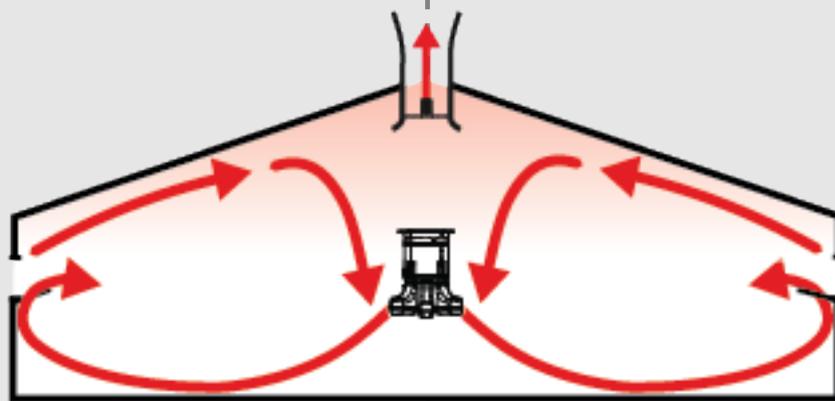


Soft Chill Feature Software

DOL 534 • DOL 539

User and Technical Manual



English: For other language variants of this document please refer to:

Español: Para otras variantes del idioma de este documento, visite:

Français: Pour les versions dans d'autres langues de ce document veuillez consulter:

<http://docs.skov.com/1174>

Program Version

The product described in this manual contains software. This manual corresponds to:

- Software version 5.2

It was released in 2018.

Product and Documentation Changes

SKOV A/S reserves the right to modify this manual and the product described herein without notice. In case of doubt, please contact SKOV A/S.

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

IMPORTANT!

NOTE CONCERNING ALARM SYSTEMS

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

SKOV A/S would like to point out that the product liability clause in SKOV A/S' terms of sale and delivery specifies that an alarm system must be installed.



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

SKOV A/S recommend that ventilation systems should be mounted, operated and serviced by trained personnel only and that a separate emergency opening unit and alarm system be installed as well as maintained and tested at regular intervals, according to SKOV A/S' terms of sale and delivery.

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

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

Note

- All rights reserved SKOV A/S. No part of this manual may be reproduced in any manner whatsoever without the express written permission from SKOV A/S.
- SKOV A/S has made every effort to ensure the accuracy of the information contained in this manual. SKOV A/S would appreciate being notified should any mistakes or imprecise information occur in spite of this.
- Irrespective of the above, SKOV A/S shall not have any liability with respect to loss or damage caused or alleged to be caused by reliance on any information contained herein.
- Copyright 2018 by SKOV A/S

1	USER MANUAL	5
1.1	Guidelines	5
1.2	Product description	5
1.3	User Guide	6
1.3.1	Temperature	6
1.3.2	Comfort temperature	6
1.3.2.1	Batch curve for comfort temperature.....	6
1.3.3	Ventilation	6
1.3.4	Setting of side cooling	7
1.3.5	Stir fan	7
1.3.6	In-between function	8
1.3.7	Catching Function	8
1.4	Maintenance Instructions	8
2	TECHNICAL MANUAL	9
2.1	Installation Guide	9
2.1.1	Installing Feature Software on a house computer	9
2.1.2	Procedure when installing Feature Software	9
2.1.2.1	Backup of setpoints	9
2.1.3	Installing the chill unit	11
2.1.4	Setting the fan voltage	11
2.1.5	Setup of the DOL 31 fan speed controller	11
2.1.6	Installing the chill unit as a stir fan	12
2.1.7	Adjustment of the negative pressure curve	12
2.1.8	Setting the comfort temperature for the Soft Chill	12
2.2	Technical data	13

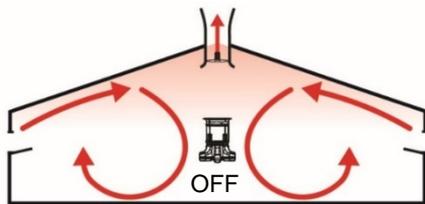
1 User Manual

1.1 Guidelines

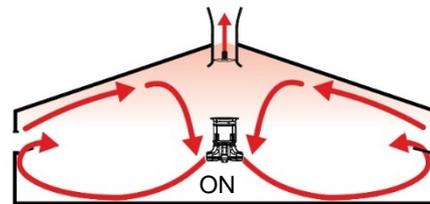
This manual describes the specific Soft Chill functions. For a general description of the house controller's operation and other functions, see the user and technical manual for the house controller.

1.2 Product description

This feature software includes the Soft Chill function. It is used with the recirculation unit DA 65-600 soft chill unit in an LPV or tunnel ventilation system.

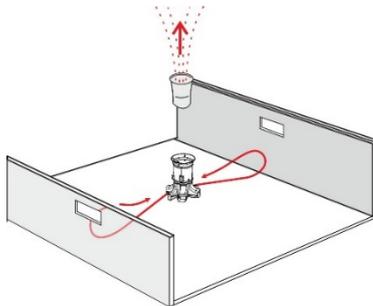


Air movement in side mode Soft Chill OFF

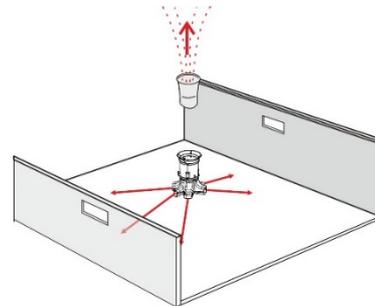


Air movement in side mode Soft Chill ON

Soft Chill is used when outdoor temperatures are high and the livestock need to be cooled by means of the cooling effect of the air velocity. The chill unit provides increased air velocity in the area occupied by the animals and a better distribution of air throughout the entire house. The unit is only active at side ventilation.



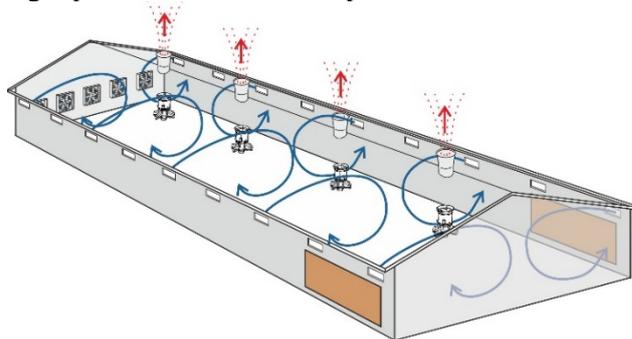
Increased air velocity



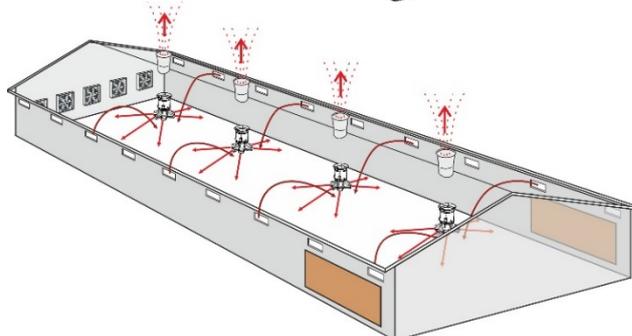
Better air distribution

The Soft Chill unit starts when there is a need for the ventilation to be increased, while changing the regulation of the air inlets. This allows you to optimise the climate for the animals when it is hot and still be able to operate with side ventilation. This means that Soft Chill reduces the need to operate with tunnel ventilation. This ensures a more uniform climate in larger parts of the ventilation process.

Side mode Soft Chill OFF



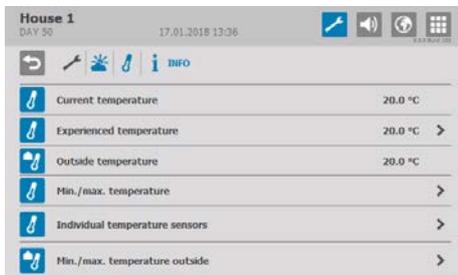
Side mode Soft Chill ON



1.3 User Guide

Activation of the Soft Chill feature software adds the following functions to the menus of the house controller. For a general description of the house controller's other functions, see the user manual for the house controller.

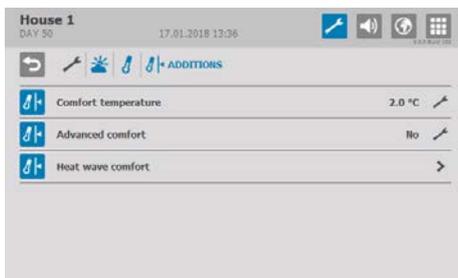
1.3.1 Temperature



In the **Climate/ Temperature/ Info/Experienced temperature** menu
With Soft Chill, the house controller will display an **Experienced temperature**. This is a calculated temperature showing the temperature the animals are experiencing. (**Current temperature – Comfort temperature**).

1.3.2 Comfort temperature

It may be necessary to adjust the comfort temperature if the behaviour of the animals indicates that they are too cold or too hot when the ventilation is operating in an area where a comfort addition has been added to a temperature setpoint (typically 50 to 160% ventilation (**Comfort ventilation start** to **Comfort ventilation maximum** see paragraph 2.1.8)).



The comfort temperature must be turned up if the ventilation system is operating at a ventilation of, e.g. 70 % and the animals are considered to be too cold. Conversely, the comfort temperature must be turned down if the animals are considered to be too hot.

Adjust the setting in the **Climate/ Temperature/ Additions** menu by 0.5°C at a time and wait an hour before re-evaluating the behaviour of the animals.

1.3.2.1 Batch curve for comfort temperature

Management/Batch curves/Climate/Comfort temperature

Day	Comfort temperature
14	5
35	3.5

Table 1: Example of guideline for comfort setting in side ventilation (broiler on floor in side ventilation, dimensioned with standard air inlet).

1.3.3 Ventilation

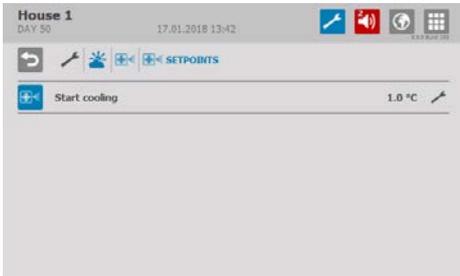


In the **Climate/ Ventilation/ Ventilation status/ Soft Chill** menu
Displays how much the chill unit is operating at in percentage.

1.3.4 Setting of side cooling

When Soft Chill is used in conjunction with side cooling, the animals experience the cooling more effectively due to the increased air movement.

It is recommended that side cooling is started at maximum ventilation in order to limit humidity in the house.

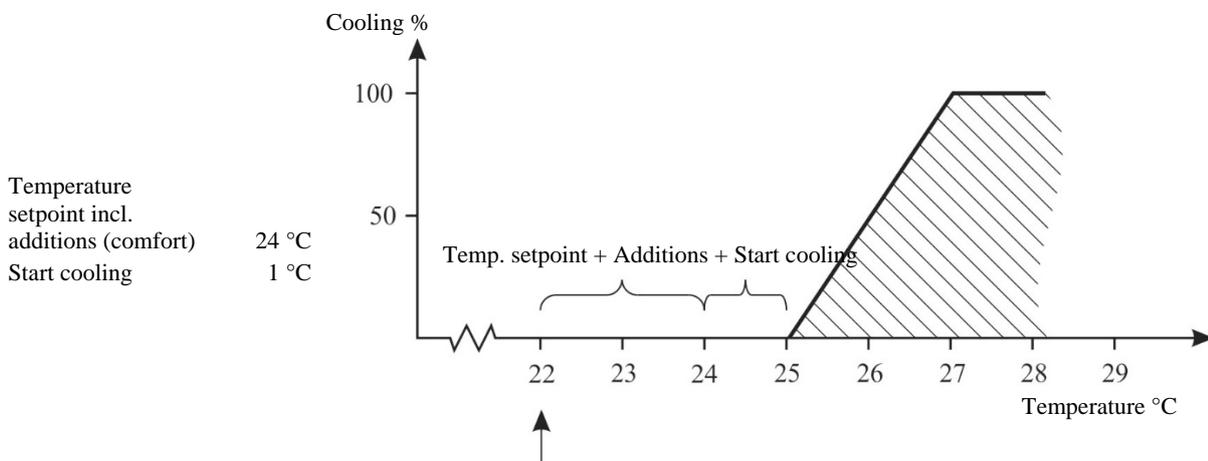


Side cooling starts up when the temperature in the house is too high.

In the **Climate/ Side cooling/ Setpoints/ Start cooling** menu.

Start cooling is set at 1°C.

Example 1: Cooling with Soft Chill



A prerequisite for cooling to be able to start however is that ventilation is set to **Maximum ventilation** or is above **Temperature setpoint**.

1.3.5 Stir fan



In the **Climate/Stir fan** menu.

Setpoints in this menu are made when chill units are used as stir fans.

1.3.6 In-between function

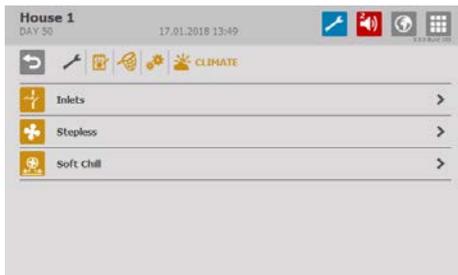


In the **Management/ In-between function/Drying/Disinfection** menu.

The chill unit can be set so that it is active during drying and disinfection.

The increased air velocity in the house can partly shorten the drying process and partly optimise the distribution of disinfectants in the house.

1.3.7 Catching Function



In the **Management/ Catching Function/ Setup/ Climate/ Soft Chill** menu.

The chill unit can be set so that it is active during the catching function.

The purpose of this is to ensure a change of air for the animals and employees during catching.

1.4 Maintenance Instructions

Feature software does not require any maintenance.

The functions of the Feature Software will not be overwritten by a subsequent software update, but will be updated by this.

It is not possible to uninstall the Feature Software once it has been installed.

2 Technical Manual

This technical manual deal with the installation of the house controller, and is aimed primarily at the electricians who will be installing and testing the controller.

The installation must be carried out by expert personnel and according to current national (and EU, in Europe) regulations.

Note that electrical equipment may not be opened without removing the supply voltage and only competent personnel may carry out servicing and troubleshooting.

2.1 Installation Guide

The Feature Software is provided on a USB stick.

2.1.1 Installing Feature Software on a house computer



Important information

Feature software can only be installed on house controllers with software version 5.2 or later.

Loading Feature Software usually takes up to two minutes.

The house controller will restart once the software has been loaded. It is therefore not advisable to load the software while animals are in the house.

If it is necessary to load the software while animals are in the house, it should be carried out in the presence of a veterinary expert.

2.1.2 Procedure when installing Feature Software

- 1) Create a backup copy of the setpoints for the house. See paragraph 2.1.2.1.
- 2) Load the Feature Software.
- 3) Activate the Soft Chill function.
- 4) Perform the setup (fan speed controller) See paragraph 2.1.4.
- 5) Configure the setpoints (comfort, see paragraph 1.3.2. Side cooling, see paragraph 1.3.4. Negative pressure adjustment, see paragraph 2.1.7).

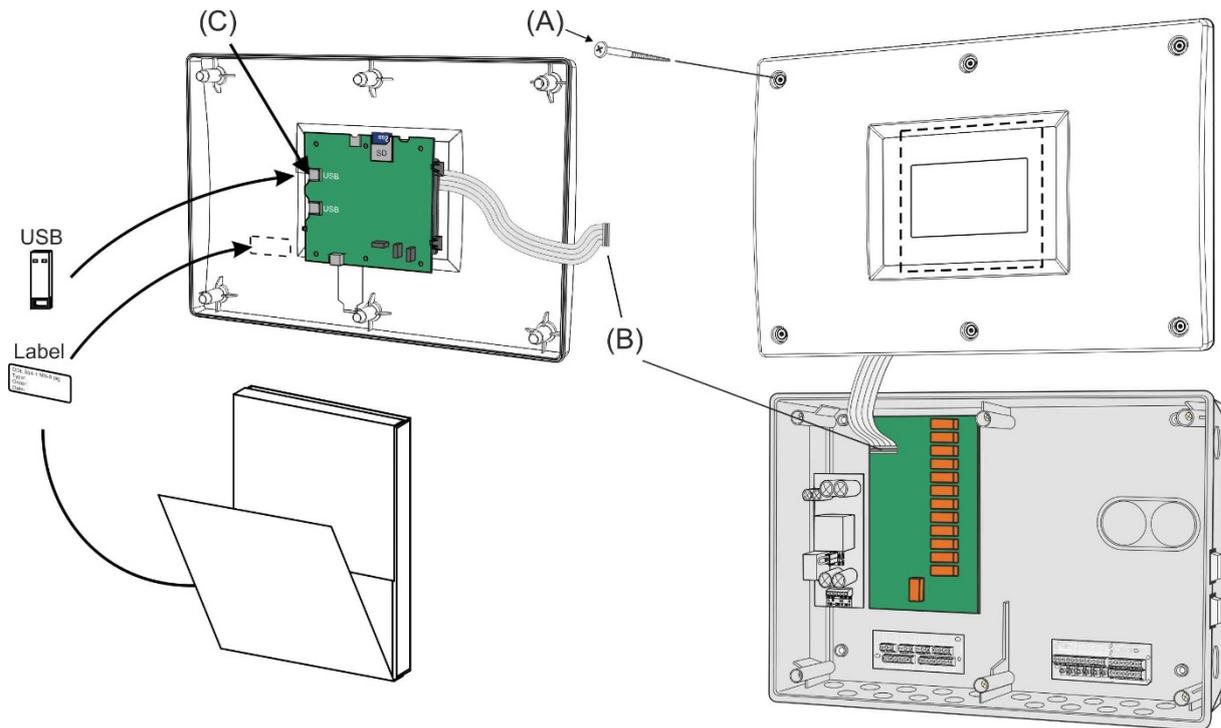
2.1.2.1 Backup of setpoints

1. Create a backup of the house's setpoints before installing the feature software.
 - a. Select **Save setpoints** in the **Technical/ Service/ USB stick/ Save/ Save settings and front views** menu.
 - b. Rename the setup.
 - c. Wait until the climate controller indicates that the setup is saved.
 - d. Remove the USB stick and wait until the house controller has detected that the USB stick has been removed (approx. 40 seconds).

If you do not wait long enough, the climate controller may have problems reading the next USB stick correctly. This can lead to the following errors: The USB stick is not formatted correctly, resulting in problems installing the software from the USB stick.

2. Loosen the 4/6 screws (A) that hold the front panel in place.
3. Lift out the front panel.

 Be careful not to pull the flat cable, so that the plug **(B)** is damaged.



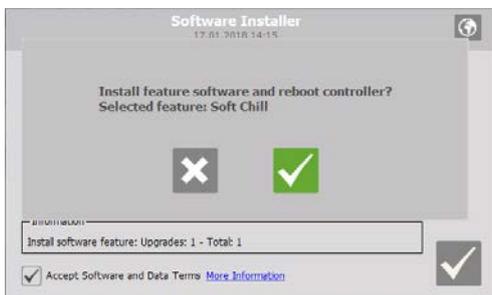
Unpack the USB stick and label from the cardboard box.

4. Place the small label supplied next to the CPU module.
5. Insert the USB stick containing the Feature Software in the USB port **(C)** on the CPU module.



Select the required feature.

The installation process begins.



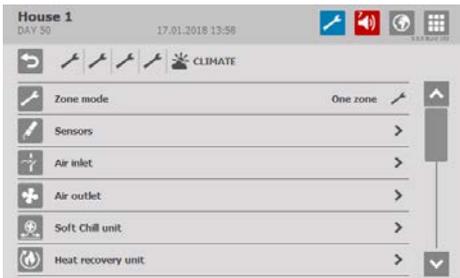
During the installation the controller will restart.



It is **VERY** important not to disconnect the power supply during installation.

Do not remove the USB stick until the installation is fully completed. In other words, when the graphical user interface is accessible and usable.

2.1.3 Installing the chill unit



Select **Soft Chill** in the **Technical/ Setup/ Installation/ Climate/ Soft Chill unit** installation menu.



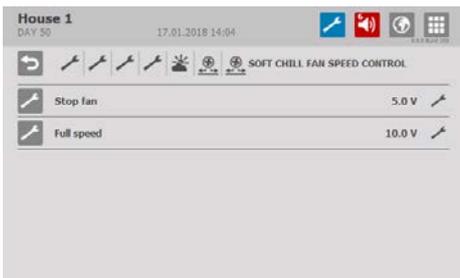
Select **0-10 V** so that the chill unit can be connected and controlled by an external DOL 31 fan speed controller.

All units connected will run in parallel.

In a two-zone setup they will run in parallel in each zone.

A number of chill units can be connected to the house controller, depending on type of DOL 31. See paragraph 2.2.

2.1.4 Setting the fan voltage



The fan must be set to a voltage corresponding to stop and full speed.

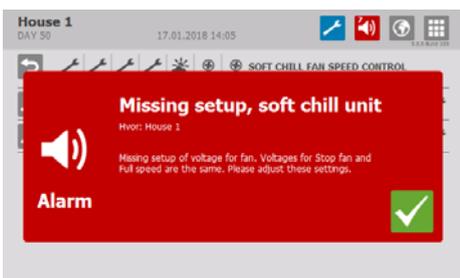
This setting depends on the type of fan speed controller used.

Stop fan:

Voltage at 0 % fan capacity. Set at 0.5 V.

Full speed:

Voltage at 100 % fan capacity. Set at 10.0 V.



The house controller will generate an alarm if the fan voltage is has not been set.

2.1.5 Setup of the DOL 31 fan speed controller



DOL 31 is set to automatic slave mode and default values are used.

Please note that the output value displayed by DOL 31 will not be the same as the output displayed by the house controller for chill units.

2.1.6 Installing the chill unit as a stir fan

Chill units that are also used as stir fans must be installed as stir fans and the relays must be connected in parallel.

2.1.7 Adjustment of the negative pressure curve

The house controller regulates pressure on the basis of a curve sequence from an air outlet and inlet according to the current ventilation requirements. The chill unit is part of the negative pressure side curve. It should be inserted into the curve sequence so that it is active when there is a need for high ventilation.

No.	Output	Side	Soft Chill
1	0.0	0	0
2	1.0	5	0
3	8.0	10	0
4	16.0	15	0
5	20.0	27	0
6	28.0	33	0
7	33.0	37	0
8	40.0	42	0
9	50.0	50	0

Set the percentage of the chill unit to operate at a specific ventilation requirement.

The Chill units are usually started by a 100 % opening/output of air inlets and outlets.

The air inlet then closes slightly in order to increase air velocity and the output of the air outlet is increased.

2.1.8 Setting the comfort temperature for the Soft Chill

Technical/ Service/ Control parameters/ Comfort

Day	Comfort ventilation Start (%)	Comfort ventilation Maximum (%)	Comfort temperature
14	70	160	5
35	70	160	3.5

Table 2: Example of guideline for setting the regulating range that comfort is active in (broiler on floor in side ventilation, dimensioned with standard air inlet).

2.2 Technical data

Soft Chill feature software	
Electrical	
USB	1 x USB 2.0 A type - 2GB (formatting requirement: FAT16) - 2-32GB (formatting requirement: FAT32)
Output	1 pc. 0-10 V DC output
Number of chill units per DOL 31	6.8 A = 2 pcs. 16 A = 5 pcs.
Type	
House controllers	DOL 534, DOL 539
Climate	LPV - Combi-tunnel
Animals	Poultry
Software version	5.2 or later
Language	DA-EN-DE-ES-FR (ver. 5.2)
Environment	
Ambient temperature, operation	-40 to +40°C (-40 to +104°F)
Ambient temperature, warehouse	-40 to +70 °C (-40 to +148 °F) – and protected against direct sunlight.
Shipping	
Dimensions H x W x D [mm]	33 x 12 x 3
Dimensions packed H x W x D [mm]	3400 x 2650 x 30
Weight [g]	5
Shipping weight [g]	210



Soft Chill Feature Software

