Installation instructions for the product range

ESENSA PX Flex

Consult the latest version of this manual on our website:
www.swegon.com

Swegon

Table of content

Symbols and abbreviations

PF PLEATED FILTER

PX PLATE HEAT EXCHANGER

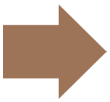
BW BACKWARD CURVED FAN

WARNING !

Must be connected by a qualified electrician.

Warning! Hazardous voltage.

OUTDOOR AIR (1)



EXHAUST AIR (3)

EXTRACT AIR (2)

SUPPLY AIR (4)

1. General

1.1 General information

All staff must consult the instructions before starting any work on the unit. Any damages to the unit (or parts of it) due to a misuse cannot be considered subject to guarantee.

All electrical work must be carried out by a qualified electrician. Make sure that the unit is disconnected from any power supply before performing any electrical work.

Check the condition of the unit on delivery. The air handling unit is supplied in packaged condition. Please unpack it carefully (sharp tools could damage the surfaces). The surfaces are covered with a transparent protective film. Please remove it carefully.

If the unit is not installed immediately, it should be stored in a clean and dry area. If stored externally, it should be adequately protected from the weather conditions.

Duct connections/duct ends should be covered during storage and installation, in order to avoid dust or dirt entering the unit.

The product identification can be found on the silver label that is always stuck to the bottom of a front panel on the unit. Refer to this label when you contact the supplier.

Ordered optional accessories are not factory installed and must be ordered in advance (for example internal and external coils, motorised dampers, defrost kit and flexible sleeve). They are supplied separately from the unit so the installer is responsible for installing and connecting these.

Standard components can be individually packaged and placed inside the unit for the transportation.

1.2 Installation applications

The air handling unit must be installed inside or outside the building and mounted horizontally or vertically on a flat and firm supporting surface (perfectly level floor) and this surface must be constructed in a way enabling it to support the weight of the unit. If this conditions are not respected, that could cause an issue for the drain-pan.

1.3 Transport within the site

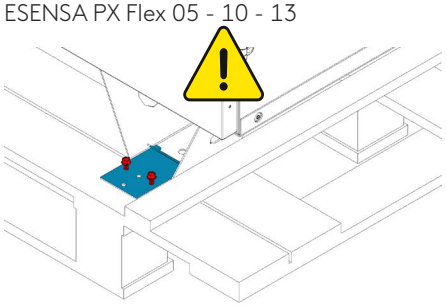
Before removing the transport pallet/boards, determine whether a forklift truck or a pallet transporter will be used for further transporting the unit within the site to the spot where it will be installed.

1.4 Remove the unit from the support

The units ESENSA PX Flex 05, 10 and 13 are attached to the pallet at the feet by metal parts.

Unscrew the fasteners before removing the device from the pallet.

ESENSA PX Flex 05 - 10 - 13

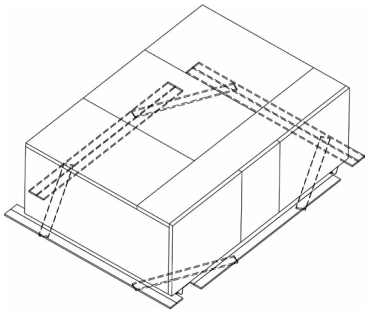


The ESENSA PX Flex 20 unit is packaged differently. The machine is surrounded by transport boards that need to be removed one by one.

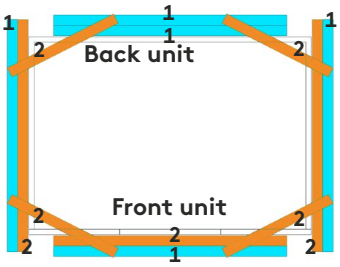
Some boards are stapled together: they must be removed using a crowbar or a hammer **(blue boards/n°1).**

Some boards are not stapled together: they should be removed by sliding them off **(orange boards/n°2)**.

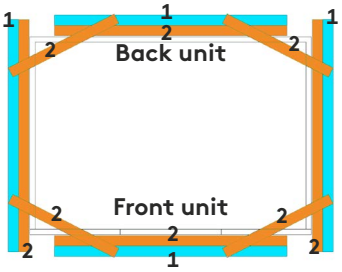
ESENSA PX Flex 20



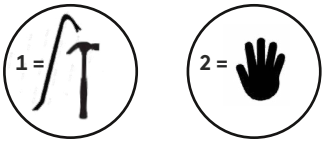
ESENSA PX Flex 20 horizontal



ESENSA PX Flex 20 vertical



BOTTOM VIEW



1.5 Lifting

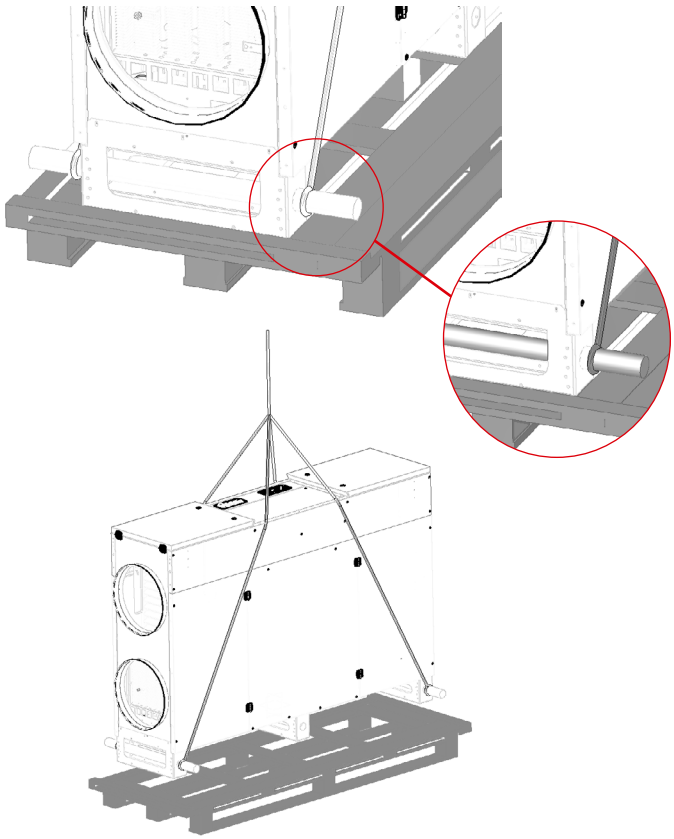
The ESENSA PX Flex 05, 10 and 13 units are equipped with perforated feet for easy handling.

CAUTION : The unit is attached to the pallet at the feet by metal parts. Unscrew the fasteners before removing the device from the pallet.

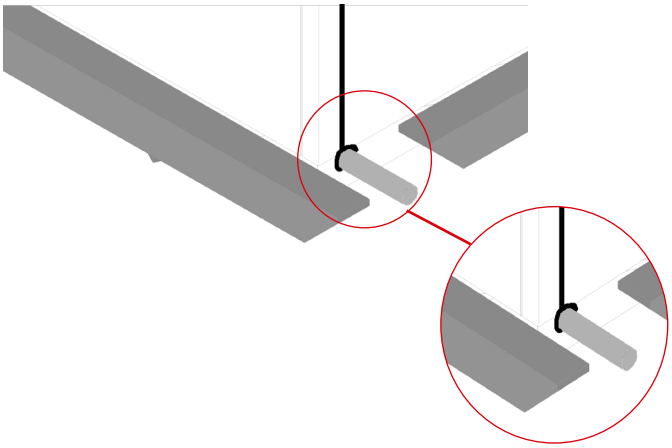
The ESENSA PX Flex 20 unit is packaged differently.

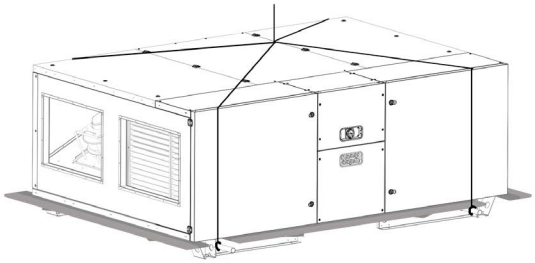
The unit is surrounded by transport boards (see previous chapter to remove the boards). Spaces at the four corners allow lifting bars to pass through (even if the boards were not removed).

ESENSA PX Flex 05 - 10 - 13



ESENSA PX Flex 20





CAUTION: ESENSA PX Flex 20 will be delivered horizontally or vertically depending on the order.
Plan a lifting bar to suit the size and position of the unit.

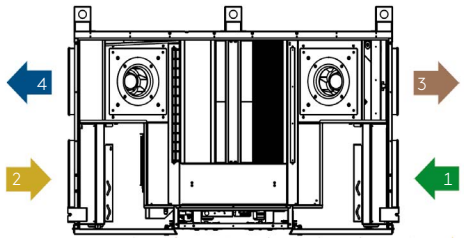
To lift the device, use proper lifting ropes (not provided):

1- Insert 2 lifting bars (not provided) through the perforations in the feet of the unit.
Maximum diameter of 48 mm. Make sure that the lifting bars are strong enough.

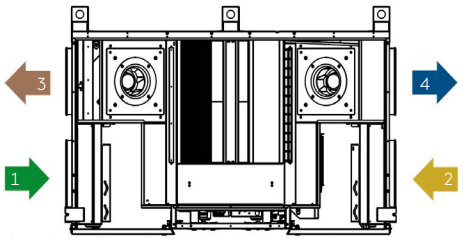
2- The tense lifting ropes could apply a pressure on the edge of the unit and could deform it.

2. Product overview

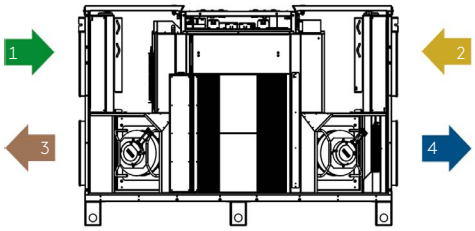
2.1 General information



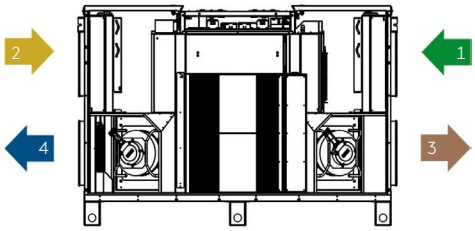
Horizontal left version (HL)



Horizontal right version (HR)



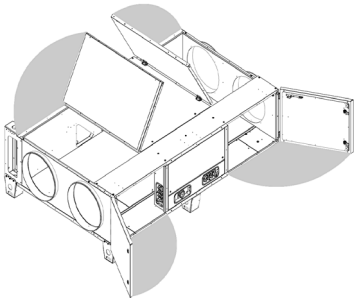
Vertical right version (VR)

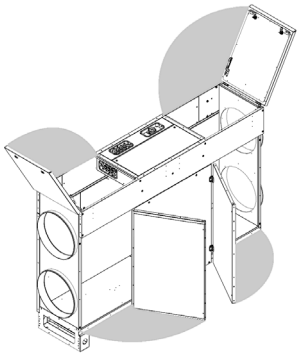


Vertical left version (VL)

1. Outdoor air 2. Extract air 3. Exhaust air 4. Supply air

2.2 Maintenance area



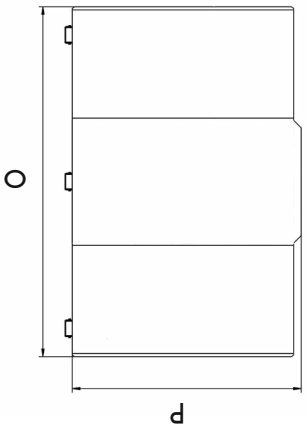


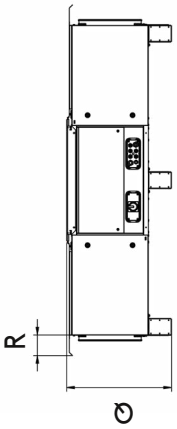
Horizontal installation			
Model size	Behind unit (recommended) [mm]	Front unit [mm]	Above unit [mm]
05	600	700	600
10	600	700	600
13	600	700 1000*	600
20	600	1100	950

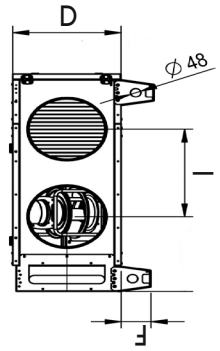
Vertical installation			
Model size	Behind unit (recommended) [mm]	Front unit [mm]	Above unit [mm]
05	600	600	700
10	600	600	700
13	600	600	700 1000*
20	600	1000	450

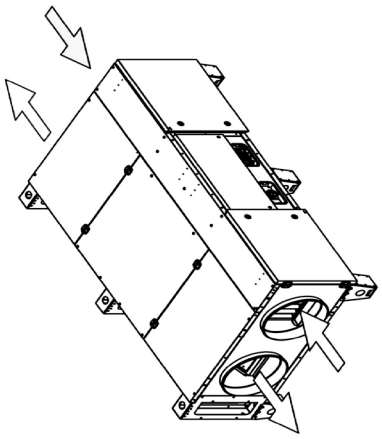
* This dimension is recommended if the unit is equipped with a preheating coil.

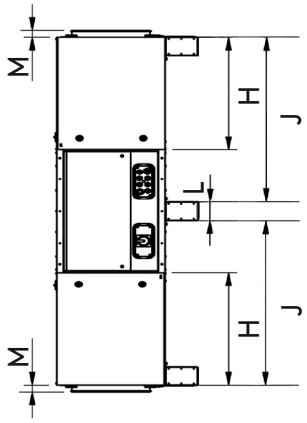
Outdoor version

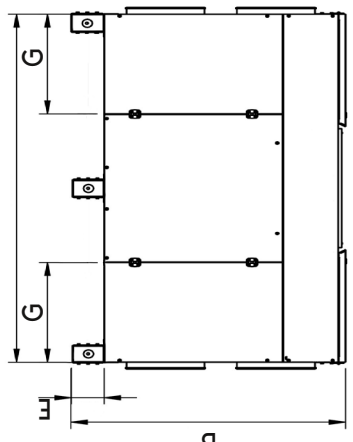


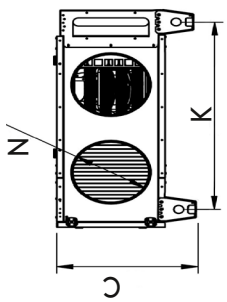


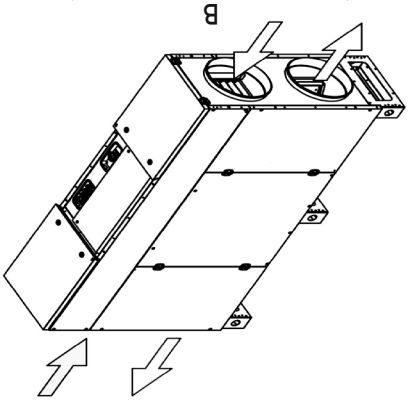












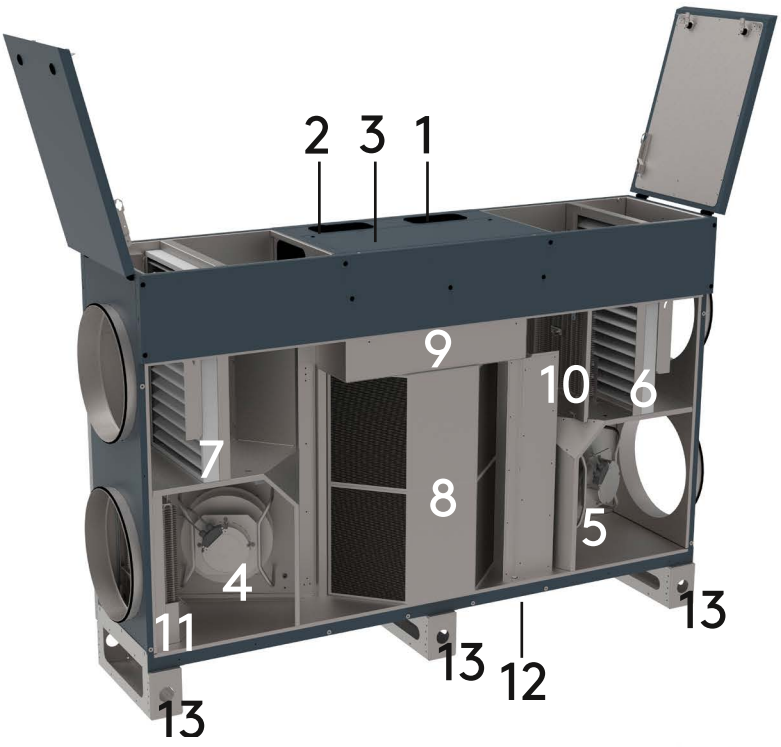
Model size	Weight [kg]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J [mm]	K [mm]	L [mm]	M [mm]	N [mm]
05	215	2000	1250	644	494	150	150	572	647	503	950	1070	100	39	Ø 355
10	290	2150	1445	784	634	150	150	572	652	593	1025	1265	100	39	Ø 500
13	360	2150	1870	784	634	150	150	570	652	827	1025	1690	100	40	Ø 500
20 H*	700	2800	2003	1106	956	50	150	910	1094	932	850	1745	126	-	500 x 700
20 V*	680	2800	2103	-	956	150	-	910	1094	932	850	690	126	-	500 x 700

O [mm]	P [mm]	Q [mm]	R [mm]
679	2270	1370	135
819	2420	1550	135
819	2420	2000	135
1141	3060	2305	135
-	-	-	-

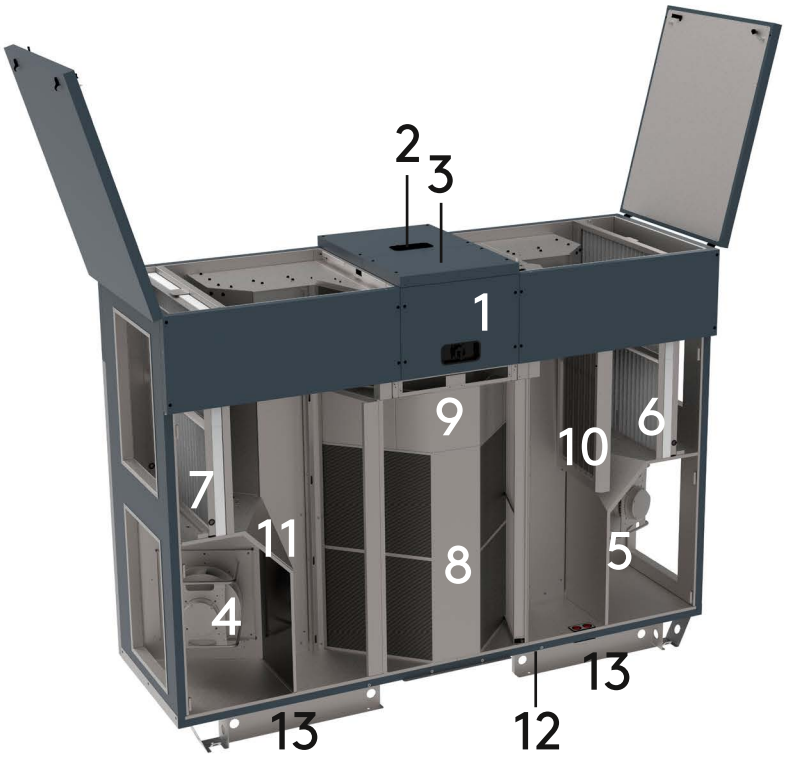
* H= Horizontal/V= Vertical

2.3 Components

ESENSA PX Flex 05 - 10 - 13



ESENSA PX Flex 20



1. Main switch
2. Cable inlet
3. Integrated electrical cabinet
4. Fan
5. Fan
6. Filter(mini-pleated)
7. Filter (mini-pleated)
8. High efficiency plate heat exchanger (+ drain-pan & pipe connection at the back)
9. Modulating bypass
10. Integrated preheating | electrical (option)
11. Integrated postheating | electrical (option)
12. Drain pan (drain pipe at the opposite)
13. Cadre de socle

3. Installation générale

3.1 Mechanical installation

Assembly of feet for horizontal position of the unit

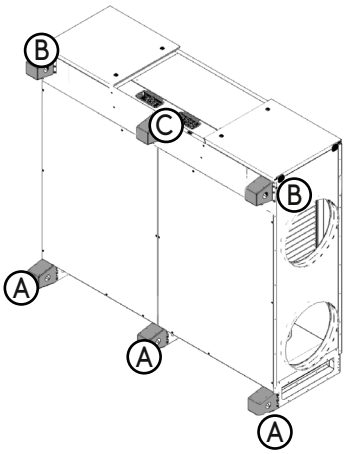
ESENSA PX FLEX 05-10-13

Note: The feet system for ESENSA PX Flex 20 units (horizontal or vertical) is factory installed.

Type A

Type B

Type C



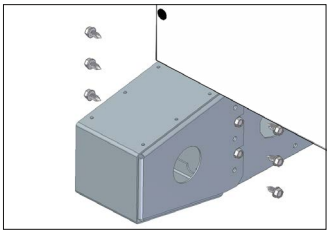
Drilling

5mm

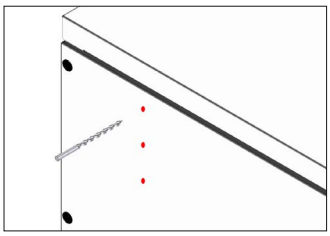
Fastening

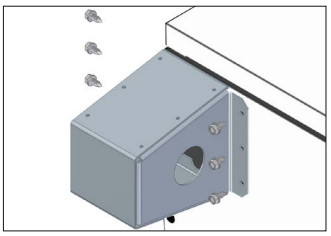
Type A

Factory drilled holes

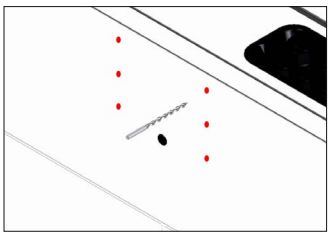


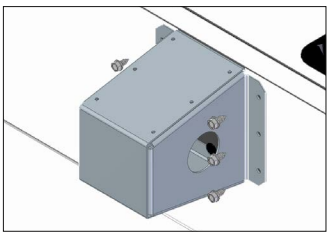
Type B





Type C

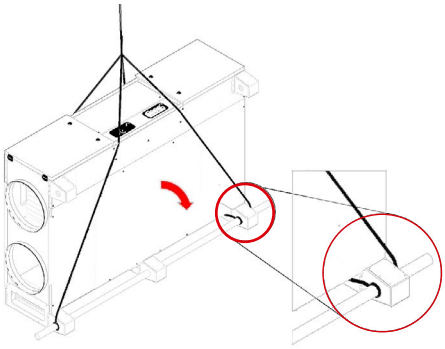




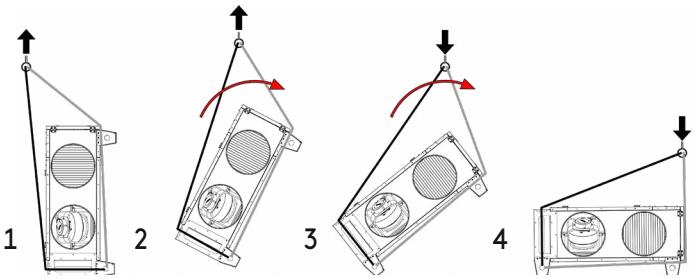
Screws are included in the feet kit.

Horizontal rotation position (ESENSA PX Flex 05 - 10 - 13)

- We recommend the use of a lifting system and not rotate the unit manually. It is also advisable to place some protection between the unit and the rope at points of contact.
- Before doing this operation, make sure there is enough free space. It is essential that each operator wears personal protective equipment.
  This operation should only be carried out once the feet have been fitted.
- Does not apply to size ESENSA PX Flex 20 as they are delivered in the configured position.

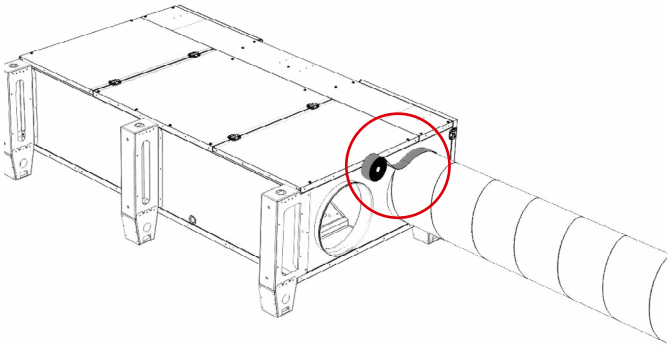


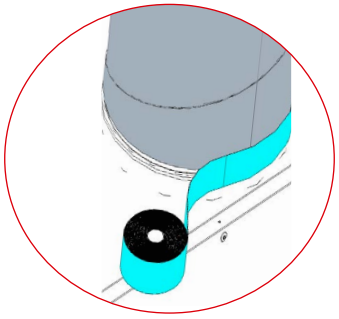
1. Place 1 lifting bar (in the feet holes) and pass 2 lifting ropes (equally long) on the side of the unit as shown here and tense the rope, keeping the unit in contact with the ground.
2. Start the 90° rotation by lifting the unit completly off the the ground.
3. As it rotates, gently drop off the unit on the ground on one side.
4. Place the unit completly on the ground and remove the lifintg accessories.



3.2 Duct connection

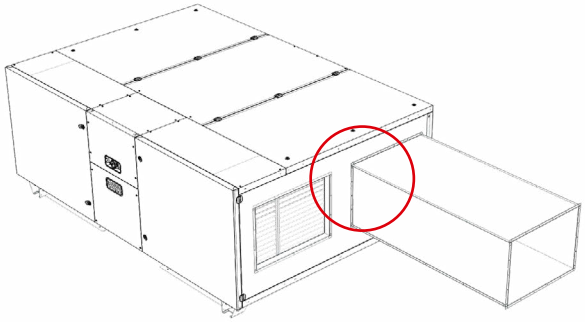
CIRCULAR CONNECTION :

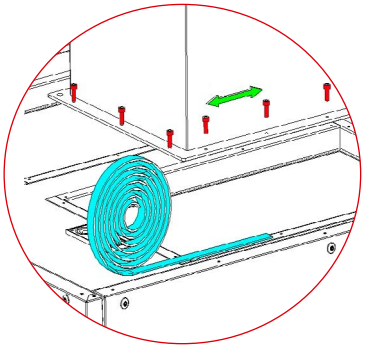




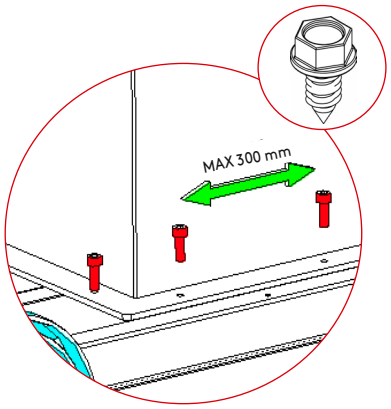
Tape and seal not included

RECTANGULAR CONNECTION :





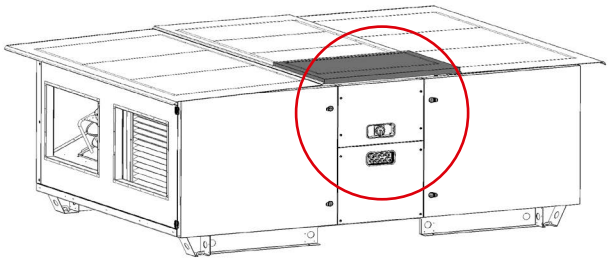
Seal not included

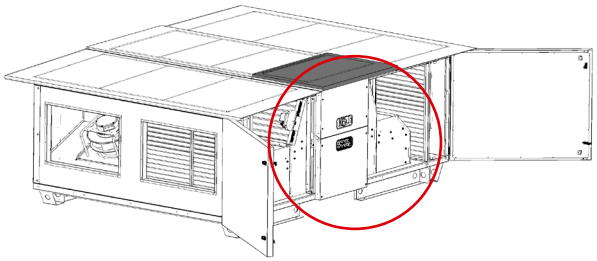


Max 300 mm between each self-drilling screw (not provided)

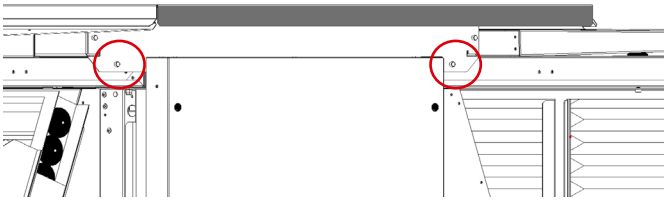
3.3 Electrical cabinet access with roof option (ESENSA PX Flex 20)

SW 4.0 + T30

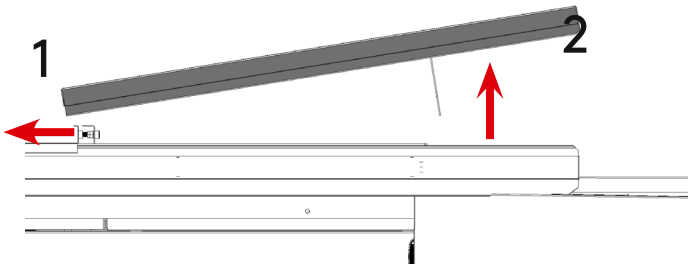




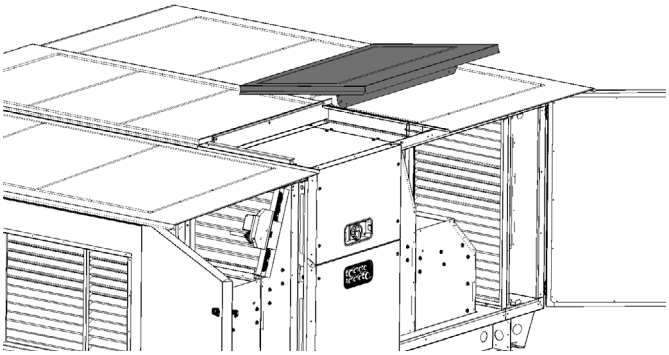
Open the doors



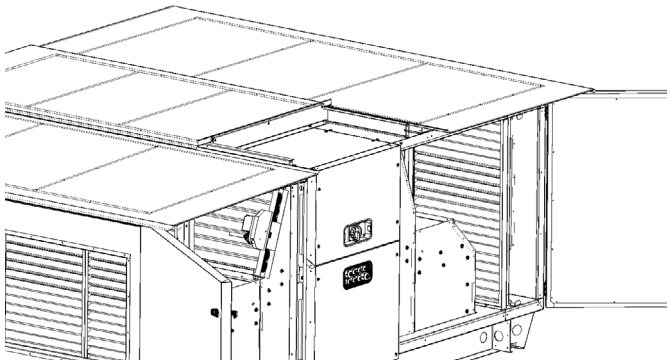
Remove the 2 screws from the outdoor panel.



Then slide and incline it to remove it.



Remove the panel.



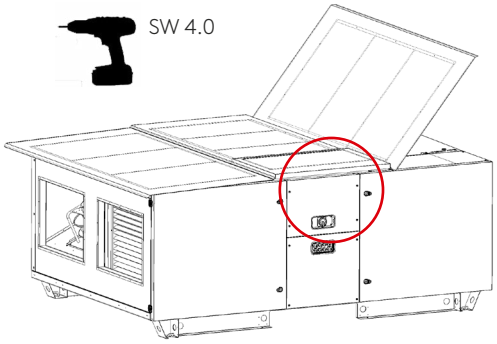
Get access to the control section.

Scan the QR code to open the installation video

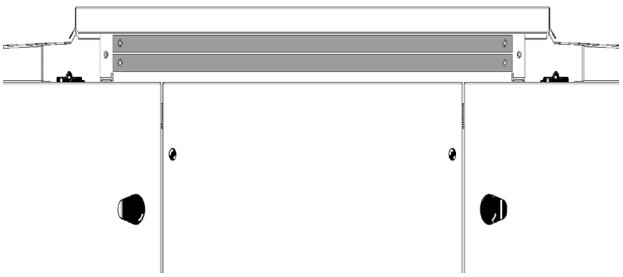
3.4 Safety panel hold bar - Outdoor version (ESENSA PX Flex 20)

When the ESENSA PX Flex 20 unit is equipped with a roof, there is a system for blocking the large doors for safety reasons (to prevent accidents and damage). It ' s composed by 2 support bars for the 2 large doors.

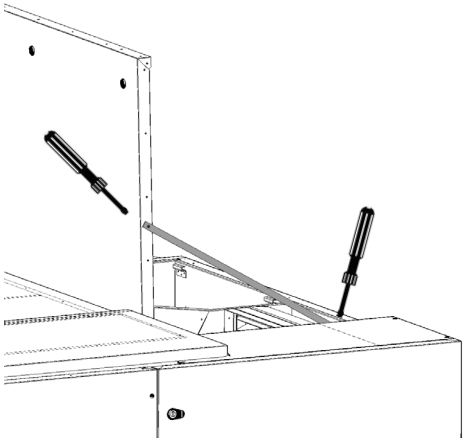
It is highly recommended to open the doors only when the weather permits it (not in high winds).



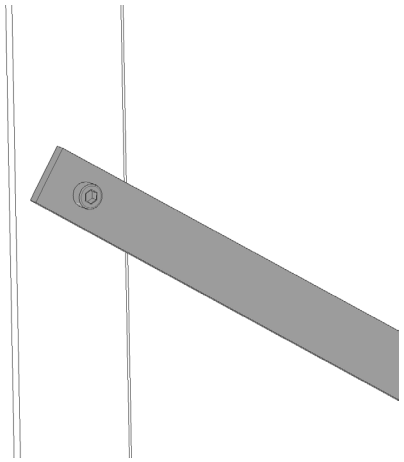
The support bars are screwed just under the roof, nearby the control panel.



Unscrew the support bar(s).



Attach 1 support bar on each large door.



Always check that the bar is holding the door correctly.

When the doors need to be opened, it is compulsory to use this locking system (even during a simple check or inspection)for safety reasons and to assure the warranty.

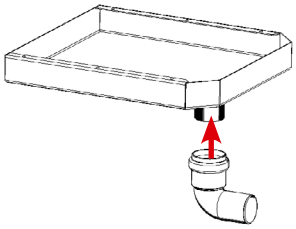
Scan the QR code to open the installation video

3.5 Hydraulic installation

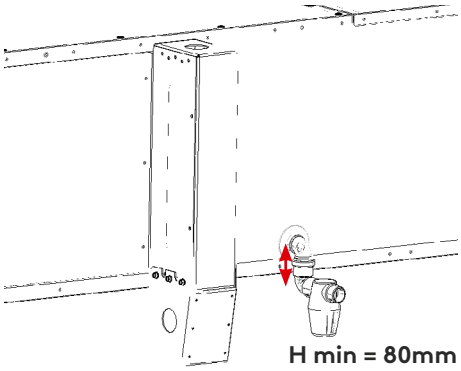
Condensation water drainage for indoor installation.

1. Fit the elbow pipe with the seal to the drain pan tank at the back of the unit.
2. Fit the siphon to the pipe (add elbow or pipe if necessary)

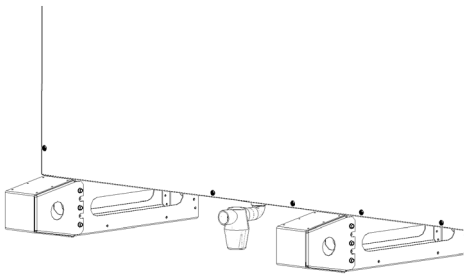
For outdoor installation, use the provided waterless membrane trap instead of the siphon.



Horizontal installation



Vertical installation



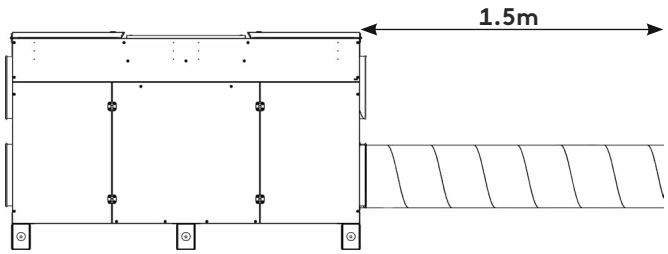
3.6 Temperature sensor T5

Remark : The standard accessories are inside the delivered device with dedicated instructions.

The temparature sensor is not factory installed and it is mandatory to install it inside the supply air duct.

The sensor must be positioned at a spot that is at least 1.5 metres from the air handling unit.

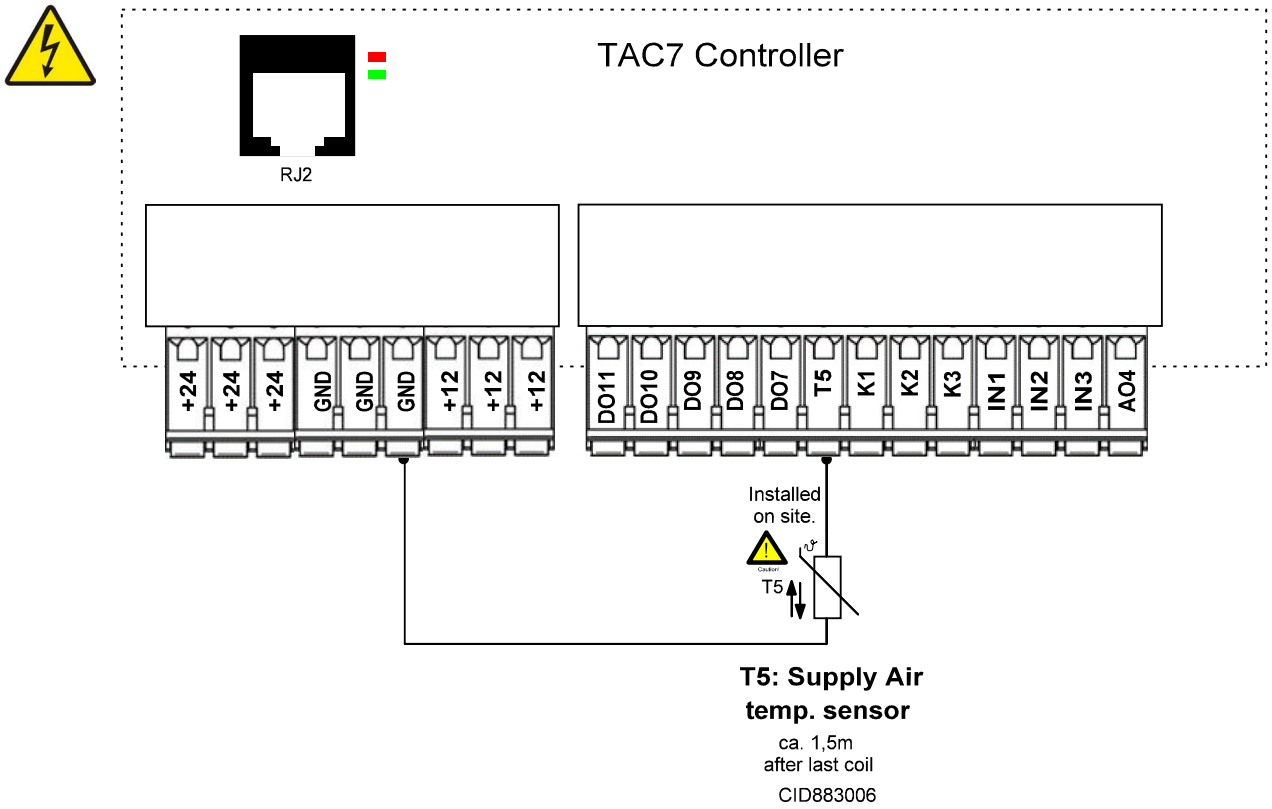
If an air cooler/heater is mounted in the duct, then the temperature sensor must be installed after the cooler/heater (following the air flow direction). Always positoned 1.5 meters from the unit or last coil.



VERTICAL RIGHT VERSION

1. Measure and mark where the sensor has to be placed.
2. Drill an 11 mm diameter hole in the supply air duct.
3. Using the sensor kit : insert the sensor in the sealing bracket.
4. Apply the sealing bracket on the external side of the duct. The sensor must be inserted in the drilled hole.
5. Secure the bracket to the duct (2 screws not provided)
6. Connect the sensor's connector to the specific sockets on the control circuit board of the air handling unit.

Sensor electrical connection



4. Unit power supply and start-up

All electrical work must be carried out by a qualified electrician. Make sure that the unit is disconnected from any power supply before performing any electrical work.

If the unit is equipped with an electric coil (pre-heating and/or post-heating), the installer is responsible for fitting an appropriately sized electrical protection device.

Before powering down the unit via the main switch, first switch off the fans using the control so that the post-ventilation electric coils can cool down and can prevent overheating of the internal components, which could damage the correct operation of the control unit.

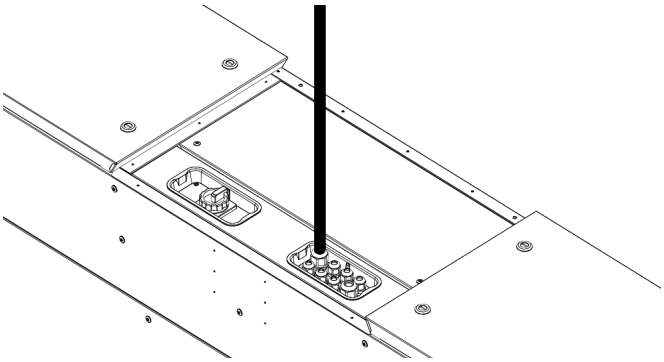
Model size	Unit without accessories [V] | [A]		Electrical coil [V] | [A]/[kW]	
05	1 x 230V	4,9 A	1 x 230V	18,0 A/4,5 kW
10	1 x 230V	6,9 A	3 x 400V	13,0 A/9 kW
13	3 x 400V + N	4,0 A	3 x 400V	18,0 A/12 kW
20	3 x 400V + N	6,0 A	3 x 400V	26,0 A/18 kW

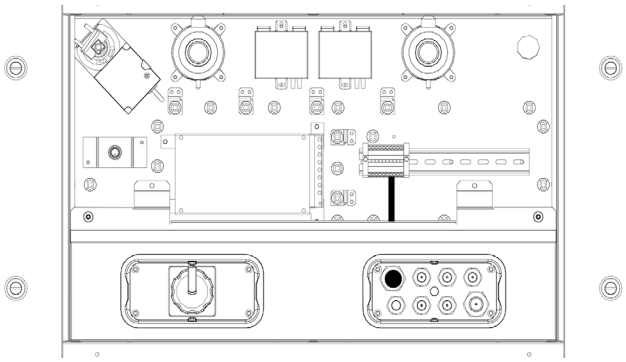
5. Main switch

The general power supply to the unit is located in the electrical cabinet.

Open the electrical cabinet panel, pass the cable through a cable gland and connect the wires according to the wiring diagrams below (single-phase and three-phase).

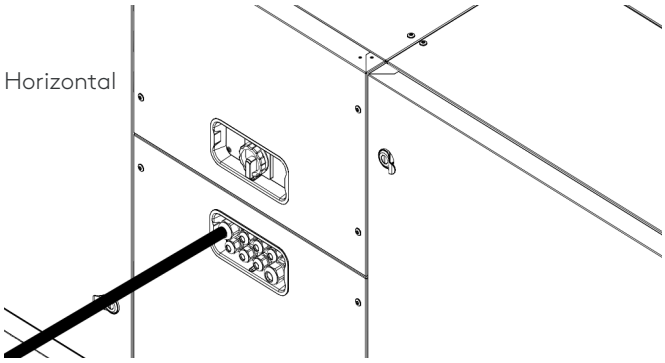
ESENSA PX Flex 05- 10 -13

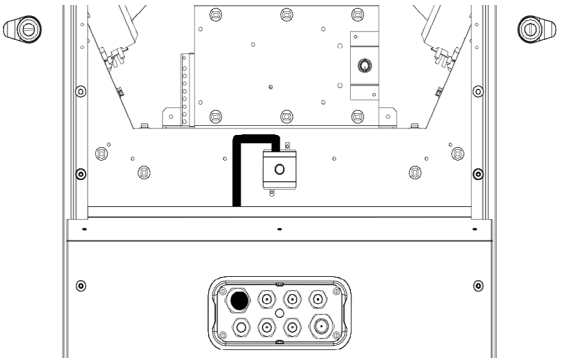




ESENSA PX Flex 20

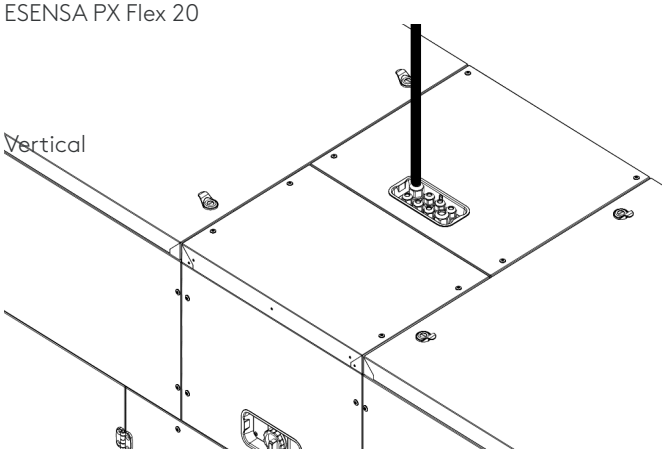
Horizontal

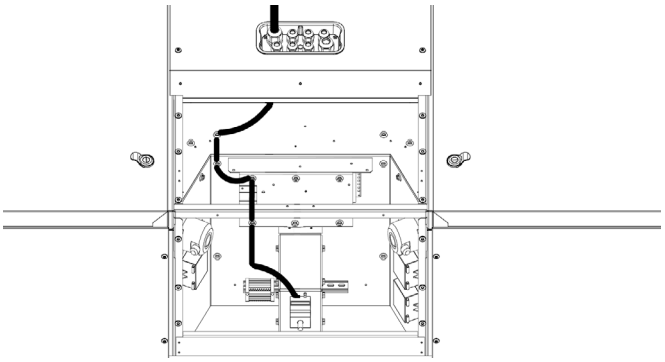




ESENSA PX Flex 20

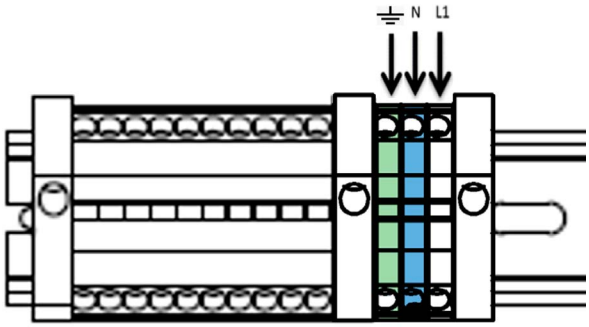
Vertical





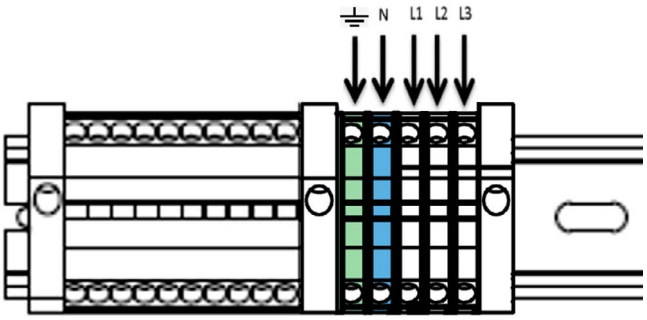
CAUTION: ensure that no cables obstruct the opening of the access panels and that no cables are attached to them. For the outdoor version, we recommend routing the cables under the unit.

Terminal block connection ESENSA PX Flex 05 & 10



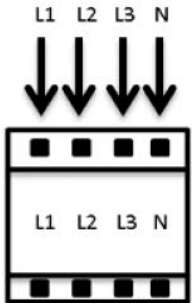
1 x 230V + N

Terminal block connection ESENSA PX Flex 13



3 x 400V + N

Proximity switch connection ESENSA PX Flex 20



3 x 400V + N

To start the machine, switch between ON and OFF modes.

6. Operation and commissionning manuals

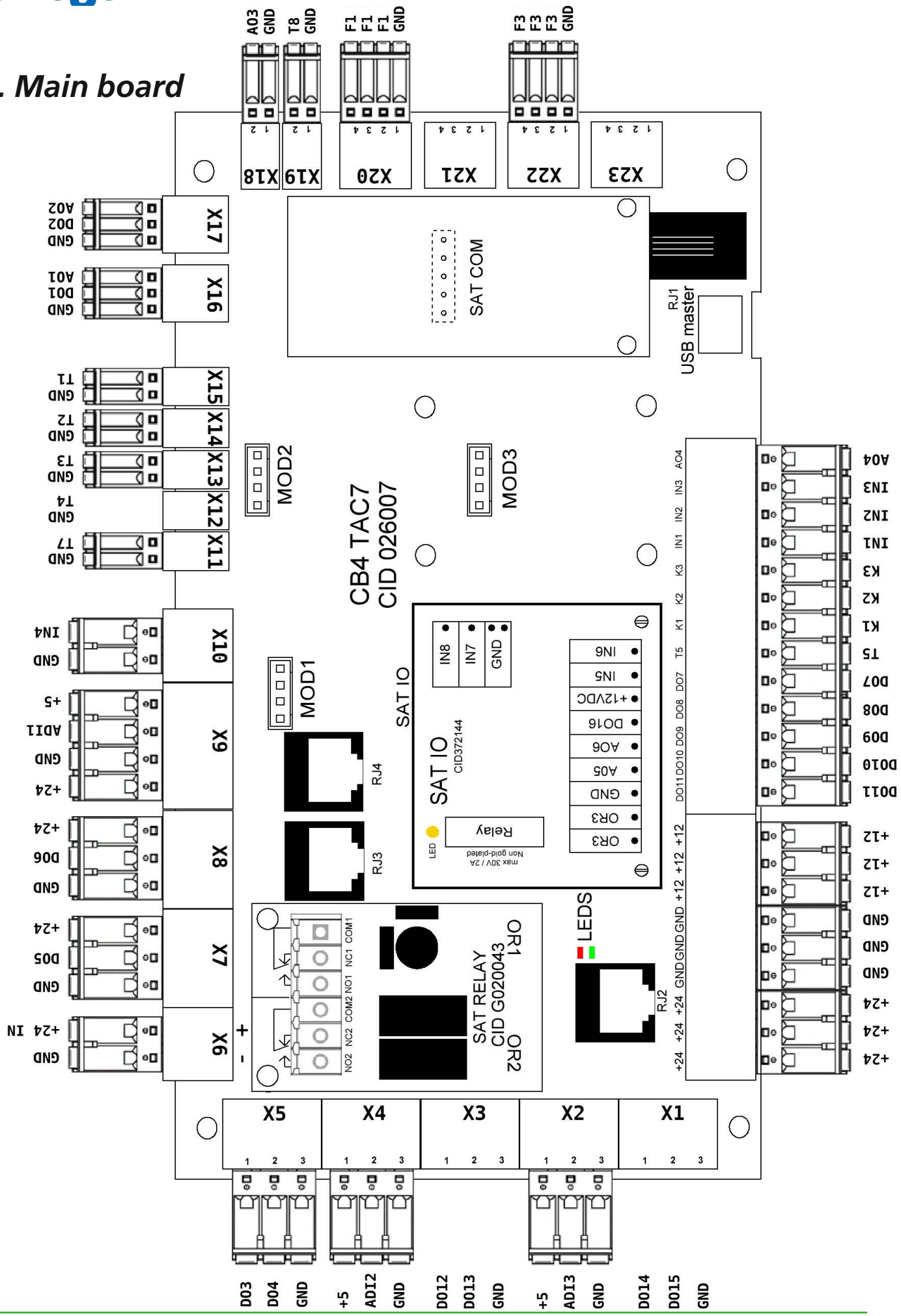
Description	QR code	Link	Description	QR code	Link
Function manual		Click here to open the link	Operation and maintenance manual		Click here to open the link
Alarms manual		Click here to open the link			

7. Options and accesories installation manuals

QR code	Link	Description
	Click here	Integrated preheating coil (electrical)
	Click here	Integrated postheating coil (electrical)
	Click here	Circular damper
	Click here	Rectangular damper
	Click here	Defrost kit
	Click here	Flexible sleeve/IRS adaptor
	Click here	BACnet gateway Modbus/BACnet
	Click here	COM4 external switch 4 positions
	Click here	HMI TACtouch touchscreen
	Click here	Kit 5 Output relays

QR code	Link	Description
	Click here	Kit Non-isolated external watercoil Control
	Click here	SAT I/O Satellite Input/ Output
	Click here	SAT TAC MODBUS Communication Satellite Modbus RTU
	Click here	SAT WIFI/ETHERNET Communication Satellite Modbus (TCP/IP)
	Click here	Wall-mounting air quality sensor
	Click here	Duct air quality sensor
	Click here	Duct humidity sensor
	Click here	Pressure switch
	Click here	Modbus Duct pressure sensor
	Click here	Room temperature sensor
	Click here	0-10V Duct pressure sensor

8. Main board


A03 GND
T8 GND
F1 F1 F1 GND
F3 F3 F3 GND
X18
X19
X20
X21
X22
X23
X17
X16
X15
X14
X13
X12
X11
X10
X9
X8
X7
X6
SAT COM
RJ1
USB master
MOD2
MOD3
MOD1
CB4 TAC7
CID 026007
SAT IO
CID372144
RJ4
RJ3
Relay
LED
SAT RELAY
CID G020043
OR1
OR2
LEDS
RJ2
X5
X4
X3
X2
X1
D03 D04 GND
+5 ADI2 GND
D012 D013 GND
+5 ADI3 GND
D014 D015 GND

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

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

The document was originally written in English.

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