

Nexa Eco R Top

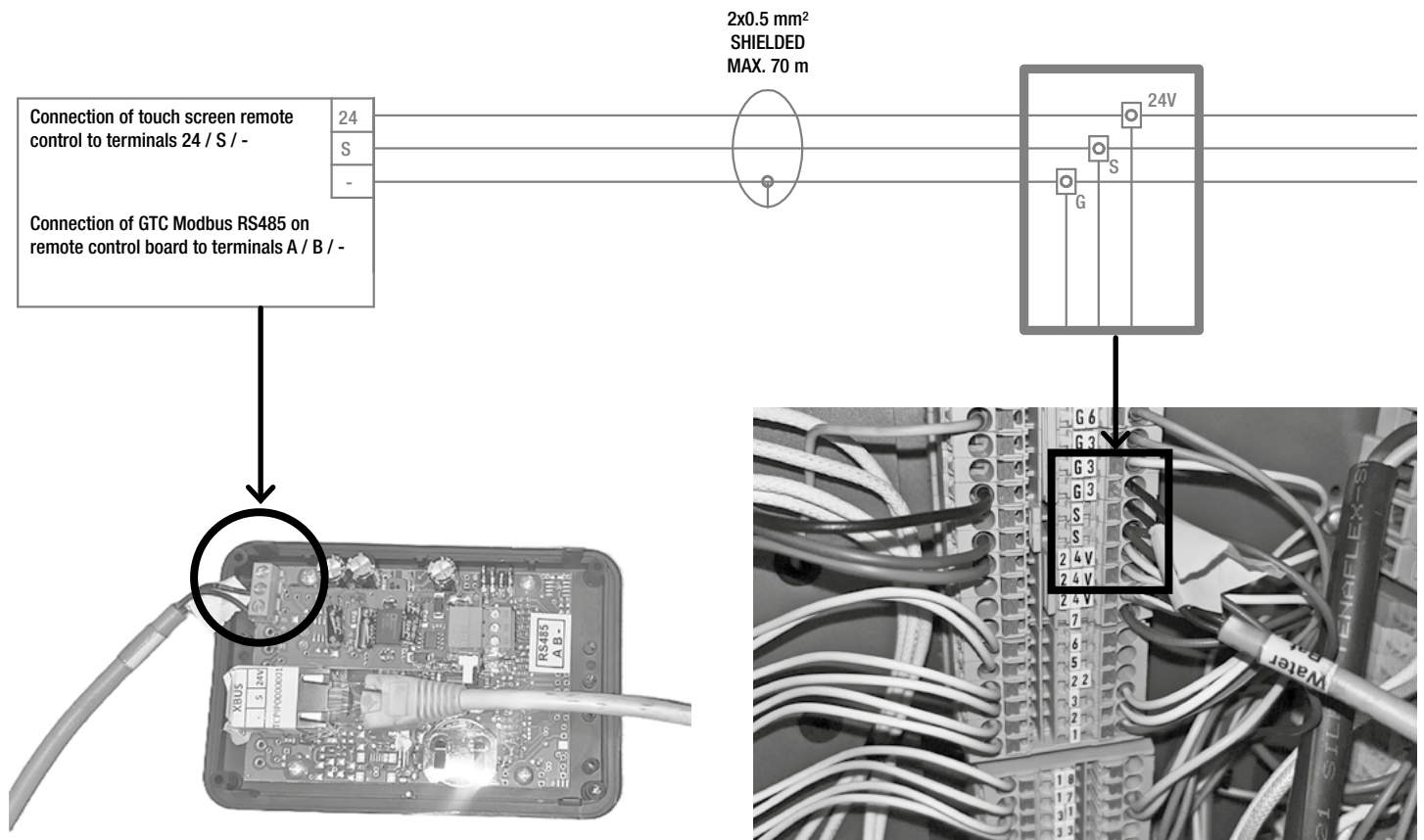
Air handling unit

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1. HMI - REMOTE CONTROL

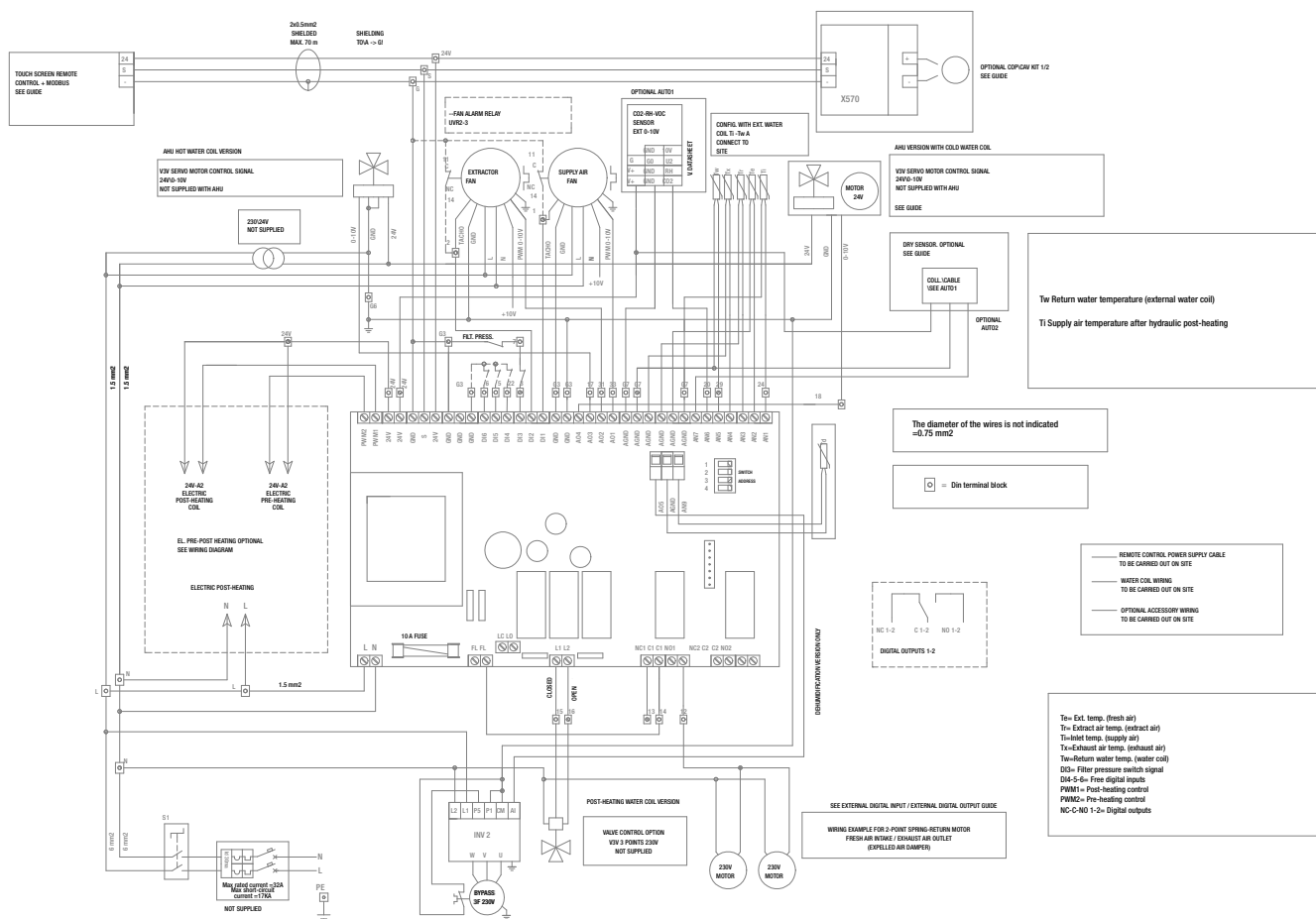
The NEXA ECO R TOP unit is systematically supplied with its own wired touch screen HMI. Cable of the shielded 3x0.5 mm² type, maximum connection length 70 m - not supplied

1.1. HMI connection to PLC board

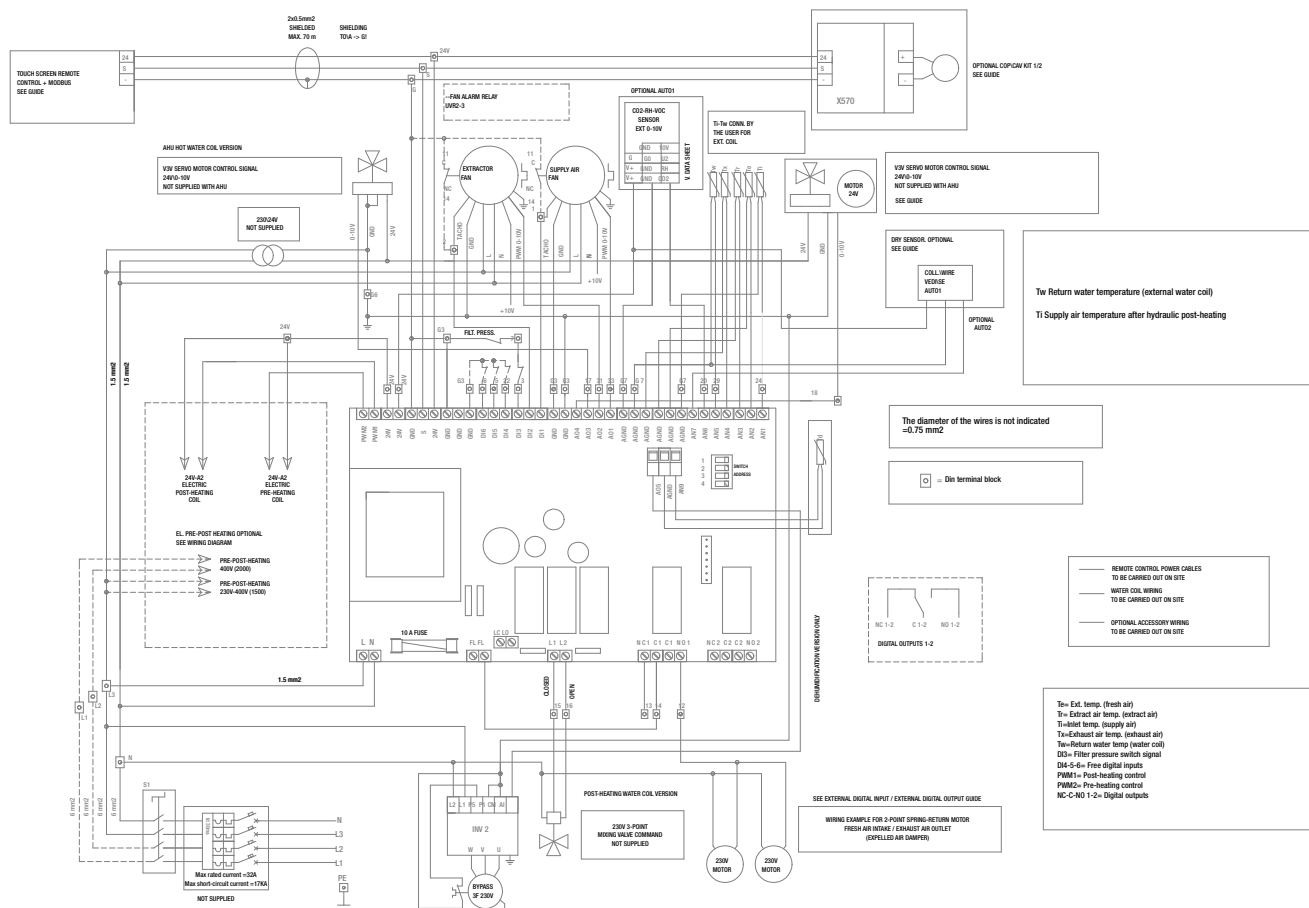


1.2. PLC board inputs / outputs

Electrical diagram for Nexa ECO R TOP 400 / 700 / 1000

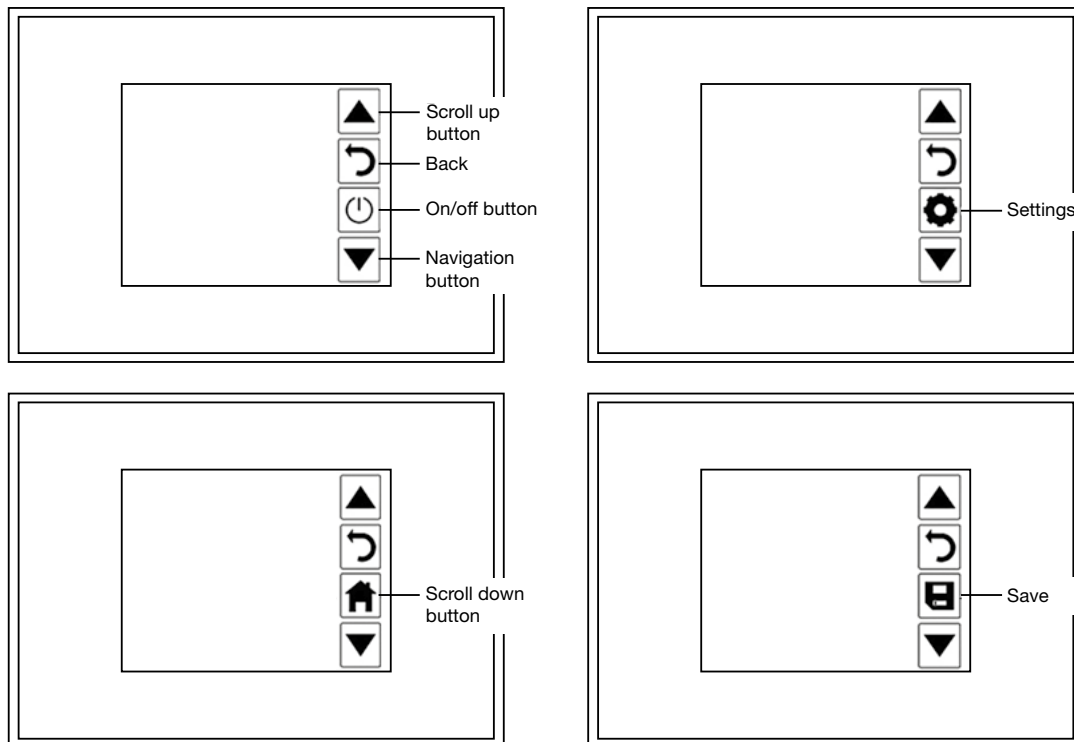
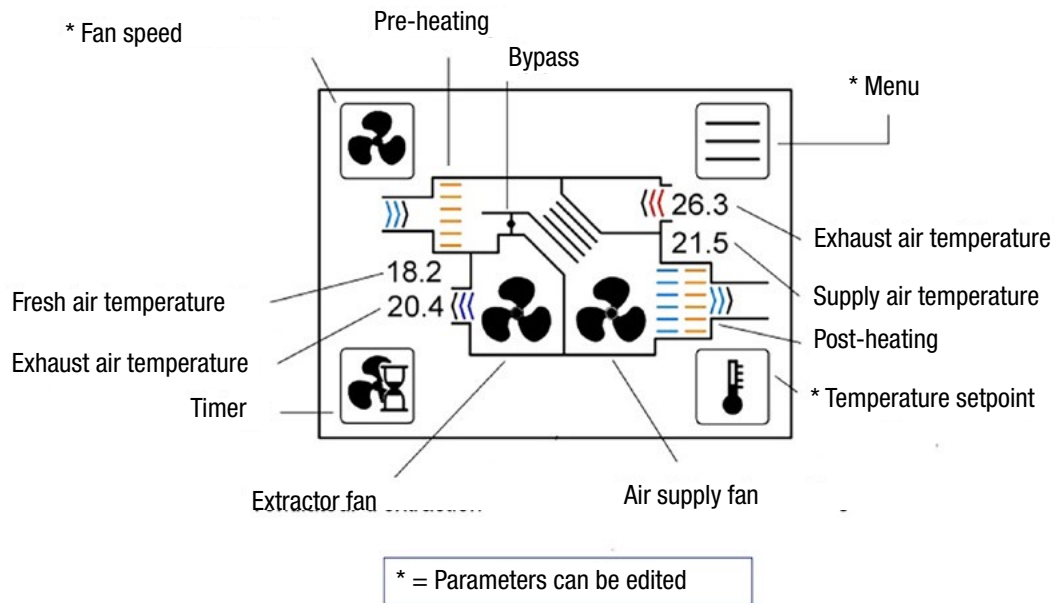


Electrical diagram for NEXA ECO R TOP 1500/2000



2. NAVIGATION FLOWCHART / TREE IN THE DIFFERENT HMI MENUS

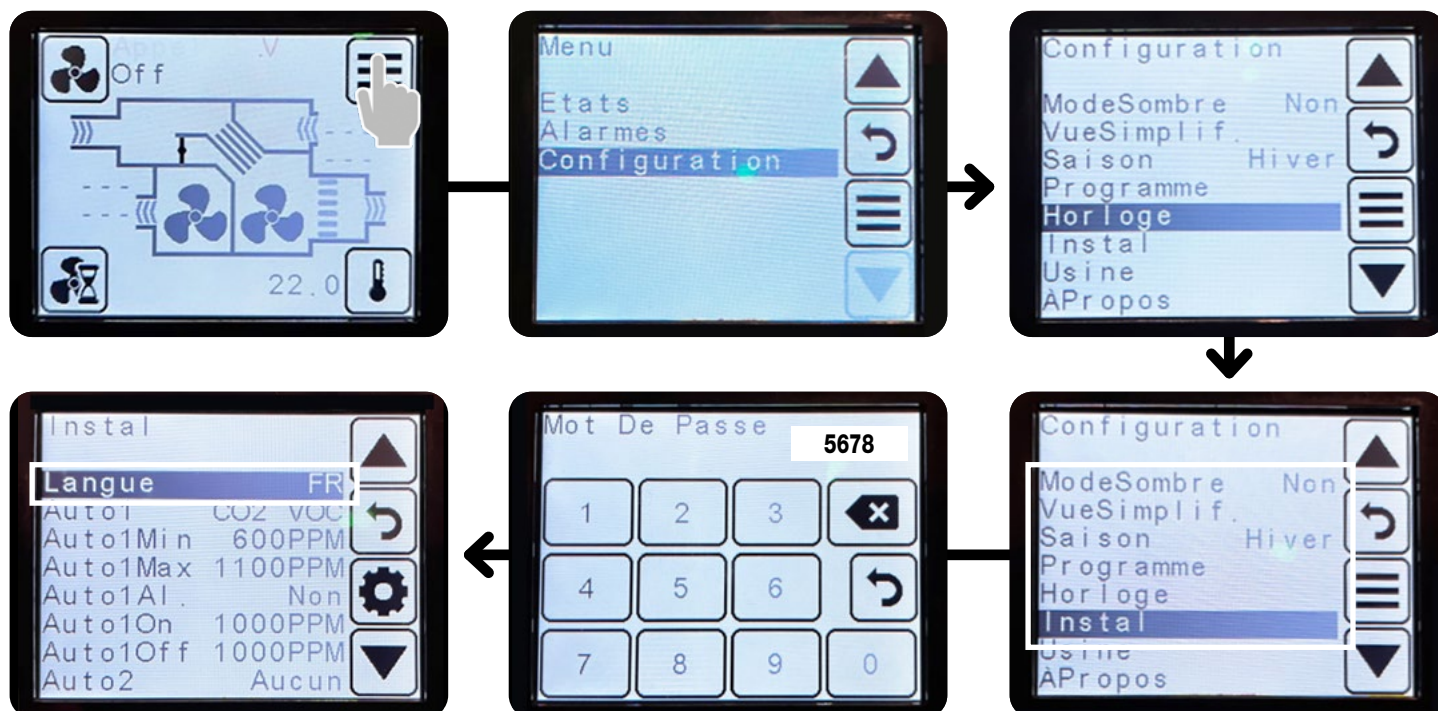
2.1. Remote control icons



2.2. How to set the date and time?



2.3. How to change the language?



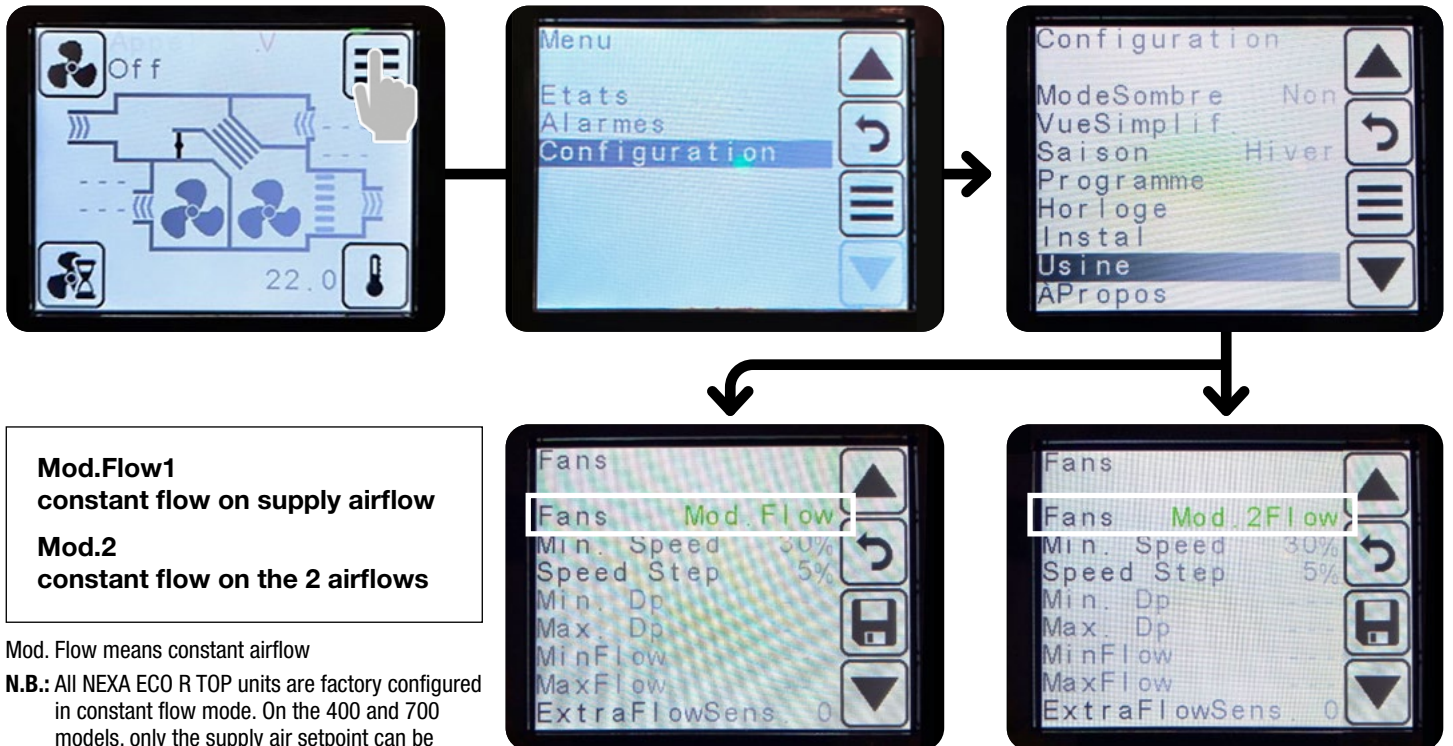
N.B.: Nexa ECO R TOP units are factory configured in French and with the flow unit configured in m³/h.

2.4. How to set the flow / pressure measurement units?

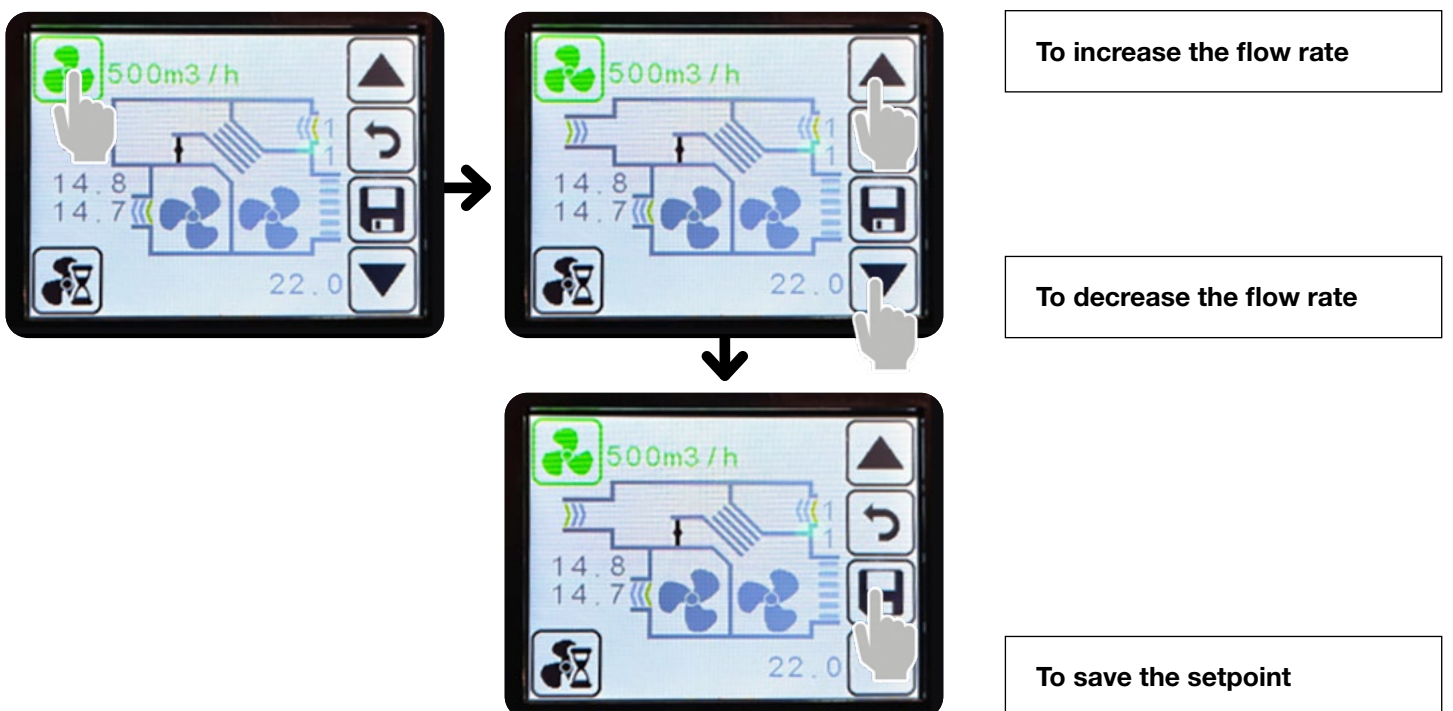


3. FLOW

3.1. How to set the constant air volume (CAV) mode?



3.2. How to set the constant air volume setpoint?



For the return flow, a percentage of the supply air setpoint is entered.

3.3. How to read the constant air volume?

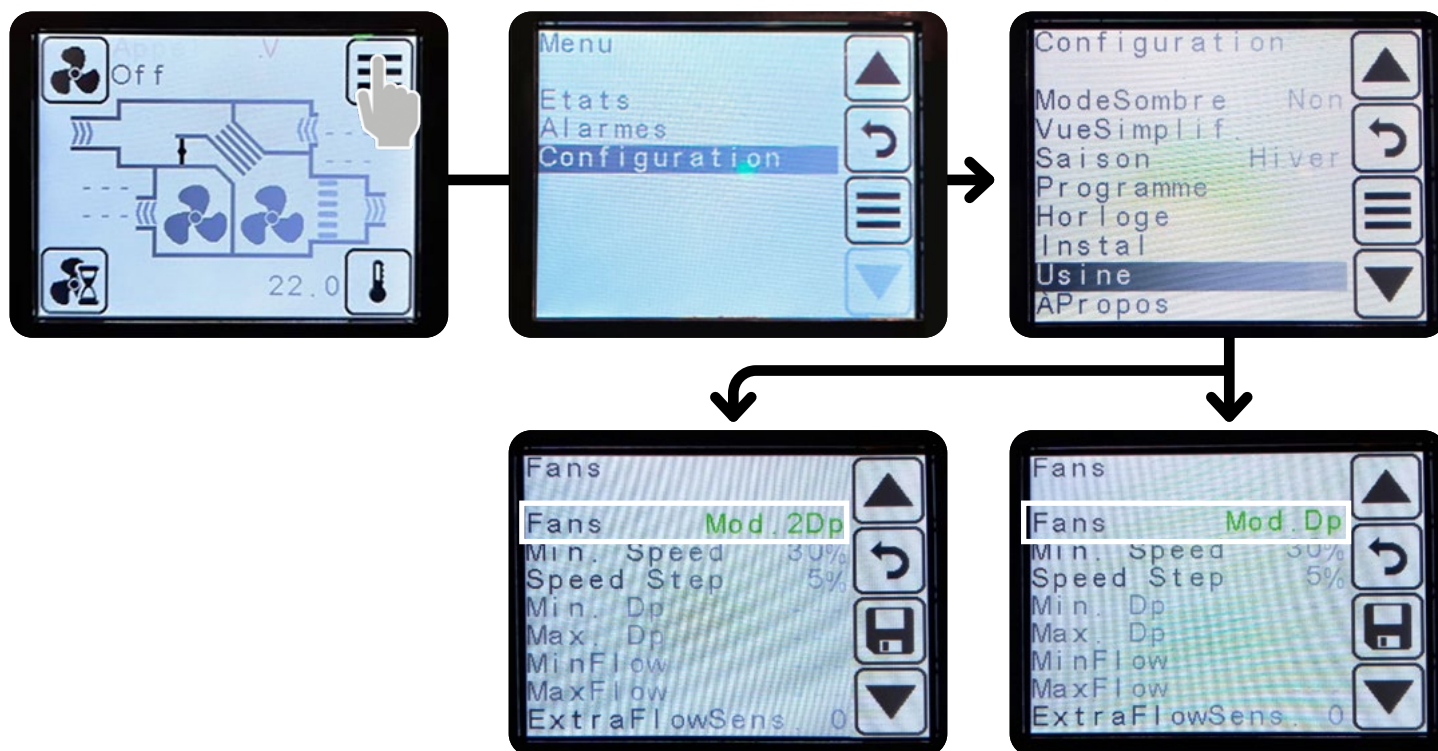


3.4. How to set the variable air volume (VAV) mode?

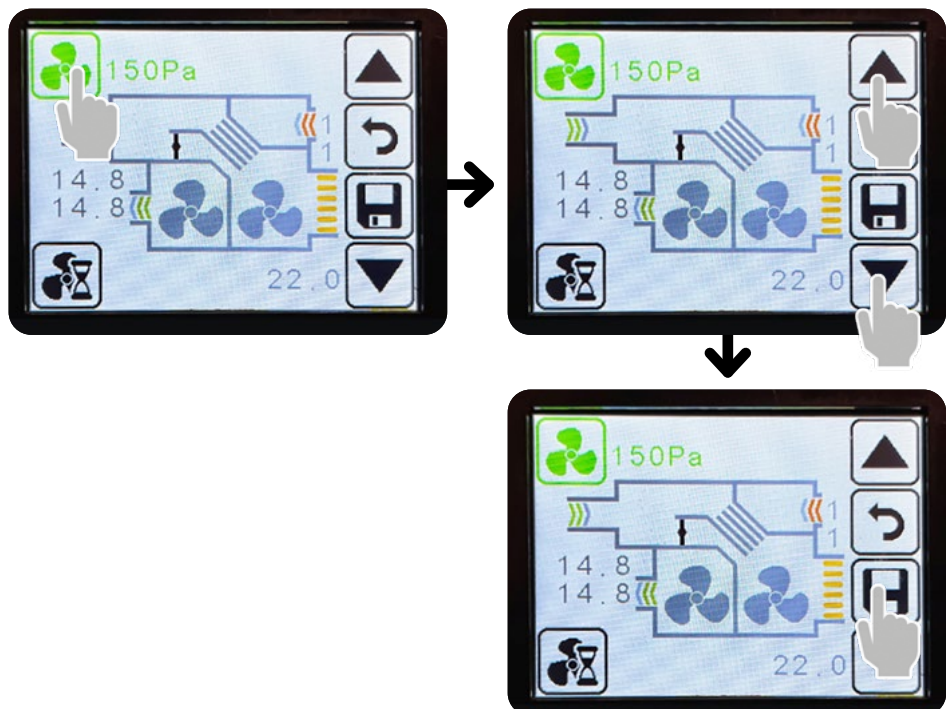
- It is possible to operate the NEXA ECO R TOP at constant pressure in single-flow or dual-flow configuration*
- Mod. Dp = constant pressure on the supply air side, which is greater than that on the extract air side, is a copy of the supply air pressure
- Requires a pressure sensor-type accessory to be mounted in a duct on-site (item code 11061455)
- Mod. 2Dp = constant pressure on supply & extract air side
- Requires 2 pressure sensor-type accessories to be mounted in a duct on-site (item code 11061455)

* On the 400 and 700 models, only the supply air setpoint can be adjusted (the extract air is slaved); on the other 1000, 1500 and 2000 models, the 2 supply and extract air setpoints are adjustable.

For the return flow, a percentage of the supply air setpoint is entered.



3.5. How to set the variable air volume setpoint?



To increase the pressure

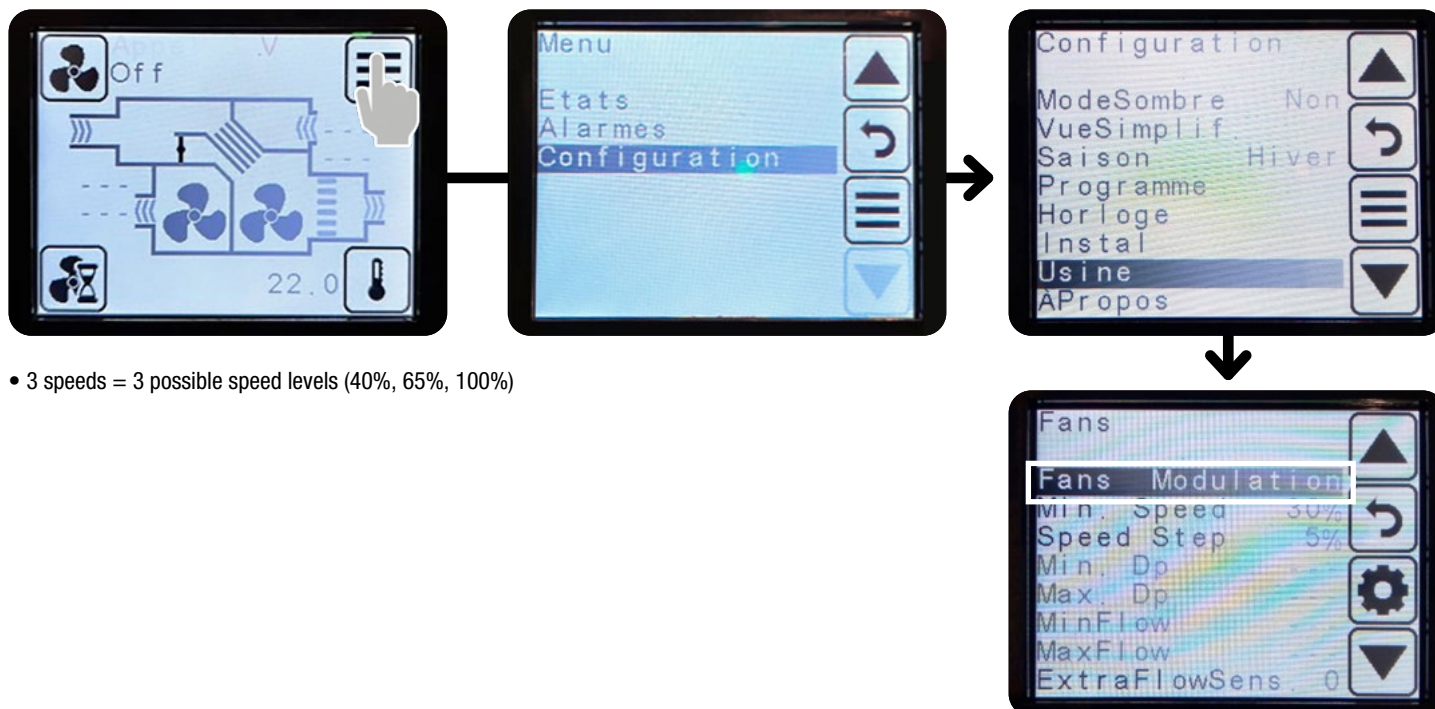
To decrease the pressure

To save the setpoint

3.6. How to read the variable air volume value?

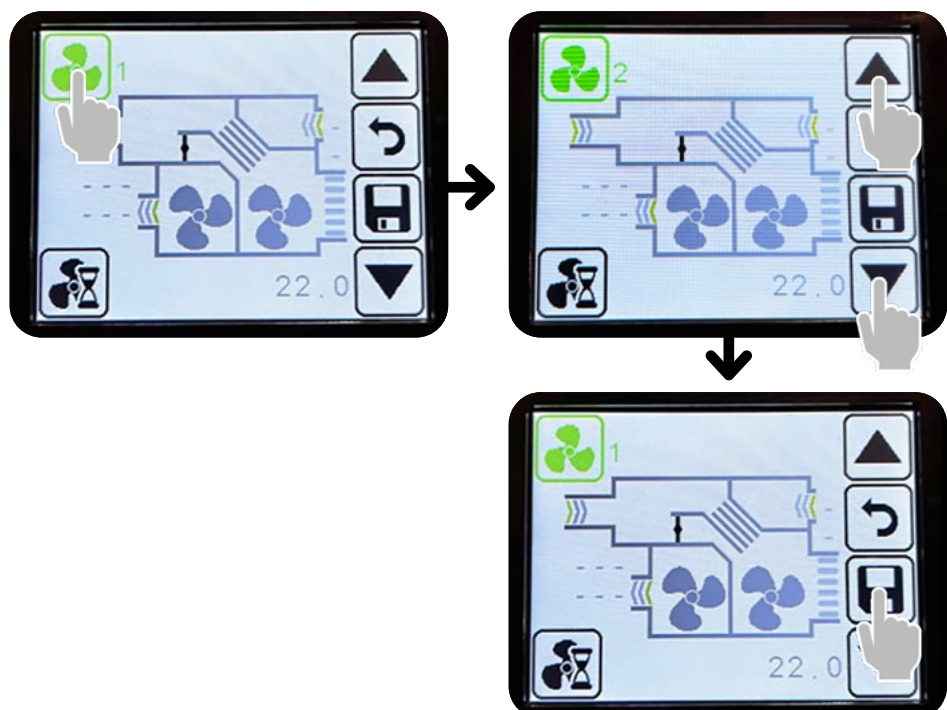


3.7. How to set the constant speed (CS) mode?



• 3 speeds = 3 possible speed levels (40%, 65%, 100%)

3.8. How to set the constant speed setpoint?



The diagram illustrates the process of setting a constant speed setpoint through three sequential screen views:

- Initial Screen:** Shows a fan icon labeled '1' and a temperature of 22.0. A hand icon points to the fan icon.
- Adjustment Screen:** Shows the fan icon labeled '2' and a temperature of 22.0. A hand icon points to the up arrow button.
- Save Screen:** Shows the fan icon labeled '1' and a temperature of 22.0. A hand icon points to the save icon button.

Instructions for each step:

- To change the speed + mode
- To change the speed - mode
- To save the setpoint

3.9. How to read the constant speed value?



The diagram illustrates the process of reading the constant speed value through three sequential screen views:

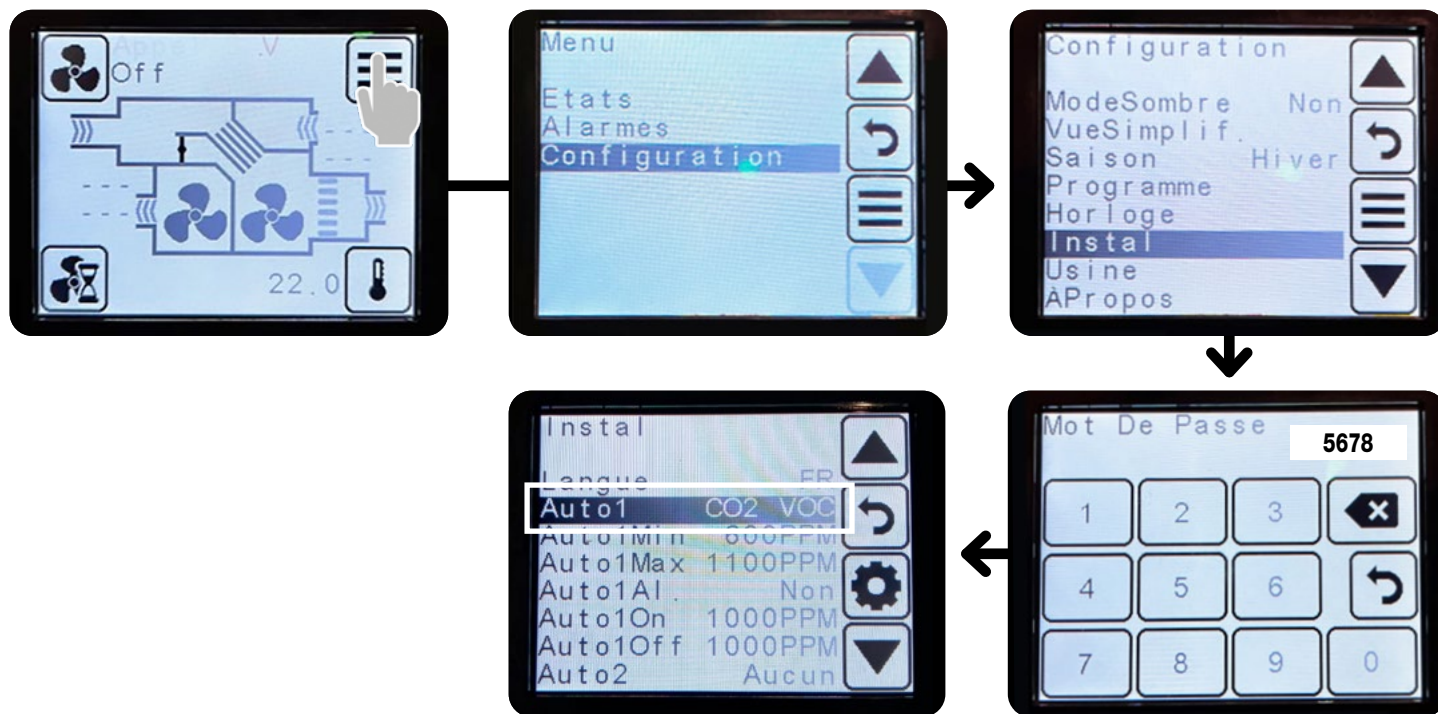
- Initial Screen:** Shows a fan icon labeled 'Off' and a temperature of 22.0. A hand icon points to the menu icon.
- Menu Screen:** Shows a menu with options: 'Etats', 'Alarmes', and 'Configuration'. A hand icon points to 'Etats'.
- Speed Screen:** Shows a list of parameters under 'Etats'. The 'Vitesse' parameter is highlighted with a value of 2. Other parameters include 'Chaudite/Kerr. On', 'Chauffe 22.0', 'Cha. Gratuit 23.0', 'Ref. Gratuit 25.0', 'Te(Externe) ---', 'Tr(Reprise) ---', and 'Tx(Rejet) ---'.

4. CO₂MODULATION

4.1. How to set the CO₂ flow modulation?

- Modulation = Variable flow rate
- Requires an external 0-10V wall-mounted or duct-housed CO₂ sensor, to be mounted on-site.

4.1.1. Declaration of the CO₂ sensor and change of PPM setpoint



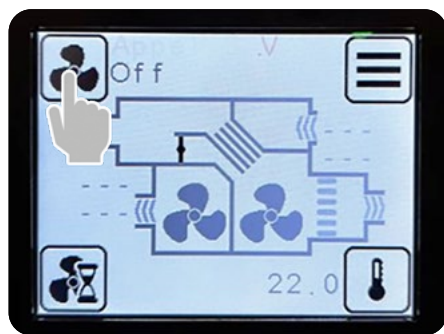
Below the AUTO1MIN threshold (here the setpoint is 600 PPM), the fan speed is at its minimum level.

Below the AUTO1MAX threshold (here the setpoint is 1100 PPM), the fan speed is at its maximum level.

Between the 2 MIN and MAX thresholds, there is modulation.

4.1.2. Switching to CO₂flow modulation mode

To set the flow control mode on the CO₂sensor, click on the fan icon on the main screen in the top left and switch to the AUTO position

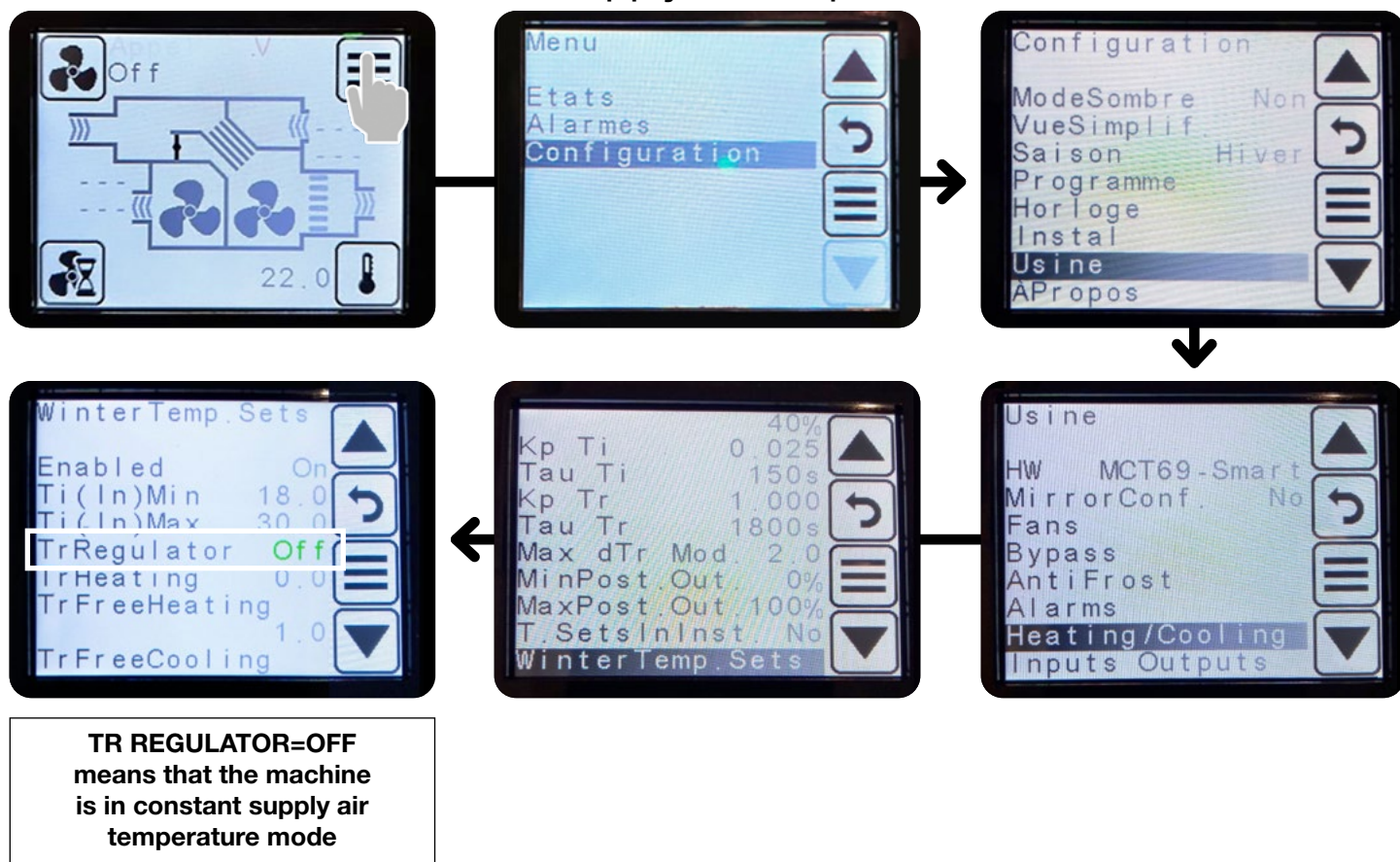


4.2. How to read the PPM value?

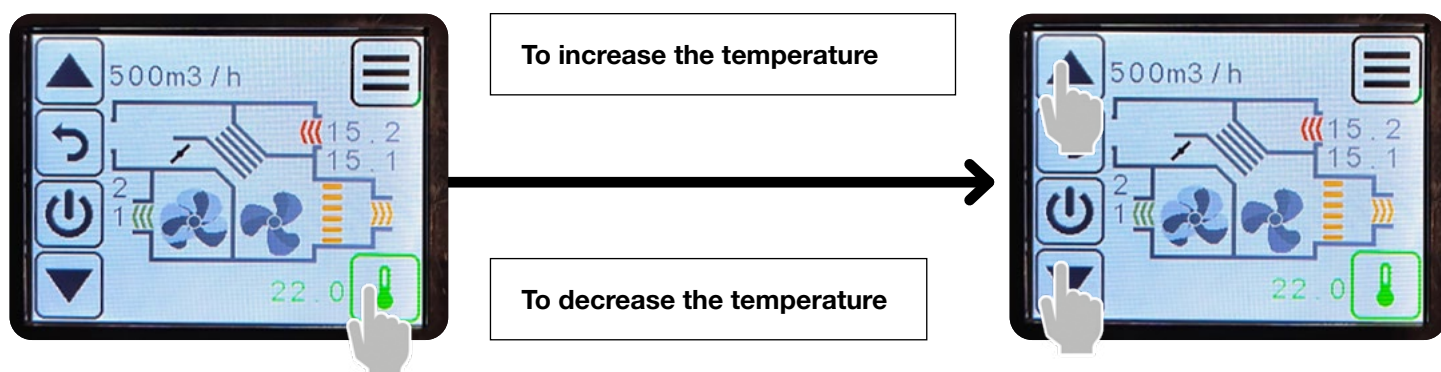


5. TEMPERATURE

5.1. How to set the constant supply air temperature control mode?



5.2. How to set the constant supply air temperature setpoint?

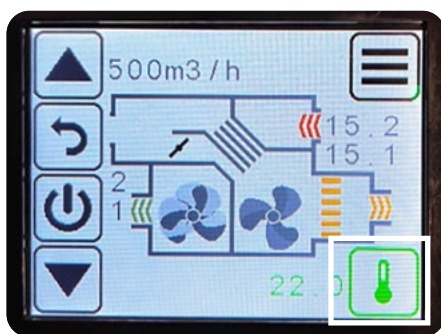


5.3. How to read the constant supply air temperature value?

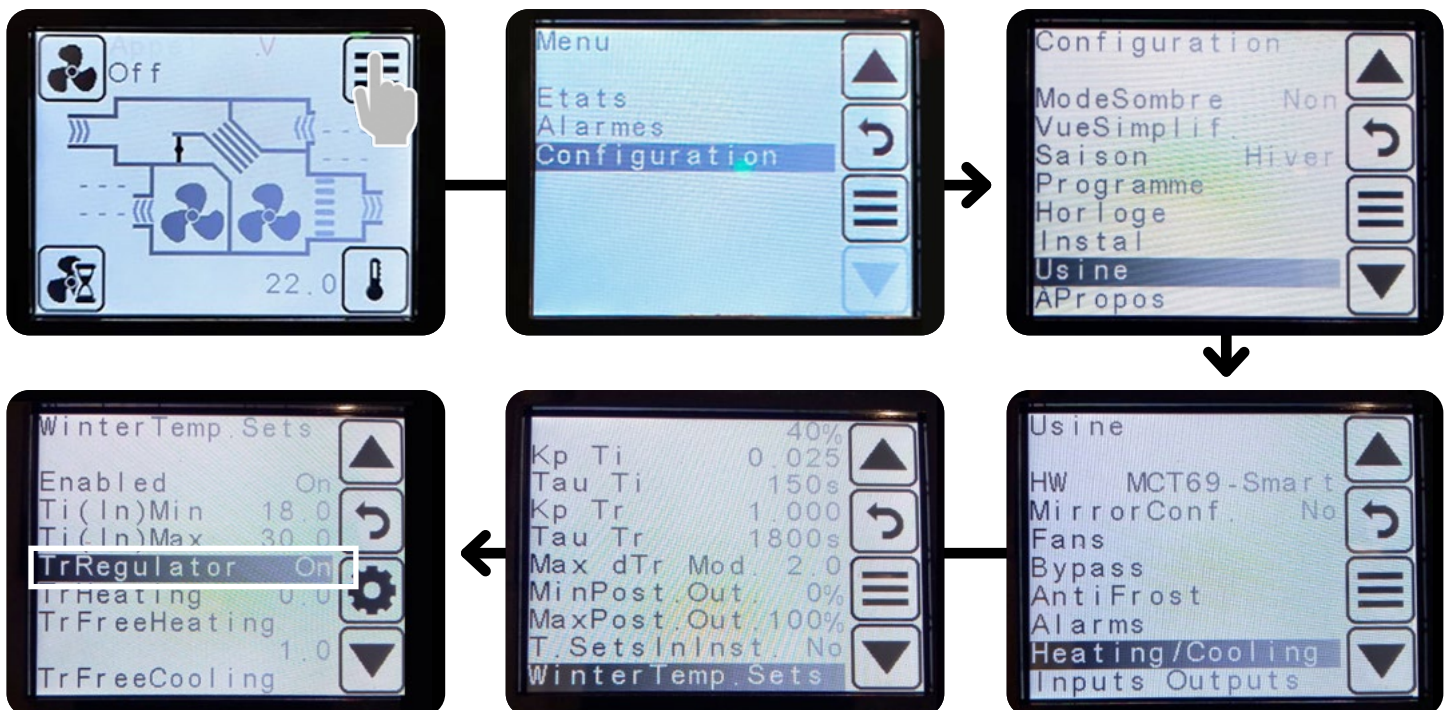
N.B.: all NEXA ECO R TOP units are factory configured in constant supply air temperature control mode



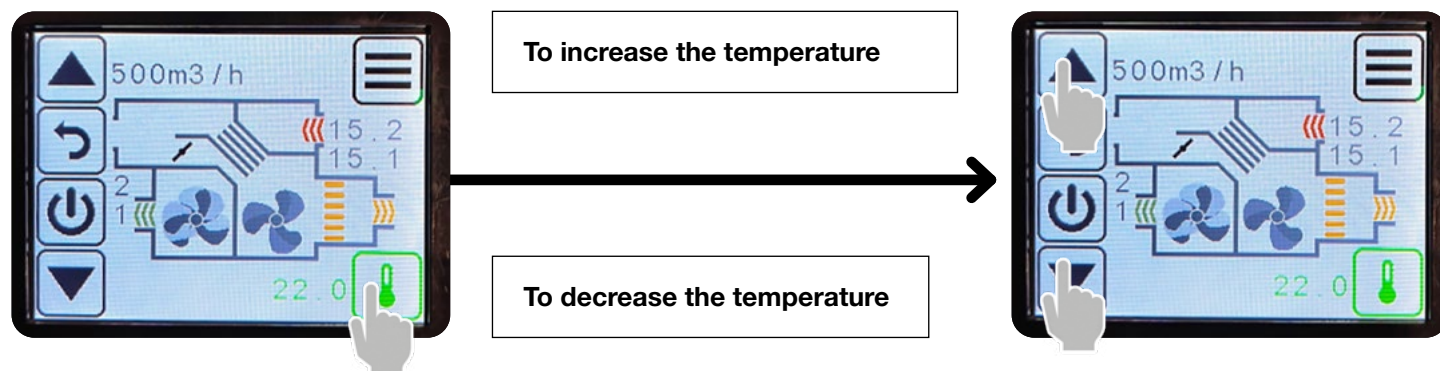
or



5.4. How to set the constant extract air temperature control mode?



5.5. How to set the constant extract air temperature setpoint?



5.6. How to read the extract air temperature value?



6. COIL

6.1. How to declare a water changeover coil?

N.B.: all NEXA ECO R TOP units that are factory fitted with a water changeover coil are already configured.

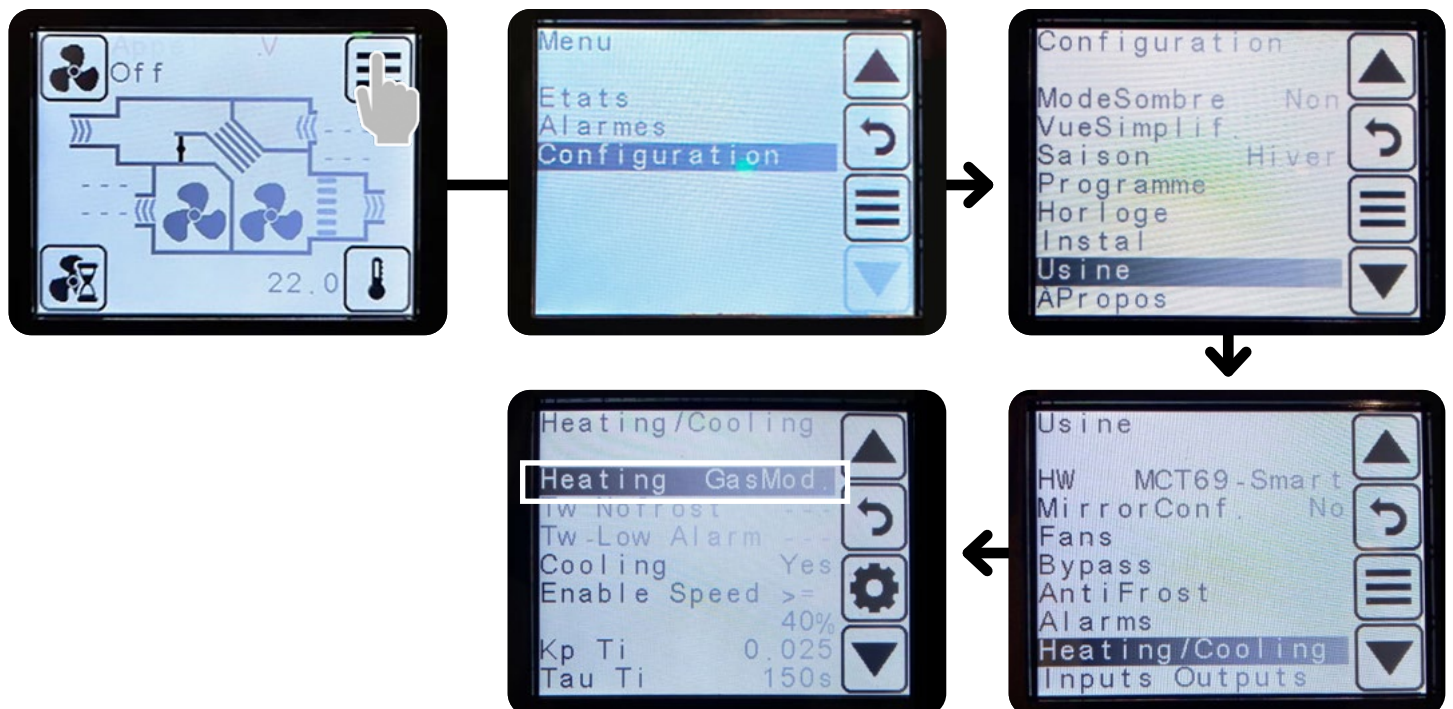
This procedure applies only to units that will be retrofitted with coils.



6.2. How to declare a direct regulation (DX) coil?

N.B.: all NEXA ECO R TOP units that are factory fitted with a reversible DX coil are already configured.

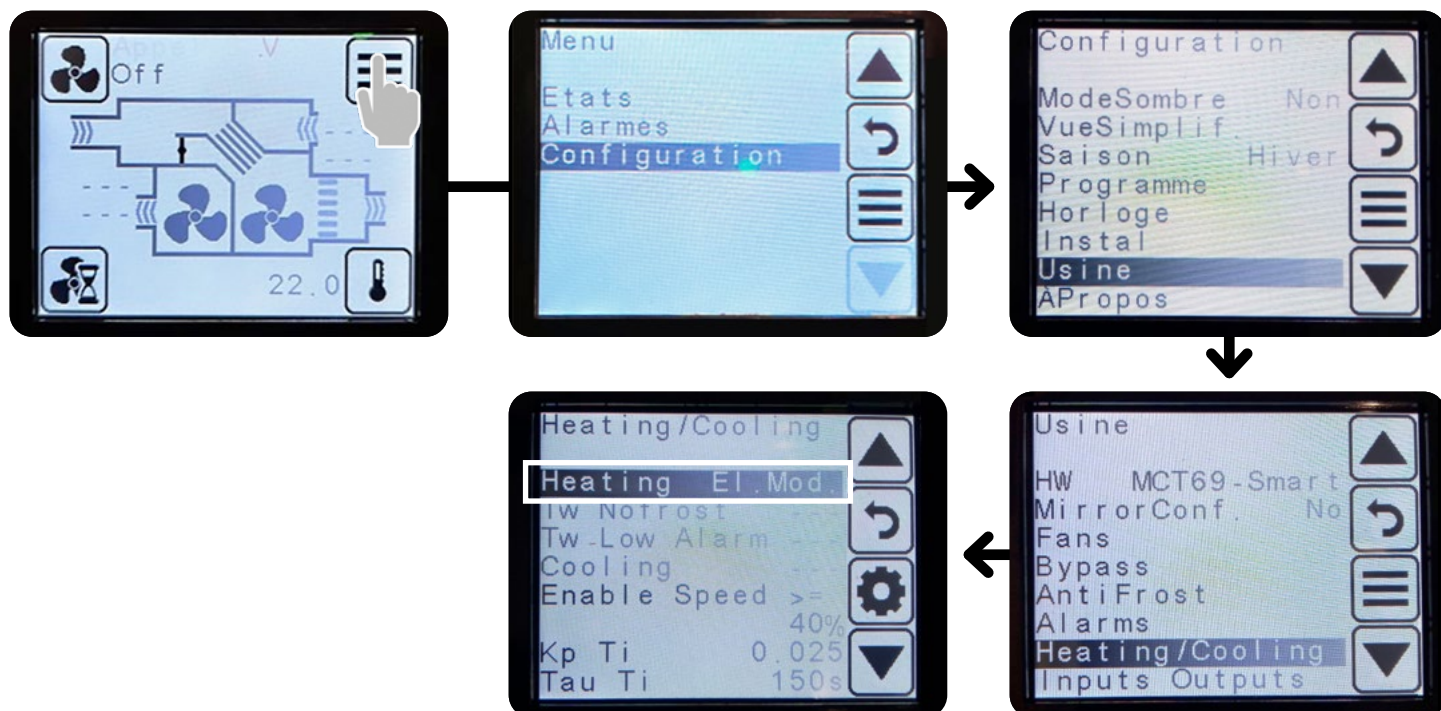
This procedure applies only to units that will be retrofitted with coils.



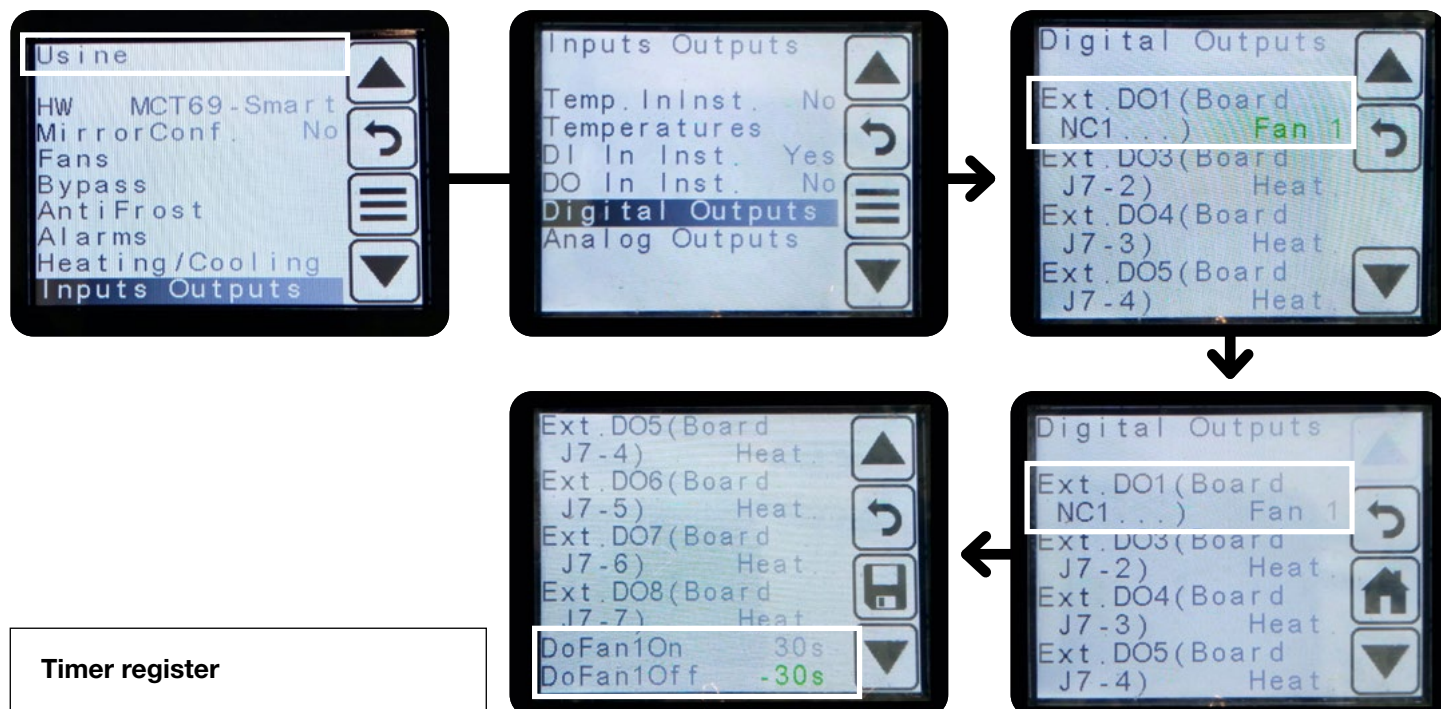
6.3. How to declare an electric post-heating coil?

N.B.: all NEXA ECO R TOP units that are factory equipped with an electric coil are already configured.

This procedure only applies to units that would require replacement

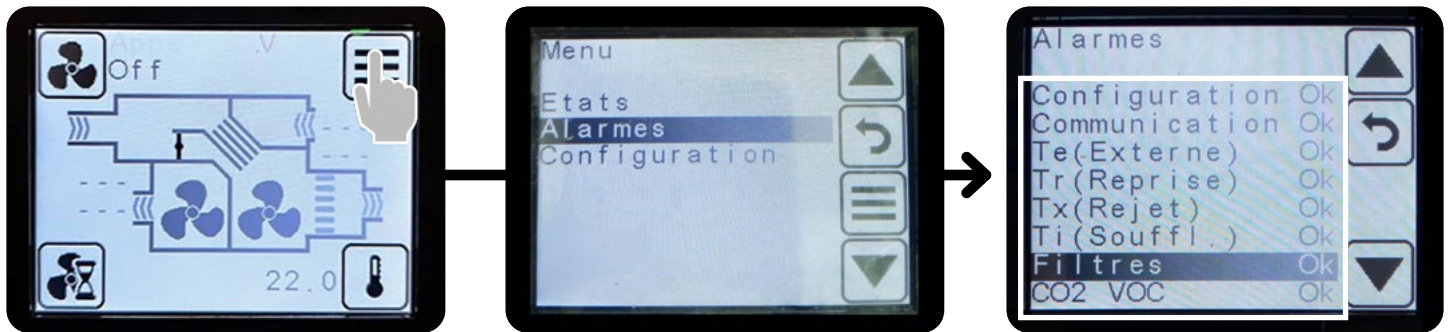


6.4. How to declare a fresh air damper (water coil frost protection function)?



7. ALARM

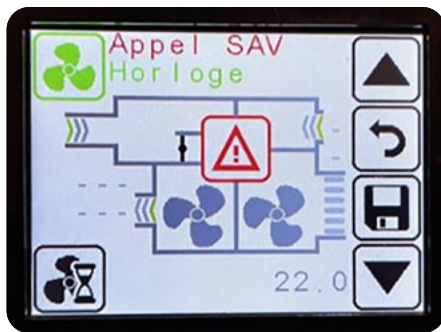
7.1. How to view active alarms?



7.2. How to cancel active alarms?

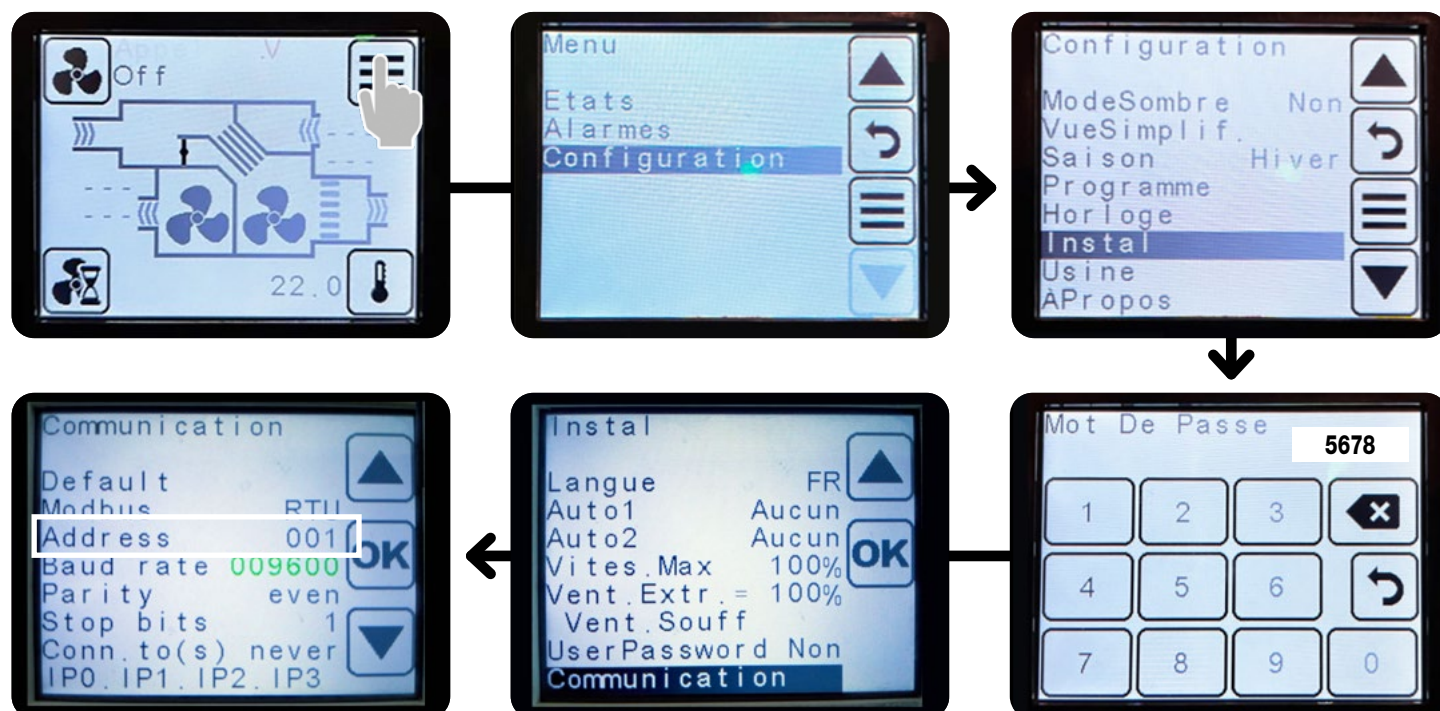
No manual reset, the alarm disappears once the fault is resolved.

Awaiting factory confirmation regarding the possibility of operating on a clock-controlled filter alarm

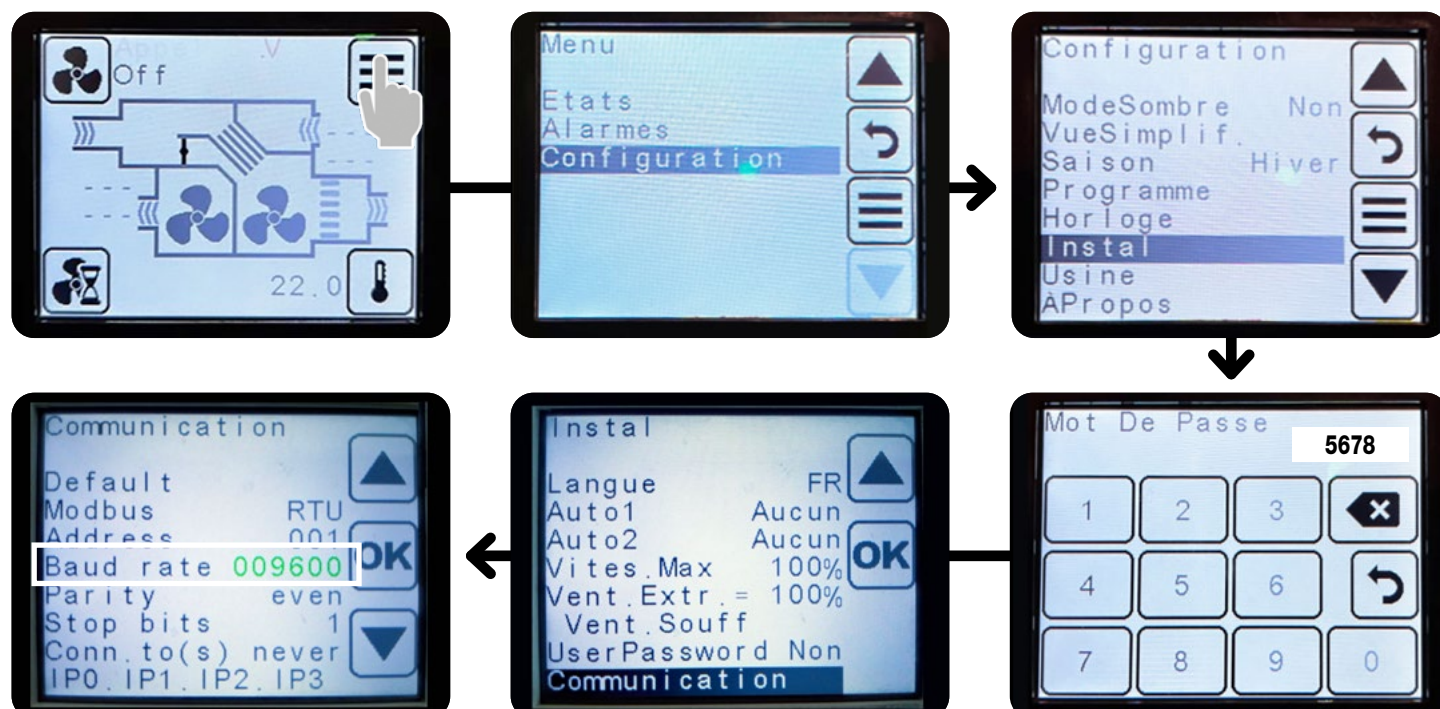


8. MODBUS CONFIGURATION

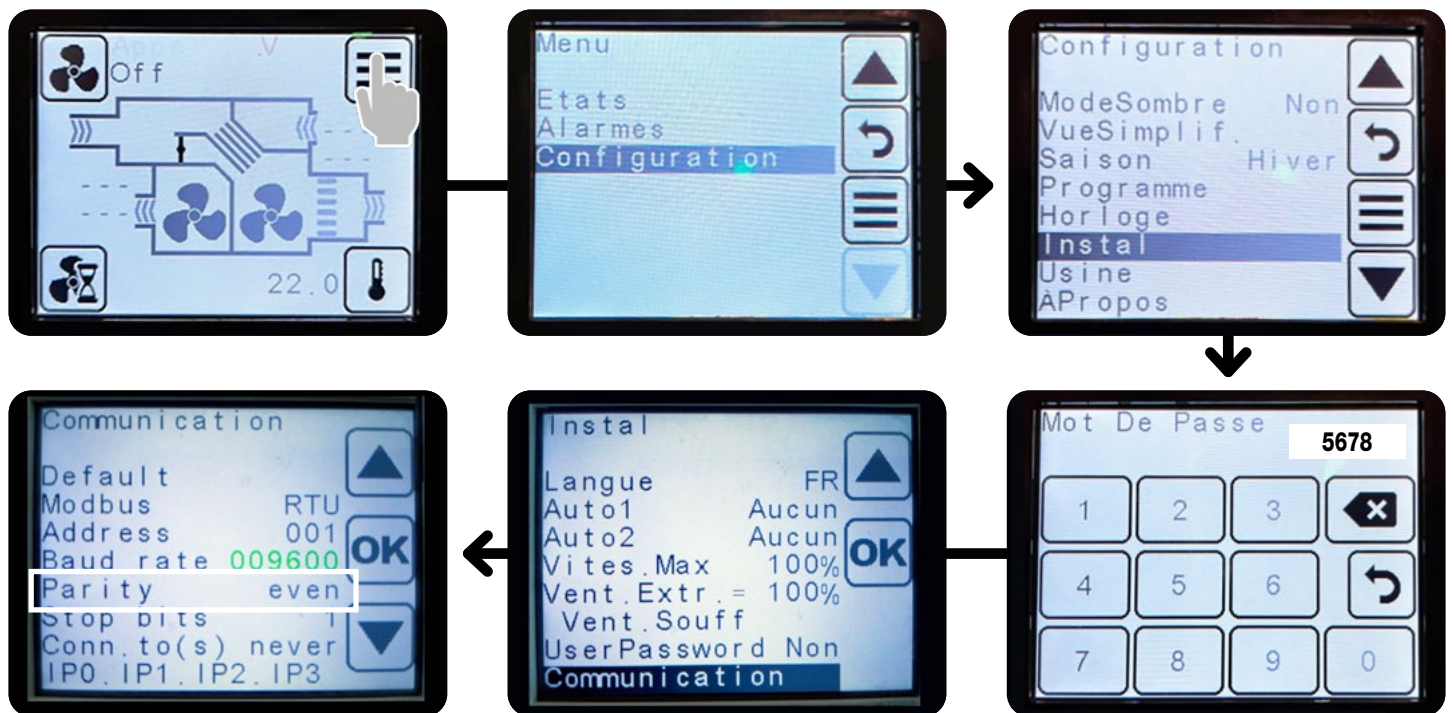
8.1. How to change the Modbus address on the unit?



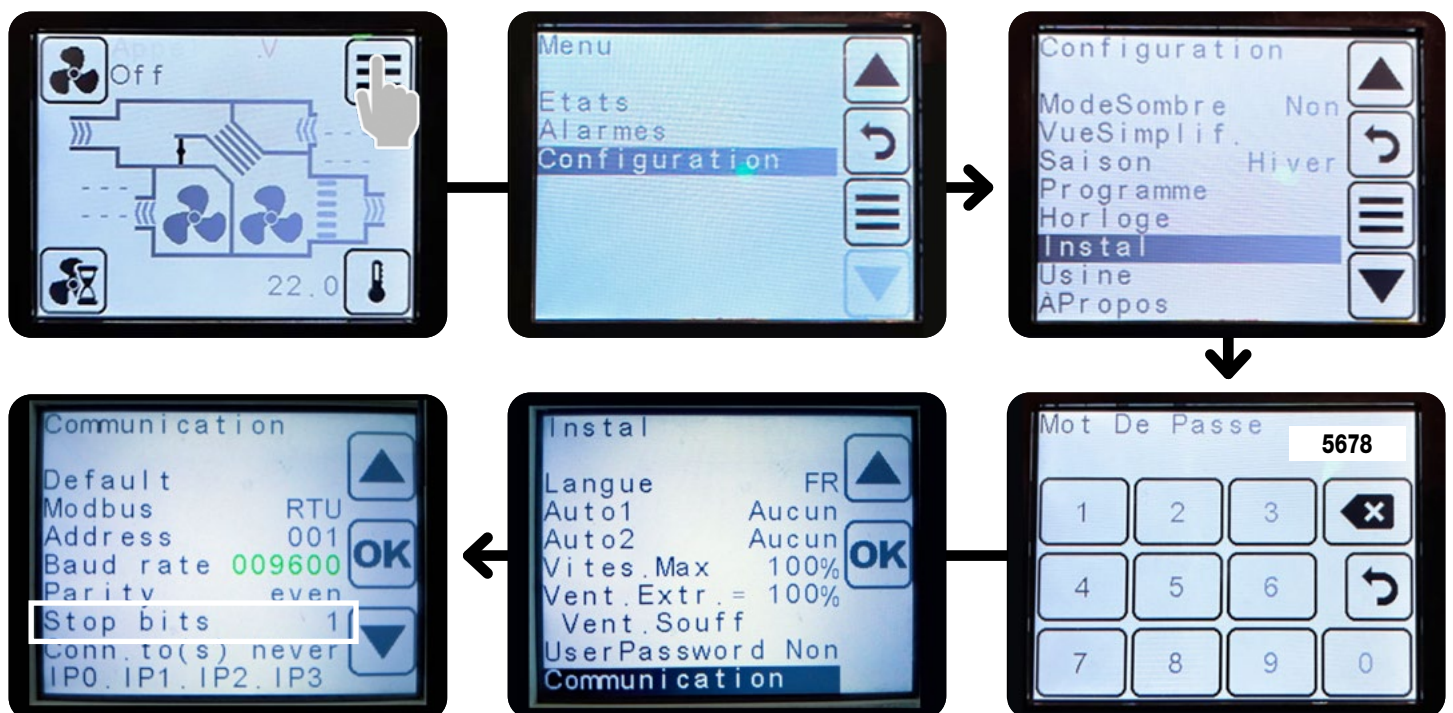
8.2. How to change the transmission speed?



8.3. How to change the parity?



8.4. How to change the stop bit?



9. ALARM TABLE

Parameter	Status	Possible causes
Set-up	OK	The configuration is correct.
	KO	The configuration of the digital inputs or hardware is incorrect. Check in the factory menu that the same function has not been assigned to several digital inputs (DI). Also check the hardware configuration (Hw Compact —> evo – el.water).
Communication	OK	Communication between the PLC and the remote control (wired HMI) is operating properly.
	KO	Communication problem between the PLC and the remote control: 1. Check the electrical connections between the PLC's PCB and the remote control (see wiring diagram). 2. If the problem persists, check the electrical connections between the boards (see wiring diagram). 3. If the problem persists, check the position of the micro-switches (DIP switches) on the X542 board: 3 = ON; all others = OFF. 4. If the issue is still not resolved, replace the PCBs.
Te (fresh air)	OK	Fresh air temperature sensor is operating properly.
	KO	Issue with the outside air temperature sensor: 1. Check the electrical connections on the temperature sensor (see wiring diagram). 2. If the issue persists, replace the temperature sensor. 3. If the issue persists, replace the PCB.
Tr (extract air)	OK	Extract air temperature sensor operating properly.
	KO	Issue with the extract air temperature sensor: 1. Check the electrical connections on the temperature sensor (see wiring diagram). 2. If the issue persists, replace the temperature sensor. 3. If the issue persists, replace the PCB.
Tx (exhaust air)	OK	Exhaust air temperature sensor is operating properly.
	KO	Issue with the exhaust air temperature sensor: 1. Check the electrical connections on the temperature sensor (see wiring diagram). 2. If the issue persists, replace the temperature sensor. 3. If the issue persists, replace the PCB.
Ti (supply air)	This function is only available if the unit is equipped with a water post-heating coil (settings in the factory menu).	
	OK	Supply air temperature sensor is operating properly.
	KO	Issue with the supply air temperature sensor: 1. Check the electrical connections on the temperature sensor (see wiring diagram). 2. If the issue persists, replace the temperature sensor. 3. If the issue persists, replace the PCB.
Tw (water)	OK	Temperature sensor on the water coil is operating properly.
	KO	Issue with the water coil temperature sensor: 1. Check the electrical connections on the temperature sensor (see wiring diagram). 2. If the issue persists, replace the temperature sensor. 3. If the issue persists, replace the PCB.
Tw (low water)	This function is only available if the unit is equipped with a water post-heating coil (settings in the factory menu).	
	OK	The temperature of the water in the water coil is above the safety threshold; there is therefore no risk of the water in the coil freezing.
	KO	Risk of liquid freezing in the water coil.

Parameter	Status	Possible causes
Filters	This function is only available if the filter status alarm is configured with a differential pressure switch or based on the unit's operating hours (factory menu). When operating on a timer and when the internal counter reaches the set threshold, the alarm can be reset by pressing the displayed indicator.	
	OK	The filters are clean. We recommend periodically setting the unit to its maximum speed (at least every 3 months) in order to check for possible alarms that may not be detected due to excessively low air flows.
	KO	Clogged filters: replace the filters. If the filter alarm is based on the unit's operating hours, you must reset the filter alarm.
Fans	This function is only available if the fan status alarm is configured with a differential pressure switch or with a tachometric signal or with a DO on the fan (factory menu).	
	OK	The fan is operating properly.
	KO	Possible fault with the fan.
CO ₂ VOC	This function is only available if the automatic fan speed control is configured with a CO ₂ or CO ₂ -VOC sensor (installer menu).	
	OK	The sensor is operating properly.
	KO	Possible fault with the sensor or connection.
	OK	The new signal source is operating properly.
	KO	External signal not present (0V voltage on terminals): 1. Check the electrical connections on the external source (see electrical diagram). 2. If the problem persists, check the presence of the external signal using a tester and make sure that its value is greater than 0 V. 3. If the issue persists, replace the PCB.
Air supply flow	This function is only available if the unit is a constant flow model, with dual-flow control.	
	OK	The supply air pressure sensor is operating properly.
	KO	Possible fault on the supply air pressure sensor.
Extract air flow	This function is only available if the unit is a constant flow model, with dual-flow control.	
	OK	The extract air pressure sensor is operating properly.
	KO	Possible fault on the extract air pressure sensor.
Supply air Dp	This function is only available if the unit is in constant pressure mode, with dual-flow control.	
	OK	The supply air pressure sensor is operating properly.
	KO	Possible fault on the supply air pressure sensor.
Exhaust air Dp	This function is only available if the unit is a constant flow model, with dual-flow control.	
	OK	The extract air pressure sensor is operating properly
	KO	Possible fault on the extract air pressure sensor.
Dp	This function is only available if the unit is in constant pressure mode, with single-flow control.	
	OK	The pressure sensor is operating properly.
	KO	Possible fault on the pressure sensor.
Auto timer	This function is only available if the automatic fan speed control is configured with a CO ₂ or CO ₂ -VOC sensor (installer menu).	
	OK	The sensor is operating properly.
	KO	Possible sensor fault or excessively high CO ₂ concentration in the atmosphere.

Parameter	Status	Possible causes
Frost-protection	This appears when the unit fails to exit the antifreeze mode after a delay of two minutes.	
	OK	The unit is operating properly.
	KO	Two minutes have passed since the antifreeze mode on the heat exchanger was activated and the temperature of the exhaust air has not reached 3°C. In speed management mode, the PLC stops the supply air fan and sets the extractor fan to its maximum speed. In heating mode, the PLC stops the supply air fan while the extractor fan operates at the speed set on the control panel. In bypass mode, the PLC stops the extractor fan and leaves the by-pass in its modulated position.
Min. speed	This function is only available if a digital input is configured at the minimum speed (factory menu).	
	OK	Digital input open: the unit is operating normally.
	KO	Digital input closed: the unit is operating at minimum speed.
Time	OK	The coil on the PLC board is operating properly.
	KO	Failure of the PLC board coil.

10. MODBUS LOG MAPPING

Reminder of the modbus parameters to be set

xXXX speed

XXX stop bit

XX parity

XXX address

10.1. Modbus Table

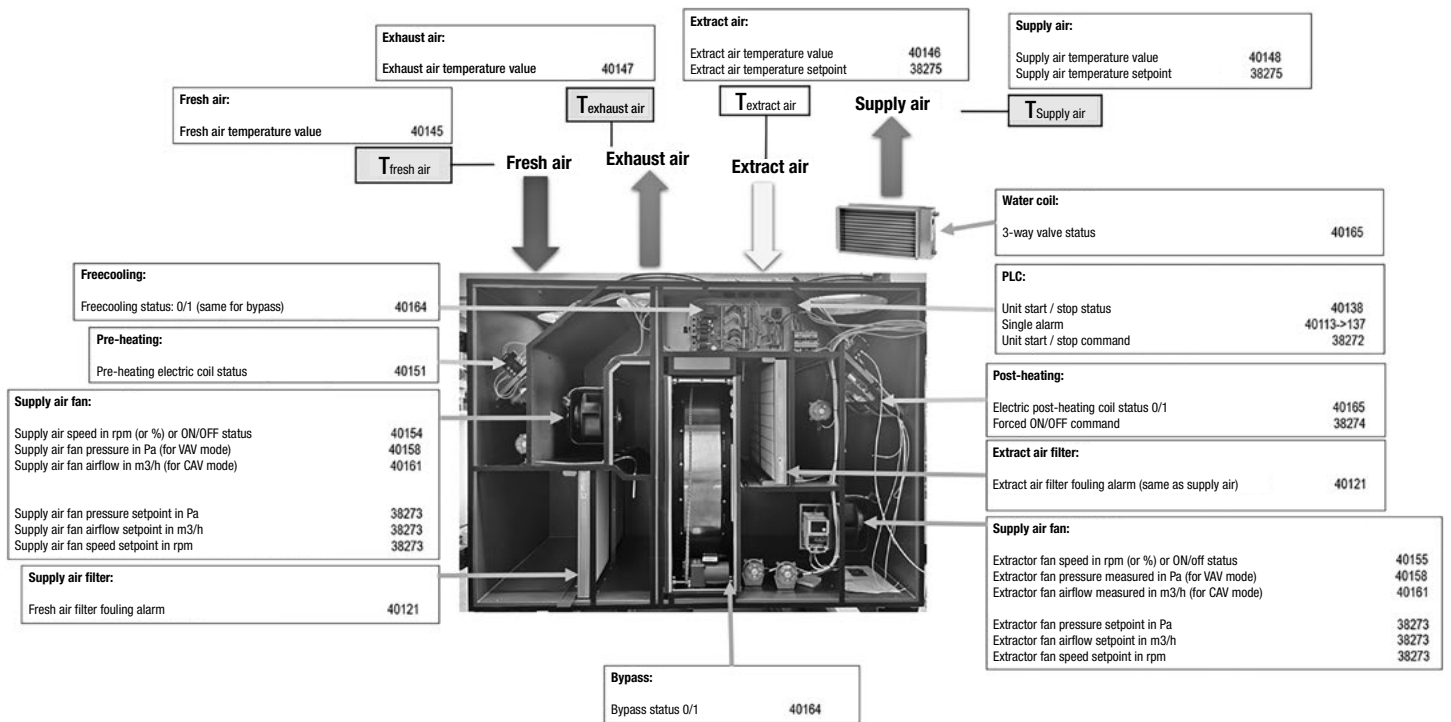
Modbus function codes

Configuration parameters, set points and input signals, status and alarms are in 16-bit format and can be accessed as:

Read register (R)	4XXXX
Write register (W)	3XXXX

Help Settings	Address	Read/Write R/W
Set-up		
PLC		
Unit start / stop status	40138	R
Single alarm	40113 —> 137	R
Unit start / stop command	38272	W
WATER COIL		
3-way valve status 0/1	40165	R
POSTHEATER		
Status of the electric post-heating coil 0/1	40165	R
Forced ON/OFF command	38274	W
EXTRACT AIR FILTER		
Extract air filter fouling alarm (same as supply air)	40121	R

Help Settings	Address	Read/Write R/W
Set-up		
EXTRACT AIR FAN		
Extractor fan speed in rpm (or %) or ON/ OFF status	40155	R
Extractor fan pressure in Pa (for VAV mode)	40158	R
Extractor fan flow rate measured in m3/h (for CAV mode)	40161	R
Extractor fan pressure setpoint in Pa	38273	W
Extractor fan flow rate setpoint in m3/h	38273	W
Extractor fan speed setpoint in rpm	38273	W
BYPASS		
Bypass status 0/1	40164	R
PRE-HEATING		
Pre-heating electric coil status	40151	
SUPPLY AIR FILTER		
Fresh air filter fouling alarm	40121	R
SUPPLY AIR FAN		
Supply air speed in rpm (or %) or ON/OFF status	40154	R
Supply air fan pressure in Pa (for VAV mode)	40157	R
Extractor fan airflow in m3/h (for CAV mode)	40160	R
Supply air fan pressure setpoint in Pa	38273	W
Supply air fan airflow setpoint in m3/h	38273	W
Supply air fan speed setpoint in rpm	38273	W
Supply / return imbalance		
Supply / return imbalance	30170	W
FREECOOLING		
Freecooling status: 0/1	40164	R
TEMPERATURE SENSORS		
Supply air temperature value	40148	R
Supply air temperature setpoint	38275	W
Extract air temperature value	40146	R
Extract air temperature setpoint	38275	W
Extract air temperature value	40147	R
Fresh air temperature value	40145	R





FRANCE

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