PL-9500 series

CLIMATE AND MANAGEMENT COMPUTERS FOR POULTRY
PL-9500 (i), PL-9530(i)

PL-9500 / PL-9530

PL-9500-i / PL-9530-i

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1 General introduction

The manual is intended for the user of this device. It contains all the information necessary for operating and cleaning this product. Please read all information and instructions carefully before using the product.

Symbols mark warnings, important notes, tips, etc. in this manual.

Stienen has compiled this manual with all due care. If you find any errors, please let us know.

1.1 Symbols and definitions


Risk of injury by dangerous electric shock. Danger to people and animals.


Warning indicating danger to product, people and animals if procedures are not strictly complied with.


Warning indicating damage to products if procedures are not strictly complied with.


Pressure cleaning is not allowed.


Collect as separate flows


Important note


Additional information


Example of a concrete application of the functionality described.


Calculation example


Manual control


Tips and advice


Screenshot


Application note

1.2 Customer service

If you have any questions, please contact your installer. Be sure to have all the necessary data handy. You should also always write down the cause of a fault and the circumstances that occurred during the fault. This will enable you to avoid any ambiguities and it will enable your installer to deal with any faults quickly and effectively.

2 Safety instructions and warnings

Read the general safety instructions in this chapter carefully before using the device. A certified installer must install the device and resolve any faults, in accordance with the applicable guidelines. If this product is installed and used in any other way, the warranty will not apply.

2.1 Sound, independent alarm system

Although we have designed and built our control equipment with the greatest care possible, technical faults can never be ruled out. Insurance requirements in many countries are becoming increasingly stringent. This requires the alarm contacts of the various control computers to be connected a central alarm unit.


We recommend also installing a sound independent alarm system, for example a min/max thermostat.


We advise you to manually test the alarm at least once a week.

2.2 During use

The people who operate the device have read the manual carefully. They are aware of potential hazards that may arise from improper use and maintenance of the product.


The device must only be opened by authorised personnel.


Do not switch off the control computer while the house is empty, but switch it to *Off* mode. This will prevent condensation caused by the equipment cooling down.


Check the device for any damage at regular intervals. A damaged device is unsafe. Always report any damage to your installer.


Electronic equipment is splash-proof and must not be cleaned using a pressure cleaner.


If any emergency has occurred, write down: the circumstances under which the emergency occurred, installation settings, software date, software version number and possible causes.

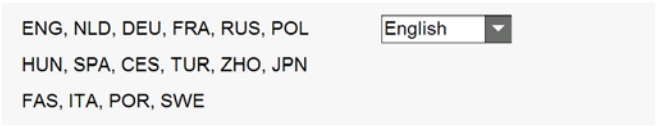
2.3 Disposal

The EU has set up systems for the separate collection of waste electrical and electronic equipment and batteries (Directive 20212/19/EU). If you do not dispose of the device properly, you risk a fine.


Electrical and electronic equipment must be collected separately at the end of its life.

3 Operation

3.1 Change language



You can quickly change the language as follows:

 = select next language

 = select previous language

3.2 Login

1. Open login screen;
2. Open numeric keypad;
3. Enter login code and confirm with .

3.3 Control keys

 = Return to overview screen (HOME)

 = select next/previous screen

 = select input position

 = select choice

 = select next/previous screen

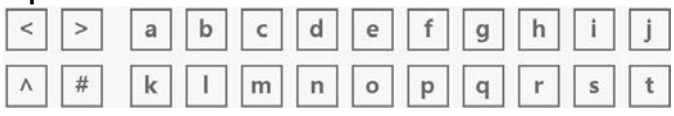
 = scroll down/up (scrollbar on the right)

 You can tap the illuminated symbol. One of the virtual keyboards below appears:

Numeric

+ / - = making the value positive or negative

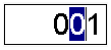
Alphanumeric



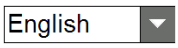
< / > = choosing other characters

^ = switching between lowercase and uppercase

= switching to digits and alternative characters

= decreasing/increasing setting

= selecting from a choice box

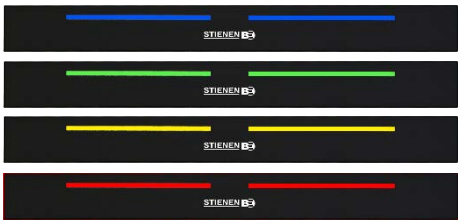

= cancelling a choice/selection in edit mode


= confirming a choice/selection in edit mode


= adding/removing a breakpoint to a list (curve, timer).


= if (go to) is behind a setting, tap this symbol to go to the next screen. In the follow-up screen, the link (return to) is displayed in the top right-hand corner.

3.4 LED bar



lights up blue continuously → ⚠ device is out of operation

lights up green continuously → no alarm

lights up yellow continuously → alarm, alarm delay time not yet elapsed

lights up red continuously → alarm
regularly flashes red → main alarm disabled
irregularly flashes red → alarm temporarily disabled

3.5 Terminal numbering inputs/outputs

The terminal number of an input/output consists of a two-digit module address (between 00 and 31)), the type of input/output (letter) and a two-digit sequence number (between 01 and 99, 00 = output not used).

Letter	I/O type	Description
A	0-10V output	Analog output with a range of 0-10V or 10-0V.
B	Relay output	Relay contact output (no alarm relays, digital outputs, etc.)
C	Digital output	Optocoupler output (max. 35Vdc 30mA).
D	Open/close output	Open/close control with position feedback. This includes heaters and valves with feedback potentiometers.
F	Controlled triac output	Controlled triac output with a range of 30-230Vac.
G	Analogue output	Analogue output with fixed range of 2-10V with position feedback reporting. This includes valves with feedback potentiometers.
K	Temperature sensor	All types of temperature sensors with a 10K NTC resistor (N10B, BV10B etc.)
L	0-10V input	Analogue input with a measuring range of 0-10V. For connection of e.g. measuring sensors (RH, pressure, CO_2, NH_3, etc.)
M	Digital input	These include measuring fans, counter contacts etc.
N	Meteo station	Module to which a wind speed meter, wind direction meter and rain sensor can be connected to.
R	Pressure sensor	PCB-mounted pressure sensor 0 - 300 Pa.

If the *keyboard icon* lights up, then tap it.
One of the virtual keyboards below appears:

Setting input terminals

K	L	M	N	O	P	Q	R		
0	1	2	3	4	5	6	7	8	9

Setting output terminals

A	B	C	D	E	F	G	H	I	J
0	1	2	3	4	5	6	7	8	9

▽ / △ = decreasing/increasing setting.

Module screen

☑ Input/output already assigned.

4 Main menu

4.1 Start-up screen

Tap anywhere on the screen or tap ⌂ (*Home key*). The main menu appears.

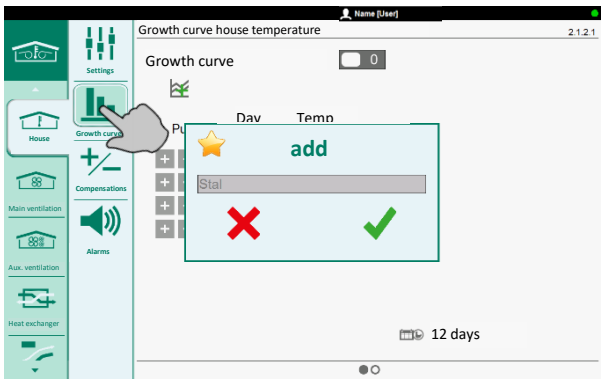
4.2 Main menu

Animals	(mutations, overview, set-up data, growth curve, mortality)
Animal weighing	(settings, mutations, history, curve, alarms)
Nutrition	(water/feed, fed, bulked)
Counters	(overview, alarms, delete)
Hour meter	(heating, cooling, external)
Min./Max. values	(house, outside, sensors)
Logging	(heat exchanger)
History	(climate, performance)
House	(settings, growth curve, offsets, alarms)
Main ventilation	(settings, options, growth curve, offsets, alarms)
Auxiliary ventilation	(settings, growth curve, offsets, alarms)
Heat exchanger	(settings, options, growth curve, offsets, alarms)
Air inlet valves	(settings, options, growth curve, offsets, alarms)
Manure belt aeration	(settings, growth curve, alarms)
Heaters	(settings, growth curve, alarms)
Cooling	(settings, options, growth curve, offsets, alarms)
Temperature controls	(settings, alarms)
Other	(humidification, growth curve, central exhaust, alarm)
Feed weighing	(components, content, allocation, alternative, residual, alarm)
Feed composition	(composition, curve, overview)
Quantity per day	(water, feed, other)
Quantity per period	(water, feed, other)
Main	(settings, timetables)
Light	(settings, timetables)
Water/food	(settings, curve, schedules, weekly programme, alarm)
Other	(on/off)
Schedules	(on/off, light, water/feed)
Water on demand	(settings, growth curve, alarms)
Alarms	(alarm status, history, external, temperature monitoring. USB logging)
System	(device, date/time)

4.3 Overview screen navigation buttons (installer mode)

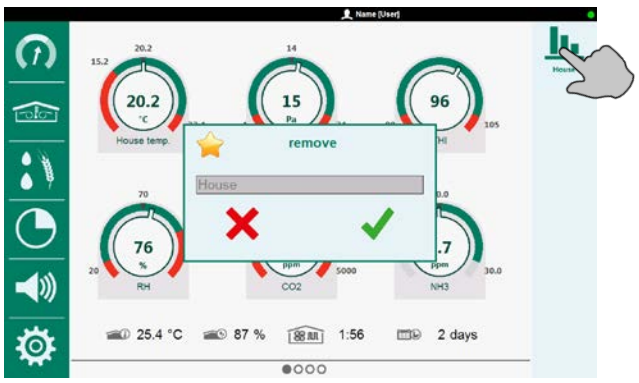
Tap a navigation button:
The corresponding settings screen opens

Adding menu item to favourites bar



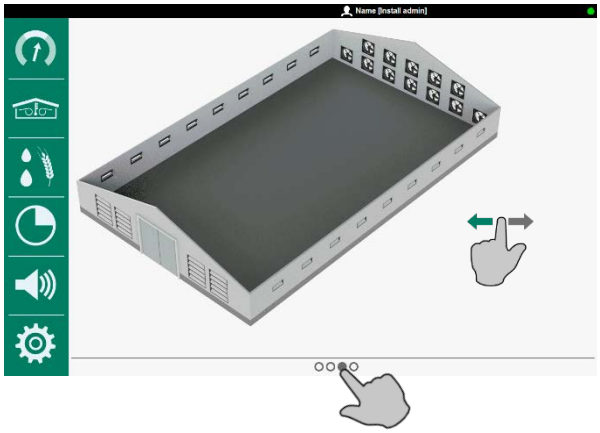
1. Select the screen to be added to the favourites bar.
2. Tap the icon of the relevant menu item until the *Add* window appears.
3. Tap ✓ (confirm). The menu item is added to the favourites bar.

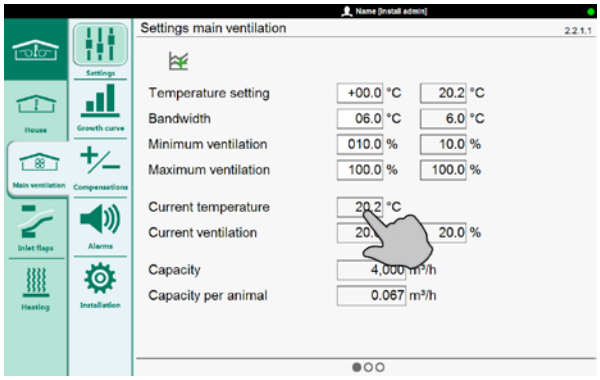
Deleting menu item from favourites bar



1. Tap the icon of the menu item to be deleted until the *Delete* window appears.
2. Tap ✓ (confirm). The menu item is removed from the favourites bar.

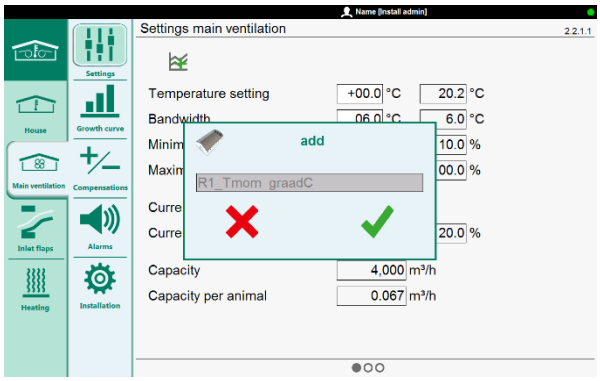
4.4 House overview

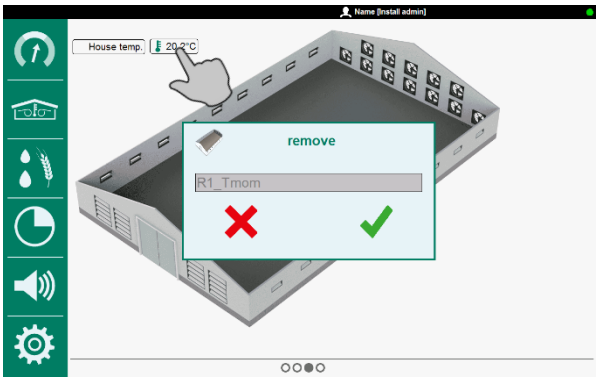




Add measurement

Swipe left/right or tap the bullet at the bottom of the screen to retrieve the house overview.





Your installer can *add*/*remove* measurements, from different screens, to/from the barn overview. In addition, your installer can also add texts, with a maximum length of 15 characters, to the barn overview (installation screen 6.1.3).

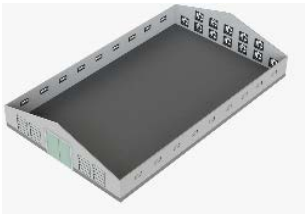
1. Adding measurements:
   a. Go to the measurement concerned.
   b. Press the measurement to be added to the overview for a few seconds.
2. Removing measurements:
   a. Go to the measurement concerned.
   b. Press the measurement to be removed from the overview for a few seconds.
3. Tap ✗ to abort the addition or deletion.
4. Tap ✓ to confirm the addition or deletion.
5. Repositioning measurement or text:
   a. Go to the measurement concerned.
   b. Press your finger on the text or measurement to be repositioned and drag it to the desired position.

! Multiple measurements in the house overview may lie on top of each other when you add a measurement from another screen.

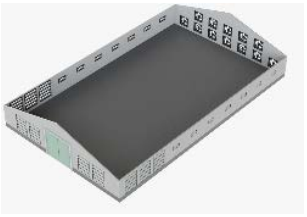
! First check which measurements and texts you want to add to the overview. Then ask your installer to add (or remove) them.

Choice of nine standard house types

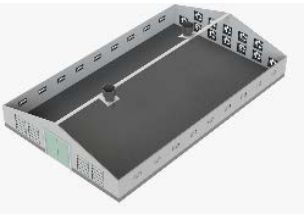
house1



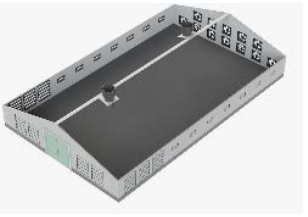
house2



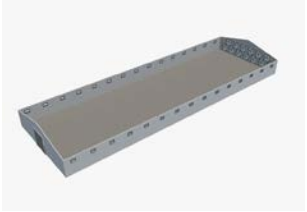
house3



house4



house5



house6

house7

house8

house9

(blank screen)

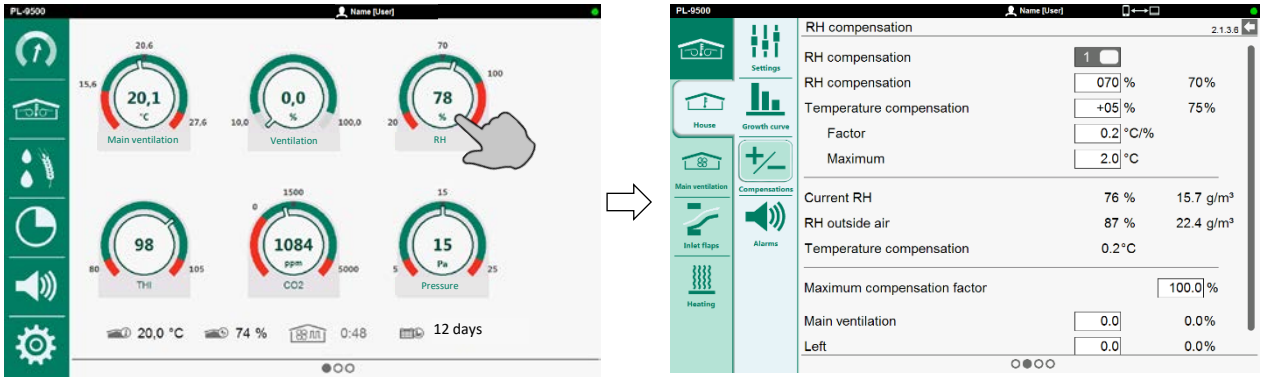
Symbols

Ventilation *RH* *Air inlet valve* *Age of animals* CO_2 *Carbon dioxide*

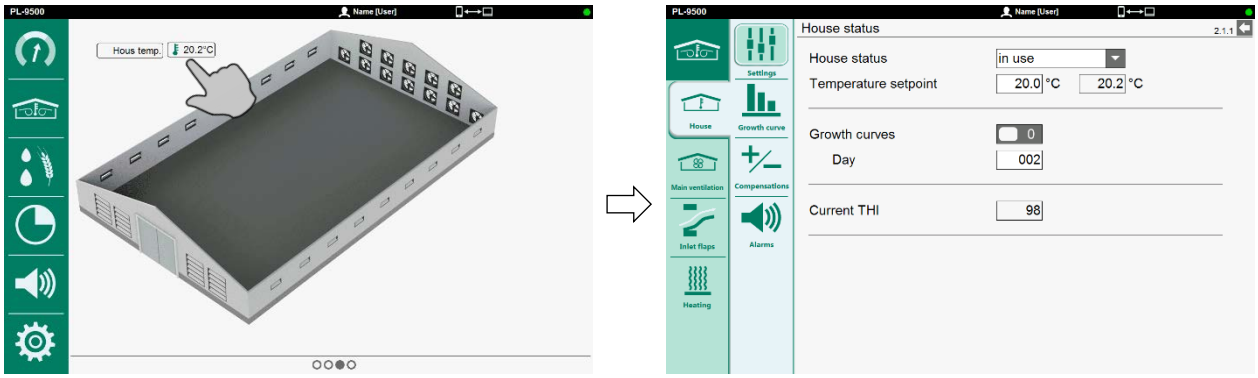
Temperature *Pressure* *Time* *Number of animals* NH_3 *Ammonia*

Wind speed

4.5 Overview screen navigation buttons (user mode)



1. Tap a button to open the corresponding screen.
2. Tap ◄ to return to the overview screen.

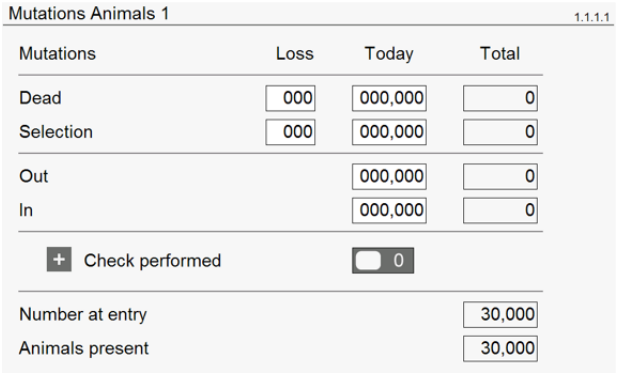


1. Tap the measurement value to open the corresponding screen.
2. Tap ◄ to return to the overview screen.

5 Management

5.1 Animals

Mutations



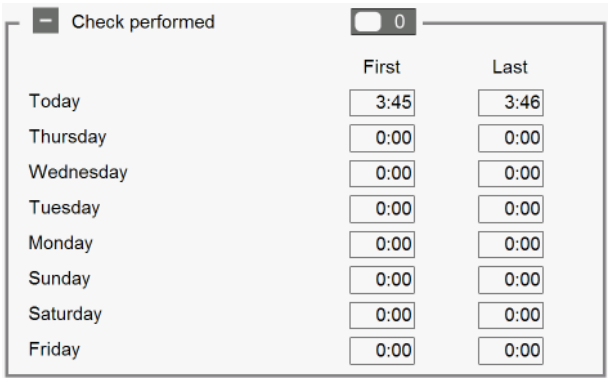
Entering mutations for up to ten mutation classes

1. *Total* column: Overview per row, the sum of all mutations, from the last set-up to today.
2. Removing animals in between: Under *Out,* enter the number of animals removed.
3. Adding animals in between: Under *In,* enter the number of animals restocked.
4. *Number at entry:* the number of animals initially set-up in the house.
5. *Animals present:* the number of animals currently in the house.

Check performed

If it is necessary the *Lost* in two periods per day, you can use the *Check performed* function.

1. Place the slider in the 1 position.
2. Tap ✓ to insert the control time.
3. \+ = request audit report
   − = close audit report

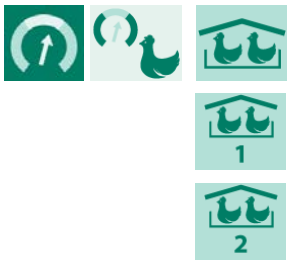


00:00 = not checked.

If the button has not yet been pressed today, the time will appear in the *First* column.

If the button was pressed more often today, the time appears in the *Last* column.

Overview



Overview mutations Animals 1 1.1.2.1

	Lost	Out	In	Number
Today	0	0	0	10,000
Thursday	0	0	0	10,000
Wednesday	0	0	0	10,000
Tuesday	0	0	0	10,000
Monday	0	0	0	10,000
Sunday	0	0	0	10,000
Saturday	0	0	0	10,000
Friday	0	0	0	10,000
Week	0	0	0	
Total	0	0	0	

Lost Animals 1 1.1.2.2

Today	Number	Perc.
Dead	0	0.00 %
Selection	0	0.00 %
Total	0	0.00 %
Out	0	0.00 %
In	0	0.00 %

Request week overview of mutations or request mutations of the past seven days ( ). In addition to the *Number*, the *Percentage* appears. This percentage is calculated based on the number of animals set up in the house (*Number at entry*). If two animal groups are present, you can request the mutations per animal group.

Setting up a new flock of chickens

Entry data 1.1.5

Entry date	23-10-2022
	Animals 1
Number at entry	010,000
New entry	0

Procedure:

1. The mortality table is cleared.
2. The *Entry date* will be filled in. You can change this manually at any time.
3. The control recalculates the occupancy rate if this depends on the set-up data.
4. Feed dosing is started as soon as a feeding cycle is active.
5. The growth curve corrections of house temperature and minimum/maximum ventilation are cleared.

Animal weight growth curves

Growth curve animal weight 1.1.6

Point	Day (20)	Weight g
1	001	00,040
2	007	00,162
3	014	00,410
4	021	00,765
5	028	01,186
6	035	01,666
7	042	02,161

Animal weight growth curve setting. The control uses the animal weight to calculate the ventilation capacity in m^3/kg/h.

Mortality

Configuration lost Animals 1 1.1.7.1

Number of mutation classes 2

Dead

Selection

Set the mutation classes (max. 10) per animal group.

5.2 Animal weighing

Animal weighing 1.2

	Scale 1
Average weight	0 g
Norm curve	714 g
Growth	0 g
Latest weighing	0 g
Number	0
Uniformity	0 %
Day	20

ANote-AWeighing-N-ENxxxxx

5.3 Feed and water

Water/feed 1.3.1

	Water l	Feed kg	Water ml/a	Feed g/a	W/F
Today	0	0	0	0	0.00
Thursday	0	0	0	0	0.00
Wednesday	0	0	0	0	0.00
Tuesday	0	0	0	0	0.00
Monday	0	0	0	0	0.00
Sunday	0	0	0	0	0.00
Saturday	0	0	0	0	0.00
Friday	0	0	0	0	0.00
Week	0	0	0	0	0.00
Total	0	0	0	0	0.00

5.4 Counters

Water counter 1.4.1.1

Today	0	l
Thursday	0	l
Wednesday	0	l
Tuesday	0	l
Monday	0	l
Sunday	0	l
Saturday	0	l
Friday	0	l
Week	0	l
Total	0	l
Clear counter	0	

Today .. Monday Overview of the daily counter readings.

Week The total counter reading of the past week. A week always starts on the *First day of the week*, see page 65.

Total Total score (after the last time the counter was cleared).

Clear counter Deleting the displayed counter.

Deleting the counter also deletes today's data, as well as the counter's overviews of the quantities fed and the counter feeding times.

Growth curve counters (for counters 1 to 6)

Growth curves counters 1.4.2.1

Growth curve Water counter 0

Point	Day (1)	Maximum l	Time minutes	Minimum l	Time minutes
1	001	1000	60	0020	06
2	007	1000	60	0020	06

The *Growth curves counters* setting allows the minimum and maximum supply alarms to ‘grow’ with the age of the animals. You then do not have to manually adjust the alarm limits each time.

Overview

Overview counters per animal 1.4.3.1

	Water ml/a	Feed g/a	W/F
Today	0	0	0.00
Wednesday	0	0	0.00
Tuesday	0	0	0.00
Monday	0	0	0.00
Sunday	0	0	0.00
Saturday	0	0	0.00
Friday	0	0	0.00
Thursday	0	0	0.00
Week	0	0	0.00
Total	0	0	0.00

Readout of water consumption, feed consumption and water/feed ratio per animal per day and the weekly totals per animal.

Clearing

Clear all counters 1.4.4

Clear all counters 0

Clearing all counter readings in one operation, including today's counter reading.

Alarm

Alarm Water counter 1.4.5.1

Alarm	time		
Alarm active	off		
Maximum	1000 l	in 60	minutes
Minimum	0020 l	in 06	minutes
Current status	off		
Alarm status	No alarm		

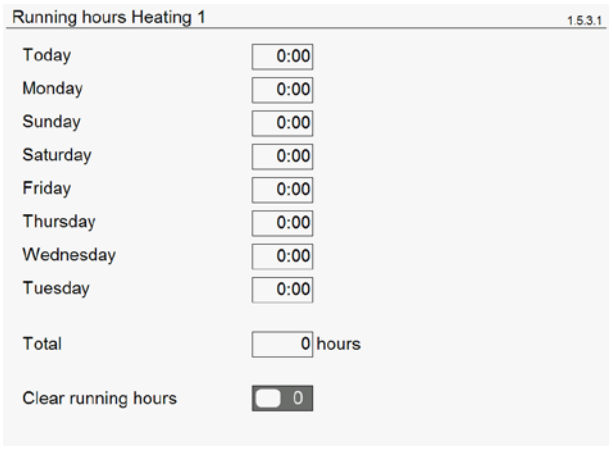
Alarm
- *on* All counter alarms are transmitted to the poultry computer.
- *off* No counter alarm is transmitted to the poultry computer.
- *time* Only when the *Alarm status* is active, counter alarms are transmitted to the poultry computer. Alarms that occur when the *Alarm status* is off are no longer transmitted.

Maximum If too much is dosed within the set time frame, e.g. due to a pipe burst or leakage, *Maximum supply alarm* is generated. If the counter is linked to a dosing timer, the output of this dosing timer is also switched off.

Minimum If less is dosed within the set time frame, *Minimum supply alarm* is generated. This prevents you from noticing that too little was dosed until the end of the day.

Current status If the input is active, the *Minimum supply alarm* is also active. Linking this input to the light timer, for example, prevents *Minimum supply alarms* during the night period.

5.5 Hour counter

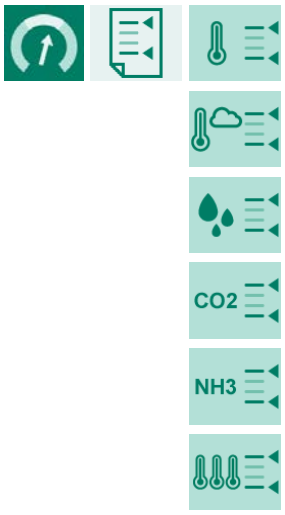


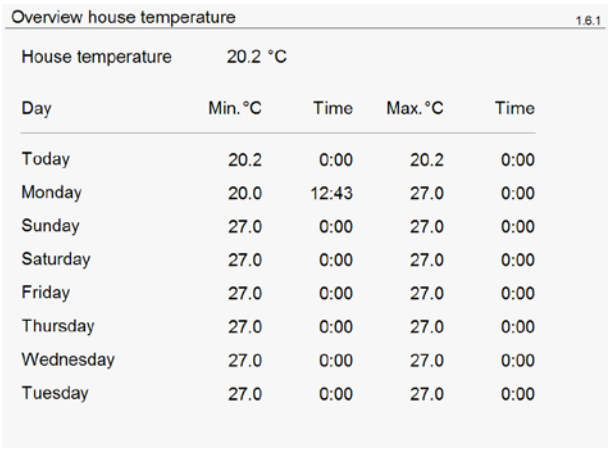
Today .. Tuesday The weekly overview per heating/cooling with the operating hours per day.

Total The total number of operating hours, since last cleared.

Clear running hours Here you can clear the running hours of the heating/cooling displayed.

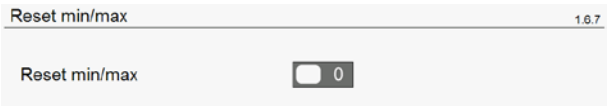
5.6 Minimum and maximum values





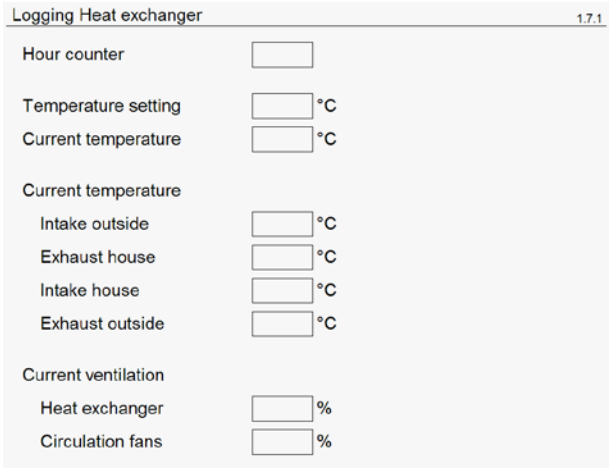
Summary of measured *Min/Max values (house temp., outside temp., RH, CO2, NH3 and sensors)* for the past seven days with times.

Reset



Reset min/max Here you can clear all min/max tables, including today's.

5.7 Logging



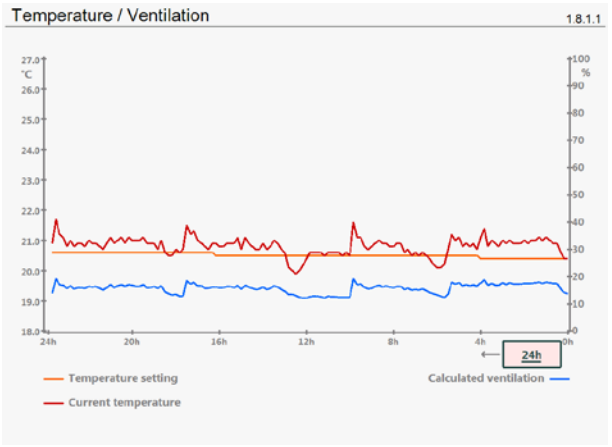
Logging heat exchanger	Overview of the heat exchanger log data.
Hour meter	Total number of hours the heat exchanger was active.
Temperature setting	Temperature setpoint heat exchanger
Actual temperature	Current temperature heat exchanger
Actual temperature	
Intake outside	Current temperature of the incoming outside air.
Exhaust house	Current temperature of air extracted.
Intake house	Current temperature of the inlet air inside the house.
Exhaust outside	Supply air temperature to the outside
Actual ventilation	
Heat exchanger	Actual ventilation heat exchanger
Circulation vent.	Actual ventilation circulation fans.

5.8 History

The *History* menu item only appears if there is sufficient free memory (at least 100MB) on the WEC-Board. If there is insufficient memory, you can have the WEC-Board upgraded (replaced).

! If no data is present, the screen is blank.

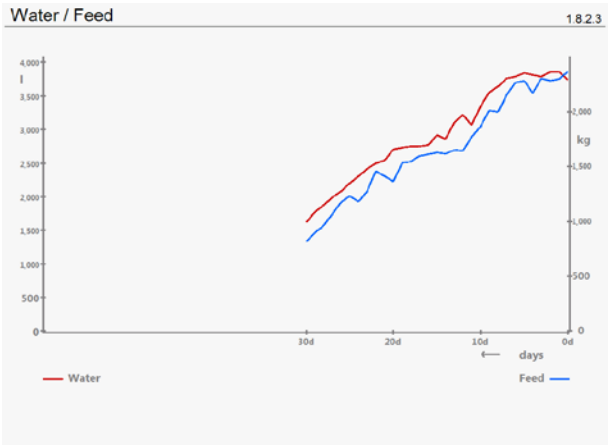
Climate



You can retrieve the history of temperature, ventilation, humidity, CO_2, NH_3, cooling and heating, if installed.

You can select an overview of the last 24 hours, the last two days, the last five or seven days (24h 7 days 5 days 2 days). A new day starts at the time entered at *Start new day*, see page 65.

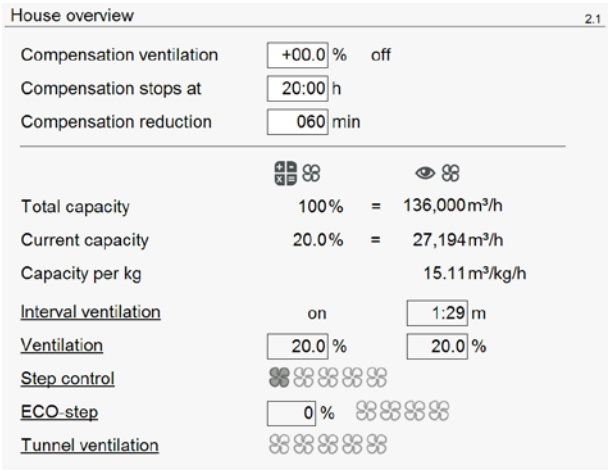
Performance



You can retrieve the history of the water/feed ratio, the water/feed ratio per animal and the weight (if installed) of the current cycle.

6 Climate control

6.1 Poultry house



Compensation ventilation	Temporary manual ventilation offset. This can be a positive and a negative value (see screen 2.2.1.1) and automatically deactivates at *Compensation stops at*. Behind it is the current compensation status: *off, max* or *active.*
Compensation stops at	Time at which manual compensation stops.
Compensation phase-out	Time period during which compensation is reduced to 0%.
Current status	Current compensation status: *off, max* or *active*.
Total capacity	Total ventilation capacity in percentage and in m^3/h.
Current capacity	Current ventilation capacity in percentage and in m^3/h.
Capacity per kg	Calculated ventilation capacity per kg animal weight. To calculate the capacity per kg, it is important that you correctly enter the growth curve of the animal weight and mutations (*mortality*, etc.).
Capacity per animal	Calculated ventilation capacity per animal. To calculate the capacity per animal, it is important that you fill out the animal data (*mortality* etc.) correctly.
Ventilation	Current ventilation readout.
ECO-step	The calculated ECO-step ventilation rate and number of fans switched on/off.
Interval ventilation	The interval ventilation status (*on/off*) and the time period after which the status changes again from *on* to *off* or vice versa. Interval ventilation and step control are mutually exclusive.

 Calculated ventilation

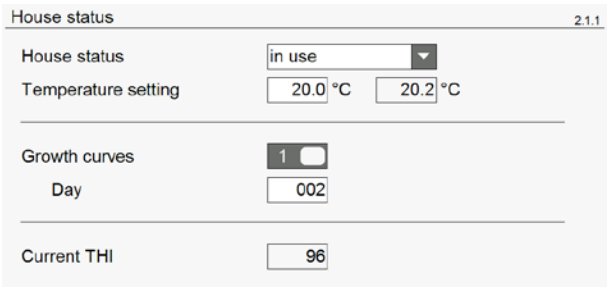
 Current ventilation

 Half step

 Fan switched off

 Fan switched on

Settings



Here you can:

- change the house status;
- change the house temperature setpoint and read out the current house temperature;
- turn the growth curves on and off;
- change the day number;
- read out of the current Temperature Humidity Index (THI).

House status:

not in use	The house is out of service (there are no animals in the house).
preheating	Preheating the poultry house for about 12-24 hours before the animals arrive.
brooding	Brooding refers to the period immediately after hatching, when the newborn chicks need extra care and attention.
in use	Normal operating state.
loading	Status during unloading or loading animals.
cleaning	In *Cleaning* status, you must remove the RH, CO_2 and NH_3 sensors from the house. If you fail to do so, an alarm message appears for each sensor: *xxx sensor not removed*. *Soaking* can only be activated when the house status is set to Cleaning and Cooling is switched off.
drying	After cleaning the house, select this status to dry the house as quickly as possible.

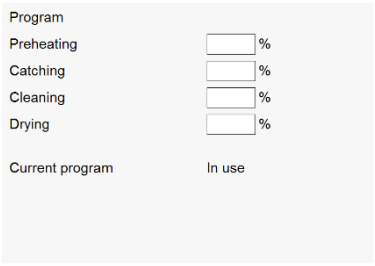
Confirming (✓) or cancelling (×) the changed house status.

The set percentages of the minimum/maximum ventilation growth curves (main and auxiliary ventilation) are recalculated after changing the day number or changing the animal weight growth curve.

Control options

You can specify per control how it should react to the set *House status*. If a setting is displayed next to the status, this setting is adopted by the control, provided that the *current program* matches the corresponding status. The current *House status* is shown at *Current program*.

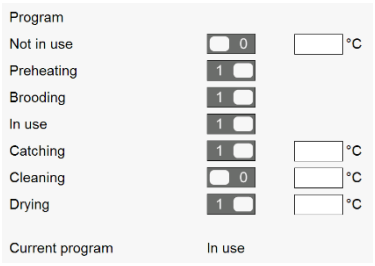
Main ventilation/Air inlets



Depending on the *current programme* (house status), you can specify the set ventilation percentage for each status.

If a pressure control is installed, it is switched off during animal loading (*Current status = off*).

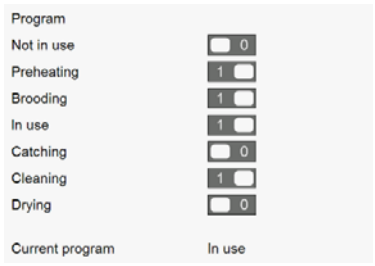
Heating



Depending on the *current program* (house status), you can specify the temperature setting for some statuses.

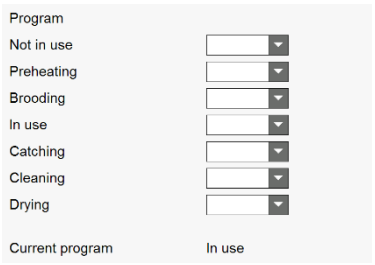
- Settings below 10.0°C are relative values.
- tings equal to or higher than 10.0°C are absolute values.

Cooling / Temperature control / Mixed air



The control is switched on/off at the respective house status.

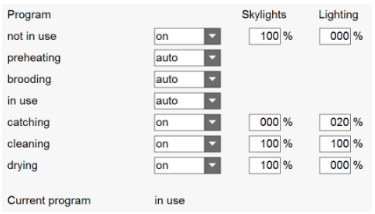
Master timer / Pop-hole timer



Possible statuses:

off	The master/pop-hole timer is switched off.
auto	The master/pop-hole timer follows the set program.
on	The master timer is switched on (similar to manual operation).

Skylights



You can set the control for each house status to: *on, auto* or *off*.

Additionally, you can adjust the *skylights'* position (%) and the *lighting* intensity (%) for various house statuses.

On/Off light timer / Water timer / Dosage timer / General timer / Laying-nest timer

Possible statuses:

off The timer is switched off.

auto The timer follows the set program.

on The timer is switched on (similar to manual operation).

slave The on/off times of the timer are related to the *Master timer*.

Proportional light timer

Possible statuses:

off The light timer is switched off.

auto The light timer follows the set program.

on The light is controlled based on the set percentage (similar to manual control).

slave The on/off times of the timer are related to the Master timer.

Feed-chain / Rinse timer

Possible statuses:

off The timer is switched off.

auto The timer follows the set program.

slave The on/off times of the timer are related to the Master timer.

Water on demand

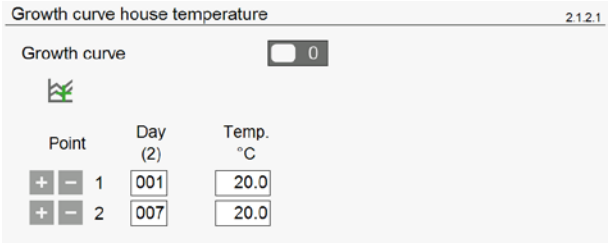
Possible statuses:

off *Water on demand* is switched off.

auto *Water on demand* follows the set program.

slave *Water on demand* is controlled based on the set pressure.

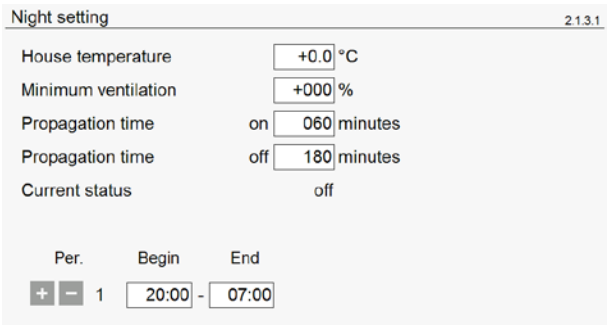
Growth curves



Growth curves for:
- house temperature.
- RH compensation

= graphical display of growth curve on;
= graphical display of growth curve off.

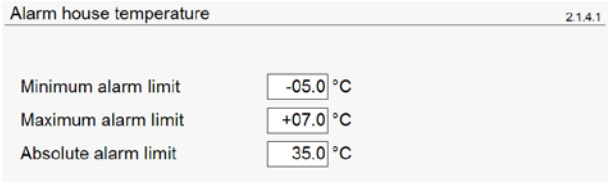
Compensations



Compensations (offsets) for:
- night reduction (+ night period curve)
- temperature
- bandwidth (bandwidth compensation and maximum ventilation compensation are mutually exclusive)
- minimum and maximum ventilation
- CO_2
- RH
- NH_3
- Meteo

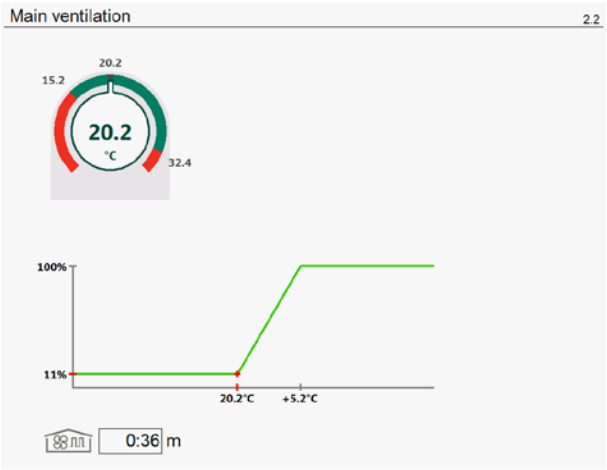
ANote-CompensP-N-ENxxxx

Alarm



Alarms for:
- House temperature
- RH measurement
- Outside air RH
- CO_2 measurement
- NH_3 measurement
- Meteo station
- Outside temperature sensor
- Temperature Humidity Index (THI)

6.2 Main ventilation

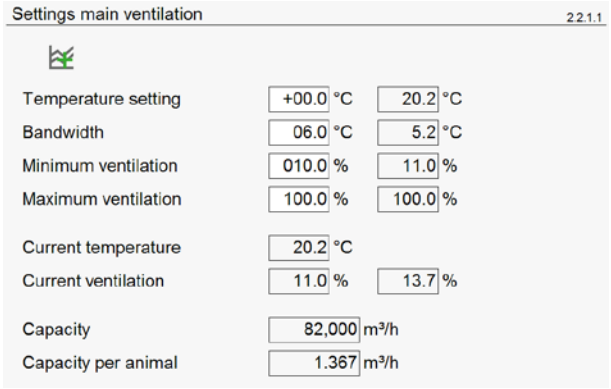


= interval ventilation off
= interval ventilation on
= standard ventilation
= tunnel ventilation

Reading out settings and measurements of the following ventilation controls:

- main ventilation
- AQC valve
- interval ventilation
- tunnel ventilation
- heat exchanger

Main ventilation settings



Temperature setpoint — The ventilation group control is based on this temperature setpoint. The setting is relative to the house temperature. The value on the right shows the calculated temperature based on which the ventilation group controls.

Bandwidth — The 'sensitivity' of the fan to temperature changes. The smaller the bandwidth, the more strongly the fan reacts to a temperature change. Large fan fluctuations are not good for the house climate. See bandwidth compensation, page 19.

Min/max ventilation — If the compensation setpoint is based on the occupancy, the minimum/ maximum ventilation adapts to the number of animals in the house. Furthermore, minimum and maximum ventilation can be influenced by RH, CO_2, meteo, night setting and outside temperature.

Current temperature — Readout of the current, average house temperature.

Current ventilation	If the main ventilation is controlled using a measuring fan, the measured ventilation is displayed after the calculated ventilation. If no measuring fan has been installed or if it is defective, the calculated ventilation is equal to the measured ventilation. The actual ventilation is calculated from the bandwidth and the minimum and maximum ventilation settings.
Capacity	The main ventilation group capacity: total capacity and capacity per animal.
Capacity per kg	The calculated ventilation capacity per kg animal weight. For this calculation, it is important that you correctly enter the growth curve of the animal weight and mutations (*mortality*, etc.).
Capacity per animal	Calculated ventilation capacity per animal. To calculate the capacity per animal, it is important that you enter the animal data (*mortality*) correctly.
Total capacity	Total ventilation capacity in m^3/h.

Compensation ventilation manually adjusted upwards (see screen 2.1)

Compensation ventilation manually adjusted downwards (see screen 2.1)

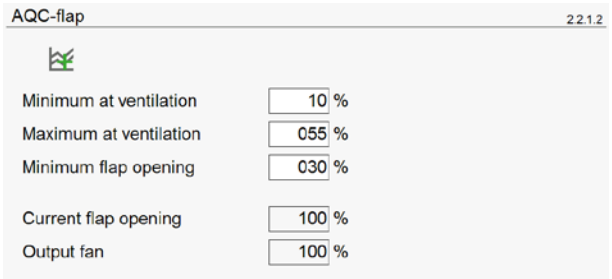
RH compensation active (see screen 2.2.4)

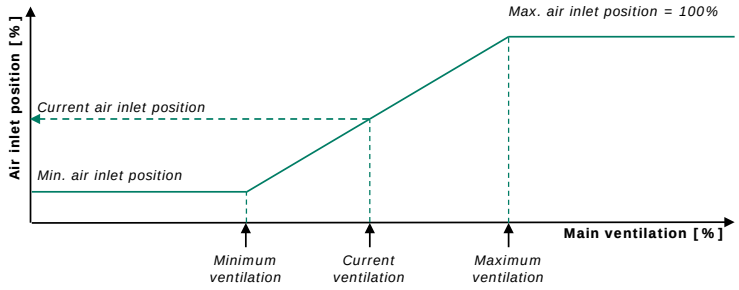
CO_2 compensation active (see screen 2.2.4)

NH_3 compensation active (see screen 2.2.4)

AQC valve

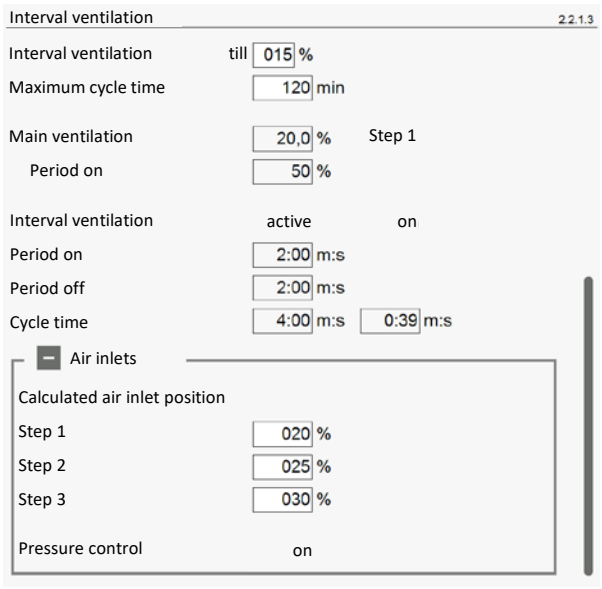
You can set the control characteristic only for an AQC valve without a measuring fan. If the controlled ventilation group has a measuring fan, screen 2.2.1.2 *AQC valve* does not appear.



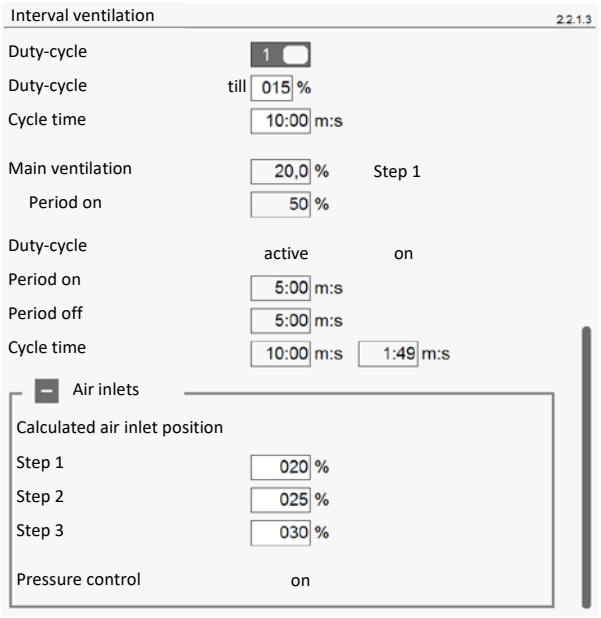


The AQC valve without measuring fan control is based on the calculated main ventilation (*Fan output*).

Interval ventilation



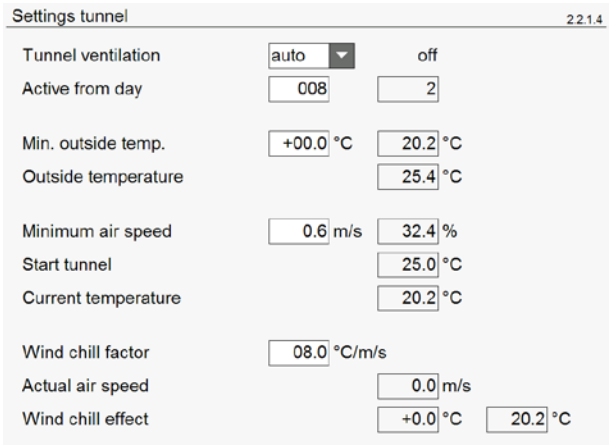
Interval ventilation = Interval



Interval ventilation = Duty-cycle

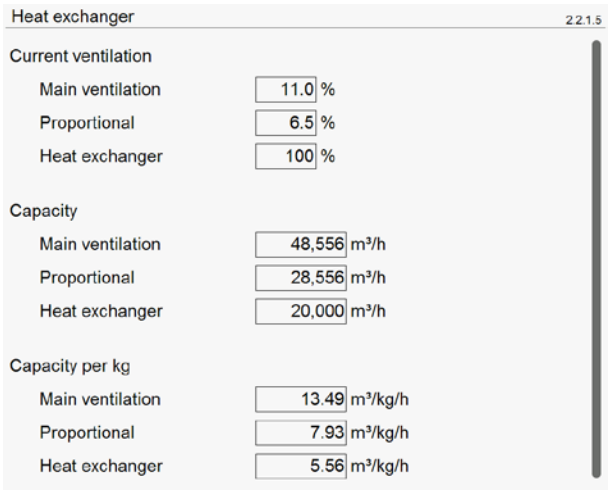
ANote-IntVent-N-ENxxxx

Tunnel ventilation



ANote-Tunnel-N-ENxxxx

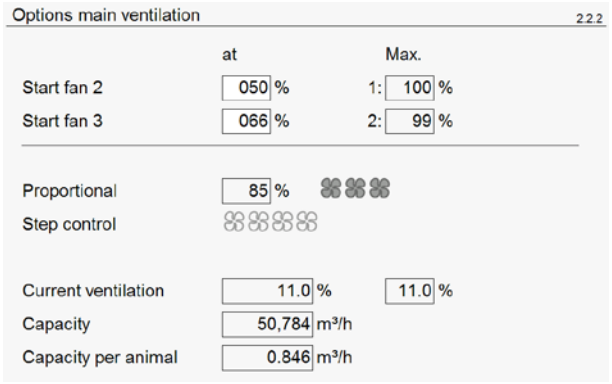
Heat exchanger



ANote HeatExcP-N-ENxxxx

Options

If the main ventilation consists of several fans, at *Start fan 2* and/or *Start fan 3* you enter the percentage at which the fans should switch on. The switch-on percentage is relative to the total ventilation capacity of the controlled ventilation group.



Fan switched off Fan switched on Half-step

If the capacity of the controlled ventilation group relative to the total capacity is less than the percentage set at *Minimum ventilation*, the controlled group runs at full capacity.

Main ventilation curve

Growth curves main ventilation 2.2.3.1

Growth curve 0

Point	Day (2)	Temp. °C	Min.vent. %	Min.vent. m³/kg/h	Max.vent. %	Max.vent. m³/kg/h
1	001	+12.0	000.1	00.13	000.2	00.38
2	007	+05.0	000.5	00.26	000.9	00.43
3	014	+02.0	002.6	00.48	003.6	00.67
4	021	+00.0	010.7	01.07	021.8	02.18
5	028	+00.0	019.6	01.26	036.7	02.37
6	035	+00.0	027.6	01.27	065.0	02.99
7	042	+00.0	036.2	01.28	093.3	03.31

This growth curve can be set via ventilation rates or in m^3/kg/h, provided that your installer has set the *Capacity per kg* to *yes*. If you change the percentage, the value in m^3/kg/h will automatically be adjusted. And vice versa, if you change the m^3/kg/h, the percentage is automatically adjusted.

Tunnel ventilation curve

Growth curve tunnel 2.2.3.2

Growth curve 0

Point	Day (2)	Outside °C	Chill °C/m/s
1	001	40.0	08.0
2	007	37.0	07.0
3	014	37.0	06.0
4	021	37.0	04.5
5	028	37.0	03.5
6	035	37.0	03.2
7	042	37.0	03.0

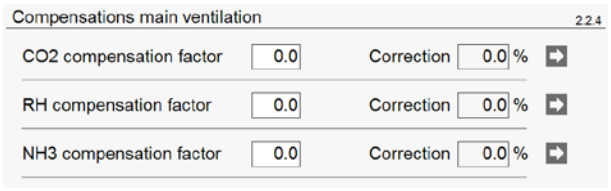
Growth curve The growth curve of *Min outside temperature* and *wind chill factor*. The growth curve status is a copy of the main ventilation. If the main ventilation growth curve is set to ON (1), the tunnel ventilation growth curve is automatically set to ON. And vice versa, if the main ventilation growth curve is set to OFF (0), the tunnel ventilation growth curve is automatically set to OFF too.

The tunnel ventilation activates, if:

- *Tunnel ventilation = auto*
- The growth curve is set at ON
- The house temperature is higher than the *Start tunnel temperature* setpoint
- The outside temperature is higher than the *Min. outside temperature* setpoint
- It is *ON* during the time displayed
- It is set to *OFF* during the time displayed

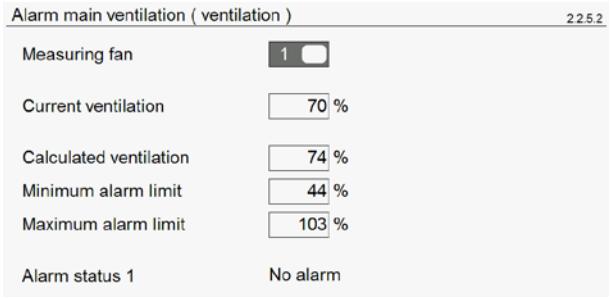
If your installer has set the *Wind chill factor* to *yes* (screen 2.2.6.2), the *Wind chill factor* growth curve can be entered, as a value relative to the outside temperature curve.

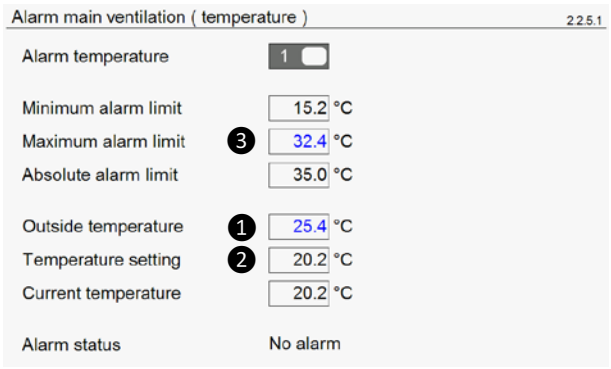
Compensation (correction)



Enter here the compensation factors for RH, CO_2 and NH_3.

Alarm



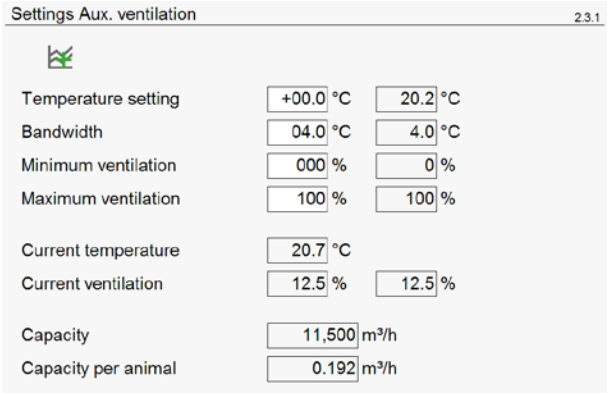


Enabling and disabling main ventilation alarms:

- ventilation alarm , provided that a measuring fan has been installed.
- temperature alarm.

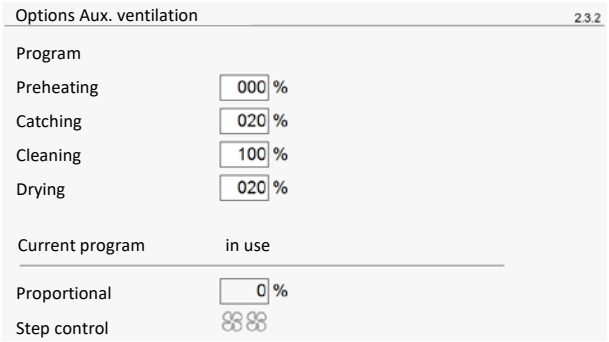
If no cooling has been installed and the *Outside temperature* ❶ rises above the *Temperature setpoint* ❷, the *Maximum Alarm Limit* ❸ will be compensated. In that case the values concerned will be displayed in blue.

6.3 Auxiliary ventilation



At *Temperature setting,* you specify the temperature based on which the auxiliary ventilation controls. In this screen you also enter the required *bandwidth* and *minimum* and *maximum ventilation*. Furthermore, you see the currently measured temperature and ventilation and the calculated total *capacity* and the calculated *capacity per kilogram/capacity per animal*.

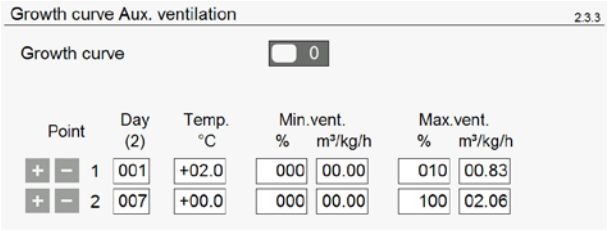
Options



Status display of any step control set:

Fan switched off Fan switched on Half-step

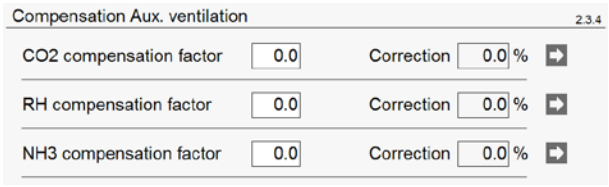
Auxiliary ventilation curve



Setting growth curve auxiliary ventilation:

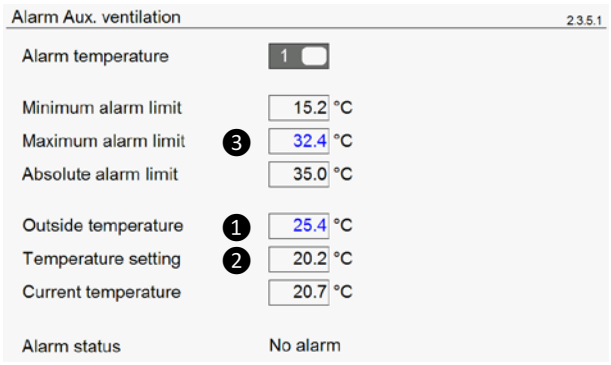
- *Temperature*
- *Min./Max. ventilation*

Compensation (correction)

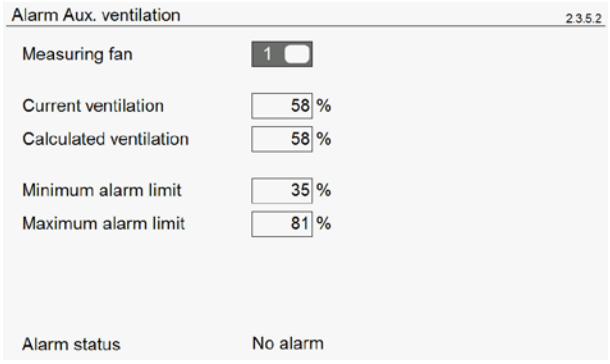


Entering the compensation factors for RH, CO_2 and NH_3.

Alarm

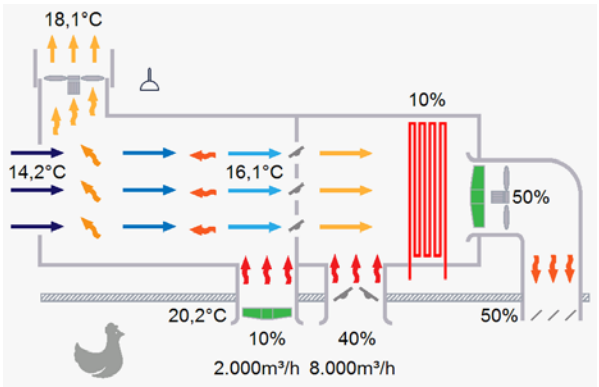


If no cooling has been installed and the *Outside Temperature* ❶ rises above the *Temperature setpoint* ❷, the *Maximum Alarm Limit* ❸ will be compensated. In that case the values concerned will be displayed in blue.



Here you can switch the auxiliary ventilation alarm on and off and readout the current *Alarm status*.

6.4 Heat exchanger



ANote HeatExcP-N-ENxxxx

6.5 Air inlet valves

Overview inlet flaps 2.5

	No.	Temp.	Calculated	Current
Left	1:	20.2 °C	0 %	0 %
	2:	20.2 °C	0 %	0 %
Right	1:	20.2 °C	8 %	8 %
	2:	20.2 °C	8 %	8 %
Front	1:	----	11 %	11 %
	2:	----	11 %	11 %
Middle	1:	----	0 %	0 %
	2:	----	0 %	0 %
Rear	1:	20.0 °C	0 %	0 %
	2:	----	0 %	0 %

The air inlet control can be based on the following parameters:

- *Temperature*
- *Pressure*
- *Ventilation*
- *Tunnel ventilation*

An air inlet control based on (tunnel) ventilation does not need temperature sensors.

Settings

Settings Left 2.5.1.1

Temperature setting	+01.0 °C	21.2 °C
Bandwidth	04.0 °C	3.5 °C
Minimum flap opening	000 %	0 %
Maximum flap opening	100 %	100 %
Tunnel ventilation	off	

Control	1	2
Current temperature	21.7 °C	21.7 °C
Calculated flap opening	12 %	12 %
Current flap opening	12 %	12 %

Temperature

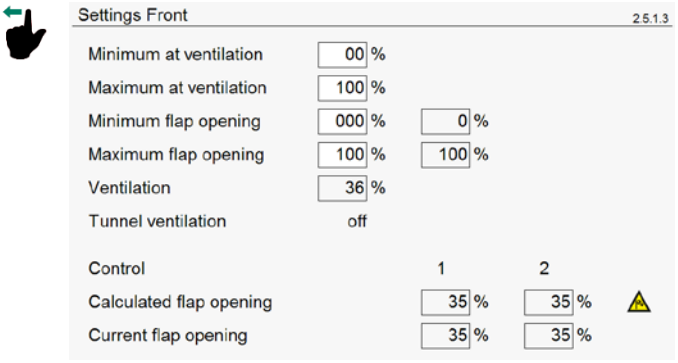
Settings Right 2.5.1.2

Temperature setting	+01.0 °C	21.2 °C
Bandwidth	04.0 °C	3.5 °C
Minimum flap opening	000 %	0 %
Maximum flap opening	100 %	100 %
Tunnel ventilation	off	

Control	1	2
Current temperature	21.6 °C	21.7 °C
Calculated flap opening	9 %	9 %
Current flap opening	9 %	9 %

Pressure control	
Current status	on

Pressure



(Tunnel) ventilation

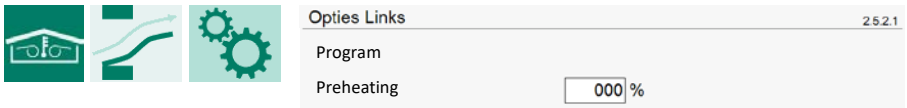
Wind direction meteo station affects the air inlet position (see screen 2.1.3.9)

For each ventilation group, you can enter the following parameters:

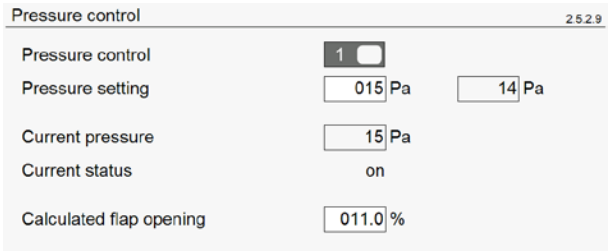
- *Temperature difference* with respect to the *House temperature setpoint* at which the inlet valve controls (air inlet control based on temperature or pressure)
- *Bandwidth* (valve control based on temperature or pressure)
- *Minimum at ventilation* (valve control based on (tunnel) ventilation)
- *Maximum at ventilation (*valve control based on (tunnel) ventilation)
- *Min./Max. ventilation*

Readout of the measurements/calculations of the above parameters.

Options



Cascade



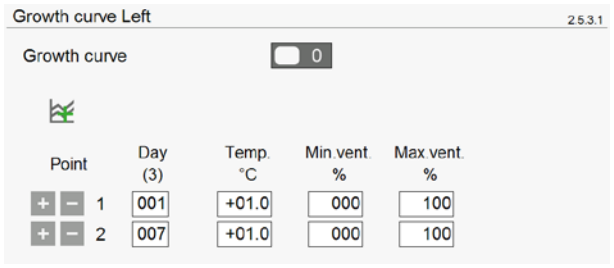
Pressure

Start valve 2/3 If a cascade control has been installed for a ventilation group, enter the start percentage of the second and/or third air inlet valve.

Pressure setting The desired pressure setpoint. The second value shows the pressure corrected based on the outside temperature.

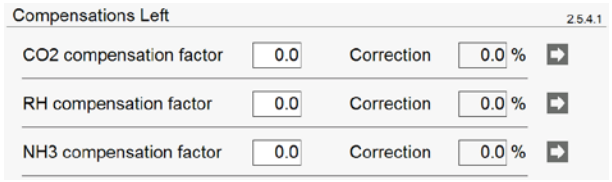
Current pressure and *Current status* show the current value readouts.

Ventilation curve per ventilation group



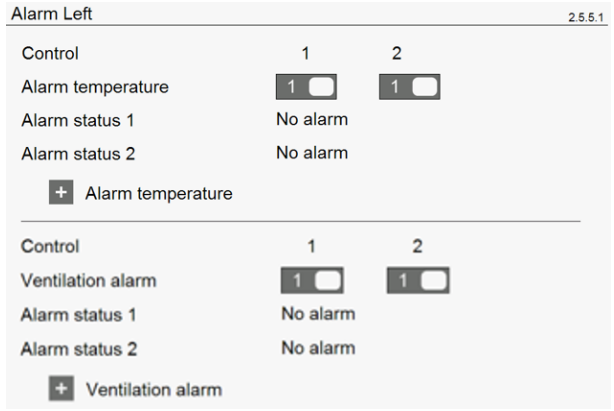
Here you enter the curve values for each ventilation group: *Temperature, Min.* and *Max. ventilation*. This does not apply to valves which are set to *Tunnel*.

Compensations

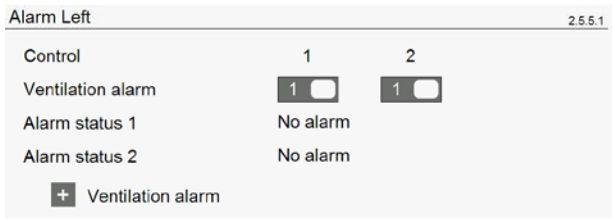


Setting the RH, CO_2 and NH_3 compensation factors.

Alarm

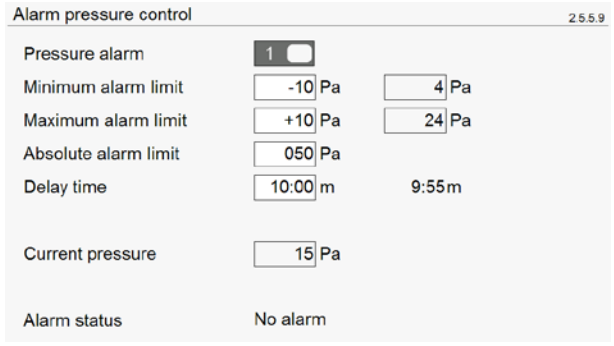


Air inlet control based on temperature or pressure, with temperature compensation



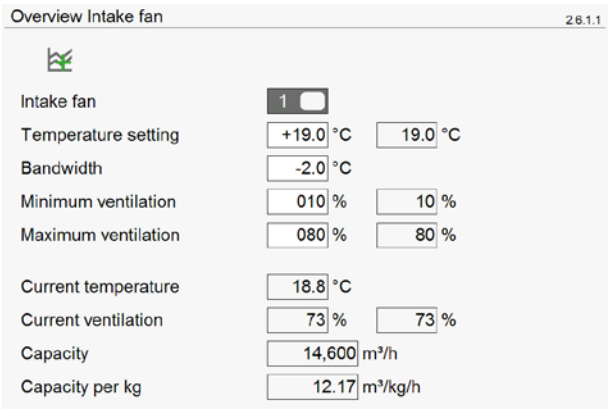
Air inlet control based on ventilation, tunnel or pressure, without temperature compensation

Alarm pressure control



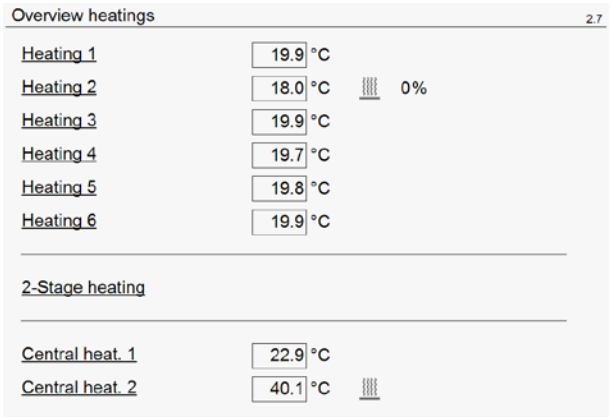
Here you can turn the alarm ON and OFF for each ventilation group and for each inlet valve control. At *Minimum* and *maximum alarm limit,* you enter the minimum and maximum values for the control concerned. After the setpoints are displayed the calculated or actual values. At *Delay time,* enter the number of minutes the system will wait before actually activating the alarm. The second value shows the remaining delay time. Furthermore, you see the current *Alarm status* and the *Current pressure* measured.

6.6 Manure belt



ANote-ManureB-N-ENxxxx

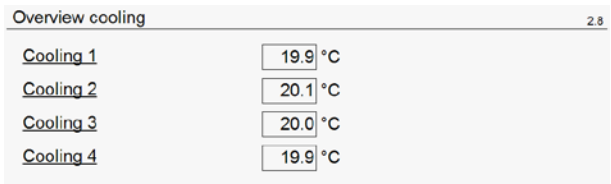
6.7 Heating



ANote-Heating-N-ENxxxx

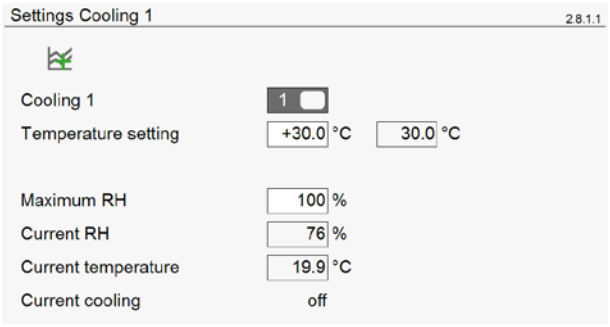
Overview of the installed heaters, including the current temperature: up to six room heaters, up to two central heaters and possibly a 2-stage heater. By tapping the heating concerned (hyperlink), you enter the screen with the heating settings.

6.8 Cooling



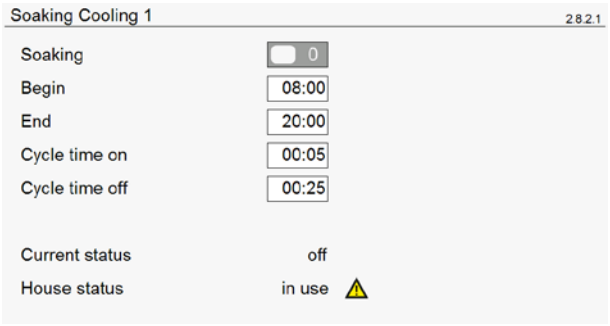
ANote-Cooling-N-ENxxxx

Settings



This screen shows the settings of the cooling control selected. At *Temperature setpoint,* you enter the desired temperature based on which the cooling should control. The second value reads the corrected value based on outside temperature. This value only appears if an outside sensor has been connected. Above the value entered at *Maximum RH*, the cooling switches off. Furthermore, you can see the current RH (%), the current temperature in the house and the current cooling status.

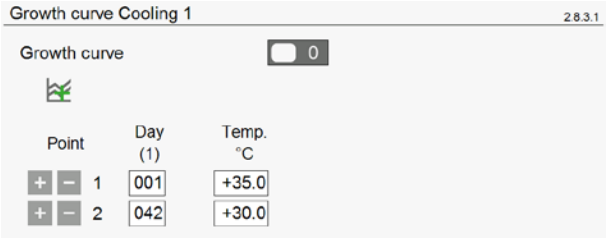
Options



This option only appears with *Cooling 1*, if installed. The cooling is then switched off completely during the *Cycle time on* (ON or 100%). As soon as you set the house status to *Cleaning*, soaking *is* switched off to prevent the soaking process from starting immediately after the house status is set to *Cleaning*.

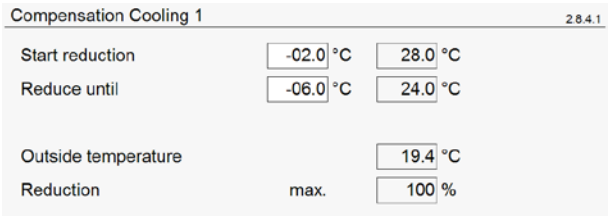
! You can only start the soak function when the house status is set to *Cleaning* and *Cooling* is switched off.

Cooling curve



Here you can enter a temperature curve per cooling control.

Compensation (reduction)



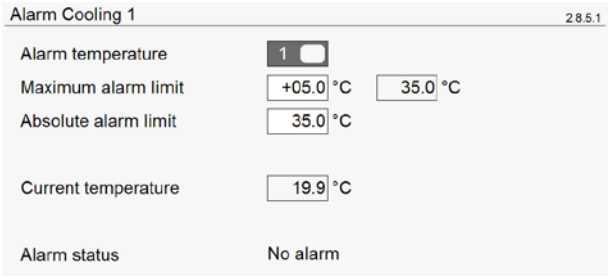
Start reduction + Reduce until — Enter the temperature difference relative to the cooling temperature setpoint.

Reduction — The *reduction* function prevents too much cold air from being sucked into the house when the outside temperature is low and the house temperature is higher than the house temperature setpoint. With this setting you can limit the actual cooling.

Outside temperature — Readout of the current outside temperature.

Reduction, max. — Readout of the maximum *reduction* in percent.

Alarm



Temperature alarm — Here you can switch the temperature alarm ON and OFF.

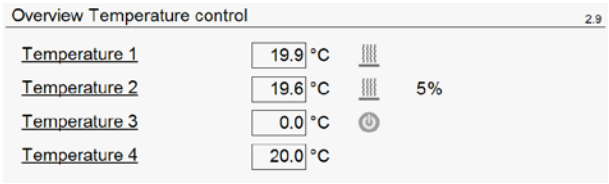
Maximum alarm limit — Enter the permitted temperature difference relative to the temperature setpoint.

Absolute alarm limit — Enter the maximum temperature above which alarm is given.

Current temperature — Readout of the current house temperature

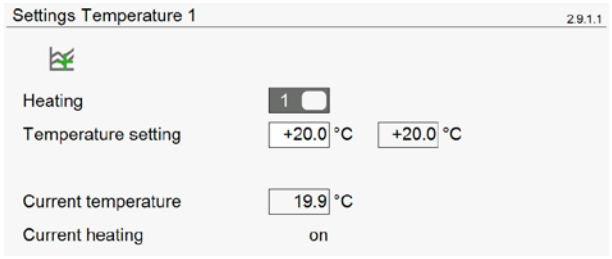
Alarm status — Readout of the current alarm status

6.9 Temperature control

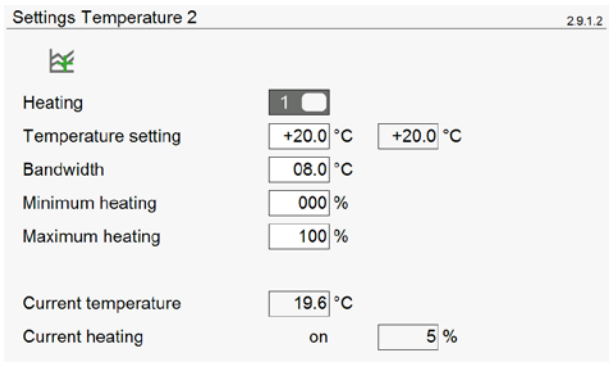


Settings

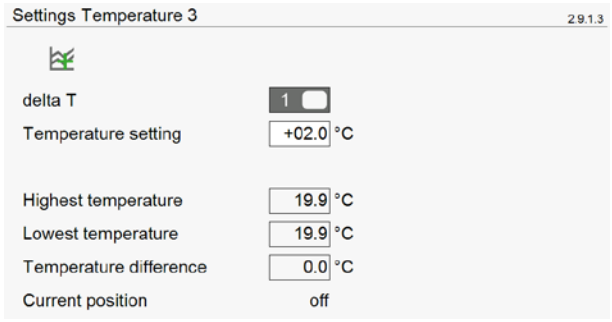
The temperature control can be a heating, cooling or delta-T control.



On/off



Proportional

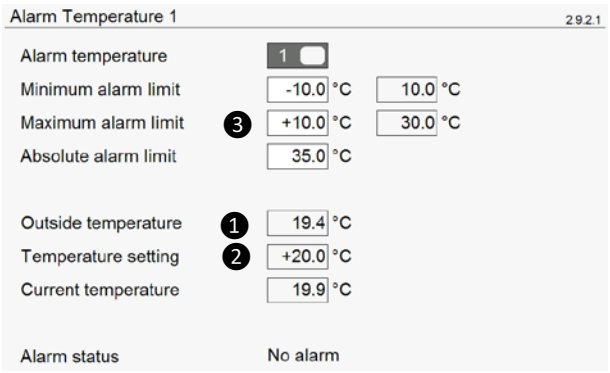


Delta-T

For each temperature control, you can specify whether the relevant control should be switched on or off. At *Temperature setpoint* you enter the temperature based on which should be controlled. For a proportional temperature control, you also enter the *Bandwidth*, *Minimum* and *Maximum heating* and the *Highest and Lowest temperature*.

Furthermore, you will read the corresponding measured and calculated values of the controls concerned.

Alarm



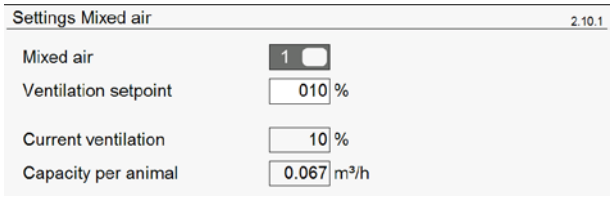
For each temperature control, you can turn the alarm on and off. For all controls, except the *Delta-T control*, you can set the alarm limits (with respect to the house temperature setpoint). *Alarm status* shows the current status of the alarm.

If you have no cooling installed and the *Outside temperature* ❶ rises above the *Temperature setpoint* ❷, the *Maximum alarm limit* ❸ is compensated. The values are then displayed in blue.

6.10 Miscellaneous controls

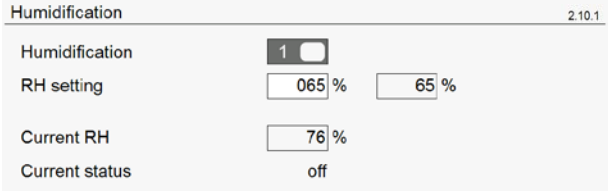
Mixed air control

Ammonia emissions can be reduced by blowing warm air from the ridge horizontally over the poultry litter via ventilation chimneys and recirculation fans. This will make the poultry bedding dry faster.

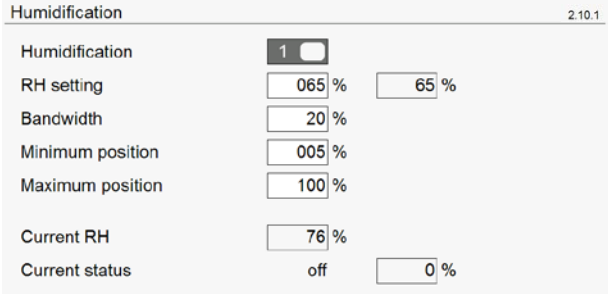


In this menu, you can switch the mixed-air control on and off. The ventilation rate of the recirculation fans can be entered manually.

Humidification control



Switched (on/off)



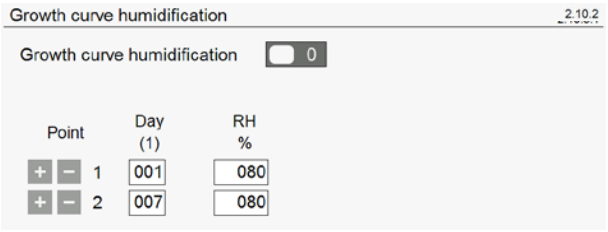
Duty-cycle

In this screen, you can specify whether the humidification control should be on or off. At *RH setpoint* you can enter the relative humidity based on which the respective control should activate.

The second value shows the value corrected on the basis of the outside temperature. This value only appears if an outside sensor is connected.
Below the entered *Minimum position* (minimum RH), the humidification control is optimally active. Above the entered *Maximum position* (maximum RH), the humidification control switches off completely. With the *Bandwidth* you specify how quickly the humidification is controlled from minimum to maximum. Furthermore, you see the *current RH* (%) and the *current status* and value of the humidification control.

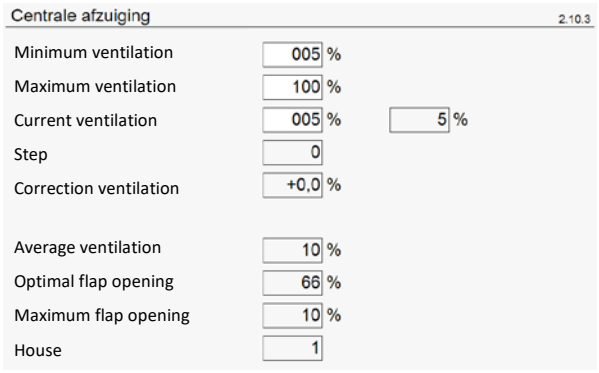
If *Cooling 1* and *Humidify* are connected to the same output, the output is controlled based on the highest calculated value of both controls.

Humidification curve



Here you enter the humidification curve. For a number of day numbers, enter the RH values desired on those days. The humidification control will then automatically control based on the entered curve.

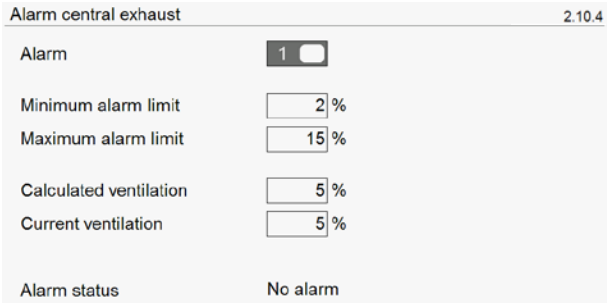
Central exhaust



Here you set the *minimum ventilation* and *maximum ventilation* of the central exhaust. The rest of the parameters shown are readouts of measured, calculated or installer-set values.

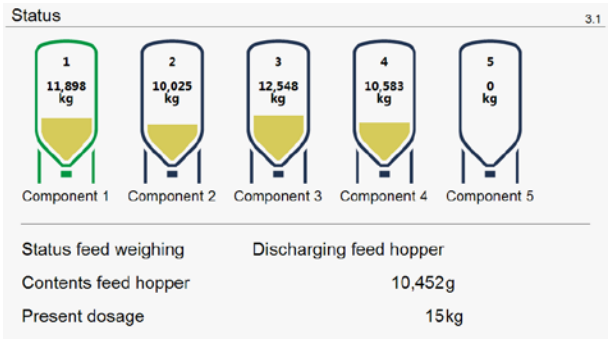
ANote-CentVent-N-ENxxxx

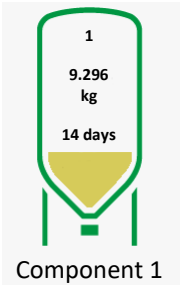
Alarm



In this screen, you can specify whether the alarm for the central extraction should be enabled or disabled. You will see the current alarm status and the current and calculated ventilation and alarm limits in %.

7 Feeding





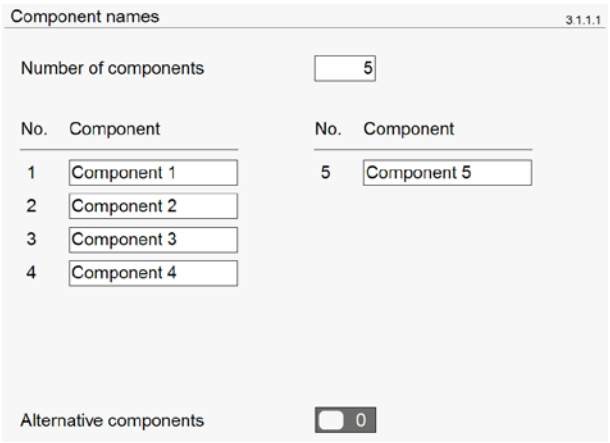
Tap to open the feed summary screen. You will see the following:

- silo contents;
- current silo status: green = active, blue = blocked, grey = empty;
- calculated number of days that can still be fed from the active silo. This calculation is based on that which has been fed *yesterday*;
- silo weigher status (appears only if a PFB-35/70 or PSW-1 is used);
- component overview (appears only if a PFB-35/70 or PSW-1 is used).

If the feed weigher is set to *PFV-9XXX*, the feed menu will not appear.

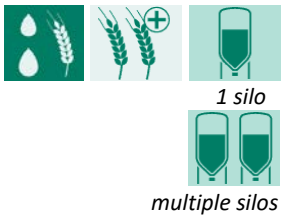
7.1 Feed weighing

Component names



In this screen, you enter the number of components, up to 8, and you can change the default component names (*component 1, 2 ...*). If you have enabled *Alternative components*, you can also change these names.

Silo contents



Silo contents 3.1.2

Silo	Status	Contains	Filled	Contents
1	free	Component 1	00,000 kg	11,914 kg
2	free	Component 2	00,000 kg	10,025 kg
3	free	Component 3	00,000 kg	12,548 kg
4	free	Component 4	00,000 kg	10,583 kg
5	free	Component 5	00,000 kg	00,000 kg

For each silo, you can see which component it contains and the status of that silo. The last column *(Contents)* shows how much component is in the relevant silo: stock or shortage (negative value). When feed is bulked, enter the amount of bulked component in the penultimate column *(Bulked)*. After confirming your entry, the bulked amount is automatically added to the silo content and the value under *Bulked* changes back to 00,000 kg.

Silo status

free
empty
blocked

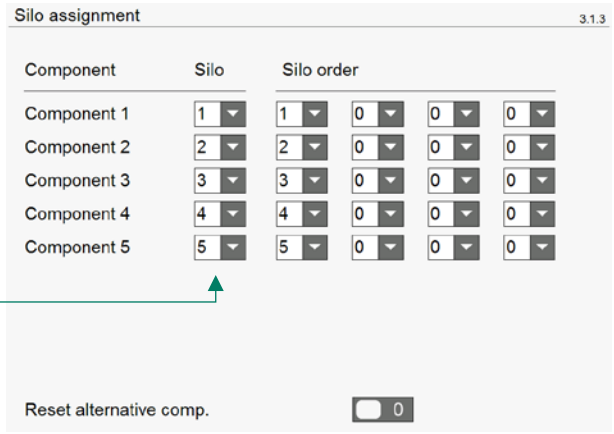
The silo status changes from *free* to *empty,* when:
- you change it manually;
- feed is supplied from the selected silo;
- the feed supply speed from the silo is too low.

The silo status *empty* is cleared, when:
- you change it manually;
- a new day begins;
- the feed weigher is restarted (page 44);
- the *reset button* on the *PFB-35/70* is pressed briefly;
- *Reset alternative components* is performed (page 43);
- feed is bulked.

The silo status changes from *free* to *blocked* when
- you change it manually. You can no longer feed from a blocked silo. If you have set an alternative feed type, that feed type will be fed.

The silo status *blocked* is cleared, when:
- you manually change it to *free* or *empty*;
- feed is bulked.

Silo assignment



If several components of the same type are present, enter the silo numbers containing the same component type under *Silo order*. If the silo becomes *empty* - for example in the case of a silo alarm or if the current silo from which the component must come is set to 0 - the program automatically searches for the next silo containing the same component type.

Silo	The active silo from which the component comes. You can change this manually.
Reset alternative comp.	Clearing the selected alternative component list. The original components from the *silo sequence* will then be reset.

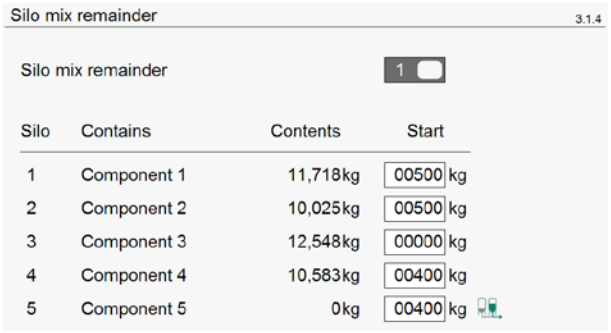
= the alternative feed type is selected

= *Silo order* at component is not entered. The feed type does appear in *today*'s feed composition. Fill in the *silo order at* the relevant component.

If an alternative component is set for a component and there is a supply alarm for that component for 30 seconds, the poultry management computer automatically switches to the set alternative component.

Always fill in the *Silo order*: the active silos (first column) are not stored in the program memory, but copied from the *Silo order*.

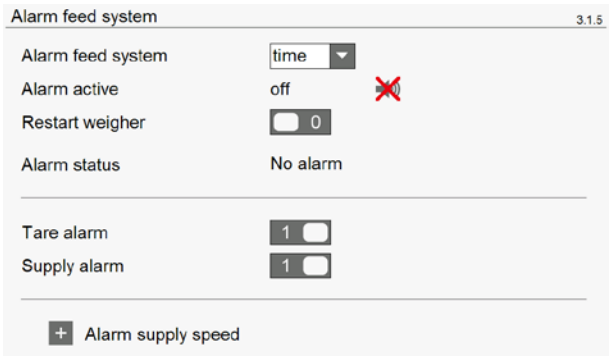
Silo mix remainder



If the silo is almost empty, the residue in the silo consists mostly of salts, minerals and finely ground feed. When the silo weight falls below the set value, the control tries to mix the residual. The condition is that *Silo mix remainder* is active and an identical component is present in another silo.

= *silo mix remainder* is active

Alarm



The *Alarm* menu selection appears only if a *PFB-35/70* feed weigher is used.

Feed system alarm

On All feed system alarms are transmitted to the poultry management computer.

Off The main alarm on the PFB-35/70 feed weigher is switched off. The alarm LED on the PFB-35/70 flashes*. No more feed system alarms are transmitted to the poultry management computer.

Time Only when the *Alarm schedule status* is *active*, feed system alarms are transmitted to the poultry management computer. Alarms that occur when the *Alarm schedule status* is *off,* are not transmitted.

Restart weigher

If the feed weigher gives alarm and you set *Restart weigher* to *yes,* then:

- the active alarm disabled (reset);
- attempted to complete the active portion as yet.

Tare alarm

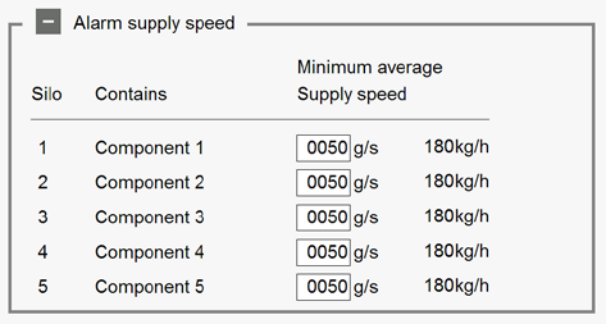
Here you can turn the *PFB-35/70* Tare alarm* OFF: AL2=alarm code 2.

Supply rate alarm

Here you can turn the *PFB-35/70* supply feed alarm* OFF: AL5=alarm code 5.

If the *Supply speed alarm* is OFF, the feed system will not automatically switch to another silo with the same (or alternative) feed type.

Supply speed alarm



Supply speed alarm

The entered minimum for the average supply speed. As soon as the average supply speed falls below the minimum setpoint, the system generates a supply speed alarm.

* *PFB-35/70* software version 1.44 or higher

7.2 Feed composition

Feed mixture

Feed mixture 3.2.1

Component	Units	Perc.
Component 1	100	100.0%
Component 2	000	0.0%
Component 3	000	0.0%
Component 4	000	0.0%
Component 5	000	0.0%

Curve OFF

Feed mixture 3.2.1

Growth curve Day 1

Component	Curve	Corr.	Perc.
Component 1	100.0	+00	100.0%
Component 2	0.0	+00	0.0%
Component 3	0.0	+00	0.0%
Component 4	0.0	+00	0.0%
Component 5	0.0	+00	0.0%

Curve ON

The numbers displayed in the *Curve*, *Corr.* and *Units* columns show the ratio between the various components. From this mutual ratio, the percentage (*Perc.*) in the feed mixture is calculated for each component.

The percentages shown in the *Perc.* column are rounded values. Therefore, they may differ by up to 0.1% from the actual calculated percentages.

If a feed timer is linked to the feed counter, the name of the feed timer concerned is shown in the title bar.

Feed mixture curve

Feed mixture curve : Feed timer 3.2.3.2

Feed mixture curve 1

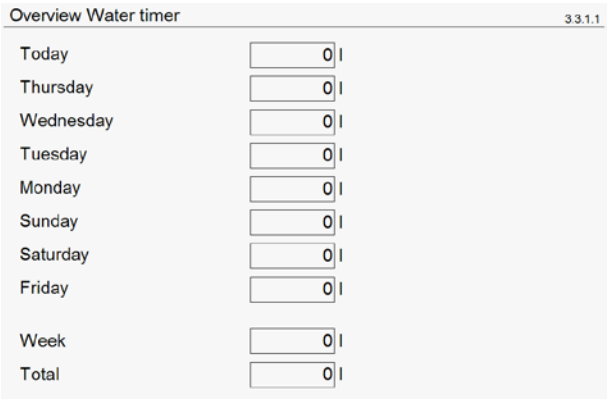
Point	Day (1)	Component 1	Component 2	Component 3	Component 4	Component 5
1	001	085	010	005	000	000
2	007	080	015	003	002	000
3	021	060	025	007	005	003

Using a curve (up to 15 breakpoints), the feed composition can be changed automatically and gradually.

The values in the *Component 1 ... 5* columns indicate the proportions concerned – not the percentages - of the various components.

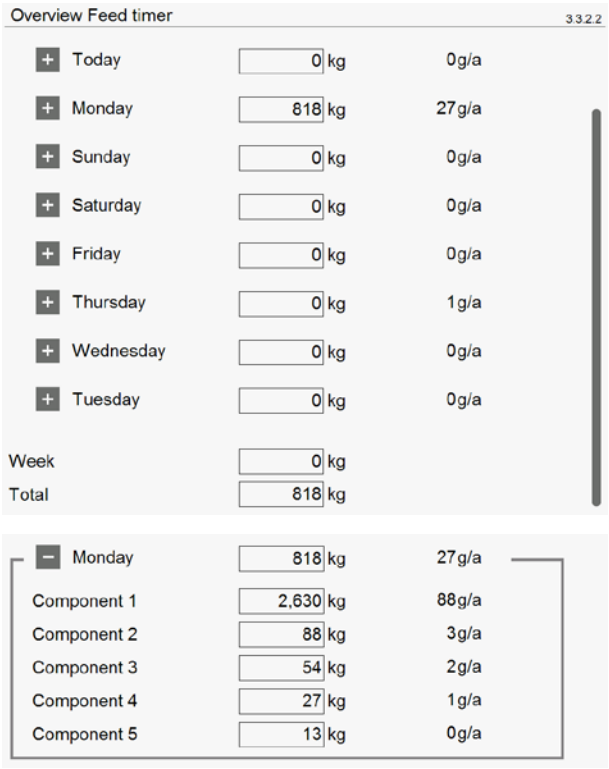
7.3 Distributed per day

Water



Overview of the distributed *water* quantities in litres. If the water counter is assigned to <u>one</u> animal group, the second column shows the average quantity in ml per animal.

Feed



Overview of distributed *feed* quantities in kg. The second column shows the average feed quantities in grams per animal. You can also retrieve the component quantities distributed, the total quantity and the quantities per animal.

Miscellaneous

Overview Dosage timer 3 — 3.3.3.3

Today	0	0
Saturday	0	0
Friday	0	0
Thursday	0	0
Wednesday	0	0
Tuesday	0	0
Monday	0	0
Sunday	0	0
Week	0	

Overview of *other,* distributed quantities. The left column shows the total quantities, the right column the quantities per animal.

7.4 Distributed per period

Water

Overview Water timer — 3.4.1.1

Per.	Begin		End	ml/a	Today
1	8:00	-	0:00	0	

− Monday

Per.	Begin		End	ml/a
1	8:00	-	0:00	0

+ Sunday
+ Saturday
+ Friday

Overview of the *water quantity* dosed in ml per animal per period.

Feed

Overview Feed timer — 3.4.2.2

Per.	Begin		End	g/a	Today
1	8:00	-	0:00	0	

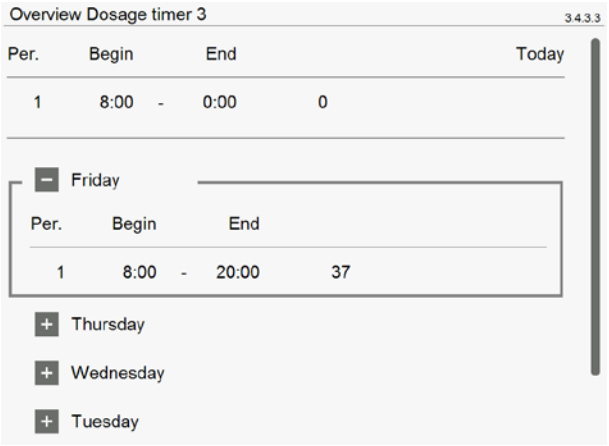
− Monday

Per.	Begin		End	g/a
1	8:00	-	0:00	0

+ Sunday
+ Saturday
+ Friday

Overview of the *feed quantity* dosed in grams per animal per period.

Miscellaneous

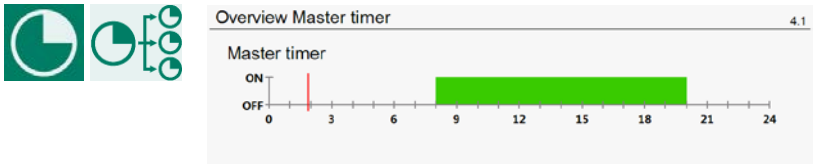


Summary of the *remaining,* distributed amount per animal per period.

8 Timers

ANote-Timers-N-ENxxxxxx

8.1 Master timer

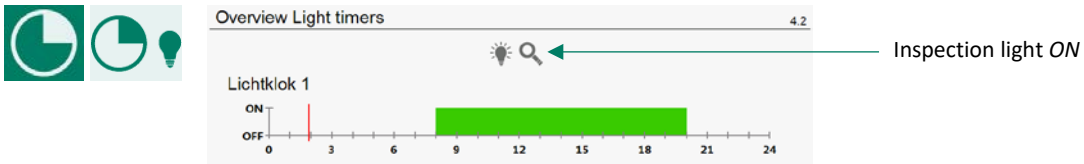


The *master timer* synchronises the *slave timers*.
If you set *Slave* instead of *ON,* the times are related to the *master timer.* Afterwards, you can adjust the start and end times per timer locally.

Timetable
You can switch the timer ON and OFF according to a *local time schedule*. If you want to switch the timer ON and OFF according to a pre-programmed time schedule, enter the desired programme (1..8) under *Time schedule*.

If the *Growth Curve time schedules* are used, you can - depending on the animals' age - automatically switch to a different schedule. *Growth curve schedule* shows the current time schedule (see *Time schedules*).

8.2 Light timers



For *time schedule*, see *Master timers*.

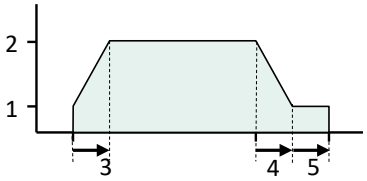
Light timers can be used to control the lighting, to gradually switch the lighting ON/OFF and to create ideal day and night conditions (dawn switching).

A light control period consists of:
- a start time, at which brightness should be intensified or dimmed;
- the time frame (period), within which the brightness should be intensified or dimmed;
- the required brightness at the end of the intensification or dimming period.

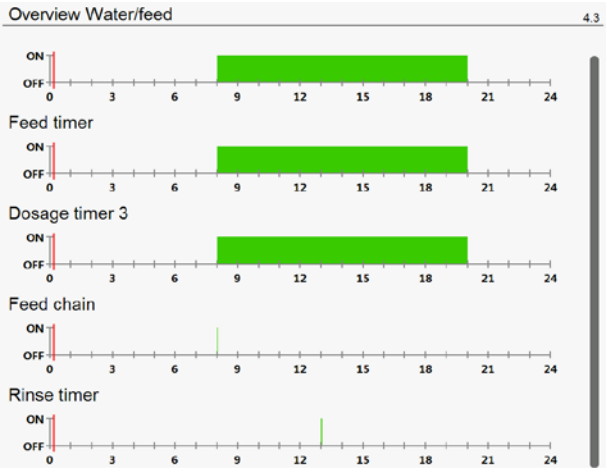
Slave
If the light timer is linked to the master timer, the times are related to the times of the *master timer.* You can always correct the start and end times (+/- 8 hours).

Tap +, the additional settings for a lighting control will appear:

1. minimum brightness
2. maximum brightness
3. Dimming time light on (intensification period)
4. Dimming time light off (dimming period)
5. Afterglow time (twilight time)



8.3 Dosage timers / sequential timers



With a dosage timer, the timer output is linked to a counter input. You can then limit the water and/or feed intake. If the intake is too low, you can have the control generate a *dosing alarm* and stop the water/feed distribution. If your installer has set *Dosing* to *no*, the dosage timer behaves like a 'traditional' timer.

If your installer has disabled *Automatic turn distribution*, you can manually distribute the total daily amount of, for example, feed over the number of periods entered.

With a pre-programmed curve, you can vary the *water/feed amount per animal* and *time schedules* age-dependently.

If the dosing timer is linked to the master timer, the times are related to the times of the *master timer.* You can locally correct the start and end times (+/- 8 hours) afterwards.

Feed chain

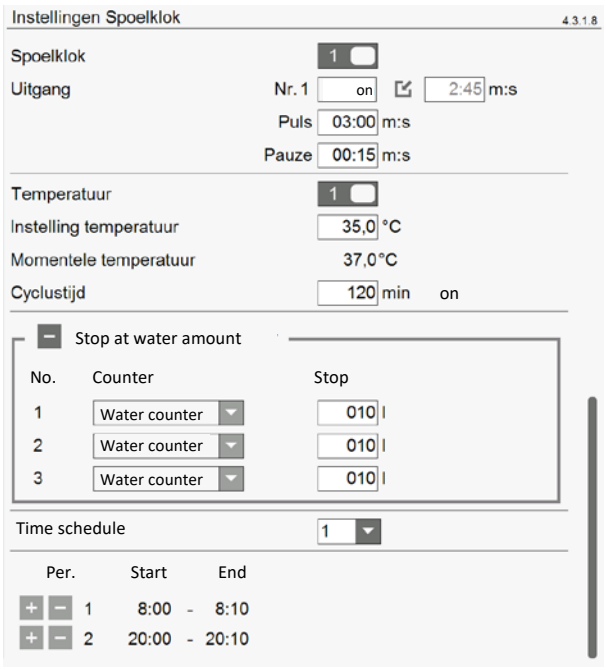
The set outputs are controlled sequentially (in turn) at the start time. With the external input, time is temporarily *frozen* (stopped). If the external input is active, time is temporarily stopped (interrupted). If the external input is then deactivated, time simply continues.

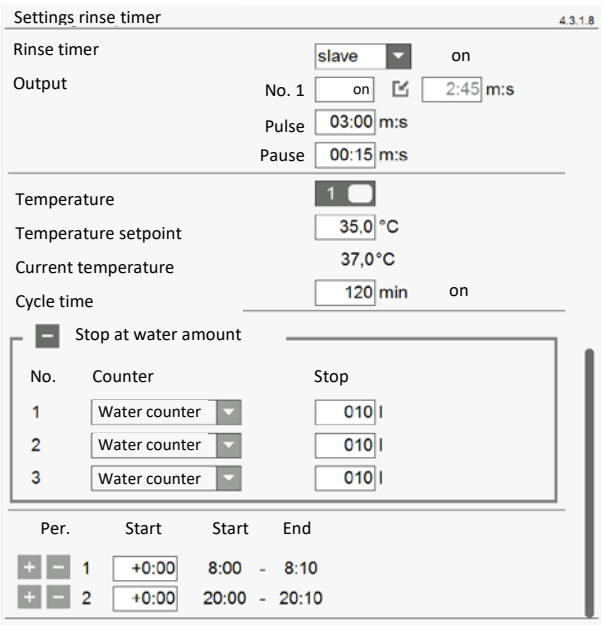
Feed chain	*on*	Local timetable.
	slave	The timer on/off times are related to the switching times of the master timer.
Time schedule	Let the timer switch on and off based on a programmed time schedule. Under *Time schedule,* enter the desired time schedule (1..9).	
	on without times schedule	You enter the start and end times locally.
	on with time schedule	The settings are a copy of the entered time schedule. You cannot change the number of periods or the start and end times in this screen.
	slave	The settings are related to those of the master timer. You can still change the times locally by entering a difference time from the master timer under *Start*.
Current status	The current status of the feed chain timer. This status is replaced by *Output* followed by the active output, the status of the active output and the period time.	
Output		
Pulse	Time that an output is switched on.	
Pause	Waiting time until the next input is switched on.	

Rinse timer

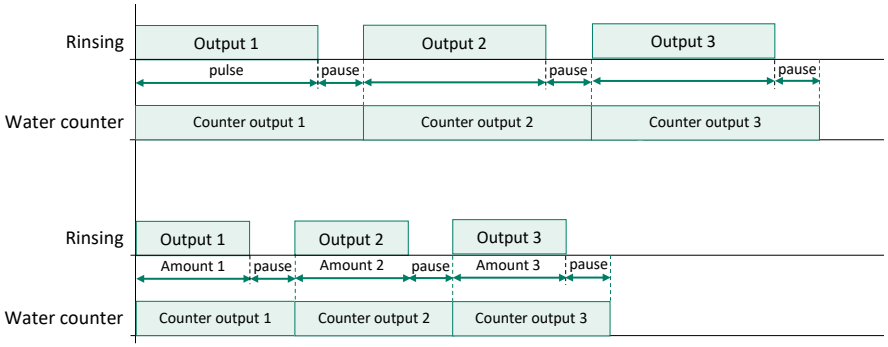
You can use the renew timer for e.g. legionella prevention in water systems or administering medication. In this case, you flush the water pipe before the water nipples are reactivated.

To prevent medication from being lost during flushing, you can set the amount of water to rinse the line per output (your installer has activated *Stop at water amount*). The flushing valve closes as soon as the set amount of water is reached. After the pause time, flushing of the next line (output) starts. Even if the amount is not reached within the set pulse time (flush valve closes), flushing of the next line starts after the pause time.

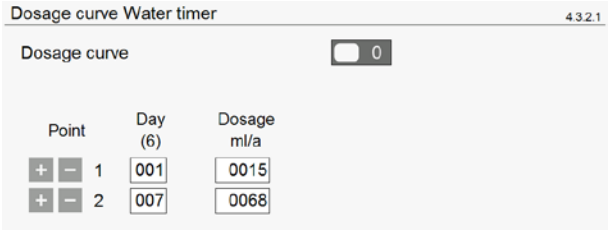




Rinse timer	*off*	Rinse timer switched off
	on	Local time schedule.
	slave	On/Off times of the rinse timer are related to the switching times of the master timer.
Current status		The current rinse timer status. This status is replaced by *Output.* The active output, status and the period time are displayed.
Output		
Pulse		Time duration that an output is maximally enabled..
Pause		Waiting time until the next input is switched on.
		The external input of the rinse timer is active; the process is frozen and the times are stopped. The output remains switched on; flushing continues.
Temperature		If a temperature sensor is installed, you can switch off temperature control here. In this case, the rinse timer will not switch if the temperature is too high.
Temperature setpoint		The rinse timer switches on as soon as the measured temperature rises above this setpoint.
Current temperature		The currently measured temperature.
Cycle time		The minimum time difference between two switch-on times based on temperature.
Stop at water amount		For each output, you can enter the amount of water to flush the pipe. As soon as this quantity is reached, the valve closes. After the pause time expires, flushing of the next line starts.

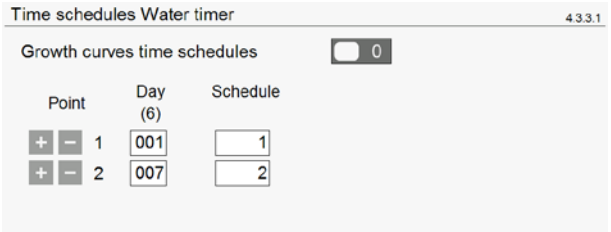


Curve



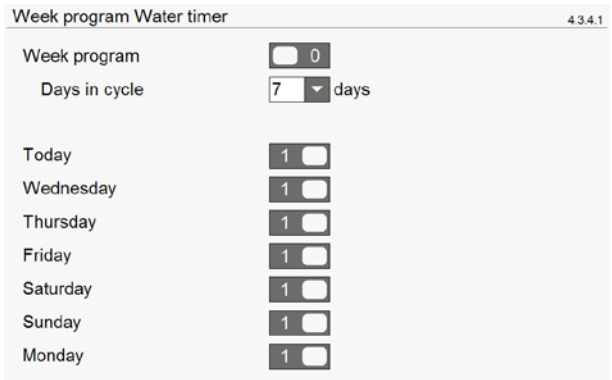
The curve allows you to vary the water/feed amount age-dependently.

Time schedules



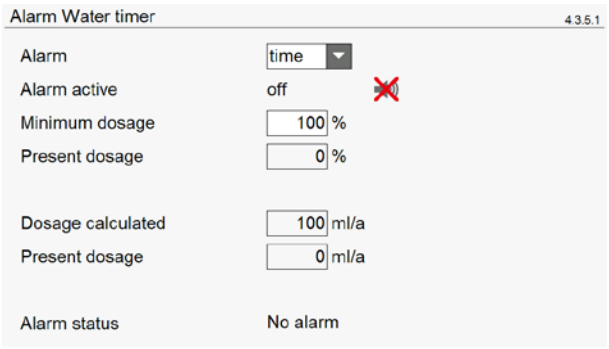
For more detailed information on setting time schedules, see *Master timer*, page 49.

Week program



Using the *Week program*, you can set that the dosage timer should not switch on every day, for example, six days it does and one day it does not.

Alarm



Alarm

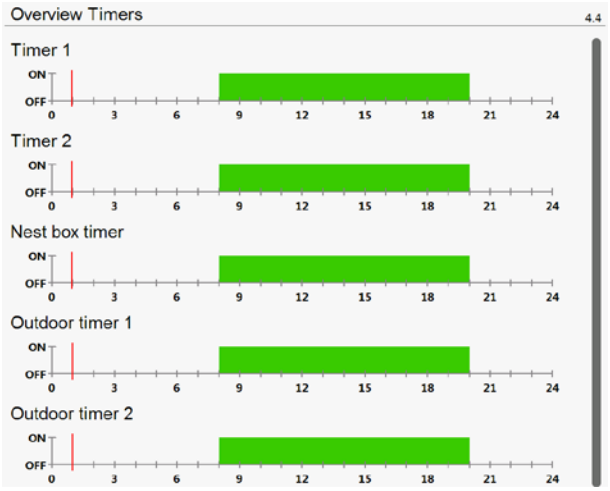
on All dose alarms are transmitted to the poultry computer.

off No dose alarm is transmitted to the poultry computer.

time Only when the *Alarm schedule status* is active, dosing alarms are transmitted to the poultry computer. Alarms occurring during the *Alarm Schedule* off status will not be transmitted.

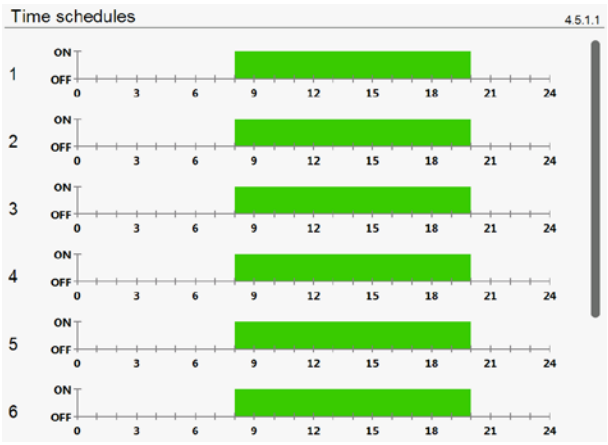
Minimum dosage The entered minimum quantity to be dosed, in percent compared to the total quantity to be dosed. If this percentage is not reached, a dosage alarm is generated.

8.4 Timers / Laying nest timer / Pop-hole timers



For more detailed information on setting time schedules, see *Master timer*, page 49.
Enabling and disabling the alarm of the laying nest timer.

8.5 Time schedules



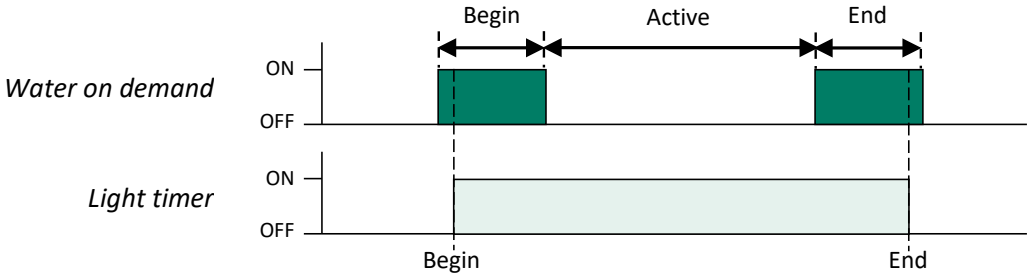
Setting nine separate time schedules for each group: on/off timers, lighting controls and dose timers.

For more detailed information on setting time schedules, see *Master timer*, page 49.

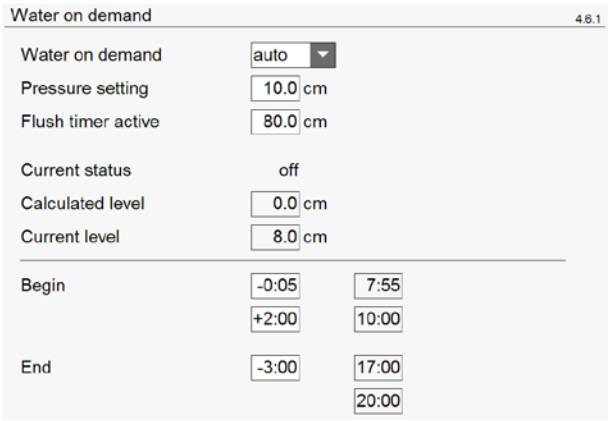
8.6 Water on demand

The *Water-on-demand control* (one control per poultry computer) is a pressure control for the water pipes.

During the day, the water pressure in the system can be varied based on the drinking needs of the animals. In 'normal' drinking systems, the water pressure is constant throughout the day. Using a curve, you can automatically increase the water pressure in the system according to the animal's age.



Settings

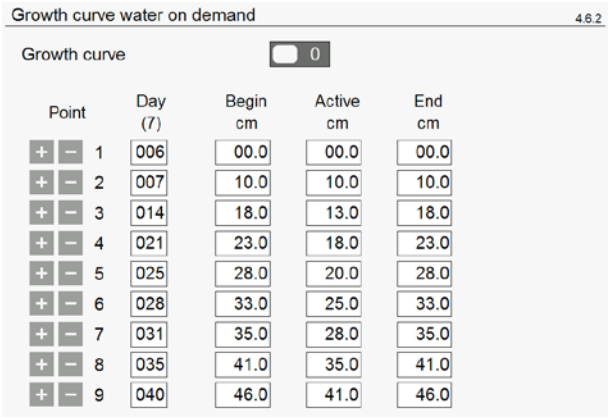


Water on demand	*on*	*Water on demand* is disabled.
	auto	Automatic water level setting.
	man	If the curve is off, there is no difference between *auto* and *manual*. Manual water level setting.
Pressure setting	Here you enter the required water level.	
Growth curve level	The required water level is calculated from the curve depending on the state *start, active* and *end*.	
Rinse timer active	If a rinse timer is installed, you enter the water level during rinsing here. The rinse timer may activate at any time without triggering an alarm.	
Current status	*off*	Drinking system is not active.
	man	Manual level settings.
	begin	Start period water dosage
	active	Active period water dosage (period between *Begin* and *End*).
	end	End of period water dosage.
	rinse	Rinse timer is active.
Calculated level	*curve not active*	The setting corresponds to the value set at *Pressure setting* and is constant throughout the entire period.
	curve active	The setting comes from the curve, see *Growth curve level*.
	rinse timer active	The *Rinse timer active* setting is adopted.
Current level	The current, measured water level of the drinking system.	
Begin	The starting point is the start time of the light timer. Via a negative/positive correction, you can adjust the start time of the water dosage.	
End	The starting point is the *End Time of the* light clock. Via a negative/positive correction, you can adjust the *End Time* of the water dosage.	

The *active* period of water dosing is between the end of *Begin* and the beginning of *End.*

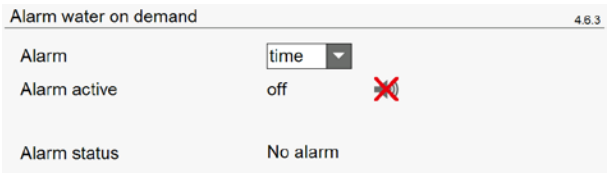
The difference between the end of *Begin* and the beginning of *End* must be at least 1 minute, otherwise the error message *Invalid period (x) Water on demand* occurs.

Growth curve



The water pressure in cm water column at the begin, during the run time and at the end of a drinking period can be set age-dependently using a curve (*Growth curve on/off*: see also *House status*).

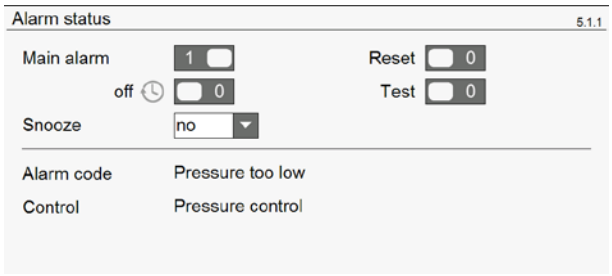
Alarm

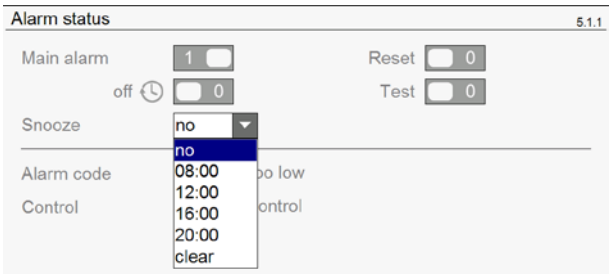


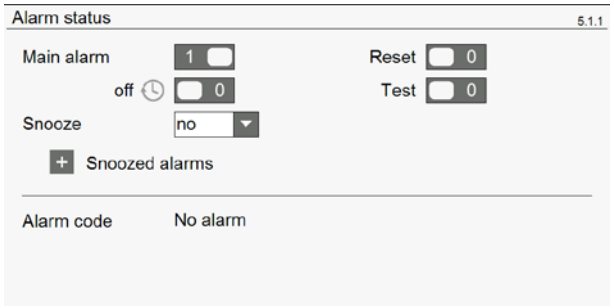
Under *Alarm,* you can enable and disable the *Water-on-demand alarm*.
Furthermore, you can read the current status and activity of the *Water-on-demand alarm* here.

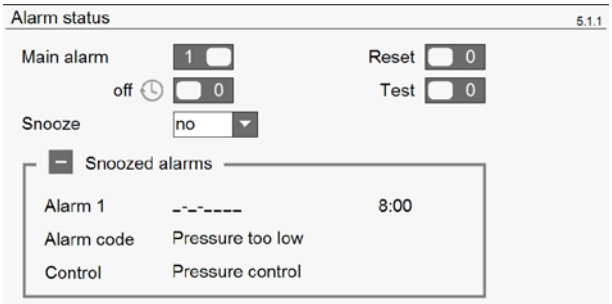
9 Alarm

9.1 Turning the main alarm ON and OFF









Main alarm Here you switch the main alarm on and off and can test its operation.

Alarm code Here you can see whether there is an alarm and if so, the type of alarm and which control it concerns, possibly with terminal number or address.

Clearing all alarms

You can clear all alarms in one operation by setting *Reset* to  . First, all alarms are cleared, then all active alarms are reset.

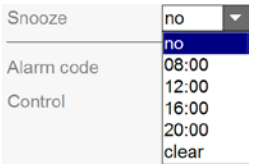
Testing the alarm

This tests the operation of the alarm relay (siren). To do so, set *Test* to *1* to activate the alarm relay (siren) for 10 seconds. You can clear the test time by setting *Test* back to *0*

Temporarily disabling the alarm

You can temporarily disable the alarm (siren). This does not apply to hardware alarms. The main alarm is then switched off for 30 minutes; the alarm LED flashes irregularly. After 30 minutes, the main alarm switches back on automatically. If the alarm cause is not remedied, the alarm relay reactivates (alarm).
Turn *off* to *0*, to clear the delay time.

Snooze function



The snooze function allows you to suppress the alarm notification until a set time. If the set snooze time is before the current time, you can snooze the alarm up to the next day.

- Alarms resulting from a configuration error cannot be snoozed. Think for example of an incorrectly assigned input or output or a configuration error on the timers.
- If the alarm disappears by itself, it is not removed from the snooze list. This is because you cannot snooze momentary alarms.
- A snoozed alarm remains in the list until the pre-set time is reached. You can choose from four different, fixed times: 8:00, 12:00, 16:00 or 20:00.
- Up to 20 alarms can be snoozed simultaneously.
- Once the snooze list contains 20 alarms, no more alarms can be added. However, you can still use the *Temporary alarm switch-off* function (off 0).
- At the pre-set time, the snoozed alarm will be removed from the list.
- A snoozed alarm does not appear in the alarm log.
- Select *Clear* to empty the snooze list. If any alarms are still active, they will be generated again.

Remember to switch the alarm ON again after having switched it OFF. Preferably use the function off 0 to clear a fault.

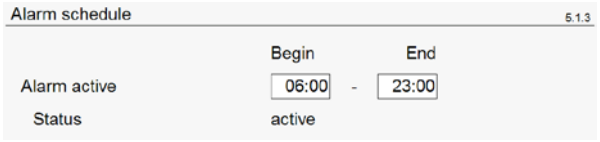
Always resolve installation errors such as *Output already assigned, Incorrect output type, Input already assigned* etc. before taking the installation into operation.

9.2 Most recent alarms in the poultry house

Overview of the last five alarms given with cause, date and time, which triggered the alarm relay.

Alarm 0 The cause of the latest alarm, with the time this alarm was/is active.

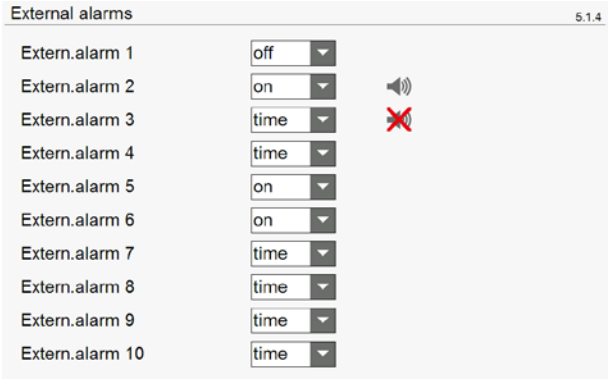
9.3 Alarm schedule



Alarm active With *Begin* and *End* you set the period, during which the time-set alarms should be active.

Status Only when the *Status* is active, then time-set alarms are transmitted to the poultry computer. Alarms that occur when *Status* is *off* will no longer be transmitted.

9.4 External alarms



Here you can enable and disable the external alarms (up to 10).

Alarm

on All external alarms are transmitted to the poultry computer.

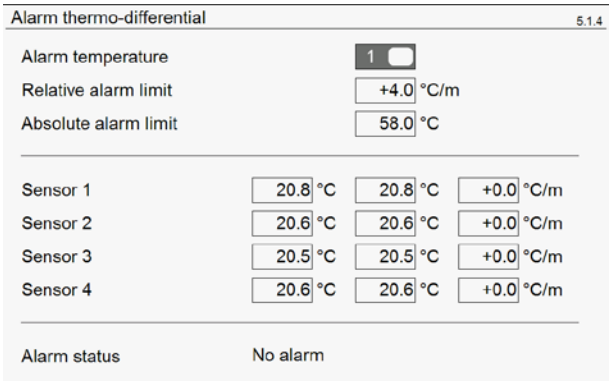
off No external alarm is transmitted to the poultry computer.

time Only when the *Alarm schedule* is active, external alarms are transmitted to the poultry computer. Alarms that occur when the *Alarm schedule* is off are no longer transmitted.

External alarm active.

External alarm is active but blocked by the alarm schedule.

9.5 Thermo-differential alarm



Comparison of the current measurement per sensor (maximum 8 sensor) with the reading one minute ago...:

- If the temperature rise in that minute equals or exceeds the relative alarm limit entered, an alarm is triggered.
- If the measured temperature of the sensor falls within the limits, the previous measurement is made equal to the current measurement and a new measurement is started.
- If the measured temperature of the sensor is above the absolute limit, an alarm is triggered.

! Temperature monitoring alarm occurs only in case of a positive difference.

9.6 Communication alarm

Here you can enable and disable the communication alarm.

Communication alarm may occur when:

- the master device did not receive any data from a device in the same RS-485 data communication loop.
- central controls are installed, but the poultry computer has not received data from the relevant central control (e.g. a central heating system).
- a PFB-35/70 feed weigher is installed, but the poultry computer has not received any data from the PFB-35/70.
- an SW-2 animal weigher is installed, but the poultry computer has not received any data from the SW-2.
- a PSW-1 silo weigher is installed, but the poultry computer has not received any data from the PSW-1-D. On the PSW-1-D silo weigher, check that DIP switch SW1-6 is in its *OFF* position (slave mode).

9.7 Alarm codes

Alarm code	Description
Alarm silo x	▪ Silo number x is blocked/empty. ▪ Alternative component is not in any of the silos present; more components than silos.
Alarm unknown (xxx)	Alarm code cannot be translated to text. Make a note of the displayed number and contact your supplier.
Beginning day in period	*Begin new day* falls in a period. The time *Begin new day* must be before the first period.
CO_2 sensor faulty	Measurement CO_2 sensor is outside set limits.
CO_2 sensor not removed	To clean the house, first remove the CO_2 sensor.
CO_2 too high	Measured CO_2 is higher than the calculated maximum alarm limit
CO_2 too low	Measured CO_2 is lower than the calculated minimum alarm limit
Communication address x	No communication with device address x (*Master device*, *Feeding system*, *Animal weighing, Silo weigher*).
Component not in silo	▪ Silo number is 0. Enter a valid silo number (not 0) for an active component. ▪ For silo content, the silo with the selected component is set to *empty* or *blocked*, see page 42. ▪ Component is not in the selected silo, see page 42. ▪ Component is not assigned to a silo even though a value is entered after the component in the mixture, see page 42. ▪ For silo content, a different component is assigned. ▪ In silo assignment, after a component in the first column (*active silo*) is a silo number that no longer contains the specified component, see page 42.
Configuration changed	Module configuration (inputs/outputs etc.) changed. Re-read module number.
Conflicting periods [2]	The error message *Conflicting periods* occurs if 1 or more feed timers should be active at the same time.
Counter already assigned	The counter is assigned to two or more controls.
Discharge hatch closed *Discharge hatch opened*	Hatch did not open or close after 10 seconds, even though it was controlled to open or close.
Dosage too low	The dosed amount of feed or water is lower than the set minimum dosing amount, see page 53.
External alarm	External alarm occurred, see page 59.
Feed weigher (xx)	xx = alarm code originating from PFB-35/70 feed weigher. For more information, see manual PFB-35/70 feed weigher.
Feed weigher invalid	Software version in the PFB-35/70 and/or feed computer is not up to date. Contact the supplier to have the software updated.
House x without AQC	The house with the displayed number does not have an AQC valve with measuring fan, while the central ventilation is set to *room with AQC*.
Input already assigned	Input is assigned to two or more controls.
Invalid animal group	The feed counter is set to PFV-9XXX. For the feed counter, both groups are set at *Counter in group*. However, the PFV-9XXX can only be assigned to one animal group.

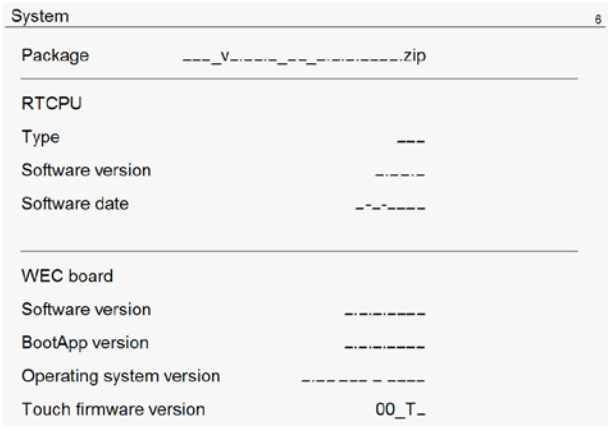
Alarm code	Description
Invalid combination	Dose timer and animal group are both set to *communication*. This is not allowed. Either set only dose timers via communication (augers) or send animal data via communication (valves).
Invalid component	In the silo allocation, a component has a silo that does not contain the correct component. The component in one of the silos has been changed.
Invalid composition	The composition is at -0.0% for all components while still calculating a dosage amount.
Invalid counter	If you have two animal groups and the feed weigher is a PFV-9xxx, you should assign each animal group to a separate counter.
Invalid input	Input number does not appear on the module.
Invalid measurement	The measured weight is less than -1000kg or greater than 110% of the mixer's weighing capacity. Check the physical operation of the weigher and check the operation of the PSW-1/WDS-6 and/or of the loadcells.
Invalid mixture	The feed composition does not correspond to the silo contents. An attempt is made to feed a component from a silo that does not contain the desired component. Check feed composition, curve corrections, etc.
Invalid mixing percentage	Set mixing percentages, where the mixer is briefly active, should be incremental. Check the mixing percentages.
Invalid output	Output number does not appear on the module.
Invalid period (x)	▪ Times of a timer should be incremental and the difference between *Begin* and *End* and between two periods should be at least 1 minute. ▪ For a lighting control, *Begin time + Propagation time* must not fall after the subsequent *Begin time*. However, the time may coincide with the subsequent start time. ▪ *Date* and/or *time* on the poultry computer do not correspond to the date and/or time on the PFA-9400 feed computer. ▪ The poultry computer is connected to a PFA-9400 feed computer that uses *off-delay* and *filling times*. For more information, see user manual PFA-9400 feed computer. ▪ *Water on demand*: the difference between the end of *Begin* and the beginning of *End* must be at least 1 minute, see page 55. **X = period number**
Invalid search sequence	▪ Silo number does not exist. ▪ Silo allocation changed. ▪ Silo number is 0, while a valid silo number (not 0) should be after an active component. ▪ Behind the component is a non-existent silo number.
Invalid silo	▪ Component is not in the selected silo. ▪ *Silo mix remainder* is on, but there is no silo with identical feed.
Invalid silo output	Output number does not appear on the module.
Invalid silo weigher	Software version number in PSW-1 silo weigher does not meet poultry computer software requirements. Update the software of the PSW-1.
Loadcell x defective	▪ Loadcell x is not connected. ▪ The voltage measured between E- and S+ and/or between E- and S- is not between 2.0V and 3.0V. Check the voltage and wiring.
Maximum supply alarm	The counter exceeds the specified maximum within the set time frame.

Alarm code	Description
Meteo faulty	▪ Meteo measurement (wind direction, wind speed and/or rain level) falls outside set limits. These limits depend on the sensor type: ME-54 or PL-MWA. ▪ Wire bridge missing, PL-Meteo without rain sensor. For wire bridge, see appendix *PL-Meteo*.
Module not installed	▪ The set module number at the terminal does not exist. ▪ Poor or no connection between PL-9200-MODULE and module. ▪ Connection cable between PL-9200-MODULE and PL-9200 bottom board missing or loose.
Module not responding	Module address not found. Check the settings on the module.
Module reset alarm	Module keeps resetting due to failure. Check the module.
NH_3 sensor faulty	Measurement NH_3 sensor is outside set limits.
NH_3 sensor not removed	To clean the house, first remove the NH_3 sensor.
NH_3 too high	Measured NH_3 is higher than the calculated maximum alarm limit
NH_3 too low	Measured NH_3 is lower than the calculated minimum alarm limit
No feed weigher	The counter is set to *PFB-35/70 feed* or *PFB-35/70 water,* while no PFB-35/70 feed weigher is installed.
No input assigned	No input terminal number entered.
No communication address	Device address and/or PFB-35/70 missing.
No house info	A central control has been installed in the poultry computer, but it has not received data from the external control to activate the central control; for example, an incorrectly configured feed computer or an incorrect central control number. If the poultry computer is linked to a feeding system: ▪ animal group in poultry computer is not set to *communication* ▪ feeding system in poultry computer is not set to *PFA-9400* ▪ feed counter in poultry computer is not set to *PFA-9400* ▪ valves are used for feeding and the timer in the poultry computer is set to *PFA-9400 instead* of *switched*. ▪ dose timers are used and for one of the associated counters, the setting *Counter in group* is set to *Both groups*. This is not allowed, choose *Animals 1* or *Animals 2*. ▪ software version in poultry computer is not adequate, update software. ▪ house is out of operation.
No output assigned	No output terminal number entered.
No outside sensor	Control installed that requires an outdoor sensor, while not installed.
No PFB-35/70	An input/output refers to the PFB-35/70 feed weigher while it is not installed.
No pressure control	Scheme installed that requires pressure control, while no pressure control is installed.
No silo weigher	▪ Counter is set to PSW-1, while PSW-1 is not installed. ▪ No or incorrect silo number entered at counter.
No weight loss	The weight in the feed mixer does not decrease or does not decrease sufficiently during the *Unloading mixer* status. Check the mixer/outlet auger.
Not calibrated	The scale is not calibrated. By default, they are calibrated at the factory. In this case, return the scale to the factory for calibration.

Alarm code	Description
Not closed	Laying nest is still open after expiry.
Not open	Laying nest is not open after the runtime has expired.
Output already allocated	Output is assigned to two or more controls.
Potentiometer faulty	Measurement potentiometer outside set limits (EGM-100P, winch motors, etc.).
Pressure too high	The measured pressure is higher than the calculated maximum alarm limit.
Pressure too low	The measured pressure is lower than the calculated minimum alarm limit.
Pressure sensor faulty	Measurement pressure sensor is outside set limits.
RH too high	The measured RH is higher than the calculated maximum alarm limit.
RH too low	The measured RH is lower than the calculated minimum alarm limit.
RH sensor faulty	Measurement RH sensor is outside set limits.
Sensor faulty	Measurement sensor (temperature, RH, CO_2 , pressure etc.) is outside set limits
Sensor detects feed	The feed sensor is covered with feed when the discharge hatch is opened.
Silo no. already used	The set silo number is already assigned to another silo.
Supply speed	Supply rate was below the set minimum supply rate for the last 60 seconds.
Tare: fluctuating value	▪ The weight measured by the PFB-35/70 feed weigher is unstable, e.g. due to 'swinging' of the weigh hopper. ▪ Environmental vibrations affect the measurement result (weighing hopper touches construction).
Tare: measurement too high	Measured value is too high after taring the PFB-35/70 feed weigher.
Tare: measurement too low	Measured value is too low after taring the PFB-35/70 feed weigher.
Temperature too high	Measured temperature is higher than the calculated maximum alarm limit.
Temperature too low	Measured temperature is lower than the calculated minimum alarm limit.
Temperature sensor faulty	Measurement temperature sensor < -50.0°C or > +100.0°C.
Thermo-differential Feeler x	The temperature difference between the last two sensor readings is greater than the maximum permissible difference or the sensor temperature is above the absolute limit, see page 60.
Scales not found	Scale number does not exist.
Unknown terminal type	The selected terminal type does not exist.
Ventilation too high [1]	Measured ventilation is higher than the calculated maximum alarm limit.
Ventilation too low [1]	Measured ventilation is lower than the calculated minimum alarm limit.
Wrong input type	Set input type does not meet the type of input the control can control.
Wrong output type	Set output type does not meet the type of output the control can drive.
Wrong RTCPU version (x)	Insufficient memory on the current RTCPU_DEKx board to perform a software update. The RTCPU_DEKx board should be replaced with an RTCPU_DEK3 or higher.
Wrong terminal setting	Wrong assignment. The function assigned to the terminal is not supported by the module.

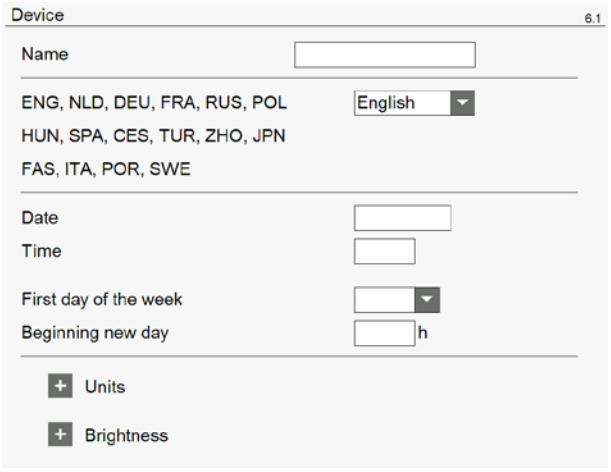
[1] For an air inlet control, first check that the valve is not in manual mode.
[2] If all feed timers operate with release contacts, the periods may overlap.

10 System



This screen shows the *Device type, Software version* and *Software date* as well as *WEC board software version*, *Operating system version* number and *Touch firmware version.*

10.1 Device



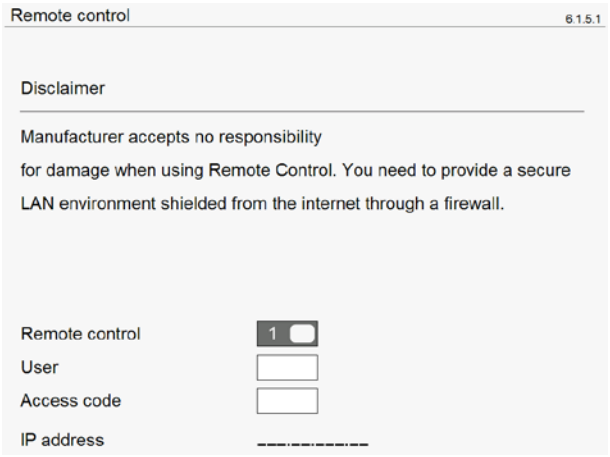
Temperature unit

Temperature	Celsius [°C]	Temperatures are displayed in degrees Celsius.
	Fahrenheit [°F]	Temperatures are displayed in degrees Fahrenheit.

Brightness

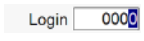
Brightness	*on*	Display brightness setting in operation mode.
	off	Display brightness setting in sleep mode.
	On-time	Number of seconds the backlight illuminates after the last key press. 0 seconds = lighting does not switch off.

10.2 Remote control

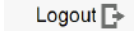


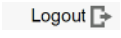
ANote-Remote-N-ENxxxx

10.3 Login / logout



Tap  to open the numeric keypad, enter login code and tap  .



Tap  to log out again.

11 Maintenance and monitoring

Good climate control is indispensable for good management. Disease prevention starts with optimising the house climate. Responsible and regular inspection and cleaning of fans, air inlet valves, measuring fans, ventilation chimneys, sensors and climate controls is therefore necessary.

- ✓ **While cleaning the house, also clean the ventilation system**
  Keep (measuring) fans, valves and ventilation chimneys clean to maintain energy consumption low. Dust and dirt can affect equipment operation. Clean the fans with a hand broom or soft brush. To clean the air conditioner, measuring fan and air inlet valves, use a damp cloth. You may clean the ventilation chimney with a high-pressure sprayer.

  ⚠ Do not use the pressure washer to clean the air conditioner, measuring fans, valves and other electrical equipment. Therefore, when cleaning the ventilation chimney, do not direct the jet at these sensitive parts.

- ✓ **Regularly check the negative pressure in the house**
  Clogged filters or air intake valves that are still in 'winter mode' can cause an increase in back pressure in the ventilation system as temperatures rise. As a result, the fans turn unnecessarily hard. When opening or closing the house door, check the resistance with which the door opens or closes. If the negative pressure can be felt, we recommend checking the filters and valves for proper operation.

- ✓ **Check house for air leaks**
  Apart from draughts, air leaks cause unwanted heating in summer. This allows warm air to be drawn in between the roof and insulation. As a result, fans have to run extra hard to reach the house temperature setpoint. This increases energy costs unnecessarily.

- ✓ **Checking measuring fans**
  Measuring fans start running more slowly due to wear. At the same speed, more ventilation is then achieved. Therefore, have the measuring fans checked by an expert in good time.

- ✓ **Check measured values and settings**
  The climate controller does what the sensors indicate. Therefore, check the measured values of the sensors regularly, e.g. after cleaning the barn. Preferably, have an expert check all settings and measured values at least once a year.

- ✓ **Fan**
  Switch on all fans briefly every week, including in winter. This will prevent the fans from jamming.

- ✓ **Check operation of alarm system**
  Check the operation of the alarm system monthly.

- ✓ **Cleaning temperature sensors**
  Clean the temperature sensors monthly with a damp cloth.

- ✓ **Cleaning ventilation shafts**
  Clean ventilation chimneys at least once a year.