OMNIBUS

BUILDING MANAGEMENT SYSTEM

EURAPO

OMNIBUS
BUILDING MANAGEMENT SYSTEM

SUPERVISION AND CONTROL FOR HYDRONIC TERMINAL UNITS

- ❍ Smart design
- ❍ LCD display
- ❍ Humidity sensor
- ❍ Plug & Play connections
- ❍ Weekly and daily programs
- ❍ Flexible configuration
- ❍ Service tool available
- ❍ MODBUS RTU: free protocol
- ❍ ETHERNET (TCP/IP) compatibility
- ❍ LONWORKS® protocol compatibility
- ❍ Different access levels to the Building Manager System

EURAPO

The **OMNIBUS** Digital System is designed by EURAPO to fully regulate the water terminal units (such as fan coil units, water cassette units and high pressure ducted fan coil units) 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 Power box 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 box installed on the water terminal units can be connected to a Console (built-in the unit or for remote installation) and it is also connected to a centralized Building Management System:
- MANAGER OMNIBUS: Console from which it is possible to manage 40 Power box units
- SUPERVISION SYSTEM (SCADA) integration: RS-485 / TCP/IP converter or LONWORKS converter.
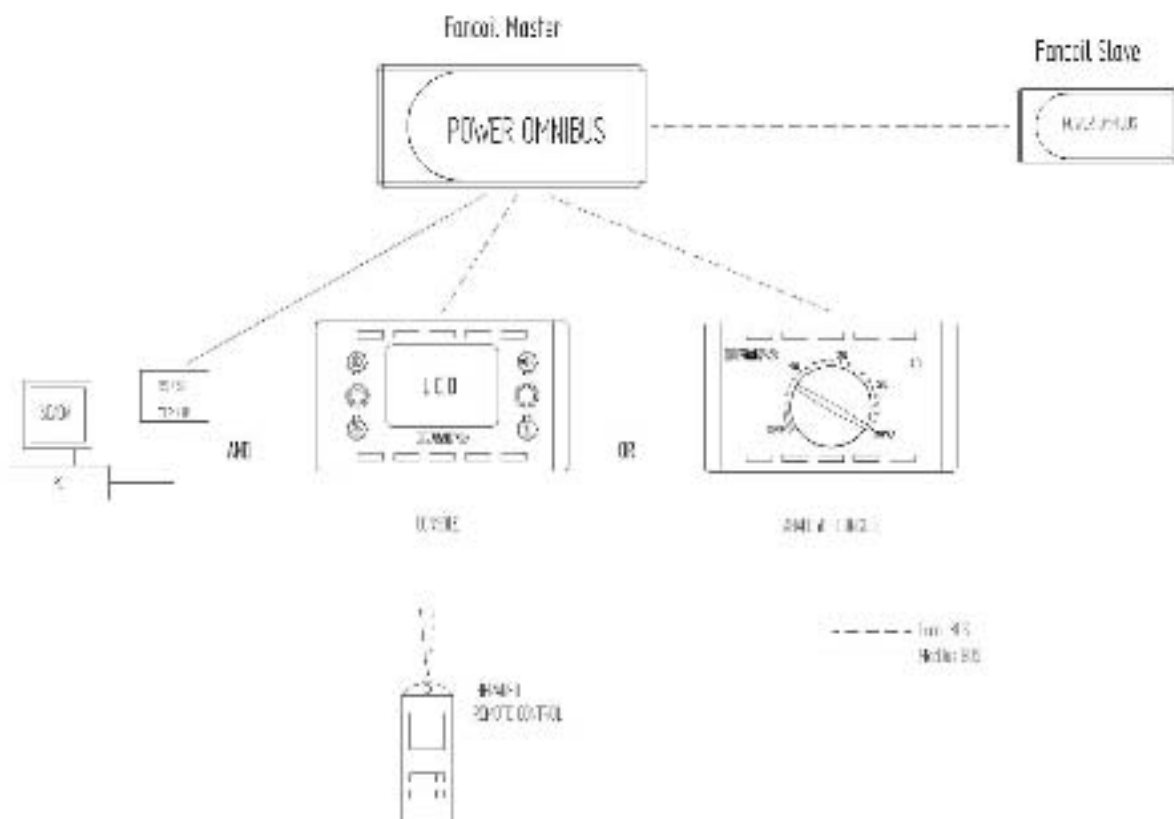
EVERY POWER BOX **OMNIBUS** CAN BE MANAGED EITHER BY A LCD CONSOLE, OR BY AN ANALOGUE CONSOLE OR BY A PERSONAL COMPUTER (ETHERNET CONNECTION)

POWER OMNIBUS

The **POWER OMNIBUS** regulator is composed by an electronic card contained on the electric box of the unit. The power supply of the electronic card (230V˜) is the same one of the water terminal unit and it can activate (directly) some loads compatible with the same tension.

The electronic card is provided with a 230/12V˜ transformer which gives supply to the electronic components of the card and to the OMNIBUS Console (if any). Furthermore the transformer permits to separate the net tension from the different inputs and outputs (digital and analogue ones) of the card.

For the **POWER OMNIBUS** electronic card EURAPO installed the most updated 32K memory microprocessor, flash technology, which allows to simultaneously manage analogue and digital Input/Output and also 2 serial ports (RS485 MODBUS and RS485 LOCALBUS).

The set-up parameters of the electronic card and the checking of Input/Output status can be easily carried out by a simple OMNIBUS DISPLAY CONSOLE and/or by the RS-485 Network, by using the standard MODBUS (RTU) protocol.

The **POWER OMNIBUS** card is provided with particular outputs for the connection of the accessory **"OMNIBUS MULTITASK"** card. The **"OMNIBUS MULTITASK"** card controls the following options:

- − motorized external air intake
- − auxiliary external fan
- − potential-free contact for malfunction
- − 24V on/off valves

POWER OMNIBUS CARD FITTED IN A STANDARD ELECTRIC BOX

IDENTIFICATION

The **POWER OMNIBUS** controller is suitable for the installation in every EURAPO unit and it is identified by two codes.

One code is composed by five figures (OPxxx) which identify the application and the components in the electric box of the unit.
The other code is composed by three figures (Setup yyy) which identify the functioning of the controller (ex. 2 or 4 pipe system, etc.).

EURAPO

Furthermore the **POWER OMNIBUS** has also a MODBUS ADDRESS in order to identify the controller and manage the unit through the RS485 net by the Building Management System.

The drawing below shows all the available contacts for the connection to the **POWER OMNIBUS** card.
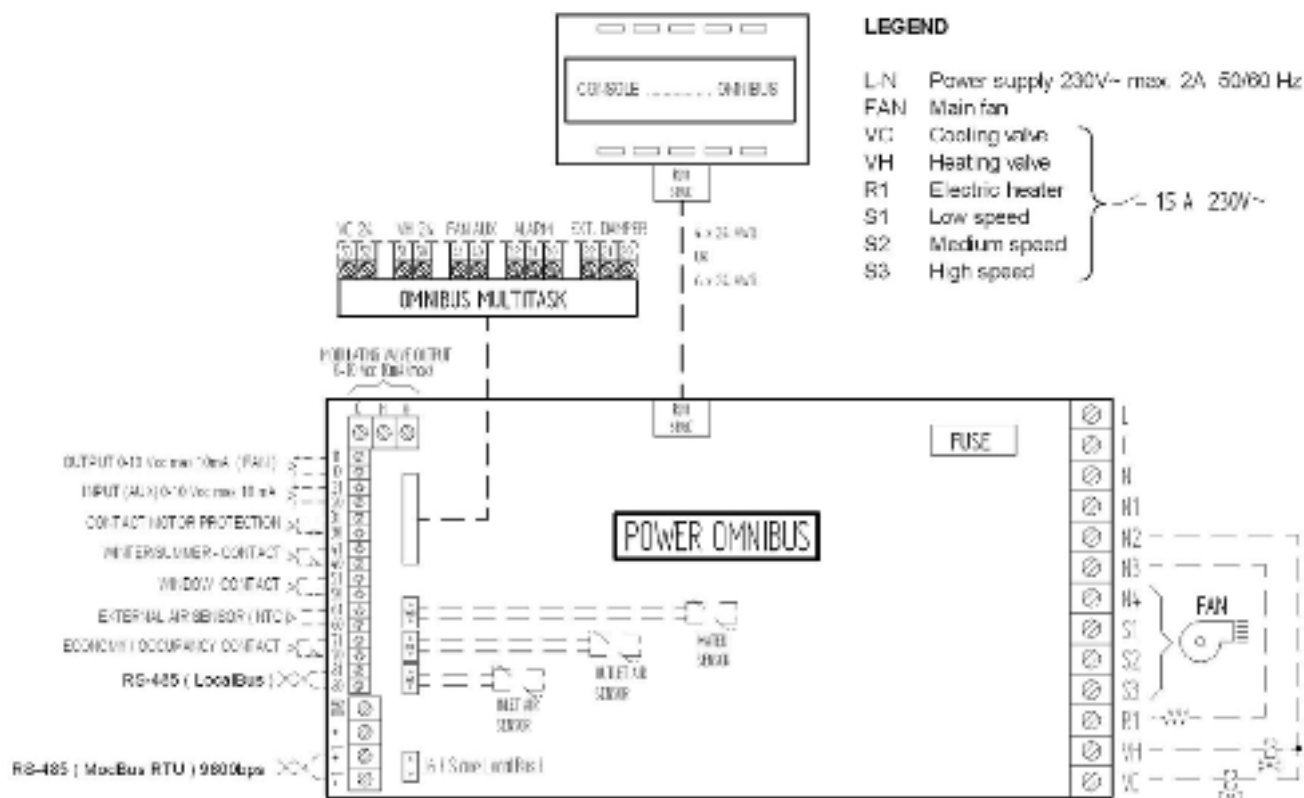
AVAILABLE CONTACTS FOR A **POWER OMNIBUS** CARD

REGULATING CONSOLE UNITS

DISPLAY CONSOLE

With this console it is possible to regulate all functions of the water terminal unit (set-point, fan speeds, etc.).

The **DISPLAY CONSOLE** permits to visualize and change the setup of all parameters of the unit and verify the status of Input/Output of the Power Omnibus: it becomes in this way an important instrument as a **Service Tool**.

The Console is connected to the Power Omnibus via phone cable (4 wires): through the phone cable it is energized and it exchanges information on the "LOCAL BUS" net.

The **DISPLAY CONSOLE** is provided with:
- graphic LCD for the visualisation of all parameters
- air temperature sensor
- room humidity sensor (optional upon request)
- Infrared Receiver in case of Infrared controller
- four buttons for setting the working parameters:
    - • Status: OFF-Comfort-Economy
    - • Fan mode: Low-Med-Max-Auto
    - • Mode: Cooling-Heating-Ventilation-Dry
    - • Set-point: desired room temperature

The **DISPLAY CONSOLE** is available in white and dark grey colour and it can be installed:
- on the wall
- built-in the fan coil unit
- built-in the wall, on a standard "503" electric box and combined with a proper frame (VIMAR, BITICINO and GEWISS type).

DISPLAY CONSOLE FOR "BUILT-IN THE WALL" INSTALLATION

DISPLAY CONSOLE FOR "WALL" INSTALLATION

DISPLAY CONSOLE INSTALLED ON A FAN COIL UNIT

DISPLAY CONSOLE INSTALLED ON A SPHERA FAN COIL UNIT

MANAGER CONSOLE

The **OMNIBUS MANAGER CONSOLE** is a Supervisor for small systems (max. 40 POWER OMNIBUS), connected via MODBUS RTU.

The **OMNIBUS MANAGER CONSOLE** includes the same features and functions of the DISPLAY CONSOLE and it can manage one or all of the units in the system at the same time (BROADCASTING).

The following parameters can be controlled: Status, Fan mode, Mode, Set-point.

The setup of all parameters and status of I/O of each one of the units connected to the **OMNIBUS MANAGER CONSOLE** can be managed from this Supervisor.

The **daily and weekly program** permits to personalize the starting and stopping of all units in the system accordingly to the specified time schedule.

When a **OMNIBUS MANAGER CONSOLE** is present, it is not possible to connect other MODBUS supervisors on the same net.
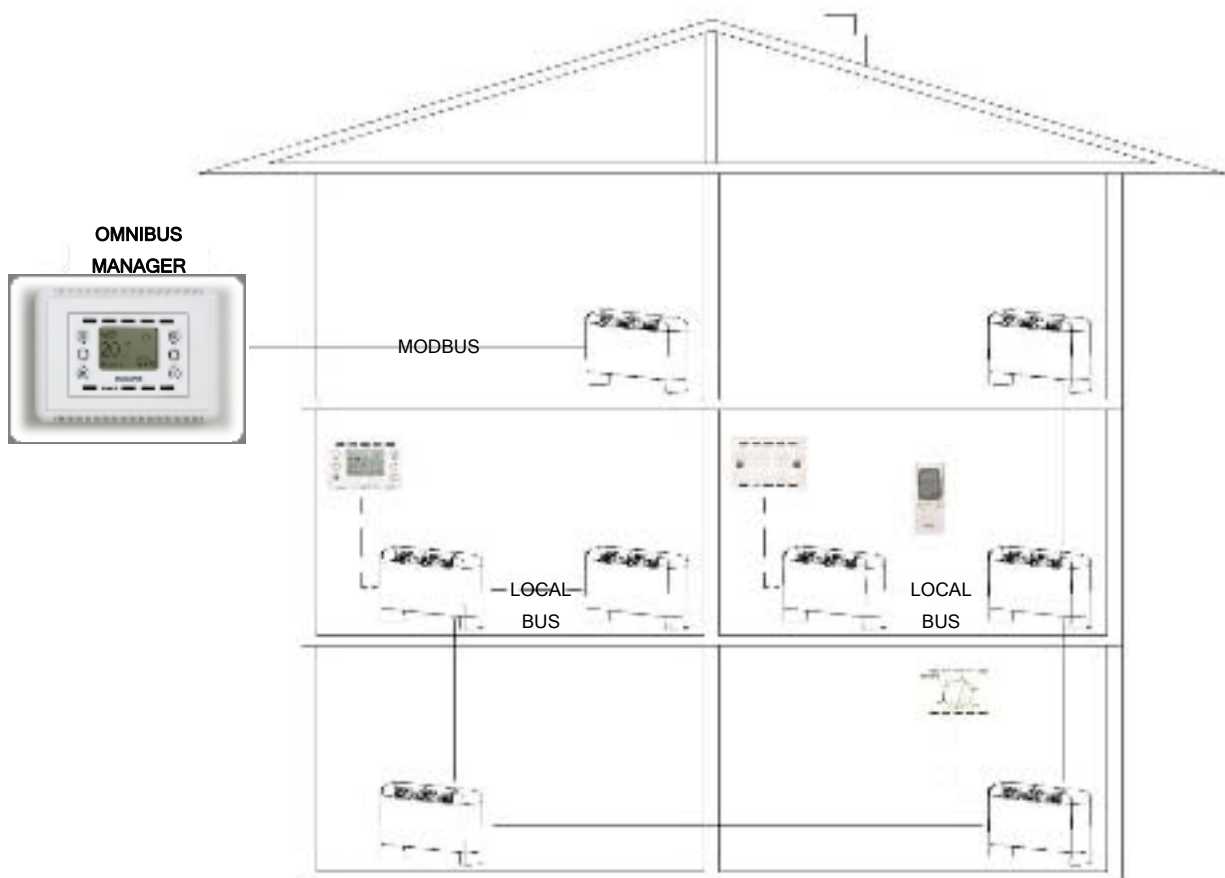
MANAGER CONSOLE SUPERVISION SYSTEM (MAX 40

ANALOGUE PLUS CONSOLE

The simple **ANALOGUE PLUS CONSOLE**
permits to modify the room temperature setpoint
and turn OFF the unit.
It is connected to the POWER OMNIBUS by a
phone cable (6 wires): through the phone cable it
is energized and it exchanges information.

The **ANALOGUE PLUS CONSOLE** is provided
with:

- one green LED which indicates the presence of
  power supply
- air temperature sensor
- room temperature knob and OFF position

The **ANALOGUE PLUS CONSOLE** is available
in white and dark grey colour and it can be
installed:

- on the wall
- built-in the fan coil unit
- built-in the wall, on a standard "503" electric
  box and combined with a proper frame
  (VIMAR, BITICINO and GEWISS type).

ANALOGUE PLUS CONSOLE INSTALLED ON A FAN COIL UNIT

ANALOGUE PLUS CONSOLE INSTALLED ON A SPHERA FAN

ANALOGUE PLUS CONSOLE FOR "BUILT-IN THE WALL"

ANALOGUE PLUS CONSOLE FOR "WALL" INSTALLATION

INFRARED CONTROLLER

The **INFRARED CONTROLLER** is provided with:

- IR transmitter
- LCD display for the visualisation of the main
  working parameters
- buttons for setting the main working
  parameters (Status, Fan mode, Mode, Set-
  point, Economy function)

The **INFRARED CONTROLLER** can
communicate with the different OMNIBUS
CONSOLES, except the ANALOGUE one.

![OMNIBUS BUILDING MANAGEMENT SYSTEM]
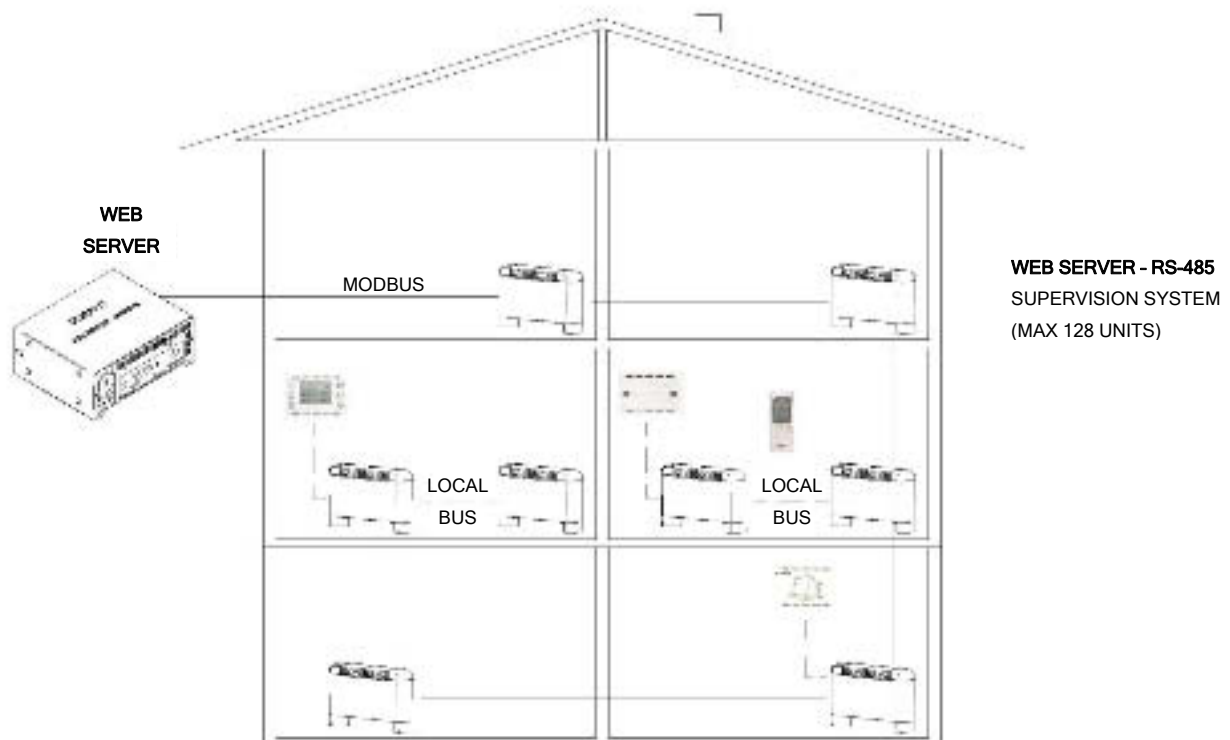
WEB SERVER

The **OMNIBUS** System offers the possibility to control and manage more than 1000 water terminal units (fan coil units, water cassette units, high pressure ducted fancoils) via INTRANET and/or INTERNET network.

This is possible thanks to the **OMNIBUS WEB SERVER OCB10**, a real computer dedicated to the EURAPO system, having the following technical features:

- compatibility with Internet Explorer 6.xx
- possibility to directly connect all the common peripheral devices : monitor, keyboard, printer, modem
- serial port RS-485 for the direct connection of all units equipped with a POWER OMNIBUS card; the connection is done via cable network, two twisted polarized wires
- RJ-45 plug for the Ethernet connection, TCP/IP protocol, by using a relevant **TCP/IP OMNIBUS CONVERTER**.
- pre-loaded software for the on-line managing of each water terminal unit
- possibility to connect up to 8 IP subnet
- every subnet can manage up to 128 regulator, for a total of more than 1000 units managed by the whole System
- different access levels (Administrator and User)
- supervision and control from a remote site, via an Internet connection (for Administrators only)

WEB SERVER

MODBUS

LOCAL BUS

LOCAL BUS

WEB SERVER – RS-485
SUPERVISION SYSTEM
(MAX 128 UNITS)

![EURAPO]

WEB SERVER - ETHERNET CONNECTION (TCP/IP)
(MORE THAN 1000 UNITS)
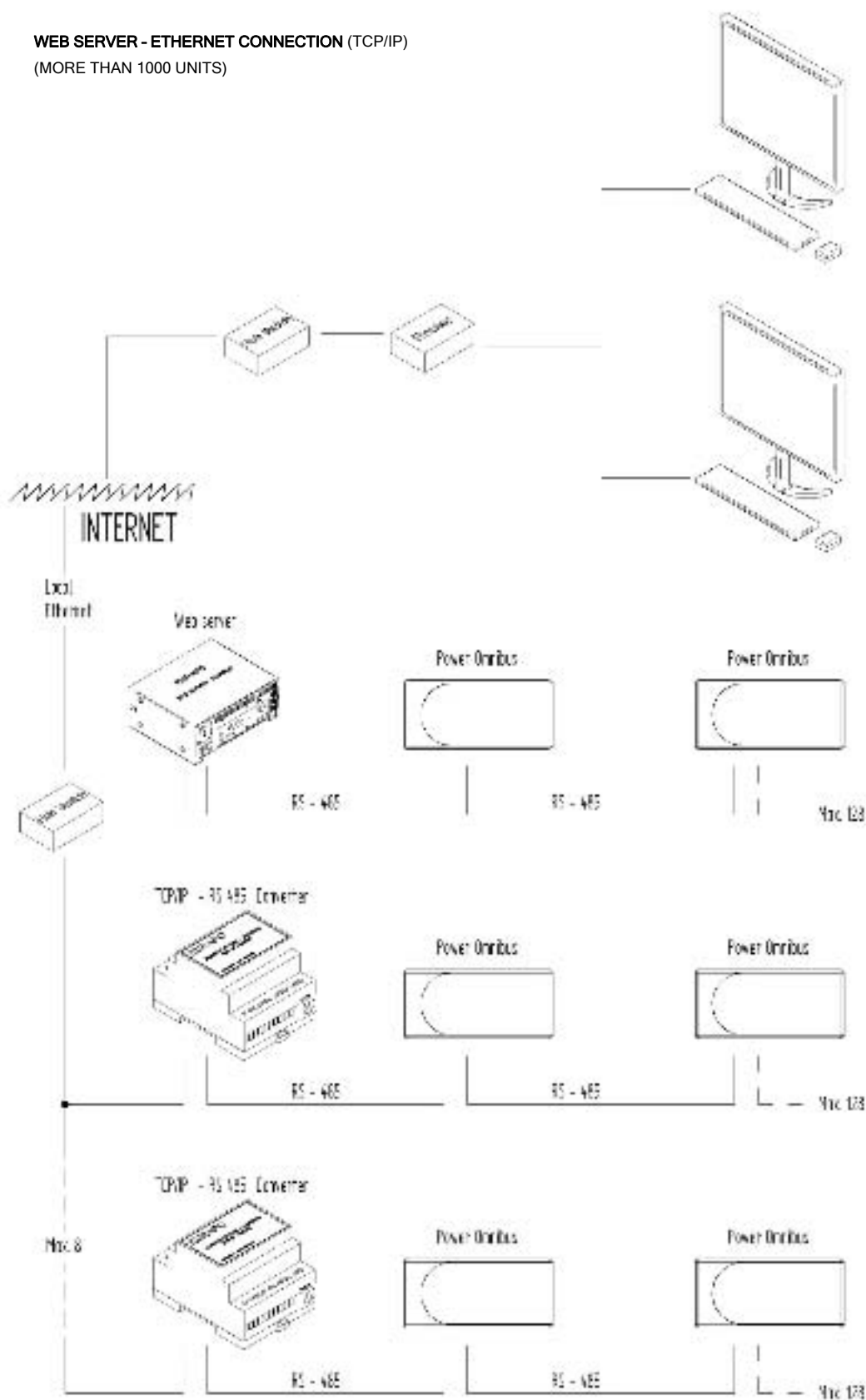
P RE - L OADED S OFTWARE : F EATURES

The software integrated in the OMNIBUS WEB SERVER permits to connect on the Ethernet network and to manage a complete system by using the Internet Explorer browser, the most popular software for Internet navigation, which is normally present on all the PCs having Microsoft Windows as operating system. By using Internet Explorer it is possible to navigate on the OCB10 Web Server like as in a web site.

With the EURAPO Software it is possible to set all parameters of the terminal units and to verify the operating status of every water terminal unit connected to the network.

The combination of the EURAPO **OMNIBUS WEB SERVER** and the free software INTERNET EXPLORER makes the **OMNIBUS SYSTEM** an open and friendly Supervision System.

The web technology used for the **OCB10** web server allows to have the same operating functions in case you have one of the following solutions:

- direct connection on the LAN net (INTRANET)
- remote connection by modem or router (INTERNET)
- private communication network or Internet

The **OMNIBUS SYSTEM** permit to open temporary working session: the OCB10 web server runs continuously the monitoring of the system, and all data are saved on its hard disk; after opening a PC connected to the net, it is possible to download the information and managed with Internet Explorer.

T IMER F UNCTION : D AILY , W EEKLY

It is possible to program the working mode for every single water terminal unit (or units).

Day / Week Program: 6 different working mode are available for every day (OFF, Comfort, Economy). Every program can be associated either to a single unit, or to a group of unit, or to the whole system.
It is also possible to set some specific programs for special days (holidays, weekends, ...): these programs will have higher priority than the ordinary ones.

Season Program: it is possible to set when the system will switch from Cooling and Heating operation.

C OMPLETE CONTROL OF A SINGLE WATER TERMINAL UNIT , BY USING A PC AND I NTERNET E XPLORER

Your Personal Computer can be used also as a remote controller for the water terminal unit (or units) in the room, without having a Display or Analogue Console. It is necessary to have an Internet Explorer browser and to be connected to the LAN network.

The water terminal unit (or units) must be equipped with a POWER OMNIBUS card and an air sensor and then connected to the LAN network.

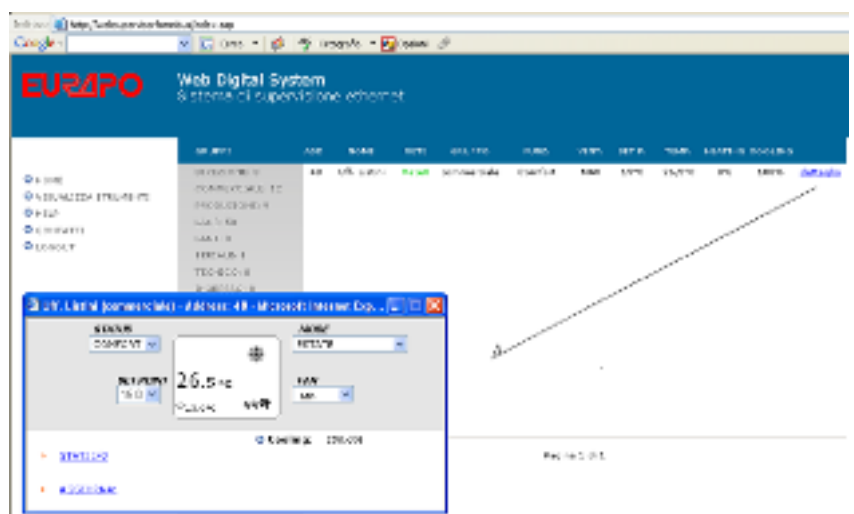The OMNIBUS WEBSERVER Administrator can define different levels of access to the units:

Normal profile: it is possible to manage one or more units in the system

Client profile: it is possible to manage only one unit (the client's unit) without having the possibility to see all the other units in the system.
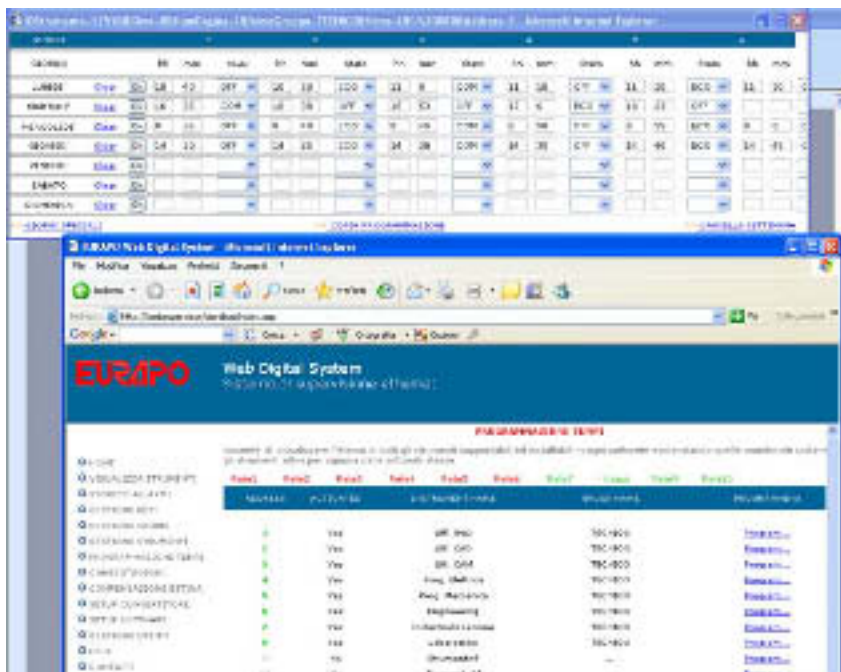
DAILY / WEEKLY
PROGRAMMING

PERSONAL COMPUTER
AS VIRTUAL CONSOLE

TECHNICAL FEATURES

Operating mode	Heating / Cooling / Dry / Ventilation
Temperature range for Cooling / Dry mode	10°C÷30°C
Heating mode	10°C÷30°C
Frost protection:	4°C
Basic internal timer	Weekly program with 6 ON/OFF / Economy cycles every day, for each unit or group of units
Blocking the Display Console	Some or all of the commands given by the OMNIBUS DISPLAY CONSOLE (if present) can be blocked by the Web Server
Room temperature measurement	The room temperature is indicated by the air sensor
Alarm visualisation	The type of Error is visualised, together with the address of the unit having a malfunction, date and time when the alarm occurred
Setup parameters	It is possible to set and/or modify the setup parameters of the POWER OMNIBUS control
Status of I/O	It is possible to visualise the status and the value of the input/output of the POWER OMNIBUS control
Network interface	− Ethernet RJ45 (Optional functions by using a computer and Internet Explorer) − RS-232 (for Modem or RS-485 converter) − RS-485 (for MODBUS with 128 slave units)
Maintenance Tool function	It is possible to connect the Maintenance Tool software directly to the supervisor, via Ethernet network
Administrator profile	General managing of the WEB browser, Setup of: Networks, TCP/IP converters, Instruments, Groups and User password
Service profile	General managing of the WEB browser, Setup of: Parameters, changeover, summer compensation, time programming, type of functioning, operating mode
Normal profile	Managing of one or more units via WEB browser, Setup of: parameters, time programming, type of functioning, operating mode.

LON CONVERTER OCB20

The **OCB20** converter permits to connect 10 water terminal units; it gives information about the units to the LON net and it receives information from the LON net.

WARNING

Each **OCB20** converter can be connected to max. 10 units (called **"Slave"**). Slave units, which must have a physical address from 1 to 10, are univocally combined to a LON node.

Every LON node can support the LONMARK functional profile by transmitting or receiving information via **snvtswitch** variables.

For each Slave unit connected to the LON node there are max 5 variables available: 3 of Status (they can be only visualized: fan speed, heating valve, cooling valve) and 2 for giving commands (Operating mode: OFF, Economy, Comfort; Set point temperature: 0-100°C).

TECHNICAL FEATURES

Power supply	100-240 Vac +10%, -15%, 50/60 Hz.
Absorption	30 VA
Hardware configuration	LON Interface (128 K Program memory, 64 K RAM and 84 K retain memory) + Serial module for the sub-net + Switching supply
Operating temperature and Dimensions	0..50 °C Pre-wired on a DIN bar having dimensions LxDxH 230x110x75 mm
Type of cable for the MODBUS sub-net	Shielded twisted pair, 0,28 mm diameter.
Type of cable for the LON net	Shielded twisted pair, according to LON specifications
Cabling distances with the LON net	500 meter free type, 2700 meter BUS type
Cabling distances with the MODBUS sub-net	1000 meter BUS type

EURAPO

CE