◆NIBE

GV-HR110

Passive ventilation / heat recovery
Display 2.3 / Version 3.2b / ES960-circuit board

NIBE

Table of Contents

1. Control Panel

The control panel must be mounted on an inside wall centrally located in the residence.
Since the control panel must also function as a room thermostat, it is important to consider the following:

- **That the panel is not exposed to direct sunlight**
- **That the panel is not mounted on an outer wall**
- **That the panel is not mounted in a wall recess**
- **That the panel is not mounted above a heat source**

A nearby light may affect the light sensor so that the panel will not regulate the light intensity properly.

There are 7 buttons in a ring on the front of the control panel that are used to control the panel. The buttons have different functions depending on the menu chosen.
(For more information see Use).

An infra-red motion detector lies under the glass window that shows the menu for daily use options when you pass your hand in front of the control panel. (This function can be disabled: see Main Menu/Display/Menu item 5).

The following can be found on the underside of the control panel:

1: SD-card
2: Room sensor
3: Light sensor
4: Mini USB-inlet for connecting to computers

1: The SD-card, which can be removed, contains all control models and versions assuring that the control panel will be compatible with older versions.

The SD-card also contains all languages, menus, help texts, symbols as well as collected data logs. During the commissioning procedure the current versions are included so that the control panel will also regulate without the SD-card; however no help texts will then be shown in the display.

2. Assembly

See installation manual.

3. Commissioning

- Updating model
- Wait 1.5 minutes -
(It will take approx. 1.5 minutes to load the current version)
- Language load (91)
- Language OK
- Menu load (84)
- Menu OK
- Icon load (369)
- Menu OK
- Reset to default
- Restarting……..
- Optima 250 SE

The display will then shift to:
- NIBE™ logotype
- Optima 250 SE
- Version number
D (Control panel): X,X
C (Circuit card): X,X

The display will finally shift to daily control and the facility is now operating with default settings that are only basic settings.

The facility is now ready for setting the optimal amounts of air, operational requirements and demands decided by the residence in question, e.g. weekly operation, temperature, etc., to achieve optimal use and operation of the facility.

4. Use

Control

NIBE™ GV-HR110 is supplied with integrated control that has a default setting that allows the facility to be put into use directly, without further settings.

The default settings are basic settings that must be changed to suit the requirements and demands of the residence in order to achieve optimal use and operation of the facility.

4.1 Use and change of data in the operations menu

The display normally shows symbols for daily use and the following buttons can be seen:

Daily use is divided into 7 menu items
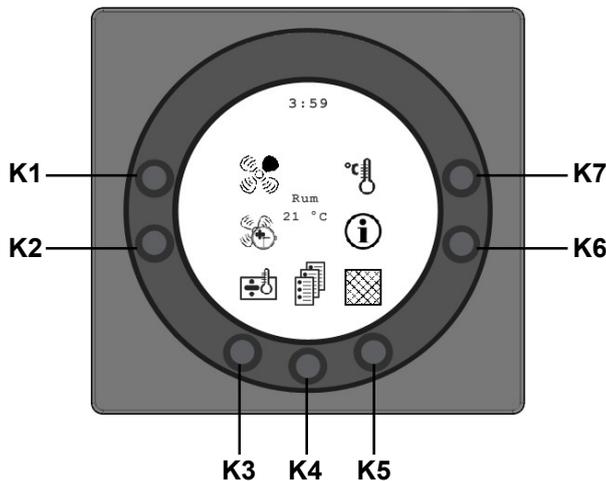
K1 - Speed

This function sets the speed of the fans at levels 0-1-2-3-4. Choose between 4 speeds by pressing the button beside the symbol for speed. The facility can also be stopped by holding the button down for 3-4 seconds.

K2 - Extended operation

This function sets the timer for forced operation between 0-9 hours.

Press the K2 button to switch between 0 to 9 hours. If the time in hours is set at 0 the speeds 3 and 4 will run until the speed is changed manually. If the time in hours is set between 1 and 9, the speeds 3 and 4 will automatically re-connect to speed 2 after the number of hours has been set. This is provided that item 28 in the Service menu is ON.

K3 - Post-heating

This function will turn the post-heat on or off. Press the button beside the post-heat symbol to switch between "+" or "÷". If the symbol is set at "+" and the facility is equipped with a post-heater, the post-heat will be connected when it is needed (post-heaters are not sold by NIBE).

If however, the symbol is set to "÷" the post-heat will not be connected, even if it is necessary.

K4 - Main Menu

This function makes is possible to enter the Main menu where the sub-menus Date and Time, Calendar, User Menu, Display, Information Menu and Service Menu are accessible.

K5 - Filter

This function resets the filter alarm. The button beside the symbol for "Filter" will reset the filter exchange alarm. To reset the filter alarm the filter must be exchanged first, the button with the filter symbol must then be held down until the exclamation mark in the symbol disappears.

K6 - Information

This function gives a good overview of the facility's current operating conditions: temperatures, fan settings, relay status/function, ON/OFF/, time cue, etc. The facility's operating conditions can be read on the button beside the Info symbol. (More information is available in the Main menu, under the item Operations Info).

K7 - Temperature

This function will set the desired temperature when the facility is equipped with a post-heater.

The desired temperature can be set between 10 °C and 30 °C using the button beside the temperature symbol. The current temperature will be shown in the middle of the display. (Post-heaters are not supplied by NIBE)

When you push the K4-button you will access the main menus and sub-menus and can change functions using the following buttons:

K3 changes to "Arrow down" and when the setting is changed to "÷".
K4 changes to "Enter". The "Enter" button will access the menus and sub-menus,
K3 changes to "Arrow up" and when the setting is changed to "+".
**K6** changes to "Exit". Pressing "Exit" to return to the previous image displayed.
K7 changes to "Help". Press "Help" to get a short description of the current menu item.

The menu item is replaced by an ambulating arrow that shows which item you are at. When a change has been made in a menu item, press "Enter" to close and

4.2 Main Menu

The symbol "Book pages" K4 gives access to the main menu and is found under the daily use options, farthest down in the middle. Press this button to access the main menu.

This menu is divided into 6 menu items
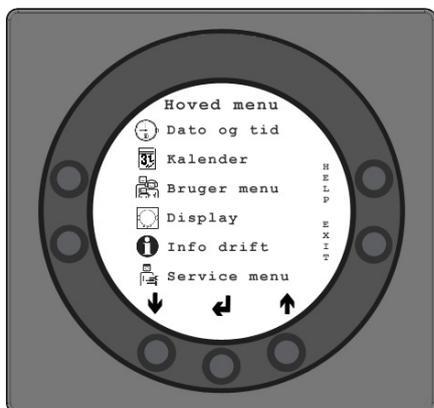
Date and time	(item 4.3)
Calendar	(item 4.4)
User menu	(item 4.5)
Display	(item 4.6)
Operations info	(item 4.7)
Service menu	(item 4.8)

Press "Arrow down" or "Arrow up" to change the symbol to an ambulating arrow that indicates the current location.

Press "Enter" to access the current menu's sub-items. Press once on "Arrow down" or "Arrow up" to choose the sub-menu item. When the ambulating arrow is beside a sub-menu the 2 lines will change places, the font size changes and the text "Set" will be added. When you press "Enter" beside the chosen sub-menu item, the colour of the item background will become grey. The buttons "+" and "-" are used to change the current value. Press "Enter" once again to save the changed setting. If no change has been made you can exit the menus by pressing on the "Exit" button.

4.3 Date and Time

This function sets and changes the date and time.

This menu is divided into 6 sub-menu items
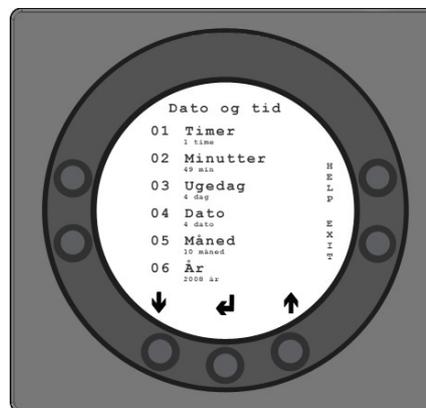
01 Timer
Set the current number of hours here.
To change summer/winter times set the hour forwards or backwards manually.

02 Minutes
Set the current number of minutes here.

03 Weekday
Set the current day of the week here.

04 Date
Set the current date here.

05 Month
Set the current month here.

06 Year
Set the current year here.

Day of week

Monday	1
Tuesday	2
Wednesday	3
Thursday	4
Friday	5
Saturday	6
Sunday	7

Month

January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

4.4 Calendar 🗓

This function will set and change settings for the different days of the week. Every weekday can be set to run with different fan speeds as required. The settings can be copied from one weekday to the next. It is possible to set ON or OFF, i.e. if no one is in residence during a period of time the daily settings can be turned off and the facility will run a manual setting, e.g. level 1.

This menu is divided into 9 sub-menu items
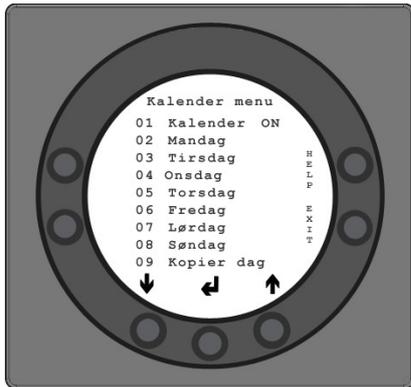
01 - Calendar

Choose between controlling the facility manually or controlling the speed (exchange of air) and temperature automatically according to a set weekday program.
If the menu item is set to OFF, the facility is manually controlled according to the speed and temperature that has been chosen. If the menu item is set to ON, the facility is controlled by those weekday programs that are programmed in menu items 02 to 08.
Setting options: ON/OFF.
Default setting: OFF

02 - Monday

A maximum of 10 time points can be set for one weekday. The time points can be set in any order. The hours are set in the first column, minutes in the second column, speed in the third column, and in the fourth column the desired reduction in temperature is set.
Example: If the temperature is set to 21ºC and you set – 2,0º then the facility will be controlled at 19ºC.
If the speed has been changed manually with the button during daily operation, then the program will revert to the weekday program when the next change in time point is passed.

Example of a day program:

1	07:30	H3 - 0,0
2	09:15	H1 - 1,0
3	17:00	H3 - 0,0
4	18:00	H2 - 0,0
5	23:30	H2 - 2,0

It is not necessary to use all the exchange time points. If the whole line has a 0, it will be passed over by the control.
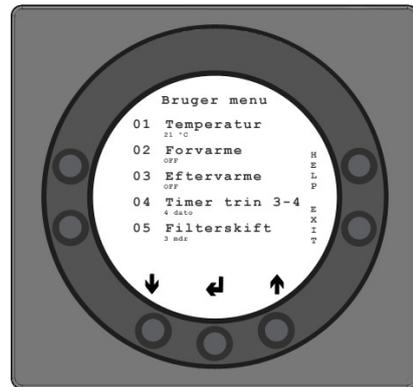
3 to 08

These days can be added to individually, just as under item 02.

09 - Copy day

This menu item can copy one weekday to another when the same exchange time points, speeds and temperature reductions are required. For example: Thursday -Tuesday.

4.5 User Menu 🖥

This menu is divided into 5 sub-menu items

01 - Temperature

Item 19 in the service menu can regulate the incoming air, room air and outgoing air. (The room sensor is mounted in the control panel). Setting options between 10 and 30 °C.
Default setting: 21°C.

02 - Pre-heating

Pre-heaters are included with the product and must be mounted on the outlet vent. The setpoint is set to ON.
The pre-heating temperature required is set in the Service menu under item 20.
Setting option: ON/OFF.
Default setting: OFF.

03 - Post-heating

If there is a post-heater mounted on the facility you can choose to have the post-heater running. If the setpoint is set to OFF, the post-heater will not run, even if necessary. If the setpoint is set to ON, the post-heater will be connected when necessary.
It will regulate according to that temperature set in item 1 of the User menu.
Setting options: ON/OFF.
Default setting: OFF.

04 - Timer levels 3 and 4

At speeds 3 and 4, the facility will automatically re-connect to speed 2 according to the number of hours set in item 17 of the Service menu, since the setpoint is set to ON: If the setpoint is set to OFF, the facility will run at speed 3 or 4 until it is manually changed to another speed. The timer can also set directly using the button beside the symbol for extended operation on the display for daily use options. Setting option: ON/OFF.
Default setting: OFF.

05 - Filter exchange

There is a built-in filter timer that calculates how long the facility has been in operation since the latest filter exchange. The setpoint can be set between 1 and 6. We recommend setting the setpoint at 3 (3 mon.) the first time. If the filter is dirty after the set period, the setpoint can be set to a fewer number of months. If no exchange of filter is necessary after the set period, then the setpoint can be set to a greater number of months.

When the timer reaches the set value for filter exchange, the alarm "Exchange filter" will flash on the upper part of the screensaver.
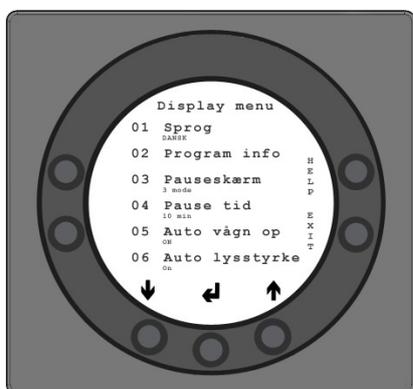
When the filter has been exchanged the display for daily use options will return and the button for the filter symbol must be pressed down until the exclamation mark disappears and the facility returns to normal operation. Setting option is between 1 and 6 months.
Default setting: 3

4.6 Display Menu ⬜

The menu item with the symbol "Display". This function can set and change the following sub-menus:

This menu is divided into 18 sub-menu items

```
            Display menu
    01  Sprog
        DANSK
    02  Program info
                               H
    03  Pauseskærm             E
        3 mode                 L
                               P
    04  Pause tid
        10 min
                               E
    05  Auto vågn op           X
        ON                     I
                               T
    06  Auto lysstyrke
        ON
        ↓        ↵        ↑
```

01 - Language

It is possible to choose between Danish, English, German or Swedish text in the display.

02 - Program info

This menu shows the control version that is mounted on the facility and the version number.
Example: Optima 250 DK D: 1.0 C: 3.0
D stands for the version number of the control panel.
C stands for the circuit board's version number in the aggregate.

03 - Screensaver

The following settings can be chosen here:
0: Screensaver off.
   (Daily use options are shown)
1: Screensaver off but with light damping
2: Room temperature + light damping
3: Time + light damping
4: Time and Room temperature + light damping
5: Black screen + light damping
Setting options: between 0 and 5.
Default setting: 3.

04 - Pause time

Set the period of time to pass from no symbols on the display being used for daily operation until it automatically switches back to the screensaver. The variable from the daily menu to the screensaver is 1 to 10 minutes. The other automatic re-couplings cannot be changed.
If a button is not pushed within the time set it will automatically revert to the previous display image.

- Change in menu item back to menu item = 30 s.
- From menu item to main menu = 2 min.
- From menu item to daily menu = 2 min.
Setting option: between 1 and 10 min. Default setting: 10 Min.

05 - Auto awakening

It is possible to disconnect the function "Auto-awakening" that can be used to shift from the screensaver to the display image with symbols for the daily use options by passing the hand over the control panel. Setting option: between 0 and 4.
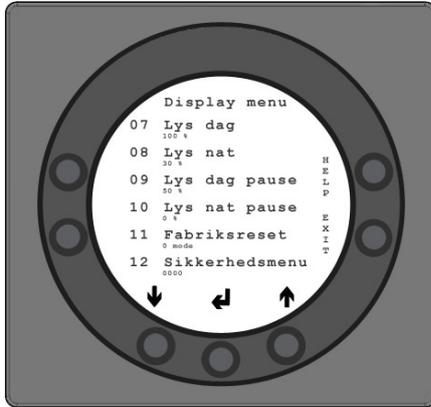Default setting: 1.

"0"	OFF
"1"	Most sensitive
"2"	Level 2
"3"	Level 3
"4"	Least sensitive

06 - Auto light intensity
A motion detector is included in the display.
Setting option: ON/OFF
Default setting: ON

07 - Light day
Set the maximum light intensity desired when the room is fully lit. Setting option: between 0 and 100 %. Default setting: 100 %

08 - Light night
Set the minimum light intensity desired when using the room in full darkness. Setting option: between 0 and 100 %. Default setting 30 %.

09 - Light day pause
Set the maximum light intensity desired for the screensaver when the room is fully lit. Setting option: between 0 and 100 %. Default setting: 50 %.

10 - Light night pause
Set the minimum light intensity desired for the screensaver when the room is in full darkness. Setting option: between 0 and 100 %. Default setting: 0 %.

11 - Reset to default
If the setpoint is set so that the facility does not work as expected and it is not possible to find the cause, then you can choose between 2 different resets of the menu items for the default settings.
**- Press 1** to change all menu items of the default settings with the exception of the menu items for Speed (Level), Filter timer, Calendar and Defrost temperatures.
- Press 2 to change all menu items of the default settings.

N.B. Make sure that currently set values are noted in "Schedule for setpoints" (p. 14) before resetting. Setting option: between 0 and 2.
Default setting: 0-mode.

12 - Safety menu
It is possible to prevent access to certain main menu items so that they cannot be changed without a code consisting of 4 numbers. Press 4 times on 0 the first time and then "Enter", items 13 to 18 will then open. A new code can be chosen in Item 18 that is to be used.
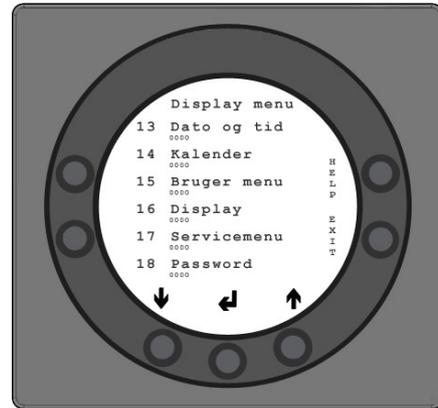
13 - Date and time
If this item is set to ON it will not be possible to enter the Date and Time menu without access to the code chosen in item 18. Setting option: ON/OFF.
Default setting: OFF.

14 - Calendar
If this item is set to ON it will not be possible to enter the Calendar menu without access to the code chosen in item 18. Setting option: ON/OFF.
Default setting: OFF

15 - User menu
If this item is set to ON it will not be possible to enter the User menu without access to the code chosen in item 18. Setting option: ON/OFF.
Default setting: OFF.

16 - Display
If this item is set to ON it will not be possible to enter the Display menu without access to the code chosen in item 18. Setting option: ON/OFF.
Default setting: OFF.

17 - Service menu
If this item is set to ON it will not be possible to enter the Service menu without access to the code chosen in item 18. Setting option: ON/OFF.
Default setting: OFF.

18 - Password

Enter a code that will also be used in item 12 to access items 13 to 18. Contact NIBE After Sales for help if you forget the code. If you want to change the code, enter a new code in this item and then press "Enter". The code is now changed.

4.7 Operations Info ⓘ

In the "Operations Info Menu" it is possible to see an overview of the current operating conditions of the facility. If you want to see the operating conditions of the facility over a period of time you can connect the control panel to a computer and use the data log program. The facility reads the operating conditions of the facility and saves the data for up to two years on the SD-card.

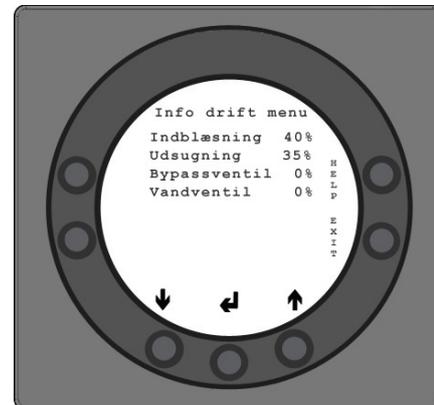**This menu is divided into 5 pages**

Current temperature

The current temperatures can be viewed by pressing "Enter" on the "Operations Info Menu".
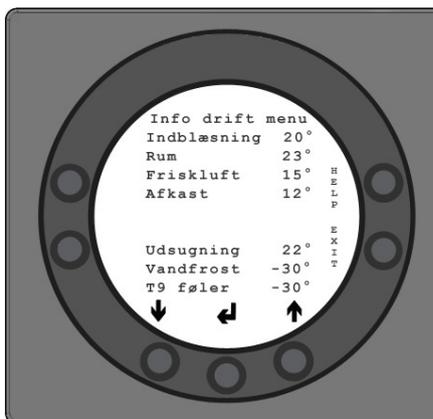
T1	Incoming air
T2	Room
T3	Outside air
T4	Exhaust air
T7	Outgoing air
T8	Frost protection
T9	Help sensor

Current fan speed

Press "Arrow down" to show the percentage fan speed and the opening of the bypass damper and water valve.

Incoming air	in %
Outgoing air	in %
Bypass damper	in %
Water valve	in %
Bypass	on/off

Actual setting of relays

By pressing arrow down the actual setting of the control relays are displayed

R2	Post-heat
R3	Pre-heat
R8	Facility in use
R9	Help relay 9

Current alarm overview

Press "Arrow down" once more to show the current alarm. It is activated when ON is displayed beside the alarm. ON also shows alarms on the screensaver and the display for daily use options when "Alarm" is visible at the top. The "Operations Info" menu shows which alarm applies. When the time reaches the set value for filter exchange, the alarm "Exchange filter" will flash at the top of the screensaver. When the error has been seen to or the filter exchanged and the alarm has been reset then OFF will be displayed.

Error message	Status	Error for "ON"
Control stopped	ON/OFF	Filter not exchanged within 14 days./ Frost protection error/The facility is equipped with an external contact between 28 and 29 on the coupling list. When these are short-circuited "Alarm" will be displayed and the facility stopped.
Exchange filter	ON/OFF	The filter must be exchanged
Frost protection	ON/OFF	The waterborne heater's temperature is too low (risk for frost)
Comm. error	ON/OFF	The control panel cannot communicate with the circuit card (between display and circuit card)

Time cue (2 pages)

Press "Arrow down" once more to show the time cue that counts from that day the facility was commissioned. The amount shown must be multiplied by 10. It shows how many hours the facility has been in use and how many hours the facility has run the different speeds, as well as how many hours the relays have been connected (ON).
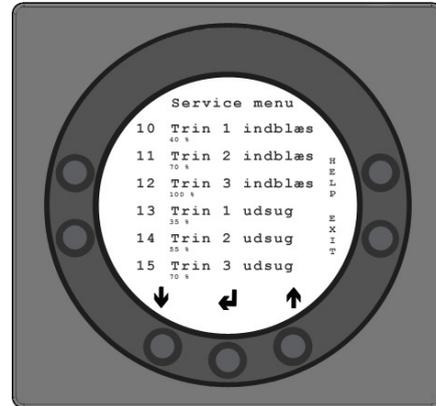
Total time	
Level 0	
Level 1	
Level 2	
Level 3	
Level 4	
Relay 2 Post-heat	
Relay 3 Pre-heat	
Relay 8 Facility in use	
Relay 9 Help function	

Press "Exit" to return to the main menu.

4.8 Service Menu

This function will set and change the following sub-menu items:

This menu is divided into 20 sub-menu items

10 - Level 1 incoming air

Level 1 is the lowest speed often used when no one is home. Both fans can, on all levels, be set independently of each other so that the amount of air on the incoming and outgoing sides is equal giving optimal operation. The facility must be set using technical ventilation equipment and can be done without using the main regulating damper. We recommended using knowledgeable guidance when setting the amounts of air flow. Incorrect settings may result in large energy consumption or poor indoor climate.
Setting option: between 0 and 100 %.
Default setting: 30 %.

11 - Level 2 incoming air

Level 2 is that speed the facility is recommended to run at in order to give optimal indoor climate and must be set to the ventilation necessary for the residence.
Setting option: between 0 and 100 %.
Default setting: 50 %.

12 - Levels 3 and 4 incoming air

Level 3 is the highest speed that can be set.
It is used e.g. when there are a lot of people or much activity in the kitchen. Setting option at level 3: between 0 and 100 %.
Default setting at level 3: 75 %.
Level 4 is used especially during the summer when the indoor temperature is reduced. Remember that greater air exchange gives greater energy consumption.
There are no setting options at level 4. Default setting at level 4: 100 %.

13 - Level 1 outgoing air

The fan speed is regulated until the same amount of air as the incoming air in level 1 is reached. Setting option: between 0 and 100 %.
Default setting: 30 %

14 - Level 2 outgoing air

The fan speed is regulated until the same amount of air as the incoming air in level 2 is reached. Setting option: between 0 and 100 %.
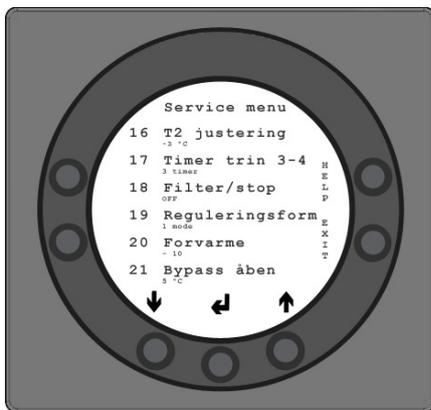Default setting: 50 %.

15 - Levels 3 and 4 exhaust

The amount of air at level 3 is regulated to the same amount of air as incoming air at levels 3 and 4 (item 12). Setting option at level 3 between 0 and 100 %.
The default setting at level 3 is 75 %.
There are no setting options at level 4.
The default setting at level 4 is 100 %

16 - T2 Adjustment

The room sensor can be finely tuned so that the display shows the actual room temperature. Setting option: between 0 and -5 °C.
Default setting: -3°C.

17 - Timer levels 3 and 4

If automatic re-coupling for speed 3 or 4 is used you can set how many hours the facility will run at level 3 or 4 before it is automatically reconnected to level 2.
Setting option: between 1 and 9 hours.
Default setting: 3 hours.

18 - Filter/stop

The setpoint can be set to ON to guarantee filter exchange when the control panel flashes "Exchange filter". The facility will then automatically stop after 14 days if the filter has not been exchanged during that period. If you don't want this reminder then the setpoint can be set to OFF so that the facility will continue to run. Setting option: ON/OFF
Default setting: OFF.

19 - Regulation method

Choose between incoming air regulation, room regulation or outgoing air regulation.

  0. Room regulation (T2 sensor)
  1. Incoming air regulation (T1 sensor)
  2. Outgoing air regulation (T7 sensor)

Ingoing air regulation is normally used in residential facilities. The setpoint is set to 1. For room regulation set the setpoint to 0. For outgoing air regulation set the setpoint to 2.
Setting option: between 0 and 2.
The default setting is 1.

20 - Pre-heating

If the pre-heater is set to ON in item 2 of the User menu then the setpoint must be set to the desired outdoor temperature that the preheater will be connected in at. Setting option: between -15 and 0 °C. The recommended value is - 3°C.
 The default setting is -10°C.

21 - Bypass opening

If the temperature rises 1°C above the set temperature in item 1 of the User menu, the bypass damper will begin to open under the following conditions:

  1.   The outgoing air temperature is higher than the outdoor temperature.
  2.   The outdoor temperature is above the set temperature in item 29.

To achieve an even opening of the bypass damper, the temperature at a fully open damper should be approx. 3 ºC above the set temperature in item 1 of the User menu.
Setting option: between 2 and 10 °C.
The default setting is 5 °C.
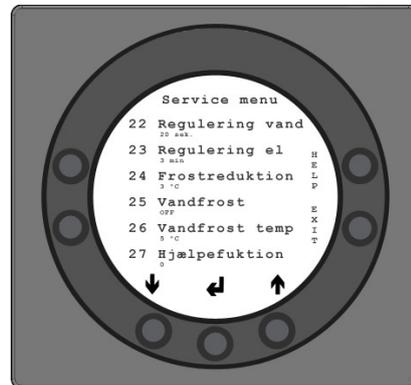
22 - Regulating water

If the facility has a water-based post-heater with a motor valve it may be necessary to change the regulating time. The less the regulation time, the faster the motor valve will regulate.
Setting option: between 1 and 250 s.
 Default setting: 20 s.

23 - Regulating electricity

It may be necessary to change the regulating time for electric pre- or post-heaters. Setting option: between 1 and 30 min.
Default setting: 3 Min.

24 - Frost reduction

To avoid the counterflow heat exchanger from freezing it is possible to gradually reduce the amount of incoming air when the temperature of the outgoing air from the counterflow heat-exchanger falls below the set temperature. This function gradually reduces the amount of incoming air until the set value has been reached. The function is only active when the setpoint is greater than 0 °C.
Setting option: between 0 and 10 °C.
Default setting: 3 °C.

25 - Frost protection

If the facility has a waterborne post-heater with a motor valve then it must be equipped with a frost sensor and the setpoint set to ON. If no frost sensor has been added then set the setpoint to OFF:
Setting option: ON/OFF.
The default setting is OFF.

26 - Frost protection temperature

If the frost protector in item 25 is set to ON, then the desired frost temperature must be set to that temperature the facility will be shut off and the motor valve opened completely for the inflow of hot water.
Setting option: between 0 and 10 °C.
The default setting is 5 °C.

27 - Help function

This function can be used for the following:

Setpoint	Function
0	Relay is turned off
1	Relay is on when the facility is in use. It may e.g. be used to open and close the incoming and outgoing air damper.
2	The relay is on when there is need for extra heat or if the circulation pump is run when there is need for heating with waterborne post-heating.
3	The relay is on when the facility displays "Exchange filter". This can be used to activate external alarms.
4	The relay is on when extra cooling is necessary. This function is used even if the facility has a pre-heater assembled.
5	The control can manage a ground heat exchanger with a damper. The relay will be on under one of the following two conditions: • The outdoor temperature, sensor T9, is lower than the set value in item 26 (frost temperature, typically set to 5°C). • The outdoor temperature, sensor T9, is more than 1° above the set temperature in item 1 and 1° above the current room temperature.

Setting option: between 0 and 5.
Default setting: 0.

28 - Facility is shut down

Choose if the facility will be turned off by pressing down button K1 for speed in the Operations menu for 3-4 s. If the value is OFF, the facility cannot be turned off.
Setting option: ON/OFF. Factory setting: OFF.

29 - Turn off bypass

This will guarantee that the bypass damper does not open at low incoming air temperatures and blow cold, unheated air into the residence. The value is an expression for the greatest difference allowed between the desired room temperature set in item 1 and the lowest incoming air temperature permitted.
Setting option: between 0 and 20 °C. When 0 is chosen, the function is switched off. Factory setting: 4 °C.

N.B: Must only be changed under knowledgeable guidance.

4.9 Schedule for weekly programs

Monday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Tuesday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Wednesday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Thursday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Friday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Saturday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Sunday

	Hours	Minutes	Speed	Red. T2
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

Red. T2= Reduced room temperature (Night reduction)

4.10 Schedule for setpoints

Point	Heading	Default setting	Setting range	Date	Date	Date	Date
(4.5) 1	Temperature	21 °C	10 - 30 °C				
2	Preheat	OFF	ON / OFF				
3	Post-heat	OFF	ON / OFF				
4	Timer levels 3 and 4	OFF	ON / OFF				
5	Exchange filter	3 mon.	1 - 6 mon.				
(4.8) 10	Level 1 incoming air	30 %	0 - 100 %				
11	Level 2 incoming air	50 %	0 - 100 %				
12	Level 3 incoming air	75 %	0 - 100 %				
13	Level 1 outgoing air	30 %	0 - 100 %				
14	Level 2 outgoing air	50 %	0 - 100 %				
15	Level 3 outgoing air	75 / 100 %	0 - 100 %				
16	T2 adjusting	÷ 3 °C	÷ 5 - 0 °C				
17	Timer levels 3 and 4	3 hours	1 - 9 hours				
18	Filter/stop	OFF	ON / OFF				
19	Regulating method	1	0 - 2				
20	Pre-heat	÷ 10 °C	-15 - 0 °C				
21	Bypass open	2 °C	2 - 10 °C				
22	Regulating water	20 sek.	1 - 250 sek.				
23	Regulating electricity	3 min.	1 - 30 min.				
24	Frost reduction	5 °C	0 - 10 °C				
25	Frost protection	OFF	ON / OFF				
26	Frost protection temperature	5 °C	0 - 10 °C				
27	Help functions	0	0 - 5				
28	Facility shut down	OFF	ON / OFF				
29	Turn off bypass	4 °C	0 - 20 °C				

The rights to technical changes are stipulated by GV-HR110

5. Function

5.1 Controlling GV-HR110
Regulation of room temperature
Choose between 3 regulating forms. See menu in item 19. If incoming air regulation has been chosen the control will blow in air at the set temperature. However, a post-heater (not supplied by NIBE) must be assembled on the facility. The incoming temperature is controlled by incoming air sensor T1. We recommend that the temperature of the incoming air is set approx. 2-3°C under the room temperature of the residence. We do not recommend using room regulation or outgoing air regulation in normal residences.

GV-HR110 is supplied with an electric pre-heater only. This is because incoming air regulation is normally chosen. Please observe that no real incoming air regulation occurs unless a post-heater has been added.

It is however possible to equip the facility with waterborne or electric post-heating whereby the following must be observed.

Relay R8
The relay will be on when the facility is in use at levels 1, 2, 3, or 4. This function can be used e.g. to control the incoming and outgoing damper.

5.2 Extra capacity
Waterborne post-heat:
In facilities with waterborne post-heaters (not supplied by NIBE) the motor valve will start regulating (PI-regulation) when the temperature falls 1° below the set temperature.

Electric post-heat
In facilities with electric post-heaters (not supplied by NIBE) the post-heat will be connected when the temperature falls 1°C below the set temperature. If e.g. the regulating time is set to 3 minutes, the sensor T1 will after 3 minutes measure the temperature to check if it is above or below the set temperature.
If the temperature is still under the set temperature the post-heating will remain connected. When the temperature at a point in time reaches the set value, the electric heat level will be disconnected.

Bypass
If the room temperature rises 1°C above the set temperature, the bypass damper will start to regulate upwards to fully open, which occurs at that room temperature the "max. bypass" has been set to, e.g. 5° C above the set/desired room temperature.

If the bypass function is ON, the bypass damper will normally open when the outdoor temperature (T3) is 1°C higher than the outgoing air temperature (T7), then the bypass damper will close to make use of the "free" cooling of incoming air that the counter heat exchanger can provide. If the facility has an extra cooling unit connected then this will turn on when the bypass damper is fully open and close once again when the bypass damper begins to close again.

5.3 Operation assurance
Safety thermostat
If an error has occurred on an electric heater, the safety thermostat will disconnect.
Press the small button in the middle of the thermostat to reconnect the safety thermostat.
The thermostat is located on the electric heater.

Remember to shut off the electricity before interfering with the facility.

6. Maintenance

Please observe the items below to achieve optimal operation:

⚠	Before turning on the aggregate, turn off the electricity/remove the plug and wait until the fans stop moving.

After installing the first time, check the condensation drain after a few days to make sure it works.

Environmental requirements
Environmental regulations and laws regarding recycling and disposal of diverse materials must be followed when commissioning or disassembling the aggregate.

6.1 Aggregate
The filter must be exchanged when "Exchange filter" flashes on the control panel's display. The facility can be shut off using the facility's switch or using the switch on the panel. Open the front lid/filter compartment and remove the filter. The filter timer must be reset when the filter has been exchanged. If you want to clean/exchange the filter with another time interval, you can adjust this in the operations menu.

⚠	Risk of cutting yourself on sharp plates. Do not damage the plates. Do not vacuum or use air pressure on the filter as this will impair the degree of filtering.
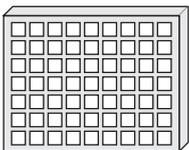
G4 = Standard filter (Coarse filter class G4)
F7 = Pollen filter (Fine filter class F7)

Condensation water and condensation drain
The condensation container must be cleaned of dirt every fall. Fill the condensation container with water and check if the water runs out - if not, then the drain must be cleaned.

Heat exchanger
Check the heat exchanger annually. Remove if dirty and wash with lukewarm water and soap, rinse through using a hand shower.

Fans
Check the fans for dirt in the impeller every third year. Remove the front lid of the unit. Clean the fans with a brush, bottle brush or paintbrush. Do not remove the balance weights on the impeller since this may cause imbalance and more noise, as well as wear to the fans.

Incoming and outgoing valves
The ventilating unit must be cleaned with a small brush to retain correct ventilation. Do not change the setting of the unit.
N.B. Do not mix up the units if more than one is removed for cleaning.

6.2 Larm
Filter timer
The control has a filter timer to guarantee that the filter is exchanged and that optimal operation is established. When the timer reaches the set value, "Exchange filter" will flash in the display until the filter has been exchanged. When the filter has been exchanged, the button for the filter symbol must be held down until the exclamation mark disappears and the facility reverts to normal operation.

Computer errors
This error appears when there is no communication between the display and control. Check the connections in the couplings list numbers 21 to 24.

21	Signal
22	Signal
23	10 Volt
24	0 Volt

Frost alarm
This error is displayed when a waterborne post-heater is mounted on the facility and its temperature is too low so that there is risk of frost damages. The control will stop the facility and open the motor valve to keep the heater warm.

6.3 Disassembly/discontinue using the facility
Do as follows:
Switch off the electricity, i.e. disconnect all electric cables. Remove the condensation drain and electric cables to all post-/pre-heaters. Remove leads to the control panel and remove the ducts.

If the facility is being shut down, remove the ducts to prevent condensation from forming in the facility and ducts. Lock all incoming and outgoing valves.

7. Troubleshooting

7.1 Safety thermostats
in electric heaters

The safety thermostat protects the electric heater from high temperatures during the production of heat. The safety thermostat is mounted in the electric box of the electric heater. If the set value (90°C) is exceeded the heating coil will switch off. The heating coil can only be reset using the reset button on the electric box when the temperature is below 90°C.

7.2 Facility will not function
The facility is stopped

Check the following:
• Does the facility receive power (230 Volt)?
• Is the wall outlet supplied with power?
• Is the aggregate turned off via the clock program?
• Is there a cable between the control/guide and the control panel?
• Has the filter been exchanged? (Alarm "Exchange filter")
• Frost protection error.

Condensation running from aggregate

Possible errors:
• Clogged condensation drain.
• The condensation drain is not sufficiently protected from frost at low outdoor temperatures.

7.3 Error at air supply side
No incoming air to residence

Possible error:
• Clogged outdoor filter due to dirt and leaves during the fall and snow and ice during the winter.
• Defrosting of aggregate.
• Incorrect value set in Menu 20 under 4.8 Service Menu

No outgoing air from residence

Possible error:
• Clogged outgoing air filer.

Cold incoming air

Possible error:
• The heat exchanger is clogged with dirt or ice.
• Clogged outgoing air filter.
• Temperature limiters triggered in the electric preheater.

If none of the above mentioned errors apply please contact your installer.

✧NIBE