

User manual

CTS 602 by Nilan



Combi 300 Polar

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 **NILAN**[®]
OUTSTANDING INDOOR CLIMATE

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Introduction



Please control that the following documents have been delivered together with the unit:

- Directions for assembly and use
- CTS 602 directions (this document)
- Electrical chart

The purpose of this manual is to clearly show the menus and possibilities of the CTS 602 control. This manual may describe functions that are not accessible in your unit. The directions can be used for all types of units described in figure 1 page 4.

Review of the thermometer sensors

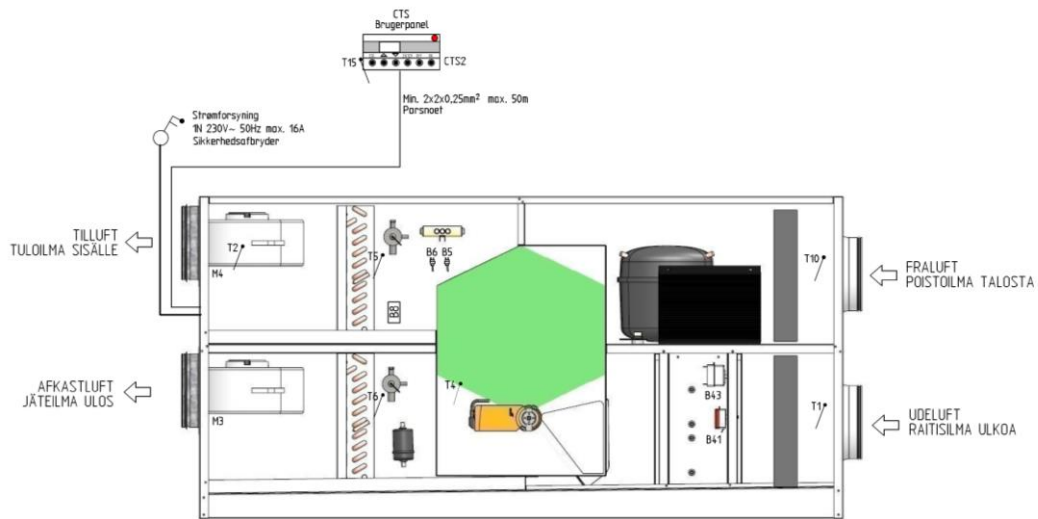


Figure 1: Thermometer sensors

Explanation for figure 2:

- T1 - is the thermometer sensor for the fresh air and should be placed at the north side of the building.
- T2 - is the thermometer sensor for the inlet air (without heating surface).
- T5 - shows the temperature of the condenser.
- T6 - shows the temperature of the evaporator.
- T7 - is the thermometer sensor for the inlet air after a heating surface.
- T10 - is the thermometer sensor for the exhaust air in a room (accessory).
- T15 - is the thermometer sensor in the CTS 602 panel.

The temperature of the sensors can be read in the "Show data" menu.

CTS 602 panel



Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

Figure 3: CTS 602 panel

The following is indicated by the light-emitting diode at the front of the CTS 602 panel:

Constant yellow light: the compressor is in operation

Flashing yellow: the unit is in alarm condition

The panel can show 2 lines of text with each 8 characters.

The upper line shows a guiding text.

The bottom line shows the matching values to the guiding text.

The text in the display in “on” as long as there is power to the unit and will not turn off even though the unit is set to “off” or has not been operated for a longer period of time.

How to use the menu:

It is possible to adjust a value or a function by finding the matching menu via ▲ or ▼.

To activate the desired menu press **ENTER**.

To adjust the settings of the value press **ENTER** until the value flashes.

The adjustment can now be done via ▲▼.

To save the chosen value press **ENTER**.

It is advisable to have the panel and/or the review of the menus near by during the reading of the menus.

If none of the press buttons are activated for one minute the control will automatically return to the main menu.

If you are in the middle of the programming when the control returns to the main menu all data will be saved if they previously are saved by pressing **ENTER**. It is always possible to return to the programming to continue.

Menu overview

The control will have the main menu as starting point, (the menu in the full-drawn frame). From here it is possible to go through the other menus via ▲▼.

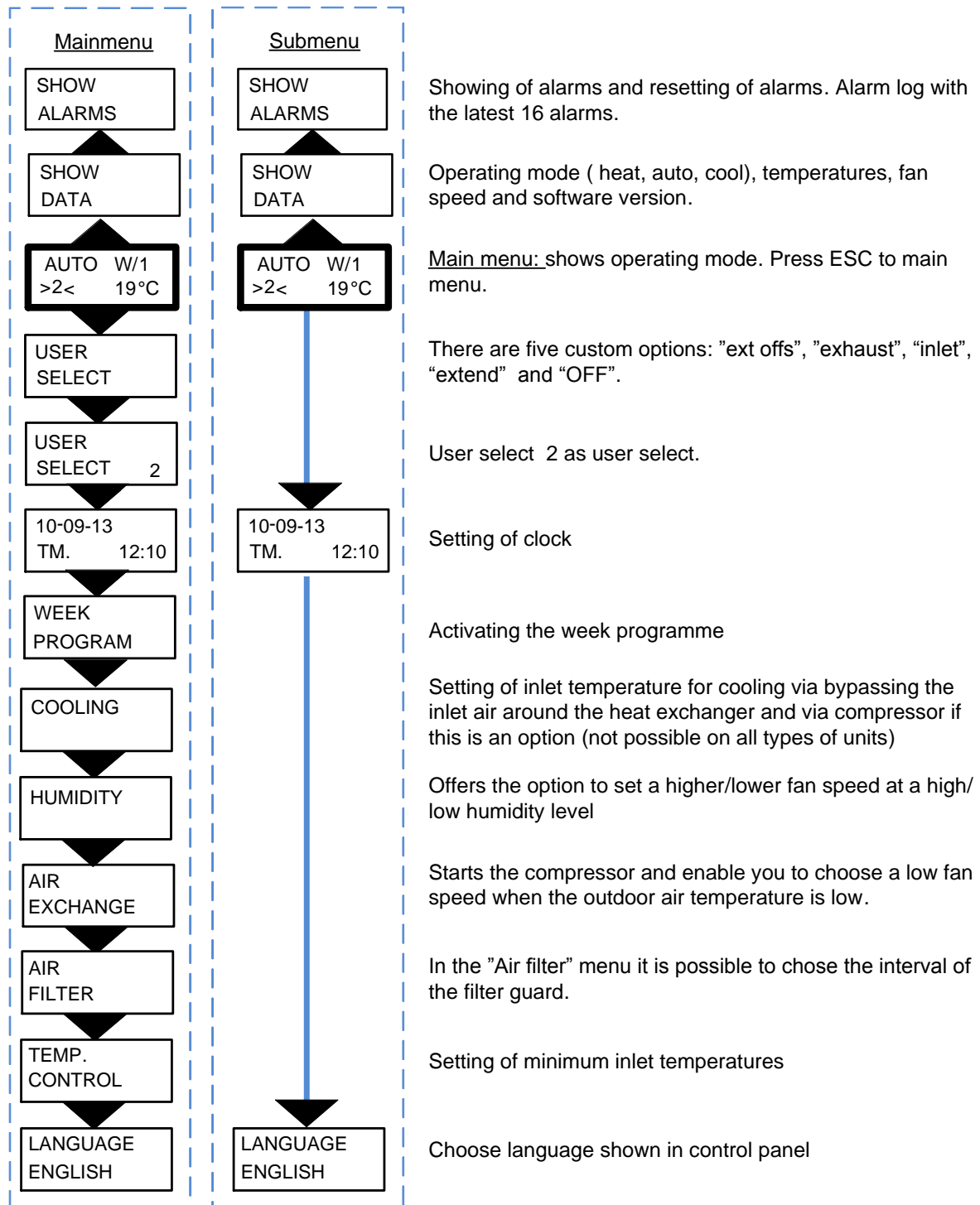


Figure 4: "Menu overview"

Operating mode

The main menu shows 3 different values: operating mode, ventilation step and temperature. Those values indicate the state of the unit and are selected by the user.

The main menu is automatically shown 15 seconds after the unit is electrically connected and is now ready to be set.

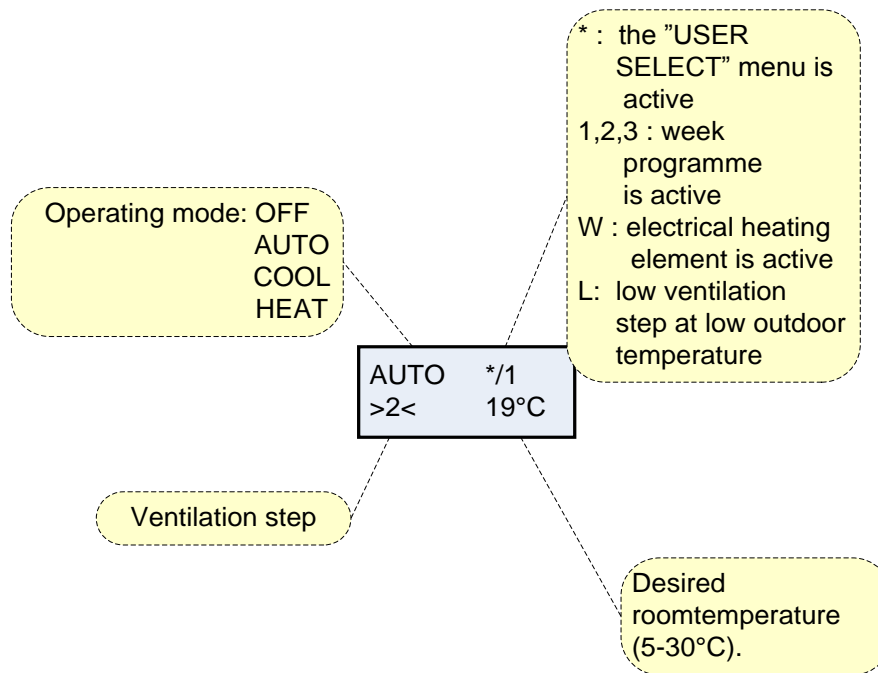


Figure 5: Main menu

Desired room temperature can be adjusted by pressing **ENTER** once. The number at °C flashes and the value can be set via ▲▼. The desired value must be approved by pressing **ENTER** once.

The operating mode can be adjusted by pressing **ENTER** twice. The actual mode is flashing and can be set via ▲▼ and approved by pressing **ENTER** once. In "AUTO"-mode the bypass-draught control is automatically opened or closed according to the temperature setting and the unit automatically switches between cooling and heating. As regards cooling there is a neutral zone of 5 °C below room temperature before the unit actively cools via compressor. For further information see page 20.

The ventilation step can be adjusted by pressing **ENTER** three times. The actual ventilation step is flashing and can be set via ▲▼ and approved by pressing **ENTER** once.

Main menu

The main menu is automatically shown 15 seconds after the unit is electrically connected.

” ” indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

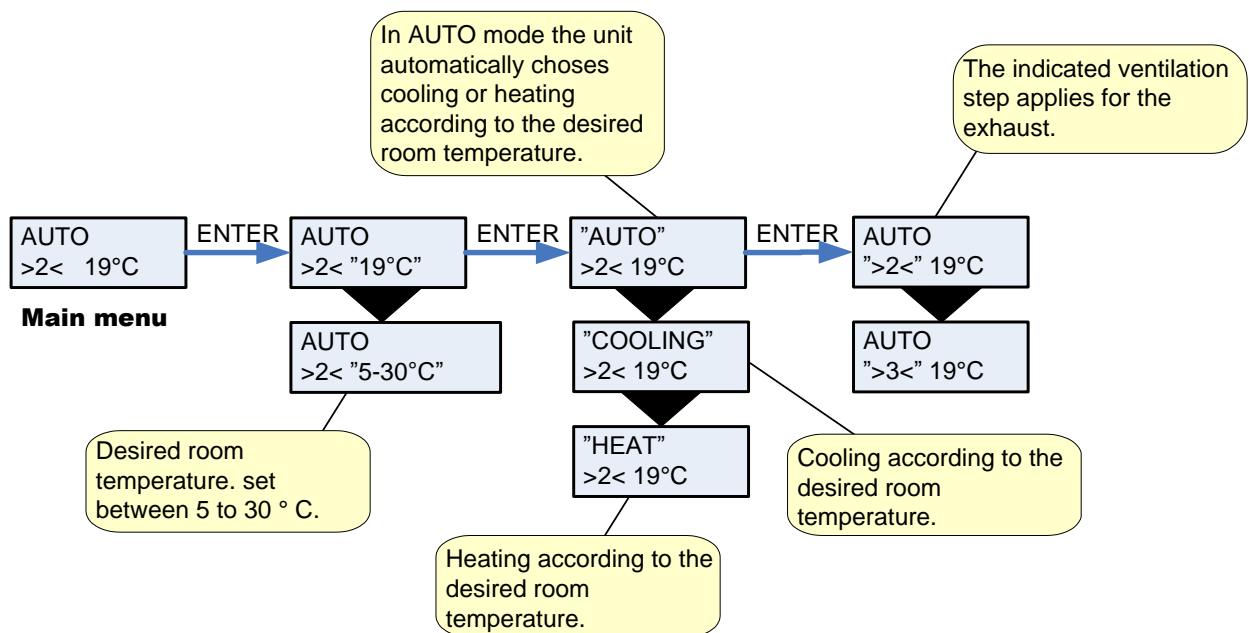


Figure 6: Headlines in the "Main menu"

Show alarms

If the unit is in a state of alarm the yellow light-emitting diode on the front of the CTS600 panel will flash.

The "Show alarms" menu indicates the type of alarm and the time of the alarm. This is also the menu where the alarm should be reset.

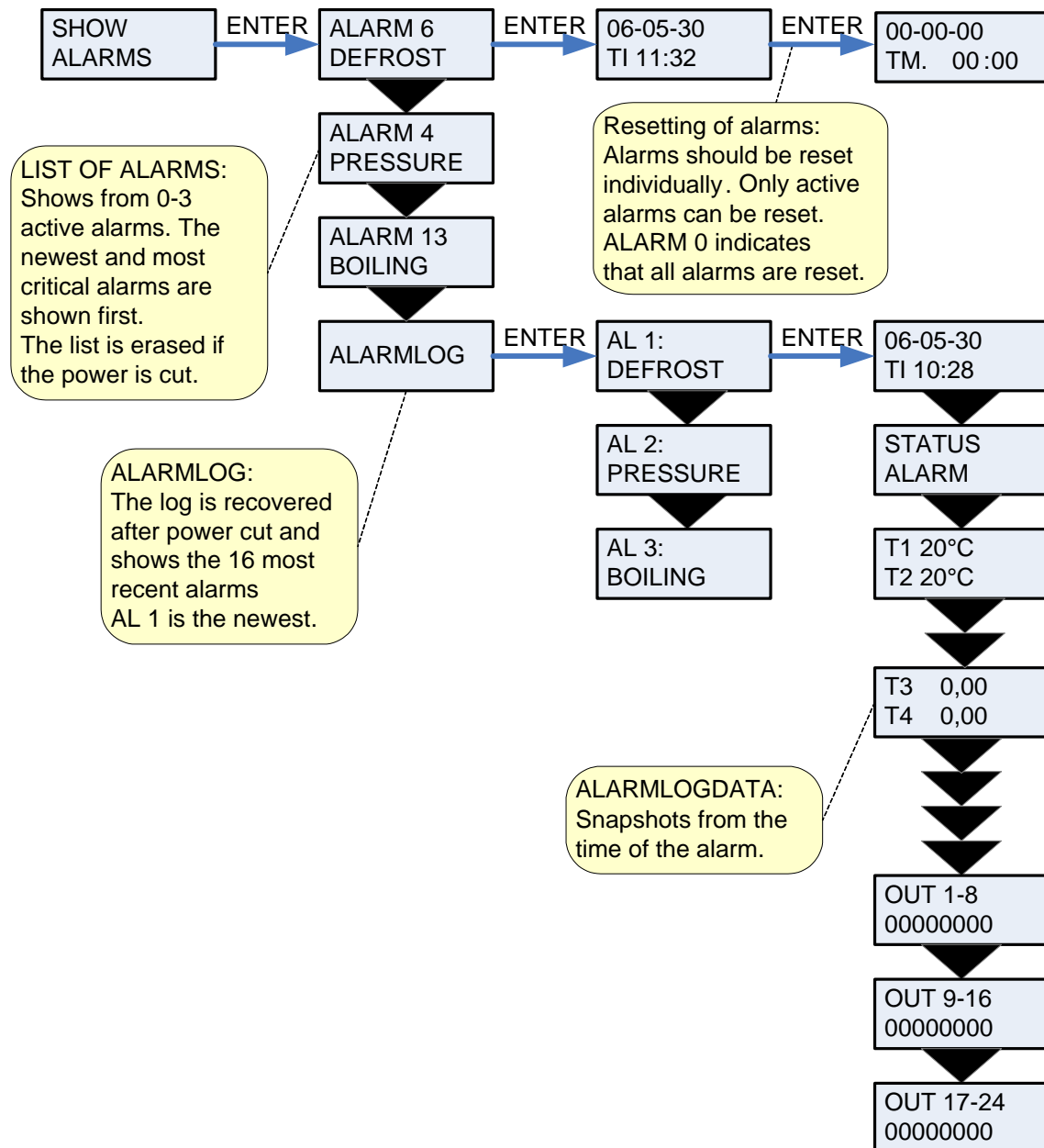


Figure 7: The "Show alarms" menu

Alarm codes are given because of a fault situation or when it is important to inform the user.

The alarms are divided into the following categories:

C Critical Operation is partly or completely stopped as long as the alarm is active.

W Warning These types of alarms will become critical if the problem is not solved quickly.

I Informative Normal operation is not affected. Alarm disappears when it is reset.

Alarm code	Categori	Text in display	Description/ cause	How to remedy alarms
00	--	--	No alarms	
01	C	HARDWARE	Error in control hardware	Contact service if reset does not help
02	C	TIMEOUT	Warning alarm W has become a critical alarm.	Note and reset the alarm. Contact service if alarm does not disappear.
03	C	FIRE	Fire detecting thermostat. Unit is stopped because the fire detecting thermostat has been activated.	If there has not been a fire please contact service.
04	C	PRESSURE	High or low pressure switch in the cooling circuit has been triggered, probably caused by: High pressure: Extreme hot Cloaked filter Defective fan Low pressure: Extreme cold Unit might have lost coolant Cloaked filter Defective fan	Check for errors and reset alarms. If you are unable to reset the alarm or if the alarm occurs often please contact service.
06	C	DEFROST	The unit is defrosting. The frost protection of the heat recovery system is insufficient and the unit will stop. This can be caused by extreme low outdoor temperatures	Contact service if reset does not help. Note the actual sensor temperatures from the menu "Show data" to help service.
08	C	FROST	One of the temperature sensors in the unit is short circuit or defect.	Note the sensor and contact service.
09	C	OVERTEMP	One of the temperature sensors in the unit is disconnected or defect.	Note the sensor and contact service.
10	C	OVERHEAT	The electrical heating element is overheated. Lack of airflow due to cloaked filters, cloaked air intake or defect inlet fan.	Check if air flows into the house. Check filter and air intake. Reset alarm. Contact service if the above does not help.
11	C	AIRFLOW	Lacking inlet airflow	See alarm code 10
13	C	BOILING	Boiling protection of the hot water	Contact service
15	W	ROOM LOW	When room temperature drops below 10°C the unit will stop in order to protect the house from further cooling down. The function is useful when the house is not occupied and the main heating has stopped.	Heat up the house and reset the alarm

Alarm code	Categori	Text of display	Description/ cause	How to remedy alarms
16	I	SOFTWARE	Error in software	Contact service
17	I	WATCHDOG	Error in software	Contact service
18	I	CONFIG	Parts of the programming are lost and can be caused by a longer period of power failure or lightning. The unit will keep on operating on standard programming.	Reset alarm Re-programme the week programme. Contact service if the unit does not operate as before. Supplementary programs can be lost. Only service can access the supplementary programs and menus.
19	I	FILTER	The filter guard is set to give alarm when a pre-set period of time has occurred	Clean /replace filter and reset alarm
20	I	LEGIONEL	Legionella temperature has not been reached within the time limit	Contact service
21	I	POWER	Occurs if power has been cut off for a longer period of time	The week programme should be checked and adjusted if necessary. Reset alarm.
22	I	T AIR	The pre-set temperature of the inlet air cannot be reached	Set a lower air inlet temperature and reset alarm.
23	I	T WATER	Warming up the hot water is not possible	Contact service.
24	I	T HEAT	Warming up the water for central heating is not possible.	Contact service.
27-57	C	T_x KURZ	One of the temperature sensor of the device is shorted or defective. Tx = +99 °C	Please note which sensor T _x , there is shorted, and contact the customer service.
28-58	C	T_x OFFEN	One of the temperature sensor of the device is disconnected or defect Tx= -40 °C	Please note which sensor T _x , there is interrupted, and contact the customer service.
70	W	ANODE	There is an error at the anode on the hot-water tank. It has not been connected correctly or it has corroded.	Contact service.
71	I	DFR EXCH	The maximum defrosting time for the counter flow heat exchanger has been exceeded. This could be due to the fact that the system has been exposed to very low temperatures.	Contact our after sales department if resetting the alarm does not help. If possible, inform the after sales department of the current working temperature from the menu VIS DATA (SHOW DATA).
72	I	EVAP LOW	Abnormally low evaporator temperature	Check supply air valve
92	I	PRESET	Error by writing or input of the electrician's adjustments	Contact service.

Figure 8: The "Alarm Indicators" menu

Show data

The actual operation data can be read in the "Show data" menu. See review of thermometer sensors at page 5.

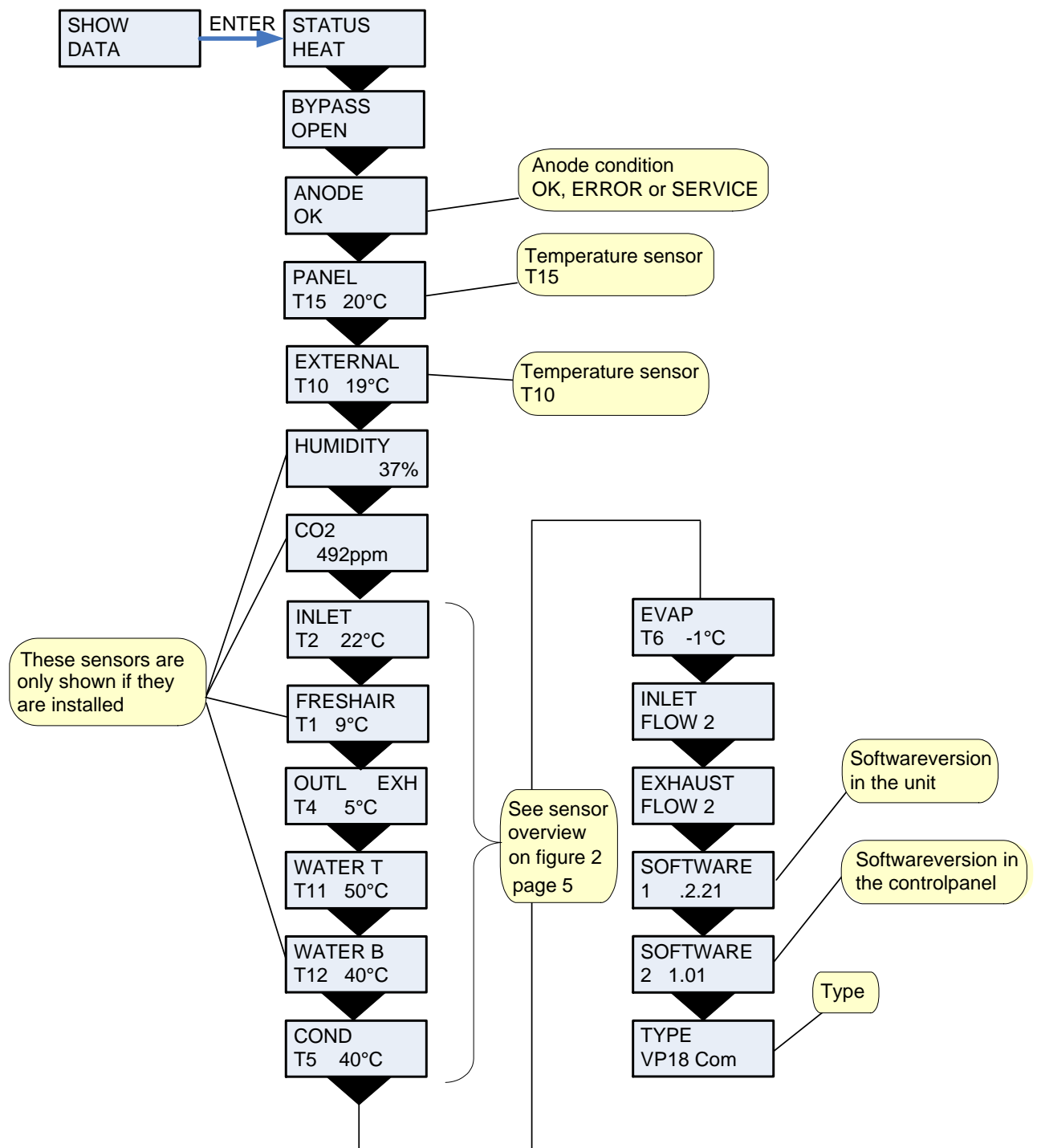


Figure 9: The "Show data" menu

User select

The menu CUSTOM OPTIONS overrides the operating mode of the main menu by activating an external switch.

"VENTILAT": There is a possibility here to run with a higher or lower speed on the air exhaust and air inlet for a limited amount of time. The external pressure will activate the function. The function has high priority.

"exhaust" and "inlet": These two options increase or reduce the velocity of the exhaust or inlet air respectively for a limited period of time. The remaining functions of the operating mode remain unaltered. An external switch activates the timer function.

Another external switch ensures that the fans remain at the desired ventilation level until the switch is turned off.

"extend": This option controls the velocity of the exhaust and inlet air and can be used to change the temperature of the inlet air for a limited period of time. An external switch activates the timer function.

"OFF": Deactivates the external switch.

"ext offs": Provides the possibility of choosing an afterflow time and changing the set point in external rooms.

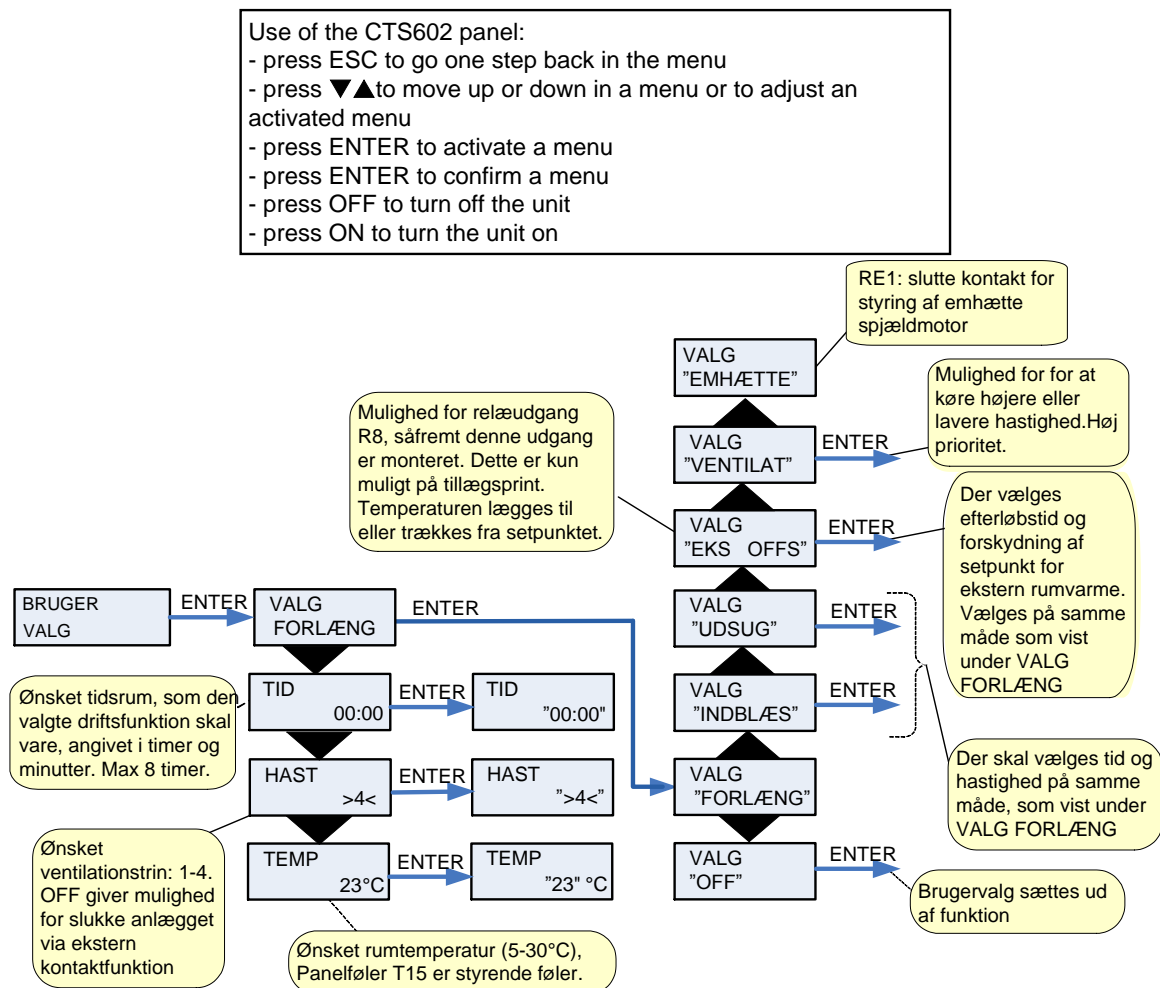


Figure 10: The "User select" menu

User select 2

User select 2 as user select

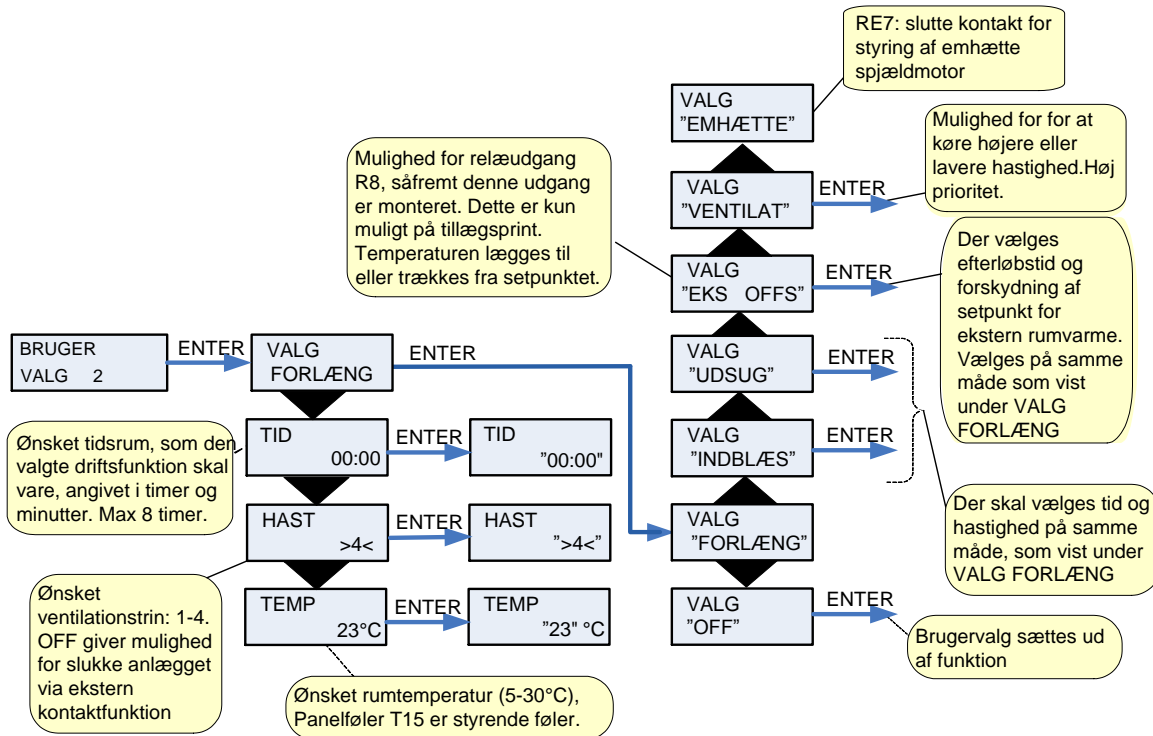


Figure 11: The "User select 2" menu

Setting of clock

In case of power cut the clock will function for at least 24 hours. If the time function is lost there will be an alarm.

Changing to daylight saving time has to be done manually.

” ” indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

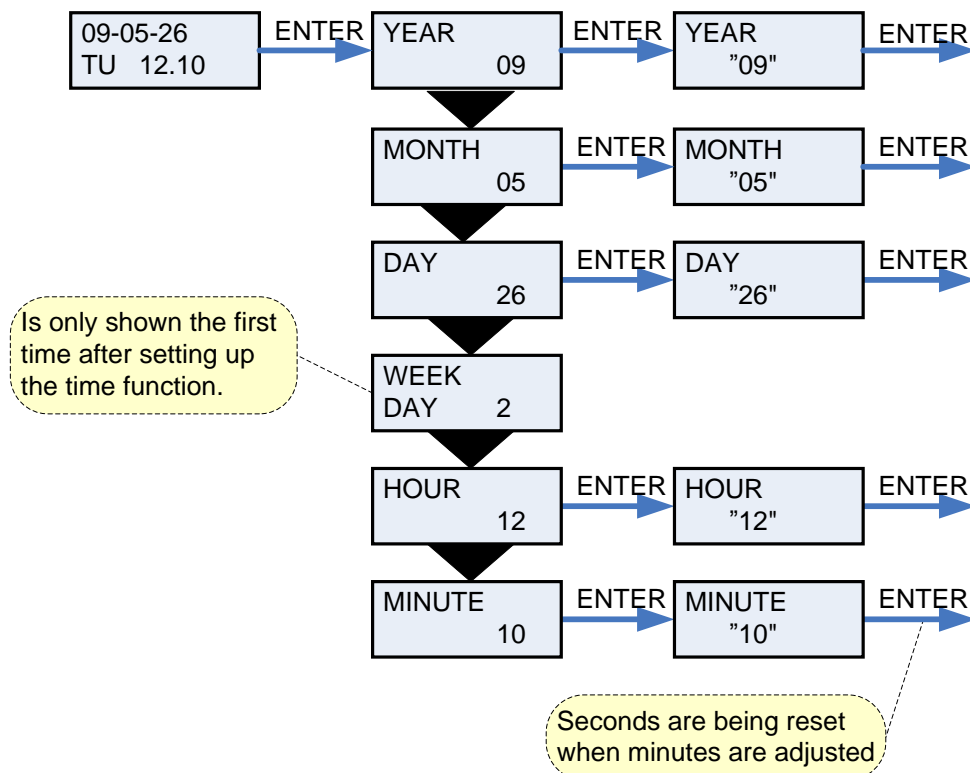


Figure 12: "Setting of clock"

Week programme

The unit is equipped with 3 standardized week programmes. See page 17.
The unit is set to programme 1 from the factory.

In addition to these programmes it is possible to program your own week programme which can be one of the standard programmes with minor alterations.

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Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

Programmes	Weekday	Function	Time	Ventilation step	Temperature
Programme 1	Monday – Friday	1	6.00	3	21
		2	8.00	1	17
		3	15.00	3	21
		4	22.00	1	17
	Saturday – Sunday	1	8.00	3	21
		2	23.00	1	17
Programme 2	Monday – Sunday	1	8.00	3	21
		2	23.00	1	17
Programme 3	Monday – Friday	1	7.00	3	21
		2	16.00	OFF	21

Weekly program settings

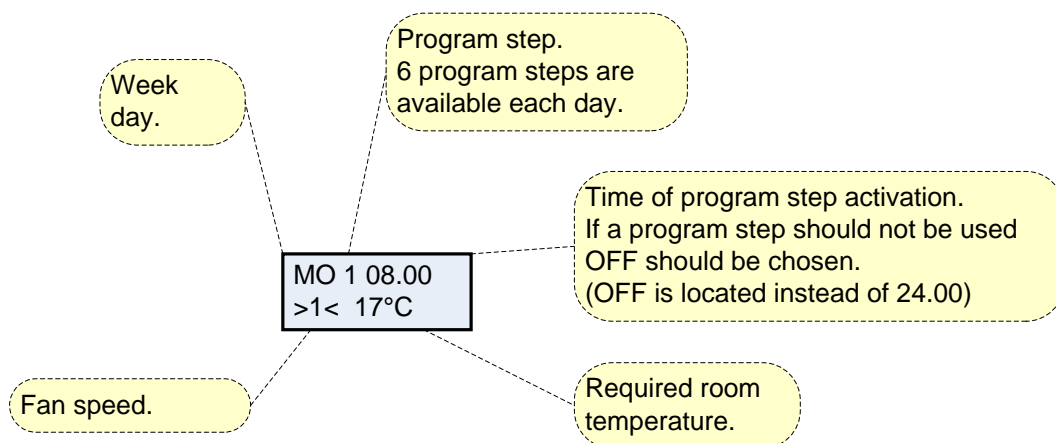


Figure 13: The Settings of "Week program"

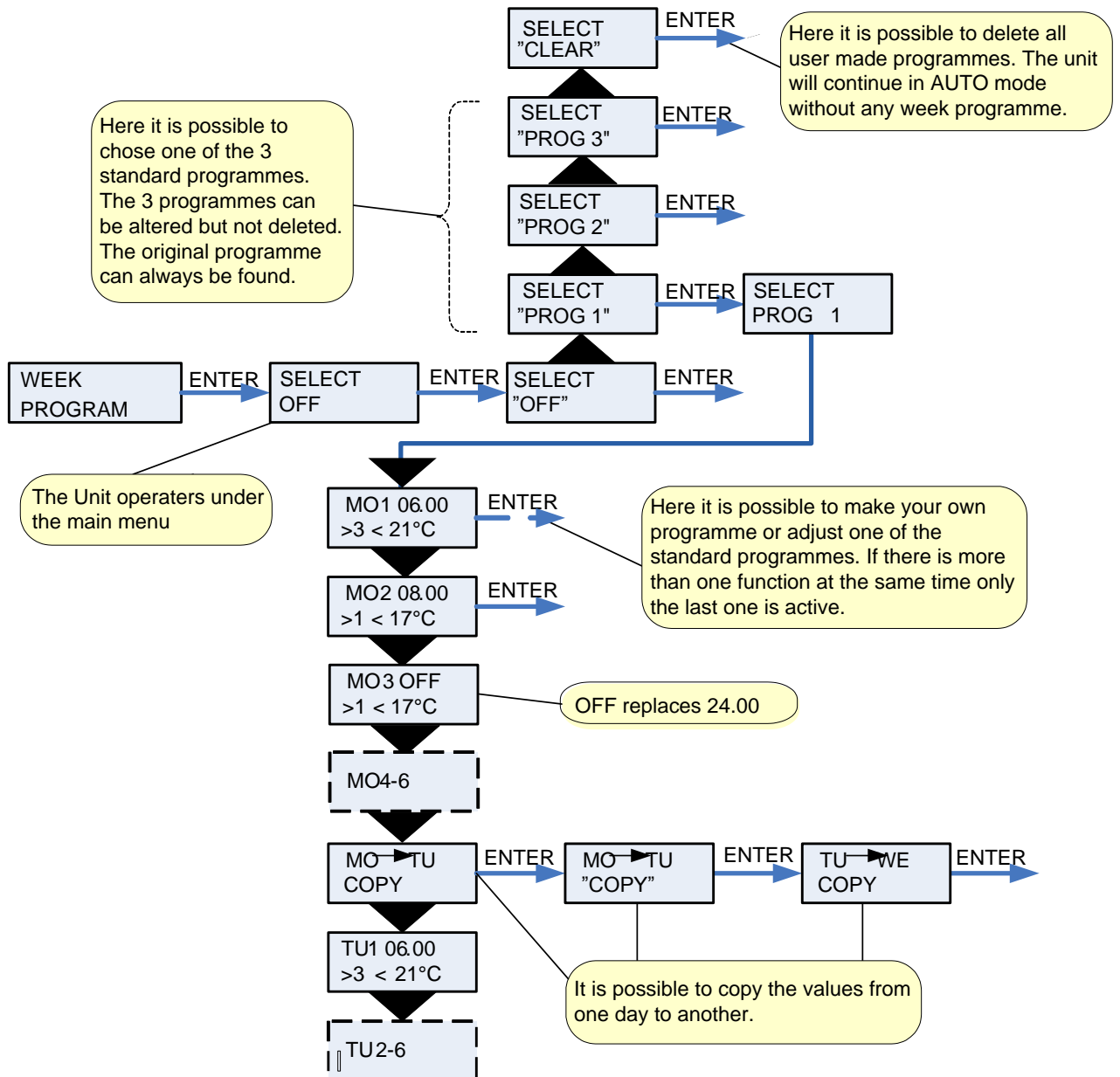


Figure 14: The "Week program" menu

Heating surface

The menu HEATING SURFACE is only accessible when the system has a heating surface installed and when the control has been set up to a heating surface in the SERVICE MENU

Options that flash are indicated by " ".

On the CTS600 control panel, press:

- ESC to return to the previous menu
- ▼▲ to scroll upwards or downwards through the menus or to adjust the setting of an activated menu option
- ENTER to activate a menu option
- ENTER to confirm a new menu option setting
- OFF to switch off the controls
- ON to switch on the controls

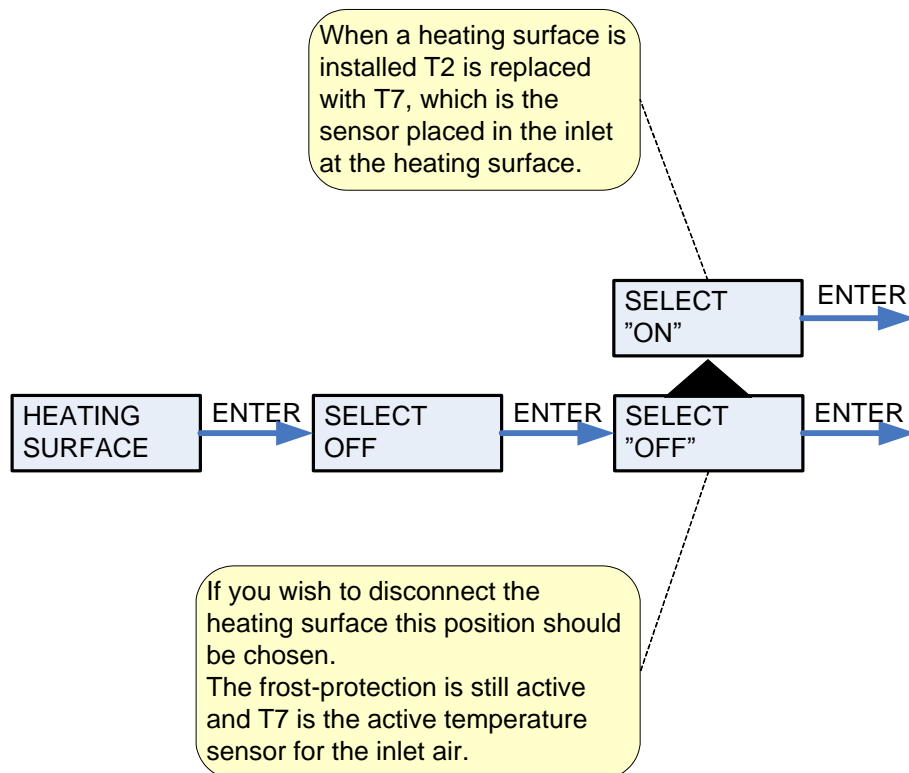


Figure 15: The "Heating surface" menu

Cooling

In the “Cooling” menu it is possible to cool the inlet air by bypassing the inlet air around the counter flow heat exchanger. See figure 16a

If the unit has active cooling via compressor see figure 16b.

The COOLING menu gives the possibility of automatic high fan speed when high outside temperatures.

” ” indicates that the menu point flashes and can be set to another value.

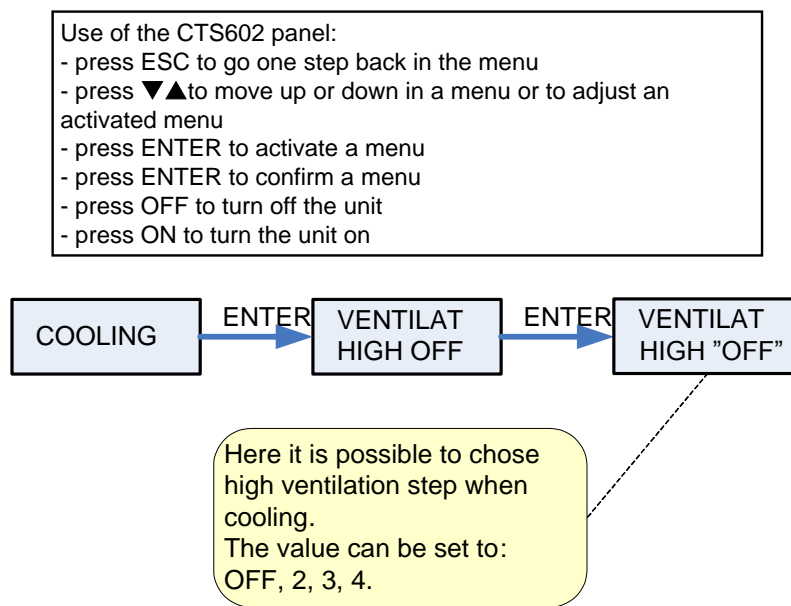


Figure 16a: The “Cooling” menu

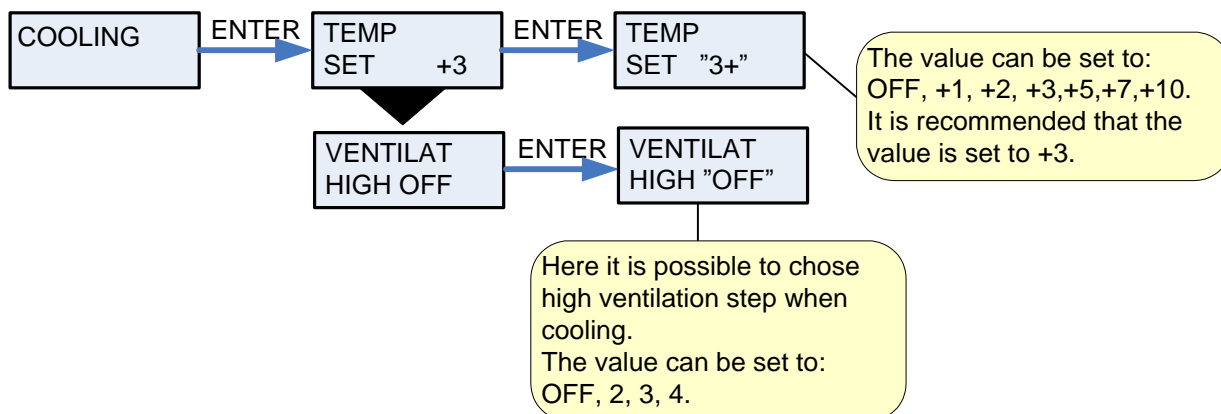


Figure 16b: The “Cooling” menu

Humidity

In the "Humidity" menu it is possible to regulate the ventilation step in accordance with the humidity level.

Low ventilation step is only active in wintertime and at humidity levels below 30%.

High step is activated by a change from 10-5% of average RH from 40-80% over the last 24 hours
 High ventilation step is deactivated when humidity drops 3% or more compared to the average humidity level the last 24 hours.

It can last up to 3 minutes before high/low ventilation step is stabilized.

If there is a need for heat the "low humidity" is not activated.

" " indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

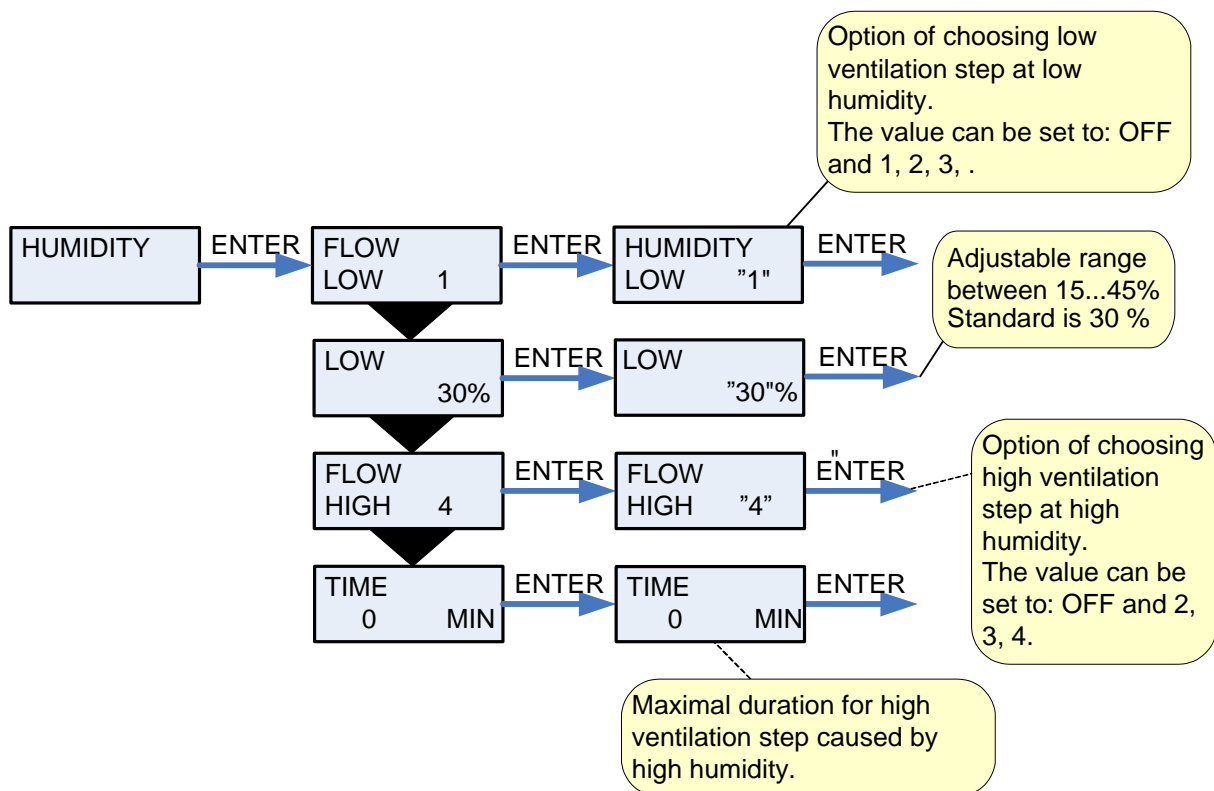


Figure 17: The "Humidity" menu

Air exchange

In the "Air exchange" menu it is possible to regulate the airflow in wintertime

" " indicates that the menu point flashes and can be set to another value.

- Use of the CTS602 panel:
- press ESC to go one step back in the menu
 - press ▼▲ to move up or down in a menu or to adjust an activated menu
 - press ENTER to activate a menu
 - press ENTER to confirm a menu
 - press OFF to turn off the unit
 - press ON to turn the unit on

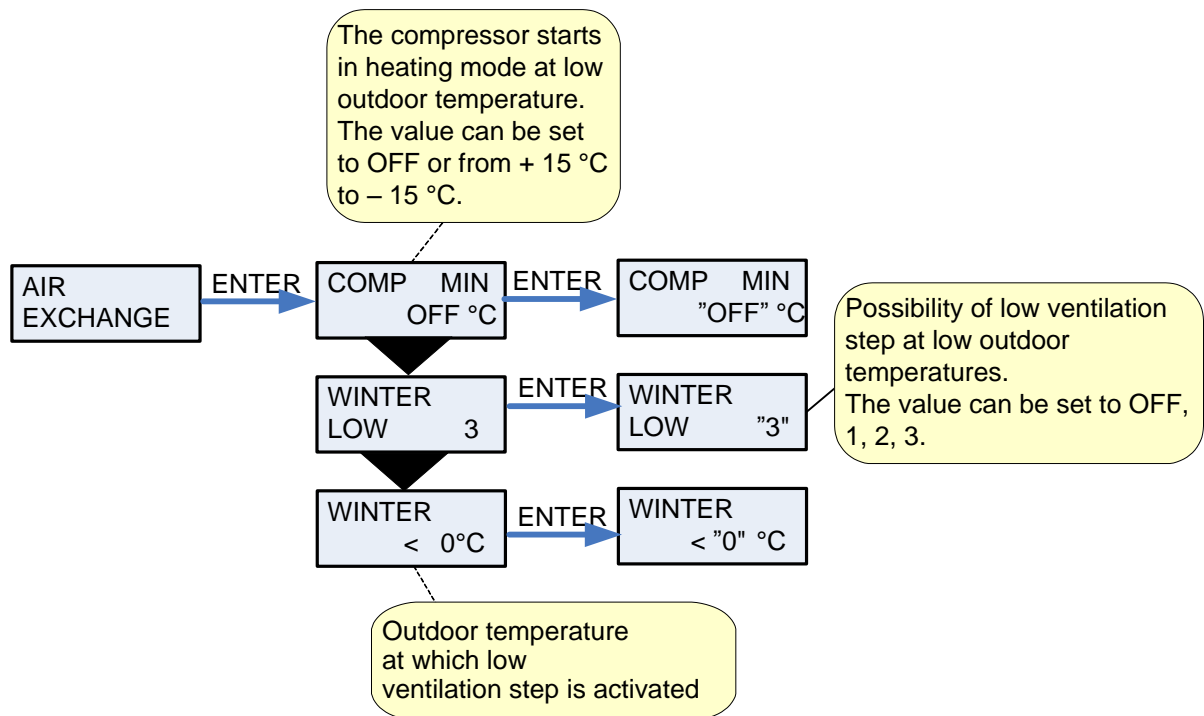


Figure 18: The "Air exchange" menu

Air filter

In the "Air filter" menu it is possible to choose the interval of the filter guard.

The unit is factory configured to provide emergency with 90 days interval. It is then possible to change this range if necessary.

After the deadline you will see "Filter" as an information alert

" " indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

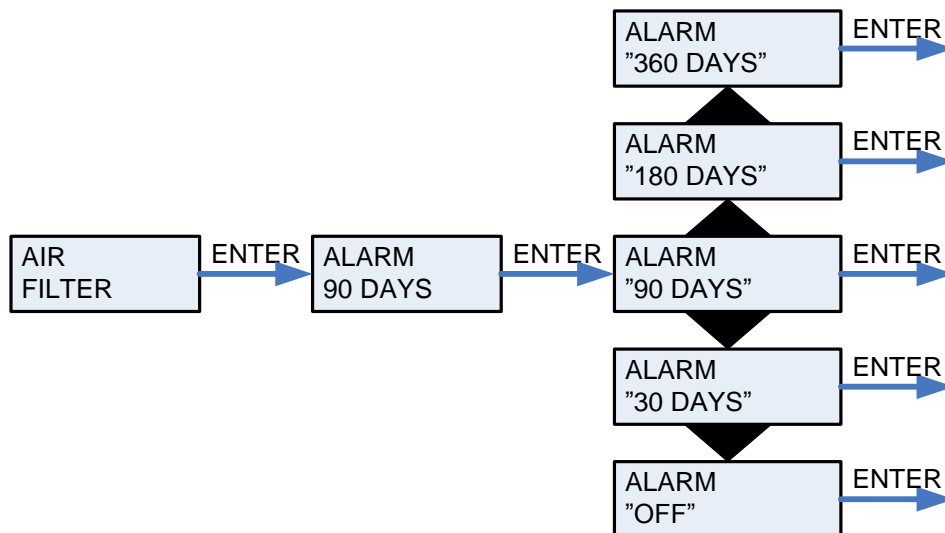


Figure 19: The "Air filter" menu

Temp. control

In the "Temp. control" menu it is possible to set the highest and lowest inlet temperature.

" " indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲ to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

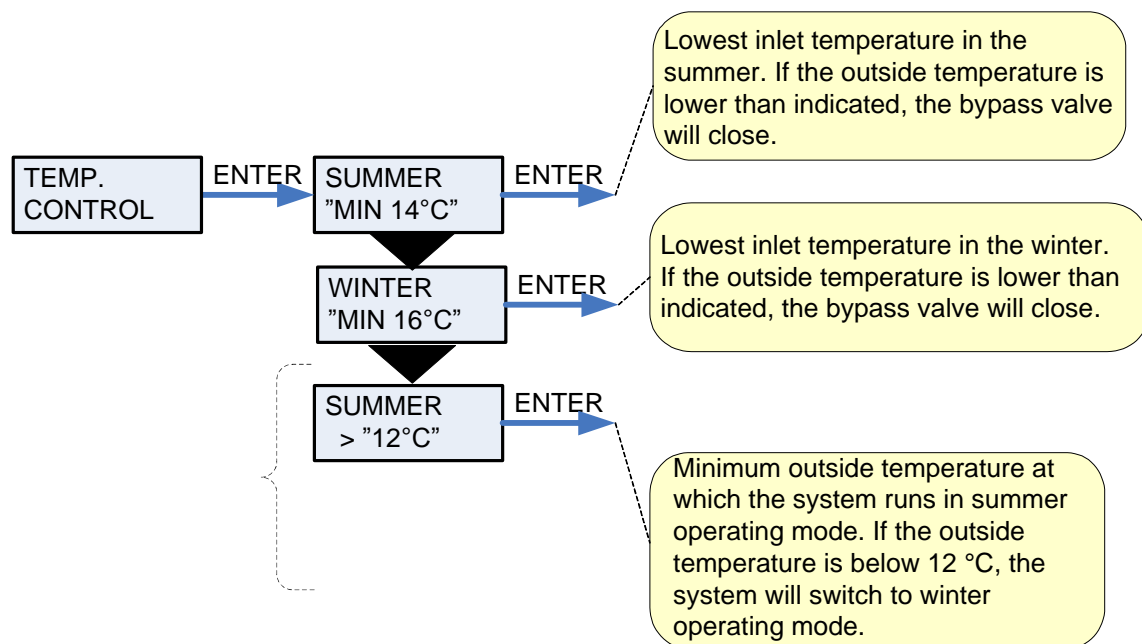


Figure 20: The "Temp. control" menu

Setting of language

In this menu you set which language to be used in the CTS602 panel.

” ” indicates that the menu point flashes and can be set to another value.

Use of the CTS602 panel:

- press ESC to go one step back in the menu
- press ▼▲to move up or down in a menu or to adjust an activated menu
- press ENTER to activate a menu
- press ENTER to confirm a menu
- press OFF to turn off the unit
- press ON to turn the unit on

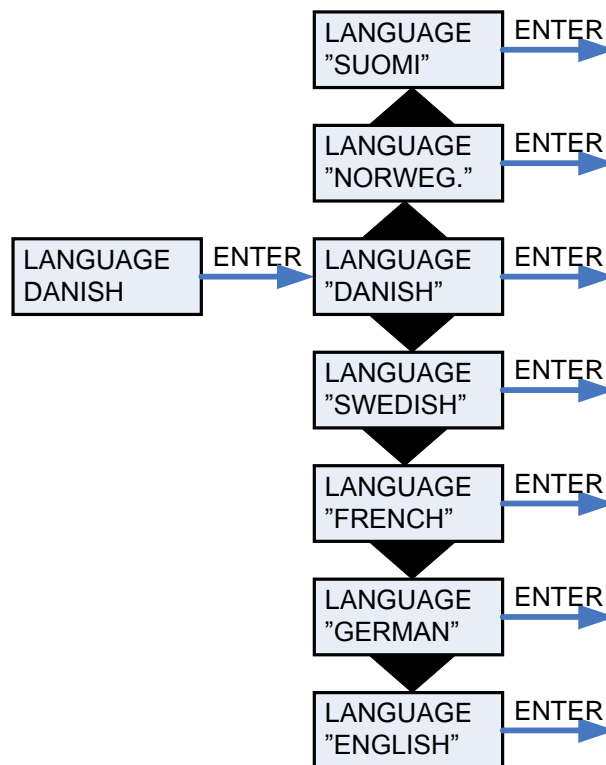


Figure 21: The „Language" menu

Filter change

Outdoor- and extract air filters are placed behind the front of the system. The filters can be replaced as needed – the units are configured from factory to the filters having a life span of 90 days. The desired life span can be altered using the control panel. Before change filter:



Always disconnect the power to the system

Screws are loosened and the lid is removed. The filters can be removed without using tools.

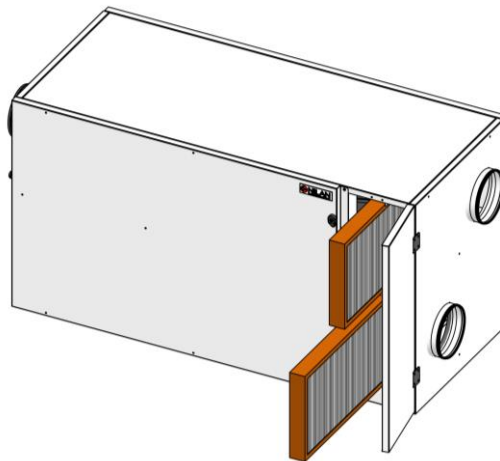


Figure 22: Filter change

Condensation drain and water trap



- Always disconnect the power to the system

Check if condensation drain and water trap is clear off filth, if necessary clean drain and water trap

Accessories / spare parts

Combi 300 Polar		
Filter types	Qty.	Nilan item no.
Filter sheet G4,	2	39530
Filter cassette F7,	1	39520