

# MCC-10 CLIMATE COMPUTER FOR PIGS

## Type MCC-10

**OPTIGON®**

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**H&F Electronics B.V.**

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### Features

- \* Climate computer for up to 5 rooms
- \* Very accurate control
- \* Optimum price/performance ratio
- \* General to use for new buildings and renovation as well
- \* Easy to operate
- \* Multiple control features (self selectable)
- \* Useable for all types of ventilation: natural, mechanical, central exhausting

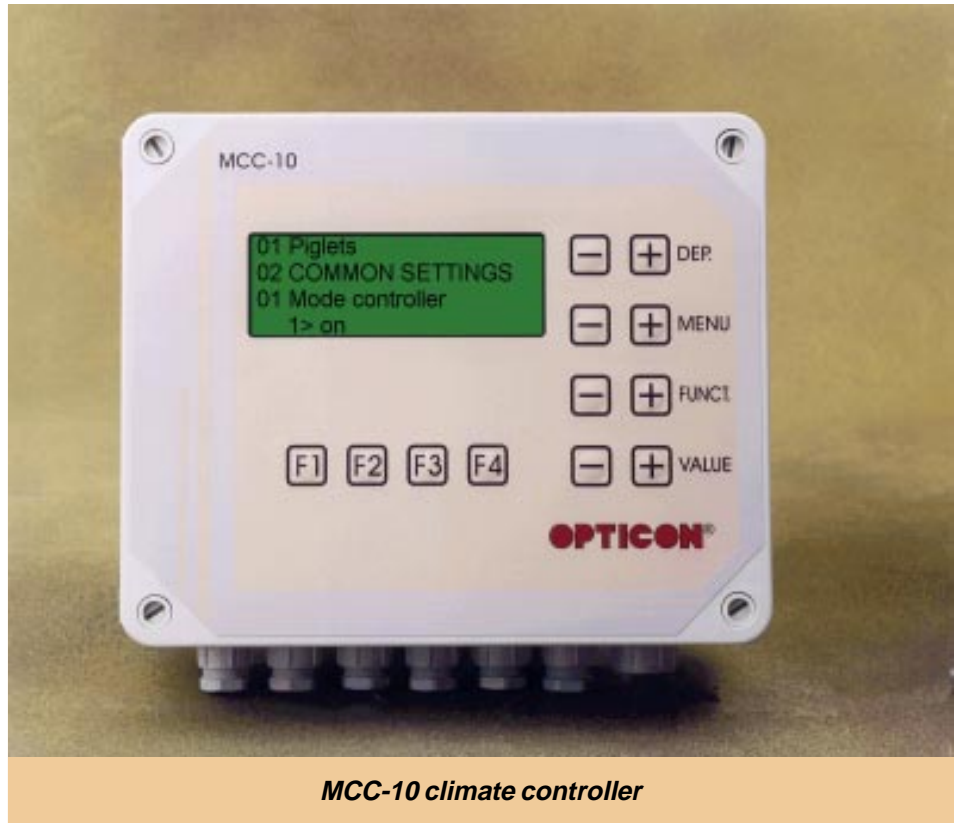
### OPTIGON MCC-10 for the perfect climate in your pig house !

OPTIGON climate controls take care of a healthy and efficient growth of your pigs. The climate in the rooms will be controlled in conjunction with the latest advanced technology according the EMC regulations of the European Community. Flexibility of the MCC-10 shows how easy the unit can be integrated with other Opticon controls. If desired, more MCC-10's can be connected to a PC. The communication program 'OptiLink for Windows' gives you easy access to all the data both via local pc on site or remote.

### Applications:

The MCC-10 can be used with conventional ventilation systems where the dirty air will be removed by means of one or more fans per room, e.g. at large finishing rooms. In this situation, 5 rooms can be controlled independently. Each room has several control functions like:

- \* Variable speed fan control (if used with rpm speed sensor or an airflow wheel, then max. 4 rooms)
  - \* Extra auxiliary fans
  - \* Room heating (on/off)
- In farrowing rooms, the MCC-10 can also be very useful.



**MCC-10 climate controller**

The same possibilities as above, provided that floor heating or creep heating (IR lamps) will be used. In that case, 2 rooms can be controlled with one MCC-10. To eliminate the effect of draught during cold weather situations, the MCC-10 can control automatic valves in the chimneys. This gives a much better control on your minimum ventilation.

### Operating made simple by your design.

The MCC-10 is provided with menu's including all the functions, which are necessary for each application. By using a special selection, you are able to

display only the necessary menus and functions for your specific application. In this way, you can reduce the list of menus and functions, as you prefer. Result: a 'tailor-made' climate computer with a large clear display with only relevant data.

### Ventilation

The computer controls the fans and air inlets in such a way that fresh air enters the building with the right amount. All based on actual measured temperatures, outside temperature, pressure and calculated ventilation.

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By using curves, several set points can be made which are the best for the pigs at that specific age. By doing so feed and energy cost will be reduced to a minimum.

#### **Natural ventilation**

To obtain the best results at natural ventilated houses, the air inlet flaps or curtains have to be controlled independently in zones. The MCC-10 has the possibility to control 6 flaps and 4 heating groups independently. For example: 2 flaps per side and 2 flaps in the ridge, or 3 flaps per side.

#### **Mechanical ventilation**

All the air will be exhausted through the chimneys, which are installed on the roof. The MCC-10 can control variable speed fans, on/off fans or a combination of both. When variable speed single-phase fans are used, we need extra power extension boxes (PEB-20). In the case of three phase fans, we control the capacity by using frequency controls. Larger pig houses can be split in several fan groups. Dampers in the chimneys control minimum ventilation and avoiding draught. The air inlets can be divided in more zones.



***Pigs like good environment***

#### **Negative pressure control**

All mechanical ventilated houses operate on pressure. The MCC-10 offers the possibility to control the pressure within a preset value over the total production cycle. The biggest advantage of this is that the flow pattern of the incoming air can be optimised for all seasons and all situations. In this way you avoid slow movement of cold incoming air, which drops immediately on the pigs with all the negative results.

#### **Central exhausting ventilation**

In this situation there is a group of variable fans which will be controlled to maintain a preset negative pressure in a central channel.



***Pig house with central ventilation***

The MCC-10 controls the central fans (with frequency controller) and the individual flaps per room.

The flap position is related to several set points and, if used, an airflow wheel. The advantage of such a system is that only one fan group has to be controlled. There is accurate minimum ventilation possible without any draught. And there is only one exhaust for the dirty air, which gives good possibilities to install an ammonia/dust cleaning units for clean environment.

#### **Heating**

Several ways of heating are possible. Ordinary on/off systems can be used like delta tubes or electrical heaters. Another way of controlling the heat supply is using proportional controlled heaters. In this situation the gas pressure will be controlled. For floor heating or infra red creep heating, separate outputs are available.

#### **Cooling**

Cooling can be done in different ways. A fogging installation can be activated based on temperature and/or relative humidity. The capacity of the cooling system will operate according an intelligent pulse width principle.

In areas where the outside humidity is very low, pad cooling can be used.

The MCC-10 has the ability to integrate with all these requirements.

#### **Sensors**

A large range of sensors can be connected to the MCC-10. The house temperature can be measured on several locations. By using the configuration mode, you can determine which sensors have effect on which controls like fan groups, flap motors or heaters. Of course there is an outside temperature and R.H. sensor, which will anticipate on the outside fluctuations. Also false temperature alarms will be eliminated by using an outside temperature sensor during warm weather conditions. In an efficient way, R.H. sensors inside and outside, keep the humidity level at the desired level. A pressure sensor can be installed to display the pressure in the house. Used in mechanical ventilated houses; the flow pattern of the incoming air can be optimised. To analyse the air quality, CO<sub>2</sub> and NH<sub>3</sub> sensors can be connected. To monitor the feed and water consumption, special water meters and feed counters can be attached.

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**Possibility to divide the in-and outputs over more houses**

**More houses controlled by one MCC-10**

The universal set-up of the MCC-10 allows the possibility to divide the in-and outputs over more houses. All settings and registrations are taking place completely separate.

**Central operation by PC**

Naturally the MCC-10 can be connected to a PC, even in a network. All kind of other OPTICON products, like the KRH-20 simple climate controller and the PMC-20 dry feed computer, can be connected in the same network. From your remote PC all settings and data can be changed and recorded. At the same time graphs can be produced to visualise the course of the date. Data will be stored automatically at preset intervals. The data can be imported in spreadsheets (e.g. Excel) for further analysing. At larger physical distances between control units and PC, and when no cables are allowed, then a radio modem is a solution. The maximum distance is appr. 800 metres. When this is not adequate, a GSM modem can be installed.

**Supplementary products**

A range of supplementary products are available to complete the installation. Such as end-stations to control actuators for air inlets or servomotors, end-stations to control fans and complete panel boxes.

**Light control**

The MCC-10 is provided with free programmable timers, which are able to control several individual light groups. These light groups can be simple on/off. But also dimmable groups are possible to simulate dawn to dusk situations.

**Feed and water**

Feed cost is by far the biggest expense on a pig farm. Therefore it is important to monitor the consumption. At the same time to supply the right amount at the right place. Using several programmable timers allow you to activate the feed lines. Water is important and a schedule can be programmed as well. Of course the water consumption will be recorded.

**Growth curves**

The MCC-10 can fully pre-program to create the optimal situation for your animals at each age. Several curves are available to this.

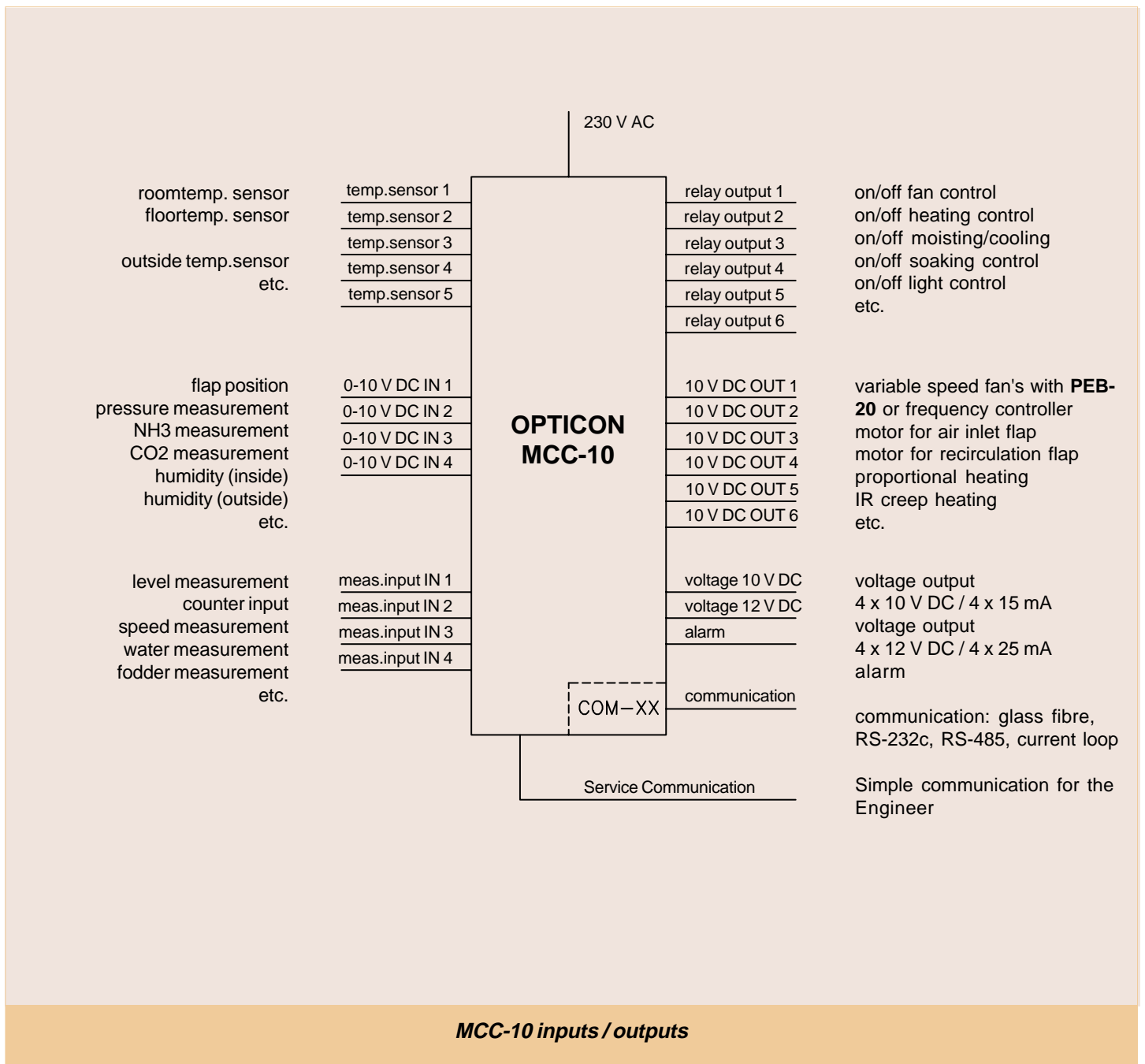
**Alarming**

To avoid critical situations, alarm limits can be set. When exceeding these limits for a preset period of time, the system will generate a clear alarm message. To avoiding false alarms, the system will reckon with the outside temperature.

**Registration**

What happens if you don't realize what's happening? The MCC-10 is provided with a large range of possibilities to visualise the measured values. On the basis of these data, several actions can be started to optimise the process in your pig houses.

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**Technical specifications**

Power consumption : 100 VA  
 Power supply : 230 Vac ± 10%  
                   50/60Hz  
 Dimensions : 220 x 270 x 110  
 mm  
                   (h x b x d)  
 Weight : 2,4 kg  
 Protection : IP54

**Dealer:**

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