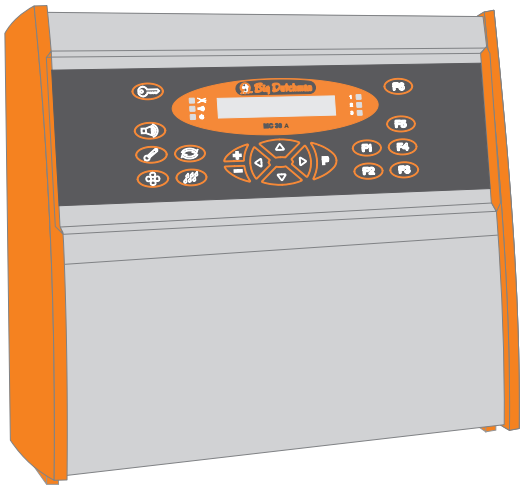

User´s Guide

MC 36 A

Code Nr. 99 97 0961

Ausgabe 06 01 M961 GB

Nr.: 604841

Big Dutchman International GmbH · Calveslage · Auf der Lage 2 · 49377 Vechta

Rufnr. 04447/801-0 · Fax 04447/801-237

Thank you very much for your confidence!

We want to congratulate you on your Big Dutchman

MC 36 A computer

and we are convinced that you will be satisfied with it.

EC Declaration of Conformity

We declare that the design and model of the machine described above being placed on the market by ourselves complies with the relevant health and safety requirements of the EC Directive.

Guarantee Declaration

This machine is guaranteed in accordance with the **Big Dutchman** International GmbH General Conditions of Sale for customers resident in Germany and the **Big Dutchman** International GmbH International Conditions of Sale for customers not resident in Germany.

Note

In order to ensure that your new equipment will always work properly and efficiently and to ensure your personal safety, we would ask you the following:

Please read through this User Manual thoroughly and take particular note of the warning and safety instructions before starting up the machine for the first time.

Programme Version:

The product described in this manual is computer based, and most functions are realised by software. This manual corresponds to:

SOFTWARE VERSION 4.1

It was released in June 2001.

Produkt and documentation revision:
BIG DUTCHMAN reserve our rights to change this document and the product herein described without further notice. BIG DUTCHMAN cannot guarantee that you will receive information about changes of the product or the manual. In case of doubt, please contact BIG DUTCHMAN.

Latest date of change appears from the front-page. The date is only changed on the pages included in the revision.

NOTE

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- The contents of this manual are subject to change without notice.
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IMPORTANT

NOTES CONCERNING THE ALARM SYSTEM

Where climatic control is used in livestock buildings, break-downs, malfunctions or faulty settings may cause substantial damage and financial losses. It is therefore most ***important to install a separate, independent alarm system***, which monitors the house concurrently with climatic control. Please note that the product liability clause of BIG DUTCHMAN's general terms and conditions of sale and delivery specify that an alarm system ***must be installed***.

We want to draw your attention to EU-directive No. 998 of 14/12-1993 concerning minimum requirements for domestic animals which specifies that an alarm system must be installed in any house which is mechanically ventilated. In addition to this, there must be a suitable emergency system.

Contents

1. INTRODUCTION

This manual describes the operation of the Euro Matic MC 36 A climate computers.

The MC 36 A climate computer has been developed to give complete climatic control of all types of livestock buildings where it can monitor and control the environment.

MC 36 A consist of a basic unit into which optional equipment can be installed, if required. The MC 36 A units have also been designed to accept an Euro Matic data module to allow the connection of a number of individual MC 36 A computers to one PC. Facility is included for the connection of external emergency opening using the MC 78.

Thanks to the high flexibility nature of the MC 36 A, the most productive climate control settings can be achieved at all times.

For your convenience, a copy of Section 2 of this user's guide is printed on a card. It should be inserted behind the opening panel of MC 36 A so it is always available.

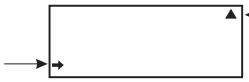
BIG DUTCHMAN congratulate you on your choice of a

MC 36 A CLIMATE COMPUTER

2. USER's GUIDE

2.1 User's Guide

P PROGRAMMING KEY
➡ shows that data in this menu can be changed or sub-menu can be selected by pressing the P key.



◀▶▲▼ shows that there is more data in the direction of the arrow.

MANOEUVRE KEYS
Selecting a new line in menu or moving [ ] in connection with changing data.

COOLING LAMP
Light is on when cooling is required.

+ − KEYS
Changing data or selecting other facilities.

ALARM LAMP

No light	= NO ALARM
Quick flash. light	= ALARM
Slow flash. light	= ALARM, but alarm has been acknowledged.
Fixed light	= A non-acknowledged alarm, but the alarm cause is gone now.

CONTROL KEY
Access to the technical setting options.

HEATING LAMP
Light is on when heating is required.

NOTE ! Data can only be changed if the chosen data is enclosed within brackets"[ ]".[ ] is placed/removed by means of the P key.

Example 1 **Change in set temperature is wanted:**

```
Set Temp +0.0 25.5 °C
➡Set Temp Heat 24.2 °C
```

Press ✎ , P . [ ] is now located around 25.5 °C.
With + / − the set temperature can now be in-/decreased. The set temperature for heat follows (Parallel displacement).
After alteration press P again, [ ] disappears. The computer will now apply the new value. If an alteration of the band between set temperature and set temperature for heat is required, it can be done in the second line.

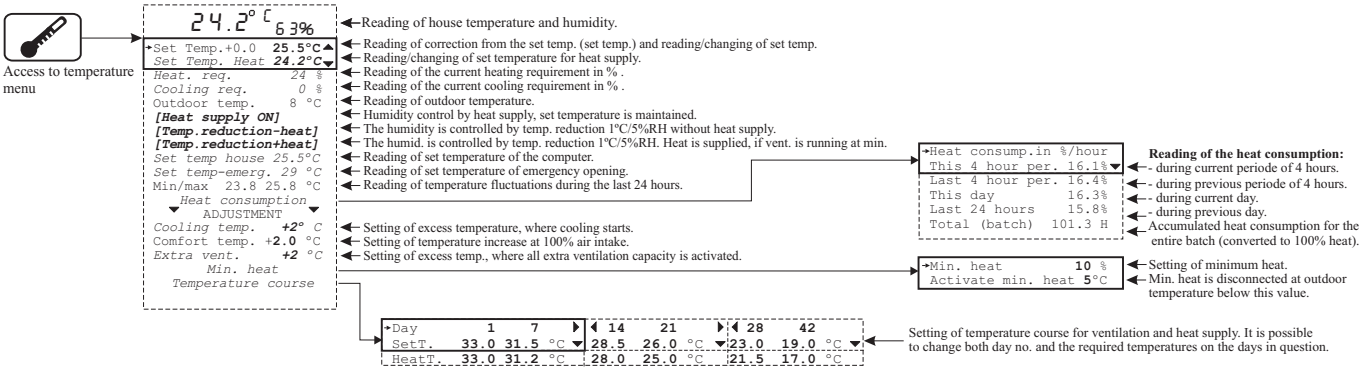
Example 2 **Change in low temperature alarm is wanted:**

```
No alarms
Alarm log
Alarm limits
```

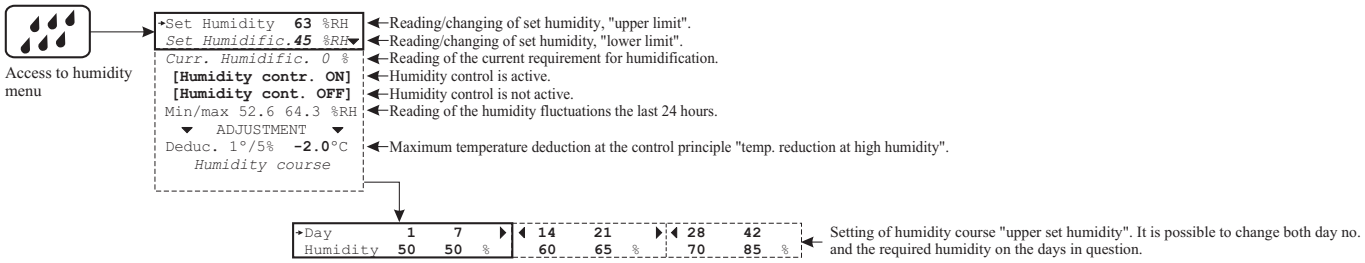
```
High temperature
          +3 °C
Low temperature
[ON]      -3 °C
```

Press 🔊, ➡ is pointing at **Alarm log.**
Press ▽ once, ➡ is pointing at **Alarm limits**.
Press P and the text display changes to sub-menu **`Alarm limits`**.
Press ▽ till the text **`Low temperature`** is shown in the text display.
Press P , [ ] is placed around ON.
Press +, you now change between ON - OFF. OFF means that this alarm facility is disconnected.

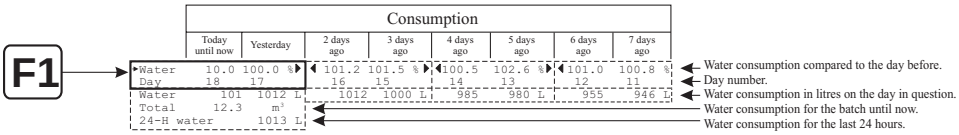
2.2 Temperature Key



2.3 Humidity Key



2.4 Water Key

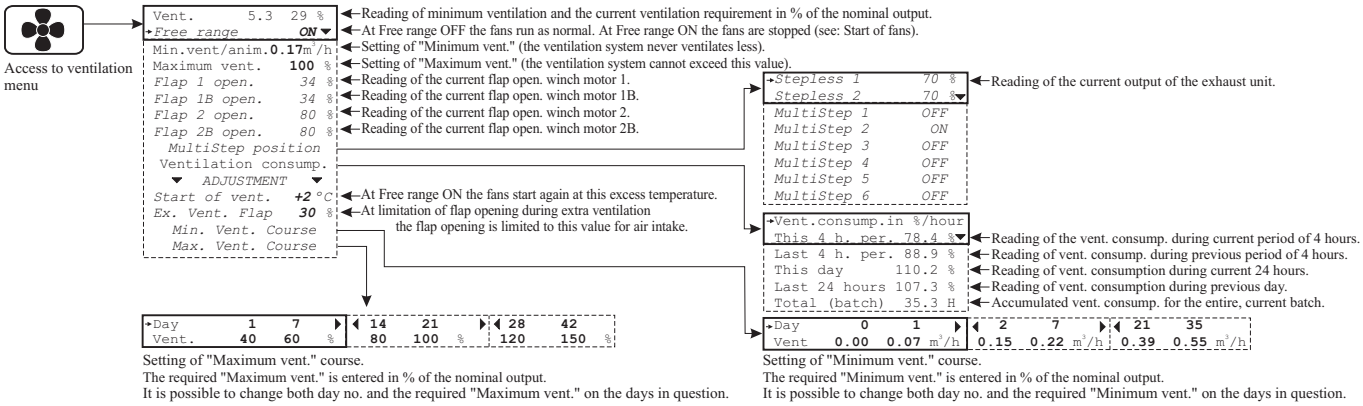


Bold indicates changeable values, see user's manual

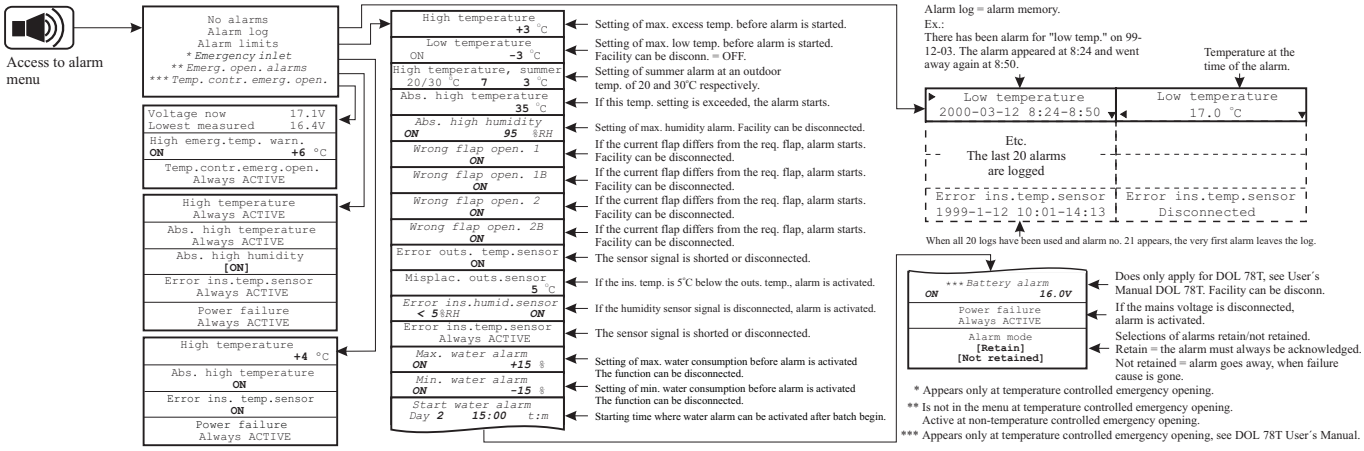
Italic indicates menu line, which is shown if selected

Texts in **[ ]** indicate options available, which the user can choose from, see user's manual

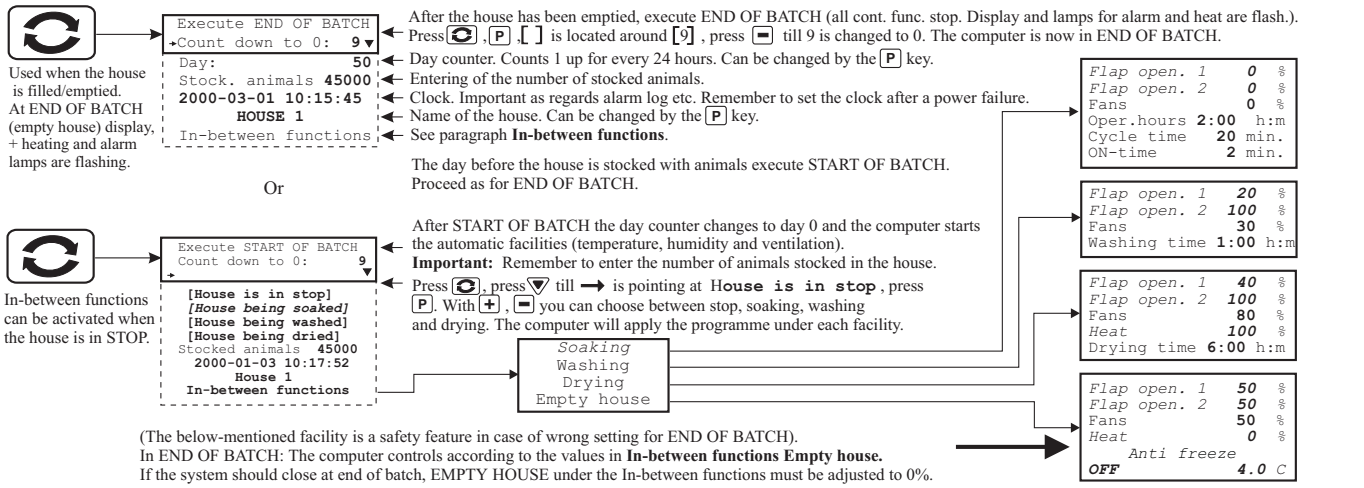
2.5 Ventilation Key



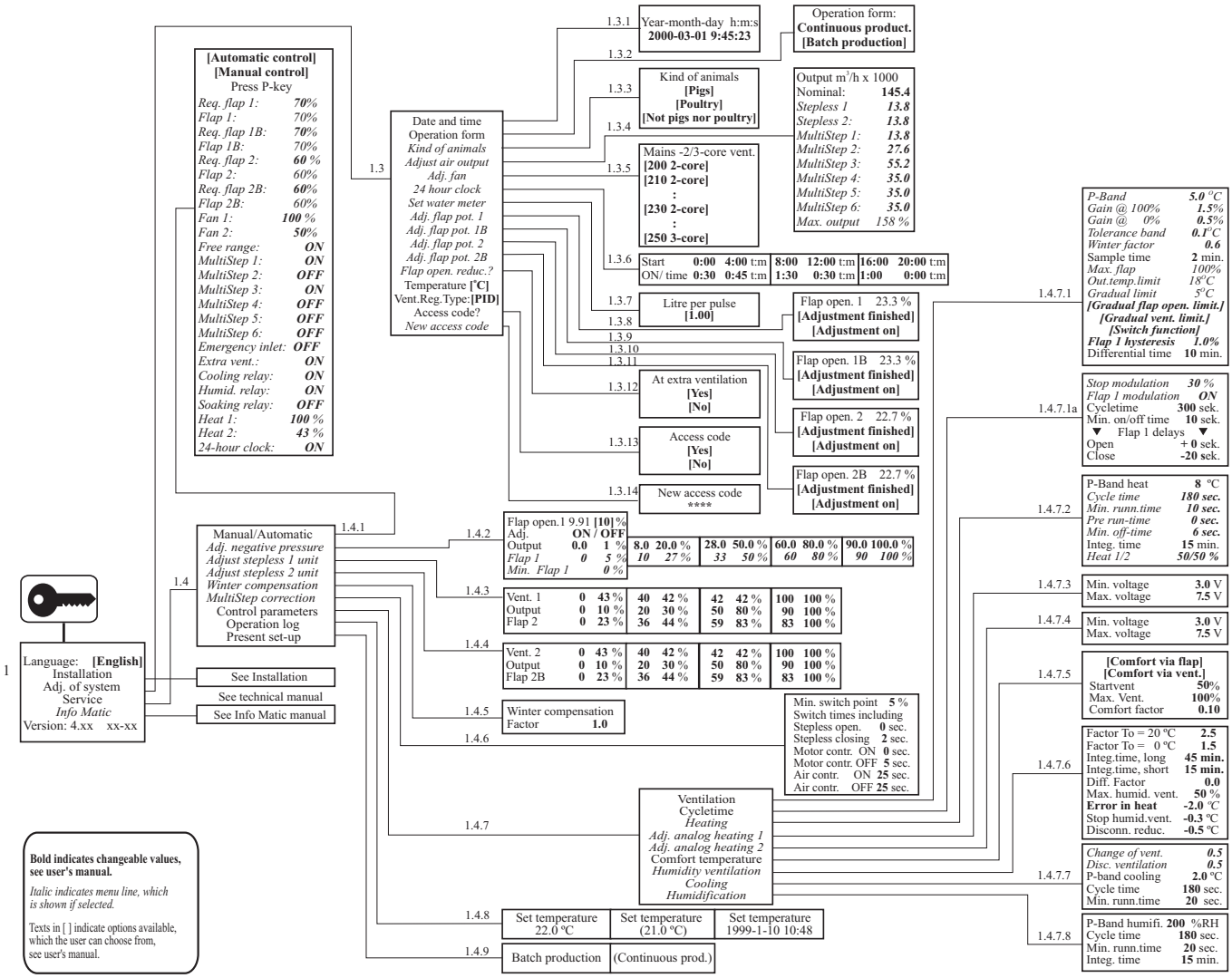
2.6 Alarm Key



2.7 Start/End of Batch Key



2.8 Menu Survey - Adjustment/Service



2.8 Tips/Good Advice

Temperature:
Animal behaviour is the best indication of the quality of the environment. Too cold and the stock will huddle together, too hot and panting will occur. Temperature settings should always take account of the breed, age, weight and other requirements of the animals. If there is any doubt, seek advice from an expert.

Draught is a combination of low temperature air moving at high air velocity and this can be caused by setting temperatures too low. Comfort temp. will help minimise this problem, especially during periods where significant ambient temperature differences prevail, but correct temperature settings according to the requirements of the animals are of vital importance.

Care should also be taken to ensure that livestock buildings are dry and up to operation temperature prior to populating.

Humidity:
Humidity control enables the user to achieve that best overall air quality and also bedding material quality where this is reliant on air quality. Adjustments to humidity control should be based on the age and general requirement of the stock and the condition of the bedding material.
Good air quality/bedding material Þ the humidity setting could be increased Þ heat-saving.
Bad air quality/bedding material Þ the humidity setting is reduced Þ increased heat consumption required.

Any change to humidity settings takes time to produce an effect that is noticeable so changes should be in small percentages (e.g. 2% to 4%) and 24 hours should be allowed to see the result. If there is any doubt, seek advice from an expert.

Minimum Ventilation:
Min. ventilation = provide against bad air quality. Minimum ventilation settings are provided to ensure that even at low ventilation rates, the air is not allowed to become stale.

A minimum number of air changes should be maintained and this should be in the region of 5% to 10% of the normal maximum air requirement (normal max. requirement).

Heating:
If a heating system is part of the installation, the computer will introduce heat, when the temperature drops below the set **`temperature for heat`**.

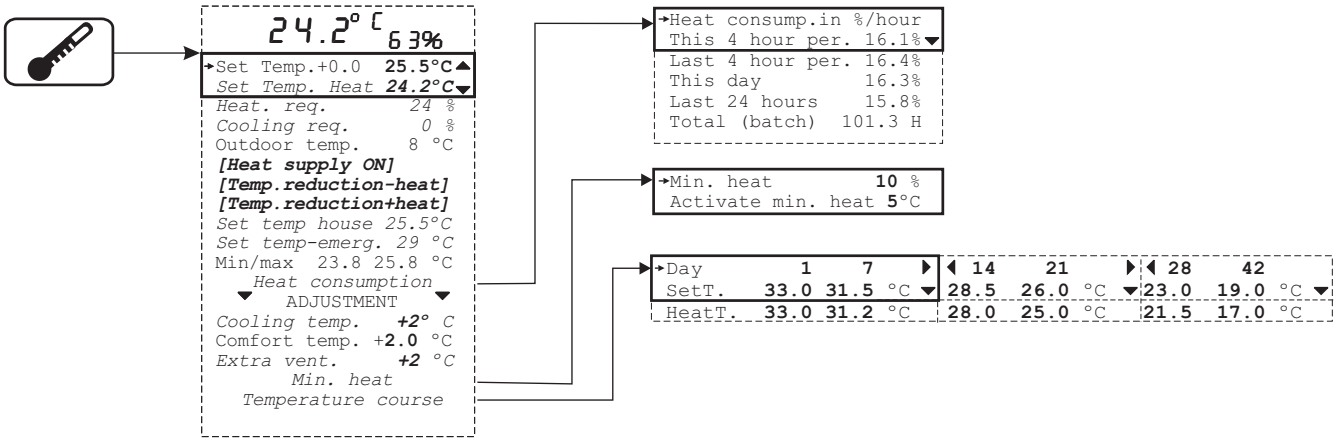
Alarm Systems:
It is a requirement of EU directive No. 998 of 14/12 1993 that any mechanically ventilated livestock building must be fitted with an alarm system.

Any alarm system should be tested on a weekly basis as should any emergency opening system. Press the alarm key for 5 sec. The computer now performs a "TEST" alarm. Next time you press the alarm key, the alarm is reset

3. DETAILED USER's GUIDE

Details concerning some of the functions are described here. As regards the daily use and operation we refer to the User's Guide.

3.1 Temperature Key and its Functions

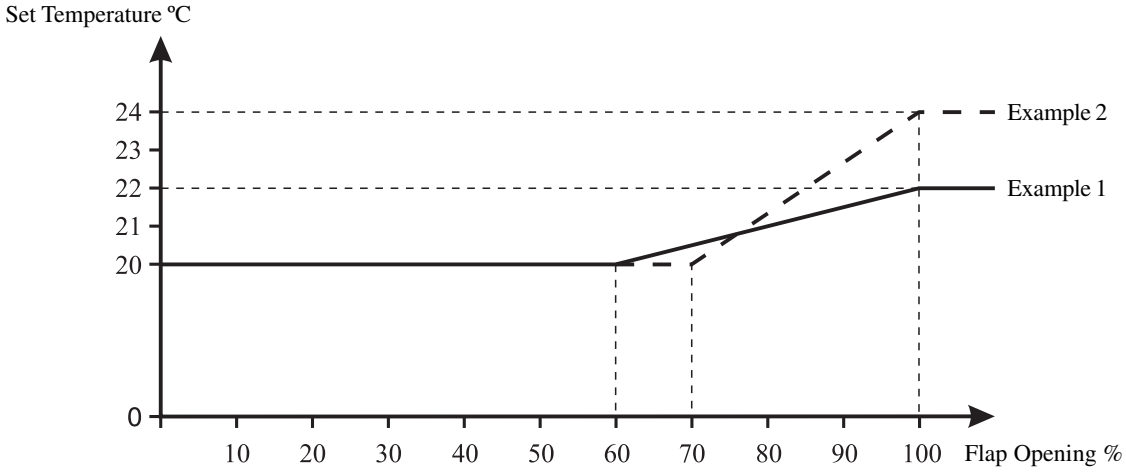


3.1.1 Comfort Temperature

(Comfort temperature: Compensation for increased air speed among the livestock).

Example 1:

Set temperature =	20°C
Comfort temperature =	2°C
Ventilation start =	60%



Example 1 shows that from 60% flap opening the temperature setting is gradually increased. At 100% flap position the set temperature will be 22°C instead of 20°C. The advantage is that both the outdoor and the indoor temperatures will have risen before maximum ventilation is achieved. This exposes the animals to a reduced draught risk. The set temperature will remain at the higher level of 22°C as long as the flap opening is 100%.

When the outdoor temperature drops again at night and thus allows the indoor temperature to drop below 22°C, the flaps will gradually close. If the outdoor temperature drops sufficiently, the flap opening will again be 60% at an indoor temperature of 20°C. This facility will prevent the system from running at maximum late into the night following a warm day. This reduces the instance of draught on the livestock.

Example 2:
If the comfort temperature rises from, say 2° to 4°C, the set temperature will rise from 22° to 24°C at 100% ventilation.

If the house ventilation is increased, say from 60% to 70%, the computer controls in relation to 20°C until reaching 70% flap position. From then on the temperature setting will gradually rise to 24°C.

NB: The current set temperature can always be read under the menu line: **Set temperature**

The reading may be ***+1.1 20.0°C***, which means that the computer uses 21.1°C as set temperature.

3.1.2 Extra Ventilation

Extra ventilation is connected gradually. It is controlled steplessly up to the entered output at 100% flap opening. Subsequently, the remaining ventilation capacity is activated as extra ventilation. The remaining quantity of the active steps is activated first, then the last steps, if any, are connected one by one.

Output in m^3/h x 1000	
Nominal:	**70**
Stepless 1:	***10***
MultiStep 1:	***10***
MultiStep 2:	***20***
MultiStep 3:	***40***
MultiStep 4:	***40***
MultiStep 5:	***40***
MultiStep 6:	***40***

Negative pressure adjustment

Output	0	8 %	15	30 %	40	50 %	65	80 %	100	125 %
Flap 1	0	15 %	19	35 %	40	50 %	60	65 %	70	100 %

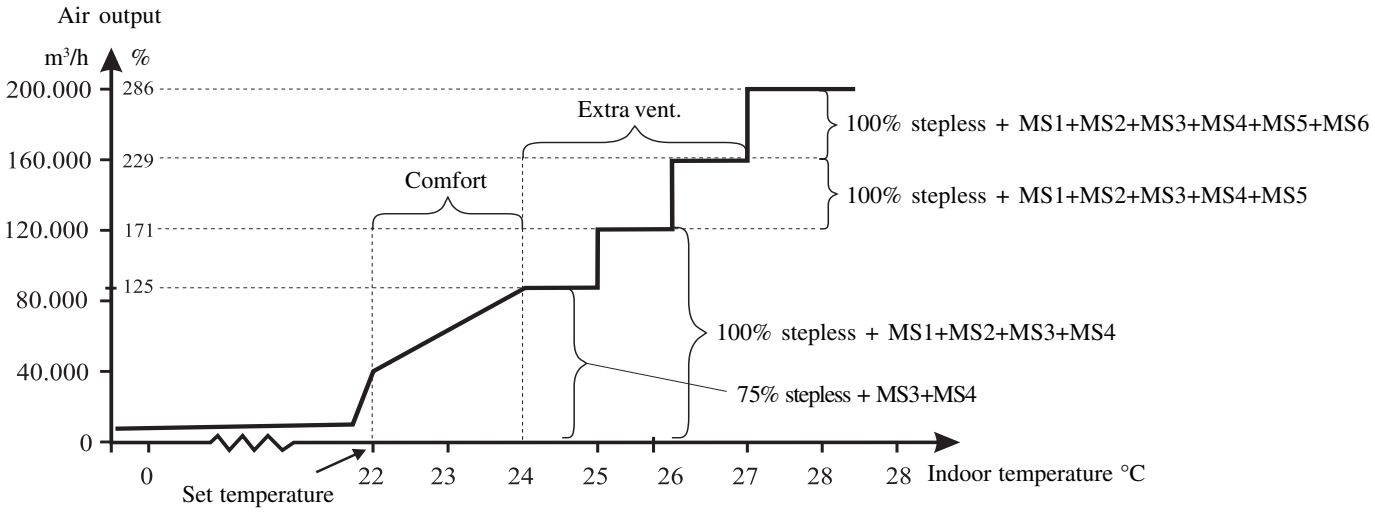
Extra vent. 3°C

Example 1:
With a nominal output of 70,000 m^3/hour the 125% output at 100% flap opening equals 87,500 m^3/hour, so the computer controls continuously variably from 0% to 125%. The rest will be activated as extra ventilation.

'stepless part'	+ 0.0°C = 75% stepless + MS3+MS4	(87,500 m^3/hour = 125%)
'the rest of the runn.'	+ 1.0°C = 100% stepless + MS1+MS2+MS3+MS4	(120,000 m^3/hour = 171%)
'+ next step'	+ 2.0°C = 100% stepless + MS1+MS2+MS3+MS4+MS5	(160,000 m^3/hour = 229%)
'+ next step'	+ 3.0°C = 100% stepless + MS1+MS2+MS3+MS4+MS5+MS6	(200,000 m^3/hour = 286%)

Settings:

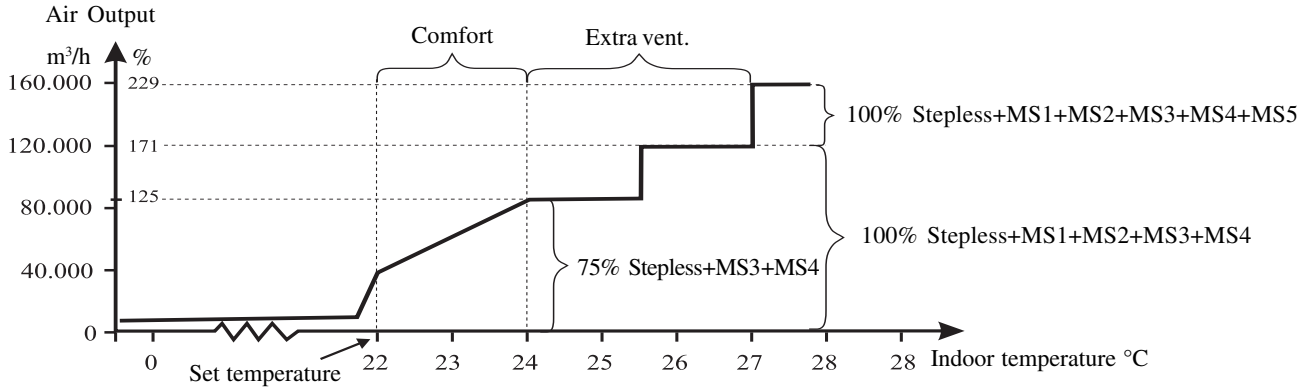
Set temperature =	22°C
Comfort temperature =	2°C
Extra ventilation =	3°C
Start ventilation =	60%



Example 2:
In the above example the extra ventilation is activated in three steps. If MultiStep 4 is not active the extra ventilation is released in two steps. It could be described as follows:

'Stepless part'	+ 0.0°C = 75% stepless+MS3+MS4	(87,500 m³/hour = 125%)
'the rest of the runn.'	+ 1.5°C = 100% stepless+MS1+MS2+MS3+MS4	(120,000 m³/hour = 171%)
'+ next step'	+ 3.0°C = 100% stepless+MS1+MS2+MS3+MS4+MS5	(160,000 m³/hour = 229%)

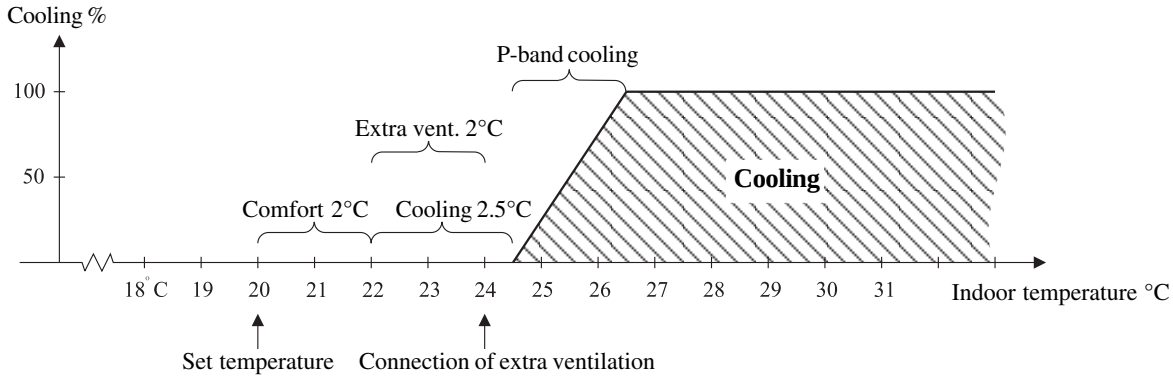
Example:		
	Set temperature =	22°C
	Comfort temperature =	2°C
	Extra ventilation =	3°C
	Startventilation =	60%



As it appears from above the temperature for extra ventilation is distributed equally between the number of steps. It also appears that it is possible to control continuously variably up to more than 100% nominal air.

3.1.3 Cooling

Example:		
	Set temperature =	20.0°C
	Set comfort temperature =	2.0°C
	Set additional ventilation =	2.0°C
	Set cooling =	2.5°C
	P-band cooling =	2°C
	Set humidity =	80%



It is possible to put in cooling before or after the optional additional ventilation capacity of the system. Normally additional ventilation must be put in before cooling. This is done by setting the cooling temperature higher than the additional ventilation. See example.

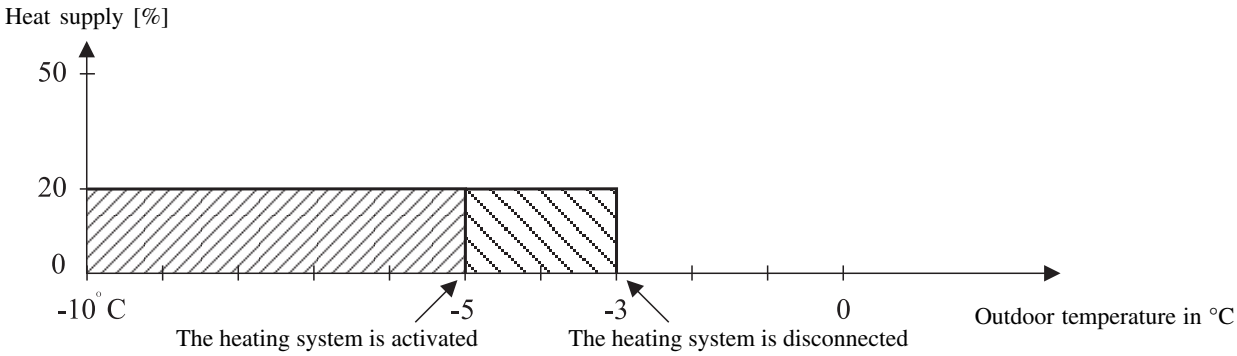
NB: The combination high house temperature and humidity may be potentially lethal to the animals. Therefore cooling is disconnected when the house humidity exceeds the set humidity, normally 75-85%.

3.1.4 Minimum Heat

The facility minimum heat maybe used in cases of glaciation in the fresh air inlet, if any. Another possibility is to open the heating plant by force at cold and humid weather.

To prevent the computer from changing between ON and OFF for minimum heat all the time, an hysteresis of 2°C is incorporated, see example below.

Example:		
	Minimum heat =	20%
	Activate minimum heat =	-5°C



When the outdoor temperature reaches the level of **`Activate min. heat`**, the required heat quantity is supplied. This continues until the outdoor temperature is going up to **`Activate min. heat`** + the hysteresis again, i.e. -3°C.

Typical settings at the Anti freeze facility:

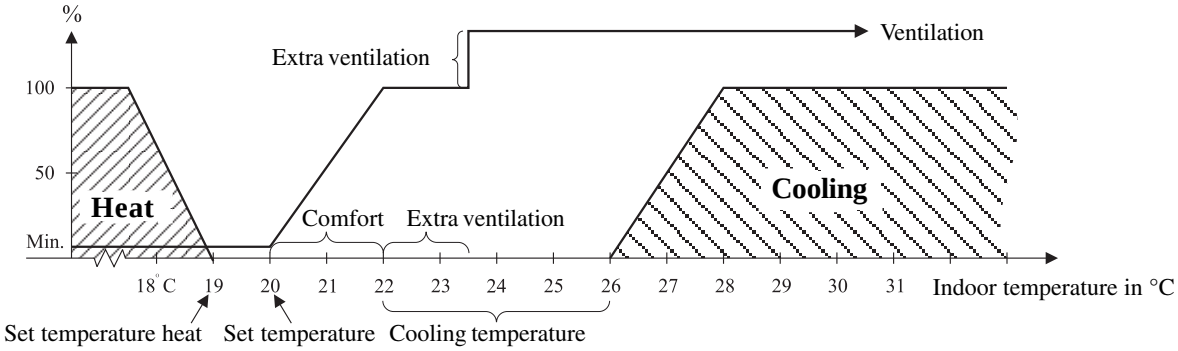
Minimum heat =	20%
Activate min. heat =	-5ºC

Typical settings at the minimum heat facility:

Minimum heat =	15%
Activate min. heat =	10ºC

3.1.5 Survey of Control Functions

Example:		
	Set temperature =	20.0°C
	Set temperature heat =	19.0ºC
	Set comfort temperature =	2.0°C
	Set extra ventilation =	1.5°C
	Set cooling temperature =	4.0°C



3.1.6 Temperature Curve

The computer can automatically adjust the temperature in relation to the age of the livestock.

Example:

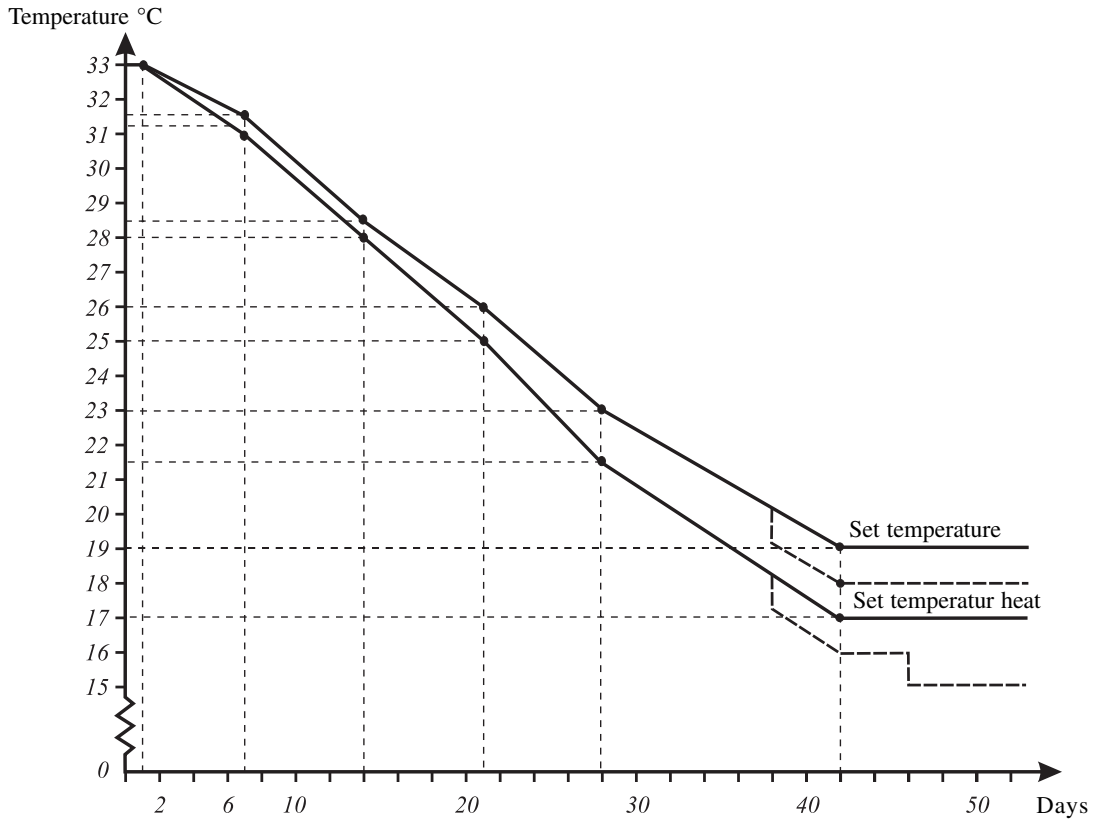
1) 'Operation form' in the menu 'Adjustment of System' must be set to 'Batch Production'. (please confer the Technical Manual, section 2.4.5).

2) Press  , press  until → points at temperature curve, press **P**.

3) Display reads:

→Day	1	7		◀ 14	21		◀ 28	42				
SetT.	33.0	31.5	°C	28.5	26.0	°C	23.0	19.0	°C			
HeatT.	33.0	31.2	°C	28.0	25.0	°C	21.5	17.0	°C			

4) The course is illustrated by a curve:



5) If the set temperature is changed during the course of the batch both the curve for set temperature and the curve for set temperature for heat will continue to run parallel with the original curve by the amount of change (°C) in temperature (day 38).
The dotted line from day 38 - - - shows the continuous course by changing the set temperature -1°C on day 38.
If the set temperature for heat is changed during the course of the batch, only the curve for set temperature for heat will continue to run parallel with the original curve by the amount of change (°C) of lowered temperature (day 46).

6) The set temperature is not changed automatically after the last point of discontinuity (day no.). The temperature can only be changed at manual operation.

Change of temperature curve:

1) Note the course required both for Set temperature and Set temperature for heat.

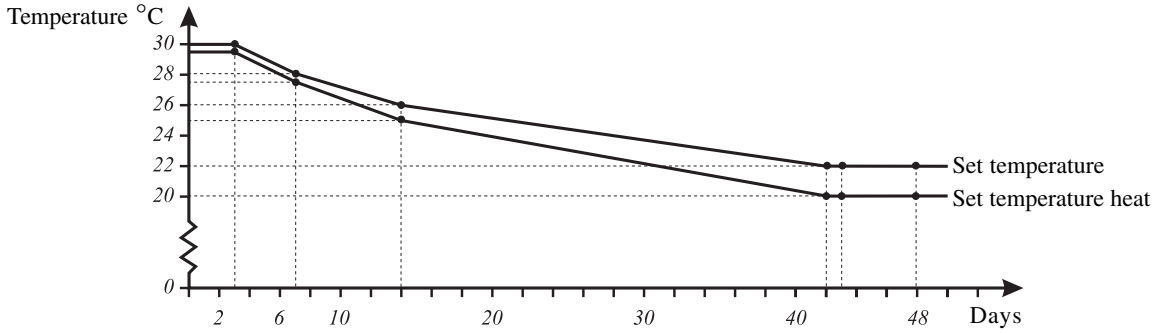
   Example:
   Set temperature: 30°C the first three days, 28°C on day 7, 26°C after 2 weeks, end temperature 22°C after 6 weeks.

   Set temperature for heat: 29.5°C the first 3 days, 27.5°C on day 7, 25°C after 2 weeks, end temperature 20°C after 6 weeks.

2) Enter the following data:

Day	3	7	14	42	43	48
Set. T.	30,0	28,0	26,0	22,0	22,0	22,0
Heat T.	29,5	27,5	25,0	20,0	20,0	20,0

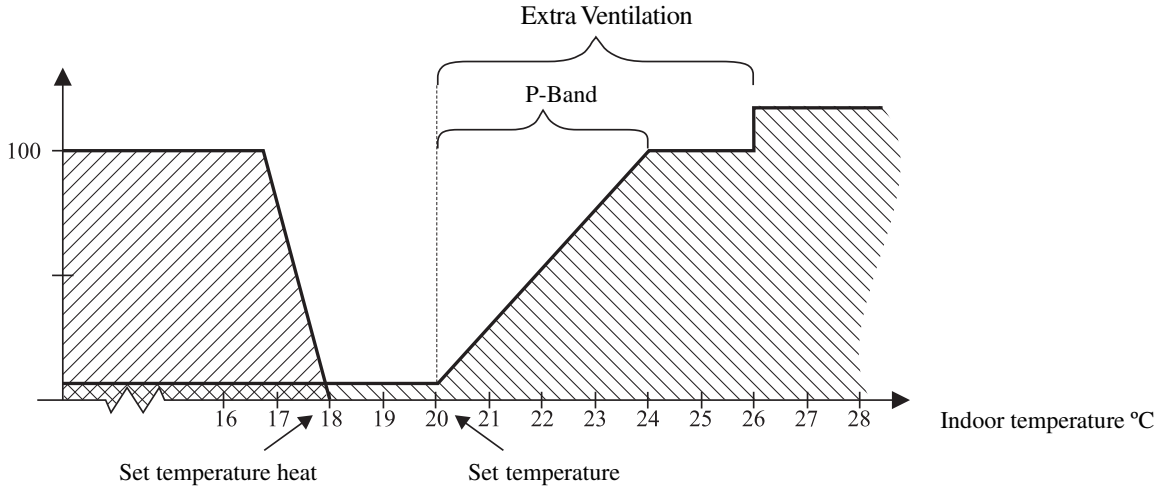
3) The course is illustrated by a curve:



3.1.7 Simple P-Band adjustment on the ventilation

Under "adjustment of the system"the climate computer can be set to run simple P-band adjustment on the ventilation.

Example:			
	Set temperature =	20.0ºC	
	Set temperature heat =	18.0ºC	
	Extra ventilation =	6.0ºC	
	P-band =	4.0ºC	(See Technical Manual section 3.8.1)

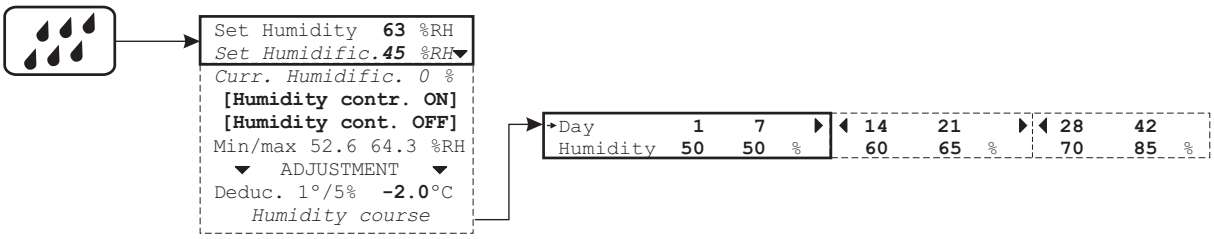


WARNING !

Out of consideration for the adjustment by simple P-band adjustment only one extra ventilation step is allowed. (See section 3.1.2).

By simple P-Band adjustment the:
Extra vent. temperature must be at least: P-band+0.5°C (4.0+0.5=4.5°C in the example)
Cooling temperature must be at least: P-band+1.0°C (4.0+1.0=5.0°C in the example)

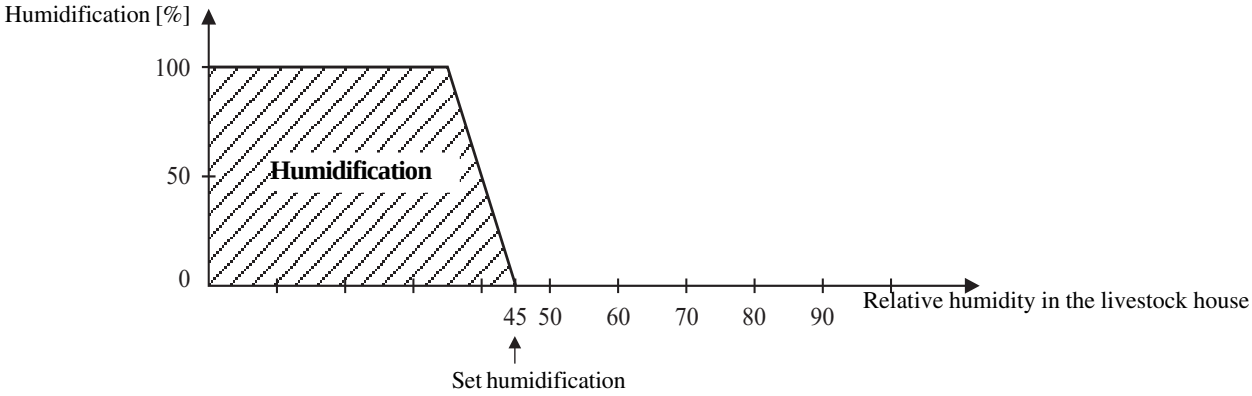
3.2 The Himidity Key and its Functions



3.2.1 Humidification

If the humidification is set at 45%, the control unit will increase the humidification as long as the relative humidity of the house is below 45%. If the temperature is 3°C or more under the set temperature, the humidification is disconnected. From 2°C under the set temperature, the humidification is reduced.

Example: Humidification is set at 45%

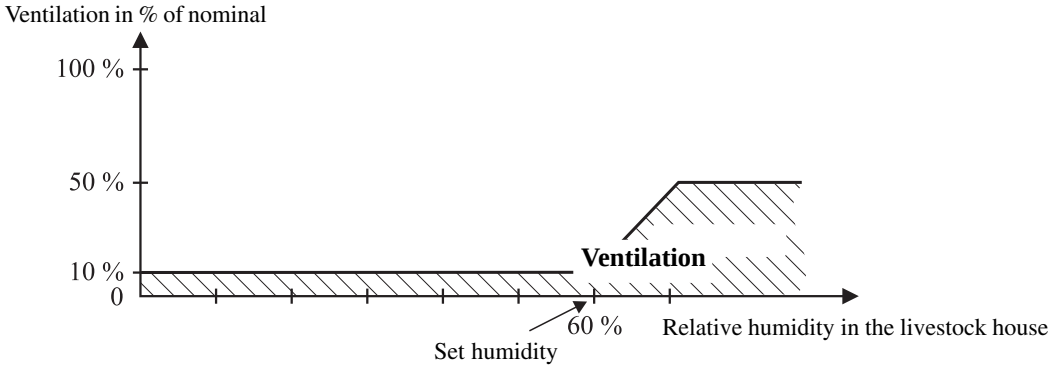


3.2.2 Humidity Ventilation with Heat Supply

If the set humidity is 60%, the control unit will increase the ventilation level, as long as the relative humidity in the livestock house exceeds 60%. The temperature will begin to drop, but the temperature control will then supply heat to the house, which means that the temperature is retained at the set **`Temperature for heat`**. The increase of ventilation is stopped by max. humidity ventilation, which can be changed under the control parameters. The factory setting is 50%.

Example:

"Humidity control ON"	under the humidity key
"Heat supply ON"	under the temperature key
Set humidity =	60%
Min. ventilation =	10%



3.2.3 Humidity Ventilation with Temperature Reduction

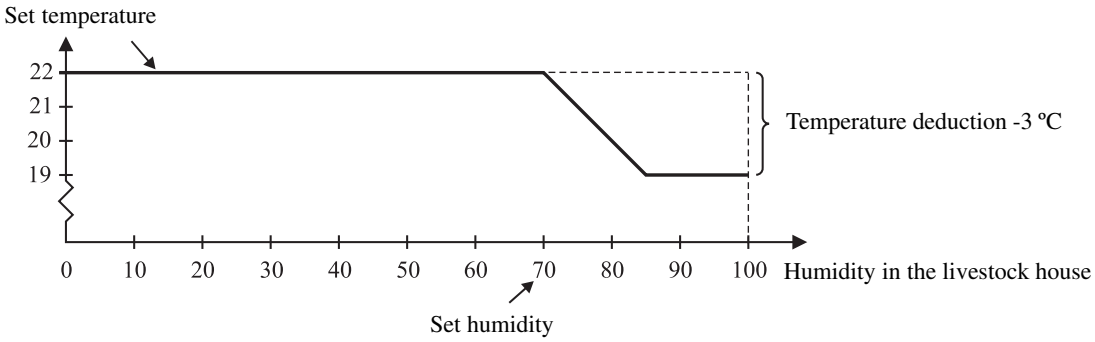
Humidity ventilation may contribute to secure the air quality in the house.

Humidity ventilation with temperature reduction = "Energy Saving Humidity Control" can be used in cases, where the animals can accept a temperature drop at high atmospheric humidity.

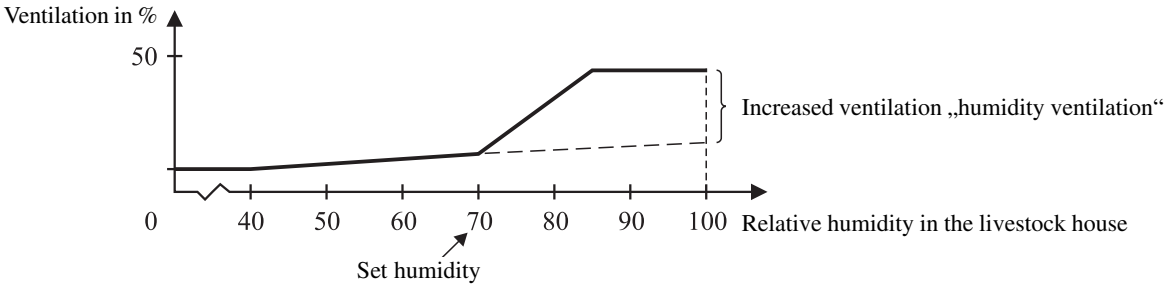
The principle is based on the heat content principle. 20°C and humidity of 80% feels warmer than 20°C and relative humidity of 50%. The temperature is lowered 1°C for each 5% increase of humidity.

The parameter of humidity ventilation "Deduction 1°C/5% [-3°C]" under the humidity key determines the maximum acceptable drop of temperature.

Example: "Humidity control ON"under the humidity key
Set temperature = 22.0°C
Set humidity = 70%
Deduction 1°C/5% = -3.0°C



Depending on number of animals, age of the animals, outside temperature etc., the course of ventilation might be as shown below:



Humidity ventilation with temperature reduction - heat

Settings: **`Temp. reduction - heat`** under the temperature key.
When the ventilation level reaches minimum, the temperature may drop below the set temperature.

Humidity ventilation with temperature reduction + heat

Settings: **`Temp. reduction + heat`** under the temperature key.
When the ventilation level reaches minimum, the temperature regulation will supply heat in order to retain the temperature at the set temperature for heat.

NB: Re. **`Error in heat`** and **`Stop humidity vent.`**, see all so the Technical Manual, sec. 3.8.6.

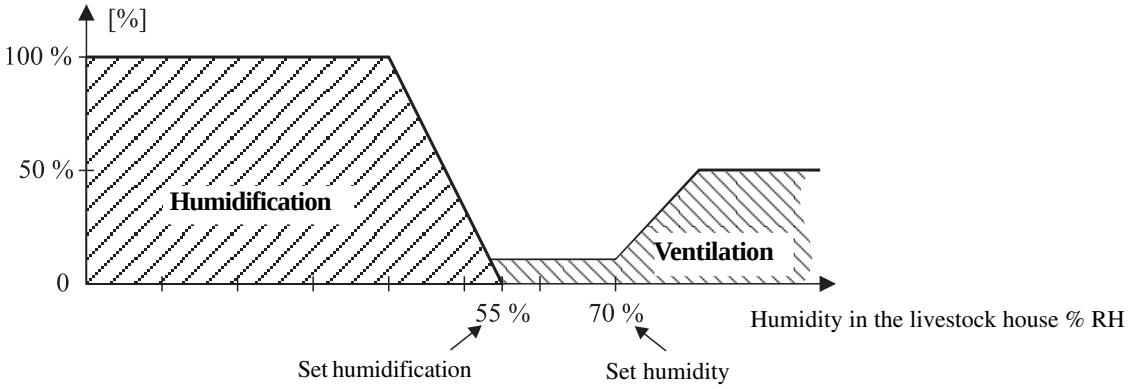
3.2.4 No Humidity Control

If the setting under the humidity key is "**`Humidity control OFF`**" there will not be made allowance for the humidity inside the livestock house.

3.2.5 Survey of Humidification and Humidity Ventilation

There ought to be at least 5% between Set humidification and Set humidity in order to avoid a constantly changing ventilation level.

Example:	"Humidity control ON"	under the humidity key
	"Heat supply ON"	under the temperature key
	Set humidity =	70%
	Min. Ventilation =	8%
	Set humidification =	55%



Explanation:

When the humidity in the house sinks under 55%, the humidification system will be activated. When the humidity in the house exceeds 70%, the ventilation will be increased.

3.2.6 Humidity Curve

The computer can control the humidity inside the livestock automatically in accordance with the age of the animals.

Example:

1) "Operation form" under the "Adjustment of system" menu must be set to "Batch Production". (please confer the Technical Manual, section 2.4.5).

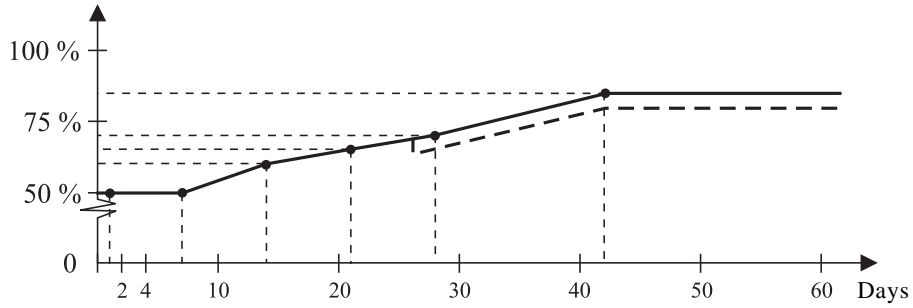
2) Press [ ], press ▼ until → points at Humidity course and press [P].

3) Display reads:

→Day	1	7	▶	◀ 14	21	▶	◀ 28	42
Humidity	50	50% RH		60	65% RH		70	85% RH

4) The course illustrated by a curve:

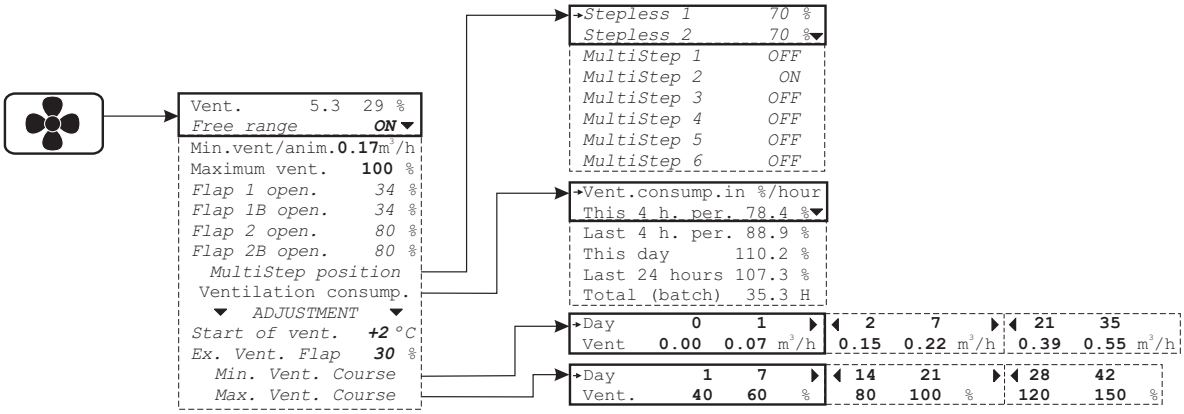
Humidity in the livestock house



5) If the set humidity is changed during the course of the batch, the curve will continue to run parallel with the original by the amount of change (%) which the humidity has been change.
The dotted line from day 26 - - - shows the continuos course by changing the set humidity -5% on day 26.

6) The humidity is not changed automatically after the last point of discontinuity (day no.). The humidity can only be changed at manual operation.

3.3 Ventilation Key and its Functions



3.3.1 Minimum Ventilation/Minimum Ventilation Curve

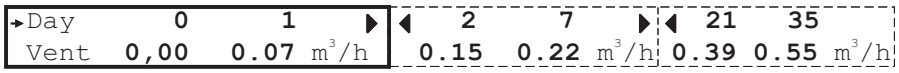
Minimum ventilation = protection against bad air quality. At continuous production the curve control is not activated. Therefore a fixed minimum ventilation is entered according to the kind of animals and weight. At batch production it is possible to increase the minimum ventilation automatically in accordance with the age of the animals.

Example of min. vent. at batch production:

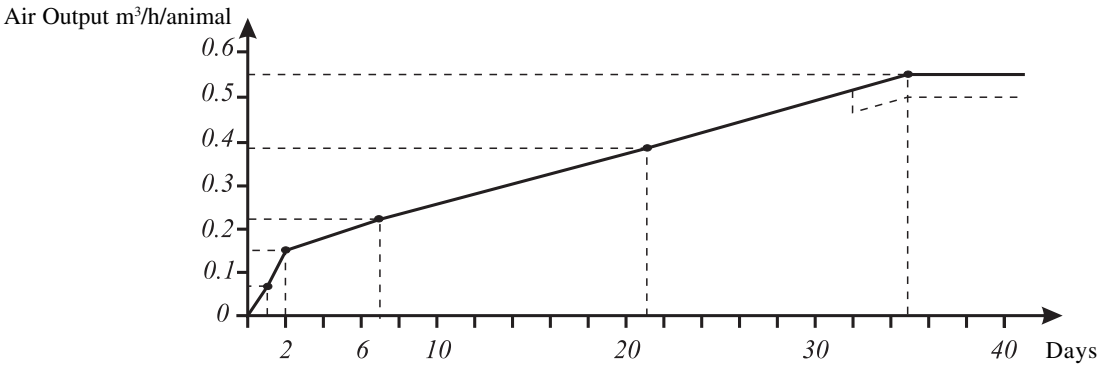
1) "Operation Form" in the "Installation" menu should be set to "Batch Production". (please confer the Technical Manual, section 2.4.5).

2) Press  , press  until → points at min. ventilation curve, press **P**.

3) Display reads:



4) The course is illustrated by a curve:



5) If the min. vent. is changed during the course of the batch, the curve will continue to run parallel with the original by the amount of change (m³/h) min. vent. is changed.
The dotted line from day 32 - - - shows the continuous course by changing the min. vent. -0,05 m³/h on day 32.

6) The min. vent. is not changed automatically after the last point of discontinuity (day no.). The min. vent. can only be changed at manual operation.

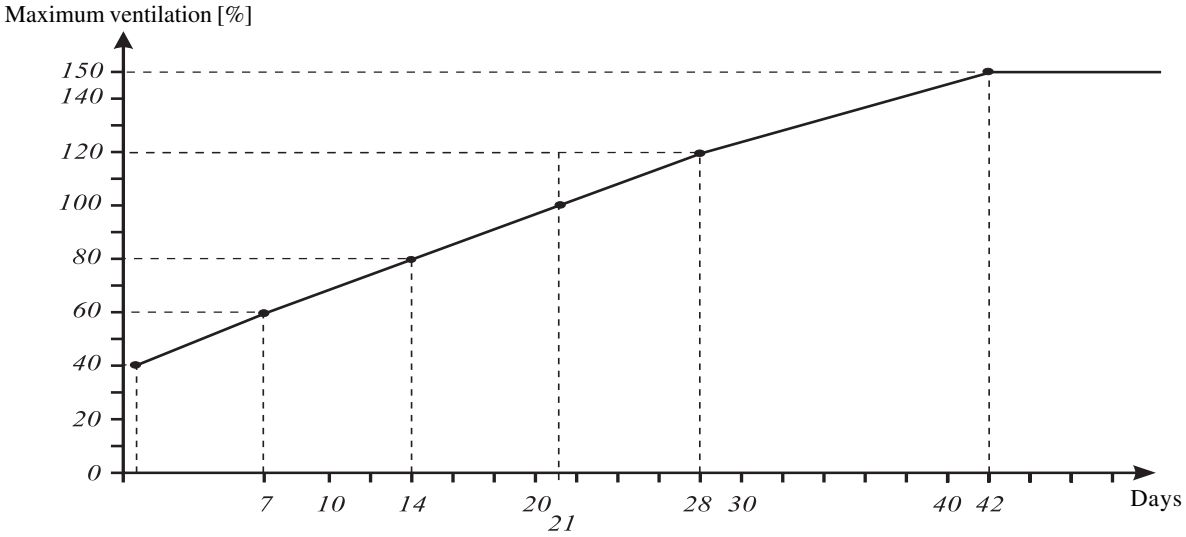
NB: Remember to enter the number of animals under the Batch key.

3.3.2 Maximum ventilation/Maximum Ventilation Curve

The Maximum ventilation facility provides a means of limiting the ventilation system output. The system operates after the same principle as shown under minimum ventilation, only with the difference that here the output of the system is limited. This can be necessary, mainly in warmer climates, when the livestock cannot be exposed to maximum ventilation until they reach a certain age. This may be the case in countries with temperatures above 27-30°C.

Example:

→Day	1	7	◀	14	21	▶ ◀	28	42	
Vent.	40	60 %		80	100 %		120	150 %	



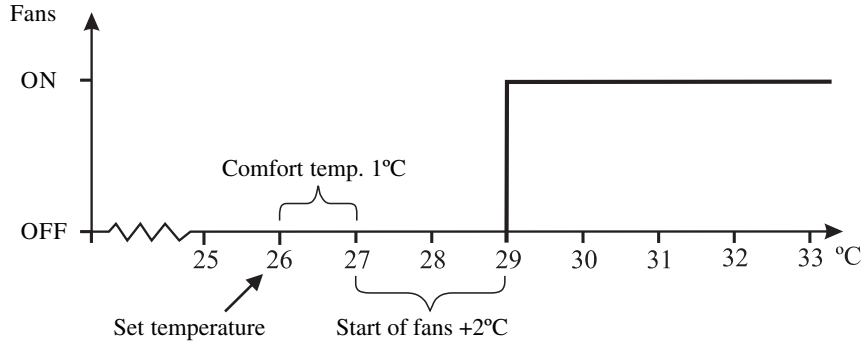
3.3.3 Free Range

The facility is used to change to natural ventilation in connection with the animals having free access to be outside as well.

Free range = OFF : The fans run as normal

Example:

Free range = ON : Start of fans = +2°C
Set temperature = 26°C
Comfort temp. = 1°C



The fans run according to the above diagram, until "**Free range**" is set OFF.

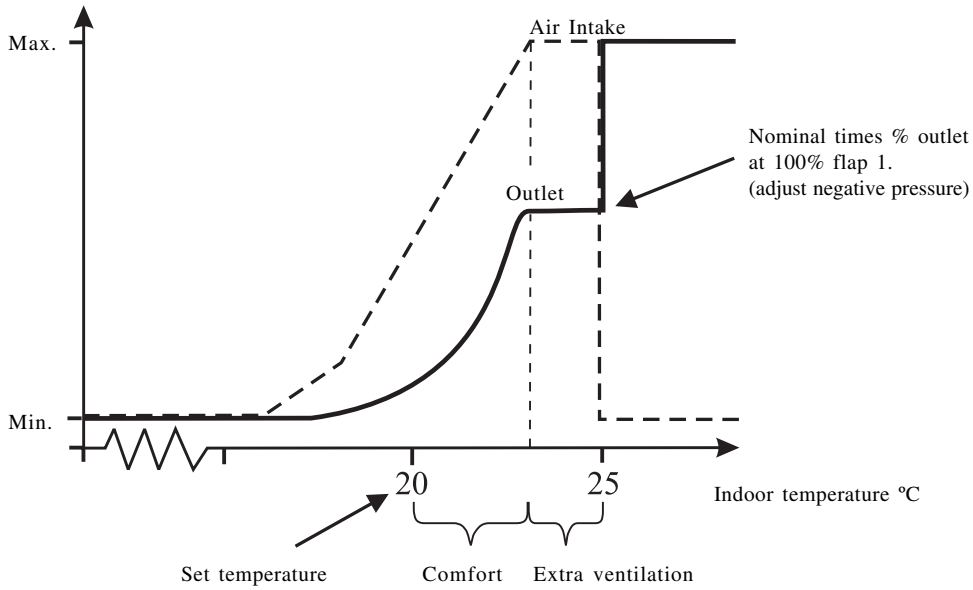
3.3.4 Flap Opening Reduction at Extra Ventilation

The special function is not to be confused with Tunnel or Combi-Tunnel ventilation.

The function makes it possible to open an extra air intake, when the extra ventilation is activated. At the same time it is possible to reduce/close the primary air intake.

Example:

Set temperature =	20°C
Comfort temperature =	3°C
Extra ventilation =	2°C
Extra ventilation flap =	5%



NB: Extra ventilation must be installed in the installation menu to make flap opening reduction possible. It is not enough that extra ventilation is a part of MultiStep as in paragraph 3.1.2 Extra ventilation.
This function is connected together with the last step of extra ventilation.

3.3.5 Cycle timer

When a powerful air jet from the air inlet is required to obtain a thorough scavenging of the house, the cycle timer function is able to handle that.

At the cycle timer function the required minimum opening setting is entered, after which the system will by turns ventilate and close completely.

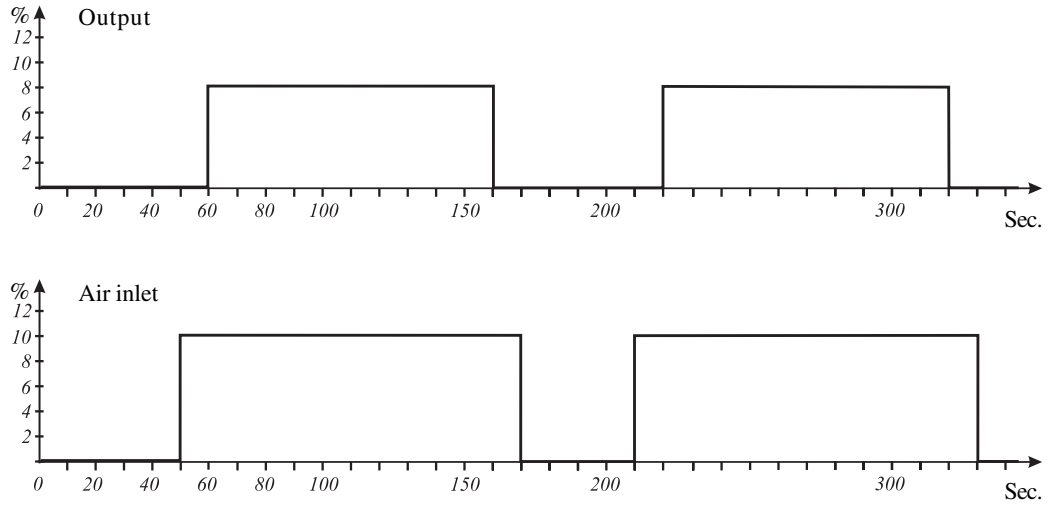
Example: At a given monent the current ventilation requirement is 5%.

Min. flap 1 =	10%	(See Technical Manual section 3.8.1)
Cycle time modulation =	160 sec.	(See Technical Manual section 3.8.1)
Flap 1 Delay Open =	-10 sec.	(See Technical Manual section 3.8.1)
Flap 1 Delay Close =	10 sec.	(See Technical Manual section 3.8.1)

In the negative pressure curve below it appears that at 10% opening of flap 1 the output capacity is on 8% of nominal air.

Output	**0.0**	**1.0** %	**8.0**	**20.0** %	**28.0**	**50.0** %	**60.0**	**80.0** %	**90.0**	**100.0** %
Flap 1		***5*** *%*	***10***	***27*** *%*	***33***	***50*** *%*	***60***	***80*** *%*	***90***	***100*** *%*
Min. Flap 1		*10 %*								

During a cycle time period the ventilation will run for 160 sec. x 5% / 8% = 100 sec. and it will be closed in the remaining part of the cycle period, consequently 160 sec. - 100 sec. = 60 sec.

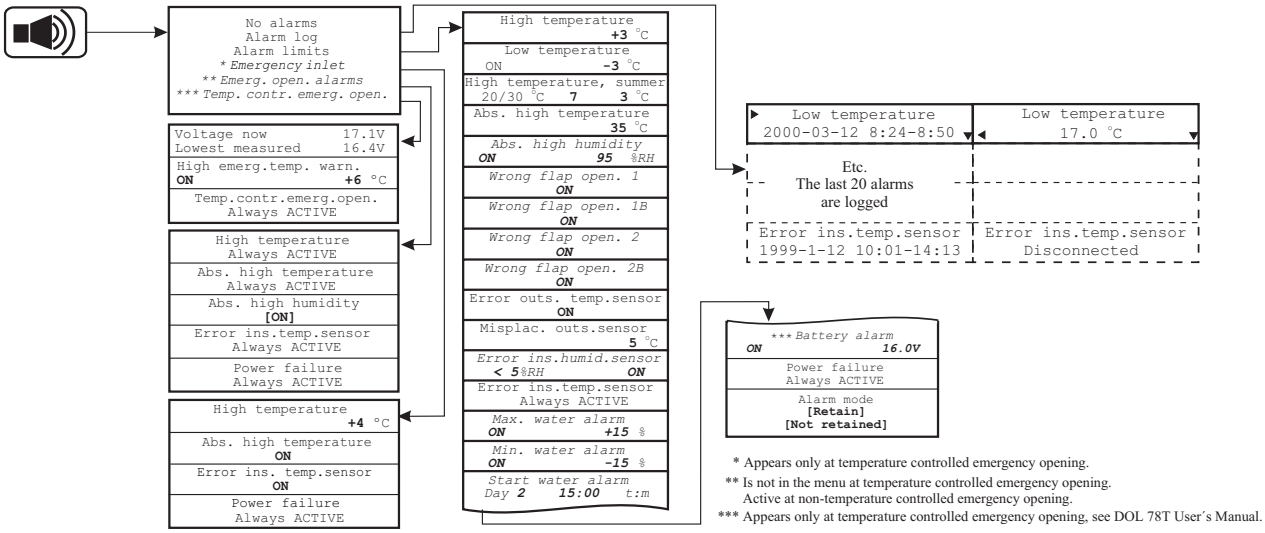


As the winch motor for air inlet has a long running time, the closing and the opening of this can be staggered according to the output. Hereby the optimal pressure in the house is sustained all the time.

When the ventilation requirement is higher than what corresponds to 10% of the flap for air inlet, the cycle timer function stops, and the system runs stepless up through the ventilation area.

3.4 Alarm Key and its Facilities

Please note that the user is responsible for the correctness of the alarm settings!



* Appears only at temperature controlled emergency opening.
** Is not in the menu at temperature controlled emergency opening.
Active at non-temperature controlled emergency opening.
*** Appears only at temperature controlled emergency opening, see DOL 78T User´s Manual.

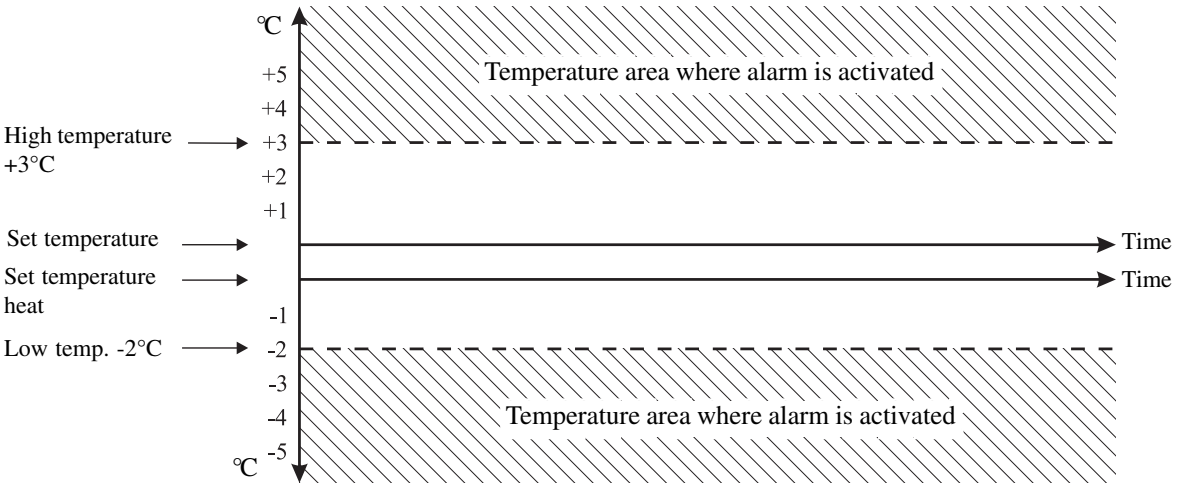
Emergency opening alarms = alarms which will cause emergency opening at "**`not temperature controlled emergency opening`**".

3.4.1 Alarm Test

1) Press  and keep it pressed until display reads: **`Alarm Check`**
2) Check that the alarm lamp flashes.
3) Check that the connected alarm system functions as expected.
4) Press  and keep it pressed until display reads: **`No alarms or acknowledged alarms`**
5) Alarm test completed.

The test should be made in all houses one at a time. The test should be made frequently (every week).

3.4.2 High/low Temperature Alarm without Outdoor Temperature Compensation

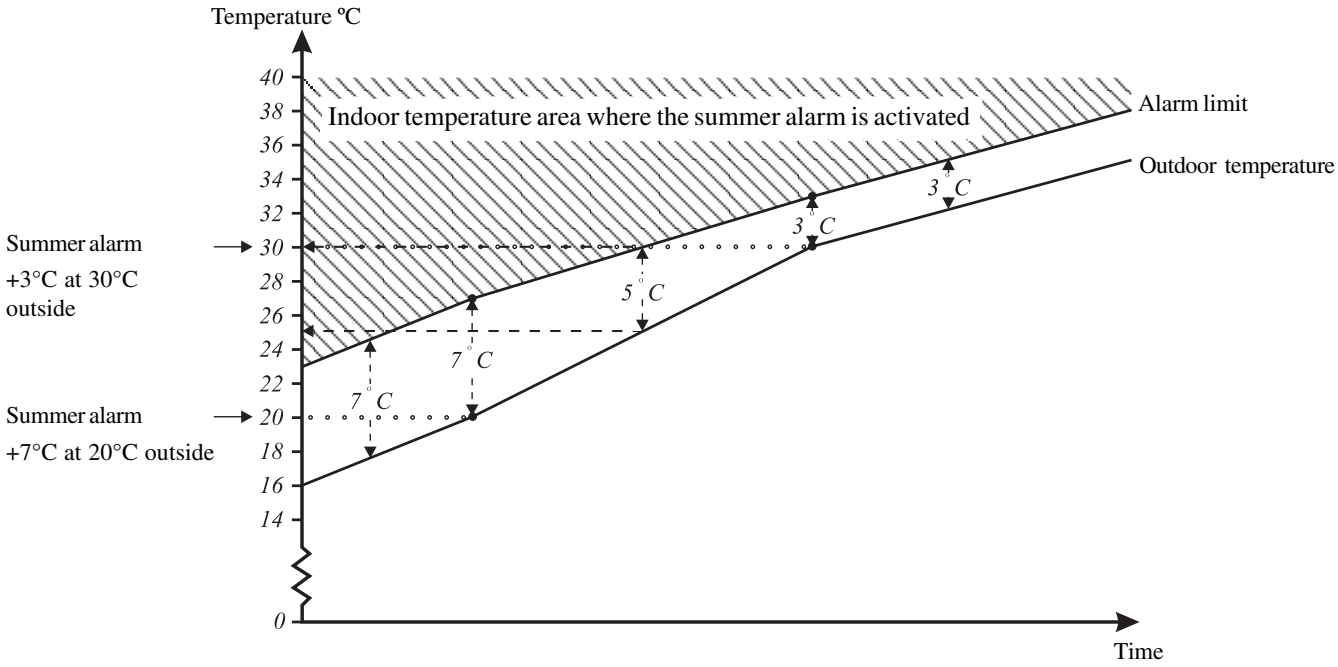


3.4.3 Disconnection of Alarm Functions

The functions which are on [ON], can be disconnected [OFF].

3.4.4 High Temperature Alarm, Summer (Outdoor temperature compensation)

The function of the summer alarm with settings at 7°C and 3°C respectively, at outdoor temperatures of 20°C and 30°C.



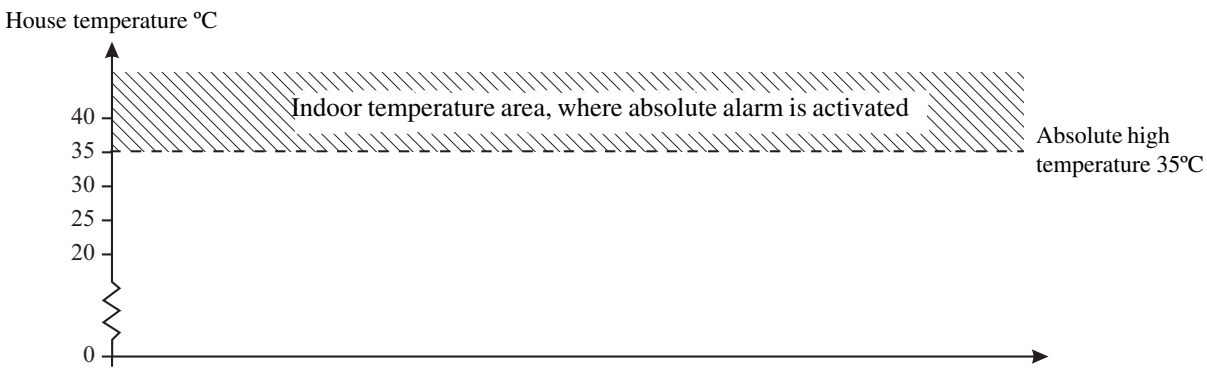
The diagram illustrates that at or below an outdoor temperature of 20°C, the summer alarm is activated if the indoor temperature rises to 7°C above the outdoor temperature. At or above an outdoor temperature of 30°C, the alarm is activated if the indoor temperature rises to 3°C above the outdoor temperature.

Between 20° and 30°C there is a gradual transition from 7° to 3°C. This means that at an outdoor temperature of 25°C, the indoor temperature would have to reach 30°C (5°C above outdoor) to activate the summer high temperature alarm.

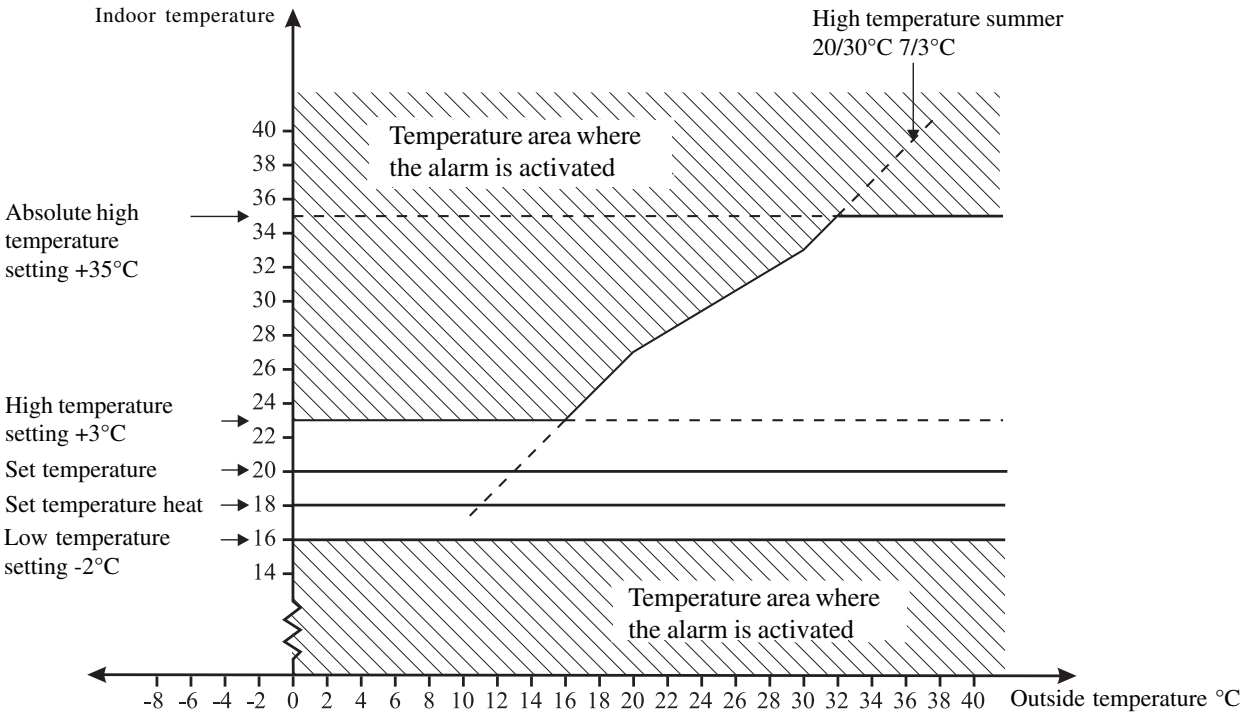
NB: The alarm is only activated if the temperature exceeds the normal alarm limit for temperature.

3.4.5 Absolute High Temperature Alarm

If the indoor temperature exceeds the absolute high temperature limit, the alarm is always activated. This function may be compared to the function of the thermal alarm.



3.4.6 Alarm Functions in General



NB: Any comfort control setting will be added to the high temperature setting before the alarm is activated.

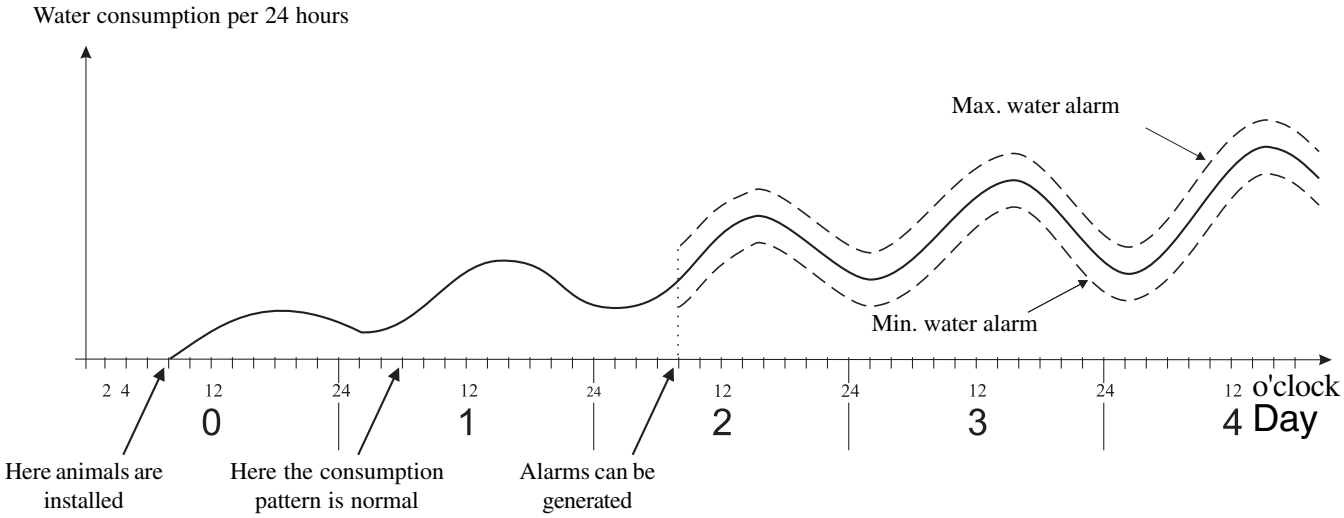
Example:	Set temperature =	20°C
	Comfort allowance =	1.5°C
	High temperature =	+3°C
	The high temperature alarm will be activated at (20+1.5+3) =	24.5°C

3.4.7 Alarm limits for water consumption

When calculating alarm limits for water consumption it concerns the present 24-hour period compared to the 24-hour period that is 2 hours older. See the example below:

Example:	Max. water alarm =	+8%	
	Min. water alarm =	-5%	
	Start water alarm =	Day 2	08:00

Between 15^{00} o'clock day 14 and 15^{00} o'clock day 15 a water consumption of 600 litre is demonstrated.
Between 17^{00} o'clock day 14 and 17^{00} o'clock day 15 max. 600 + 600 x 5%, consequently 630 litre may be used.
Between 17^{00} o'clock day 14 and 17^{00} o'clock day 15 min. 600 - 600 x 3%, consequently 582 litre is to be used.

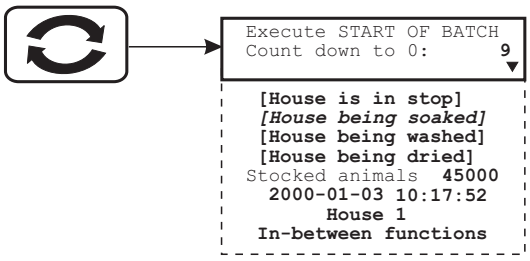


When installing animals in the house at least 26 hours must pass with a "normal" consumption pattern, until alarms can be generated. See *Start water alarm* in the example above.

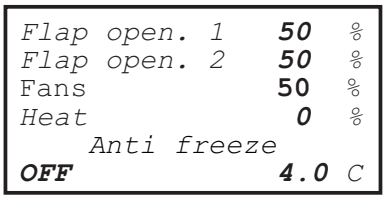
By e.g. slaughtering of a part of the animals or sudden installation of considerably more animals an alarm will set in. Also here 26 hours will pass until the situation is normal. However, the computer will do that automatically.

As the animals get older, their water consumption also increases. Therefore the max. alarm limit is often higher than the min. alarm limit.

3.5 Start/End-of-Batch Key and its Functions



3.5.1 Empty House/Anti Freeze



Factory settings, the computer will set the functions in accordance with these values at End of batch.

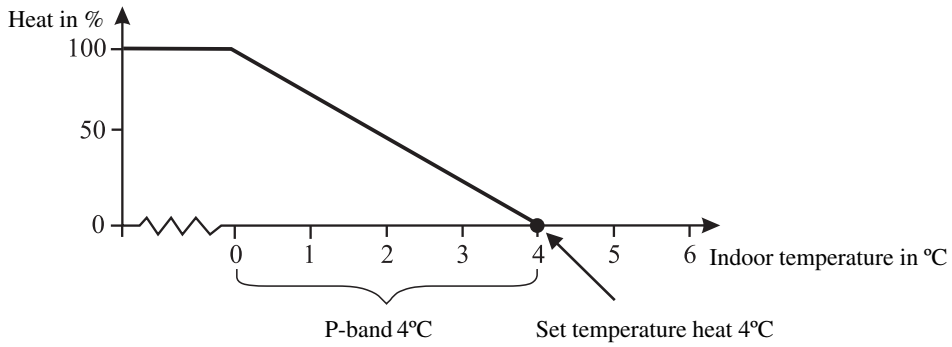
Anti freeze can be turned on and off, but the default setting is "OFF". The house must be in **START OF BATCH** when the function is activated.

When END-OF-BATCH and Anti freeze are ON, the set temperature of Anti freeze is copied to the set temperature and the set temperature heat of the temperature key.

The temperature is now controlled according to the set temperature heat of the temperature key. The ventilation is inactive (runs according to the settings of **Empty house**).

Example:

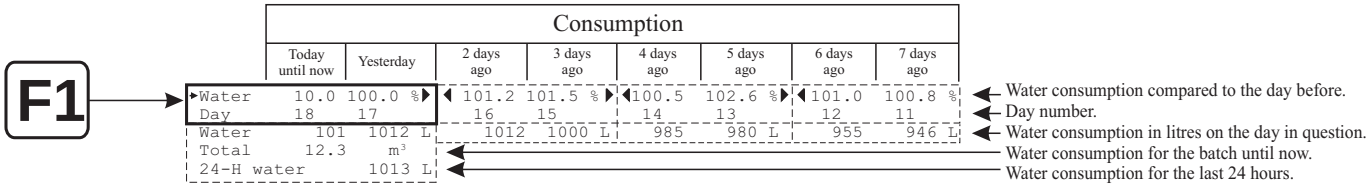
Set temp. =	4°C (Ranging from 0 - 40°C)
Set temp. heat =	4°C
P-band =	4°C



When the set temperature heat is 4°C, heat is not supplied until the indoor temperature reaches 4°C or is below.

NB: The function could be used to retain a constant temperature or for heating over a longer period of time, when the house is in END-OF-BATCH.

3.6 Water Consumption



3.7 Maintenance

The MC 34H A requires no maintenance to function correctly. Cleaning is carried out with a firmly wrung cloth, ***without*** any kind of solvent.

Do not expose the controller to direct water jets or cleaning with a high pressure cleaner.

The alarm system must be tested regularly (once a week).

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