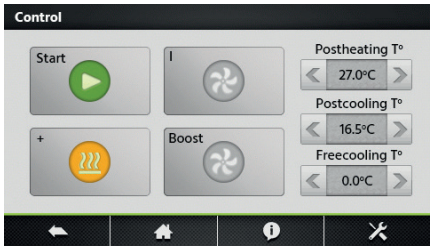


Rotary heat exchanger

6.1.2 Main menu

The main menu consists of a rotary menu with 7 icons.

Control



The control menu will allow for the user to change basic parameters and operation status of the unit.

The unit can be started or stopped

The fan speed can be selected; three manual speeds + one auto speed

Post heating, post cooling and free cooling setpoints can be changed.

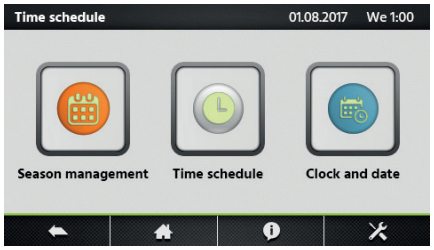
Alarm

Alarms are displayed on the main screen of the HMI. Active alarms can be viewed in this menu. All the alarms can be reset.

A fault can be traced by examining the function or functional component indicated in the alarm text. More information about the individual alarms, see section 8.0

If the fault cannot be immediately remedied:
Consider whether the air handling unit can continue to operate until the fault has been remedied.

Time schedule

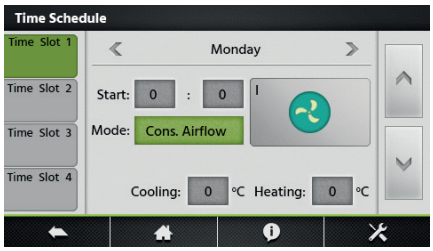


The built-in timer enables you to control the AHU's operating mode/time. Certain other oversteering functions such as external timer, communication, etc. affect the preset operating modes. The controller allows 6 time slots (channels) to be configured.

Time and date

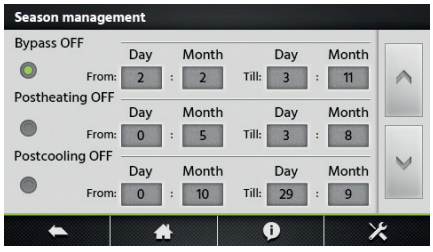
The current date and time must be set and adjusted after the commissioning and later on if needed. The timer automatically takes leap years into consideration. .

Time schedule



Times and days can be set when the air handling unit is to run in the high speed mode, medium speed mode, low speed mode or be switched off. For each day (Monday - Sunday), six different time slots can be configured. The time slots are subsequent.

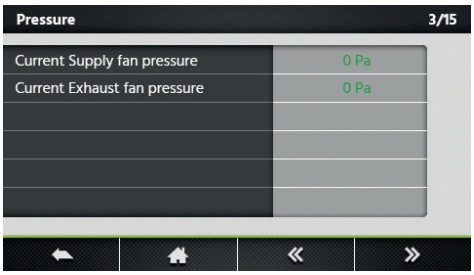
Seasonal management



The seasonal management menu allows for the deactivation of heating coils, cooling coils and bypass freecooling function based upon a year calendar. In between the programmed interval, the selected function is OFF.

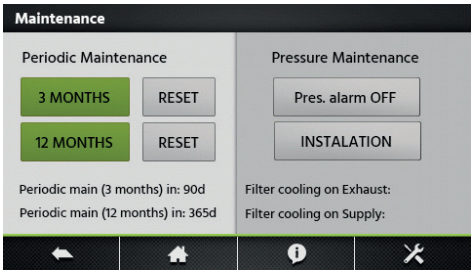
Readings

The operating status and the Settings can be read. Used for performance checks and for generally checking Settings, settings, power consumption, etc. No Settings can be altered in this menu group.



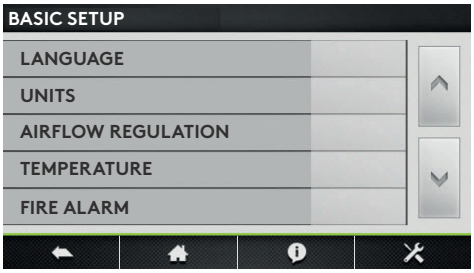
Maintenance

Configuration of service related settings. A maintenance warning interval can be configured as well as the filter clogging alarm.



Settings/Basic Setup

The basic setup menu will guide the user through the most critical settings of the air handling unit. This setup procedure is described in detail, section 6.1.3



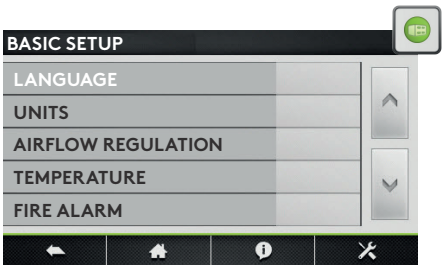
Settings/Advanced setup

A code and a special training are desired for access to this menu.

6.1.3 BASIC SETUP

When the air handling unit is started up for the first time, the commissioning menu is automatically displayed. At the very end of the commissioning (menu) the commissioning of the unit has to be confirmed by the service technician. Once the commissioning has been confirmed, the commissioning menu will not be displayed as first menu any more. The commissioning menu, however, will remain accessible through the advanced setup. See Section 6.1.4.

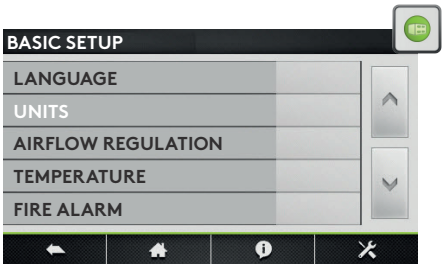
Language



The language desired can be set here. The language setting can be changed at any time in the basic setup menu.

Setting	Settings range	Factory setting
Language	Languages as displayed	English

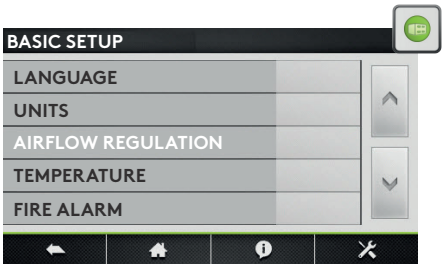
Units



The desired unit can be set here. The unit setting can be changed at any time in the basic setup menu.

Setting	Settings range	Factory setting
Unit	m^3/h l/s	m^3/h

Airflow regulation



The desired control mode can be set here. The setting can be changed at any time in the basic setup menu. Depending on the selected function, flows can be set as (l/s, m^3/h), pressure (Pa), input signal strength (%) or torque (%). For both "Airflow control" and "Torque control", three setpoints are available: Low, medium and high.

Setting	Settings range	Factory setting
Operating mode	OFF Airflow Demand control Pressure Torque	Airflow

Constant airflow

Flow control 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 become clogged, diffusers are blocked, etc. The exhaust air fan is controlled as a slave. A ratio between exhaust and supply pressure can be configured in order to create over, under or balanced pressure. For units with backward fans, constant airflow can only be selected if the "constant air kit" has been ordered as an option. The desired setpoint is preset in (l/s, m³/h).

Setting	Range	Factory setting
Airflow K1/K2/K3	0...max	
Ratio exhaust/supply	5...999%	100%
Enable pressure alarm	No Yes	Yes
DP Supply/Exhaust for pressure alarm	25...999Pa	200Pa
Initialisation airflow	(l/s, m³/h)	
Pressure alarm initialisation	No Yes	Yes

Torque control

3 torque setpoints to be configured by the user (%TQ K1, %TQ K2, %TQ K3). The setpoint is configured in % of the maximal torque. The exhaust air fan is controlled as a slave. A ratio between exhaust and supply pressure can be configured in order to create over, under or balanced pressure. The desired setpoint is preset in %. The Torque control mode can be deactivated in the advanced setup.

Setting	Range	Factory setting
Airflow K1/K2/K3	0...100%	
Ratio exhaust/supply	5...999%	100%

Demand control

The airflow desired is regulated in response to 0-10 V input signals from an external sensor, such as a carbon dioxide or a humidity sensor. The function can be configured with a positive or a negative logic. A ratio between exhaust and supply pressure can be configured in order to create over, under or balanced pressure. The desired setpoint is preset in (l/s, m³/h). The "sleep factor" is a lower operating rate for the unit (due to e.g. low occupancy) that will be activated by speed "III "

Setting	Range	Factory setting
Vmin	0...10V	1,0V
Vmax	0...10V	10,0V
m³/h ~Vmin	(l/s, m³/h)	
m³/h ~Vmax	(l/s, m³/h)	
Ratio exhaust/supply	5...999%	100%
Sleep factor on K3	10...100%	100%
Enable pressure alarm	No Yes	Yes
DP Supply/Exhaust for pressure alarm	10...999Pa	200Pa
Initialisation airflow	(l/s, m³/h)	
Pressure alarm initialisation	No Yes	Yes

Constant pressure

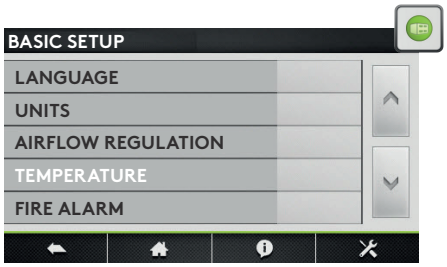
The airflow automatically varies to provide constant pressure in the ducting. The duct pressure is measured by an external in-duct pressure sensor which is connected to the control unit's BUS communication or the an analogue 0...10V input. The function can be configured on supply air, extract air or supply and extract air. The first two configurations will have the second set of fans be controlled as a slave. A ratio between exhaust and supply pressure can be configured in order to create over, under or balanced pressure. The initialisation will allow for an automatic calculated pressure setpoint, determined by the nominal airflow. The "sleep factor" is a lower operating rate for the unit (due to e.g. low occupancy) that will be activated by speed "III "

Setting	Range	Factory setting
Control	Supply Exhaust Supply+Exhaust	Supply
Ratio exhaust/supply	5...999%	100%
Sleep factor on K3	10...100%	100%
Pressure initialisation	Via Airflow Via Pressure	Airflow
Start reference initialisation	Yes No	Yes

Temperature

The temperature control can be configured as a supply air control or an extract air control. By default, this function is configured as a supply air temperature control. Changes to this configuration are done in the advanced setup; see Section 6.1.4

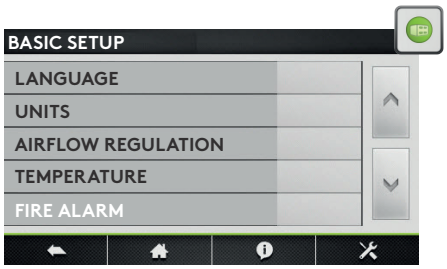
Setting	Settings range	Factory setting
T° heating	0...45°C	20,0°C
T° Cooling	0...99°C	24,0°C
T° Freecooling	0...99°C	15°C



Fire Alarm

An external fire detection system is used to control the air handling unit in case of emergency. The fire alarm function is activated by means of digital input IN1.

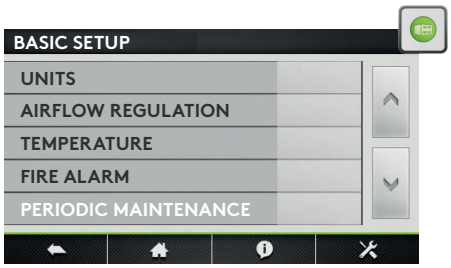
Setting	Settings range	Factory setting
Input	Normally open Normally closed	Normally closed
Supply airflow	0...max	
Extract airflow	0...max	



Periodic maintenance

Built-in timer for maintenance warning; if the maintenance interval is exceeded, a maintenance reminder will be displayed.

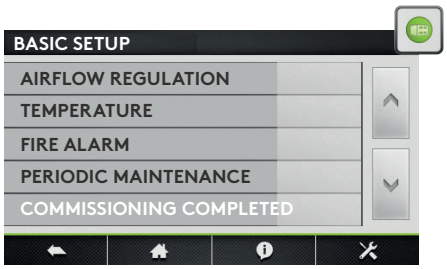
Setting	Settings range	Factory setting
3 monthly warning	Yes No	No
12 monthly warning	Yes No	No



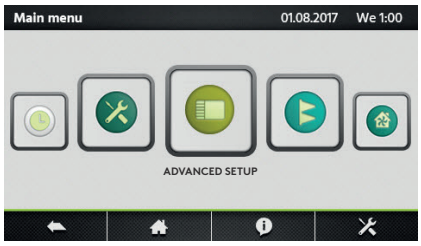
Commissioning completed

When the commissioning has been successful and this is confirmed in this menu, the commissioning menu will not be activated automatically anymore.

Setting	Settings range	Factory setting
Confirmation of successful commissioning	Yes No	No



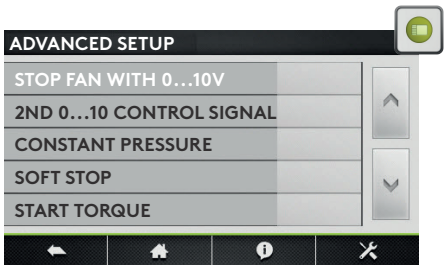
6.1.4 ADVANCED SETUP



N.B.! The appearance and content of this menu varies depending on the type of air handling unit and functions and/or options selected. A code and a special training are needed to access this menu.

Attention: The settings range for most of the functions is defined for maximal flexibility. The factory setting is the advised setting, deviating from this setting requires careful consideration.

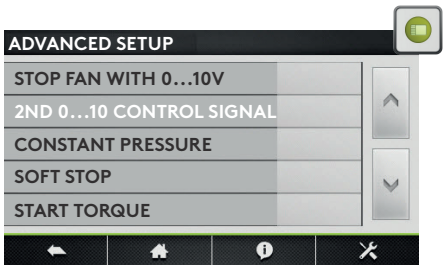
Stop fan with 0…10V



Function only availalbe if "demand control" function has been selected in basic setup. With this function, the fans can be stopped if the 0…10V control signal is below or above a specified setpoint. The control signal is connected to the analogue input K2.

Setting	Settings range	Factory setting
Stop if <Vlow	No Yes	Yes
Vlow	0…10V	0,8V
Stop if >Vhigh	No Yes	Yes
Vhigh	0…10V	10,0V

Second 0…10V control signal



Function only availalbe if "demand control" function has been selected in basic setup. With this function, a separate 0…10V control signal for the extract air can be activated. The control signal is connected to the analogue input K3.

Setting	Settings range	Factory setting
0…10V on K3?	No Yes	No
Control	Exhaust Supply	Exhaust

Pressure control

Function only availalbe if "pressure control" function has been selected in basic setup. The reaction speed of the fans for the balancing of the constant pressure system can be modified. A higher Setting will result in a faster reaction speed; a lower Setting will result in a slowerreaction speed. The system can be defined as a negative or a positive logic. A negative logic airflow drops when analogue signal on K2 is > than the setpoint.

Setting	Settings range	Factory setting
Reaction speed	0…10	10
Logic	Positive Negative	Negative

Stop fan when pressure alarm

Possibility to stop the fans automatically in case of a pressure alarm.

Setting	Settings range	Factory setting
Stop fans	No Yes	No

Start torque

Possibility to change the fans's starting torque.

Setting	Settings range	Factory setting
Start Torque	0...100%	2%

Deactivate softstop

With this function, the "OFF" function is deactivated.

Setting	Settings range	Factory setting
Softstop	Yes No	No

Temperature

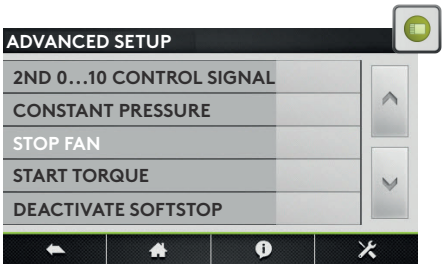
In this menu advanced temperature control parameters can be modified.

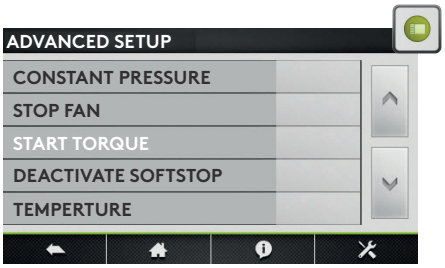
Supply air involves keeping a constant supply air temperature without consideration to the load in the premises.

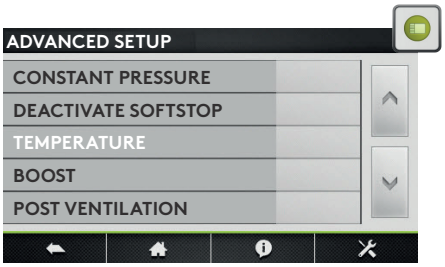
Extract air involves keeping a constant temperature in the extract air duct (premises), by modulating the supply air temperature.

The reactlon speed of capacity control signal can be modified. A higher Setting will result in a smoother control; a lower Setting will result in a faster reaction speed. but also greater risc of oscillations.

Setting	Settings range	Factory setting
Supply or Extract temperature control?	Supply Extract	Supply
Reaction speed	1...10	1
Supply air, min	0...20°C	15,0°C
Supply air, max	16...50°C	28,0°C
Stop fan if T°Supply <5°C	No Yes	No



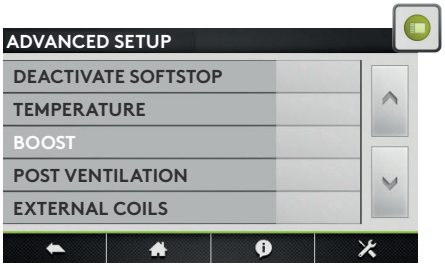




Boost

The boost mode can be used to force the supply and extract airflow to a higher setpoint, when specific conditions are met. The boost mode can be activated with a contact connected to the digital input IN2 or by an analogue 0...10V control signal connected to input K3. The boost setpoint is preset in (l/s, m³/h).

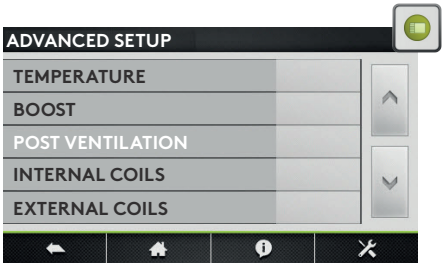
Setting	Settings range	Factory setting
Supply/Extract airflow	0...max	
Boost activation on	Contact RH	Contact
RH on/off	0...100%	60%/40%
Vmin/max RH on K3	0...10V	2,0V/9,5V
RH ~Vmin/max	0...100%	2%/95%



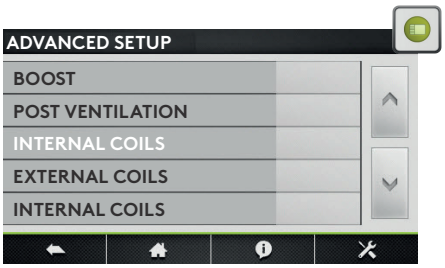
Post ventilation

The post ventilation function is used to keep the fans running during a specified laps of time. This function is activated automatically when an electrical heating coil is activated.

Setting	Settings range	Factory setting
Activation	No Yes	No
Time	0...9999sec	90sec



Internal coils



Water preheating coil

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

Setting	Settings range	Factory setting
Setpoint	-9,9...99,9°C	1,0°C

Electrical preheating coil

By preheating the outdoor air, it is possible to prevent moisture precipitation in the outdoor air fi lter of the air handling unit, to reduce the risk of frosting in the heat exchanger and to eliminate the risk that the ambient temperature will drop lower than minimum permissible. The electrical preheating coil is installed and configured in factory. The electrical preheating coil will always have its separate power supply and main switch.

Setting	Settings range	Factory setting
Setpoint	-9,9...99,9°C	1,0°C
PID - Proportional Band	0...100	5
PID - Integral	0...100	30
PID - Derivate	0...100	11

Electrical postheating coil

The electrical postheating coil is installed and configured in factory. The electrical postheating coil will always have its separate power supply and main switch. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode.

Setting	Settings range	Factory setting
Control mode	Exhaust Supply	Supply
Setpoint	-9,9...99,9°C	21,0°C
PID - Proportional Band	0...100	5
PID - Integral	0...100	30
PID - Derivate	0...100	11

Water postheating coil

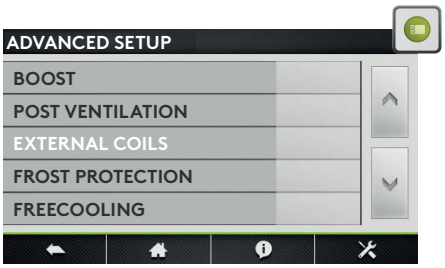
The water postheating coil is installed and configured in factory. The 3-way valve is not installed and will have to be installed and wired on site. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode. The output DO7 is activated whenever heating is desired.

Setting	Settings range	Factory setting
Control mode	Exhaust Supply	Supply
Setpoint	-9,9...99,9°C	21,0°C
Reaction Speed	1...10	5

External coils

Configuration of the coils

This menu will allow for the configuration of any combination of external heating and or cooling coil(s).



Setting	Settings range	Factory setting
Type	None Hot water Cold water Hot & Cold water Reversible water Electric PWM Electric PWM + Cold water Water preheating Water preheating+postheating Water preheating+reversible Electric 0...10V Electric 0...10V + Cold water	None

Water post heating

The external post heating coil is delivered seperately from the air handling unit and will not be pre configured in factory. Both the coil and the 3-way valve will have to be installed and wired on site. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode. The reaction speed can be set. A higher Setting will result in a faster reaction speed; a lower Setting will result in a slower reaction speed.

Setting	Settings range	Factory setting
Control mode	Exhaust Supply	Supply
Setpoint	0...99,9°C	21,0°C
Reaction Speed	1...10	5

Water cooling coil

The external post cooling coil is delivered seperately from the air handling unit and will not be pre configured in factory. Both the coil and the 3-way valve will have to be installed and wired on site. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode.

Setting	Settings range	Factory setting
Control mode	Exhaust Supply	Supply
Setpoint	0...99°C	17,0°C
Reaction Speed	1...10	5

Electrical postheating coil

The external post heating coil is delivered seperately from the air handling unit and will not be pre configured in factory. The coil will have to be installed and wired on site. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode.

Setting	Settings range	Factory setting
Control mode	Exhaust Supply	Supply
Setpoint	0...+99°C	21,0°C
PID - Proportional Band	0...100	5
PID - Integral	0...100	30
PID - derivate	0...100	11

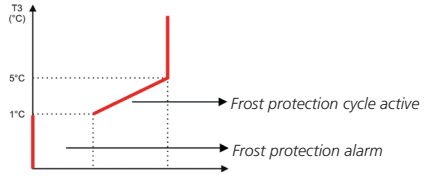
Combi coil

The external change over coil is delivered seperately from the air handling unit and will not be pre configured in factory. The coil will have to be installed and wired on site. The capacity of the coil will be controlled proportionally in order to keep a temperature as defined by the selected operating mode.

Setting	Settings range	Factory setting
Activate change over	No Yes	No
Neutral band High	0...+50°C	4K
Neutral band Low	0...+50°C	2K

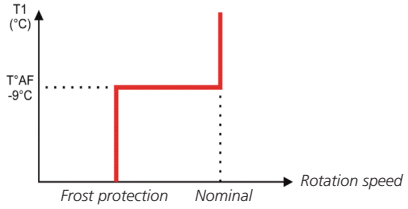
Frost protection

Frost protection plate heat exchangers (PX)
In environments where the extract air can occasionally be humid, the defrosting function can be activated to protect the heat exchanger from frosting. There are four strategies: down control of the supply air volume, modulating by-pass control, modulation of capacity of a preheating coil, differential pressure measurement (cold climate option). If non of these measures are effective, the air handling unit can be stopped by limting the minimal supply air temperature. When the Frost protection cycle is active, it will be indicated on the HMI. The configurable temperatures are exhaust temperatures.



Setting	Settings range	Factory setting
T° Low	1...3°C	+1,0°C
T° High	1...5°C	+5,0°C
Stop supply airflow	No Yes	Yes

Frost protection rotary heat exchangers (RX)
In environments where the extract air can occasionally be humid, the defrosting function can be activated to protect the heat exchanger from frosting. The speed of the rotating heat exchanger is linked to the temperature of the outdoor (sensor T1). When the Frost protection cycle is active, it will be indicated on the HMI.



Setting	Settings range	Factory setting
Activate Frost protection	-29...+99°C	-9°C
RX rotation speed	2...10RPM	2RPM

Frost protection heating and cooling coils
The water coils are always protected against freezing by an anti-frost temperature sensor. This sensor is monted on the surface of the water coil. When the anti-frost protection temperature of the hydraulic coil detects a tempeature lower than 4°C (default), the pump contact is closed and the 3 way valve is opened 100% during 15 minutes. If the unit is running, the alarm is activated immediately. For a water preheating coil, the frost alarm is delayed by 2 minutes. If frost protection conditions occur when the air handling unit is OFF, the alarm is delayed by 5 minutes.

Setting	Settings range	Factory setting
Internal heating coil	-10...+10°C	+4,0°C
External heating coil	-10...+10°C	+4,0°C
External cooling coil	-10...+10°C	+4,0°C
Internal preheating coil	-10...+10°C	+4,0°C

Freecooling

The bypass on the GLOBAL product range, can be configured for freecooling. The main parameters to activate the free cooling function are the outside temperature (T1) and the extract (room) air temperature (T2). When there is maximal freecooling possibility the bypass will be 100% open. The 100% opened bypass can activate the configurable freecooling airflow.

Setting	Settings range	Factory setting
Outdoor T°	0...27°C	10,0°C
Extract/Room T°	6...28°C	22,0°C
Supply airflow	(l/s, m³/h)	
Extract airflow	(l/s, m³/h)	
Bypass control	Frost protection Freecooling Frost protection & free cooling	Freecooling

Modbus configuration

The MODBUS RTU communication requires an additional satellite circuit (CID025006) which is used as communication interface. The communication protocol used is MODBUS RTU, RS485.

Setting	Settings range	Factory setting
Adress	1...247	1
Baudrate	1200 4800 9600 19200	9600
Parity	No Yes	No

LAN configuration

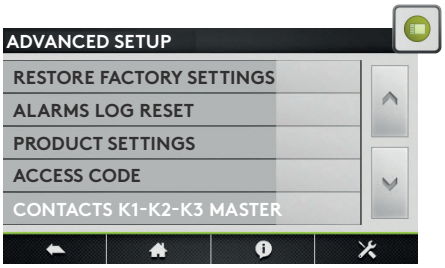
The MODBUS TCP/IP communication requires an additional satellite circuit (CID0250*72*) which is used as communication interface. The communication protocol used is Modbus TCP/IP on Ethernet network over twisted pair 10 BASE T/100Base-TX IEEE 802.3.

Setting	Settings range	Factory setting
IP configuration	DHCP Manual	Manual
IP adress		192.168.1.1
Netmask		255.255.255.0
Gatway		0.0.0.0

Operating time

For maintenance purposes, operating timers can be activated. If the "service alarm time" or the "Stop fan" timers are triggered, the according alarm will be shown and the unit will switch to "OFF"-mode.

Setting	Settings range	Factory setting
Reset timer	No Yes	No
Fan run time activation	No Yes	No
Display time	No Yes	No
Service alarm time	0...999999h	0h
Stop fan	0...999999h	0h



Restore Factory settings

Allows to restore the factory settings

Alarms log reset

Reset of the alarm log history

Product Settings

Enables the product settings button in the settings menu.

Access Code

Management of the 4 digits numerical codes to access basic, advanced and product setup. If the basic code is set, then operation on control and time schedules screens will be limited too.

Contacts K1-K2-K3 Master

Set this parameter to control the unit with electrical contacts K1-K2-K3 instead of the speed selection buttons of the control screen.

Save Values on SD card

This parameter appears only if there is a micro SD card inserted into the slot of the TACtouch. If set, then status, control variables and parameters are saved on the micro SD card and appended in a CSV format file named "TAClog".

7.0 Preventive maintenance

Attention : before handling and/or opening the access panels it is compulsory to shut down the unit and disconnect the power supply using the general switch located on the front panel.
Do not isolate the power supply whilst the unit is running. If KWin and\or KWout are installed, then isolate the corresponding power supplies.

Regular maintenance is essential to guarantee good operation of the air handling unit and a long service life. The maintenance frequency will depend on the application and on the actual environment conditions but the following are general guidelines:

7.1 ONCE THE UNIT OPERATES IN NORMAL CONDITION

Replace the filters with a kit of replacement filters.

7.2 EVERY 3 MONTHS

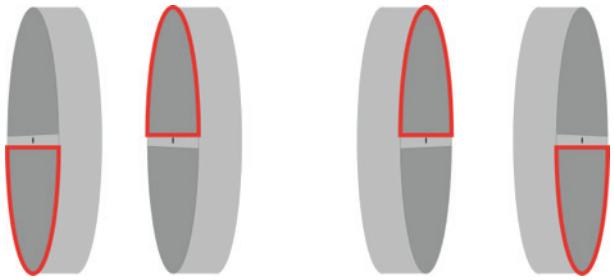
- Check for any alarms indicated on the control device. In case of an alarm refer to troubleshooting section.
- Check the state of filter clogging. The control device allows a pre-defined 'filter alarm' threshold to be set. Replace filters if necessary. Filters that are too clogged can generate the following problems:
  - Insufficient ventilation.
  - Excessive increase of fan rotation speed.
  - Excessive sound levels.
  - Excessive power consumption (power consumption will increase exponentially to an increase in pressure drop, for a constant airflow).
  - Unfiltered air passing through the heat exchanger (risk of clogging) and into ventilated rooms.

The list of replacement filter kits for each unit can be downloaded from our website.

- To locate the filter, refer to schemas on page 9 to 14.
- Inspection and cleaning of the inside of the unit:
  - Vacuum clean any accumulations of dust in the unit.
  - Inspect and gently vacuum clean the heat exchanger if necessary. Use a brush to protect the fins.
  - Clean any condensation stains.
  - For PX units, clean any accumulations in the drain pan.

7.3 EVERY 12 MONTHS

1. For rotary heat exchanger (RX) units, check the brush seals on the rotary heat exchanger along the perimeter in contact with the frame:



If necessary, bring the brush seals closer to the exchanger to ensure good sealing.

2. For RX units, check the tension of the driving belt on the rotating heat exchanger. If there is no tension or if the belt is damaged, please, contact the service department for a belt replacement.

Ideally the heat exchanger should be cleaned using vacuum cleaner 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.

3. For plate heat exchanger (PX) units:

- Clean the drain pan
- Clean the inside of the bypass. To access the interior of the bypass it is necessary to force it open, proceed as follows: place a jumper between terminals IN3 and +12V on the TAC circuit board. The bypass is now open, regardless of the temperature conditions.
- Remember to remove the jumper between terminals IN3 and +12V once cleaning of bypass is done.
- Always clean against the direction of the airflow.
- Cleaning must only be done by blowing with compressed air, vacuum cleaning with a soft nozzle or through 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.

4. Fan maintenance:

Check again whether the power supply is shut down and fans are not running.

Inspect and clean the fan impellers to remove any dirt deposits, be careful not to alter the impeller balance (do not remove balancing clips). 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 detergent. Clean the fan space, if needed. Remove the fans if necessary.

5. Check seals on the unit:

Ensure that the side access panels are fully closed and that the seals are intact. Replace if necessary.

8.0 Troubleshooting

The TAC control board generates and reports 22 types of alarms.

The alarms are subdivided into auto resetting and non-auto resetting alarms. For the latter, a reset will be necessary once the problem has been resolved.

For each type of alarm, a full text description will be displayed on the user interface depending on the alarm type, together with a symbol indicating its level:

highest level 3: severe alarm

level 2: warning

information symbol for level 1 and 0: information. Lowest 0 level alarms may be hidden thanks to the parameter «Hide low level alarms» in Settings/TACtouch setup

- Activation of alarm output (see point 4.1, figure 2)
- Activation of pressure alarm output in case of pressure alarm (see point 4.1, figure 3).
- "Alarm" activated LED's on control board
- Alarm on user interface
- Alarm communication with networking modules provided that an optional communication module (Modbus RTU, MODBUS TCP/IP, and KNX) is installed on the TAC control board.

8.1 TYPE 1: ALARM INDICATING A FAN FAILURE

- Conditions:
- Causes:
  - Failure of fan Fx. This problem is usually caused by the fan motor.
    If not, the failure may be caused by an internal cable (control or power) or by the TAC circuit.

- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
B.11	Fan 1 failure	3
B.12	Fan 2 failure	3
B.13	Fan 3 failure	3
B.14	Fan 4 failure	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm Status	/	ON	stopped
Auto reset: no			

Diagnostic:

- if both fans are in alarms: check power supply on each fan.
- If only one fan is in alarm, invert the fans control cables on the control board and reset the board:

  if the alarm text indicates now the other fan, the problem is located at the fan level originally indicated as faulty, or at its control cable itself or the wiring of this last one at fan connector side.

  Otherwise, if the alarm text indicates the same fan, then the control board is probably faulty due to input or output failure.

8.2 TYPE 2: ALARM ON THE PRESSURE VARIATION

- Conditions:
  - Mode airflow control or demand control. Unit must have forward fans or backward fans with kit CA
  - External pressostat connected on ADI2 OR ADI3 input
- Causes:
  - Pressure alarm setup in airflow control or demand control mode
  - External pressostat connected on ADI2 OR ADI3 input has triggered
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
P.10	Pressure alarm - Supply air	2
P.15	Pressure alarm - Extract air	2
S.40	Pressure alarm from Pressure Switch*	2

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	Alarm Status	ON	Run*
Auto reset: yes			

***** unless the status has been changed in advanced setup

8.3 TYPE 3: ALARM REPORT DURING REFERENCE PRESSURE INITIALIZATION

- Conditions:
  - Mode Airflow control or Demand control: during the initialization of the pressure alarm. In this case, the unit must have forward fans or backward fans with kit CA.
  - Mode Pressure control: during the initialization of the pressure reference via airflow.
- Causes:

  The reference pressure (Paref) cannot be identified and the fans are stopped. 4 possibilities:

  1. Actual airflow < requested airflow: The requested working point is 'too high' (too high pressure loss) for the maximal available pressure at the requested airflow for this fan.

  2. Actual airflow > requested airflow: the nominal airflow requested to initialize the pressure alarm cannot be reached because the lower limit of the fan's operating zone has been reached.

  3. Very unstable pressure (pumping).

  4. Assigned airflow not reached after 3 minutes.

  If this occurs during initializing an alarm pressure, there are 2 options:

  1. No action is taken: the control will operate without a pressure alarm.

  2. Corrective action is taken (change the working point to one located in the working zone of the fan, by reducing the pressure system, modifying the nominal airflow...) and restart the setup operation.

  If this occurs during initializing of the assignment pressure in pressure control mode: Corrective action must be taken (change the working point to one located in the working zone of the fan, by reducing the pressure system, modifying the nominal airflow ...) and restart the setup operation.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
P.20	Initialisation of the reference pressure - Unstable supply air pressure	2
P.21	Initialisation of the reference pressure - Unstable extract air pressure	2
P.22	Initialisation of the reference pressure - Supply air flow too low	2
P.23	Initialisation of the reference pressure - Extract air flow too low	2
P.24	Initialisation of the reference pressure - Supply air flow not reached	2
P.25	Initialisation of the reference pressure - Extract air flow not reached	2
P.26	Initialisation of the reference pressure - Supply air flow too high - Min. limit of the motor	2
P.27	Initialisation of the reference pressure - Extract air flow too high - Min. limit of the motor	2

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm Status	/	ON	Stopped
Auto reset: no			

8.4 TYPE 4: ALARM INDICATING THE SYSTEM CANNOT FULFIL THE SETPOINT

- Conditions:
- Causes:
  - The setpoint cannot be fulfilled because the upper or lower limit of the fan's working zone has been reached
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
S.11	"Constant Pressure" fan 1 - Measured pressure too high - Minimum air flow reached	2
S.12	"Constant Pressure" fan 1 - Measured pressure too low - Maximum air flow reached	2
S.13	"Constant Pressure" fan 3 - Measured pressure too high - Minimum air flow reached	2
S.14	"Constant Pressure" fan 3 - Measured pressure too low - Maximum air flow reached	2
S.20	"Demand control" fan 1 - Air flow too low - Reduce the pressure on this fan	2
S.21	"Demand control" fan 1 - Air flow too high - Minimum limit of the motor reached	2
S.22	"Demand control" fan 2 - Air flow too low - Reduce the pressure on this fan	2
S.23	"Demand control" fan 2 - Air flow too high - Minimum limit of the motor reached	2
S.24	"Demand control" fan 3 - Air flow too low - Reduce the pressure on this fan	2
S.25	"Demand control" fan 3 - Air flow too high - Minimum limit of the motor reached	2
S.34	"Constant Air Flow" fan 3 - Air flow too low - Reduce the pressure on this fan	2
S.35	"Constant Air Flow" fan 3 - Air flow too high - Minimum limit of the motor reached	2

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: yes			

8.5 TYPE 5: ALARM INDICATING A DATA FAILURE IN THE CONTROL CIRCUIT

- Conditions:
- Causes:
  - Crucial data from the circuit board has been lost
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
D.10	Programme Error	3
D.20	Data Error	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped
Auto reset: no			

- Solutions:
  - Try a TOTAL RESET of the data using the advanced setup. If still not resolved, order a new circuit board.

8.6 TYPE 6: FIRE ALARM

- Conditions:
  - Fire alarm input must be connected to a fire detection system.
- Causes:
  - Activation of fire alarm input, IN1, connected to a fire detection system.
    IN1 can be configured to work as NO open contact by default or as NC if configured so in the advanced setup.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
F.10	FIRE ALARM	3
F.11	End of the fire alarm	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	*
Auto reset: no			

***** The fans run by default in the event of a fire alarm at the configured fixed airflows in the advanced setup. The fans may be forced to stop in case of fire alarm thanks to contact IN7 and IN8 for supply and exhaust respectivelly (need to be closed). These contacts are available on optional satellite board SAT IO (see point 4.1).

8.7 TYPE 7: MAINTENANCE ALARM

- Conditions:
  - the running hours feature must be enabled in advanced setup
- Causes:
  - SERVICE ALARM: the fan operating time (in hours) has exceeded the configurable threshold
  - STOP FAN: the fan operating time (in hours) has exceeded the configurable threshold. This alarm stops the fans
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
M.21	Operating hours	2
M.22	Operating hours - AHU off	3

TAC control boards			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped if SERVICE STOP FAN*
Reset via "fan run time" in advanced settings			

8.8 TYPE 9: ALARM INDICATING A T° SENSOR T1/T2/T3/T4 FAILURE

- Conditions:
- Causes:
  - One or more of the T° sensors T1/T2/T3/T4 connected to the TAC circuit and mounted on heat exchanger is defect or not connected. These sensors are needed for the bypass control and the anti-frost procedure.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
T.10	Sensor T1 disconnected	3
T.11	Sensor T1 short circuit	3
T.20	Sensor T2 disconnected	3
T.21	Sensor T2 short circuit	3
T.30	Sensor T3 disconnected	3
T.31	Sensor T3 short circuit	3
T.40	Sensor T4 disconnected	3
T.41	Sensor T4 short circuit	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped
Manual reset mandatory.			

8.9 TYPE 10: ALARM INDICATING FAILURE ON T° SENSOR T7

- Conditions:
  - Only with water heating coil (IBA or EBA) option
- Causes:
  - T° sensor T7 located on the coil and connected to the TAC circuit is defective (open or short circuit) or not connected. This is used to prevent frosting of the internal or external heating coil. In this case, as a safety measure, the 3-way valve is opened and the circulator contact is closed.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
T.40	Sensor T7 disconnected	3
T.41	Sensor T7 short circuit	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	/
Manual reset mandatory.			

8.10 TYPE 10 BIS: DRAIN PUMP ALARM

- Conditions:
  - Only for GLOBAL LP or CLASS UNIT
- Causes:
  - The level of condensate is higher than a set Setting (approx. 1.5 cm). It can also be activated if the pump is not present or defective
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
R.10	Condensate tray full	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped if SERVICE STOP FAN
Auto reset: yes			

When activated, the supply and exhaust fans are stopped. This alarm is automatically reset when the water level in the drain pan is lower than the setpoint, and the fans restart automatically.

8.11 TYPE 11: ALARM INDICATING FAILURE ON T° SENSOR T5

- Conditions:
  - Only with post-heating, post-cooling or free cooling with heat wheel or modulating bypass option.
- Causes:
  - T° sensor T5 located in the supply duct and connected to the TAC circuit is open, or short-circuited. This sensor is used to regulate the post-heating or post-cooling function in the case of comfort T° control on T5 or to control the high and low thresholds to limit the supply air temperature in the case of comfort T° control on T2.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
T.50	Sensor T5 disconnected	3
T.51	Sensor T5 short circuit	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	/
Manual reset mandatory.			

8.12 TYPE 12: ALARM INDICATING THAT THE COMFORT T° IS TOO LOW RELATIVE TO SETPOINT T°

- Conditions:
  - Only with post-heating option
- Causes:
  - The comfort T° setpoint cannot be reached (actual T° lower than setpoint during 15 minutes, or 30 minutes if comfort on T2 instead of T5, while post heating is at maximum)
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
S.50	Post-heating - T° of the supply air too low	0

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: yes			

8.13 TYPE 13: ALARM INDICATING HEAT EXCHANGER FROST PROTECTION ALERT

- Conditions:
  - Only with post-heating option.
- Causes:
  - For PX units:

    Frost protection is only selected with electrical pre-heating coil (KWin) or water preheating coil (BAin) or modulating bypass. With KWin or BAin option: In certain air T° conditions as measured on the exhaust airflow after heat recovery, indicating that the internal electrical KWin coil or external hydraulic coil (BAin) has reached its limit, the TAC control can take over to guarantee the anti-frost function.

    If T° < assignment T°-1,5°C for more than 5 minutes: supply and exhaust airflow reduction of 33% if airflow control or demand control and of 25%.
    if pressure control mode, for 15 minutes.
  - For RX units:

    When outdoor temperature (T1 sensor) is lower than the anti-frost temperature (T°AF, -9°C by default), the rotation speed of the heat exchanger will decrease to avoid any risk of frosting.

    When T1 ≥ T°AF for at least 5 minutes, the wheel will ramp up to its nominal rotation speed.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
A.10	Anti-freeze - Reduced air flows	2

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: yes			

8.14 TYPE 14: ALARM INDICATING FROST PROTECTION ALERT – FANS STOPPED T°

- Conditions:
  - Frost protection is only selected for PX units with electrical preheating (KWin) or water preheating (BAin) or if modulating bypass.
- Causes:
  - With KWin or BAin option: in certain air T° conditions as measured on the exhaust airflow after the heat recovery, indicating that the internal electrical KWin coil or external hydraulic coil (BAin) has reached its limit, the TAC control can take over to guarantee the anti-frost function.

    If T° < -5°C during 5 minutes, fans are stopped.
  - With modulating bypass in frost protection (« A-FREEZE » or « AF+FREECOOL » in the advanced setup), this alarm indicates that the extracted air temperature at the exchanger output (T3 sensor) has not exceeded 1°C during 15 minutes after that the bypass has been opened at 100%.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
A.11	Anti-freeze - Fans stopped	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped
Manual reset mandatory.			

8.15 TYPE 14 BIS: ALARM INDICATING AN ERROR ON THE HEAT EXCHANGER ROTATION SPEED

- Conditions:
  - Only for RX units
- Causes:
  - This alarm indicates that the rotation speed of the wheel has been lower or greater than 15% of the setpoint speed for more than 5 minutes
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
B.30	Speed of rotation of the exchanger incorrect	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm status	/	ON	Stopped
Manual reset mandatory.			

- Diagnostic:

A – Visual mechanical check :

1. Check good tension of the green rubber belt in the central part of the unit. Eventually replaced if broken.
2. Check the good coupling between motor shaft and pulley: eventually screw the 2 screws.
3. Check that the wires of the motor are not damaged (8 wires: red, red-white, black, black-white, green, green-white, yellow, yellow-white).

B – Further diagnostic

1. Ensure that the control board TAC is at last version available on web site.
2. Check the current RPM of the rotor respect to the setpoint which is in normal condition (no freecooling and no antifrost protection), 10 RPM.
3. If the actual speed is lower than 9,8 RPM (but >0), then decrease parameter "rotor speed at 10V" in product settings until that the actual speed is between 9,8 and 10,2 RPM.
4. If the actual speed is higher than 10,2 RPM, then increase parameter "rotor speed at 10V" in product settings until that the actual speed is between 9,8 and 10,2 RPM.
5. Feedback of rotor: check input for rotor speed (see wiring diagram at point 4): closed when magnet on the rotor in front of magnetic switch. Otherwise, open.

   5.1. If not, check directly the impedance at the sensor output: if 0 Ohm when magnet in front and infinite when far, then the sensor is correct and the control board has to be replaced. Otherwise, replace magnetic sensor.
6. Output rotor speed control from TAC main board: check that the wire from DO2 goes well to stepper driver PWM1 input (see following point).

7. check the stepper driver:

   7.1 Check previous wire from control board DO2 is well connected to «PWM1» input.

   7.2 Check +24V DC at GND +24V connectors of stepper driver. If not, check the 24V DC power supply and the cable between it and the driver.

   7.3 check electrical connection between driver and motor.

   7.4 if the red led is blinking on stepper driver, that means that there is an alarm.

   Check first of all that the support of the stepper motor is well connected to the rotor frame with a yellow green protective earth cable.

   7.4.1 If not, it must be connected, and it is safer to replace the stepper driver and the control board.

   7.4.2 If yes, try with another driver. If it still blink, try with another motor.

N.B.: when the stepper driver is replaced, dip switch have to be placed on same position than before. Only DIP SWITCH 1 has effect and it is used for the direction of rotation.

8.16 TYPE 15 BIS: ALARM INDICATING THAT THE COMFORT T° IS TOO HIGH RELATIVE TO SETPOINT T°

- Conditions:
  - Only with post cooling option.
- Causes:
  - The comfort T° setpoint cannot be reached (actual T° lower than setpoint during 15 minutes, or 30 minutes if comfort on T2 instead of T5, while post cooling is at maximum).
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
S.60	Post-cooling - T° of the supply air too high	0

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: yes			

8.17 TYPE 16: ALARM INDICATING THAT THE SUPPLY T° IS TOO LOW

- Conditions:
  - Only with post heating or cooling option.
- Causes:
  - This alarm indicates that the supply temperature (T5) is lower than 5°C. The fans are stopped for 1 minute. The alarm is configurable through the advanced setup and is disabled by default.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
S.50	Post-heating - T° of the supply air too low	0
S.65	Supply air T° too low - Fan stopped	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm Status	/	ON	Stopped
Manual reset mandatory.			

8.18 TYPE 17: ALARM INDICATING HYDRAULIC COILS FROST PROTECTION ALERT

- Conditions:

  Only with internal hydraulic post heating coil (IBA), or external heating coil (EBA).
- Causes:

  Indicates that the anti-frost protection temperature of the hydraulic coil is lower than 4°C (configurable through advanced setup, it is important to reduce this Setting for BAin coil if an antifreeze is in the fluid). The 3-way valve is automatically opened at 100% for 15 minutes and the heating demand contact is closed (output DO7, see point 4.1, figure 1). If the AHU is running, the alarm is sent after 2 minutes for a preheating coil and immediately for the others; if the AHU is not running, the alarm is sent after 5 minutes.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
A.40	Anti-freeze protection of the internal post-heater (IBA)	3
A.41	Anti-freeze protection of the waterborne post-heater (EBA+)	3
A.42	Anti-freeze protection of the waterborne post-cooler (EBA-)	3
A.43	Anti-freeze protection of the waterborne reversible coil (EBA+-)	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm Status	/	ON	Stopped
Manual reset mandatory.			

8.19 TYPE 18: ALARM INDICATING AN INCORRECT POSITION OF THE MODULATING BYPASS RELATIVE TO THE ORDERED POSITION

- Conditions:
  - PX units with modulating bypass
- Causes:
  - This alarm indicates that the modulating bypass has not reached the ordered position within 10 seconds. The most common reason for this is a damaged position sensor on the bypass actuator, and this must be replaced. Other reasons may be that the control board output is damaged, implying the replacement of the board, or a mechanical blocking verified by a visual inspection of the bypass
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
B.20	Position of the modulating bypass incorrect	3

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
Alarm Status	/	ON	Stopped
Manual reset mandatory.			

Diagnostic :

Stop the unit, do an alarm reset, check and eventually correct actuator wiring to the control board and then check that the bypass can move physically: connect IN3 to +12V to force the bypass to open.

- If the bypass stays in close position, check if there is some mechanical obstruction that makes the actuator stuck, otherwise:
  - -Either the actuator must be replaced
  - -Or the control board must be replaced
- If the bypass opens completely:
  - Do several Close/open cycle using IN3 to try to reproduce the alarm and check bypass position in info menu. If the problem cannot be reproduced, try with fans boosting.
  - Either the actuator must be replaced
  - Or the control board must be replaced

8.20 TYPE 19: ALARM INDICATING THAT THE HOURS LIMIT FOR THE MINOR MAINTENANCE HAS BEEN REACHED

- Conditions:
  - The hours limit must be configured with a value greater than 0.
- Causes:
  - The hours limit for the minor maintenance has been reached.

The instructions in this manual of the unit for the 3 months maintenance should be followed. Mainly, the filters should be cleaned or replaced.

Reset the hours for minor maintenance after this operation, this will reset automatically the alarm and give it again after the same period.

Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
M.10	MINOR MAINTENANCE ALARM	1

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: via dedicated reset			

8.21 TYPE 20: ALARM INDICATING THAT THE DEFROST PROCESS IS ACTIVE

- Conditions:
  - Unit with counter flow heat exchanger.
- Causes:
  - The ice forming inside of the plate heat exchanger is genrating a pressure drop that is too high for the current airflow. This detection requires a Modbus pressure sensor placed on the heat exchanger and that the modulation of the fans speed is based on the airflow and not on torque.
  - When the previous detection is not available, the supply T° is checked and if it falls below 11°C, it is considered that is due to the ice that reduces the heat exchanger efficiency.
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
A.20	Defrost	1

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	Supply stopped
Auto reset: yes			

8.22 TYPE 21: ALARM INDICATING COMMUNICATION ERROR FOR ONE OF THE MODBUS PRESSURE SENSOR

- Conditions:
  - Unit with at least one configured Modbus pressure sensor.
- Causes:
  - One or more of the Modbus pressure sensors give too much communication errors.

    This in turn can come from:

    The physical absence of one of the configured sensor.

    One of the sensors is not powered on: check "ON" led of all configured sensors. See installation manual of Modbus pressure sensor.

    Faulty cable

    One of the sensors address is not correctly set: check the setting wheel position for each configured sensor according to its function. See diagnostic here below.

.

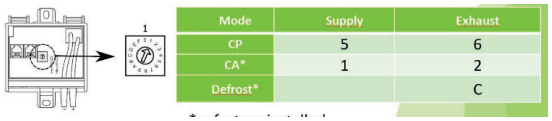
- Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
D.30	MODBUS SENSOR COMMUNICATION ERROR	1

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: yes			

- Diagnostic:

- Check in TACtouch the screen with the communication sensor errors in menu/info: the Modbus pressure sensor which is in alarm will have its error counter that increases (if the screen doesn't appear, go first in menu settings/ Factory setup). Once identify, check first of all that it is well present otherwise, it will be necessary to modify the configuration to tell the control board that it is not present.
- If the sensor is well present, check that the address of the wheel is correct.
- Finally, check it's status led: green led on, communication orange blinking. If status led are different, then it may be due to the cable or to sensor itself that is damaged. Wiring is in chain from connector RJ3 or RJ4 for sensors 1 (kit CA supply), 2 (kit CA exhaust) and C (defrost), from connector RJ2 for sensor 5 (CP mode supply) and 6 (CP mode exhaust). See TAC wiring overview at point 4:



8.23 TYPE 22: ALARM INDICATING THAT THE HOURS LIMIT FOR THE MAJOR MAINTENANCE HAS BEEN REACHED

- Conditions:
  - The hours limit must be configured with a value greater than 0.
- Causes:
  - The hours limit for the major maintenance has been reached.

The instructions in this manual for the 12 months maintenance should be followed.

Reset the hours for major maintenance after this operation, this will reset automatically the alarm and give it again after the same period. Reset also minor maintenance hours.

Effects:

Displayed on HMI TACtouch		
Code	**Text displayed**	Level
M.11	MAJOR MAINTENANCE ALARM	1

TAC control board			
ALARM OUTPUT	**AL dPa OUTPUT**	**LED ALARM**	**Fans**
/	/	ON	/
Auto reset: via dedicated reset			

8.24 REC TABLE

In the control board the “REC type” is used to define the type unit. When replacing the control board, the REC type needs to be configured in the product setup menu. The product setup menu is used to enable specific features or to modify factory settings. This must be done by an accredited technician. A code and special training is mandatory to access this menu group. The table below is valid for controllers generation TAC.

GLOBAL PX (Aluminium)	
05	885524
06	885546
08	885526
10	885528
12	885530
13	885532
14	885534
16	885536
18	885544
20	885538
24	885540
26	885542

GLOBAL PX (Composite)	
05	885500
06	885522
08	885502
10	885504
12	885506
13	885508
14	885510
16	885512
18	885520
20	885514
24	885516
26	885518

GLOBAL PX TOP (Aluminium)	
05	887512
08	887514
10	887516
12	887518
14	887520

GLOBAL PX TOP (Composite)	
05	887500
08	887502
10	887504
12	887506
14	8875108
18	887510

GLOBAL LP (Aluminium)	
04	
06	886544
08	886546
10	886548
12	886558
13	886550
14	886552
16	886554
18	886556

GLOBAL LP (Composite)	
02	886500
04	886502
06	886504
08	886506
10	886508
12	886518
13	886510
14	886512
16	886514
18	886516

GLOBAL RX (Aluminium)	
05	881572
08	881550
10	881552
12	881554
13	881556
14	881558
16	881560
18	881562
20	881564
24	881566
26	881568

GLOBAL RX (Composite)	
05	881524
08	881502
10	881504
12	881506
13	881508
14	881510
16	881512
18	881514
20	881516
24	881518
26	881520

GLOBAL RX TOP (Aluminium)	
05	881054
08	881056
12	881060
13	881066
14	881062
16	881064

GLOBAL RX TOP (Composite)	
05	881018
08	881020
10	881022
12	881024
13	881030
14	881026
16	881028

9.0 Parameters/Commissioning Sheet

Please enter all settings specific to your installation in this table. Please keep this document at hand when there is a need to contact us to report a problem.

9.1 MAIN PARAMETERS AFTER COMMISSIONING

1	**GLOBAL model:**				
2	**Operating mode:**	O Constant Airflow		O Constant Torque	
		O Demand control		O Constant pressure	
3	**Constant Airflow:**	K1 =	_____	O [m³/h]	O [l/s]
		K2 =	_____	O [m³/h]	O [l/s]
		K3 =	_____	O [m³/h]	O [l/s]
4	**Constant Torque:**	K1 =	_____	% Torque	
		K2 =	_____	% Torque	
		K3 =	_____	% Torque	
5	**Demand control:**	Vmin =	_____	V	
		Vmax =	_____	V	
		m³h/%TQ ≡ Vmin =	_____	O [m³/h]	O [l/s]
		m³h/%TQ ≡ Vmax =	_____	O [m³/h]	O [l/s]
		% on K3 =	_____	%	
6	**Constant pressure:**	Assignment Pa =	_____	O [V]	O [Pa]
		% on K3 =	_____	%	
7	**Ratio exhaust/supply:**		_____	%	
8	**Pressure alarm** (not for pressure control mode)	Activated?	O Yes	O No	
			O Automatic	O Manual	
		Setup Initialisation:			
		Supply:	_____	O [m³/h]	O [l/s] O [Pa]
		Exhaust:	_____	O [m³/h]	O [l/s] O [Pa]
9	**If KWin option:**	T° KWin =	_____	°C	
10	**If KWout option**	T° KWout =	_____	°C	
11	**If IBA option:**	T° IBA =	_____	°C	

9.2 TRACK CHANGES

Enter details when the Setting of a parameter has been changed (use only one row per parameter):

Parameter Name	Setting before change	Setting of change #1	Date of change #1	Setting of change #2	Date of change #2

EC DECLARATION OF CONFORMITY

Manufacturer (and where appropriate his authorized representative):

Company:	Swegon Operations Belgium
Address:	Parc-industriel de Sauvenière 102 Chaussée de Tirlemont B5030 Gembloux

Hereby declares that:

Following product range(s): GLOBAL PX (TOP) / GLOBAL RX (TOP) / GLOBAL LP / CLASS UNIT / MURAL

Complies with the requirements of Machinery Directive 2006/42/EC (LVD included)

Complies also with applicable requirements of the following EC directives:

2014/30/EU	EMC
2009/125/EC	Ecodesign (Regulation nr 1253/2014 – LOT 6)
2011/65/EU	RoHS 2 (including amendment 2015/863/EU – RoHS 3)

Authorized to compile the technical file:

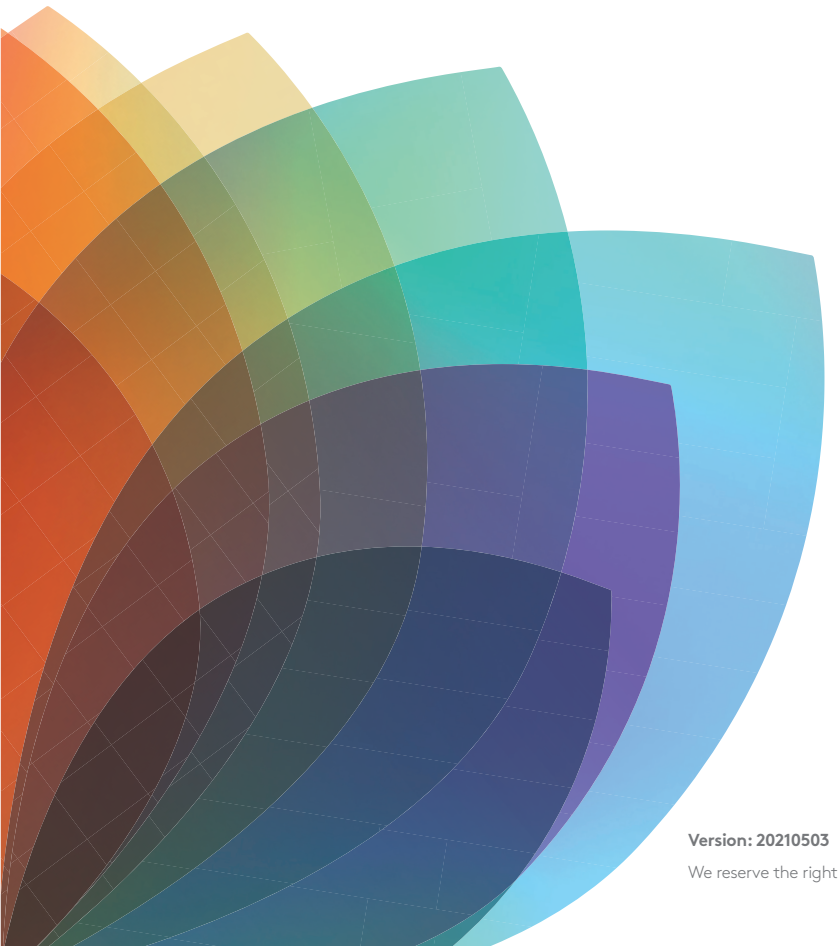
Name:	Nicolas Pary
Address:	Parc-industriel de Sauvenière 102 Chaussée de Tirlemont B5030 Gembloux

Signature:

Place and date: Gembloux 2021-03-15

Signature: Name: Jean-Yves Renard

Position: R&D Director



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Swegon

Version: 20210503

We reserve the right for changes.