

# OMNIBUS

BUILDING MANAGEMENT SYSTEM



**EURAPO**

INTEGRATED  
COMFORT  
SYSTEMS

# OMNIBUS

## BUILDING MANAGEMENT SYSTEM

Yet designing and producing air conditioning systems comprising selected, reliable components is not sufficient in itself to guarantee high standards of air-conditioned comfort, these also need to be integrated and harmonised with **the intelligence controlling them.**

Only complete synergy between **terminal unit performance** and **heat regulating devices** can guarantee optimum results and meet the most modern requirements in comfort management simply and efficiently.

This awareness forms the basis of **OMNIBUS.**



## OMNIBUS

Digital Management System for water terminal units.

- Elegant design
- LCD Display
- Touch screen
- Humidity sensor
- Plug & Play connections
- Weekly, daily and monthly programs
- Scenarios configuration
- Compatible with brushless and inverter technology
- Flexible configuration
- Service tool available
- MODBUS RTU: free protocol
- ETHERNET (TCP/IP) compatibility
- LONWORKS® compatibility
- Different access levels to the Building Management System

**Supervision system  
for water terminal units,  
Modbus protocol.**

The **EURAPO-OMNIBUS** Digital System is designed to fully regulate the water terminal units (such as fan coil units, water cassette units, high pressure ducted fan coil units and radiant systems) for domestic use, residential buildings, public rooms.

This controller permits to be easily programmed by the installing company and configured accordingly to each particular type of system.



The **OMNIBUS** Digital System can work at different levels:

- **Stand-alone** configuration: the main card (Power Omnibus) installed on the water terminal unit is connected and managed by a Console (built-in the unit or for remote installation).
- **Centralized configuration**, via Master MODBUS RTU: the Power Omnibus card installed on the water terminal units can be also connected to a centralized Supervision System.





The **heart of the system** is the **POWER OMNIBUS** card: this highly-flexible piece of hardware is installed in the terminal unit and enables the firmware to be upgraded **through a serial port**. It can easily be programmed and configured to requirements by the user and by the installer to the type of system being installed.

The **POWER OMNIBUS** card is able to receive and process a broad range of inputs and manage a large number of output technologies.

## The **POWER OMNIBUS** card measures the following input states:

- room temperature
- water temperature
- outside air temperature
- relative humidity of ambient air
- temperature of air leaving the terminal unit
- Economy/Occupancy contact status
- breakdown status
- window contact status

## **OMNIBUS POWER** output is able to:

- control the water terminal units' devices
- modulate the opening of the water valves
- control ventilation using discreet or continuous mode
- regulate opening of the external air dampers
- control a heat recovery unit
- integrate a radiant system with an air terminal unit
- control a primary or supplementary electric heater
- activate the air conditioning water circulation pump
- control an air humidifying or dehumidifying unit
- regulate the timing of a primary air handling unit
- control other **POWER OMNIBUS** cards as *slaves*

The great INPUT and OUTPUT potential have been combined in order to create strategic ways of saving energy and providing interior comfort.

And that's not all. The flexibility of the OMNIBUS system also benefits **all-inclusive control and architecture modes**: from analogue and digital **stand-alone** units to the digital **centralised unit for small systems** and **remote control** of large systems, which takes us down the path of home automation.





DISPLAY CONSOLE  
FOR BRUSHLESS MOTORS

## Managing of brushless motors (EST technology)

EURAPO designed a dedicated OMNIBUS card for managing brushless motors: in this configuration, the POWER OMNIBUS card can modulate the motor speeds automatically (0-10V) or manually, by setting the specific tension for each fan speed (LOW-MED-HIGH).



SPEED SETTING  
OF BRUSHLESS MOTORS  
BY **OTOUCH**



MANAGING OF BRUSHLESS  
MOTORS BY **WEBSERVER**

**ANALOGUE PLUS CONSOLE**  
INSTALLED ON A SPHERA UNIT



**EXTERNAL DISPLAY CONSOLE**



**INFRARED CONTROL**



## The Analogue *Plus* Console

The **Analogue Plus Console** is the system's basic interface. It may be installed on the wall, onto the fan coil unit or into a standard "503" module which is compatible with frames available on the market; it enables the user to set the **room temperature, fan speed, Summer/Winter function** and **ON/OFF status**.

## Digital Display Console

Just as versatile to install as the analogue version, the digital Display Console permits to view and modify the programming of all the parameters available on the Power Omnibus card.

The easy-to-read Display Console offers the user four control modes:

- **Status:** OFF / Economy / Comfort;
- **Set-point:** for setting room temperature;
- **Function modes:** Cooling-Heating-Ventilation-Dehumidification;
- **Speed selection:** Minimum, Medium, Maximum, Automatic.

With different **access profiles (user and service)**, the Input/Output states of the Power Omnibus card can be read on the Display Console, which makes it an **important instrument in diagnosis**, without the need to access the terminal units fitted into false ceilings.

Except for Analogue Plus Console, all Omnibus Console can communicate also with **infrared remote control**.

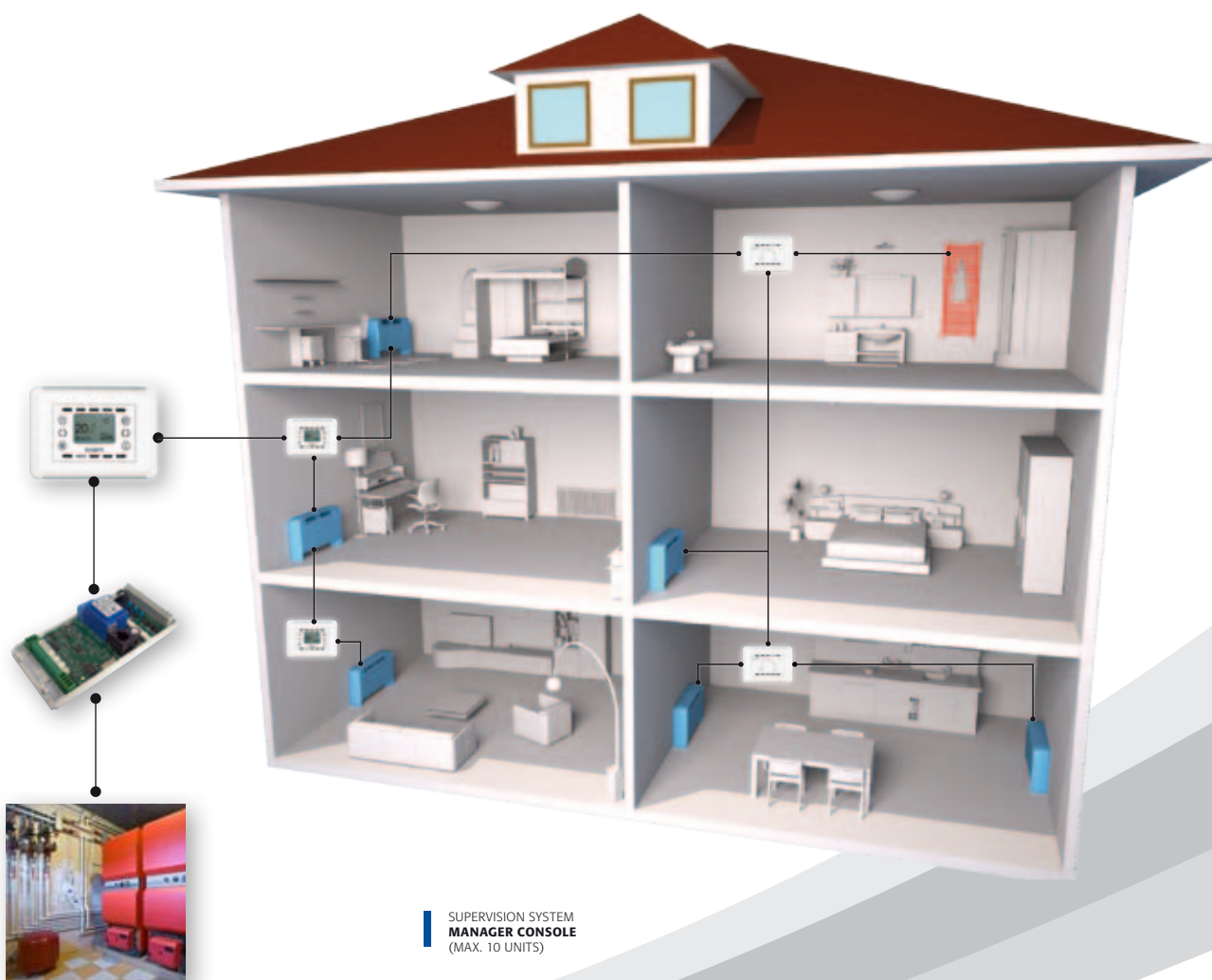


## Manager Console

The **Manager Console**, which comprises the same functions as the Display Console, is a **Supervisor for small systems**, which permits to **manage up to 10 POWER OMNIBUS cards** connected to the network by means of a MODBUS RTU serial bus.

Each individual card can in turn be controlled independently by using one of the available consoles: Analogue *Plus* Console or Display Console.

By the Manager Console it is possible to set daily and weekly programs (Off / Economy / Comfort) for all of the units connected to the same network.



SUPERVISION SYSTEM  
**MANAGER CONSOLE**  
(MAX. 10 UNITS)





INNOVATIVE TOUCH SCREEN DEVICE

### An innovative device

OTOUCH is a control and supervision system developed by Eurapo Laboratories in order to enhance residential comfort. This high tech solution is matched with an easy-to-use graphical interface which has been studied in collaboration with Udine University in order to guarantee an intuitive and simply comfort control.



This new touch panel can functionally fully control air condition system devices (such as fan coils units) or radiant system ones (such as hydraulic actuators or dehumidifiers) or even both at the same time, following an innovative idea of control philosophy.

OTOUCH strong point consists of including monitoring and controlling functions of fan coils units together with the capacity of interacting and integrating different HVAC system devices in the same control panel.

- Cooling and heating units (chillers / boilers)
- HVAC system pumps
- Modulating valves (for radiant systems)
- Thermal zone valves
- Dehumidifiers
- Fan coil units



## OTouch

The **OTouch** panel is a **Supervisor for middle systems**, which permits to **manage up to 100 POWER OMNIBUS cards** connected to the network by means of a MODBUS RTU serial bus.

Each individual card can in turn be controlled independently by using one of the available consoles: Analogue *Plus* Console or Display Console.

OTouch gives the possibility to configure complex scenarios and to program the system's seasonal schedule.





## Web Server

At a higher level, for maximum control, Eurapo designed a dedicated **WEB SERVER** for the **OMNIBUS system** available to the user, which enables up to **1024 terminal units** (8 networks x 128 units) to be connected and controlled through **Intranet** or **Internet**. Several **access profiles** co-exist in this architecture: **user, service and administrator**.



SUPERVISION SYSTEM WITH  
**WEB SERVER-RS-485**  
(MAX. 128 UNITS DIRECTLY  
CONNECTED TO A SINGLE  
NET – MAX 8 NETS).

**EURAPO Web Digital System** - Windows Internet Explorer

**Web Digital System**  
Sistema di supervisione ethernet

**VERSIONE STRUMENTI**

GRUPPO	NUM.	NOME	RUOLO	GRUPPO	FUNZ.	VERIF.	SET-PT	TEMP.	UMID.	CO2	DETTAGLI
1	1	Sala 1° Piano (aud)	1	RECEPTION	Comfort	OFF	22°C	17.7%	100%	0%	<a href="#">dettagli</a>
2	2	Sala 1° Piano (sal)	1	RECEPTION	Comfort	MTD	22°C	18.9%	98.4%	0%	<a href="#">dettagli</a>
3	3	Ingresso (Sala uffici)	1	RECEPTION	Comfort	MTD	22°C	20.3%	98.2%	0%	<a href="#">dettagli</a>
4	4	Ingresso (Sala sala)	1	RECEPTION	Comfort	MTD	22°C	20.3%	98.2%	0%	<a href="#">dettagli</a>
5	5	Sala 1° Piano (aud)	1	RECEPTION	Bioclima	OFF	22.8°C				
6	6	Sala 1° Piano (sal)	1	RECEPTION	Bioclima	OFF	22.8°C				
7	7	Ingresso (Sala uffici)	1	RECEPTION	Bioclima	OFF	22.8°C				
8	8	Ingresso (Sala sala)	1	RECEPTION	Bioclima	OFF	22.8°C				

Numero Strumenti = 8  
Numero Elementi = 28  
ORA UTENTE = 2012/01/01

**Room 2 (FIRST FLOOR) - Address: 2 - Windows Internet Explorer**

**Status**  
COMFORT

**Mode**  
WINTER

**Set Point**  
22.0

**20.2 °C**  
35%  
22.0 °C

**Fan speed**  
MED

**Heating:** 65.8%  
**Set fixed speed %**

[SETUP PARAMETERS](#)  
[I/O STATES](#)  
[TIME PROGRAMMING \( ON \)](#)  
[REFRESH](#)

**EURAPO Web Digital System** - Windows Internet Explorer

**Web Digital System**  
Sistema di supervisione ethernet

**STORICO ALLARMI**

Selezionare la sala ed il relativo strumento per visualizzare lo storico allarmi (Rette):

Retro1	Retro2	Retro3	Retro4	Retro5	Retro6	Retro7	Retro8	Retro9	Retro10
INVIATO	ATTIVATO	WOME STRUMENTO	WOME GRUPPO	STATO COMUNICAZIONE	DETTAGLI				
1	0	Sala 1° Piano (aud)	RECEPTION	100%	<a href="#">dettagli</a>				
2	0	Sala 1° Piano (sal)	RECEPTION	100%	<a href="#">dettagli</a>				
3	0	MTD 1° Piano	SERVIZI VARI	100%	<a href="#">dettagli</a>				
4	0	Ingresso (Sala uffici)	RECEPTION	100%	<a href="#">dettagli</a>				
5	0	Ingresso (Sala sala)	RECEPTION	100%	<a href="#">dettagli</a>				
6	0	Altri servizi	SERVIZI VARI	100%	<a href="#">dettagli</a>				
7	0	Ufficio Turistico	VENTILATE	100%	<a href="#">dettagli</a>				
8	0	Sala 1° Piano (aud)	RECEPTION	100%	<a href="#">dettagli</a>				
9	0	Sala 1° Piano (sal)	RECEPTION	100%	<a href="#">dettagli</a>				
10	0	Ingresso (Sala uffici)	RECEPTION	100%	<a href="#">dettagli</a>				
11	0	Archivio server	SERVIZI VARI	100%	<a href="#">dettagli</a>				
12	0	Corridoio (Ingresso)	SERVIZI VARI	100%	<a href="#">dettagli</a>				
13	0	Corridoio (Ingresso)	SERVIZI VARI	100%	<a href="#">dettagli</a>				
14	0	Corridoio (Ingresso)	SERVIZI VARI	100%	<a href="#">dettagli</a>				

Numero Strumenti = 8  
Numero Elementi = 28  
ORA UTENTE = 2012/01/01

**Sala 1° Piano (aud) (RECEPTION) - Address: 1 - STORICO ALLARMI - Windows Internet Explorer**

Data Ora	Sonda 1	Sonda 2	Umidità	Filtro sporco	1° Piano Fluid	1° Piano Room	1° Piano Int. Air	1° Piano CO2	1° Piano LCO
2012/01/01 11:20:00	●	●	●	●	●	●	●	●	●
2012/01/01 11:25:00	●	●	●	●	●	●	●	●	●
2012/01/01 11:30:00	●	●	●	●	●	●	●	●	●
2012/01/01 11:35:00	●	●	●	●	●	●	●	●	●
2012/01/01 11:40:00	●	●	●	●	●	●	●	●	●

**Sala 1° Piano (aud) (RECEPTION) - Address: 1 - PROGRAMMA TEMPI - Windows Internet Explorer**

**GIORNO**

GIORNO	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	24h	
LUNEDÌ	Caro	8	30	BCO	16	0	BCO	18	0	OFF	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
MARTEDÌ	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
MERCOLEDÌ	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
GIOVEDÌ	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
VENERDÌ	Caro	8	30	BCO	16	0	BCO	18	0	OFF	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
SABATO	Caro																								
SABATO	Caro																								

**GIORNO SPECIALE**

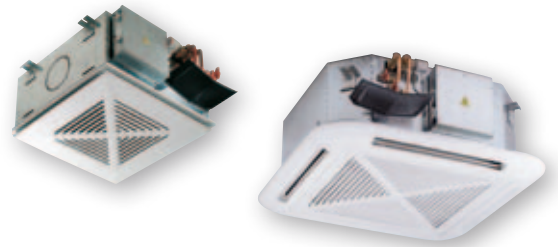
GIORNO	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	24h	
2012/01/01	Caro	8	30	BCO	16	0	BCO	18	0	OFF	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
2012/01/02	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
2012/01/03	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
2012/01/04	Caro	7	30	BCO	16	0	COM	18	0	COM	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
2012/01/05	Caro	8	30	BCO	16	0	BCO	18	0	OFF	18	0	BCO	18	0	OFF	18	0	OFF	18	0	OFF	18	0	OFF
2012/01/06	Caro																								
2012/01/07	Caro																								

## Applications

**Fan coil units**



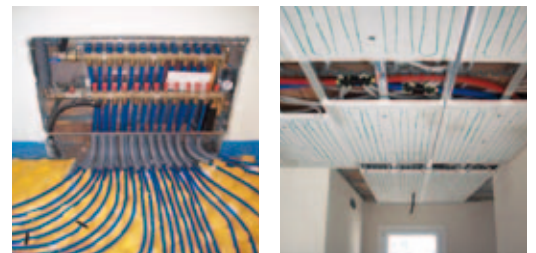
**Hydronic cassette**



**Ducted units**



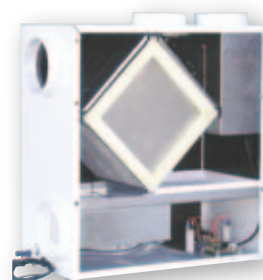
**Radiant systems**



**Dehumidifiers**



**Heat recovery units**



**Mechanically controlled ventilation systems**



**Chilled beams**





## Components

**Main card**  
without modbus



**Main card**  
with modbus



**Multitask card**



**AS Console**  
with air sensor, for remote installation either on wall or concealed on 503 module



**Analogue Console**  
for built-in application and remote installation either on wall or concealed on 503 module



**Analogue Plus Console**  
for built-in application and remote installation either on wall or concealed on 503 module



**Display Console**  
for built-in application and remote installation either on wall or concealed on 503 module



**Display Console with humidity sensor**  
for remote installation either on wall or concealed on 503 module Infrared console for installation on the unit, for wall installation or built-in the wall installation, on 503 module



**Infrared Console**  
for built-in application and remote installation either on wall or concealed on 503 module



**Main card with modbus**  
for **EST** brushless units



**Display Console** for built-in application and remote installation either on wall or concealed on 503 module, for **EST** brushless units



**Display Console with humidity sensor**  
for remote installation either on wall or concealed on 503 module, for **EST** brushless units



# Supervision

## FOR SMALL SYSTEMS (recommended up to 10 units)



- Modbus/RTU protocol
- Different access levels (user/service/factory)
- Direct configuration of connected units
- Centralized operations
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily and weekly program
- Alarms management

MANAGER CONSOLE

## FOR MEDIUM SYSTEMS (recommended up to 100 units)

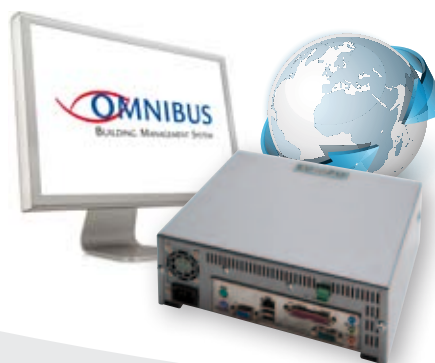


OTOUCH - TOUCH PANEL (PROVIDED WITH MODEM ON REQUEST)

### Same features as Console Manager, plus...

- 7 inches touch screen
- Optional modem for remote management via GSM
- Boiler room management (pumps, boiler, heat pump)
- Radiant systems management (mixing valves and manifolds)
- Scenarios management
- Multilanguage
- Several access levels available (user, service, administrator)
- Suitable for the most common web browsers
- Remote management via Internet

## FOR LARGE SYSTEMS (recommended up to 1000 units)



WEBSERVER WITH BUILT-IN ETHERNET CARD

### Same features as OTouch, plus...

- Suitable for connecting up to 8 lines of 128 units each
- LAN interface with TCP/IP protocol
- Available with touch screen interface
- LON converter



## Advantages

The highly innovative technology used in OMNIBUS ensures exclusive advantages on several fronts.

OMNIBUS is a wired-up system, designed for the highly rationalised installation and co-ordination of several terminal units: it only takes two wires to connect a POWER OMNIBUS master unit to a *slave*.

A WEB SERVER can be installed without using special programs,

OMNIBUS adapts to the most extreme management requirements: from **total centralisation** to **the highest levels of customisation of individual units**. The overall architecture of the system can be enhanced using solutions which feature sophisticated **home automation** for technical or administrative user profiles, and a wide range of local control options, which take into consideration the various sections and different functions inside a building,

Thanks to a CHECK SENSOR (available upon request), the Omnibus system can check if **all the terminal units are working properly**. OMNIBUS is able to highlight any breakdown in the system on each unit's own console.

Precision diagnostics allows targeted servicing and maintenance to be carried out, thereby reducing the relative management costs.

OMNIBUS enables an **all-inclusive energy-saving strategy** to be implemented, by:

- supervision and control of units provided with brushless motors and inverter (EST technology)
- suspending function when doors and windows are open
- ECONOMY function
- limiting of the room temperature that can be set by the user
- programmed reduction of the Set-Point values
- adjusting of the room Set-Point depending on the outside temperature

OMNIBUS is a dynamic system, open to the future; it is based on upgradable software compatible with standard management protocols, a large number of communication buses and can be integrated with several types of supervision technologies.

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