

Optimal climate and production control for pig production



One Series - Numerous Options

SKOV has developed a series of module-based house computers for climate and production control in the production of pigs.

Regardless of where in the world your production is located, the house computer can create optimal climate conditions for the animals in the livestock house. The computer can be adapted to all herd sizes and all types of production, so you only have to pay for the features you need.

If you already have an existing DOL 234 house computer from SKOV, this can be easily upgraded.

The computer is available in several varieties, which can be adapted to all types of pig production and climate conditions.

Precise climate control

Common to all varieties is that it precisely regulates and maintains temperature and humidity levels in the livestock house and is used for regulating not only ventilation but also heating, floor heating, humidity and cooling. The climate is constantly adapted to the animals' age and needs based on the set curves.

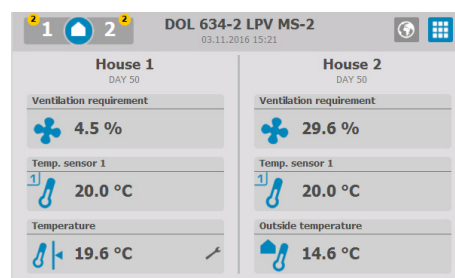
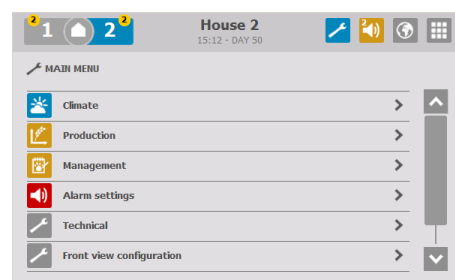
Many functions

In addition to this, the house computer controls high-pressure cooling and

spraying, efficient tools for maintaining a set temperature at high outside temperatures. Spraying can be regulated according to temperature and time and can also be set so that it controls behaviour, e.g. to improve the distribution of the animals in the pen.

Easy to operate

Despite its many functions, the computer is easy to use by means of graphic icons and with menus you can design yourself.



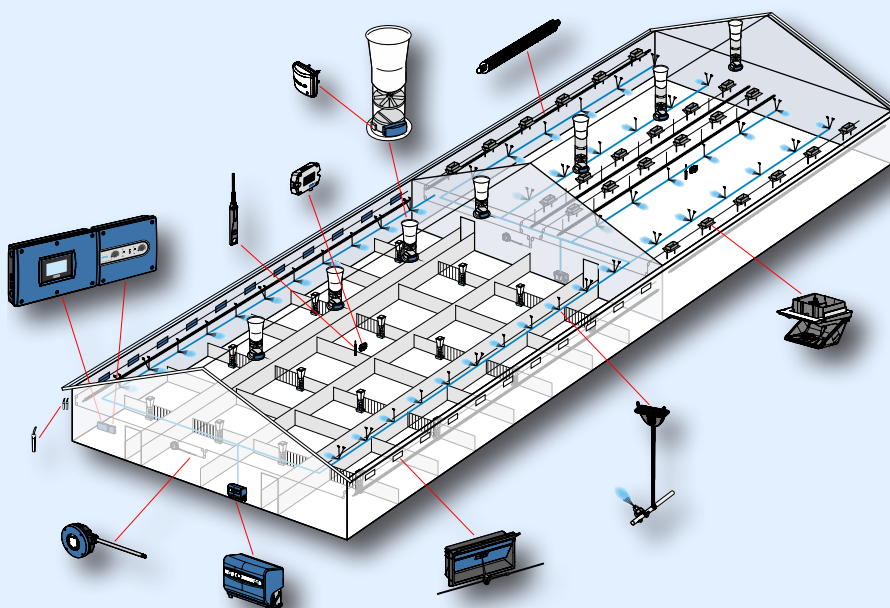
Climate for everyone

We have ventilation systems for all types of livestock house and production forms and create optimal conditions for the animals regardless of where in the world the livestock house is located.

It is the house computer which ensures that all components work together and create the perfect climate for the animals.

The house computer is available in the following versions:

- LPV
- Tunnel
- Combi-Tunnel
- Central exhaust



DOL 639 - All-in-one

All of the features listed below are included in DOL 639, which is the series' climate and production computer.

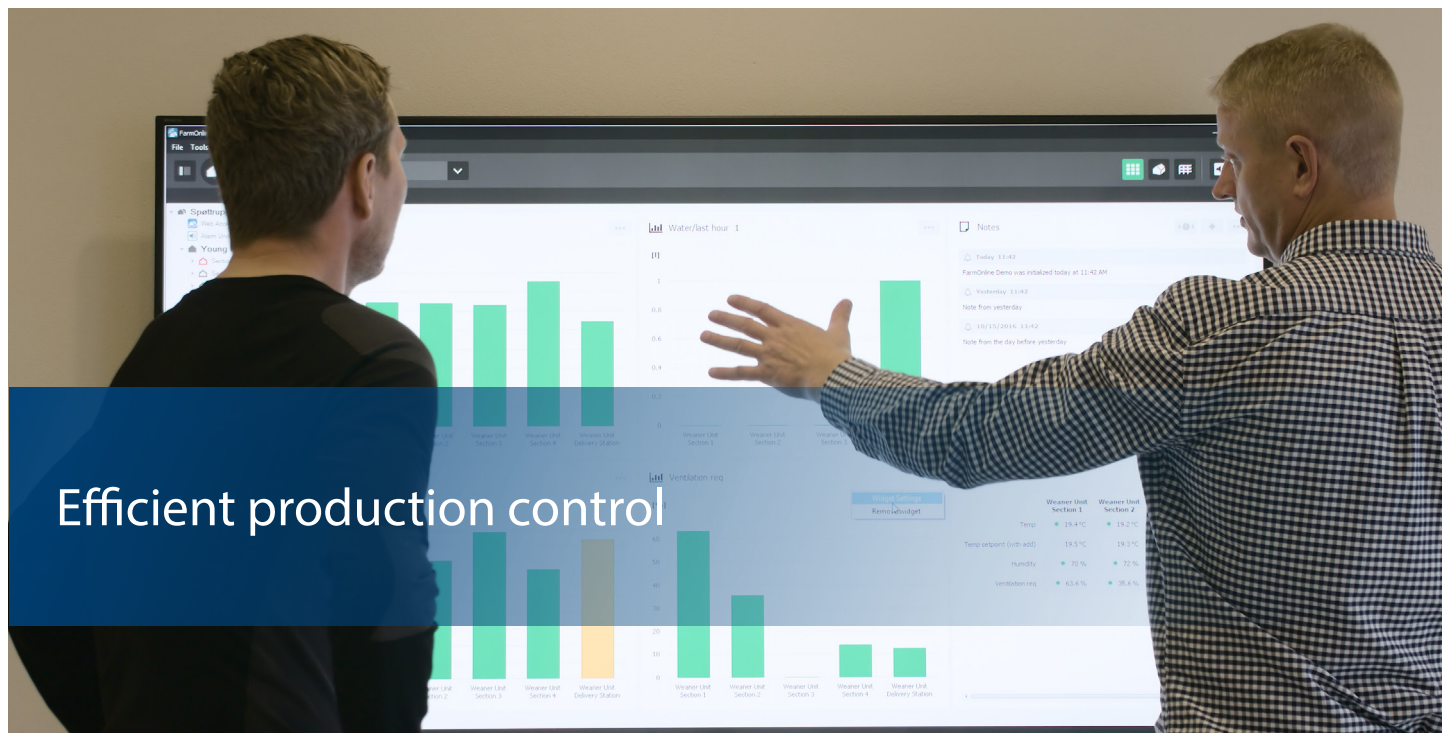


DOL 634 climate computer

- PID regulation technique
- MultiStep® and Dynamic MultiStep®
- Air output control with Dynamic Air
- Comfort coWntrol
- Humidity control with/without heating
- Extended curve control (temperature, heat, humidity, floor heating, minimum and maximum ventilation)
- Control of high-pressure cooling and pad cooling
- Floor heating control
- Control of spraying
- Trend curves
- In-between function (soaking/washing/drying)
- Comprehensive alarm functions
- Operation and alarm logs

DOL 635 production computer

- Measuring of feed consumption with feed weigher or silo weighing
- Measuring of water consumption with water meter
- Control of dry feeding system
- Registering of animals for delivery, removal for treatment or dead animals
- Alert for irregular water consumption



Efficient production control

In order to obtain the best results in weaner and finisher production, an efficient control and systematic monitoring of gain, feed and water is vital.

With a house computer from SKOV efficient production control and systematic monitoring are ensured, which give a complete overview of productivity.

Real-time data – the road to optimal management

The road to success depends on updated and valid data. This requires automatic monitoring of the most important

production parameters in order to optimise production and detect problems before they give rise to losses.

The genetic potential and efficient feeding, which is the foundation for a high daily gain, are there; but this presumes that weaners and finishers are produced under optimal conditions.

With SKOV's house computer it is easy to set and adjust feed programs, for example, so that, with a good feed economy, optimal gain can be achieved.

The key to success

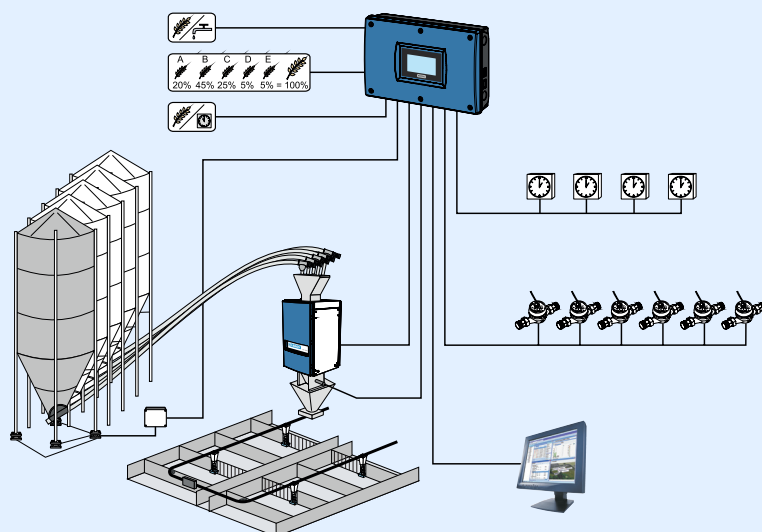
Financial success in finisher production does not only depend upon the equipment in the livestock house, but also heavily on the farm manager's ability to analyse data correctly and react in a timely manner.

SKOV's house computer gathers all the necessary data and calculates the most important key figures:

- Daily gain
- Feed consumption
- Water consumption
- Water-feed ratio
- Efficiency of feeding
- Mortality rate

The primary functions of the house computer are:

- Measuring of feed consumption with feed weigher or silo weighing
- Measuring of water consumption with water meter
- Control of dry feeding system
- Registering of animals for delivery, removal for treatment or dead animals



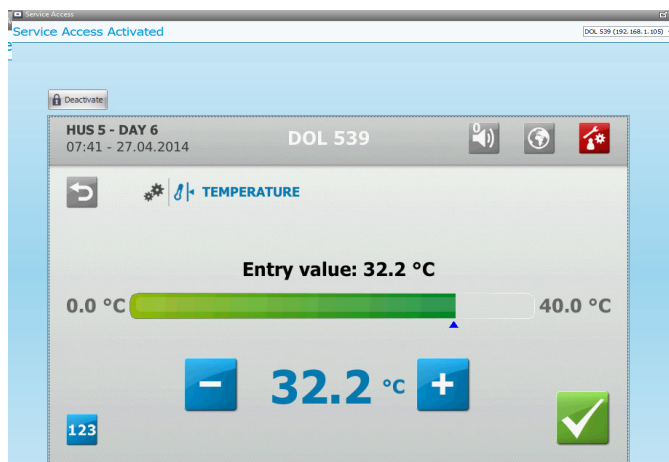


User-friendly

The house computer is controlled via a large touch display. The menus are simple and the outline menu can be adapted to the individual user. Each user level can be protected by means of unique passwords.

Many languages

The computer menu can switch between 25 languages, so employees from other countries can use it without facing language barriers.



Service Access

With production spread across several sites, it is an advantage being able to control the house computer remotely. Service Access enables you to control your house computer from FarmOnline® just as if you were standing in front of it in the livestock house.

Several livestock houses, one set-up

You can copy the set-up from one computer to another using a USB-stick.



OPTIMAL CLIMATE AND LOW ENERGY CONSUMPTION

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SKOV focuses on developing products that in addition to creating optimal conditions for animals also use the least energy possible. We have several products that lower energy consumption significantly as they are all developed and optimised in relation to the joint system, so that SKOV's customers are sure to have a ventilation system that works well and is energy-efficient.

- ✓ **Major energy savings**
- ✓ **Optimal livestock house climate for the animals**
- ✓ **Less noise in the livestock house**
- ✓ **Quick return on investment**

6-10 kWh

With Dynamic MultiStep it is possible to regulate the energy consumption in a finisher pig production down to between 6 and 10 kWh per pen place annually.

The house computer DOL 63X controls the air intake using SKOV's two regulating systems: MultiStep® and Dynamic MultiStep, which in addition to ensuring an optimal livestock house climate also lowers energy consumption significantly. The difference between the regulating systems is that MultiStep regulates a continuously variable fan from 0-100 % while Dynamic MultiStep turns on several continuously variable fans as required.

MultiStep or Dynamic MultiStep?

There are different factors that come into play when selecting regulation method, e.g.:

- Climatic conditions
- Current ventilation solution
- Investment profile

Dynamic MultiStep is the regulating method, which provides the biggest energy savings – in actual fact, the energy consumption in pig production can be reduced to just 6-10 kWh per pen place annually. Deciding which regulation principle is the best investment is a very individual matter, and we will of course provide advice and directions about which one is best suited for individual projects.





Alarm and emergency opening

The modern pig productions are intensive and necessitate an alarm system to ensure rapid intervention in the event of power failure and the like. SKOV's alarm system and emergency opening are simple and stable, and you receive an alarm which specifically indicates where in the livestock house the alarm has arisen and what the reason is for the alarm.

DOL 2400 Alarm system

DOL 2400 is a series of alarms that by using local alarm indicators, e.g. sirens, flashing lights or via telephone, give an alarm in case of anomalies.

The alarm supports 10 languages and can be set up for the individual employee, so that they can receive and use the alarm in a language they understand.

The alarm can monitor the temperature in up to 20 sections and can also be used to alert users to errors in equipment such as empty silos, jammed augers, defective oil burners, etc.

If several alarm inputs are required, an extension module can be purchased. DOL 2400 has a large graphic display that shows the temperature and alarm status for each input terminal. If DOL 2400 is connected to a telephone line, alarms can be transmitted to several telephones at the same time or in a specific order. Calls can be acknowledged, thereby stopping the alarm. All functions can be controlled remotely via a telephone.

DOL 278 Emergency opening – ON/OFF

In pig production an ON/OFF emergency opening is often used, which together with SKOV's climate computer works as an emergency opening that at power failure or technical problems fully opens the ventilation system. The emergency opening function is integrated in the climate computer; only the energy for opening the ventilation system is drawn from DOL 278. In case of a power failure, the connected air inlets and outlets are forced fully open.

Temperature-controlled emergency opening

In areas where there can be low temperatures, a temperature-controlled emergency opening is used for farrowing and weaner sections.

Together with SKOV's climate computer, DOL 278T is an independent emergency opening system for opening the ventilation system in case of a power or technical failure or an operational error. The emergency opening system is integrated in DOL 278 and activated when the housing temperature exceeds the temperature set on DOL 278.

The opening depends on how much the temperature is exceeded and is activated gradually.

DOL 278 has a separate temperature sensor and therefore does not depend on climate computer measurements. DOL 278 is equipped with high outdoor temperature compensation, which enables the outside temperature sensor to override/suspend the emergency opening if it is hot outside.



Dynamic Air

Dynamic Air is a measuring method that ensures a correct minimum ventilation for pig producers as well as optimal heat consumption by using precise and constant measurements of air output in the exhaust unit.

High animal welfare – low heating costs

A precise measurement of exhaust unit output is especially important in periods where the ventilation requirement is low. A correct minimum ventilation is crucial for an optimal production and for heating costs. Too little ventilation can lead to animal respiratory disorder and lowered productivity, whereas too much ventilation means unnecessary heating costs.

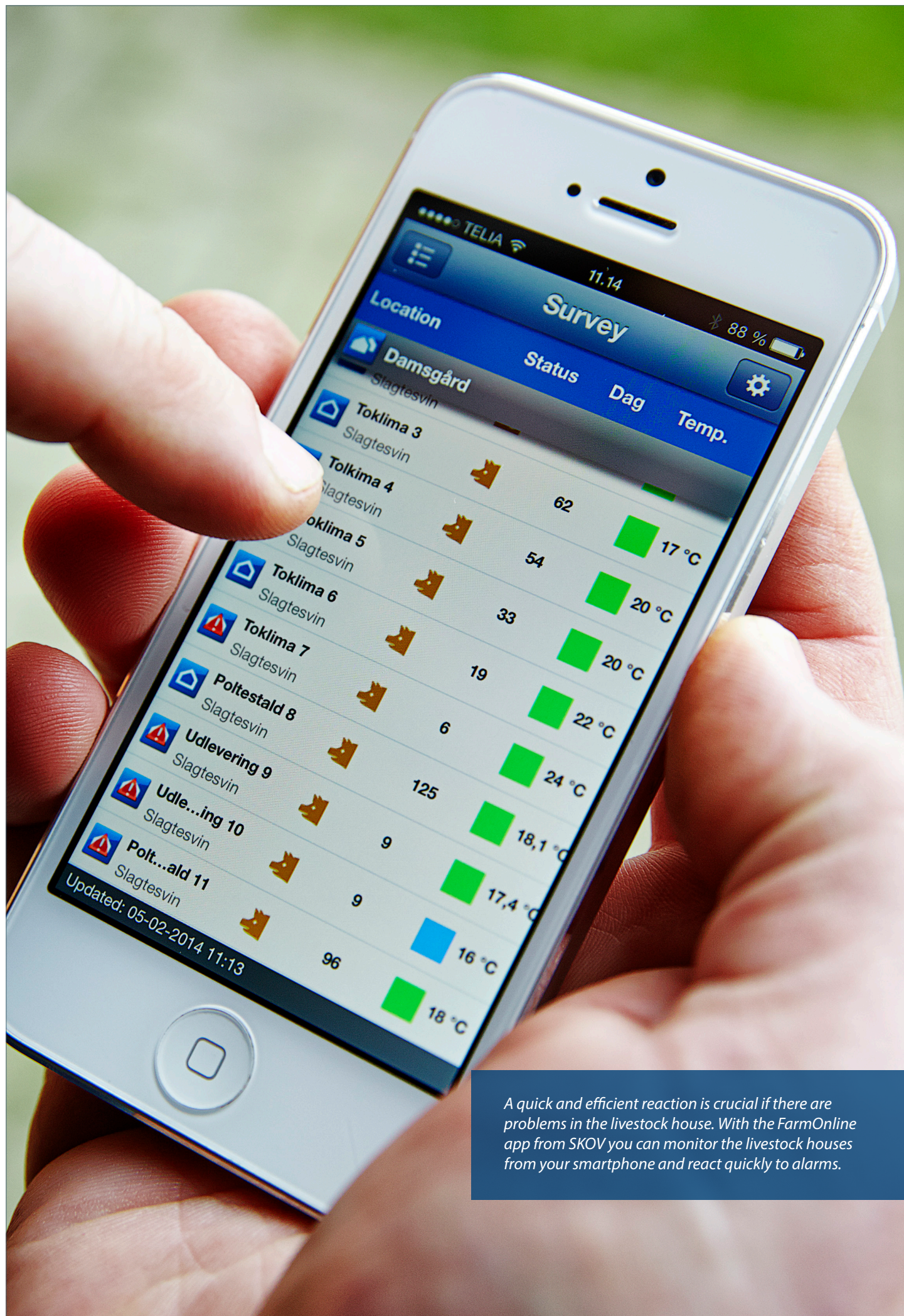
Measurements in the exhaust unit means that the controller compensates for potential wind action, which means that the fan can be regulated more precisely based on current needs than would otherwise be the case. Dynamic Air is a financially attractive product that does not use mechanical nor moving

components for measurements and is therefore a reliable and stable solution.

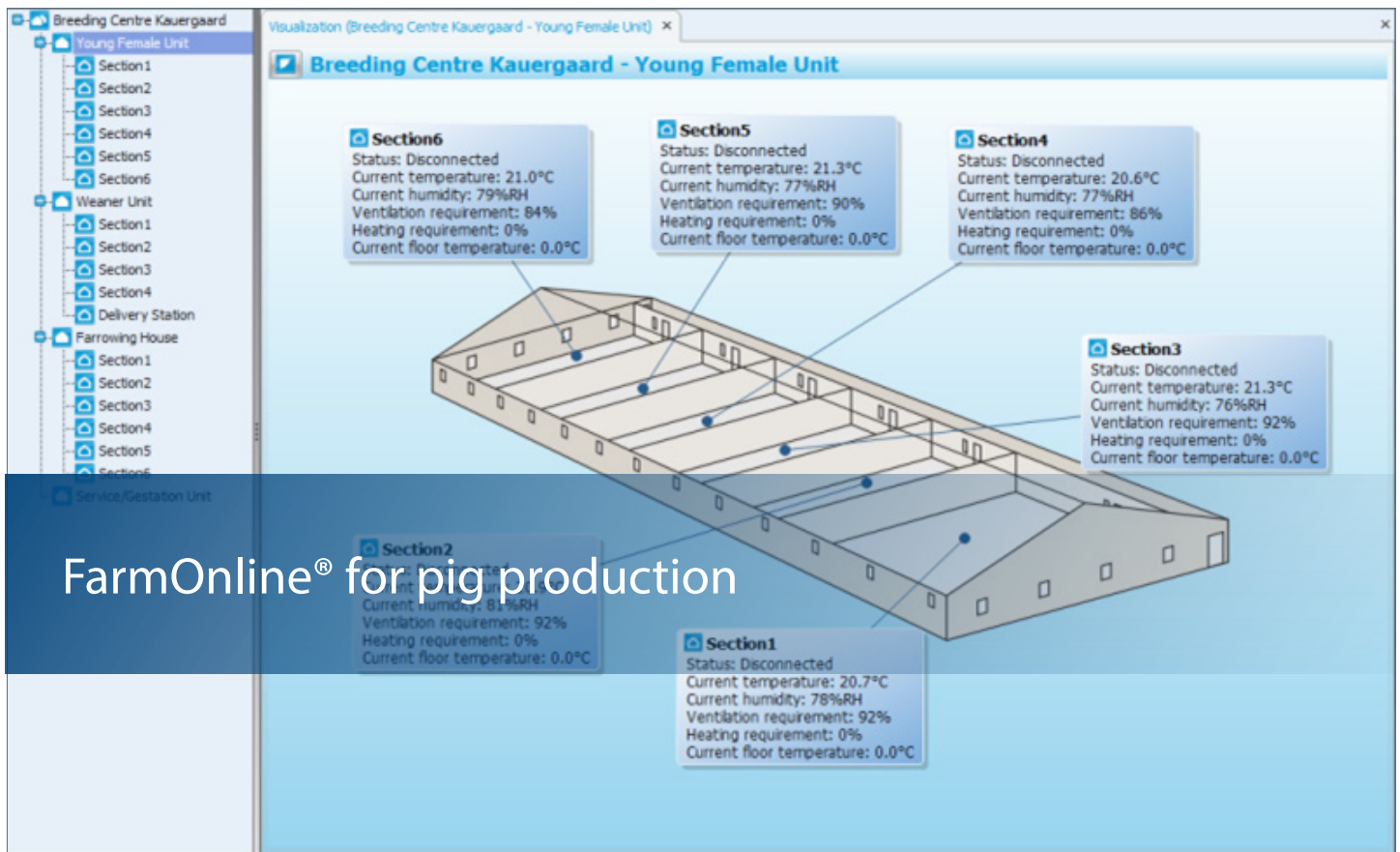
Dynamic Air for duct exhaust

Dynamic Air can also be used in livestock houses with duct exhaust, which is traditionally used in many countries. A pressure sensor in each air outlet for the individual sections makes sure that the animals in the livestock house get the amount of air that is needed, regardless of duct pressure. Measurements together with information about duct pressure ensures a ventilation that is precisely adapted to the current requirement of the individual sections in the livestock house, and in this way unnecessary ventilation is avoided, optimising the producer's consumption of heat and power.

- ✓ Improved minimum ventilation
- ✓ Optimised energy consumption
- ✓ Reduced heat consumption
- ✓ No mechanical weaknesses
- ✓ Also available for livestock houses with duct exhaust
- ✓ Optimal climate regard less of wind action



A quick and efficient reaction is crucial if there are problems in the livestock house. With the FarmOnline app from SKOV you can monitor the livestock houses from your smartphone and react quickly to alarms.



FarmOnline® for pig production

FarmOnline® enables you, despite perhaps a wide geographical distribution, to monitor and control your farms. With FarmOnline you can regulate the climate in individual livestock houses, receive alarms and exchange strategies between individual houses, as well as receiving advice from SKOV or consultants.

Data directly from the livestock house

With a FarmOnline® system, you can extract an array of climate data from the individual house computers, and based on this data analyses can be carried out and production optimising measures taken. This means higher data validity, which provides you with a better basis for decision and more time for taking care of the animals in the livestock house.

Immediate and qualified intervention

You can react immediately to alarms, for instance by changing the house computer setup via FarmOnline®. You can take immediate and qualified action when you receive an alarm, thereby ensuring the animals' welfare as well as reducing or even completely avoiding financial losses.

User-friendly and recognisable

FarmOnline® can import your own pictures of the farm and sections,

ensuring high graphic recognition in the program.

FarmWatch® gives you peace of mind

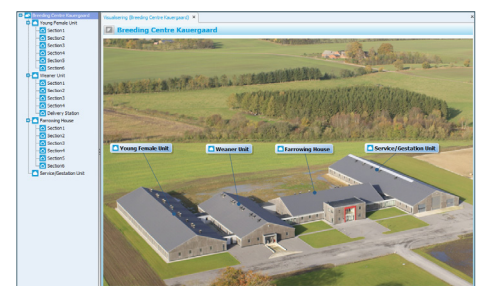
FarmWatch® continuously monitors the finisher unit's water consumption. FarmWatch® records water consumption every hour, and deviations are notified by a text message and an alarm displayed in FarmOnline. Immediate action means that the animals can be treated quicker and this often means that diseases can be identified and treated with less effort.

Looking after the livestock house via smartphone

Using SKOV's FarmOnline® app for smart phones, you can gain access to all your house computers – no matter where in the world they are. You can see climate data and alerts, thereby minimising the risk of losses in case of a system breakdown. SKOV's mobile app can be downloaded for Android, iPhone and Windows Phone.

Service Access

You can use Service Access to control your house computer remotely. You get a 1:1 display of the house computer's screen, and you can carry out the same settings as you could if you were standing in the livestock house.



Icons and graphic elements gives the user a quick overview of the current screen.



Tabular summaries with selected key figures.

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