

# Product information



## MIRA-P Poultry computer

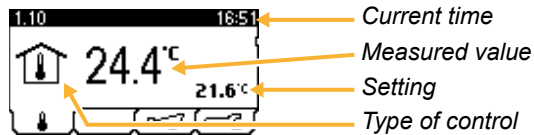


**Hotraco**  
— Agri —

**Hotraco Agri BV**  
Stationsstraat 142  
5963 AC Hegelsom, The  
Netherlands  
Tel +31 (0)77 3275020  
Fax +31 (0)77 3275021  
info@hotraco.com  
www.hotraco.com

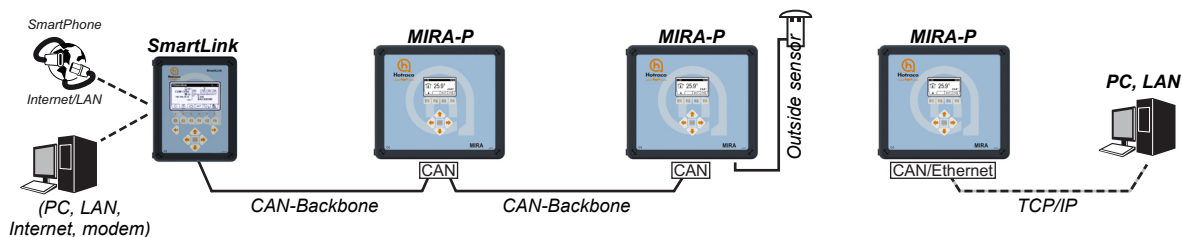
## General

The MIRA-P poultry computer can manage and control all common barn situations. Processes such as ventilation, heating, cooling, the registration of feed and water as well as weighing birds. The MIRA-P is an addition to the existing IRIS, SIRIUS and ORION controllers.



The MIRA-P uses the now familiar picture control concept. The MIRA-P communicates using clear symbols so the user, irrespective of the language he speaks, can clearly see what he is doing at a glance.

The computer also allows the use of curves for important settings: for example, the temperature set point can be adjusted automatically depending on the age of the birds. The inputs and outputs on the MIRA-P can be freely assigned.



## Basic ventilation / tunnel ventilation

The ventilation level is determined based on the measured room temperature / outdoor temperature and the humidity in the barn; the MIRA-P calculates the total desired amount of ventilation and will adjust it if necessary. The target value is calculated and the ventilation adjusted if necessary using the day counter and curve settings. The basic ventilation system can comprise adjustable fans (0-10 V) and non-adjustable fans (max 8). The fan capacity is entered into the MIRA-P per group, and here you can also choose whether or not this group forms part of the basic or tunnel ventilation. In addition to this, you can specify which group of fans should be switched on per step.

## Inlet valves / tunnel inlet

The MIRA-P has a number of controls for controlling the inlet systems in order to get fresh air to the birds in the correct manner, the choices are:

- Inlet valves based on the room temperature
- Inlet valves based on negative pressure
- Inlet valves synchronous with ventilation status (curve relating to ventilation level)

If multiple temperature sensors are used (max 4) you can have separate left / right control. Whether the inlet valves are opened / closed during tunnel ventilation depends on the setting on the MIRA-P.

In addition, you can distinguish between left and right tunnel inlet.

## Timers

The MIRA-P has two timers that can be set to a maximum of 24 switching times. The timers can be set to "on/off times" or "on time + duration switched on". Using time switches allows external systems to be controlled at fixed times.

### **Mixed ventilation**

The mixed ventilation in the MIRA-P can be used to suppress ammonia emission or to blow heat from the ridge over the barn litter. The mixed ventilation can be controlled proportionally or via a relay contact.

### **Heating**

Four heating controls (proportional or relay contact), that are standard in the MIRA-P, can be used for an optimal climate during colder periods. The 2<sup>nd</sup> temperature control can be controlled by its own temperature sensor (floor heating for example).

Type of controls on the MIRA-P:

- ON/OFF control
- Proportional + bandwidth (0-10 V)
- Proportional integrating (stepped increase / decrease of 0-10 V signal)

### **Cooling**

If the barn becomes too hot, this will have a negative effect on the birds' living environment. The MIRA-P can switch on a cooling system using a relay contact. If an RH sensor is connected to the MIRA-P, the computer will adjust the ventilation level or switch off the cooling system if the humidity becomes too high.

### **Relative humidity**

The MIRA-P can monitor the humidity if an RH sensor is connected and adjust the ventilation and, if necessary, switch on a humidification unit.

### **CO<sub>2</sub>**

The CO<sub>2</sub> concentration in the barn can be monitored using a CO<sub>2</sub> sensor; if necessary, the MIRA-P adjusts the ventilation.

### **Lighting**

The lighting can be switched using a maximum of 24 on/off times (or on times + on duration). In addition, there is a dimmer function on switching the lighting on and off. The lighting can be bridged using the software or by a push-button.

### **Feeding**

The MIRA-P can control multiple feed types using feed pans / feed chains. In addition, you can enter your own feed names for various types of feed. Feed registration is an option using a pulse counter. A maximum of two cross augers can be controlled, each with its own feed demand and shut off sensor.

### **Silo weighing**

Using silo weighing (max 2 silos) the MIRA-P records the amount of feed present as well as accurately recording the feed consumption.

### **Bird weighing**

You can also use bird weighing to maintain a continuous overview of the bird's weight allowing you to monitor the uniformity. Entering a target curve in the MIRA-P allows you to monitor the birds' growth and take any action that may be necessary.

## Water

The MIRA-P has a contact that can be used to control the water valve to on and off times. In addition, there is a digital input that can be used for water registration. Moreover, this allows a specific amount of water to be set per day. A minimum consumption alarm can also be set.

## Management

Various data is recorded in the management module such as: the number of birds, bird mortality, the water and feed consumption and feed conversion. When using the bird weighing scales, data about the average weight, weight distribution and uniformity is stored in the management module. The separately available management program, Rainbow+, can use this data to create tables or graphs for quick and easy analysis.

## Alarm

In the event of an alarm situation the MIRA-P will report the alarm using a hard alarm (alarm relay) or soft alarm (message on display). The alarms are saved in the alarm history.

## SD card

As a further option, data can be logged and software updated using an SD card. In addition, you can make a back-up of the options and set points on the SD card.

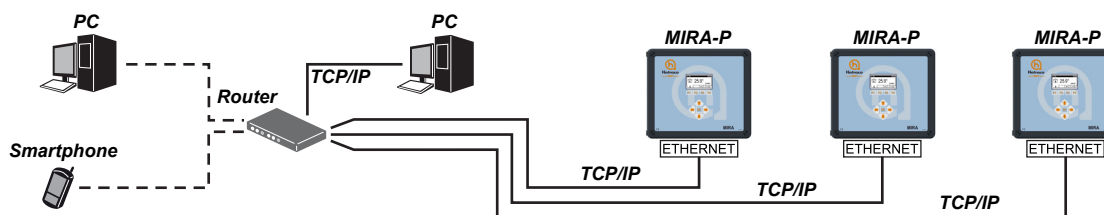
## Communication

If the Rainbow+ management program is used, the MIRA-P can be connected directly to a PC via the USB.

*"Optional communication"*

In addition, the MIRA-P can be expanded with CAN-Bus and/or Ethernet using optional printed circuit boards.

- CAN-COM-CY (1 x CAN-Bus)
- CAN-ETHER-CY (1 x CAN-Bus and 1 x Ethernet on)



# MIRA-P Poultry computer








### Analogue Inputs (6x)

**Example:**

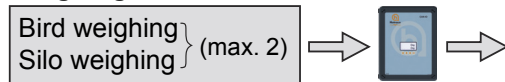
Temperature sensor (x4)	°C
Outside temperature	°C
Negative pressure sensor	Pa
Relative humidity	%
CO <sub>2</sub> sensor	ppm

### Digital Inputs (4x)

**Example:**

Feed pulse counter	
Water counter	
Cross auger sensor (x2)	
Receptacle max. sensor (x2)	
Limit switch (x2)	

### Weighing



Optional



### Analogue Outputs (4x)

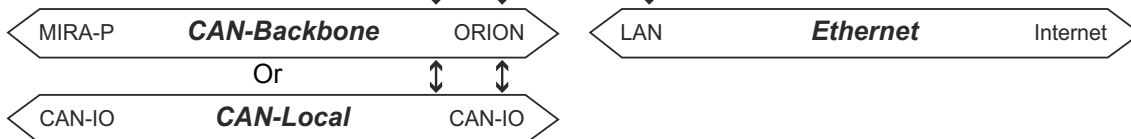
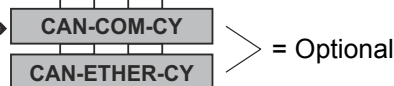
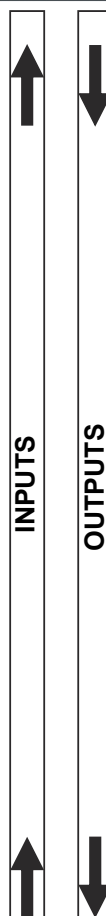
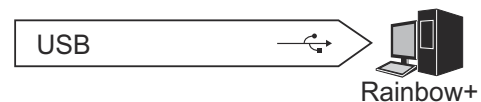
**Example:**

Ventilation	0-10 V
Inlet valves (x2)	0-10 V
Heating (x4)	0-10 V
Butterfly valve	0-10 V
Mixed ventilation	0-10 V
Light	0-10 V
Tunnel inlet valve	0-10 V

### Digital Outputs (12x)

**Example:**

Ventilation (max. 8)	0/1
Heating	0/1
Cooling	0/1
Water valve	0/1
Lighting	0/1
Feed	0/1
Time switch (x2)	0/1
Cross auger (x2)	0/1
Ventilation mixer valve	0/1
Tunnel	0/1



## Technical specifications

### **Electrical**

Power supply	:	230 Vac $\pm$ 10% , 50/60 Hz
Power consumption	:	max. 15 Watt
Fuse	:	T 100 mA (dimensions 5 x 20 mm)

### **Analogue inputs (6x)**

Temperature sensors	:	-40 °C to 100 °C, $\pm$ 0.5 °C
0-20 mA (inputs 5 and 6)	:	0-20 mA ( $R_i = 250 \Omega$ )
0-10 V	:	0-10 V ( $R_i = \infty \Omega$ )

### **Digital inputs (4x)**

Counter	:	NPN / PNP sensor 12-24 Vdc, 8 mA max. 10 Hz
---------	---	---

### **Analogue outputs (4x)**

0-10 Vdc	:	0-10 V / max. 1 mA
----------	---	--------------------

### **Digital outputs (12x)**

Relay output K1-K12	:	2 A, 250 Vac / group
Alarm relay	:	0.5 A, 24 Vac/dc

### **Power supply**

Power supply	:	24 Vdc / max. 140 mA
--------------	---	----------------------

### **Communication**

CAN Local Communication	:	max. 500 metres @ 100 kbs
CAN-Backbone Communication	:	max. 500 metres @ 125 kbs
USB	:	Full speed

### **CE Directives**

EMC	:	2004 / 108 / EC
Low voltage	:	2006 / 95 / EC

### **Mechanical**

Ambient temperature	:	0-40 °C
Dimensions (H x W x D)	:	243 x 278 x 117 mm
Housing	:	IP 54 ABS
Weight	:	approx. 2 kg