

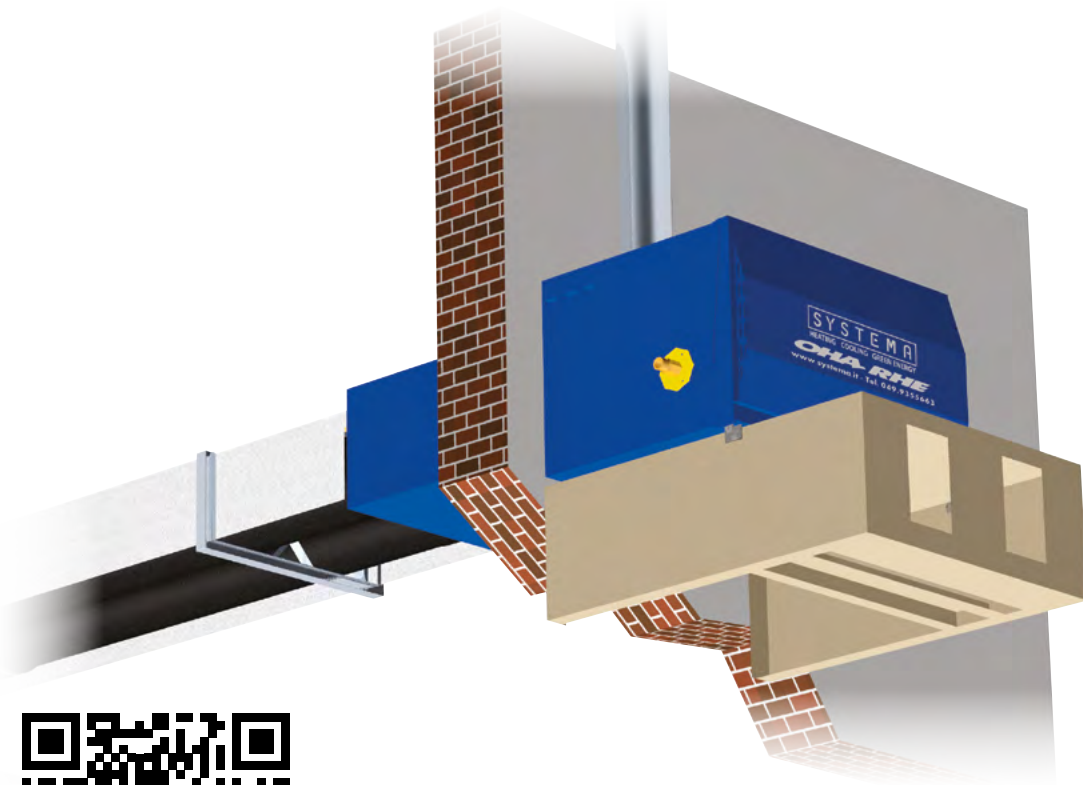
SYSTEMA

HEATING COOLING GREEN ENERGY

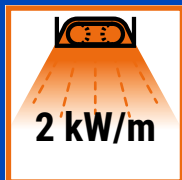
OHA RHE

Inverter-controlled industrial radiant heating for medium and large spaces from 100 to 370 kW

Radiant High Efficiency



FAST AND EASY
INSTALLATION



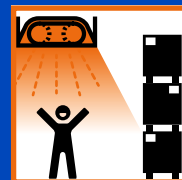
HIGH EFFICIENCY
AND EMISSIVITY



SILENT AND
HEALTHY



LOW
MAINTENANCE



FAST AND HIGH
THERMAL COMFORT



LOW RUNNING
COSTS

HOW IT WORKS

The **OHA** radiant strip is a product made by Systema S.p.A. that uses the most natural heating technology possible, heat radiation like the sun. **OHA** is ideal for heating large areas quickly, economically, quietly and environmentally friendly.

Radiation does not generate any convective motion of the air, typical of traditional heating systems, because there is no ventilation in the room to be heated.

Heating occurs through the transfer of energy by means of electromagnetic waves, known as radiation (infrared radiation, i.e. heat), which enables the transport of thermal energy in a straight line at the speed of light. Radiation directly heats surfaces, being partly absorbed by objects and partly reflected back to affect other objects.

The **OHA** radiation system allows precise localisation of the surfaces to be heated without any stratifying effect, avoiding costly energy losses and concentrating the heating in the areas that require it, allowing the possibility of zone heating. The lack of air movement also makes the rooms healthier by avoiding the movement of annoying dust inside them, not least the rapidity in switching on and setting up the system allowing interesting savings in consumption.



ADVANTAGES

- Gas line and burners installed outside the building to be heated
- Ideal for high height, medium and large surface areas, and even in the presence of large heat losses
- Ecological and environmentally friendly, low consumption and low smoke emission levels
- Flexibility and versatility in the realisation of the internal heating circuit
- Possibility of creating zone systems with partial or differentiated heating
- Easy and quick installation and maintenance
- Quiet and healthy operation
- Rapid commissioning of the rooms to be heated
- MODBUS and LAN interface for PC-based supervision and control systems

FIELDS OF APPLICATION

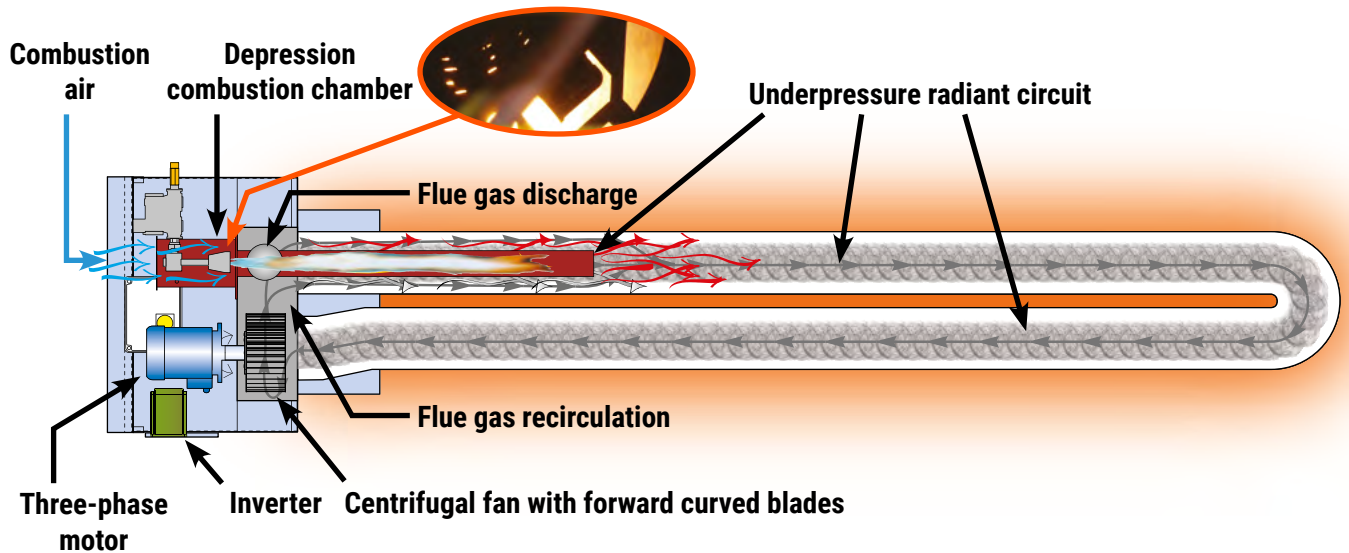
- Industry and mechanical workshops
- Aerospace industry
- Production of steels, aluminium and alloys
- Ceramic Industry
- Factories, Logistics, Distribution Centres, Warehouses and Depots
- Animal husbandry, Breeding
- Agriculture
- Food and Canning Industry
- Airport hangars
- Railway maintenance centres
- Commercial and Service Environments
- Indoor Sports Environments, Gyms, Sports Centres, Marquees
- Multipurpose centres

EFFICIENCY, SAFETY AND RELIABILITY

Meeting the high safety requirements laid down by the regulations for industrial and artisan environments, where radiant belts are installed, the **OHA** system has been designed to operate exclusively in **negative pressure**, thus guaranteeing maximum system reliability.

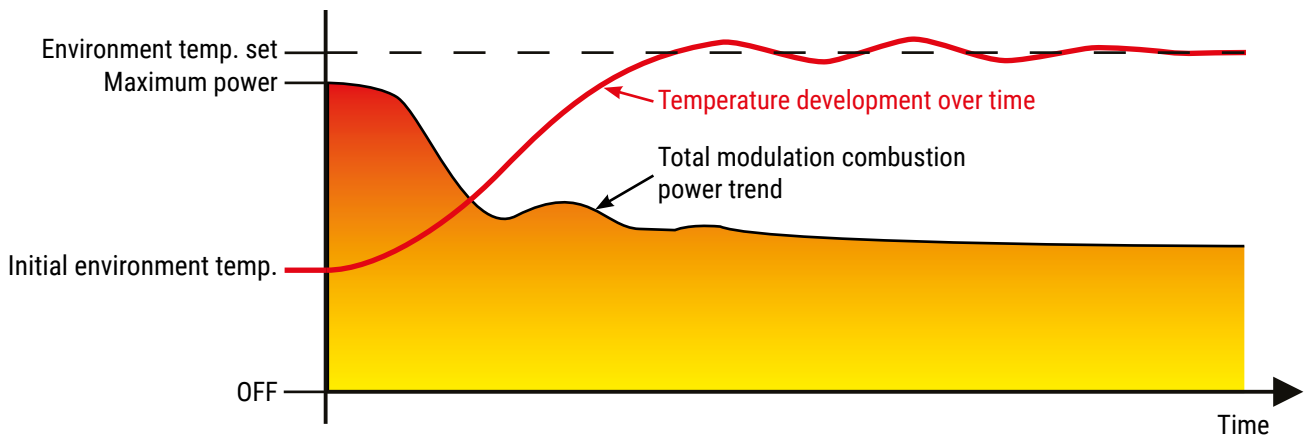
In this respect, studies and research have confirmed Systema's decision to use a **burner which operates on the principle of forced aspiration**, in a laminar-turbulent regime with afterburner.

The system operates at relatively low temperatures, in fact the temperature of the radiant strip tube is always below 400°C (maximum limit imposed by the product standard EN 17175:2019).



TYPICAL TEMPERATURE AND POWER TRENDS OVER TIME

Control and operation by means of a derivative-controlled processor specifically developed for controlling radiant energy systems



Since the radiation intensity is linked to the fourth power of the temperature of the tube's emitting surface, it is not advisable to go below a certain surface temperature, otherwise the emission efficiency (EN 15316-2) would drop considerably.

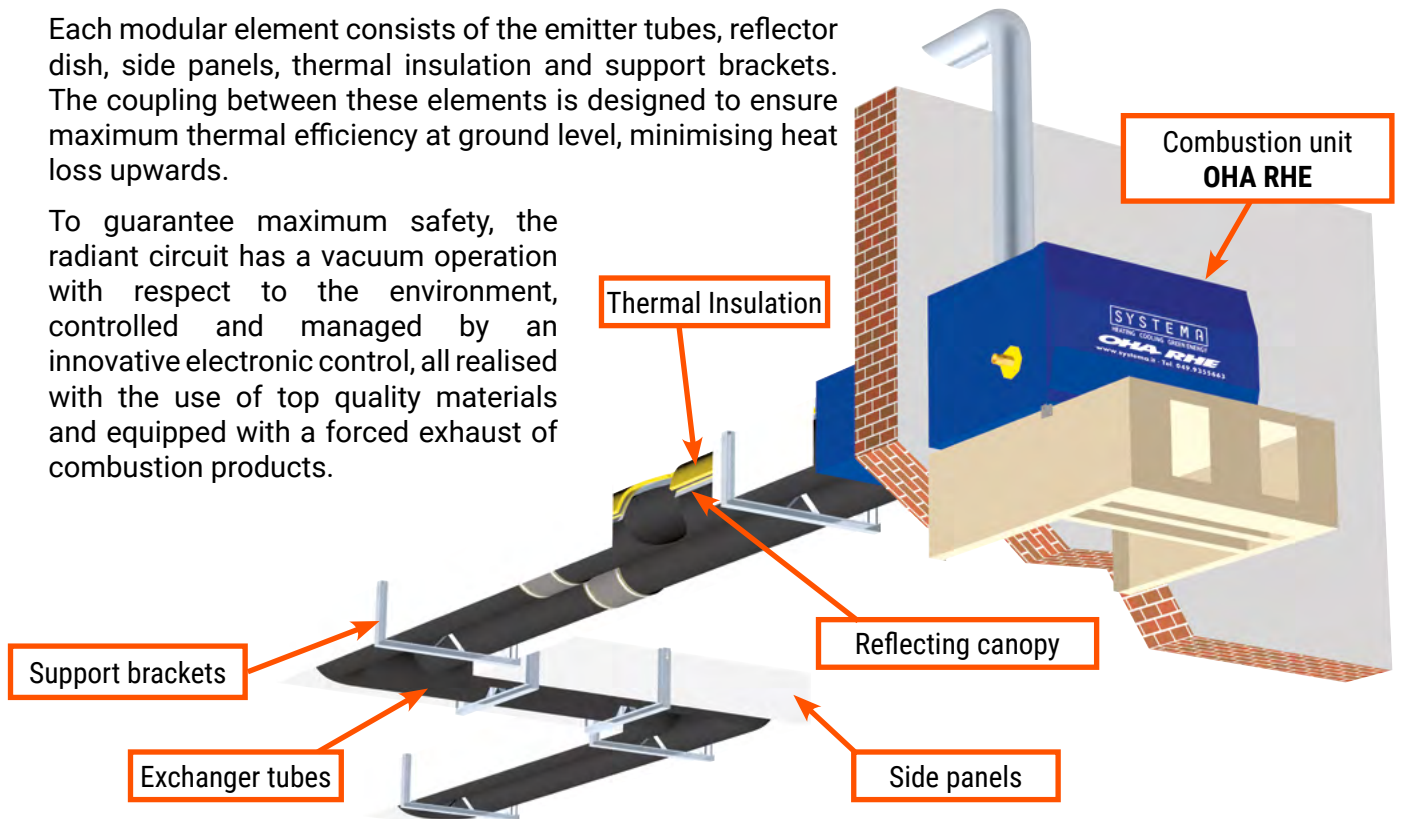
The continuous power modulation system (OHA RHE operation) is more efficient, as it has been specially designed for radiation systems; in fact, by keeping the temperature of the carrier fluid (flue gas) constant, over shooting is eliminated, thus maximising the yield of the system.

GENERAL CHARACTERISTICS

The **OHA RHE** is a radiant heating system that is flexible in its installation, consisting of an innovative, high-efficiency burner body to be positioned outside the building, to which modular elements are connected to form the heating system that develops inside the room.

Each modular element consists of the emitter tubes, reflector dish, side panels, thermal insulation and support brackets. The coupling between these elements is designed to ensure maximum thermal efficiency at ground level, minimising heat loss upwards.

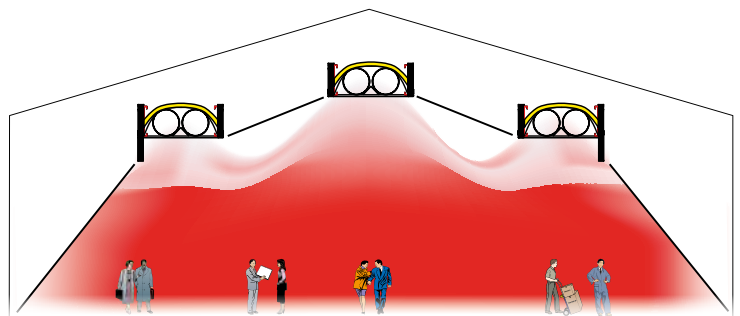
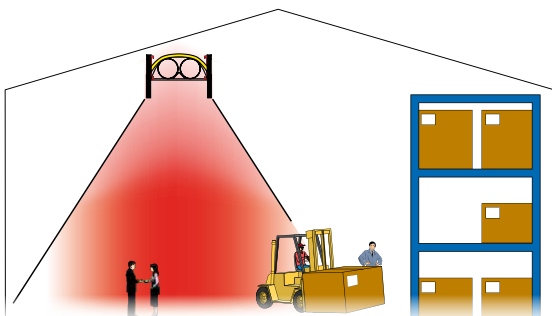
To guarantee maximum safety, the radiant circuit has a vacuum operation with respect to the environment, controlled and managed by an innovative electronic control, all realised with the use of top quality materials and equipped with a forced exhaust of combustion products.



MANAGEABLE HEAT + FLEXIBILITY OF USE

OHA RHE radiant strips allow the **zone heating**, concentrating the heat towards the floor and only where it is necessary, in order to differentiate the temperatures among the several areas of the same environment. As a consequence there will be a **lower energy consumption** and a high thermal comfort.

Environmental hygiene is favoured by the absence of air movement and therefore of suspended dust, which is physiologically present in places used for industrial production.



ADVANTAGES

- Significant reduction in electricity and gas consumption
- Optimum combustion efficiency, regardless of the length and shape of the radiant circuit
- Constant combustion efficiency even at medium/low temperatures
- Modulation of the carrier fluid, keeping the stoichiometric ratio constant and heating the environment homogeneously
- Constant radiation in the areas concerned
- Electronic management: Progressive electronic start-up, managed by inverter and constant control of start-up and operating times
- Predisposition for external temperature probe to optimise performance based on actual needs
- Application flexibility

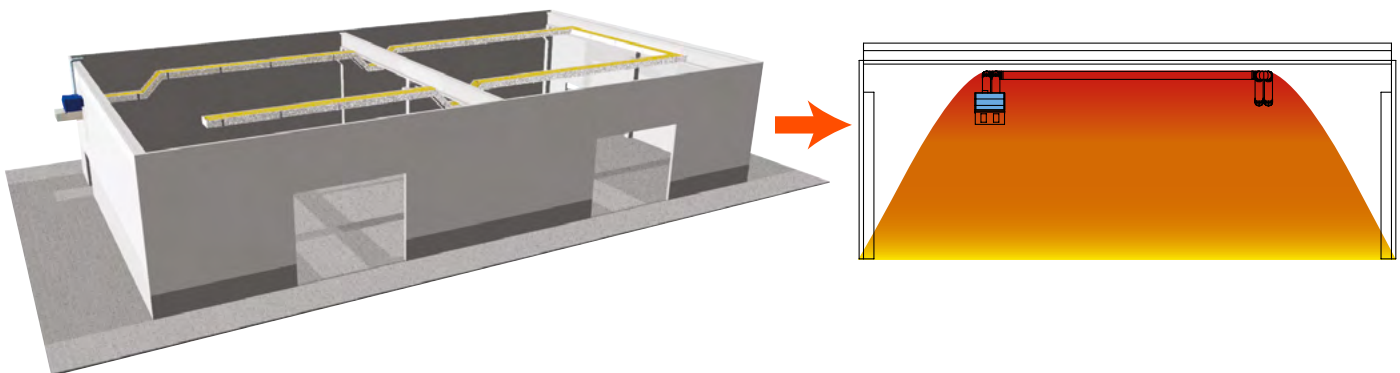
EFFICIENCY AND ENERGY SAVING



+ COMFORT WITH OHA RHE:

OHA RHE'S TECHNOLOGY PROVIDES UNIFORM HEAT BY HEATING THE ROOM EVENLY.

HOMOGENEOUS HEAT = MAXIMUM EFFICIENCY



CERTIFIED APPLIANCE



- CE certification according to (EU) 2016/426, Gas Appliances Regulation (GAR)
- Electromagnetic Compatibility Directive (EMC) 2014/30/EU
- Low Voltage Directive (LVD) 2014/35/EU
- Ecodesign Directive for energy-related products and subsequent amendments 2009/125/EC
- Commission Regulation (EU) 2015/1188 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heating appliances

SECURITY

- Positive safety of the working thermostat
- Capillary probe for detecting flue gas temperature and working temperature, located inside the radiant circuit
- Burner lockout if the temperature of the carrier fluid rises above the nominal permitted operating values
- Main switch with door lock safety device

RANGE

| Model | Power min-max | η_s | Virtual length of the U-shaped radiant circuit under ideal conditions * |
|-----------------|------------------|----------|---|
| OHA RHE 100-115 | 100-115 kW | 79,5% | from 40 to 60 m |
| OHA RHE 100-150 | 100-150 kW | 82,4% | from 55 to 80 m |
| OHA RHE 100-200 | 100-200 kW | 83,7% | from 75 to 100 m |
| OHA RHE 200-250 | 200-250 kW | 79,6% | from 90 to 120 m |
| OHA RHE 200-300 | 200-300 kW | 81,7% | from 110 to 145 m |
| OHA RHE 200-400 | 200-370 kW | 83,3% | from 130 to 160 m |

η_s = Seasonal energy efficiency of area heating ($\geq 74\%$) with installation outside the heated area



The values given are to be considered indicative, correct system sizing must be carried out by the Systema technical office.

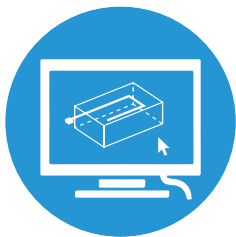
* Virtual length = Real length of the radiant circuit, increased by the lengths equivalent to the changes in direction: in the "U" double pipe model, 90° bend +3 metres; 180° bend +3 metres; "T" branch + 6 metres; 45° bend + 1,5 metres.

ADAPTABLE TO ANY ARCHITECTURAL GEOMETRY

OHA radiant strips are suitable to heat buildings with particular shape, thanks to the ducts that **can be joined and fitted to any architectural geometry.**



SYSTEMA RADIANT SOFTWARE



**SOFTWARE
SYSTEMA**

AUTOMATIC PLANT DIMENSIONING

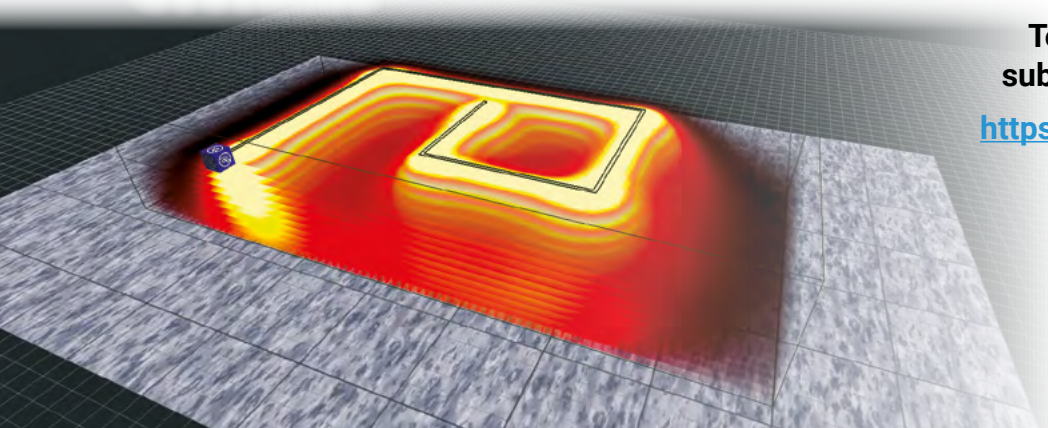
The **design and calculation software** developed by Systema S.p.A. allows optimal plant dimensioning for heating all types of rooms. The software is equipped with a wide range of specific settings, which can be selected according to the needs of the room to be heated, allowing the right solution to be designed.

The software allows you to change the type, quantity, power and position of the products to be installed while maintaining the dimensions of the building, so that you can evaluate the most appropriate solution for the system to be heated.

By changing the dimensions of the 3D rooms to be heated, the software will automatically vary the number or power of the selected products to achieve the best thermal comfort.

To download the software,
subscribe and fill the form on:

<https://www.systema.it/en/login/>

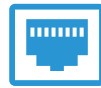


CENTRALISED CONTROL: MASTER CONTROL PANEL SYS830/850



**SYS850 controls up to 30 burners and
SYS830 controls up to 16 burners**

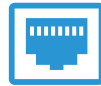
In addition to the Basic versions also available:



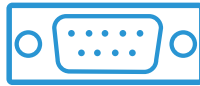
LAN Ethernet (TCP-IP) for PC monitoring both in the network and via the internet with **EYE-LAN** software



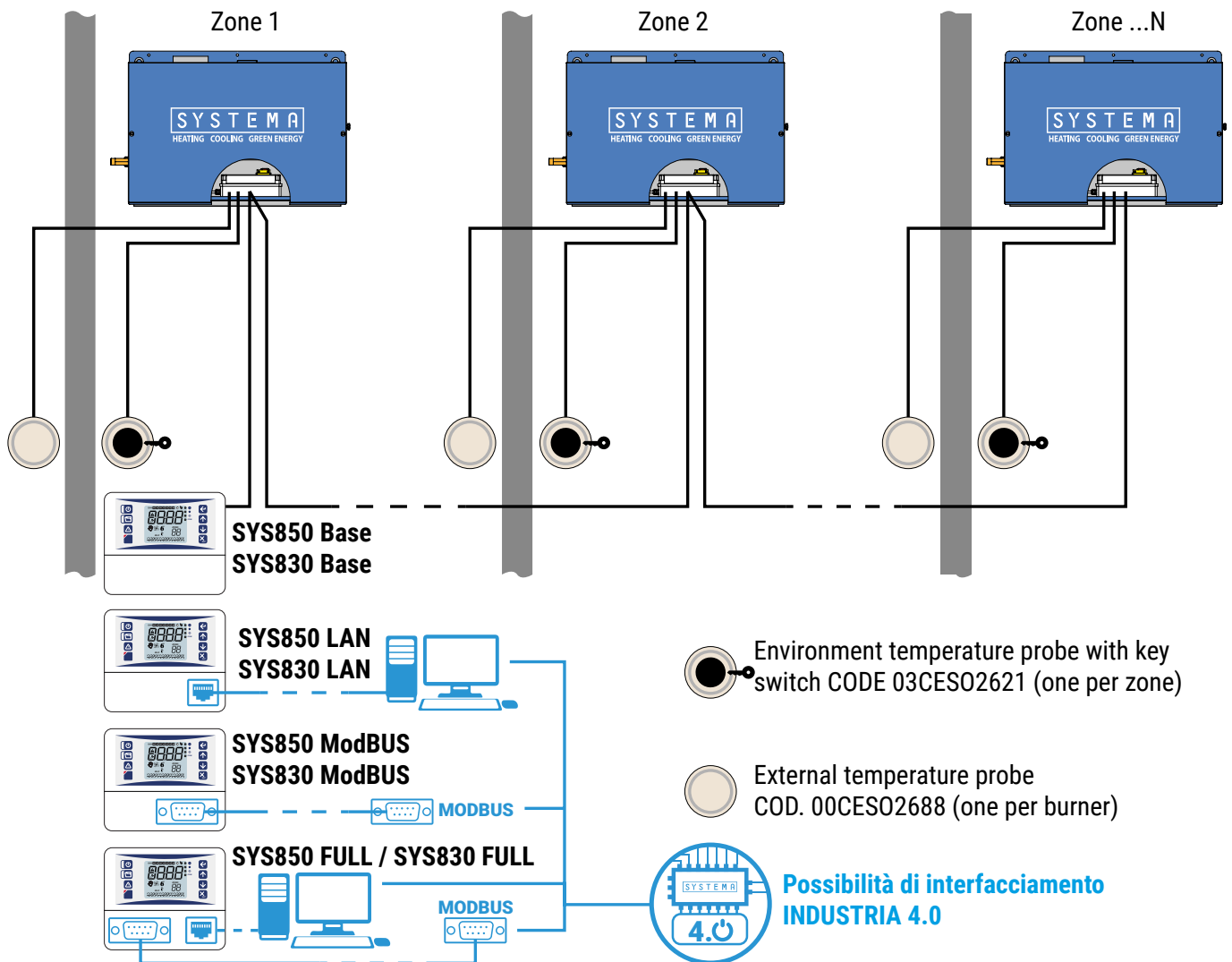
Modbus equipped with specific communication port for control via **Modbus**



+



FULL equipped with both **LAN Ethernet** (TCP-IP) and **Modbus** port



| Code | Description | Interface | Devices - zones |
|------------|--|--------------|-----------------|
| 00CEQU2674 | Master Control Panel SYS 830 BASE type i ² NET | - | 16 - 16 |
| 00CEQU2675 | Master Control Panel SYS 830 LAN type i ² NET | LAN | 16 - 16 |
| 00CEQU2676 | Master Control Panel SYS 830 ModBUS type i ² NET | MODBUS | 16 - 16 |
| 00CEQU2677 | Master Control Panel SYS 830 FULL type i ² NET | LAN + MODBUS | 16 - 16 |
| 05CEQU2715 | Master Control Panel SYS 850 BASE type i ² NET | - | 30 - 30 |
| 05CEQU2718 | Master Control Panel SYS 850 LAN type i ² NET | LAN | 30 - 30 |
| 05CEQU2721 | Master Control Panel SYS 850 ModBUS type i ² NET | MODBUS | 30 - 30 |
| 05CEQU2727 | Master Control Panel SYS 850 FULL type i ² NET | LAN + MODBUS | 30 - 30 |



ALL SYS 830 AND SYS 850 SWITCHBOARDS ARE WITHOUT ENVIRONMENTAL PROBES, WHICH MUST BE REQUESTED SEPARATELY.
The LAN and FULL versions include the EYE-LAN software for PC monitoring via network or internet.

 **Productive plant in Padua**



“We learn from nature how to design simple and effective solutions”

Since 1986, Systema S.p.A. is one of the leader companies in Italy and Europe in designing, developing and producing devices for the heating and conditioning in industrial and commercial buildings.

There has been always in Systema's Research and Development department where high investments have been made, since the beginning, for the creation of an internal laboratory who could design and offer highly innovative products that can satisfy and anticipate all the requests coming from the market. In this field Systema works together with important Italian, European and extra-European laboratories and university departments. A cooperation which leads to the concept of innovative and visionary products and solutions and to the obtaining of several international patents.

Systema S.p.A. differs from competitors because can offer a complete range of products that goes from commercial and industrial heating with radiant and hot air solutions, to conditioning with absorption chillers, electric heat pumps and evaporative adiabatic coolers and with a specific focus on the agricultural and breeding farms products for heating (both heaters and radiant systems) and conditioning with adiabatic coolers. This range has been conceived looking for environmental-friendly products with the lowest energy consumption.

Managing such a large range of products is not easy but, also in this field, Systema S.p.A. has been always different with an internal and external organization that guarantees high quality services through an extensive commercial network made of highly qualified technical salesmen, an internal organization of customer service with experience in designing and consultancies well aware of all the required standards and rules and a massive after sales structure both internal and external that Systema keeps regularly update in order to have technicians who are always very well prepared.

The work of these structures is greatly facilitated by Systema S.p.A.'s production facilities, which are made up of the highest quality standards and production processes that are technologically advanced and constantly modernised. The united work of those responsible for production, procurement and quality allows Systema S.p.A. to make available to its commercial structure products and systems that are of high quality, reliable and made in full compliance with the most advanced standards.

Systema S.p.A. is able to supply its sales organisation with products and systems of high quality and reliability and manufactured in full compliance with the most advanced standards.

Systema S.p.A. has thus managed, over the years, to gain a strong international presence which sees it active in markets all over the world, carrying forward the flag of top quality Made in Italy and achieving leadership positions in many countries. A strategic decision was taken by Systema S.p.A. to create Systema Polska, which is able to provide a highly qualified, high quality production force and a commercial structure, in synergy with that of Systema S.p.A., which is able to present and improve the commercial penetration of Systema products in markets such as Poland and neighbouring countries.

The synergies put in place have greatly facilitated the growth of the services offered to the market, services made up of a very high level of attention to the customer, who in Systema finds not only a business partner but also a highly qualified technical consultancy service that goes hand in hand with reliable after-sales services that are always ready to quickly resolve any problems reported by the customers themselves.

 **The productive plant in Poland**



Systema: focus on the future by interpreting the present...