



Big Dutchman®



amacs

The Agro Management and Control System for modern broiler growing and broiler breeder management

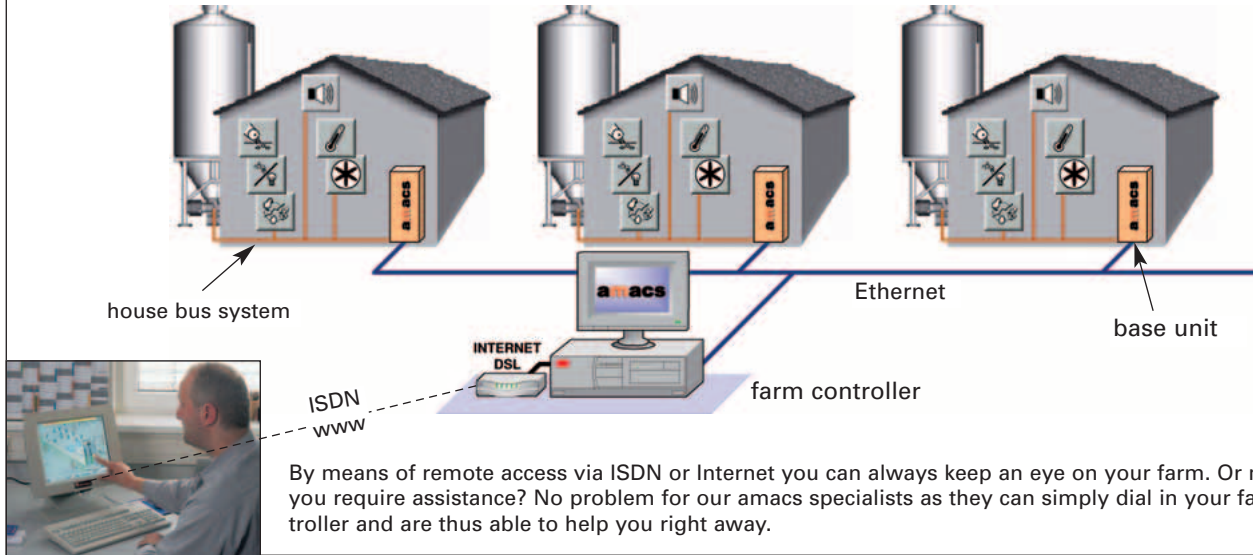
amacs – the Agro Management and Control System for ongoing data collection

amacs is a new control system for modern broiler growing and broiler breeder management. The amacs software is based on the latest internet technology. amacs has a modular design and can be used for small and large houses alike as it can be adapted to the individual situation on a farm. amacs allows for ongoing data collection, real-time control and monitoring of individual barns or entire

farm complexes – all this from virtually any location in the world.

Customized visualization and graphical display of all data and results, as well as transmission of live images directly from the barn are additional advantages. Alarm messages transmitted via e-mail or as text message to a mobile phone are, of course, also part of the performance range of amacs.

Use of network technology, modern communications technology and remote access

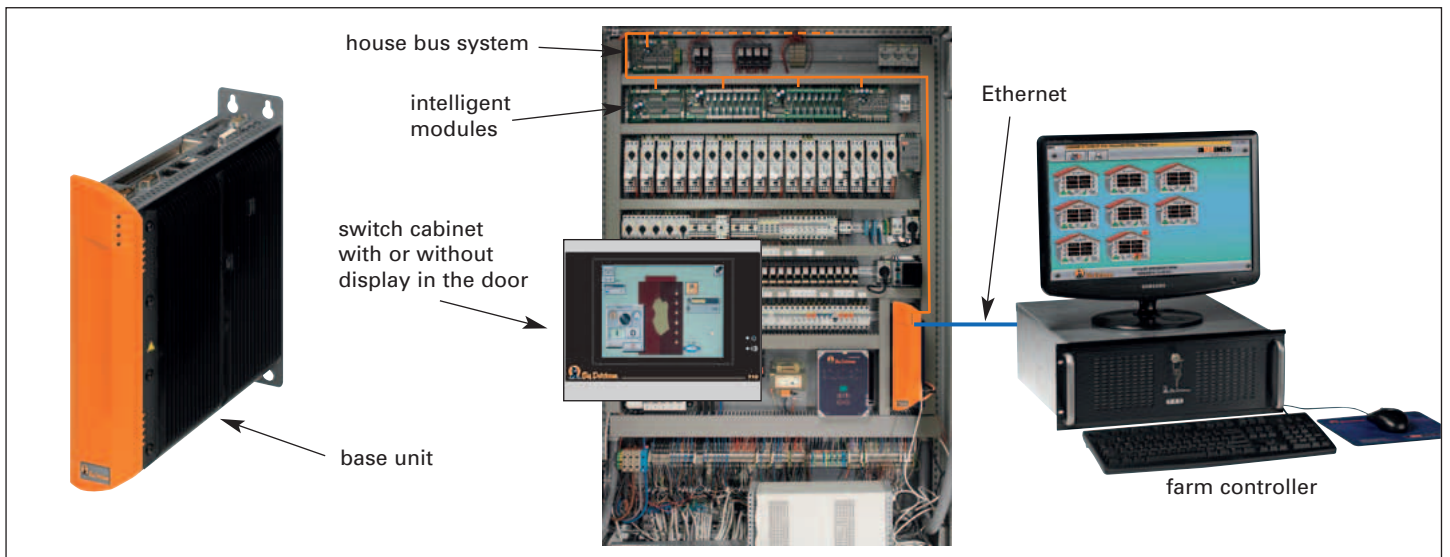


amacs – Hardware

The **hardware** includes one base unit per house and up to seven different intelligent modules for connection of sensors and actuation of motors. The modules communicate with each other by means of a house bus system. Depending on the house size and functional range, the modules are installed in one or more custom-built switch cabinets.

The base unit is equipped with connections for the











house bus system and the farm network and is optionally available with a 10" colour touch-screen for on-site operation. The individual base units are constantly in contact with the farm controller. All data can be accessed by means of a modem via telephone or internet connection from the PC in the farmer's office.



amacs, real-time control and monitoring of broiler growing and breeder management

amacs – Software: main screen shows overview of all connected houses



-  setting and control of house environment
-  setting and control of feeding, feed weighing
-  setting and control of water and light program
-  production and bird management, evaluation of production data, bird weighing
-  freely configurable timers
-  display and listing of current alarms
-  diagrammatic visualization of data
-  live images from the inside of the house by means of a camera
-  current system status
-  freely configurable meters e.g. for electricity

The start page of the farm controller shows an overview of all connected houses. Each area can be accessed over the icons displayed in each house or the function keys.

Functional area Climate with customized illustration



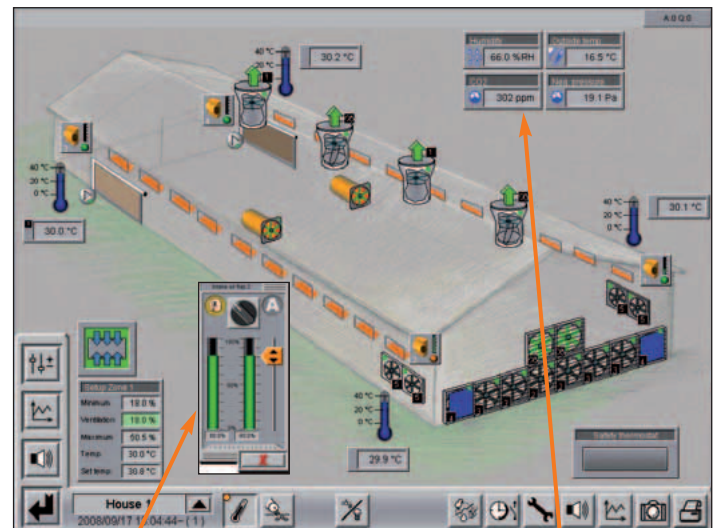
The **functional area climate** includes temperature control over fresh and exhaust air as well as heating and cooling. amacs determines the degree of ventilation by means of sensors which measure the outside and inside temperatures as well as humidity. This allows controlling traditional ventilation systems – from cross ventilation to tunnel ventilation.

On hot summer days a cooling system may be needed. amacs controls the installed system – RainMaker or Fogging Cooler – not only based on the temperature but also based on the current humidity.

It is furthermore possible to connect gas sensors for example for CO₂ or NH₃. Over the new CO₂ sensor minimum ventilation can be controlled on the basis of the CO₂ level. This ensures optimum air conditions inside the house and can help to reduce heating costs.

Other additional features that amacs provides for optimum climate control:

- indication of amount of exhaust air in m³ per hour and bird “principle of real air”;
- temperature regulation via band width (P-band regulation) or via precise PID-control;
- 2-zone regulation of house climate;
- active negative pressure regulation for side and tunnel ventilation;
- minimum ventilation based on outside temperature;
- switch-over from side to tunnel mode based on the age of the birds and the outside temperature;



When using remote access, amacs allows you, for example, to manually adjust fans or servomotors over your home PC without ever having to enter your barn.



CO₂ sensor

- memory function for winterproof covered fans;
- operating hours optimized activation of the fans.

Functional area Production

The large **functional area production** comprises the entire feeding management, including feed registration and silo management.

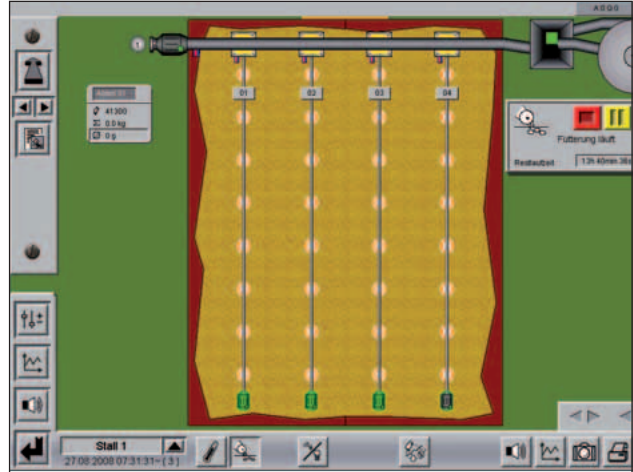
Other parts of this functional area are light regulation, water consumption and alarms as well as livestock management.

... Broiler feeding management



Feed supply is one of the most important part of the functional area production. amacs allows for determination of the feed consumption per bird and day at any time.

The freely programmable feeding manager allows controlling the feed intake automatically or manually. The feed consumption can be determined by means of an electronic feed scale, impulse scale or silo scale. With a weighed day silo or batch weigher the feed mix can be prepared from up to 3 feed components over pre-determined recipes.



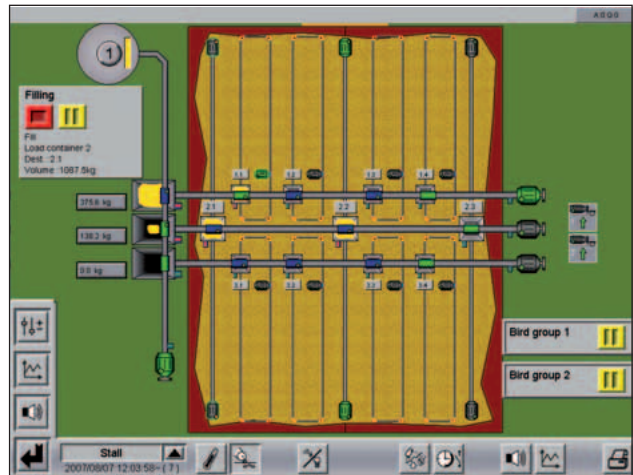
... Broiler breeder feeding management



When feed valves are used, amacs allows for target-oriented feed proportioning for broiler breeders. It is possible to control up to 48 targets with up to 4 cross augers.

Every target (feed reservoir, hopper etc.) can be assigned to a bird group. It is therefore possible to register the feed consumption for up to 12 bird groups per house and thus determine the feed portions based on the age of the birds.

amacs is also able to control a low-maintenance batch scale. Since the feed lines can be filled when they are suspended there is no need for a large hopper. If desired, the feed lines can be lowered separately for females and males.

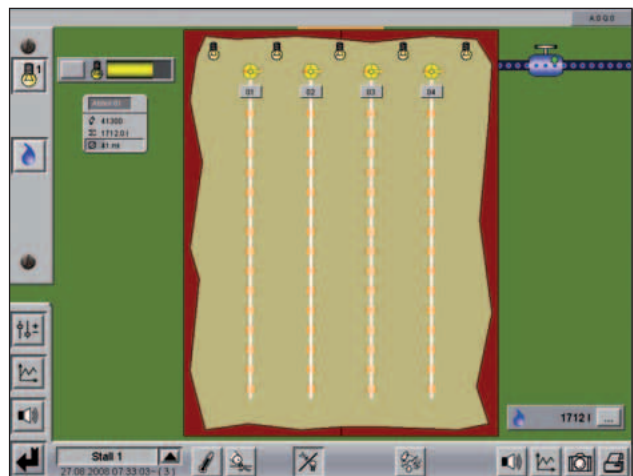


... Water supply and light control

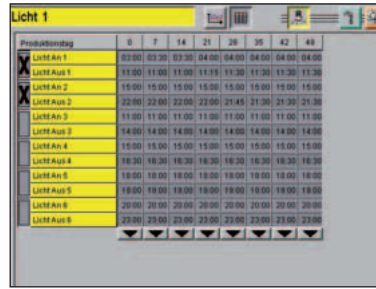


Optimum **water supply** is a decisive factor for high growth rates. By means of electronic water meters, amacs can register the water consumption in litres total or in ml/day and bird. Water consumption can be controlled by means of a water meter or a timer.

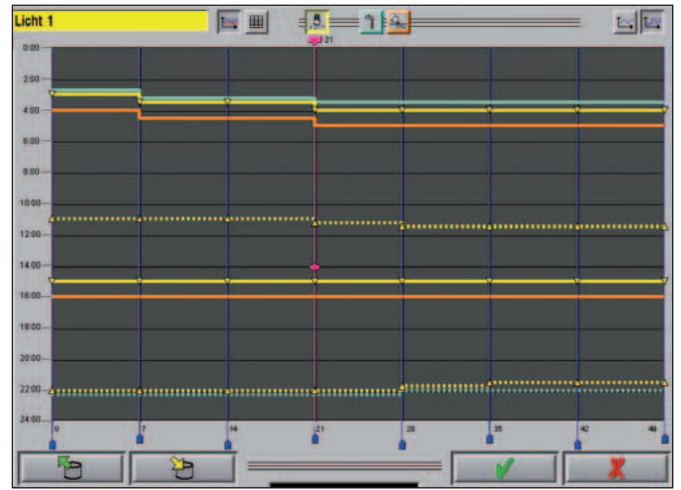
An ideal **lighting schedule** greatly affects the behavior and feed conversion of the birds. Thanks to a freely programmable timer, the dimmer function and a sunrise/sunset simulation any type of light program can be realized. A light sensor allows active (real) light control.



The clearly arranged **graphical production planner** helps to determine the activation times for feed, water and light timers on the basis of the birds' age. The memory function permits to save proven settings or transfer them to other houses in a matter of seconds. It is therefore possible to easily plan the entire growing period and visualize it in **graphical or tabular** form.



Produktionstag	0	7	14	21	28	35	42	49
Licht Aus 1	03:00	03:30	03:30	04:00	04:00	04:00	04:00	04:00
Licht Aus 2	11:00	11:00	11:00	11:15	11:30	11:30	11:30	11:30
Licht Aus 3	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00
Licht Aus 4	22:00	22:00	22:00	21:45	21:30	21:30	21:30	21:30
Licht Aus 5	11:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00
Licht Aus 6	14:00	14:00	14:00	14:00	14:00	14:00	14:00	14:00
Licht Aus 7	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00
Licht Aus 8	18:00	18:00	18:00	18:00	18:00	18:00	18:00	18:00
Licht Aus 9	18:00	18:00	18:00	18:00	18:00	18:00	18:00	18:00
Licht Aus 10	20:00	20:00	20:00	20:00	20:00	20:00	20:00	20:00
Licht Aus 11	23:00	23:00	23:00	23:00	23:00	23:00	23:00	23:00

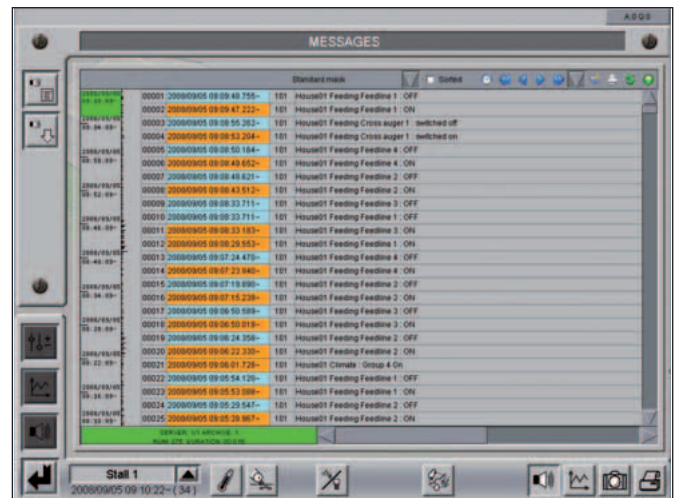


Alarm messages and message statistics – on the safe side, thanks to amacs

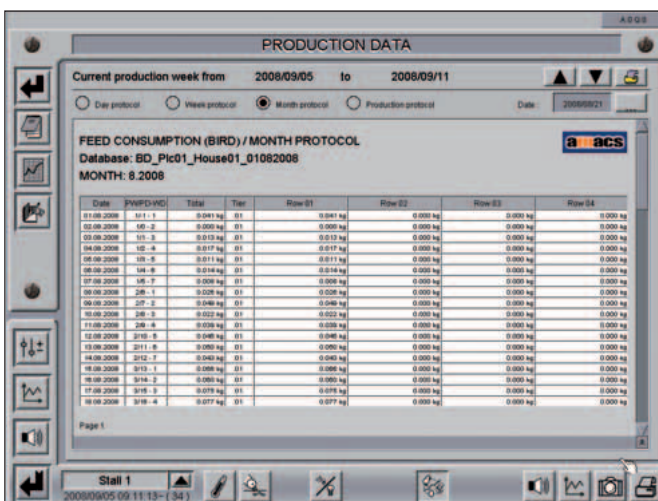


Power failure, deviation in temperature, water and feed consumption, as well as minimum silo filling are important reasons for the activation of an alarm.

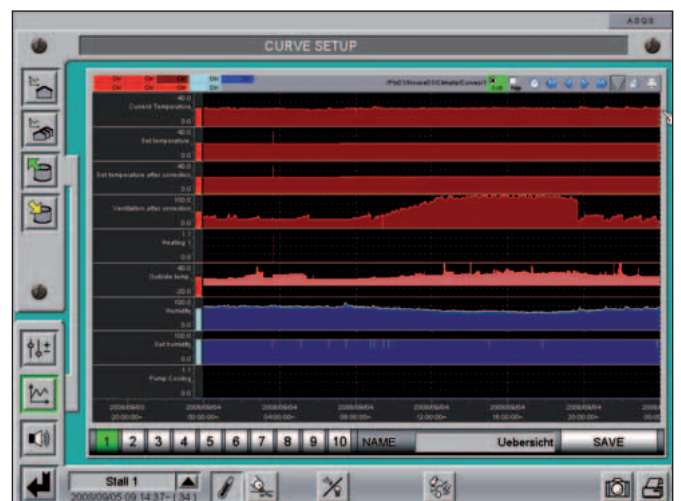
Thanks to amacs you are always on the safe side as alarm messages can also be transmitted via e-mail or to a mobile phone. With a modem or internet connection to the barn the producer can get an overview of the situation inside the barn at any time. Thanks to chronological message statistics, it is possible to detect and trace back recurrent disturbances. Special event filters make it possible to filter for certain "events" such as production problems or climate alarms. The alarm statistics also serve as a farm logbook.



Tabular and graphical visualization of all recorded data



Date	PROF/CHC	Total	Flar	Row 01	Row 02	Row 03	Row 04
03.08.2008	501-1	0.041 kg	01	0.041 kg	0.000 kg	0.000 kg	0.000 kg
03.08.2008	501-2	0.000 kg	01	0.000 kg	0.000 kg	0.000 kg	0.000 kg
03.08.2008	501-3	0.013 kg	01	0.013 kg	0.000 kg	0.000 kg	0.000 kg
04.08.2008	501-4	0.017 kg	01	0.017 kg	0.000 kg	0.000 kg	0.000 kg
05.08.2008	501-5	0.011 kg	01	0.011 kg	0.000 kg	0.000 kg	0.000 kg
06.08.2008	501-6	0.014 kg	01	0.014 kg	0.000 kg	0.000 kg	0.000 kg
07.08.2008	501-7	0.008 kg	01	0.008 kg	0.000 kg	0.000 kg	0.000 kg
08.08.2008	501-1	0.028 kg	01	0.028 kg	0.000 kg	0.000 kg	0.000 kg
09.08.2008	501-2	0.040 kg	01	0.040 kg	0.000 kg	0.000 kg	0.000 kg
10.08.2008	501-3	0.022 kg	01	0.022 kg	0.000 kg	0.000 kg	0.000 kg
11.08.2008	501-4	0.039 kg	01	0.039 kg	0.000 kg	0.000 kg	0.000 kg
12.08.2008	501-5	0.045 kg	01	0.045 kg	0.000 kg	0.000 kg	0.000 kg
13.08.2008	501-6	0.062 kg	01	0.062 kg	0.000 kg	0.000 kg	0.000 kg
14.08.2008	501-7	0.040 kg	01	0.040 kg	0.000 kg	0.000 kg	0.000 kg
15.08.2008	501-1	0.068 kg	01	0.068 kg	0.000 kg	0.000 kg	0.000 kg
16.08.2008	501-2	0.080 kg	01	0.080 kg	0.000 kg	0.000 kg	0.000 kg
17.08.2008	501-3	0.079 kg	01	0.079 kg	0.000 kg	0.000 kg	0.000 kg
18.08.2008	501-4	0.077 kg	01	0.077 kg	0.000 kg	0.000 kg	0.000 kg



Good data management keeps you ahead of the game! amacs records a great variety of data which can be analyzed rapidly at your office PC. Feed conversion, mortality, weight data,

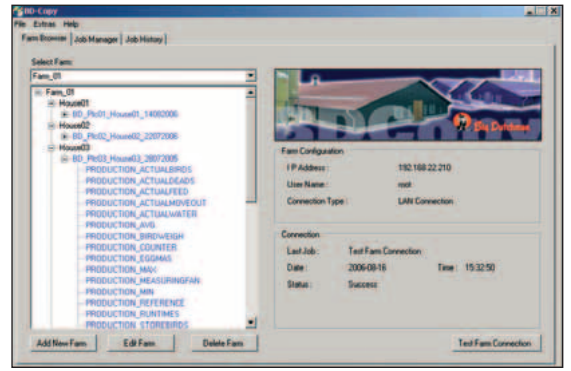


operating hours of the fans or the entire climate control can be visualized in **graphs and tables**. All data can be freely combined and visualized in curve form on the screen by simple drag&drop.

Farm-specific evaluations with BD-Copy for Windows

BD-Copy is a data base conversion program for easy import of amacs data into standard Microsoft Office applications such as Excel or Access. It is thus possible to create customized analyses and diagrams of farm data. Furthermore it is possible to activate an automatic download at a freely selectable time.

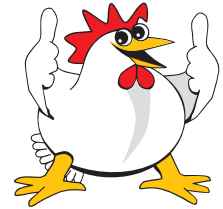
If you require assistance regarding the creation of house or comprehensive farm data evaluations, Big Dutchman will be happy to assist you in setting up the system according to your requirements (optional).



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



Let amacs help you to keep track of your farm. Precise and immediate production information provides you with the opportunity to react adequately and more quickly and thus allows you to achieve optimum production yield.



A network camera suitable for in-house use permits to transmit images directly from the house over the Ethernet to the farm controller, or, by means of a browser, to the office PC. This way you can virtually keep an eye on everything that happens inside the barn.

The remote-controlled camera is installed in a fracture-proof Plexiglas housing and can simply be fixed to the wall or to the ceiling.

Important advantages at a glance

- real-time monitoring and control of the production units;
- central data storage and analyses per bird, comparison with reference data stored in the system;
- visualization of the actual situation inside the house at any time on the farm controller;
- high degree of flexibility thanks to different interfaces for individual analysis of operational results;
- password-protected remote access to data and settings via ISDN or DSL/internet;
- extremely reliable, Linux-based system with independent control inside the barn; if modern fiber optic network technology is used, malfunctions caused by overvoltage can be avoided;
- alarm system via e-mail;
- integrated protocol and report system;
- change of language by one simple click.



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