Big Dutchman®

amacs

The Agro Management and Control System
for modern egg production

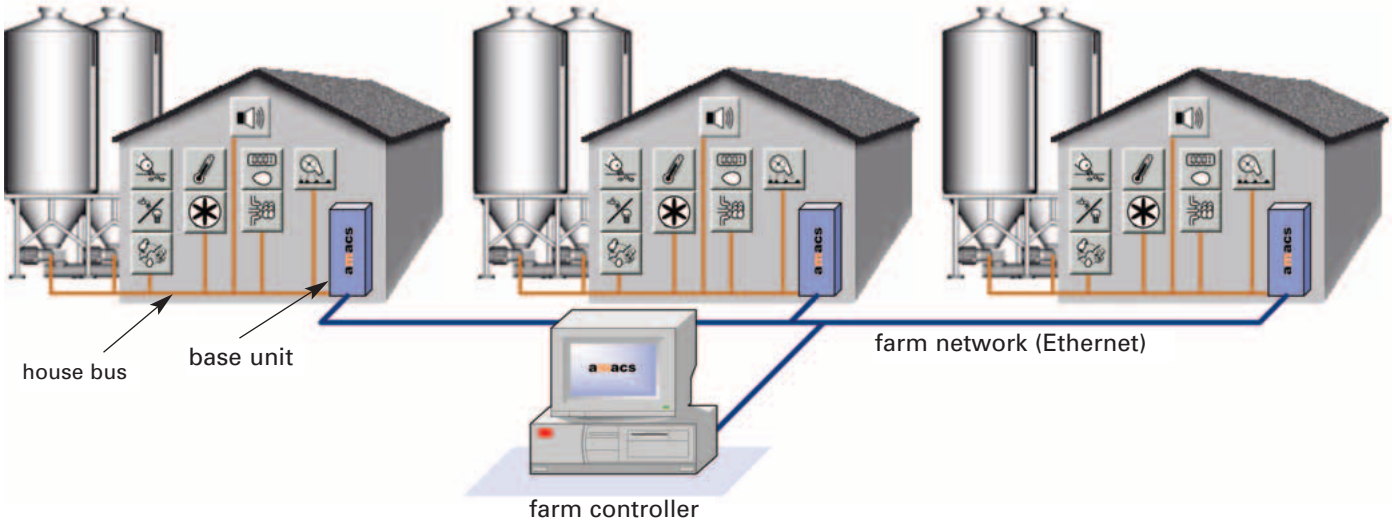
amacs – the „Agro Management and Control System“ for permanent data ac

amacs belongs to an entirely new generation of management and control systems for modern egg production. Its software is based on the latest internet technology. **amacs** has a modular design and can be used for large and small houses alike as it can be adapted to the individual situation and can be expanded at any time.
amacs allows for permanent data acquisition, real-time control and monitoring of traditional and alternative layer houses or entire farm complexes – all this from virtually any location in the world. This is possible through the use of leading edge communication technologies.
Customised visualisation and graphical display of all data and results, as well as transmission of live pictures directly from the production area are additional advantages. Alarm messages sent via e-mail or as text message to a mobile phone are also part of the performance range of this new system.

Transparent house = transparent production – no problem thanks to amacs

amacs controls and monitors all layer houses on a farm. Depending on the specific requirements, up to four functional areas – climate, production, egg collection, manure drying – can be monitored and controlled. Via remote access, it is possible to manage farms that are located in different places from **one central location**. Thanks to its extraordinary flexibility in the fields of data acquisition, transfer options, visualisation and tabular or graphical data analysis, **amacs** sets **entirely new standards** for computer-controlled agro management systems.

Use of network technologies and leading edge communications technologies



Important advantages at a glance

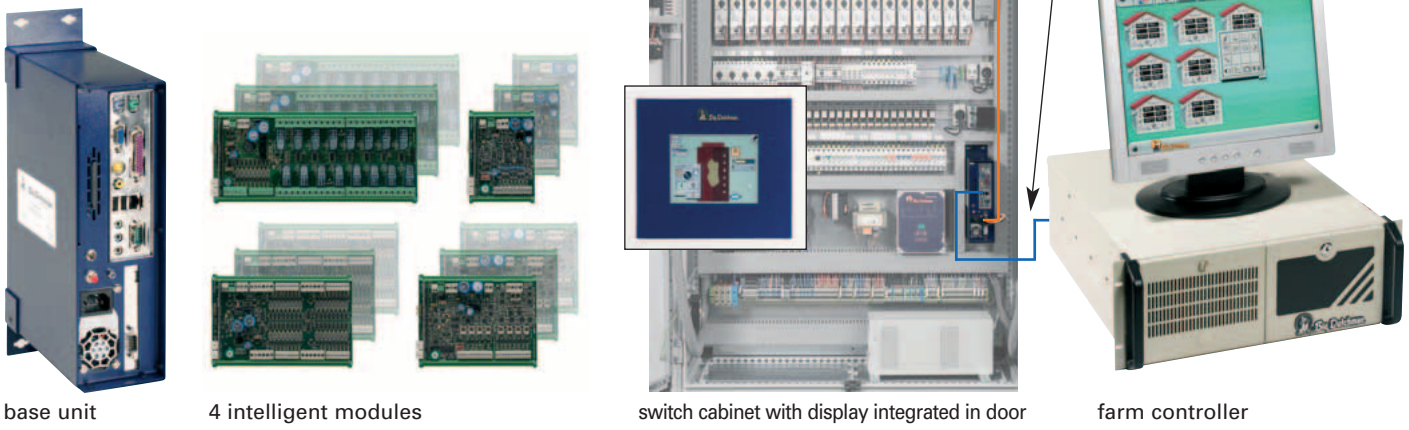
- real-time monitoring and control of the houses, i.e. if the farm manager carries out any changes at the farm controller, the changes take effect immediately in the house;
- central data storage and analyses per bird; comparison with reference data stored in the system;
- continuous visualisation of house data on your farm controller;
- high degree of flexibility thanks to different interfaces for analysis of individual operational results;
- password-protected remote access to data and settings via ISDN or DSL/internet;
- very reliable, Linux-based system with self-sufficient control inside the building; if modern glass fibre network technology is used, malfunctions caused by overvoltage can be avoided;
- alarm system via e-mail;
- integrated log and report system;
- use of a network web cam for direct photo transmission from the house (optional);
- change of language by one simple click.

cquisition, real-time control and monitoring of egg production

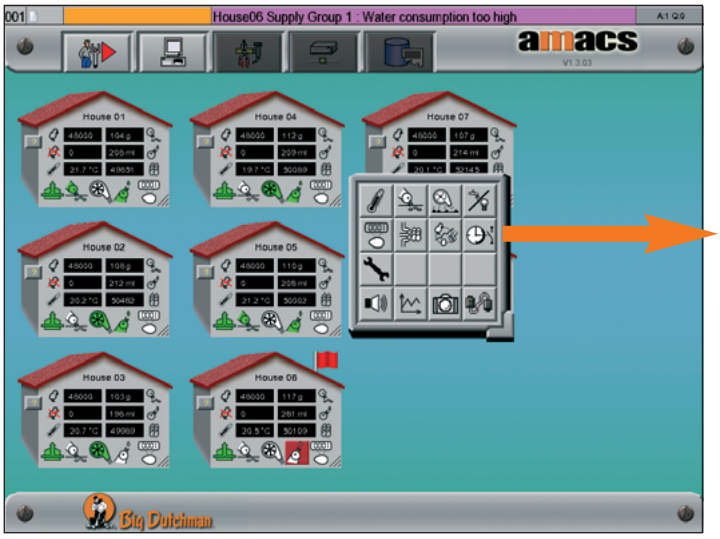
amacs – a management system consisting of extendable hardware and software components

The **hardware** consists of one base unit per house and up to four different intelligent modules which can be used in any number. The modules communicate with each other by means of a house bus and can thus be installed at any location throughout the house. Depending on the house size and the functional range, the modules are located in one or more custom-built switch cabinets.

In addition to connections for house bus and farm network, the base unit also has additional connections for an optional 6.4" colour touch-screen for on-site operation. The idividual base units are in permanent contact with the farm controller. From there, all data can be accessed from the PC in the farmer's office over modem via telephone or internet. The data is password-protected and encoded.



Software: amacs starts with a display of all connected houses

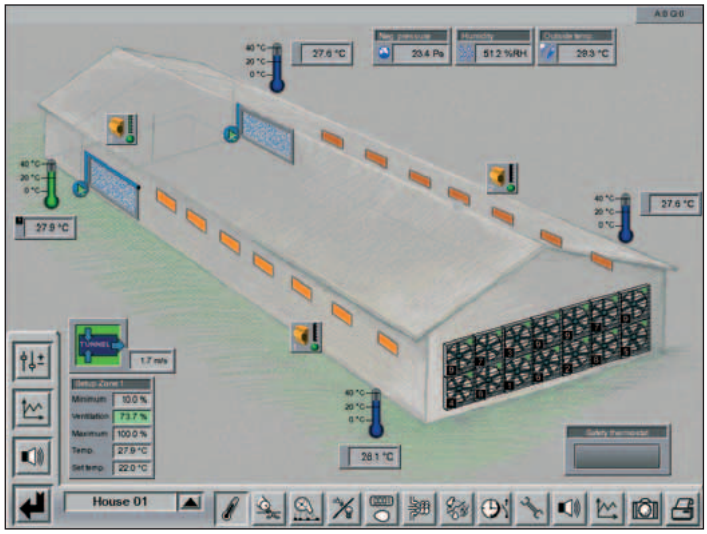


The start page of the farm controller shows all houses which are to be controlled. Via the status symbols displayed in each house or the function keys shown, the individual areas, such as climate or feeding, can be accessed.

The illustration shows a water supply alarm in house 06.

- adjustment and control of the entire house climate
- adjustment and control of feeding, feed weighing
- settings for manure drying, control of air mixer
- adjustment and control of water and light programme
- registration of laid eggs and laying performance
- total egg collection, egg flow control
- production and livestock management, calculation of production data, bird weighing
- freely usable timers
- display and listing of current alarm messages
- diagrammatic visualisation of different data
- current picture from the house transmitted from a network camera
- current system status

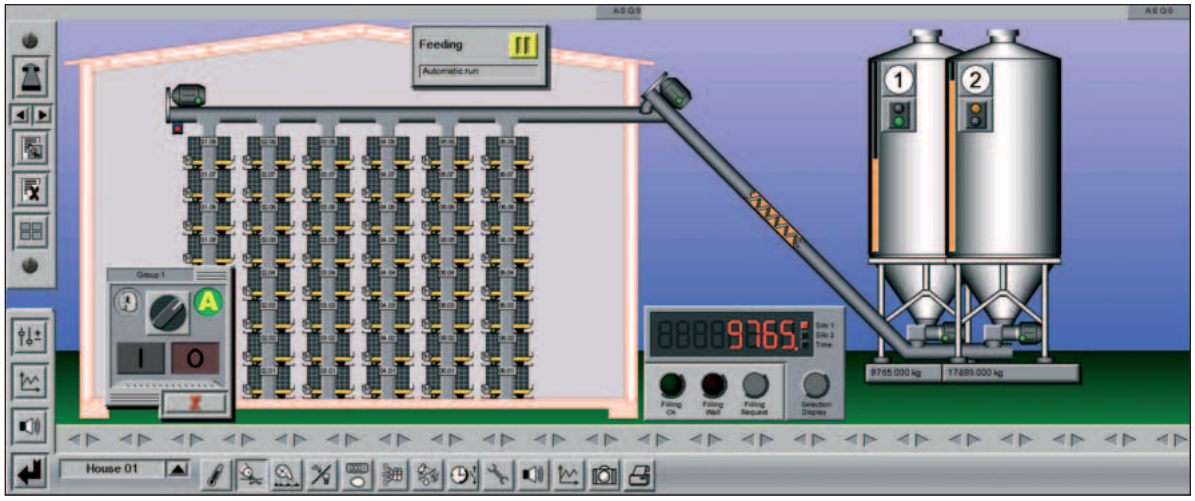
1. Functional area Climate with customised illustration of your house



The **functional area climate** includes temperature regulation over supply and exhaust air, as well as heating and cooling.
By means of sensors which measure the outside and inside temperatures as well as the air humidity amacs determines the degree of ventilation needed. All traditional ventilation systems – from cross ventilation to tunnel ventilation – can be controlled. Optimum climate conditions are an important condition for high laying performance. For this reason, it may be important to have a cooling system working on hot summer days. amacs controls the particular system – pad cooling or Fogging Cooler – not only based on temperature but also taking into account the current air humidity. It is also possible to connect additional sensors for pollution gases such as CO_2 or NH_3.

You are sitting in your office, calling up the current climate situation in your house and would like to raise the temperature by 1°C, for example. No problem: simply enter the new value and immediately the ventilation inside the house is reduced. And all this is immediately implemented upon entry, that is in real time.

2. Functional area Production – feeding management ...

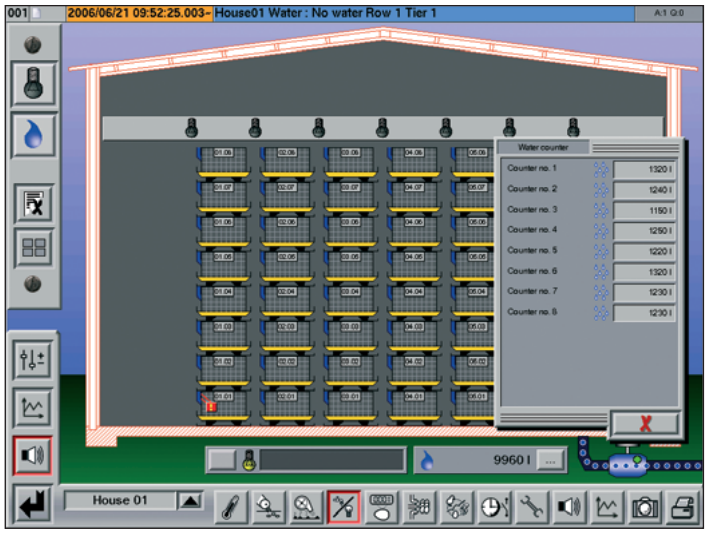


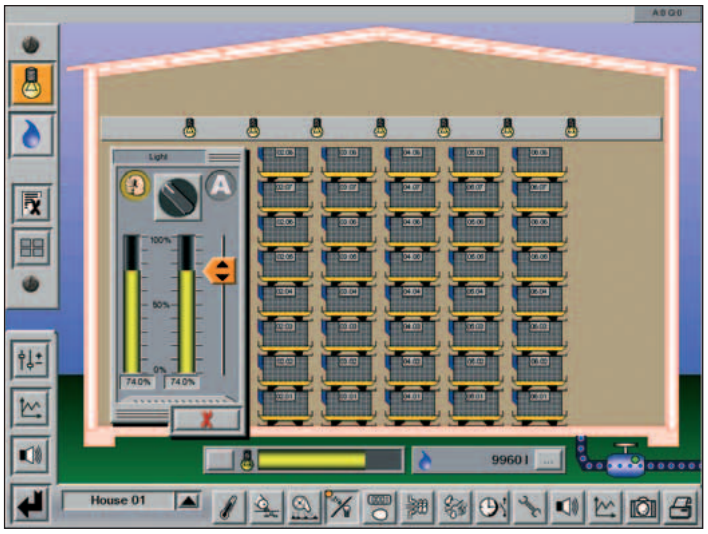
The comprehensive **functional area production** comprises the entire feeding management, including feed weighing and feed logging. Light control, water consumption and water alarms, as well as livestock management are also part of this functional area.
To supply feed according to the age and the laying performance, is a decisive factor to cut down feed costs. Thanks to amacs, feed consumption can be determined per tier, per bird and per day at any time. The freely-programmable feeding manager allows control of feed intake either automatically or manually. Feed consumption can be determined by means of an electronic feed scale or bin weighing.

... delivery control ...

Bin weighing also allows control of feed deliveries made by the feed supplier. The system displays whether the respective bin is cleared for filling, or if filling is not permitted. All feed deliveries are, of course, recognized and saved by amacs.

... water supply and light control





Optimum **water supply** is an important prerequisite for high laying performance. Up to 12 electronic water meters per house can be used to record the total water consumption in litre or in ml/day and per hen. A timer can be used to control water consumption. The water consumption can also be determined per tier or row.

Insufficient water supply is immediately signalled. The red symbol shown in the illustration indicates the location where the water level in the ventilation tubes of the nipple drinkers does not reach the set value. The red frame around the function key indicates current problems of the water supply. In addition a text message showing the row and the tier in which the alarm took place appears above the picture.

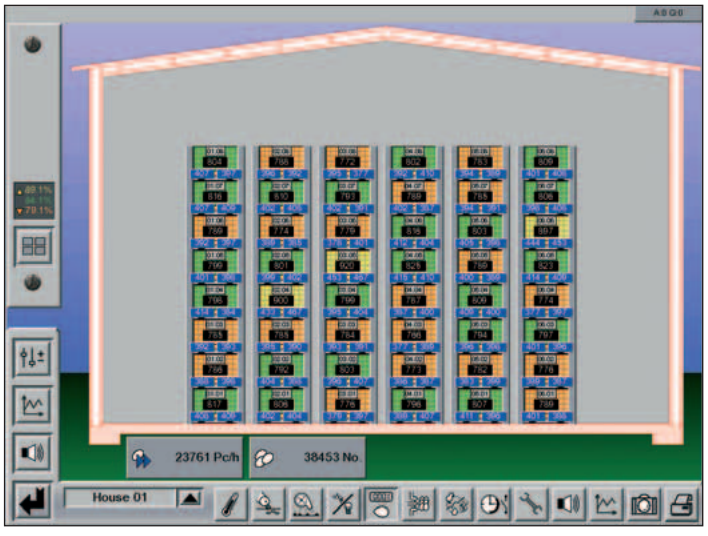
An ideal **lighting schedule** greatly affects the hens' behaviour, laying performance, egg quality and feed conversion. A freely programmable timer, dimmer function and sunrise/sunset simulation allow for the realisation of any type of lighting program. A light sensor allows for active (real) light control. Another advantage is the so-called control light. That means the level of illumination is increased for a defined amount of time for the daily inspection walk and automatically decreased subsequently.

The illustration shows that the light is dimmed by hand.

3. Functional area Egg Collection – laying performance and much more ...

Laying performance is recorded fully automatically by means of an egg counter. This data is then stored in a data base and can be used for production logs and diagrams. A comparison to reference data, which are stored in the system according to breed and age of the birds, immediately shows whether the laying performance is within the target range or not. With the standard programme egg optimisation, a simple longitudinal egg belt control can be activated with which a fixed number of eggs may be collected in **each house** per hour.

In the house diagram on the right hand side you can immediately see how many eggs are produced at which location. The system also monitors and indicates through colour markings whether the target egg numbers are met or not.



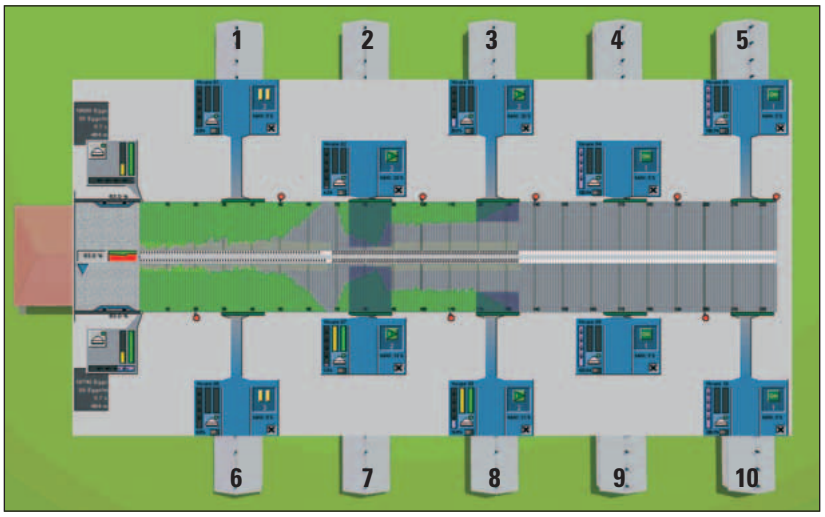
... Digital EggFlow – optimised egg flow control to the packer

If the amacs extension „packer optimisation“ (patent pending) is installed, the egg belt speed can be controlled **house-spanning** adjusted to the number of eggs. This allows for an optimum utilisation of connected sorting machines and packers. An insufficient utilisation rate is often caused by:

- waiting times at the start of the collection;
- manual start of individual houses;
- constant readjustments of the longitudinal egg belt speed;
- empty running of belts with low filling rate.

Thanks to **Digital EggFlow**, these problems are a thing of the past, as:

- belts are automatically started in the morning, the egg flow stops directly at the packer;
- creation of up to 15 freely-definable collection groups that can be changed daily;
- the egg collection in all houses that belong to the same collection group is finished at the same time – at the maximum possible filling rate;
- the eggs of the next collection group are subsequently transported to the cross belt;
- automatic stop of the cross belt when a new collection group arrives at the packer;
- in case of two cross belts, the eggs can be collected from both belts simultaneously or separately.

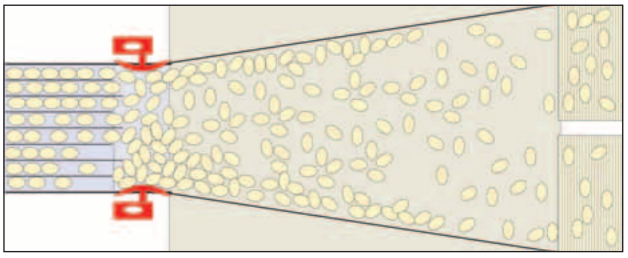


The farm overview shows the egg flow (marked green) of altogether 10 houses on two cross belts towards the packer. The farm manager can thus clearly see and plan the order in which the eggs are to be collected.

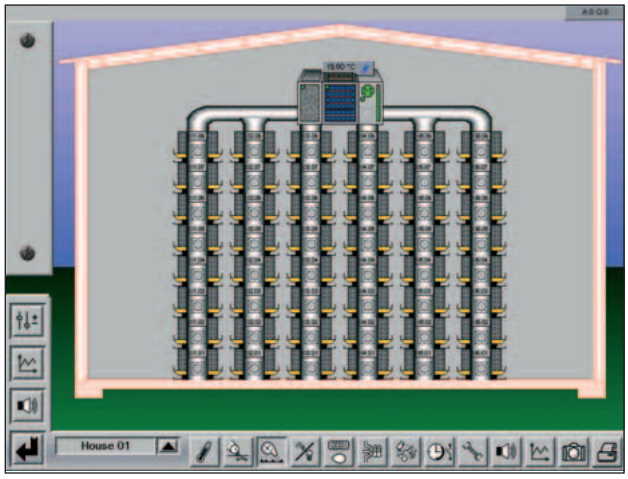
Stepless cross belt control

As an option, Big Dutchman offers a stepless cross belt control. Egg congestions caused when too many eggs join the egg stream at the same time at the transfer from the cross belt to the packer are detected by an egg pressure sensor. The speed of the longitudinal and cross belts is immediately and automatically reduced if a frequency converter is connected.

Digital EggFlow received the World Poultry Award 2006



4. Functional area manure drying – fresh air, little NH_3 emissions

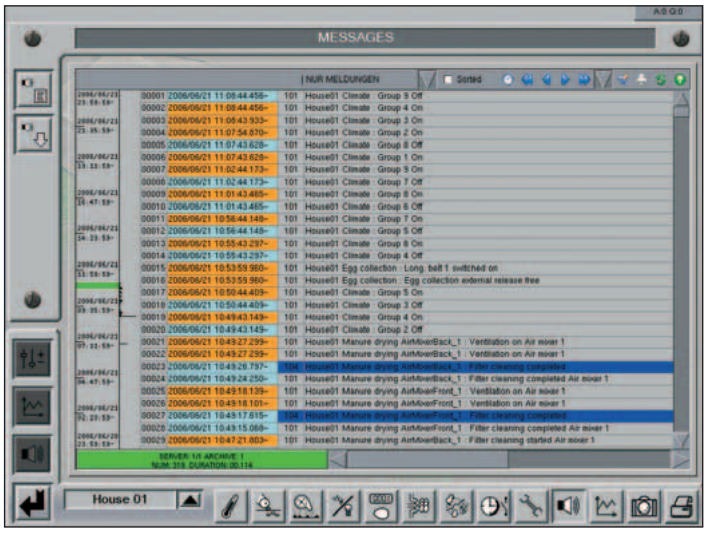


Air mixers, heat exchangers or radial fans are regulated on the basis of outside temperature and manure drying temperature, thus guaranteeing reliable and even manure drying. It goes without saying that amacs also controls any connected automatic filters.
amacs can control up to 8 air mixers per house. They can also be directly controlled manually over the PC surface.

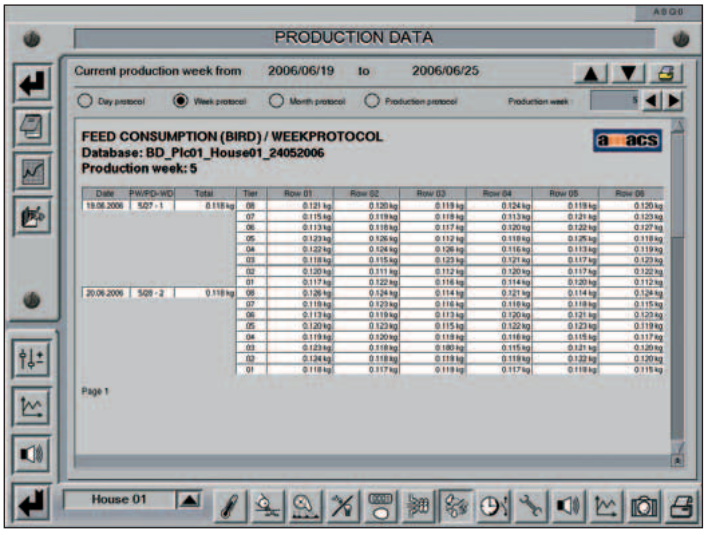
The picture shows a cage system with air mixer in the front gable.

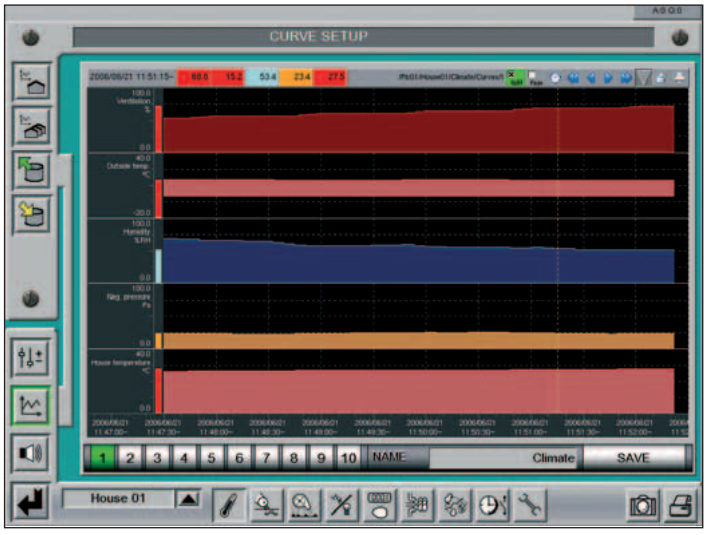
Alarm messages and message statistics – on the safe side, thanks to amacs

Power failure, deviations in temperature, water and feed consumption, as well as minimum stock in the silo are important reasons for activating an alarm. Thanks to amacs you are always on the safe side as alarm messages can be transmitted via e-mail or onto a mobile phone. A chronological alarm statistic allows to detect and trace back frequent disturbances. Over special event-filters, it is possible to select specific „events“ such as production problems or climate alarms. The alarm statistics also serve as a farm logbook.



Analysis and visualisation of all house and production data

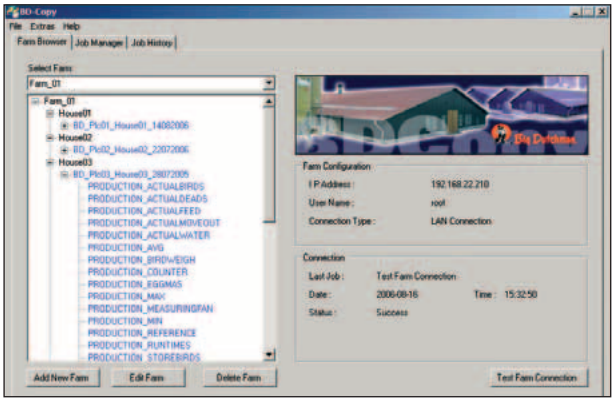




He who gathers data knows more than others! amacs collects a great variety of data, which can easily and rapidly be analysed at your office PC. Feed conversion, laying performance, mortality, bird weighing, operating hours of the fans or the entire climate control can be visualised in **graphs and tables**. All data can be freely combined and visualised in curve form on the screen by simple drag & drop.

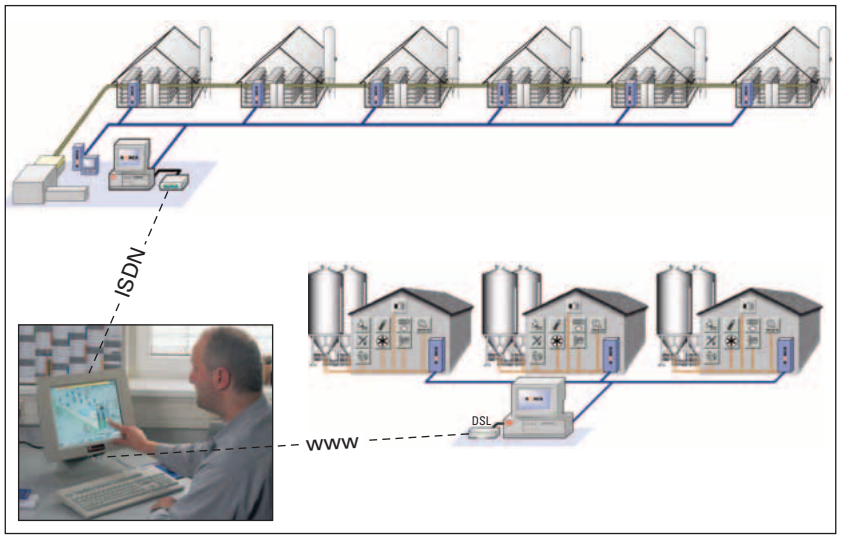
Farm-specific evaluations with BD-Copy for Windows

BD-Copy is a data base conversion programme. Thanks to this software specially developed by Big Dutchman, you can easily import your amacs data into all traditional Microsoft-Office applications, such as Excel or Access and thus create customised evaluations and diagrams. Furthermore, it is possible to activate an automatic download of farm data at a feely definable time.
If you require assistance regarding the house or farm-spanning evaluations of your data, Big Dutchman will be happy to assist you setting up everything according to your requirements (optional).



Additional excellent features that amacs has to offer

Remote-access to data and settings over ISDN or internet



Through remote access via ISDN or internet you can keep an eye on your farm at any time – even from your living room.
Or maybe you need direct assistance?
NO PROBLEM as our amacs specialists can simply access your Farm Controller and are thus able to help you right away.

Let amacs help you to stay informed!
Precise and immediate production information allows faster and more accurate response, which yields optimum results.

Use of a network camera for transmission of pictures directly from the house

The use of a network camera, suitable for in-house use, allows the transmission of live-pictures from the house to the Farm Controller, using the Ethernet, or directly to the PC in your office, using a browser. Thus you can keep track of everything that happens inside the houses also on a visual basis.

The remote-controlled camera is placed in a fracture-proof casing made of Plexiglas and transmits pictures onto the Farm Controller or onto your PC. It can simply be mounted to the wall or to the ceiling.

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Technical details subject to change. e 9/2006