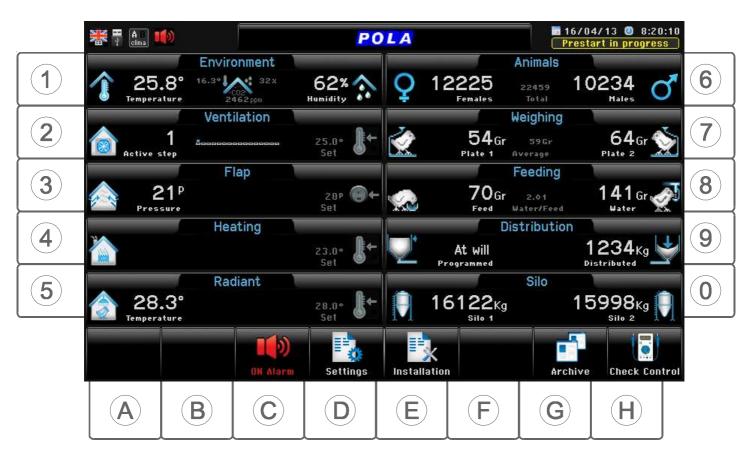


the easiest way to improve your livestock performances

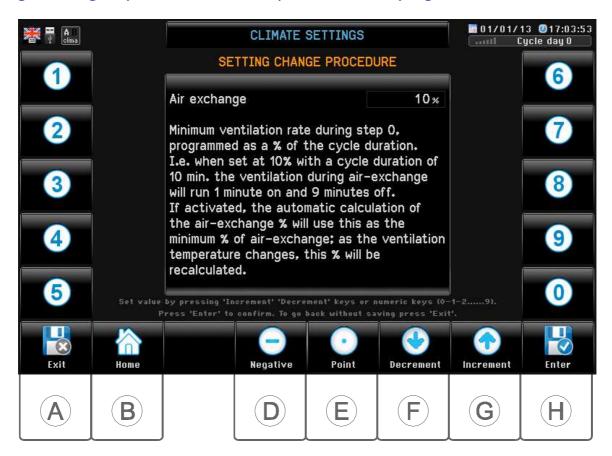


Qfarm makes the program user friendly



Wide display screen (7") with WVGA 800x480 dots resolution.

Each programming step comes with its help screen so the program has a "built in" handbook.



Qfarm can manage both environmental control and feeding

The main **Qfarm** feature is that you can fully set and customize the house working configuration.

This is easily done connecting the **Qfarm** to a PC thru the **Qfarm Lab** software.

The **Qfarm** can manage up to 112 inputs, 108 on/off outputs, N. 44 0/10V outputs.

Qfarm Lab programming software has a step-by-step procedure with graphics and notes which enables you to define and configure the working parameters of the house.

Once the configuration has been completed, **Qfarm Lab** will print out the list of the components along with their wiring diagram.

Each complete house configuration is saved to a "program file" which is stored in the PC and transferred to **Qfarm** by USB pen drive. Program files can be recalled from **Qfarm** and edited at any time.

The program settings (temperature, relative humidity, etc.) and all the settings which are related to the house functionning are directly set by the **Qfarm.**

The **Qfarm** programming is assisted by HELP screenshots; while programming only the variables previously set by PC are shown. (i.e. If Heat 1 is the only option selected, the further heating options will not be shown. Same rule applies to flaps, cooling, ventilation, etc.).

Summing up:

- The house configuration (number and type of Heaters, flaps, ventilators, etc.) is set by PC and uploaded to **Qfarm** via the **Qfarm Lab** software.
- The program settings related to the functionning of the system (temperature set, Relative Humidity set, etc.) is done directly on the **Qfarm**.

Data transfer

Communication with external world is by USB pen drive.

The main programming parameters, the archive downloads and software updates can be made by PC connection via the USB pen drive.





USB socket



Ventilation

Up to 16 x independent and fully configurable ventilation steps according to following typical options:

- On / Off.
- Fan speed control by transformer.
- Proportional by 0 -10 V for triac / inverter speed control.
- Or a combinations of the three systems above.

The calculation of the minimum ventilation can be handled in two separate ways:

Normal Ventilation

Below a required minimum value ventilation is handled by timer to ensure minimum ventilation rate. If indoor temperature becomes higher, ventilation is increased accordingly. In case of On-Off ventilation on step 0, air changes can be activated. They are automatically calculated by timer and optimized to give minimum heating consumption and optimal air exchange.

Working fans position can also be cyclically rotated during the air changes (during normal working conditions the last fan can be cyclically rotated).

M³/h/Kg Ventilation

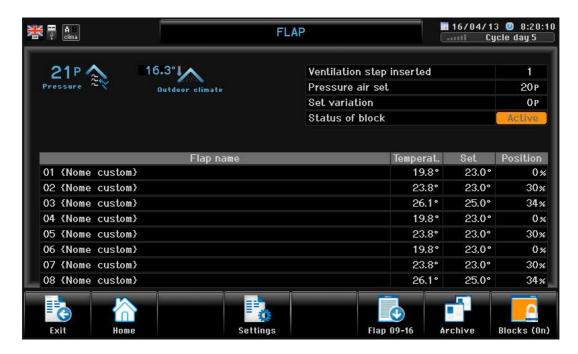
Below a required minimum value ventilation is handled according to M³/h/kg so according to number of birds, weight of birds and the M³/hour per Kg live weight parameter.

While working by this mode, number of birds must be kept strictly updated and at cycle start up all relevant parameters must be inputed.

When fans are working in on-off mode, the system operates them by timer by cyclically shifting thru the fans of each step.

In case fans are working by 0-10V regulation, the system works in "saw tooth" mode by increasing the fan speed gradually to reach 100% and then switching to the next fan (keeping previous fan at full speed).

This sytem particularly fits small diameter ventilation systems as one fan only is working by speed regulation. Fans can also be operated cyclically.



Air Flaps

Up to 16 x independent air flaps according to following typical options:

Dynamic ventilation systems

- Pressure drop (thru the **DP59/W** pressure drop control module).
- Pressure drop + potentiometer to align air inlets to same degree of opening (thru the pressure drop control module + potentiometer).
- Delta T= depressiometer with potentiometer alignment of the flaps and with zone temperature probe (the Flap is controlled by the depressiometer and the temperature probe acts if, between two or more Flaps, the temperature difference exceeds a certain value of Delta t).
- Proportional according to ventilation steps (while increasing ventilation, air inlet open proportionally) with potentiometer.

Natural ventilation systems

- Floating or Derivative (no potentiometer).
- Proportional (by potentiometer or by 0 -10V).
- Aligned (with flaps feedback potentiometer): it allows to align this flap to another flap controlled by potentiometer.

Emergency:

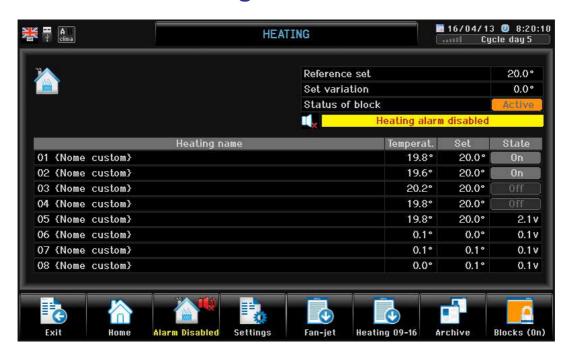
- Flap is closed in normal working conditions. It opens up only as emergency unit.

Cooling

Controls of 2 cooling systems by temperature and % RH.

Humidification

Humidification according to temperature and % RH.



Heating

- 16 ON-OFF or 0-10V heaters (also a combination of them up to 16 heaters).
- 4 Fan-jet destratificators
- 1 Modulant output radiant heater or 1 x two stages automatic ignition radiant heater.

Heat index

Qfarm can also work according to the heat index, which is related to the temperature "felt" by the birds (according to the Temperature - Relative Humidity correlation).

Average temperature value

Up to 4 probes can be connect to measure the indoor ventilation temperature.

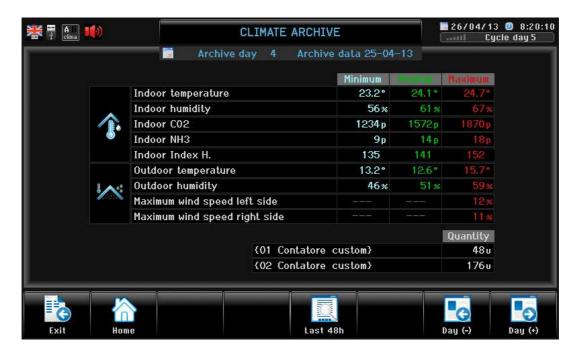
These probes, alongwith the heating and the flaps probes can be connected to create an "average" temperature value as a mix of the temperatures as recorded by the above probes.

Calendar

Heating and ventilation options can be set to run automatically according to the day of the batch.

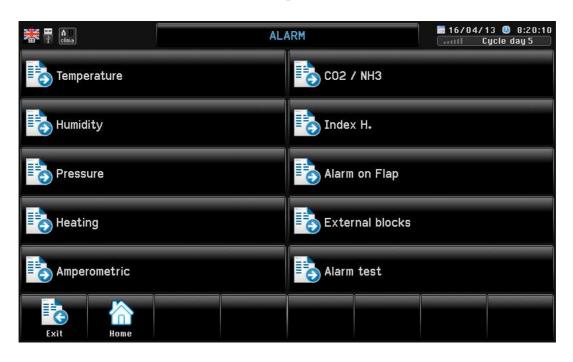
Password

Up to 2 password levels can be set by the system administrator so to prevent misuse of unit.





Qfarm can manage alarms control



Alarms

Temperature, humidity, air-pressure, C02-NH3, minimum amper absorption, recording all the alarm events (including alarm exclusions).

Alarm test

The general alarm output (built-in on **Qfarm**) can be tested both manually and automatically.

The **manual test** allows for example, to test the alarms sirens of each shed.

In this case the manual test duration will be set at smaller value than the delay in sending the signal to the automatic phone dialer.

The automatic test allows to test the whole alarm transmission circuit.

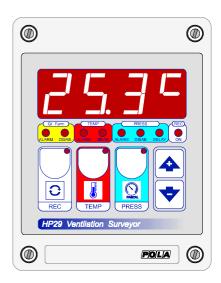
In this case the automatic test duration will be set at longer value than the delay in sending the signal to the automatic phone dialer.

It's possible to set the days of the week when to perform the automatic test.

HP29/W independent alarm

Independent ventilation alarm unit which is a supplementary source of the following alarm:

- Minimum and maximum temperature.
- Minimum and maximum air-pressure.
- Check of **GT Farm** correct functions by a signal sent every 6 min (watchdog).



Qfarm and the 2007/43/CE Directive (animal wellness)

Besides the complete management of the climate (fans, air inlets, heating and cooling systems) and the feed supply some of the **Qfarm** features are already oriented to comply with "animal wellness" norms.

- > **Light control**. Management of darkness periods.
- > **Birds archive** (present, dead, taken away for each day of cycle).

> "Daily inspections" archive

by keyboard confirmation the system archives data and hours of the operator inspection, so that the 2 mandatory daily inspections are recorded.



Moreover, to have higher densities:

- > Alarm system. In case of computer or electronic devices failures (HP29/W).
- > Conditioning of ventilation according to relative humidity, to make sure relative humidity does not go beyond a critical value.

Besides the daily archives of all day of cycle there are archives of the last 48 hours (measurements every 30 min) of:

- Indoor and Outdoor temperature
- Indoor and outdoor Relative Humidity
- CO2 and NH3 outdoor.
- > Air changes according to the M3/H/Kg parameter.

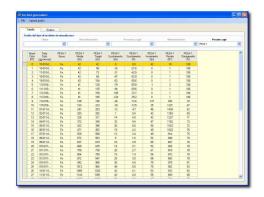
 Air changes and minimum ventilation rate can be calculated according to the number of birds and their weight and the M3/h/Kg parameter.



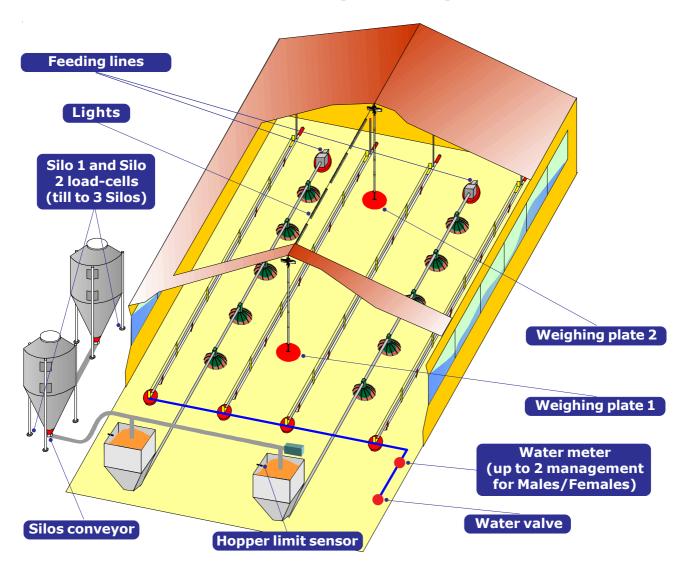


> Cycle data Archive.

All significant data can be archived and exported into various formats (i.e. Excel format).







A daily quantity of feed (limited or unlimited) is distributed, according to the feeding curve at preset times of day.

Feed management can be done either by the silos load cells (till to 3 silos) or by volumetric system (when silos have no load cells) by converting the auger working time into Kg, or by an external weighing system (i.e. a mechanical weigher).

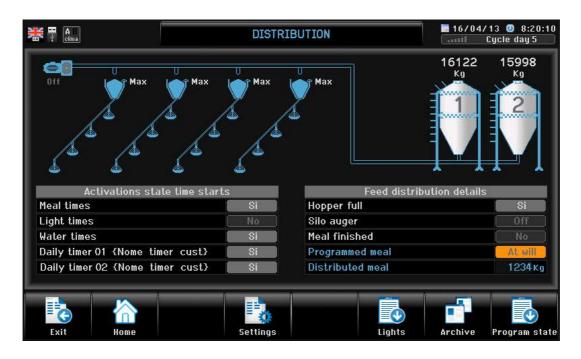
Feed distribution can be done in 2 ways:

- **Unlimited**. NO limit of weight and time. **Qfarm** manages the feed distribution, records all relevant feeding data and the birds weighings.
- Limited. Distribution is done at preset times according to preset parameters (gr./ birds x nr. of birds). This operation is performed until the programmed daily food weight has been reached.

The program records the number of birds so that the daily meal curve is set in gr/birds (the curve can be temporarely changed without loosing original data and settings of original curve).

The program also manages the water distribution controlling the water-meter.

In the archives (managed on a daily basis) are recorded all the data related to the day meal, bird weight, silos upload/download and birds performances.



Animals accounting

Daily recording of inputed, taken away, dead birds.

Birds weighing

Bird weighing is performed by the 2 weighing plates (1 plate available as option).

Feed

Feed management can be done either by the silos load cells (till to 3 silos) or by volumetric system (when silos have no load cells) by converting the auger working time into Kg. Silo conveyor command, feeding line, mangers lift up and down, light, water.

Water management

Water distribution is programmable at preset times and consumption is recorded by the water meter. Water level is kept under constant control to prevent problems.

Lights

Qfarm can control light with control up to 8 lights (by On / off output and with dawn / sunset 0-10V output), can also control the opening and closing of hens nests.





Silos weighing: How to control the feed weight. By volumetric or by load cell system?

Volumetric system

This systems allows the feed weight control by counting the working time of the silos auger and converting it in Kg of feed. This requires a calibration procedure (to be run every time the feed density is different from previous supplies):

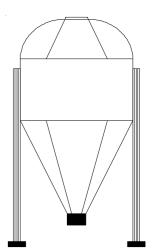
Qfarm runs the auger by 30 sec then check how many Kg were downloaded and convert the feed/time ration into a "K" factor.

Advantages:

- No load cells are required.

Disadvantages:

- The accuracy of system depends on the accuracy of calibration and K factor.
- The alarm "Stock/meals" (how many meals are contained in the silos) cannot be activated.



Load cells System

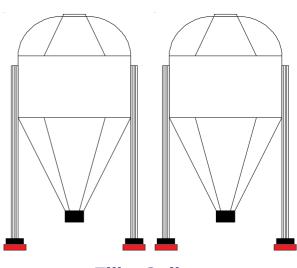
This system makes a direct measurement of feed contained in the silos by the load cell (till to 3 silos) which are located under each silos leg.

Advantages:

- Total quantity of feed in the silos can be displayed weighing measurement is very accurate Alarm "Stock/meals" can be activated.

Disadvantages

- Load cells installation is required.



Till to 3 silos

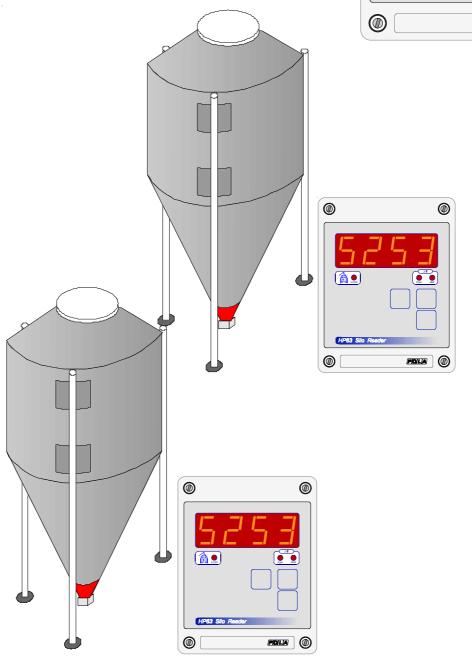
Load cells System

Till to 3 silos

HP63/W Silos weight repeater

HP63/W is a repeater of the silos weight (IP55 insulated unit) so the value can be easily read near the silos. It has been designed for outdoor installation and 1 units can be connected for each silos (till to 3 silos). It can be connected to the 485 weight bus, available on the **TLC2** loadcells amplifier located near the silos.





Light management for broilers

Specific features of this light system are:

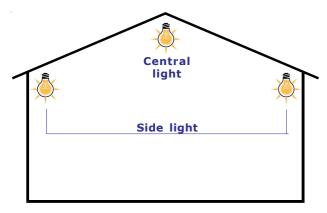
Command 1 ambient lights with on/off output.

Command 1 ambient lights with dawn/sunset function (by 0-10V output).

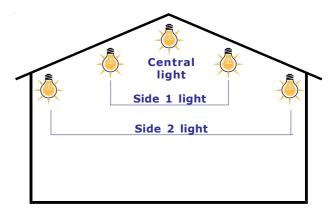
Light management for ground hens

Command up to 8 ambient lights with dawn/sunset function (by 0-10V output). Command opening / closing nests.

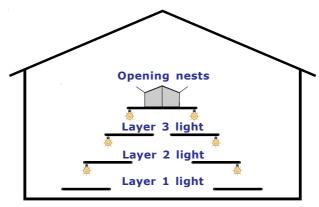
Command eggs collection timer (free timer 1).



Command 2 ambient lights with dawn/sunset function



Command 3 ambient lights with dawn/sunset function



Command 3 layers lights with on/off output and command opening / closing nests

Fast period

This procedure allows to program in advance day and hours of fast starting. This is usually done when reducing number of birds or on last day of cycle.

At fast start up, silos spyral and feeding lines are switched off. Lights are switched on (if required). Water is turned on (during off hours). After some time feeding line can be started on again for some time to empty the system.

Medicated water

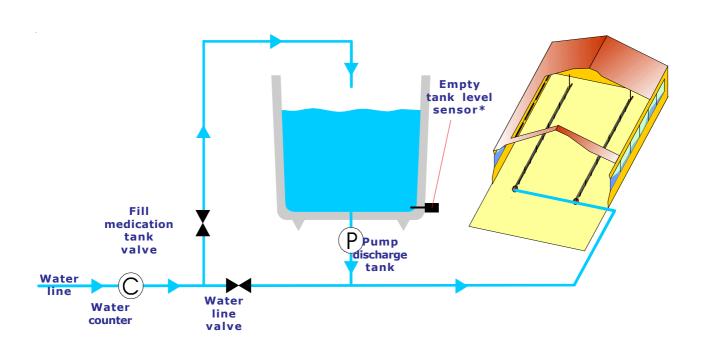
Setting of medication:

The procedure sets the liters of medicated water and confirms ther start up of medication.

Medicated working:

when starting the medication mode, the **Water line** valve will be closed and the **Fill Medication tank** is kept open until the tank has reached the required level.

The water pump works until is switched off by the tank level sensor (**Sensor medication tank**) then the pump (**Empty Medication tank**) is switched off and the **Water line** valve is opened again.



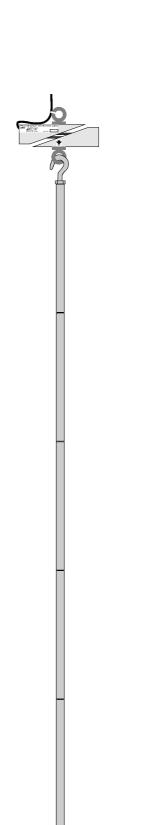
Why an oscillating weighing plate?

Better weighing accuracy:

- The plate can be adjusted to be close to the litter so birds a can easily jump on it.
- The oscillating plate prevents birds to stay too long on the plate (or even to get sleep on it) riducing the number of daily measurements.
- The multiple weight system captures all the birds which are on the plate.
- The round plate (diam 76 for chicks and 98 for turkeys) makes easy to birds to jump on it.

Less installation and maintenance problems:

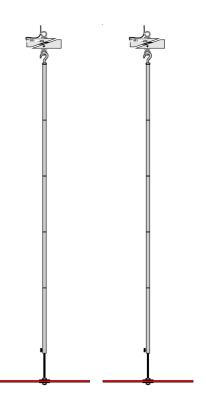
- The connecting cable is NOT on the floor, preventing wear off and cuttings.
- The load cell is well protected from moisture and dust.
- The mechanical part of the weighing system is easily removed at end of cycle.
- It well visible in the shed, preventing bumps and crashes.
- Any height can be reached by adding extensions.
- Load cell is easily at reach and easy to be serviced.

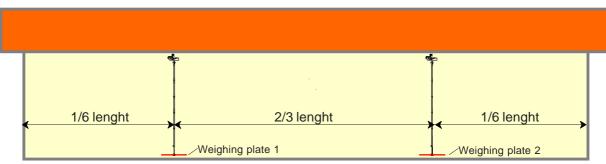


Why two plates per shed?

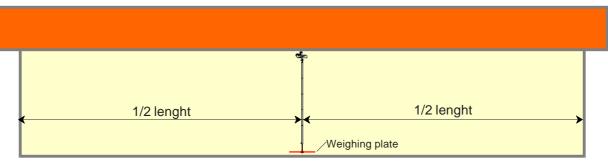
Even if one good weighing plate system can do the work, still there are some good reasons to install two plates:

- In case of mixed cycle (males and females) you get an accurate average measurement all along the shed.
 - When the females are taken away, the second plate is automatically converted into a 2nd males plate so the measurement is more accurate as males birds which take the place of females are already used to the plate.
- In a "All males" cycle (All females) 2 plates reduce the weight difference which exists from different sectors of shed.





When 2 plates are installed we advise to locate them as per above figure

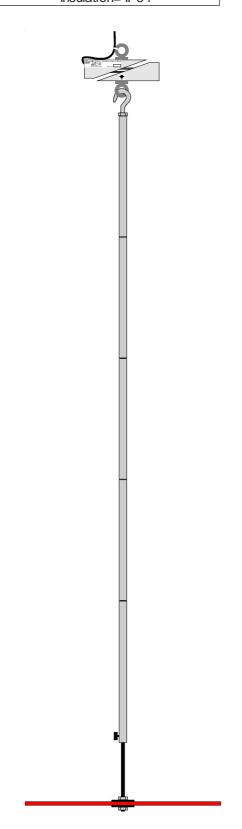


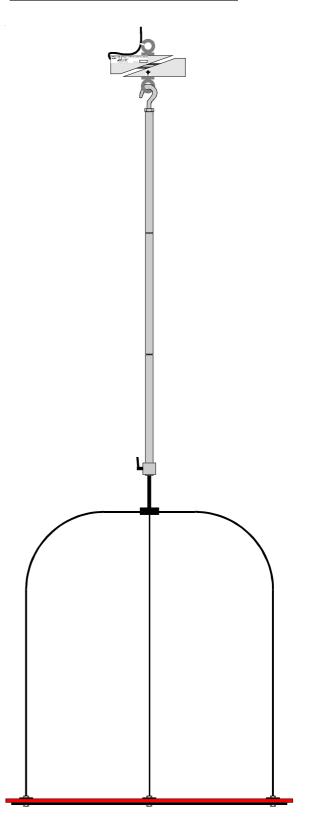
When 1 plate is installed, we advise to install it in the middle of shed

Weighing plate

PWS1s plate for chicks
Load capacity= 30 Kg
Plate diameter= 76 cm
Lenght= 310 cm
Insulation= IP54

PWS2 plate for turkeys
Load capacity= 30 Kg
Plate diameter= 98cm
Lenght= 380 cm
Insulation= IP54















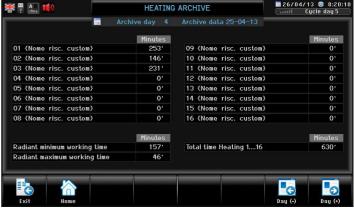






Qfarm stores in archives all the data of the cycle



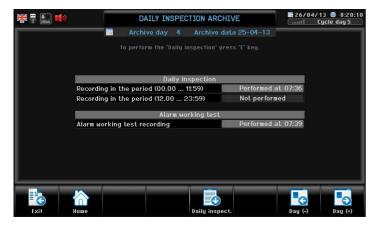














Qfarm stores in archives all the data of the cycle

Data transfert

Communication with external world is by USB pen drive.

The main programming parameters, the archive downloads and software updates can be made by PC connection via the USB pen drive.

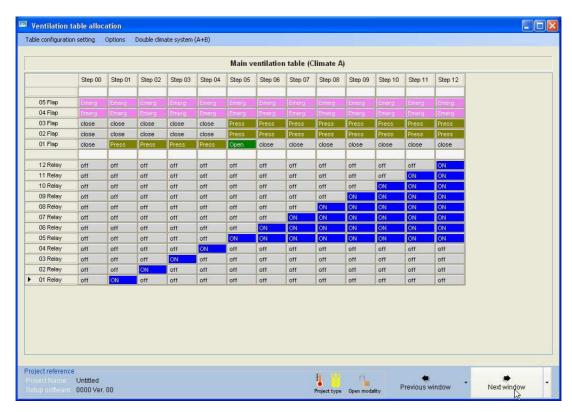




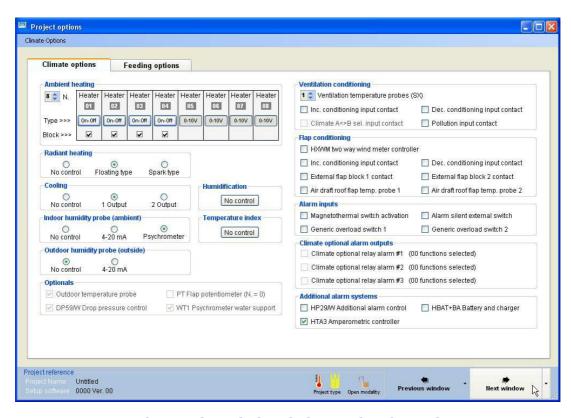


USB socket

Configuration by P.C.



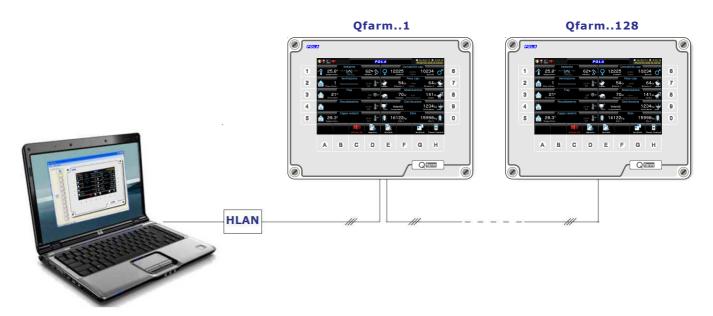
Ventilation's table (Qfarm Lab software)



Plant option window (Qfarm Lab software)

The Settings which characterize the system (number and type of heating, number and type of flaps, ventilation's type, specifications of the feeding system, etc.) will be setted from PC and uploaded on **Qfarm** module by the **Qfarm Lab** software.

Network connection



Some typical screenshots of cycle analysis are available on network program.

