Breezy

Climate

User Manual

99-94-0874 06/2025 GB • 2025-06-02

Big Dutchman

Software version 9.0

Manufacturer:	SKOV A/S
Address:	Hedelund 4, DK-7870 Roslev, Denmark
Telephone:	+45 72 17 55 55

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Product:	Breezy series
Type, model:	Controller

EU directives:	2011/65/EU	RoHS Directive
	2014/30/EU	Electromagnetic Compatibility (EMC)
	2014/35/EU	Low Voltage Directive (LVD)

Standards:
EN 63000:2018
EN 61000-6-2:2019
EN 61000-6-4:2019
EN 62368-1:2024

We declare as manufacturer that the products meet the requirements of the listed directives and standards.

Location: Hedelund 4, DK-7870 Roslev

Date: 2024.12.01

Tommy Bak

CTO

Product and Documentation Changes

Big Dutchman reserves the right to change this document and the product herein described without further notice. In case of doubt, please contact Big Dutchman.

The date of change appears from the front and back pages.

IMPORTANT

Notes concerning alarm systems

Breakdowns, malfunctions or faulty settings may cause substantial damage and financial losses when regulating and controlling the climate in a livestock house. It is therefore essential to install a separate, independent alarm system that monitors the house climate concurrently with the climate and production controller. According to EU-directive No. 98/58/EU, an alarm system must be installed in all mechanically ventilated houses.

We would like to draw your attention to the fact that the product liability clause of general terms and conditions of sale and delivery specifies that an alarm system must be installed.

In case of an operating error or inappropriate use, ventilation systems can result in production losses or cause loss of lives among livestock.

We recommend that ventilation systems should be mounted, operated and serviced only by trained staff and that a separate emergency opening unit and an alarm system be installed as well as maintained and tested at regular intervals, according to terms and conditions of sale and delivery.

Installation, servicing and troubleshooting of all electrical equipment must be carried out by qualified personnel in compliance with the applicable national and international standard EN 60204-1 and any other EU standards that are applicable in Europe.

The installation of a power supply isolator is required for each motor and power supply to facilitate voltage-free work on the electrical equipment. The power supply isolator is not included.

Note

- All rights belong to Big Dutchman. No part of this manual may be reproduced in any manner whatsoever without the expressed written permission of Big Dutchman in each case.
- All reasonable efforts have been made to ensure the accuracy of the information contained in this manual. Should any mistakes or imprecise information occur in spite of this, Big Dutchman would appreciate being notified thereof.
- Copyright by Big Dutchman.

1 Guidelines

This user manual deals with the daily operation of the controller. The manual provides fundamental knowledge about the functions of the controller that is required to ensure optimum use of it.

The user manual describes the general operation of the controller and all climate functions.

If a function is not used, e.g. **24-hour clock** - it is not shown in the controller user menus. The manual may therefore contain sections that are not relevant to the specific setup of your controller. See also *Technical Manual* or contact service or your dealer, if required.

2 Product description

Breezy is a simple climate controller developed especially for natural ventilation in poultry and pig houses.

The controller is operated via a touch display with graphical views of the ventilation status, icons and curves, among other things. In addition, you can name a wide range of functions such as 24-hour clock and water meters, so the functions are easier to recognize in menus and alarms.

The controller has two LAN ports for connection to BigFarmNet Manager as well as two USB ports.

Page layout

The controller has 5 main pages, which are adapted to the production and a menu page. The pages contain selected functions and views relevant to the daily work.

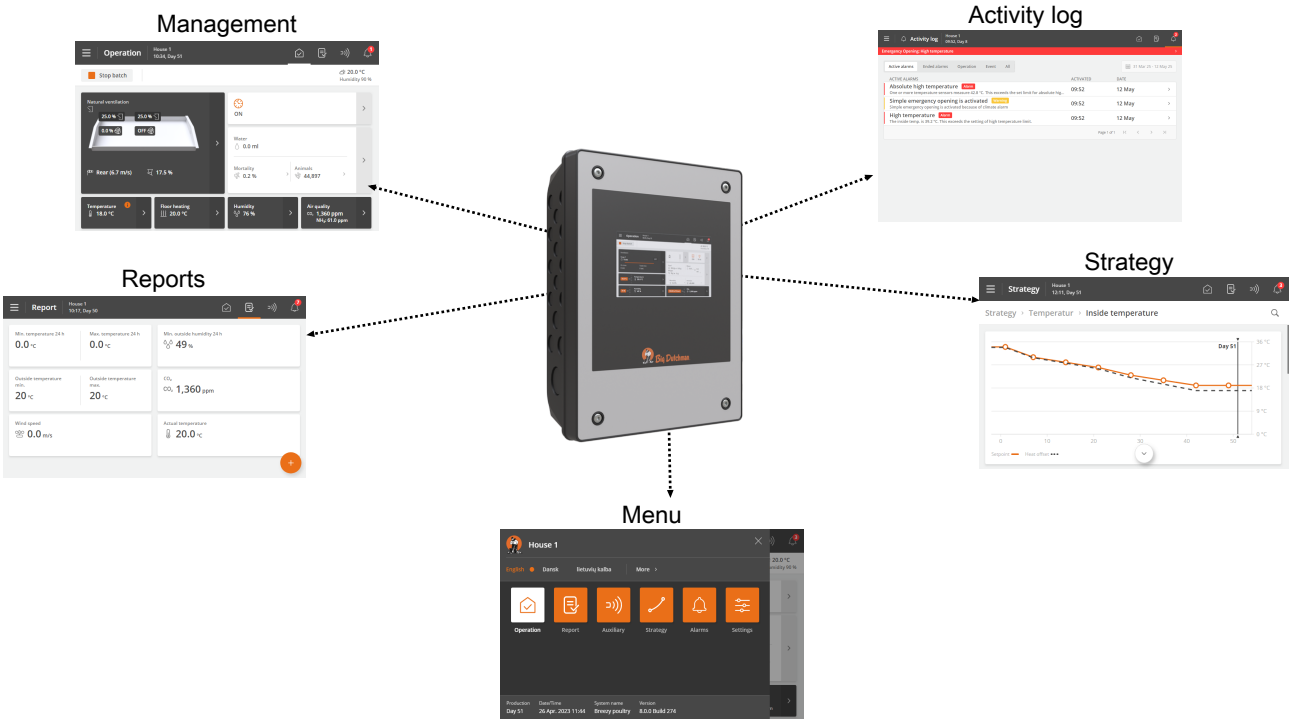
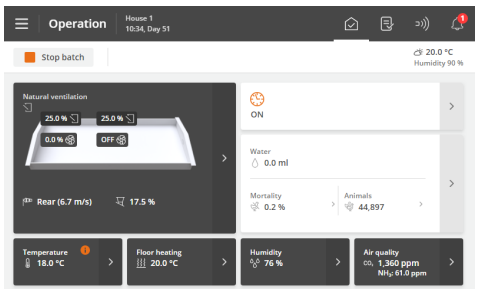
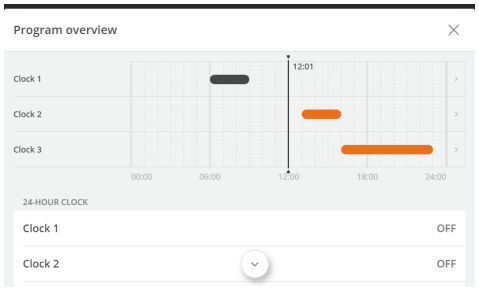


Figure 1: In addition, by selecting the different elements of the pages, there is access to underlying functions and data from the front pages.



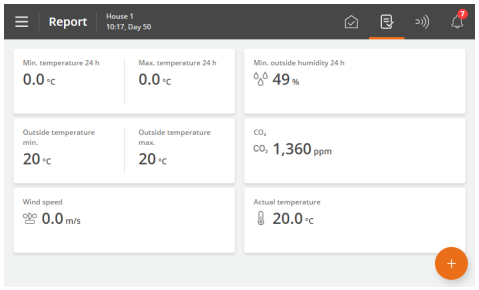
Operation

The page is the main page view where the functions that must be used for daily operation are gathered.



Operation | Program overview card

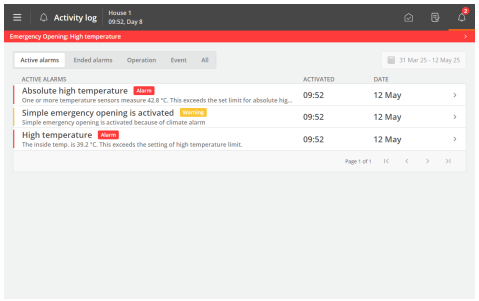
The card shows a collection of all programs with a clear indication of when the individual programs are active.



Reports

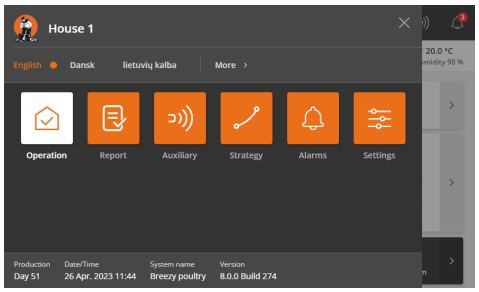
The page can be set up according the user's wishes to contain cards with key values showing current data.

It can thus be used to collect values that must be read daily and collect data to be reported.



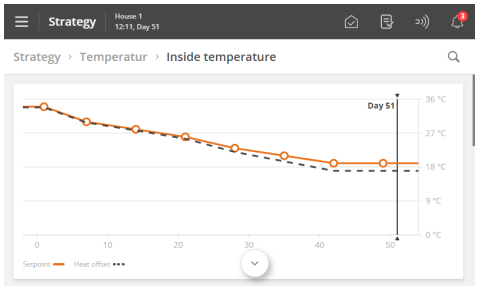
Activity log

The page displays a log of all recorded alarms, operations of the controller and events.



Menu button

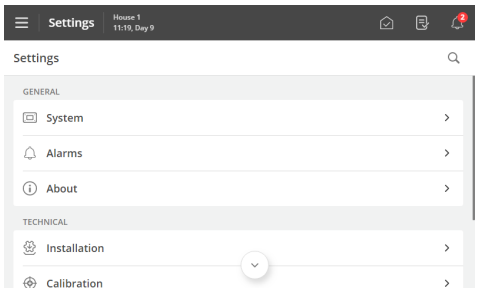
The button gives access to a collection of shortcuts to the various pages.



Strategy

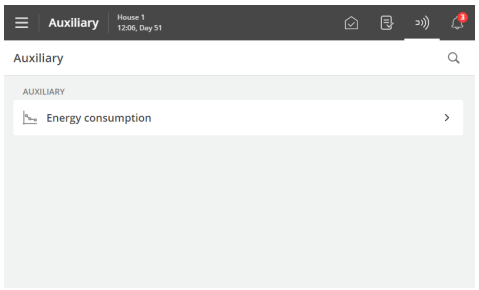
The page gives access to determination of the desired production strategy, which must be repeated from batch to batch.

These are, for example, program settings, references, and batch curves.



Settings

The page provides access to general settings and alarm limits.



Auxiliary

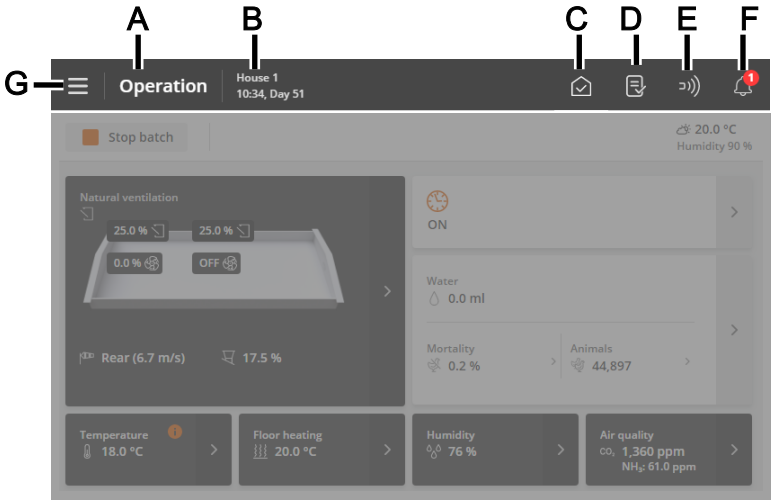
The page provide access to graphical displays of historical data for energy meters.

The page is only displayed if energy meters are installed.

3 Operating instructions

3.1 Operation

Each page is composed by different types of cards that provide information about the operation and quick access to operation.



From the top bar of the page, there are shortcut buttons that allow you to switch between the main pages **Operation** (**C**), **Report** (**D**)**, Auxiliary** (**E**) and **Activity log** (**F**).

A The icon and name of the page.

B The house name, time, and possibly week and day number.

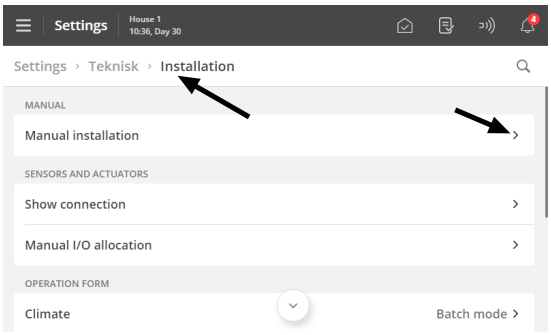
C The **Operation** page provides an overview and the ability to operate the functions most needed for your daily work.

D The **Reports** page shows the key values the user wants on the page.

E The **Auxiliary** page displays the consumption figures and auxiliary equipment status (if installed).

F The **Activity log** page displays active alarms and a complete log of operations, events, and alarms.

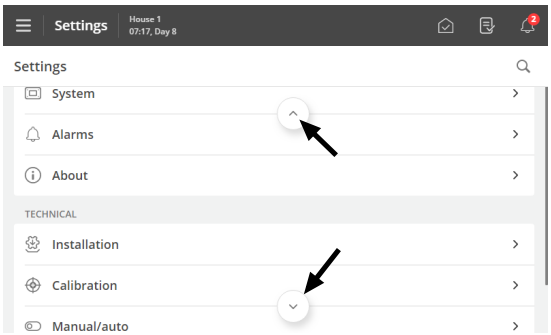
G The menu button gives access to language selection (see section Selection of language [▶ 11]) and other pages: **Pause functions**, **Strategy** and **Setting**.



Navigation menus provide access to sub-menus.

› The right arrow displays a sub-menu.

‹ The left arrow in the upper left corner allows you to take one step back in the menu.



Scroll

If the page is higher or wider than the display, you can scroll.

This is shown in the display as scroll bar.

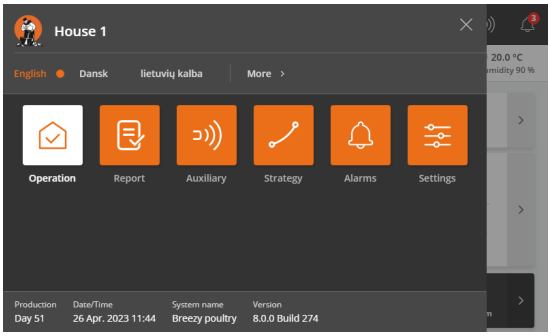
Scroll by sliding your finger over the display.

7” Display

This is shown in the display as arrows or scroll bar.

Scroll by pressing the arrows or letting your finger slide across the display.

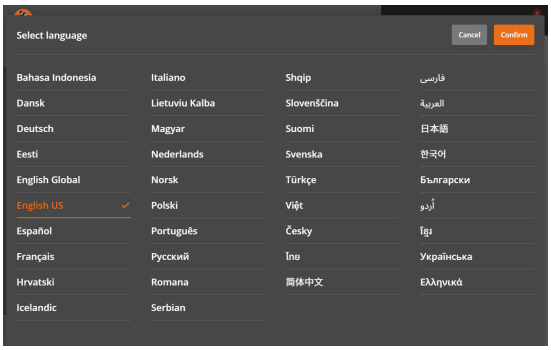
3.1.1 Selection of language



Press the Menu button.

A dot indicates the selected language.

Press **More** if the requested language is not displayed.

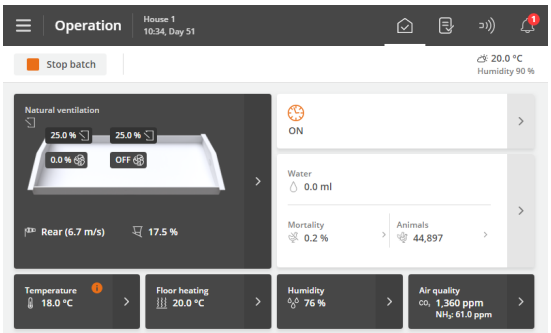


Select the language from the list. Press **Confirm**.

Note that function names (such as 24-hour clocks, water meters, and programs the user can name) are not translated into the selected language.

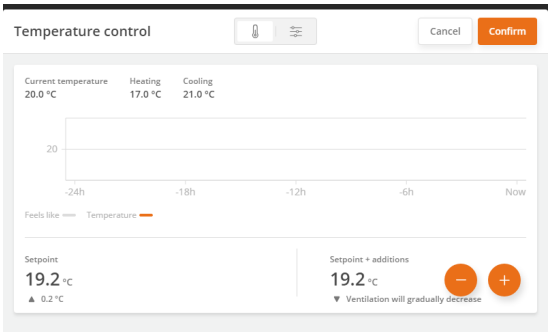
The factory setting for the names is English.

3.1.2 Climate card with daily settings



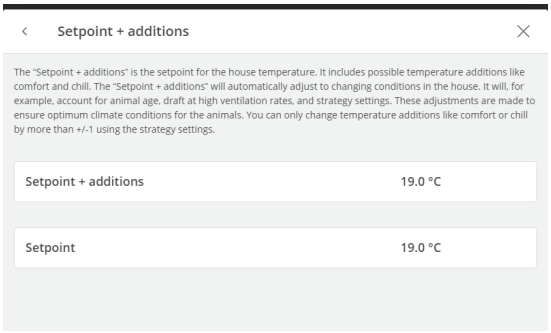
Press **Operation**.

The climate cards at the bottom of the page **Operation** provide an overview of the current climate in the house for daily users.



The climate cards provide easy adjustment of temperature, humidity and CO_2, for a graphical display of climate data over the last 24 hours, and for a number of settings and data in the settings menu.

When adjusting the temperature setting, the controller shows how the adjustment will affect the climate control, such as whether the ventilation will increase or decrease, for example.



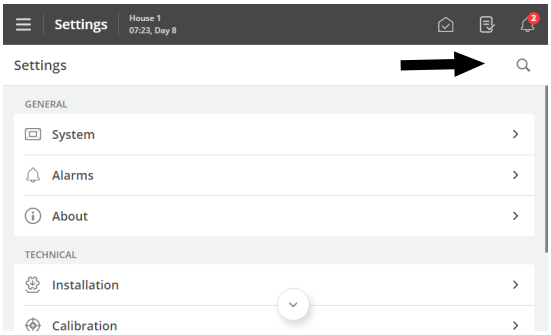
Temperature card. Setpoint + additions

Displays the parameters that determine the current temperature control.

3.1.3 Search in menus

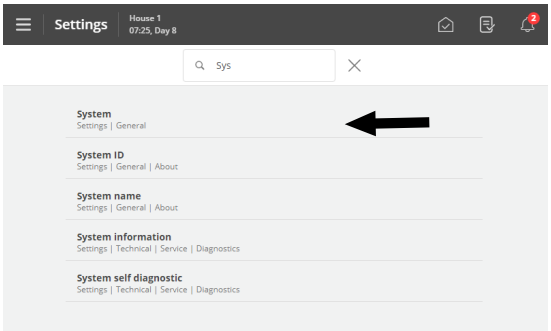
It is easy to search for the individual functions of the controller. There are search fields on the pages: **Pause functions, Strategy** and **Setting**.

A search across the pages is performed.



Use the search field to search in menus.

Enter at least 3 characters to search.



The result is shown below the search field. The path for the individual menus is also shown, for example, under Settings: **General | Alarms | Climate**.

Press a search result to go directly to that menu.

Press the X in the search field to remove the search results again.

3.2 Operation

The page contains views and settings relevant to the daily work in the house.

A The function button **Stop batch/Start batch**. See the section House mode Active house - Empty house [▶ 41].

B **Shortcut to the main page Operation**.

C View of outside temperature and outside humidity.

D Status view for the climate control and access to the ventilation equipment menus and setup of a matrix.

E Temperature settings. See section Temperature [▶ 25].

F Floor heating settings. See the section Floor heating [▶ 40]

G Humidity settings. See section Humidity [▶ 26].

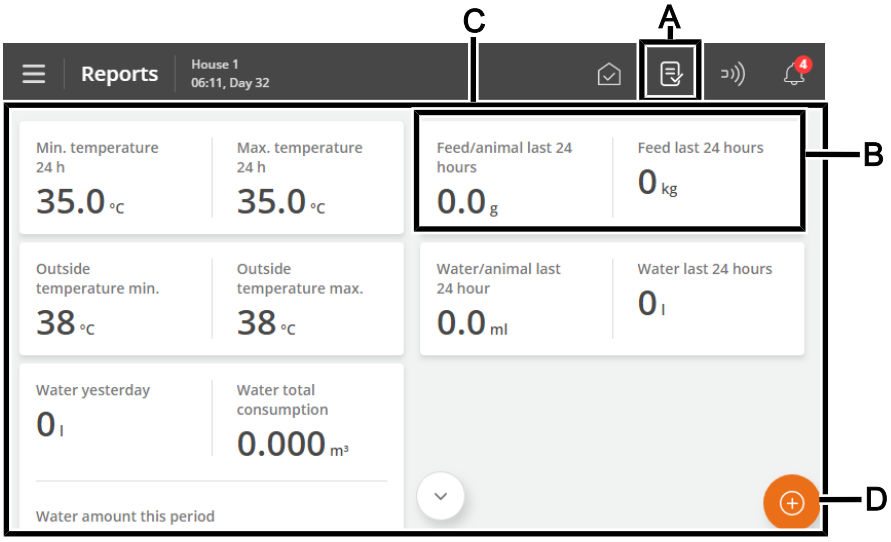
H Air quality settings, see section Air quality [▶ 27] .

I Indication of the development of the key figures for water consumption during the last 2 days. In addition, the view of calculated mortality and the current number of animals and shortcuts for recording the number of dead and moved animals.

J Status view for climate and production functions controlled by time programs.

3.3 Report

The user can set up the page to include the key values that give the desired overview of climate and production values.

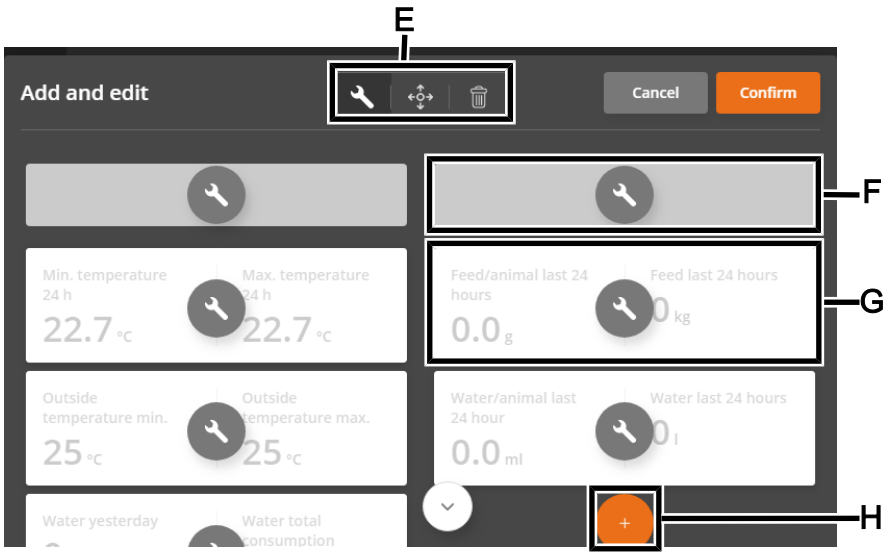


A Shortcut to the **Reports** page.

B Card with the key value. Each card can be set up to include up to 3 key values.

C The page displays a series of cards with selected key values for, for example, history and current values.

D Edit button. Gives access to choose between the desired key values.



E Tools for editing headlines or content on cards and moving or deleting cards.

First, press a tool and then make the desired change.

F Column header.

Press to name.

G Card with the key value.

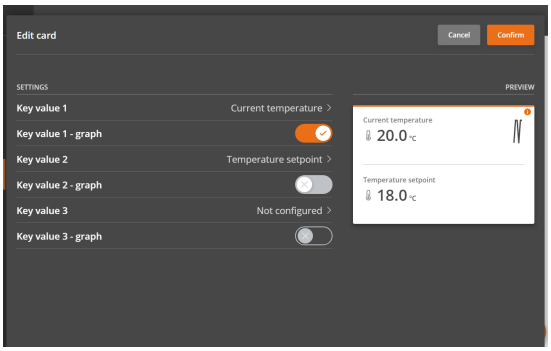
Press to change the key value and set up its view.

H Tool for adding a new card in the column.

Press to add a card and select the desired key value.

Cards with several key values

You can merge several cards to view up to 3 key values in one card.



Press the editing tool.

Press on the key value to be changed.

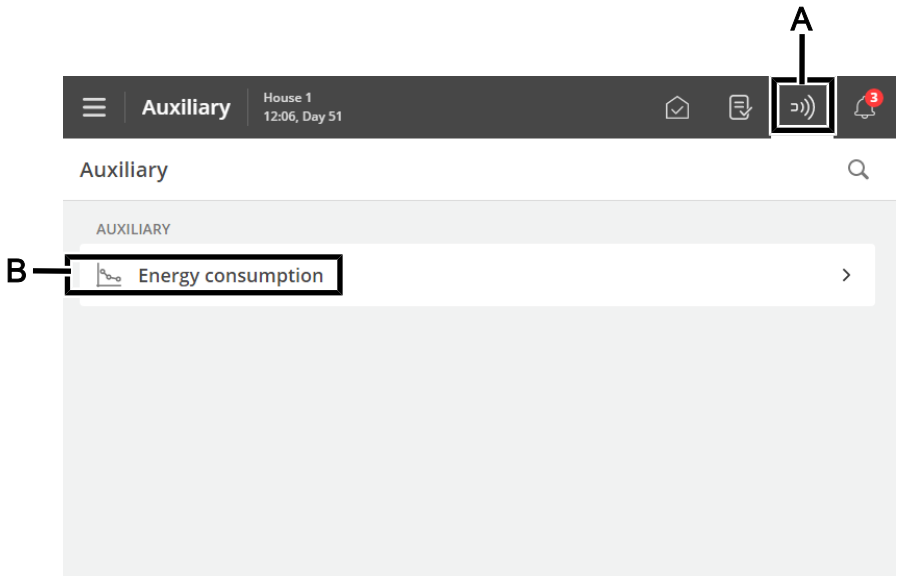
Select Key value 2 and select the key value to be displayed.

Select Key value 3, if required and select the key value to be displayed.

To the right a preview of the card is shown.

3.4 Auxiliary

The page provides access to recordings from energy meters, which can be used for monitoring, as an example.



A Shortcut to the page **Auxiliary**.

B The menu **Energy consumption** shows the current consumption in W and total consumption in kWh. The menu content depends on the type and the setup of the controller.

The values measured are viewed in intervals of 24 hours to 2 months.

3.5 Activity log

The Activity log page displays a log of alarms, operational changes, and events.

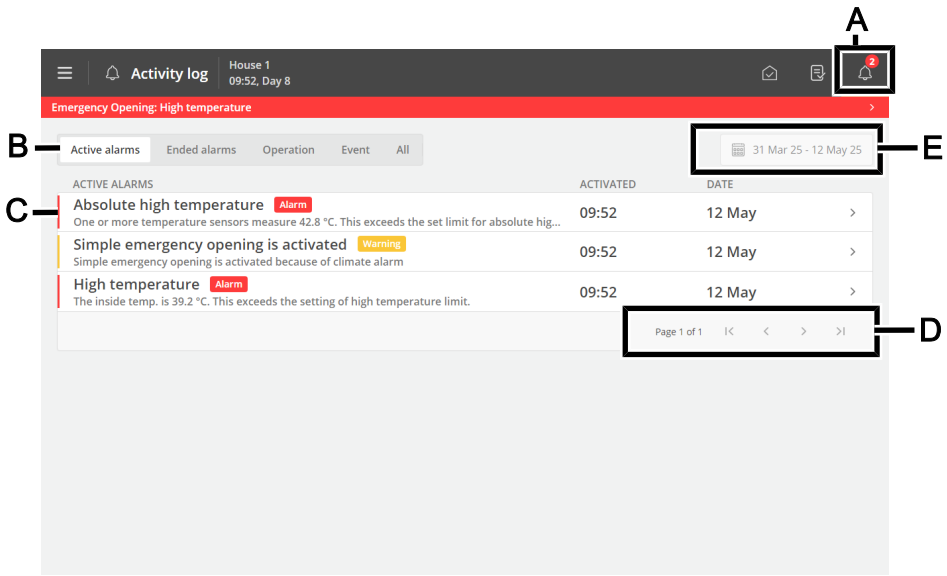
The most recent activity appears at the top. Previous activities can be viewed on the underlying log pages.

The activity log tabs show the different activity categories.

Alarms are divided into active and terminated alarms.

Alarm status colors:

- Red – hard active alarm
- Yellow – soft active alarm (warning)
- Gray – deactivated alarm



A Shortcut to the page **Activity log**.

The icon for the Activity log indicates the number of active alarms as long as an alarm situation has not ceased.

B Filtering options for the various types of activities:

Active alarms: displays alarms where the alarm situation is still present.

Ended alarms: displays alarms where the alarm situation has ceased.

Operation: shows the operation of the controller

Event: shows, for example, reset of the controller

All: shows all types

C Each line shows an activity.

Press the activity line to see details, such as when an alarm was activated and acknowledged. Also, when a value/setting was changed.

Press **Close** to close the details screen again.

D Page view in the activity log.

Switch one page at a time or switch to the first or last page.

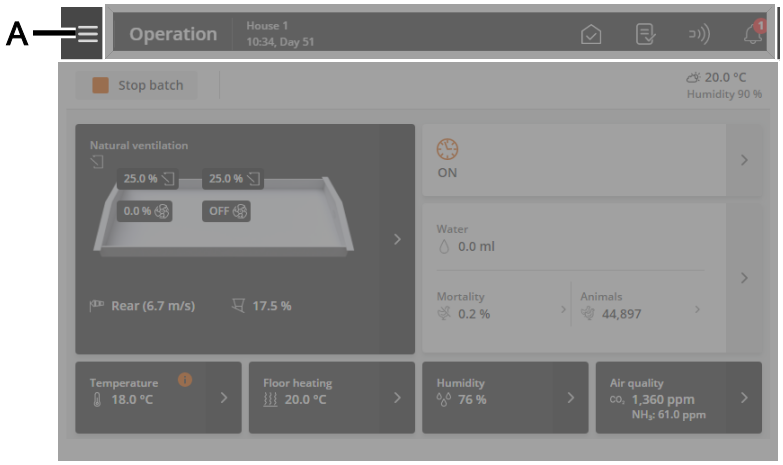
E Filtering option for dates and periods.

Several alarms often follow each other because one defective function also affects other functions. For instance, a flap alarm can be followed by a temperature alarm as the controller cannot adjust the temperature correctly with a defective flap. Thus, the previous alarms allow you to follow an alarming course back in time to detect the error that caused the alarm.

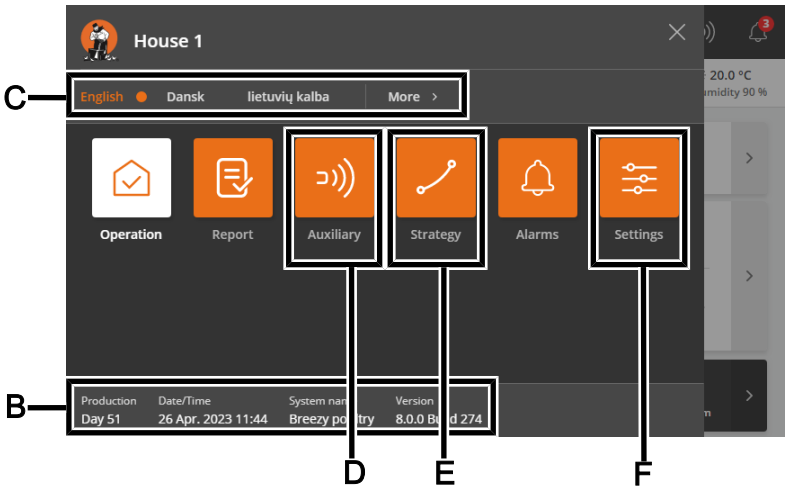
See the description of alarms in the section Alarms [▶ 23].

3.6 Menu button

The menu button gives access to language selection and general settings pages.



A Menu button



B Display house name, day number, time, variant name, and software version.

C Select language. Access other languages under **More**.

Note that function names (such as 24-hour clocks, water meters), and programs the user can name are not translated into the selected language. The factory setting for the names is English.

D Shortcut to the page **Auxiliary**.

The page provide access to graphical displays of historical data for energy meters.

The page is only displayed if energy meters are installed.

E Shortcut to the page **Strategy**.

The page provides access to the batch curves, which form the basis for controlling climate and production functions. See also the section Setting curves for climate and Setting curves for production.

F Shortcut to the page **Settings**.

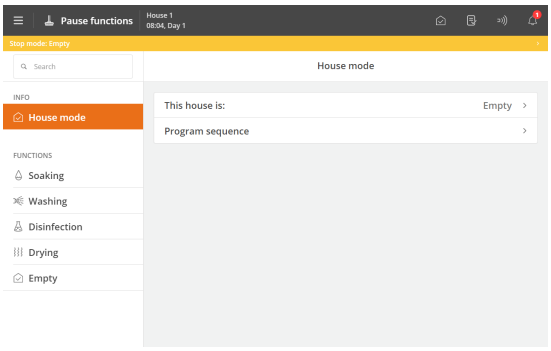
The page provides access to the user settings for **House info**, **Alarm settings,** and **Password**. See the sections System [▷ 21], Alarms [▷ 23], and Password [▷ 21].

In addition, you have access to the technical menus used for setup and service. See the Technical Manual.

3.6.1 Pause functions

The page gives access to functions designed partly to facilitate the activities you must carry out in the house to clean it and partly to ensure the air change and temperature in the house while it is empty.

- Washing
- Drying
- Empty



State

The controller can only activate the functions when the house status is **Empty**.

Empty house status is indicated at the top of the page by a colored bar.

When the time of a function is up, the controller will again regulate according to the settings for **Empty**.

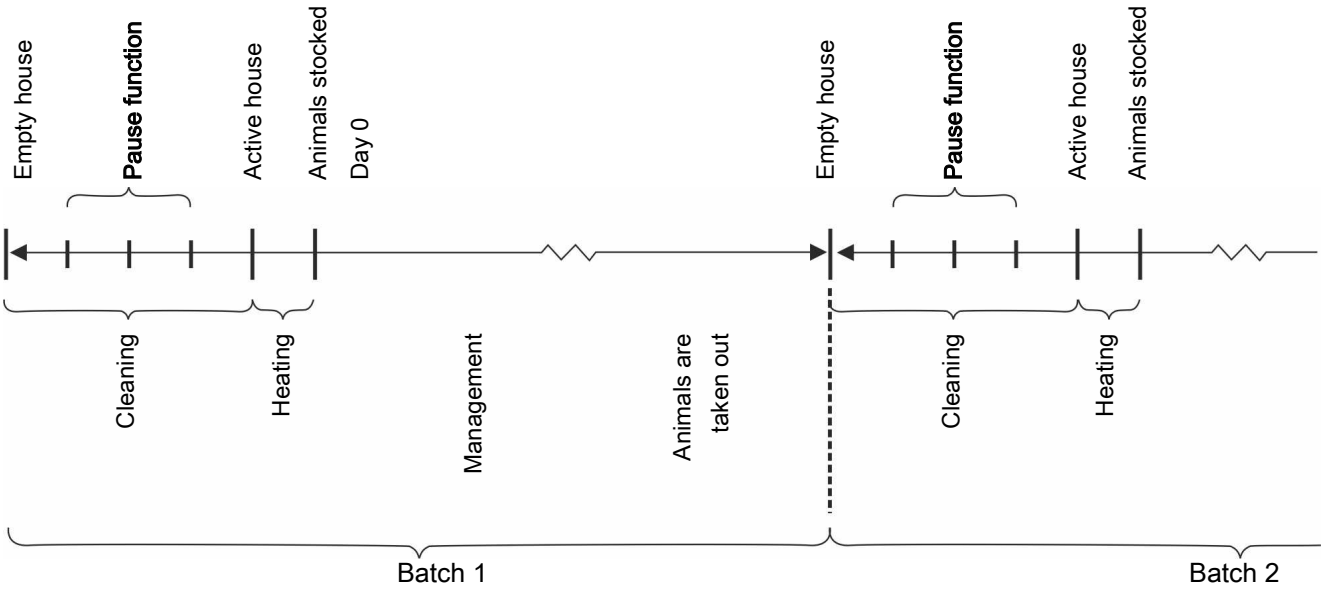
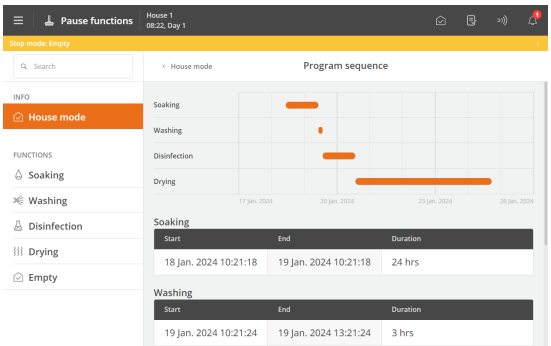


Figure 2: Setup example of Pause functions for batch production



Program sequence

You can set up each function to start at a specified time. It is thus possible to set an entire program sequence for the functions.

Menu button | **Pause functions** | **Info** | **House mode** | **Program sequence**

This house is:	Function selection menu (only displayed when the house status is **Empty**).
Function remaining time	When a function is activated, the set time counts down (only displayed when the house status is **Empty**).

Program sequence	Menu for setting the start time and function duration (only displayed when the house status is **Empty**).

Also see the section Between batches for a description of the various functions.

3.6.2 Strategy

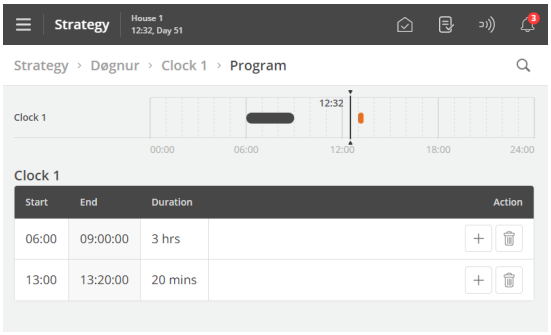
The page provides access to the more constituent function settings that you typically do not need to change during a batch. The strategies are thus determined in light of the overall requirements for the production.

It is where batch curves for temperature and light are set up, sub-functions such as nozzle cleaning for cooling are selected, and limit value settings are made.

Changes to the strategy curves are grouped here and displayed as **User offset**.

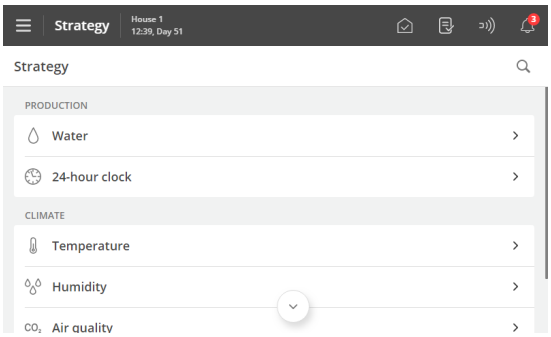
See the relevant section below for a description of the various functions.

Together with other information, the curve settings form the basis of the controller's calculation of climate and production regulation. The controller can adjust automatically according to the animals' age.



Depending on the type and setup of the controller, the following batch curves may be available for the climate regulation:

- Inside temperature
- Heat offset temperature
- Stand-alone heater temperature
- Humidity
- Minimum ventilation
- Maximum ventilation

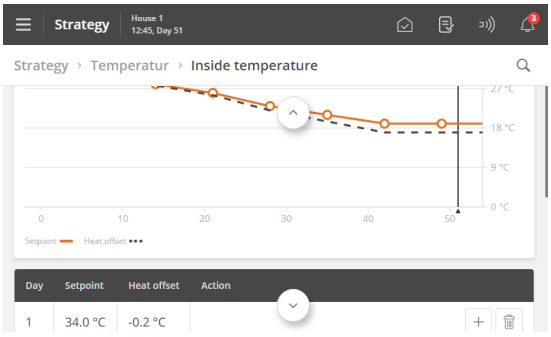


Depending on the type and setup of the controller, different batch curves are available production regulation:

- 24-hour clock
- Feed
- Water
- Weight
- Light

When the controller is connected to a network with the management program BigFarmNet Manager, curves can also be changed via BigFarmNet.

3.6.2.1 Setting curves



Menu button | **Strategy**

Set up for each curve:

- A day number for each of the required curve points.
- The desired value of the function for each curve point.

Press + to add the required number of curve points.

Typically, the last day number of the batch curve is set to match the expected production time.

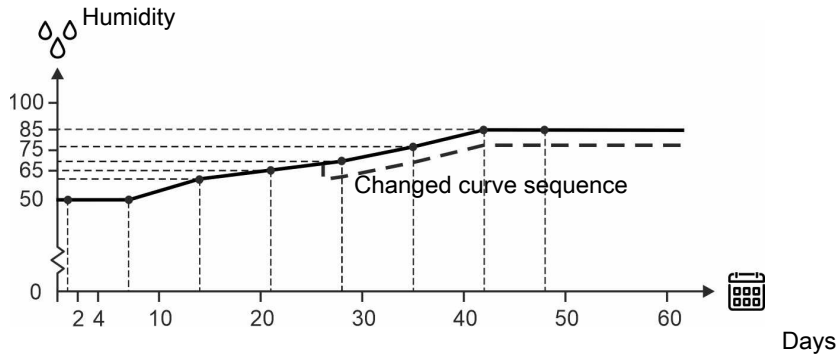


Figure 3: Curve for air humidity

It is generally the case for the curve functions that the controller automatically displaces the rest of a curve sequence in parallel when you change the associated setting during a batch.

3.6.3 Settings

The page provides access to general settings and alarm limits.

3.6.3.1 System

Menu button | **Settings | General | System**

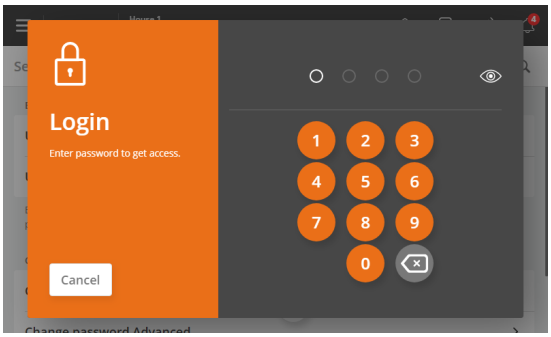
Adjust date and time	Setting current date and time. Correct clock setting is important for several control functions and alarm recording. Thus, all controller programs use date, time, and day number. The clock will not stop in the event of a power failure. **Summer and wintertime** There is no automatic adaptation in summer and winter, as some animal types are very sensitive to changes in their circadian rhythm. If you want the controller to follow the local time for summer and winter, you must manually change the time setting by +/- 1 hour.
Day number	Select whether the day number should show the time since start (house status is active) or the actual age of the animals. When the actual age of the animals is required, the day number must be adjusted until it matches the life expectancy. At midnight, day number 1 counts for every day that passes. Please note that if the day number is changed during a batch, it will shift/destroy the historical data of the batch (feed consumption, etc.). The function **Day number** can also be used to preheat the house by setting a number of minus days.
Week day	Viewing week day.
Start on day	Setting the day on which the batch shall start. Day number can be set as low as -3 so the controller can control the preheating of the house before the animals are stocked.
House name	Setting house name. Each livestock house must have a unique name when the controller is integrated with a LAN network. The house name is transferred through the network, and the livestock house should be identifiable based on the name. Set up a plan for naming all controllers connected to the network.
Password	Decide whether the controller must be protected against unauthorized operation using passwords. See section Password [▶ 21].

3.6.3.1.1 Password

This section is only relevant to houses where the Password function is activated.

The controller can be protected against unauthorized operation using passwords.

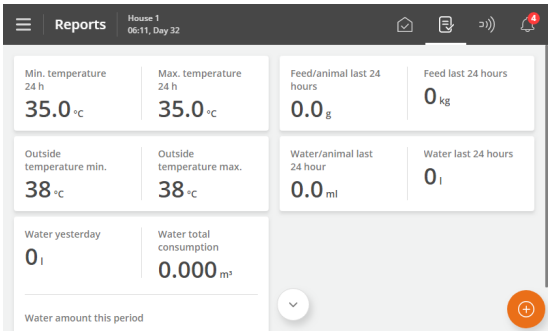
In order to have access to changing a setting, a password must be entered that corresponds to the user level which the relevant function is found at (**Daily**, **Advanced** and **Service**).



Menu button | **Settings** | **General** | **System** | **Password** to access the activation of the function.

Enter a service password.

After entering the password, the controller can be operated at the corresponding user level. After 10 minutes without operation, the user is automatically logged out.



Select a page after an operation. After 1 minute, the controller will request the password again.

Activate the function **Use password for the Technical menu only** to make the controller require the **Service** password only when the user wants to change settings in the menus **Installation**, **Calibration**, and **Service**.

Change password for each of the 3 user levels.

To gain access to changing a password a valid password must first be entered.

Menu button | **Settings** | **General** | **System** | **Password**.

User level	Gives access to	Factory-set code
Daily view (without login)	Entering the number of animals Fine-tuning of temperature, humidity, and air quality Manual climate control	
Daily	Daily: Changing set values	1111
Advanced	Daily + advanced: Changing curves and alarm settings Manual production control	2222
Service	Daily + advanced + service: Changing settings under Technical menu	3333

Access limitation to operate the controller

We recommend that you change the default passwords and subsequently change the password regularly.

Forgotten Password

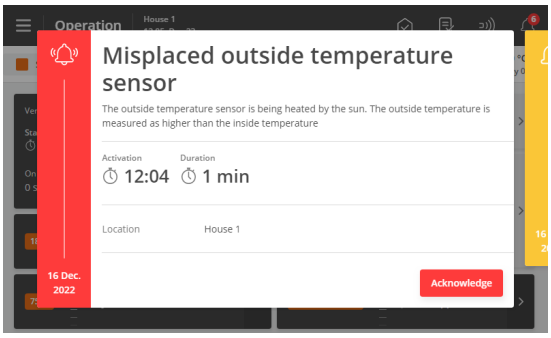
If an incorrect password is entered 3 times, the controller will display its MAC address and UTC date.

These must be provided by contacting a Service Partner who can assist with a new temporary Service Password. The password is specific to the individual controller and only valid on the day it is generated.

3.6.3.2 Alarms

Alarms only work when the status is Active house.

The only exceptions are alarm tests and alarms for CAN communication and temperature surveillance at **Empty**.



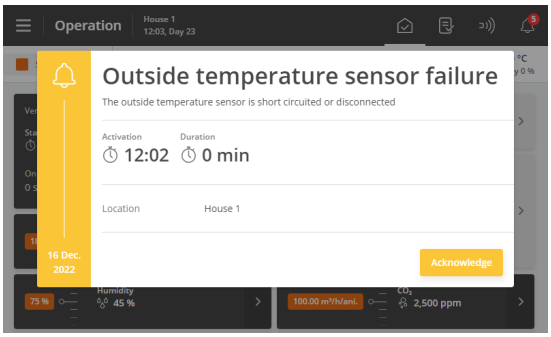
The controller will record the alarm type and time when an alarm occurs.

The information on the type of alarm will appear in a separate alarm window, together with a short description of the alarm situation.

Red: hard alarm

Yellow: soft alarm

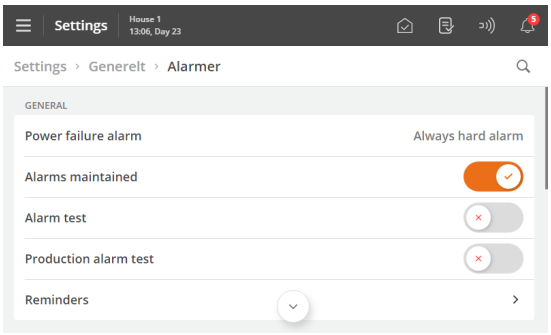
Gray: deactivated alarm (alarm state ceased)



You can choose whether the alarm should be hard or soft for selected climate and production alarms.

Hard alarm: Red alarm pop-ups on the controller and generation through the connected alarm units, e.g., a horn. Only hard alarms trigger the alarm relay.

Soft alarm: Yellow pop-up alert on the house controller. Soft alarms generate a pop-up in the display.

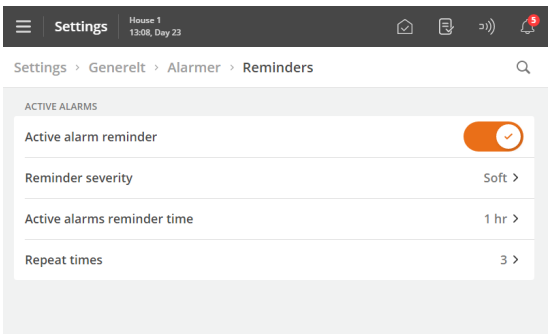


The controller will also trigger an alarm signal, which you can choose to maintain.

The alarm signal will thus continue to sound until you acknowledge the alarm. It also applies even if the situation that triggered the alarm has ceased.

Menu button | **Settings** | **Alarms**

Alarms maintained: Selecting whether the alarm signal should continue after the alarm condition has ceased.



Reminder

The controller can remind you of an ongoing alarm once you have acknowledged a hard alarm. It should ensure that the cause of the alarm is handled.

Reminder settings:

Active alarms reminder time: Setting how long after the alarm, the reminder is to appear.

Repeat times: Setting how many times the reminder is to appear.

See section Climate [▶ 43] for setting the alarm and alarm limits.

3.6.3.2.1 Stopping an alarm signal

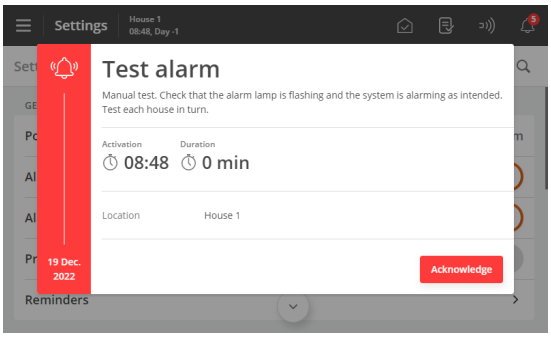
The alarm window disappears, and the alarm signal stops when you acknowledge the alarm by pressing **Acknowledge**.

3.6.3.2.2 Power failure alarm

The controller will always generate an alarm and activate emergency opening in the event of power failure.

3.6.3.2.3 Alarm test

Regular alarm tests help to ensure that the alarms actually work when needed. Therefore you should test the alarms every week.



Activate **Alarm test** to start testing.

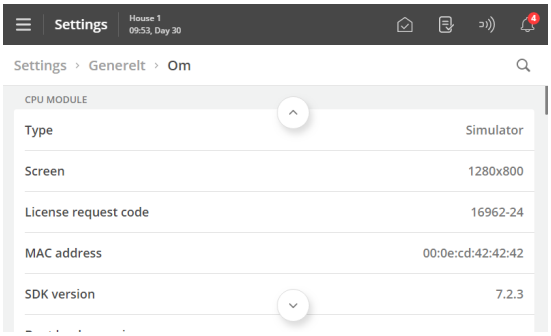
Check that the alarm lamp is flashing.

Check that the alarm system alarms as intended.

Press **Acknowledge** to finish testing.

3.6.3.3 About

The menu item contains information about types and versions of software and hardware.



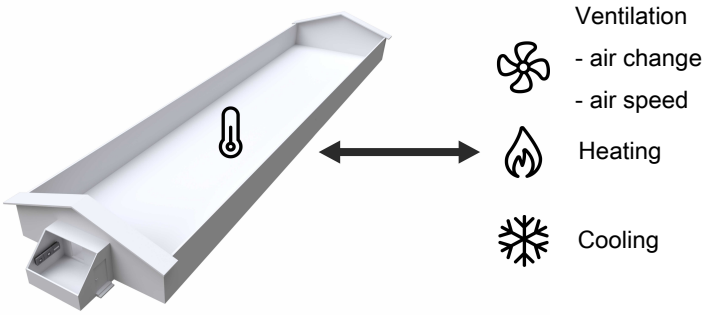
Furthermore, under **CPU module** you can see the license order code, which must be used when ordering additional software, e.g.,production add-ons.

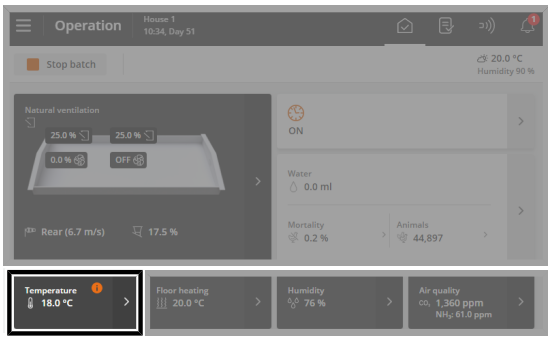
4 Climate

4.1 Temperature

The controller adjusts the inside temperature according to the **Temperature setpoint**.

When the inside temperature is too high, the controller opens the curtains to supply more fresh air and cool the air if needed. When the inside temperature is too low, the controller closes the curtains to keep the heat in the house and supply heat if needed.





Operation. The most important temperature values can be viewed and adjusted via the card **Temperature**.

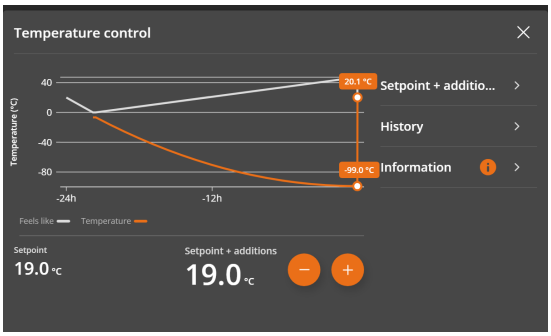
The front shows the current inside temperature in the houseand the temperature setpoint.

The following sections describe the functions and setting options available for temperature.

4.1.1 Temperature adjustment

The temperature card provides access to easy adjustment of the inside temperature during a batch.

Setpoint + additions continuously takes into account both the current ventilation and the settings you make. The inside temperature will thus adapt so that there is always the optimum temperature at the given level of ventilation.



Operation | **Temperature** card

When the inside temperature is desired to be higher or lower, adjust the **Setting + additions** up or down by 0.5 °C.

Wait for about 2 hours and assess the climate again.

The Temperature card shows a curve of the temperature development for the last 24 hours, marking the minimum and maximum temperature. Both the measured and the sensed temperature (calculated) are shown here.

The temperature card also shows the calculated inside temperature at which heating and cooling start.

The **Temperature** card provides access to the following temperature-related functions:

- Settings for floor heating. See the section Floor heating [▶ 40].
- Settings for stir fan. See the section Stir fan.

- Graphic history curve.
- Information. See the section Climate card with daily settings [▶ 11].

When determining the desired temperature strategy, the following parameters are taken into account:

Menu button | **Strategy | Climate |** **Temperature**

Inside temperature	Setting of batch curves for **Inside temperature**, **Heat offset**.
Floor heating	See the section Floor heating [▶ 40].

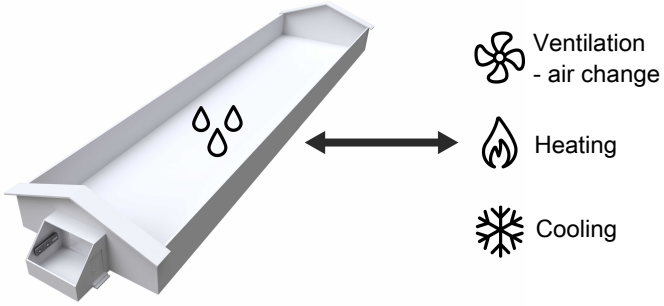
4.2 Humidity

The air humidity in the house is important for the indoor climate and the animals' well-being. Concerning air humidity, the regulation must ensure a suitable level - neither too high nor too low.

When the animals are young, it is especially important to avoid a very high humidity level (> 80%) to reduce the pathogens in their immediate environment. A very low humidity level (<40%) can dry out the house, and the animals.

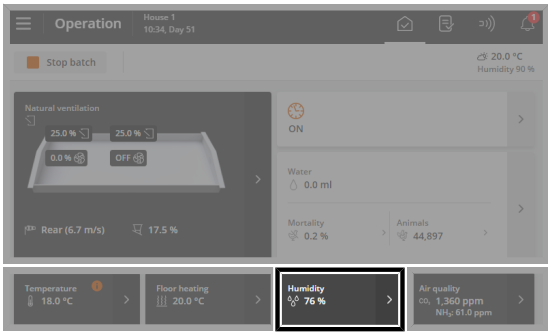
Concerning animal welfare, it is generally more important to keep the correct inside temperature than to keep the humidity within a precise level. Therefore, the controller regulates humidity only when the temperature control allows it.

Note that a high inside temperature and high air humidity (>85%) can be life-threatening to the animals.



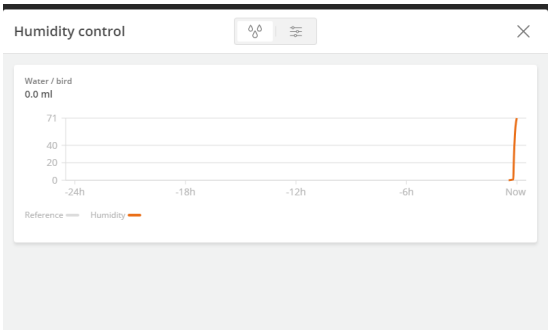
Humidity is supplied to the housing air partly from the animals, feed, drinking water, and animal waste and partly from the cooling and humidification functions.

Basically, the humidity in the house can be regulated by increasing or decreasing the ventilation level or increasing or decreasing the heat supply.



Operation.

The front of the card displays the current inside humi



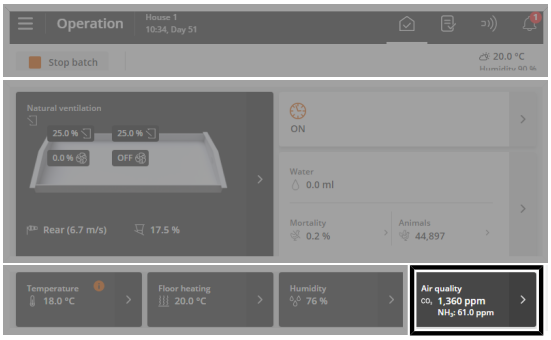
Operation | Humidity card

The humidity card shows a curve of the humidity development during the last 24 hours and a key value for water consumption calculated as water/animal. It may indicate problems such as water pressure or leakage on piping strings if water consumption is so high that it exceeds the reference.

4.3 Ventilation

4.3.1 Air quality

The **Air quality** function provides just the amount of air to the house, which ensures acceptable air quality. The function is particularly relevant in periods with cold weather when it is not necessary to ventilate to keep down the inside temperature.



Operation | Air quality card

The air quality card provides access to easy adjustment of the air quality during a batch.

The front of the card displays the desired ventilation (m^3/h/animal or ppm) and the current CO_2 level, if necessary.

If the air quality is poor or if the temperature is too low

Adjust the setting up or down and wait and reevaluate the status the next morning.

The controller can regulate according to a limit value for CO_2 (requires a CO_2 sensor).

Menu button | **Strategy | Climate | CO_2 Air quality**

CO2 ventilation	Using a CO_2 sensor, the CO_2 level in the livestock house can be monitored and used as an indicator of the air quality. The function either increases or decreases the ventilation depending on the atmospheric CO_2 content. i.e., whether it is higher or lower than the CO_2 setpoint. If the inside temperature drops below the heating temperature setpoint, the climate controller reduces the CO_2 ventilation by up to 25%. *Before Day 10* the controller can limit the CO_2 ventilation to 0 %. *After Day 10* the controller cannot limit the CO_2 ventilation to less than 25 % of the minimum ventilation.

From the factory, the limit for CO_2 is set based on the goal that the CO_2 level in the house must not exceed 3,000-3,500 ppm.

It is important that the batch curve is adapted according to the animal type, local regulatory requirements (in the EU max. 3000 ppm), outside climate conditions and type of heat supply.

When setting batch curves:

- Note that the number of animals must be correct.
- Note that in the case of heat supply with direct combustion, where combustion gas is led out into the house itself (e.g. gas and oil burners without a chimney), a higher minimum ventilation will be required.
- Note that a high minimum ventilation results in increased heat consumption.

Lack of ventilation in the case of CO2 alarm

In the case of CO_2 sensor errors or high CO_2 alarm, the controller deactivates the CO_2 function and enables Minimum ventilation. It is to prevent a defective CO_2 sensor causing a too low or too high ventilation level.

It is therefore essential that Minimum ventilation and Number of animals are correctly set, even when using CO_2 minimum ventilation.

The **Air quality** function provides just the amount of air to the house, which ensures acceptable air quality. The function is particularly relevant in periods with cold weather when it is not necessary to ventilate to keep down the inside temperature.

The controller can regulate the air quality as minimum ventilation (m^3/h/animal) or as CO_2 ventilation (ppm) (using a CO_2 sensor).

Operation | Air quality card

The air quality card provides access to easy adjustment of the air quality during a batch.

The front of the card displays the desired ventilation and the current CO_2 level, if needed. When a NH_3 sensor is connected, the current NH_3 level is also displayed.

If the air quality is poor or if the temperature is too low

Adjust the setting up or down and wait and reevaluate the status the next morning.

The Air quality card shows a development curve for the last 24 hours.

The Air quality card provides access to the following functions:

- Settings.
- Graphic history curve (with CO_2 sensor CO_2 level is displayed. Without sensor, minimum ventilation is displayed).
- Information. See the section Informationskort [▶ 11].

When determining the desired air quality strategy, the following parameters are taken into account:

Menu button | **Strategy | Climate | CO_2 Air quality**

Air quality control	Select whether the air quality is to be regulated based on minimum ventilation (m^3/h per animal) or based on CO_2 ventilation (CO_2 level of the air).
Use NH3 ventilation	Select whether to use an NH_3 sensor to monitor the NH_3 level (ammonia) in the house as an indicator of the air quality. See also the section NH3.
CO2 ventilation	Using a CO_2 sensor, the CO_2 level in the livestock house can be monitored and used as an indicator of the air quality. The function either increases or decreases the ventilation depending on the atmospheric CO_2 content. i.e., whether it is higher or lower than the CO_2 setpoint. If the inside temperature drops below the heating temperature setpoint, the climate controller reduces the CO_2 ventilation by up to 25%. *Before Day 10* the controller can limit the CO_2 ventilation to 0 %. *After Day 10* the controller cannot limit the CO_2 ventilation to less than 25 % of the minimum ventilation.

Minimum ventilation	Setting a lower limit for how little is ventilated in relation to the animals' air requirement (m^3/h/animal). The animals' fresh air requirement varies according to breed and weight. Enter the requirement as m^3/h/animal. The correct number can be found in the technical literature or by asking an advisor. Minimum ventilation must only be adjusted in relation to the desired air quality - not to regulate the inside temperature.

From the factory, the limit for CO_2 is set based on the goal that the CO_2 level in the house must not exceed 3,000-3,500 ppm.

It is important that the batch curve is adapted according to the animal type, local regulatory requirements (in the EU max. 3000 ppm), outside climate conditions and type of heat supply.

When setting batch curves:

- Note that the number of animals must be correct.
- Note that in the case of heat supply with direct combustion, where combustion gas is led out into the house itself (e.g.,gas and oil burners without a chimney), a higher minimum ventilation will be required.
- Note that a high minimum ventilation results in increased heat consumption.

Lack of ventilation in the case of CO2 alarm

In the case of CO_2 sensor errors or high CO_2 alarm, the controller deactivates the CO_2 function and enables Minimum ventilation. It is to prevent a faulty CO_2 sensor from causing a too-low or too-high ventilation level.

It is therefore essential that Minimum ventilation and Number of animals are correctly set, even when using CO_2 minimum ventilation.

4.3.1.1 NH3

By using a NH_3 sensor, the current NH_3 level (ammonia) in the house can be monitored and used as an indicator of the air quality.

Operation | Air quality card. The ventilation card shows the current NH_3 content in the air.

4.3.2 Natural ventilation

4.3.2.1 Pure natural ventilation

With Natural ventilation, the air change takes place by air currents without a fan. Curtain openings on the sides of the livestock house are typically used as both air intake and air outlet. You can also use tunnel opening, open flap in exhaust unit or ridge opening as air outlet. The mechanical regulation is solely opening and closing of the inlets and outlets. Since no exhaustion takes place by means of fans, an energy saving is achieved and the noise level in the livestock house is reduced.

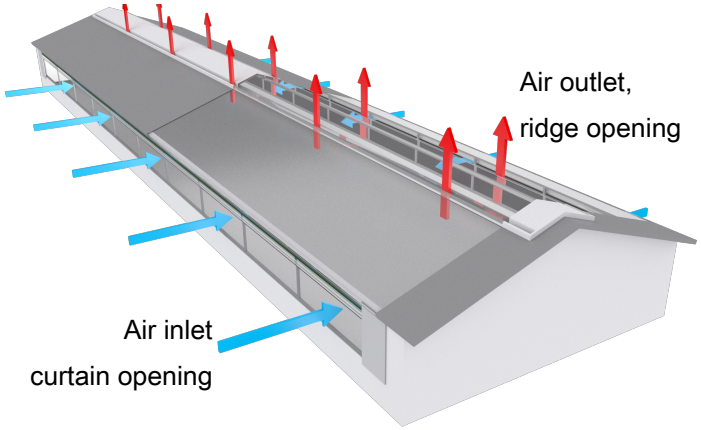
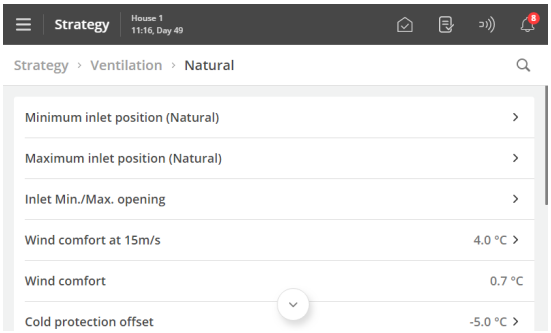


Figure 4: For example, on a house with pure natural ventilation with curtain openings on the sides of the house and ridge opening in the roof.



Menu button | **Strategy | Climate | Ventilation**.

Natural ventilation can be adjusted via batch curves.

Setting an opening percentage for minimum and maximum opening of the air inlet, respectively.

Menu button **Strategy | Ventilation | Natural**

Minimum inlet position (Natural)	Setting of minimum opening of air inlet. See example below.
Maximum inlet position (Natural)	Setting of maximum opening of air inlet. See example below.

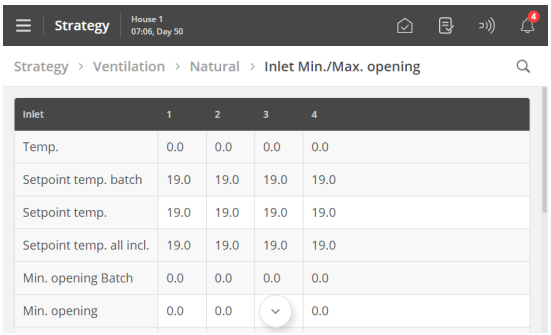
Menu button **Strategy | CO_2 Air quality | Minimum ventilation**

Minimum ventilation	Menu for setting in per cent of air inlet and air outlet opening. Lower limit for how little opening you can have in Natural ventilation mode. When **Minimum ventilation (Natural)** is set to a value exceeding zero, the air inlet and air outlet cannot close completely.

Operation | Climate equipment card | **Inlets**

Inlet cycle timer	Setting the amount of time it takes both to open and close.
Cycle time inlets	Menu for setting batch curve for cycle time.

	Setting day numbers and the time that the air intake must be open. Closing time is calculated.



Inlet	1	2	3	4
Temp.	0.0	0.0	0.0	0.0
Setpoint temp. batch	19.0	19.0	19.0	19.0
Setpoint temp.	19.0	19.0	19.0	19.0
Setpoint temp. all incl.	19.0	19.0	19.0	19.0
Min. opening Batch	0.0	0.0	0.0	0.0
Min. opening	0.0	0.0		0.0

It is also possible to adjust each inlet in relation to the curve in the table found under **Climate | Ventilation | inlet Min./Max. opening**. Scroll right/left in the table to see all values and settings.

Menu button **Strategy | Ventilation | Natural**

Inlet Min./Max. opening	Menu for setting minimum and maximum opening of the air inlet.

To ensure distribution of the fresh air during minimum ventilation **Cycle temp.** is used. When the inside temperature goes below the **Cycle tempe.** for the respective inlet, this inlet will cycle between it's minimum position and the setting in the **Inlet pos.** column.

In the following example, inlet 5 will cycle between 16 % and 23 % when the inside temperature is below 21.5 °C.

Inlet	**1**	**2**	**3**	**4**	**5**	**6**
Min. opening Batch	15	15	15	15	15	15
...	...	...	...	...	...	...
Min. opening	10	10	12	15	**16**	19
...	...	...	...	...	...	...
Cycle temp.	19.5	19.5	19.5	19.5	**21.5**	21.5
...	...	...	...	...	...	...
Inlet pos.	20	20	22	25	**23**	20

Menu button **Strategy | Ventilation | Natural**

Cold protection offset	Setting an offset to **Setpoint temp.** When the inside temperature is too low, all natural inlets close and remain closed until the inside temperature is high enough again. If the **Temperature setpoint** is 19 °C and the temperature drops below the cold protection offset, for example 5 °C (i.e. 19 - 5 = 14 °C), all natural inlets close until the temperature again exceeds 14,5 °C (the 14 °C + 0.5 °C).
Cold protection starts below	Display of the inside temperature at which the cold protection starts.

4.3.2.2 Natural ventilation using weather station

When Natural ventilation is combined with a weather station, it is possible to take the current wind direction and wind speed into account when adjusting the ventilation.

Menu button | **Strategy** | **Ventilation** | **Natural**

Inlet Min./Max. opening	Indication of the maximum allowable opening of the individual air inlets. The controller calculates the opening based on the current wind direction and speed. It reduces the opening of the air inlets in the windward side and increases the opening in the leeward side.
Wind comfort at 15 m/s	Setting of a number of degrees added to **Temperature setpoint** to minimize any draught problems in case of strong wind.
Wind comfort	Indication of the number of degrees that have currently been added to **Temperature setpoint**. The controller calculates a gradually increasing wind comfort. This is calculated based on the current wind speed (no addition at 0 m/s and maximum addition (4 °C) at 15 m/s). The addition is also corrected regarding wind direction (no addition in case of wind direction along the livestock house to maximum addition if wind direction varies from 60° to 90°).
Storm limit	Setting the upper wind speed limit. The controller switches to ventilation using fans at the preset wind speed (when other ventilation is available).
Maximum opening limit at high wind speeds	Setting an opening limitation for the air inlet at high wind speeds (opening in per cent).
Maximum opening limit start wind speed	Setting the wind speed which is to activate a limited opening of the air inlet (wind speed, 5 m/s). The air inlets can open 100% until the wind speed reaches this limit.
Maximum opening limit stop wind speed	Setting the wind speed where the full opening limitation of the air inlet has been reached (wind speed, 10 m/s). The air inlet can as a maximum open 30% when the wind speed reaches this limit.

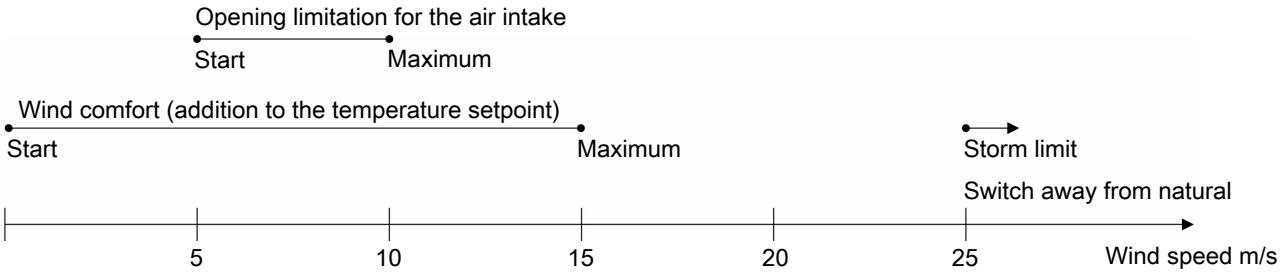


Figure 5: Natural ventilation at increasing wind speeds

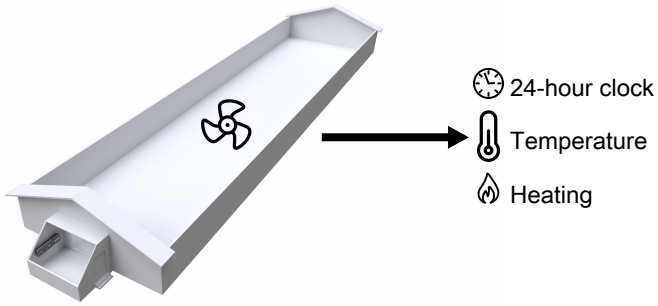
To counteract draft at increasing wind speed the controller adds a number of degrees to the temperature setpoint. It also gradually reduces the opening of the air inlets.

The opening of the air inlets is also determined by the current wind direction. The opening is thus reduced on the side of the livestock house where the wind comes from.

See also the section Weather station [▷ 37] for a description of weather station.

4.3.3 Stir fan

A stir fan is typically used to improve air circulation inside the house and thus provide a more uniform temperature in the house. Depending on the type, location and connection method, however, it can be used for many different purposes.



Operation | Climate equipment card | **Stir fans | Stir fan**

Fan requirement	ON/OFF fan: ON or OFF. Variable fan (0-10 V): fan speed in %.
Control settings	Menu for setting of the individual fan. The content of the menu depends on the stir fan type. See the section below.

4.3.3.1 Regulation via 24-hour clock

The stir fan operates according to a set ON/OFF time and the time setting as to when it should start and stop.

Operation | Climate equipment card | **Stir fans | Stir fan**

Start time	Setting the time for the stir fan to be active.
Stop time	Setting the time for the stir fan not to be active.
ON-time	Setting the active period for the stir fan.
OFF-time	Setting the period during which the stir fan does not run while the function is active.
Minimum speed	Setting the speed at which the stir fan starts.
Maximum speed	Setting the maximum speed at which the stir fan is running.
Start at ventilation	Setting of the ventilation level where the stir fan is to start.
Stop at ventilation	Setting of the ventilation level where the stir fan is to stop.
Manual fan control	Manual activation or deactivation of the stir fan. For example, this can briefly cause increased air movement. Setting the speed that the stir fan must run at when in manual override. Remember to deactivate manual mode again.

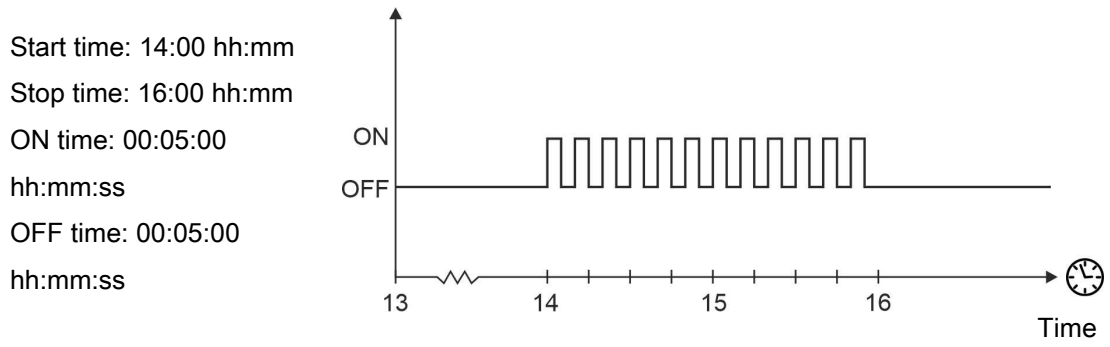


Figure 6: 24-hour clock control

4.3.3.2 Regulation via temperature

A stir fan can be regulated based on a measured temperature in the house or on a temperature difference between two places in the house (Difference temperature).

When the stir fan is active, it will alternately run and be stopped for short periods.

The speed of a variable stir fan (0-10 V) increase and decrease in relation to temperature.

Installation with 0-10 V or relay

Operation | Climate equipment | Stir fans | Stir fan

Start at ventilation/ Stop at ventilation	Setting the active ventilation area for the stir fan to be active. When the ventilation requirement is above and below this level, the stir fan is not active. Not used in livestock houses with only natural ventilation.

ON/OFF controlled stir fan (relay)	
ON time	Setting the active period for the stir fan.
OFF-time	Setting the period during which the stir fan does not run while the function is active.

Variable stir fan (0-10 V)	
Minimum speed	Setting the fan speed at which the stir fan starts.
Maximum speed	Setting the highest fan speed at which the stir fan operates.

One temperature

At high temperatures, a stir fan can be used to create the experience of cooling via air speed.

Operation | Temperature | Stir fans

Fan start temperature	Setting the temperature at which the stir fan should start. If the temperature drops below the starting temperature, the stir fan stops.
Maximum fan speed temperature	Variable stir fan only. Setting the temperature at which the stir fan runs to the maximum.
Stop temperature	Setting of the temperature where the stir fan stops.

Difference temperature

In case of temperature differences in the house, a stir fan can be used to compensate for temperature differences between colder and warmer areas.

Operation | Temperature | Stir fans

Temperature difference activation	In case of temperature differences in the house, a stir fan can be used to compensate for temperature differences between colder and warmer areas. Setting the temperature difference. The stir fan is activated when the temperature difference exceeds the setting.

Installation of 0-10V and reverse relay (variable)

An 0-10V-controlled stir fan with reverse relay works as described above but can also reverse the rotation of the stir fan.

Operation | Climate equipment | Stir fans | Stir fan

One temperature

Fan direction	Display of direction of rotation (**Forward/Reverse**) of the stir fan (at reverse relay).

Operation | Temperature | Stir fan

Fan reverse temperature	Setting the temperature at which the stir fan should reverse the fan's rotation direction.

Manual fan control

Operation | Climate equipment | Stir fan | Stir fan | Manual fan control

Manual control	Manual activation of the stir fan.
Stir fan speed	Setting the speed the stir fan must run at when in manual override. Remember to deactivate manual mode again.
Activate override control	Selecting if it should be possible for the user to start and stop the stir fan manually.
Override direction	Selection of the rotation direction of the fan (**Forward/Reverse**).

4.3.3.3 Regulation via heat source

When the stir fan is to operate in connection with heat sources, you must opt for a way to control and set the start and stop time of the fan

Control:

With heater: The stir fan runs while the heat source supplies heat, but starts and stops with a set time delay (**Start delay**/ **Stop delay**).

After heater: The stir fan runs after the heat source has supplied heat. It starts with a time delay (**Start delay**) and runs for a set period of time (**ON time**).

This function is active only when heating is required.

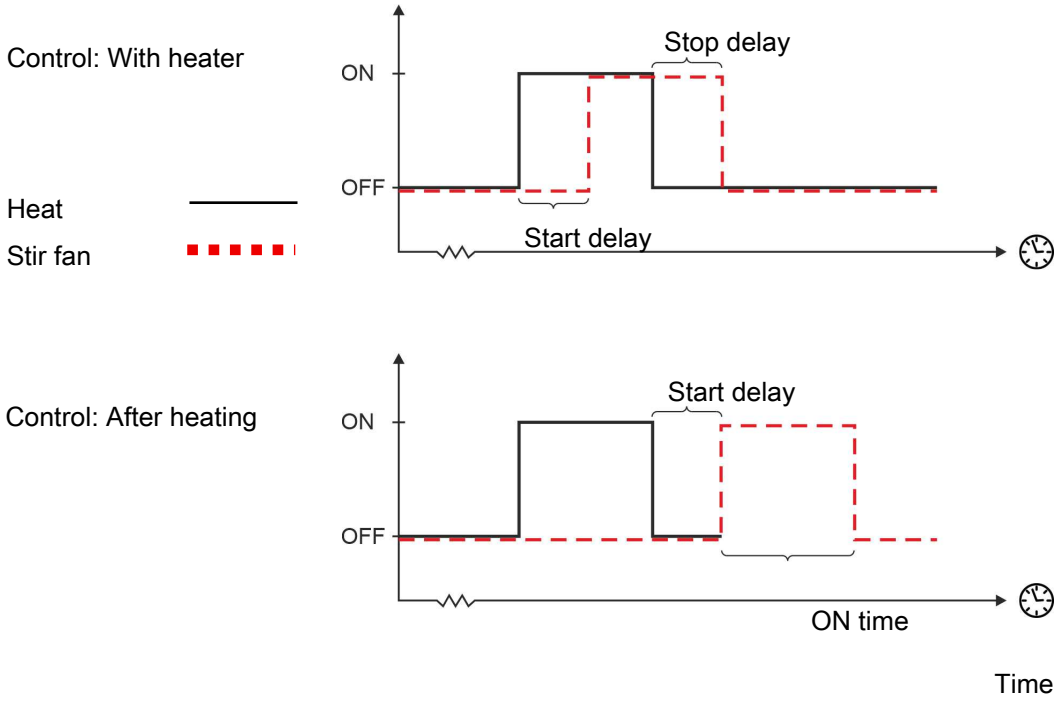


Figure 7: Control with heater

Operation | Climate equipment card | **Stir fans | Stir fan**

Minimum speed	Setting the fan speed at which the stir fan starts.
Maximum speed	Setting the highest fan speed at which the stir fan operates.
Start at ventilation	Setting of the ventilation level where the stir fan is to start.
Stop at ventilation	Setting of the ventilation level where the stir fan is to stop.
Start delay	Setting the delay time for the stir fan to start.
Stop delay	At **With heater**. Setting the delay time for the stir fan to stop.
ON time	At **After heat**. Setting how long the stir fan should run.
Manual fan control	Manual activation or deactivation of the stir fan. - for example, to briefly create increased air movement. Setting the speed that the stir fan must run at when in manual override. Remember to deactivate manual mode again.

4.3.4 Weather station

The weather station is used to record wind direction and speed.

Operation | Climate equipment card | Weather station	
Average wind direction – absolute	Display of the average wind direction in relation to the corners of the world.
Average wind direction - relative	Display of the average wind direction in relation to the house (front/rear)
Average wind direction relative to barn	Display of the average wind direction in degrees in relation to the house. The direction is displayed in degrees in relation to the house.
Average wind speed	Display of the average wind speed.
Wind direction	Display of the current wind direction.
Wind speed	Display of current wind speed.

4.4 Cooling

4.4.1 Side cooling

Cooling is used in houses where ventilation alone cannot reduce the inside temperature sufficiently.

Cooling has the advantage over ventilation that it can bring the inside temperature down below the outside temperature. On the other hand, cooling will also increase the air humidity in the house.

The combination of a high inside temperature and high air humidity can be life-threatening to the animals. As cooling makes the house humidity increase, the controller automatically disconnects cooling when the house humidity exceeds **Humidity to stop side cooling** (normally 75-85%, factory setting: 85 %).

Operation | Climate equipment | Side cooling	
Cooling sensor	The average temperature from several sensors controlling the cooling.
requirement	Reading of current cooling requirement.
Start cooling offset	The number of degrees by which the temperature is to exceed Temp. setpoint incl. additions before cooling starts.
Absolute start temperature	Display of the temperature where cooling starts.
Humidity to stop side cooling	Setting for the percentage of air humidity that stops the controller from cooling.

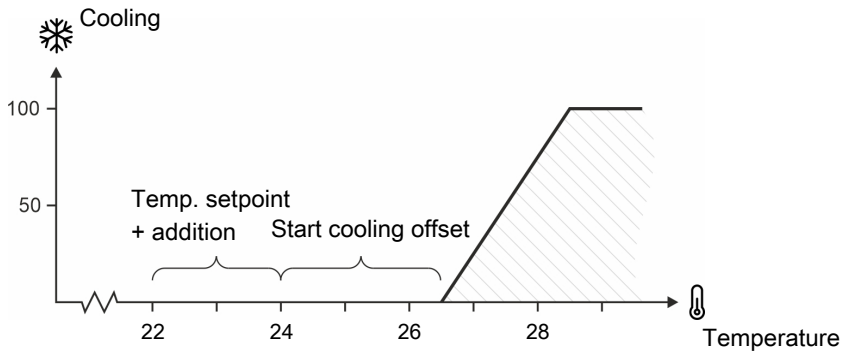


Figure 8: Cooling

A prerequisite for cooling to be able to start, however, is that ventilation is running at **Maximum ventilation** *or that the outside temperature is above* **Temperature setpoint**. *The controller gradually increases cooling.*

4.5 Heating

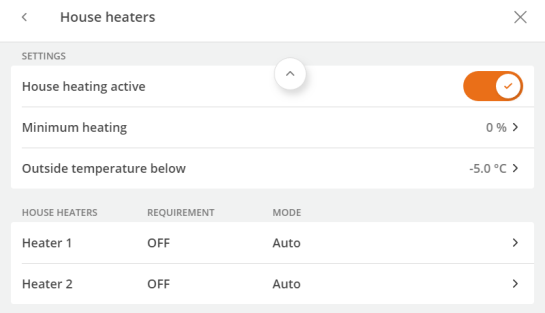
4.5.1 House heaters

Room heaters are used to heat the entire house and cold areas in the house. All heaters connected as room heaters are regulated according to the same temperature setpoint.

House heaters can be regulated as common or individual heating.

Common house heaters: Up to two heaters are regulated according to a common heating requirement.

Individual house heaters: For each heater, choose which sensors are to control the heating requirement.



Operation | Climate equipment card | House heaters

House heaters	Connection and disconnection of house heaters. When you want to stop the heat supply in the house, disconnect heating. The controller will then automatically turn off the heat supply.

Inappropriate regulation

If you turn off the heat supply manually without disconnecting heating on the controller, the regulation of the ventilation will be inappropriate as the controller will try to regulate based the assumption that heating is still available.

Heat offset

In houses with heating systems, the controller regulates the inside temperature according to the set temperature, **Temperature**, and according to a lower temperature limit, **Absolute heat setpoint**.

Operation | Temperature card | Heating

Heat offset	Set the number of degrees the inside temperature must drop below the required temperature before the controller activates heat supply.

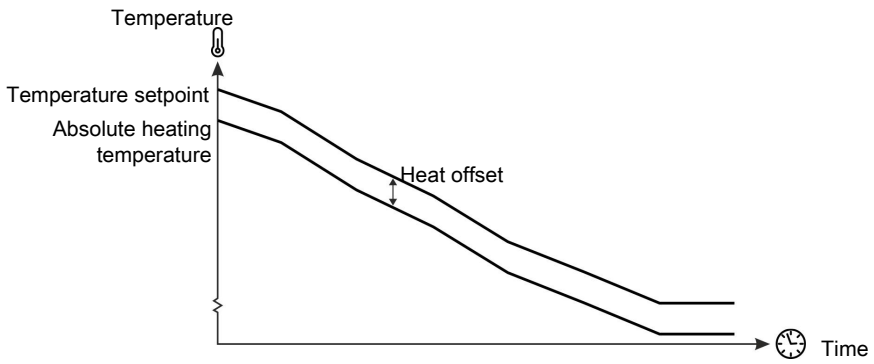


Figure 9: Set heat offset

If you want to increase the **Temperature setpoint** *without increasing the* **Absolute heat setpoint***, you must first adjust the* **Temperature setpoint***, and the increase the* **Heat offset***, by the corresponding number of degrees.*

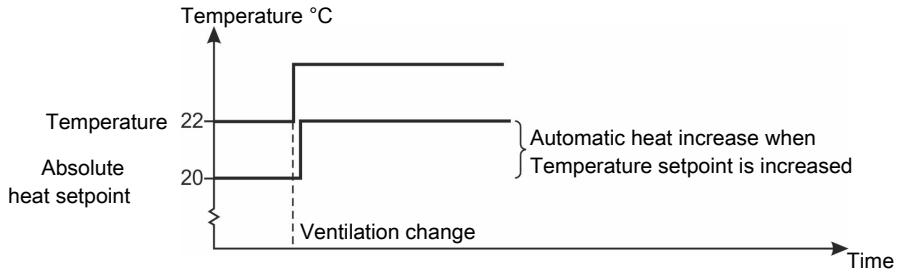
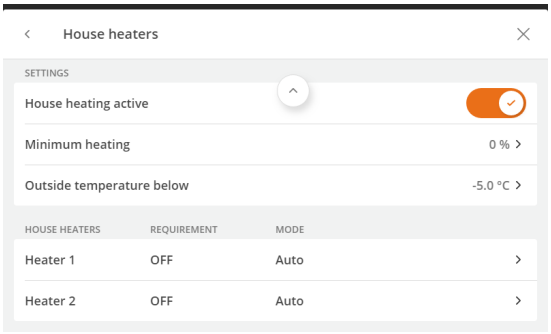


Figure 10: Heat supply

Note that when you increase the **Temperature setpoint**, the **Absolute heating temperature** will increase correspondingly so that the offset between the two values will always be the same.

4.5.1.1 Minimum heating



Minimum heating is a function which the controller activates in cold weather. Minimum heating can e.g. Minimize ice formation in the air inlet. When the outside temperature is set to **Outside temperature below**, the controller constantly adds the minimum heat.

Operation | Climate equipment card | **House heaters**.

Minimum heating	Setting of the percentage of the heating system capacity at which the system opens at minimum heating.
Outside temperature below	Setting of the outside temperature that activates the **Minimum heating** function.

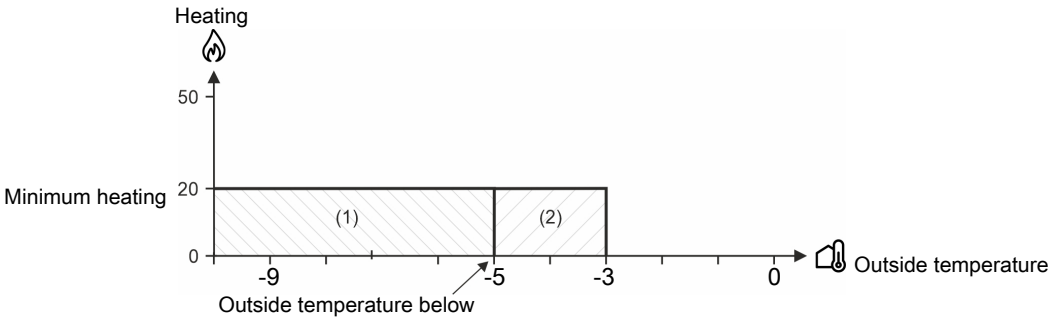


Figure 11: Minimum heat at decreasing or increasing outside temperature

(1) At decreasing outside temperature: The controller switches on the heat when the outside temperature is lower than **Outside temperature below** (-5°C).

(2) At increasing outside temperature: The controller only switches off the heat when the outside temperature is 2 °C above **Outside temperature below**. This prevents the heating system from connecting and disconnecting continuously when the outside temperature fluctuates around the set **Outside temperature below**.

4.5.2 Floor heating

For example, floor heating is used to limit the heat loss of the animals through the floor and to dry out the livestock house.

The controller can control the floor heating with or without a temperature sensor. Using a connected sensor, the controller will keep the floor heating at a set floor heating temperature. Without the sensor, the controller will supply heat based on a set percentage of the capacity of the floor heating system.

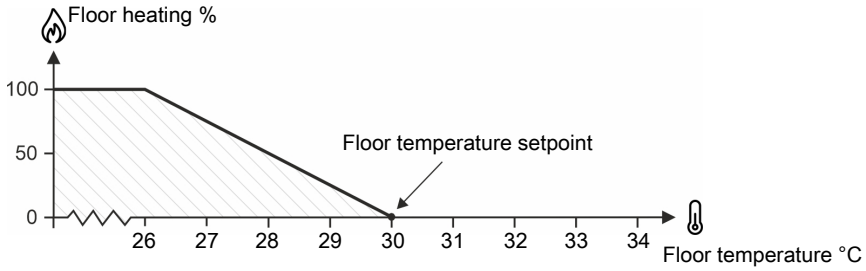


Figure 12: Floor heating with temperature sensor

The floor heating system runs at 0-100% to keep the floor heating temperature at the set floor temperature.

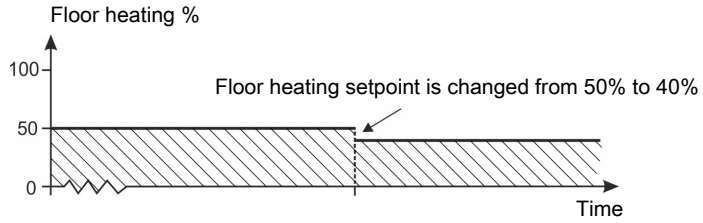


Figure 13: Floor heating without temperature sensor

The floor heating works with a set percentage of the capacity of the heating system. Without the sensor, it is not possible to determine which temperature the floor should have.

Menu button | Strategy | Temperature | Floor heating

Floor heating	Determination of strategy via batch curve for floor heating.
Outside temperature control	Connection and disconnection of outside temperature control. The function is intended for areas with a high daytime temperature, where it renders possible to turn off the floor heat during the day.
Stop heating at outside temperature above	Setting the outside temperature that causes the climate controller to deactivate floor heating.

Operation | Temperature card | **Floor heating**.

Setpoint	Setting of floor temperature (only with sensor). Setting of the percentage that the floor heating system shall operate with (only without sensor).
Minimum floor heating	Minimum floor heating is used in temperature-controlled floor heating. The function causes the floor heating system to run at least at the set percentage of the capacity of the heating system. Even if the current floor temperature is higher than the **Floor temperature setpoint**, the heating system will continue to provide floor heating. Minimum floor heating can be used to maintain a specific floor heating temperature in the livestock house and thus influence the distribution of the animals.

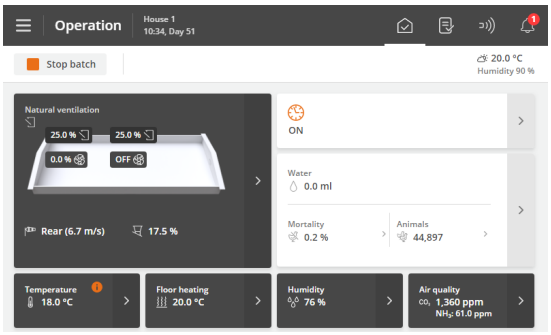
Activate minimum heating at an outside temperature below	Setting an outside temperature that causes the controller activate minimum floor heating.
Outside temperature control	Connection and disconnection of outside temperature control. The function is intended for areas with a high daytime temperature, where it renders possible to turn off the floor heat during the day.
Stop heating at outside temperature above	Setting the outside temperature that causes the climate controller to deactivate floor heating.

4.6 House mode Active house - Empty house

The controller has 2 different modes of operation, one for when there are animals in the house and one for when the house is empty.

With animals in the house – active house. Control takes place according to the automatic settings and strategies and all alarms are active.

Without animals in the house – empty house. Control takes place according to the in-between batches setting **Empty**. Only active alarms are alarms for CAN communication and temperature surveillance for **Empty.**

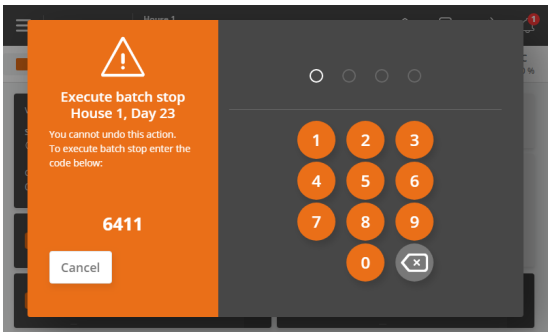


Press **Operation**.

Press **Stop batch** to change house status to **Empty**.

or

Press **Start batch** to change to house status active.



The change between active and empty house is done manually by the user. It is critical for the animals that the change does not happen by mistake. The function is therefore protected with a code entry.

Enter the displayed code to change the house status.

The change takes place immediately when the fourth digit is entered.

.

Active house

It may be an advantage to change the status to active house 1-3 days before stocking the animals. This way the controller has time to adapt the climate to the needs of the animals and to feed in the house.

When the house status changes to active, the day number changes to **Start at day**, and the controller controls according to the automatic settings.

(Be aware that it can cause problems with the history of production data if you change the **Day number** after the house status is set to active. This setting should only be used for service).

Empty house

The house status should not be changed to **Empty** until the house has been depopulated.

Then the controller disconnects the adjustment and controls according to the settings for **Empty**. It protects the animals in case a house is set to **Empty** by mistake.

If the house is to be completely closed, the settings of the function **Empty** must be reset. See the section Empty house.

When the house status changes to **Empty**, the controller resets all settings that deviate from the strategy and settings made during the previous batch.

5 Alarm settings

The controller has a number of alarms, which it will activate if a technical error occurs or alarm limits are exceeded. A few of the alarms are always connected, e.g. power failure. The other alarms can be activated / deactivated, and for some of them, you can even set the alarm limits.

The user is always responsible for ensuring that all alarm settings are correct.

See also the section Alarms [▶ 23].

5.1 Climate

5.1.1 Temperature alarms

Menu button | **Settings** | **Alarms | Climate | Temperature**

Actual alarm limit	The temperature alarm has a variable alarm limit. It is, e.g., possible to compensate for changes in the outside temperature. Display of the temperature limit that will trigger the alarm.
Absolute high temperature	The alarm for absolute high temperature is triggered by an actual temperature, such as 32°C. The controller triggers the absolute high temperature alarm when only one inside temperature sensor measures a temperature that exceeds this setpoint. The absolute high temperature is set as a temperature curve.
High temperature limit	The temperature alarm for high temperature is only activated when the batch state is **Active house**. The alarm is set as an excess temperature to **Temperature setpoint**.
Low temperature alarm	Setting the alarm type **Disconnected, Hard, Soft**.
Low temperature limit	Alarm for excessively low temperature in relation to the **Temperature setpoint**.

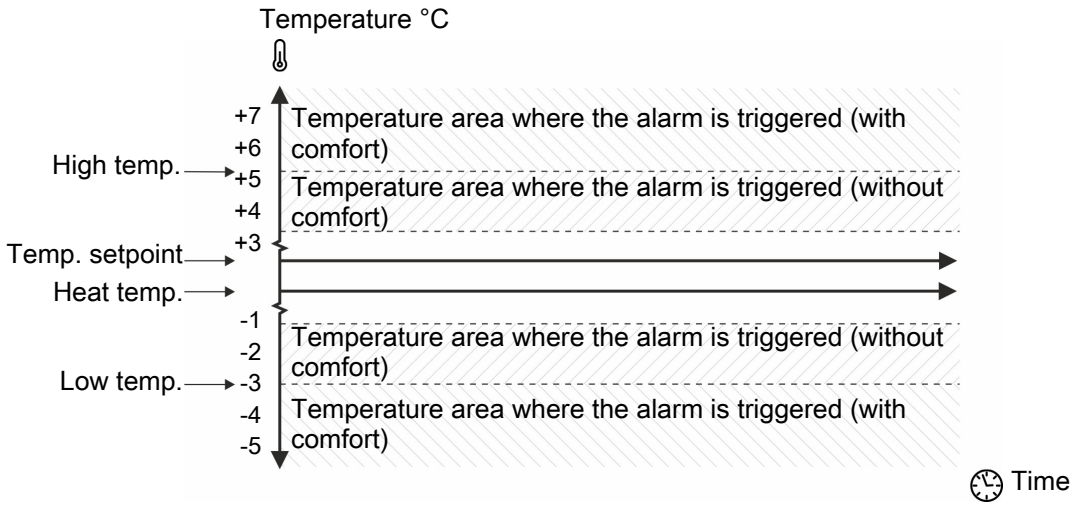


Figure 14: Alarm high and low temperature

When the controller is set with the function comfort temperature, the controller adds the number of degrees to which the comfort temperature is set. The high temperature alarm will therefore be calculated in relation to Temperature plus an addition for Comfort temperature

Summer temp. at 20 °C and 30 °C outside	The function has a varying alarm limit that monitors changes in the high outside temperature. When the temperature rises, the alarm limit will also rise. It will thus postpone the time when the high temperature alarm is triggered. The controller only triggers the alarm if the inside temperature also exceeds the high temperature alarm.

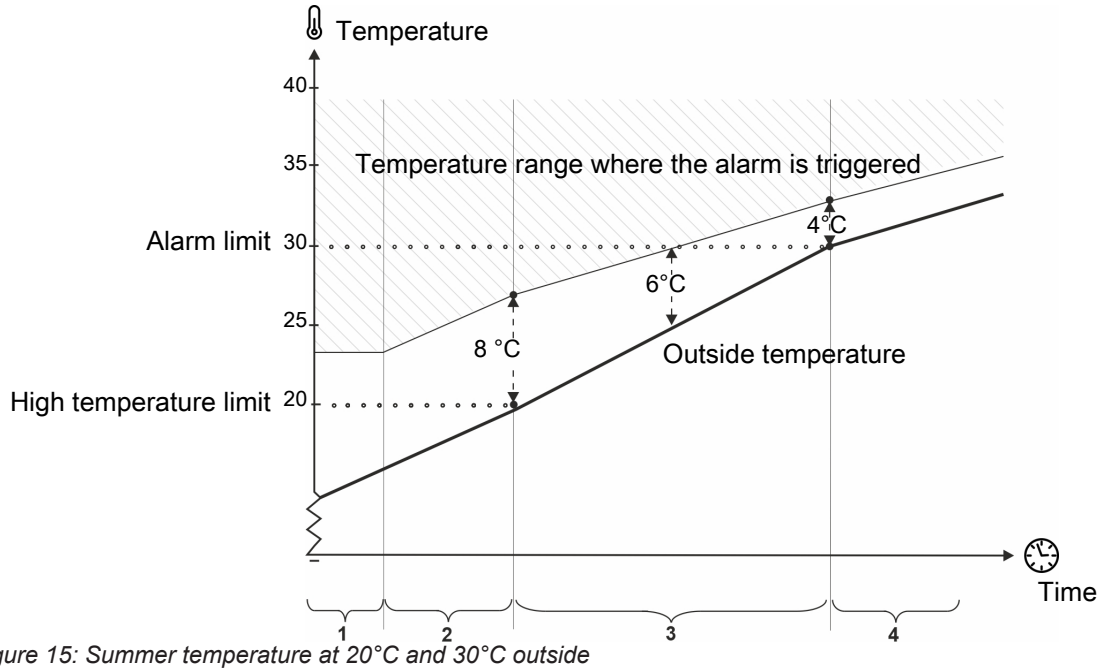


Figure 15: Summer temperature at 20°C and 30°C outside

1. *The alarm limit does not fall below the High temperature limit.*
2. *Below 20°C outside, the alarm limit is 8°C, staggered in relation to the outside temperature.*
3. *Between 20°C and 30°C, there is a gradual transition from 8°C to 4°C. At an outside temperature of, e.g., 25°C, the inside temperature must be 6°C higher (above 30°C) for the alarm to be triggered..*
4. *Above 30°C outside, the alarm limit is 4°C, staggered in relation to the outside temperature.*

5.1.2 Humidity alarm

Menu button | **Settings** | **Alarms | Climate | Humidity**

Absolute high humidity limit	The controller triggers the alarm for absolute high humidity when the humidity exceeds the setpoint. This may be due for example to lack of ventilation or a technical sensor error.

5.1.3 Inlet and outlet alarm

Menu button | **Settings** | **Alarms | Climate | Inlet and outlet alarm**

Inlet and outlet alarm	The inlet and outlet alarms are technical alarms. The climate controller triggers an alarm if the opening of the air inlet or outlet deviates from the setting calculated by the controller.

5.1.4 Sensor alarm

Menu button | | **Alarms | Climate**

Error inside temperature sensor	The controller triggers an alarm if the sensor is short-circuited or disconnected.

	Without this sensor, the controller cannot control the inside temperature, and apart from the alarm, the error will also trigger an emergency control of the ventilation system, which will open 50 %. The alarm is always a hard alarm.
Error outside temperature sensor	The controller triggers an alarm if the outside temperature sensor is short-circuited or disconnected.
Error outside temperature sensor low (-35°C)	Selection of whether the controller should monitor whether there is an error in the outside temperature sensor. The function is intended for use in areas where the outside temperature usually does not fall below -30 °C.
Misplaced outside sensor	The alarm indicates whether the sensor is exposed to solar heating and therefore displays an incorrect outside temperature. The controller triggers an alarm when the inside temperature measured by the controller is the number of degrees below the outside temperature that the function is set to (for example 5°C).
Error humidity sensor **Outside humidity sensor failure**	The controller triggers an alarm when the humidity sensor is disconnected or the air humidity is lower than humidity setpoint.

5.1.5 Auxiliary sensor, CO2 and NH3 alarm

Menu button | **Settings** | **Alarms** | **Climate**

Auxiliary sensor **CO2 alarm** **NH3 alarm**	The controller triggers an alarm if the values for the sensor fall below or exceed the setpoints.

5.1.6 Weather station alarm

Menu button | **Settings** | **Alarms** | **Climate**

Sensor alarm for wind speed	The controller triggers an alarm when the voltage for wind speed is too low. This indicates a sensor error.
Sensor alarm for wind direction	The controller triggers an alarm when the voltage for wind direction is too low. This indicates a sensor error.

5.2 Production

5.2.1 Water alarms

These alarms can be disconnected automatically at batch/flock start by setting a **Start alarm day**. In the event of major changes to the number of animals in the house, at least 26 hours should pass before the controller can trigger the alarm.

To avoid triggering false alarms, you can indicate how many days should pass before the controller triggers a water alarm.

Menu button | **Settings** | **Alarms** | **Production** | **Water**

	Alarms can be automatically disconnected at batch start by setting a **Start alarm day**.

Min. and max. water alarm	The alarms are used for monitoring the animals' drinking patterns. The alarm limits for maximum and minimum water consumption is a set percentage of the normal consumption. The climate controller calculates this normal consumption by comparing the current 24-hour period with the 24-hour period that is two hours older. At 1 P.M., for example, you look at the period from 11 A.M. on the previous day to 11 A.M. on the current day.
	With water control These alarms are used for monitoring leakages and stoppages in the water system.
Not enough water alarm	The alarm is triggered if the water consumption measured by a water meter is too low during a given period of time. It is recommended to set this alarm to 1.0 l/min. and a monitoring time to 30 minutes. An alarm will be generated if consumption is lower than 30 liters each half hour.
Too much water alarm	The alarm is triggered if the water consumption measured by a water meter is too high in a given period. Depending on the capacity of the water supply, the system can supply a certain quantity of water per unit of time. The alarm is triggered when the system has operated at maximum output for too long. If a water relay is installed, the water will be turned off at excessive water consumption. *Guidelines for alarm limit settings*: Measure the amount of water flowing per minute to the current water meter. Set the alarm limit for 1 liter less than the measured. Set the monitoring time to 30 minutes.
Start alarm day	In the event of major changes to the number of animals in the house, at least 26 hours should pass before the house controller can trigger the alarm. To avoid triggering false alarms, you can indicate how many days should pass before the controller triggers a water alarm.

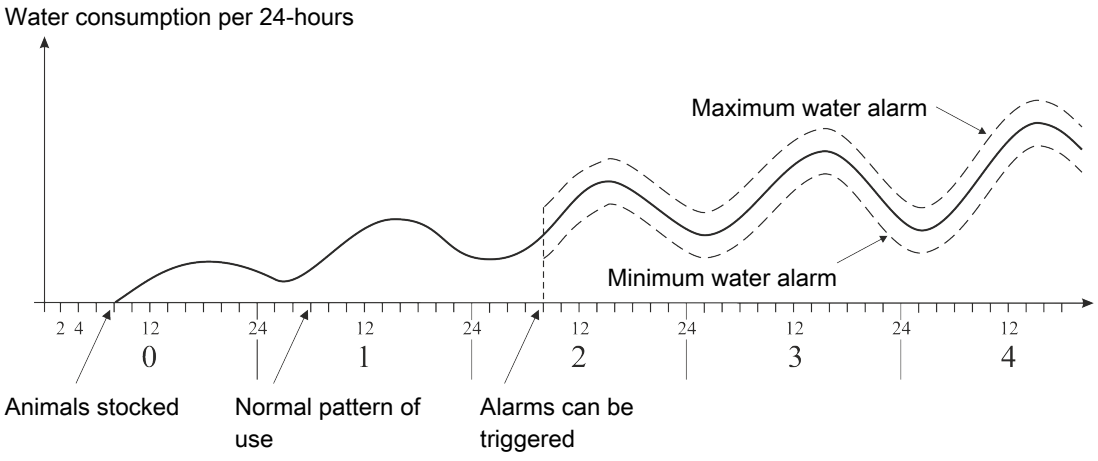


Figure 16: Example of minimum and maximum water alarm

The controller triggers an alarm when the limit for maximum water consumption is exceeded or the consumption is below the limit for minimum water consumption.

There may be various reasons for the fluctuation in the animals' water consumption that will all trigger an alarm. For example, an alarm may be triggered due to stocking more animals or the slaughter of some animals, an outbreak of disease in the livestock or a rupture of the water pipe.

5.3 Master/Client alarms

If the controller is set up to share equipment with other controllers, it gives an alarm if the connection between the controllers is lost. A 'Client' controller will continue to regulate according to the latest received value from the 'Master' controller equipment until the network connection is restored.

Menu button | **Settings** | **Alarms**

Connection to Client lost	Select the alarm type **Hard**, **Soft** or **Disabled**.
Connection to Master lost	

6 Maintenance instructions

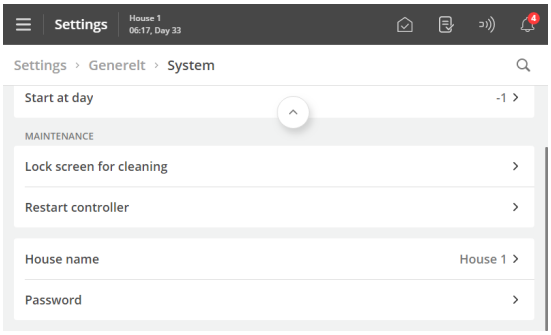
The controller requires no maintenance to function correctly.

You should test the alarm system every week.

Use only original spare parts.

Note that the service life of the controller will be extended if it stays connected all the time, as this will keep it dry and free from condensation.

Lock screen for cleaning



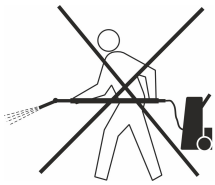
When the controller is to be cleaned, it is possible to lock the screen to avoid inadvertent operation during cleaning.

Press Menu button | **Settings | General | System | Maintenance | Lock screen for cleaning** to lock the screen.

Press and hold for 5 seconds to unlock the screen.

The controller automatically cancels the lock after 15 minutes.

6.1 Cleaning



Clean the product with a cloth that has been wrung out almost dry in water and avoid using:

- high-pressure cleaner
- solvents
- corrosive/caustic agents

99-94-0874 06/2025 GB • 2025-06-02 • en-US

Big Dutchman International GmbH • Calveslage • Auf der lage 2 • 49377 Vechta; Germany
Tel. +49(0)4447/801-0 • Fax +49(0)4447/801-237 • big@bigdutchman.com