

Connectivity, a guide for
supervision

CAREL

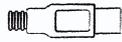


Integrated Control Solutions & Energy Savings

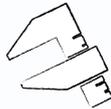
Plug&play, open and project-based HVAC/R supervision solutions



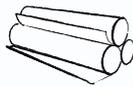
CAREL, leader in control solutions for HVAC/R, offers the market a range of solutions based on its profound knowledge of applications



Plug&play: compact and ready-to-use solutions;



Open: extensively customisable solutions;



Project-based: solutions made to measure for system supervision and monitoring

PlantVisorPRO local, PlantWatchPRO, Supernode, pCOWeb and the pCO sistema serial cards are the best products for managing all types of system (small, medium and large) and can provide all the functions required for continuous control, maintenance and commissioning of the units and the system as a whole.



PlantVisorPRO

PlantVisorPRO local: the CAREL PC-embedded supervisory system for the complete control (alarm management, commissioning, monitoring and energy saving) of medium-sized and large installations.



PlantWatchPRO

PlantWatchPRO: compact solution for monitoring small and medium-sized installations. The colour touch screen LCD displays all the information in a simple and intuitive manner.



pCOWeb

Supernode & pCOWeb: Supernode is a programmable controller for connectivity requirements that can manage high quantities of information and large numbers of connections to field devices and supervisory systems. pCOWeb is the serial card with Ethernet™ interface for connection to the most commonly-used BMS, over BACnet™, SNMP, Modbus® TCP/IP and CAREL RemoteVALUE.

Refrigeration and retail

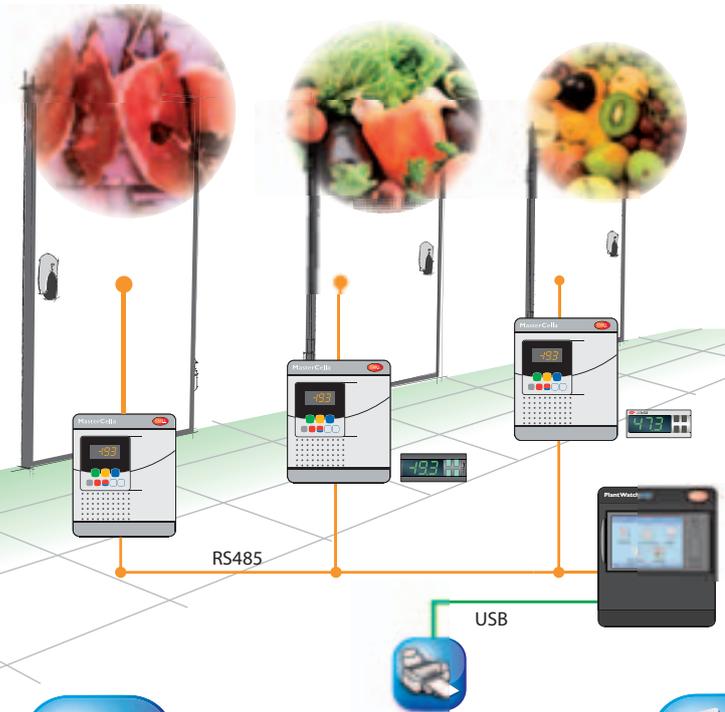
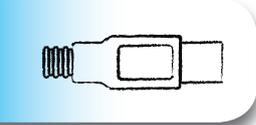
Cooling as seen from the outside



STORAGE

Food storage is a delicate process that, even in the simplest installations, requires complete and precise control over the main parameters (temperature and humidity). CAREL proposes a simple PC-free solution (also usable by non-specialists) for monitoring the installation from a single local access point or via a remote connection. PlantWatchPRO

also guarantees compliance with the HACCP standards by saving the critical system data and exporting reports in different formats.



touch

All the information is immediately available on the display, at a simple touch



HACCP

Alarm management and recording of critical data in accordance with the legislation in force



Alarm ma

Detection and not events, with remote i management of mai



CATERING

The catering business requires the integration of different types of devices. The CAREL solution, through the use of programmable controllers, offers customised management of the various units, plus a series of specific centralised services, such as:

- printing of reports;
- remote alarm management;
- centralised light control;
- management of scheduled activities;
- optimisation of energy consumption.



Management

Identification of all alarm interaction for efficient maintenance and service.



Reports

Printing and saving of reports on the HACCP data, blast chiller cycles, alarms,...



Integration

The flexibility of Supernode allows integration of field devices and centralised management of functions, such as lights. It optimises system operation by implementing strategies for distributing the loads, measuring power consumption by directly reading a power meter.

rack Controller and rack
for compressor racks

pCO sistema and application program
for air-conditioning

RS485

RS485

RS485

MasterCase³
for cold rooms and
display cabinets

RS485

MPXPRO
for cold rooms and
display cabinets

Synchro
wireless RS485
network connection

RS485

RS485

PlantWatchPRO
for the supervision of
small installations

PlantVisorPRO
for the supervision of
large installations

SUPERMARKETS

CONVENIENCE STORE

SERVICE STATIONS

CAREL
retail
sistema

the one solution

CAREL retail sistema is the solution for the large retail sector: dedicated approach that improves the overall management of the installation and brings savings in energy costs.

This solution can satisfy all requirements for the control, integration and supervision of the different functional areas involved in the generation and delivery of cooling for foodstuffs and the control of room air-conditioning.

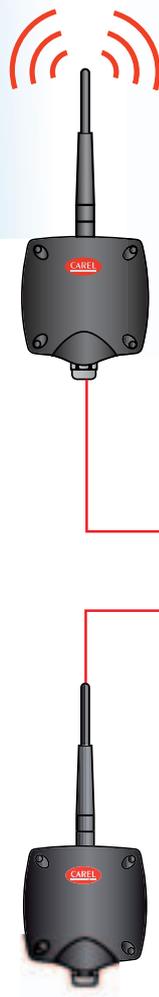
Centralised alarm management and maintenance:

The CAREL supervisory system can acquire alarm information, manage and schedule routine maintenance, both via local and remote connection.

Energy Saving

optimisation and monitoring of system performance: specific functions for increasing the efficiency of the installation (floating suction pressure) and for analysing any deviations from optimum operation (power consumption statistics).





rTM sistema



ZigBeeTM protocol



Flexibility

low-impact installation with less wiring, exploiting wireless technology and maintaining the existing control systems on the refrigeration units. Complete management of flexible spaces when rearranging the layout..



Graphs

creation of detailed and complete graphs on the chosen variable. The graphs are useful for analysis and diagnostics in the event of incorrect operation of the controlled devices. They also offer the possibility to check trends in the controlled values compared to predefined thresholds and set points.



WEB

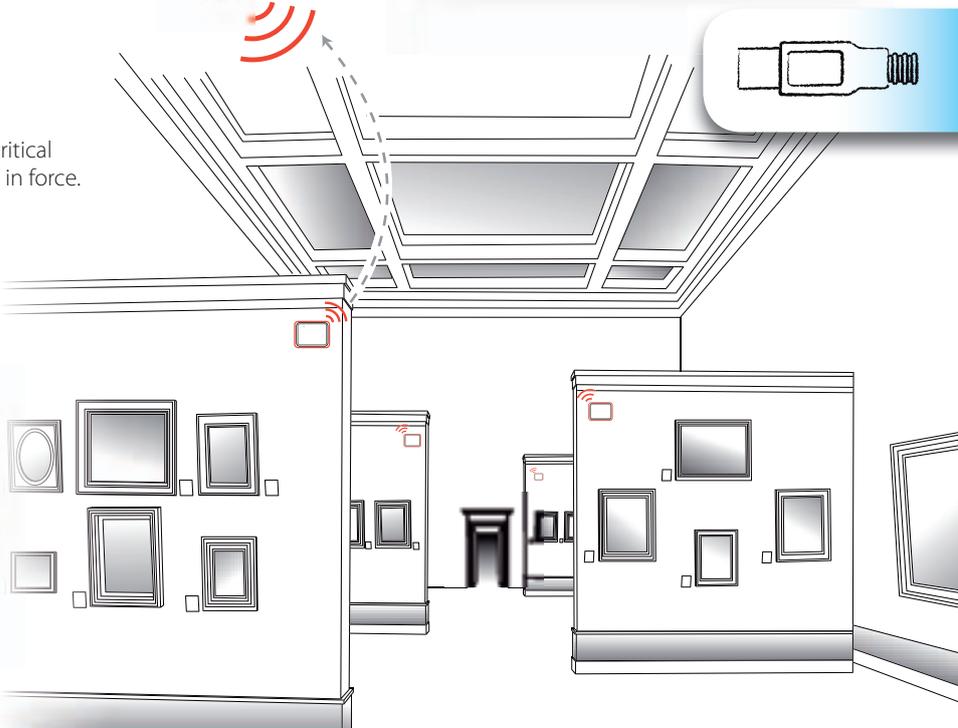
easily connectable to the Internet with its own IP address, plus web server function for direct access to the individual controllers via HTML pages.



HACCP

alarm management and recording of critical data in accordance with the legislation in force.

easy way sistema



Humidification

Continuous room humidity control

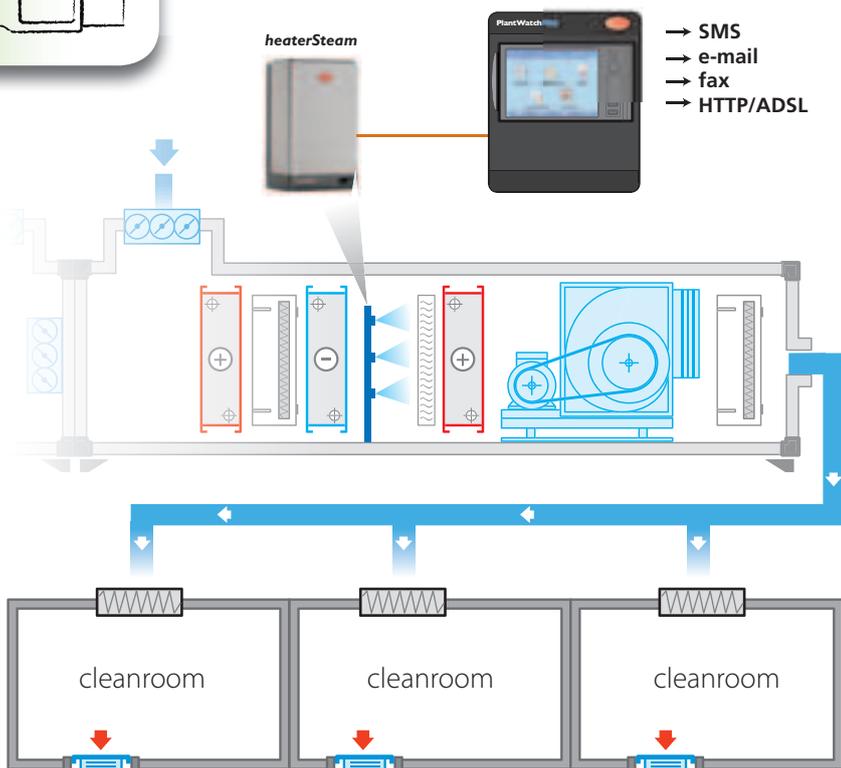


CLEAN ROOMS



Service

Periodical maintenance and service at the right time, with warnings sent by fax, SMS or e-mail



Relative humidity is one of the fundamental ambient parameters that defines the standard operating conditions of a cleanroom. Often the tolerances are very restricted. The following aspects in fact depend on the relative humidity:

- risk of electrostatic discharges,
- speed of chemical reactions,
- proliferation of biological contaminants,
- physical properties of many materials,
- personal comfort.

Continuous local and remote monitoring of the relative humidity helps organise specific service operations, bringing significant savings in time and money.



AIRPORTS



Humidity

monitoring of humidity, water conductivity and control over the main values (humidification %, ...)



Connectivity

possibility to connect to two supervisory systems at the same time. Integration of third party devices using the resident Modbus® protocol

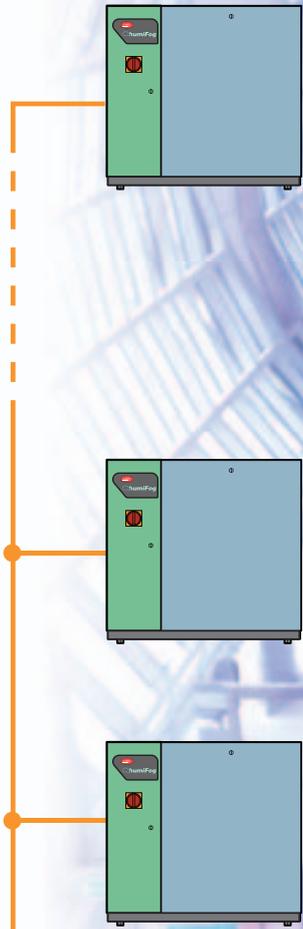


Commissioning

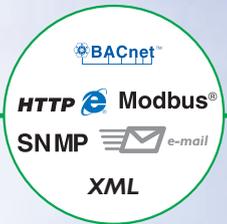
Initial configuration of the humidifiers from the same position



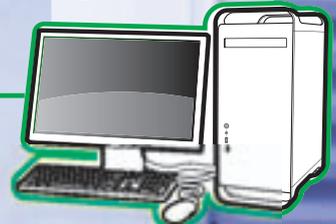
RS485



ethernet



Building Management System



Reports/alarms/graphs

Reports on the performance of system start-up and humidity production. Complete management of alarms and creation of detailed and complete graphs, with the possibility to plot multiple analogue (temperature and humidity) or digital (operating status) values at the same time. These are fundamental for analysis and diagnostics in the event of incorrect operation of the controlled devices.

Air-conditioning Comfort online



The connection of individual or multiple air-conditioning units to a supervisory system is no longer an extra, but rather a requirement.

CAREL, thanks to the serial connection versatility of its controllers and the protocols supported, can identify the most suitable connectivity solution for each specific need.

The programmability of Supernode allows

extensive customisation of the applications, and represents the single point of access for monitoring the entire installation, via a dedicated serial connection to the BMS (over the most commonly-used protocols in air-conditioning, such as BACnet™, SNMP, LON, Modbus® TCP/IP, KNX, TREND,...) plus a further connection for independent supervision by PlantVisorPRO.



FieldBus

Management of serial devices for the control of:

- HOT SPOT: wireless or serial probes for monitoring hot spots;
- CONDENSERS;
- EXTRA VENTILATION.



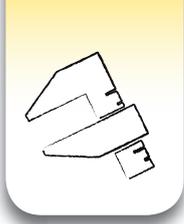
pLAN

multi master for sharing information, rotation strategies, average temperatures.

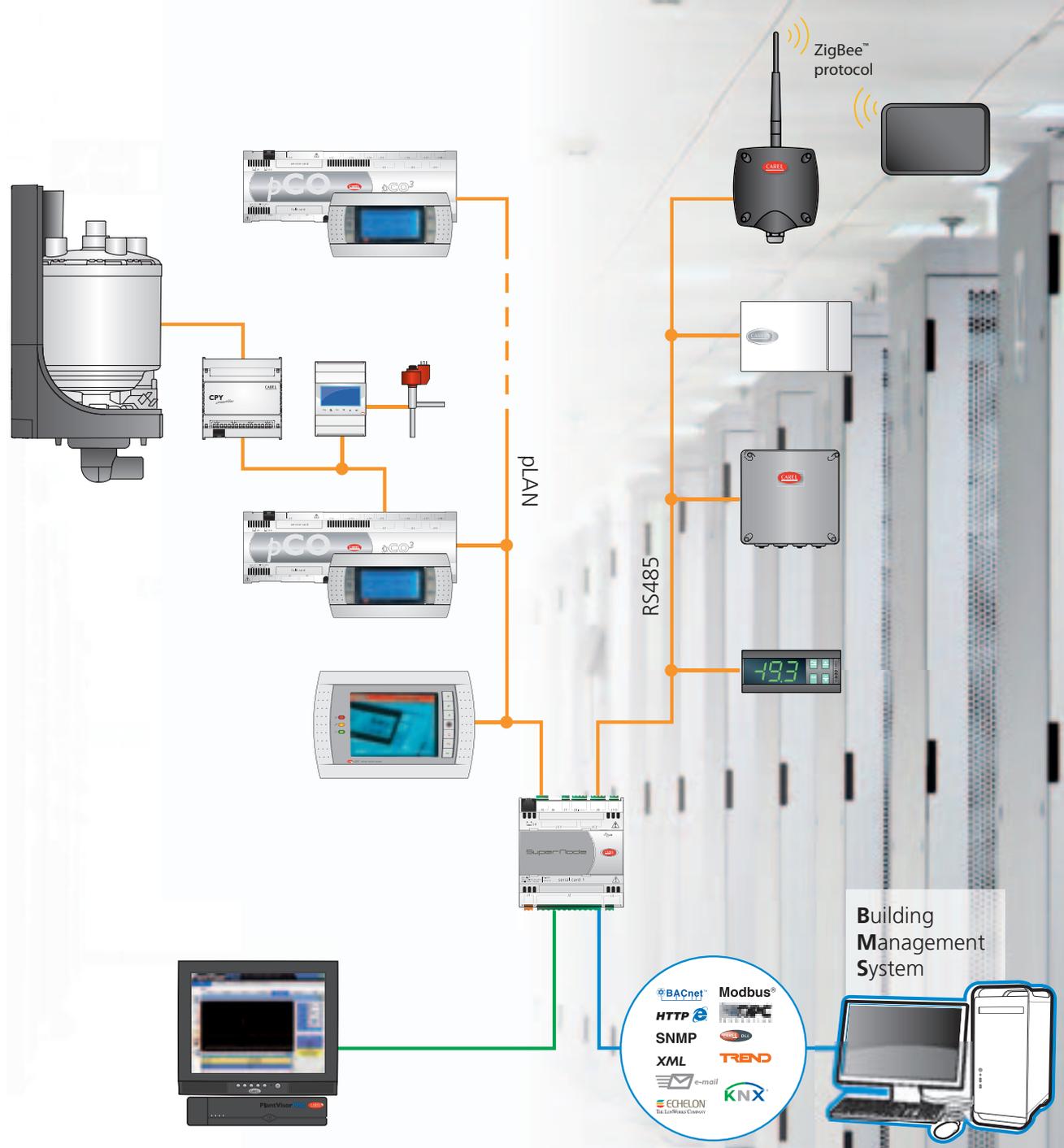


Area controller/overview

single access point for local monitoring and control of the main functions of the installation.



COMPUTER ROOMS



PlantVisor PRO

local supervision independent of the BMS for managing the air-conditioning units alone (alarms, configuration, reports,...).



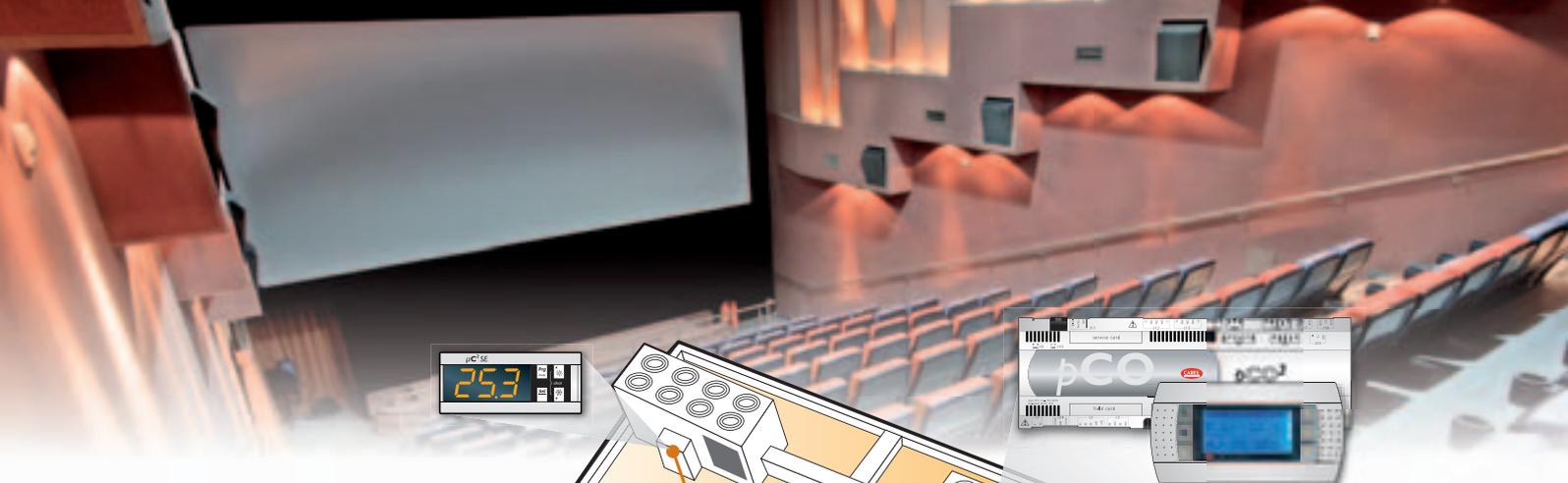
Building coordinator

lead leg management, data logging; integration of 3rd party devices; alarm management; programmability with 1Tool..

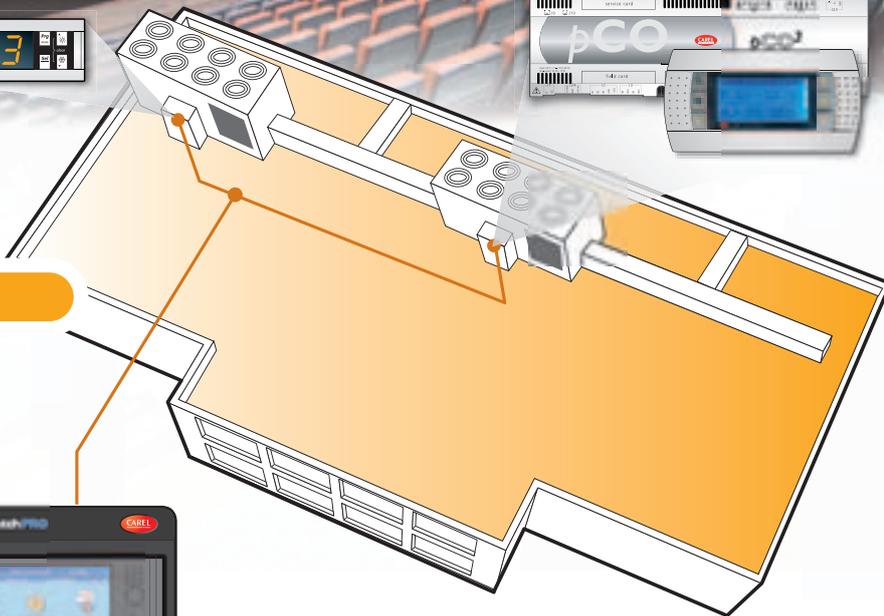


BMS

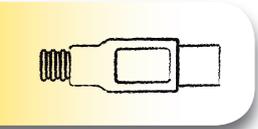
interoperability with the most commonly-used Building Management Systems (BACnet™, LON, Modbus®, TREND, Konnex, SNMP,...)



CINEMAS



- SMS
- e-mail
- fax
- HTTP/ADSL



Intuitive

simple and intuitive menus designed especially for use by non-specialist personnel..



touch

all the information is immediately available on the display, at a simple touch

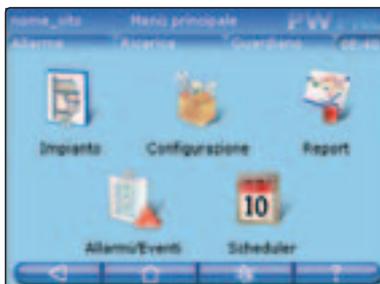
Alarms

complete management of alarm events and logging based on priority. Notifications and alarm messages sent to different users based on time bands.



service

The advantage of being immediately informed (SMS, fax, e-mail) and being able to resolve the problems via a remote connection, without having to go on site.



Graphs

creation of detailed and complete graphs on the chosen variable, to assist analysis and diagnostics in the event of incorrect operation of the controlled devices.



Defrost

management of sequential or scheduled defrosts



Parameter programmability

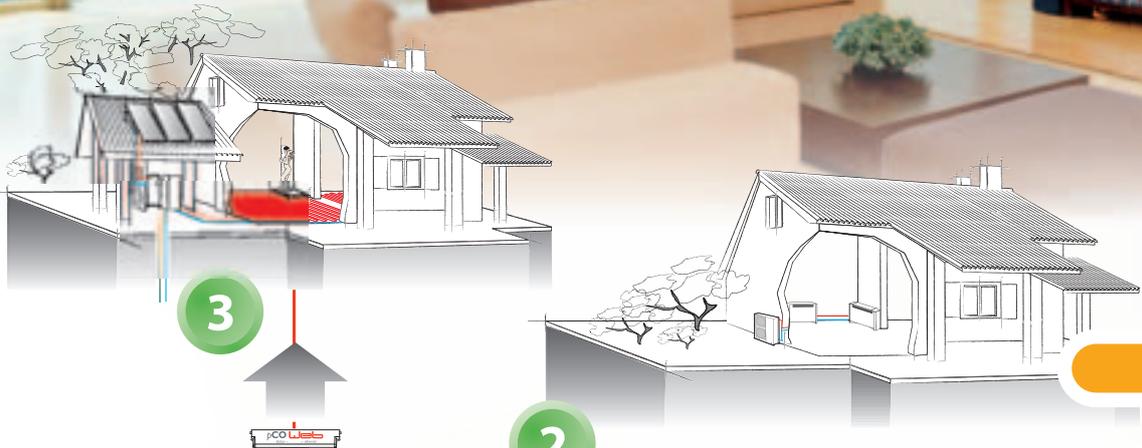
display and programmability of all the parameters relating to the individual units. Scheduling of time bands for routine and special events.



Optimised management

Centralised optimisation of restarts after blackouts, backup units,...





RESIDENTIAL

For heat pumps, CAREL proposes various standard solutions, including:

- "SMART HP", which integrates both management of the units (heat pump with domestic hot water production) and the system (up to 6 rooms and additional hot water appliances, such as solar collectors).
- "AREA CONTROLLER FOR HYDRONIC NETWORKS" to manage hydronic systems, made up of terminal units, chillers and heat pumps, and boilers, coordinating the various functions and optimising efficiency and power consumption.

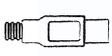
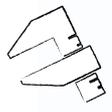
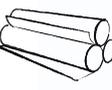


PlantVisorPRO
Remoto

HTTP
e-mail

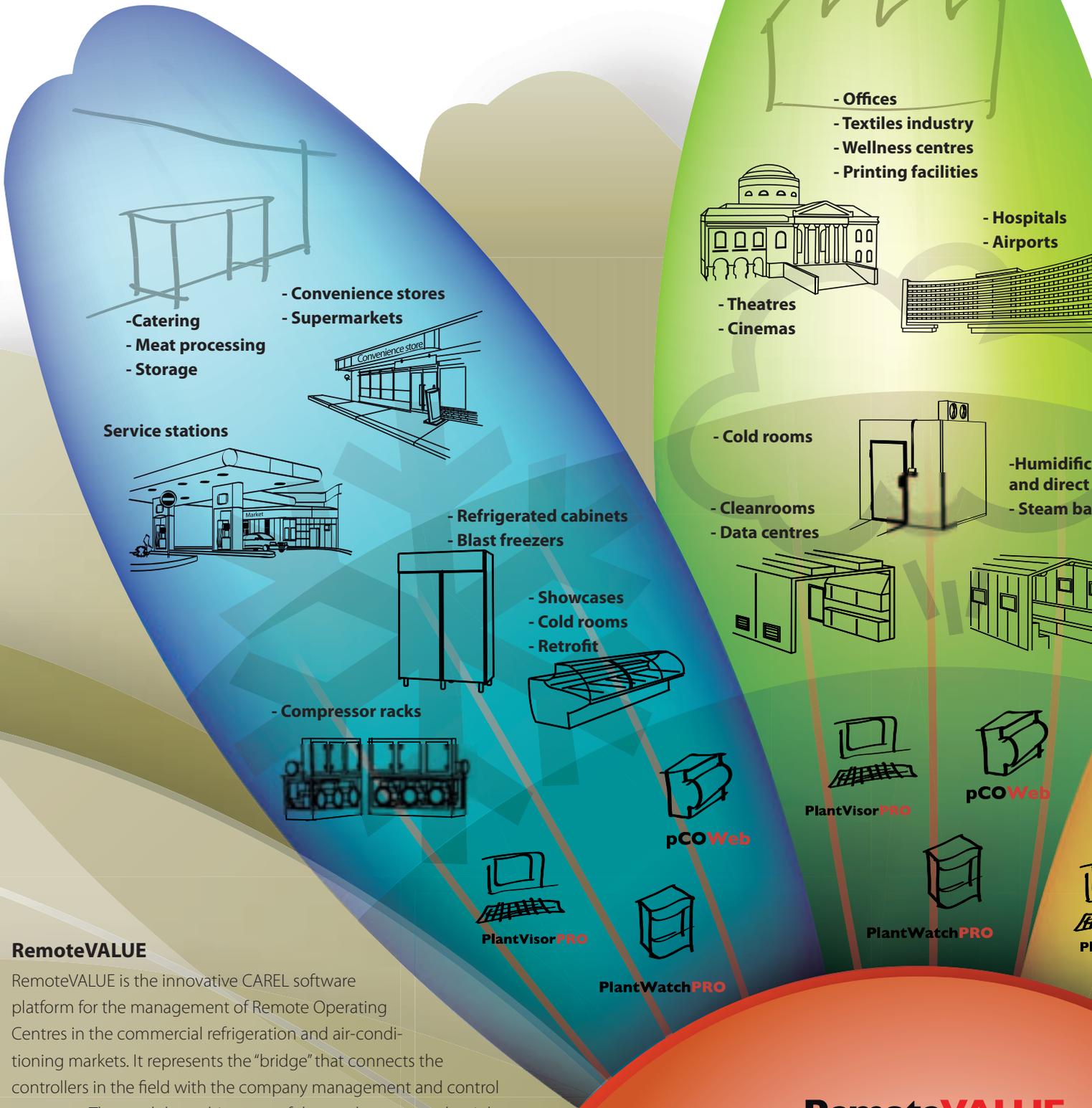
RemoteVALUE
Software for remote centre management

The flexibility of pCOWeb allows different remote connections for each type of user and/or solution:

-  • simple and direct supervision with direct access via HTML pages from any PC, plus event notification by e-mail;
-  • remote connection with PlantVisorPRO Remoto for managing several systems located in different geographical areas from one single position;
-  • RemoteVALUE for the connection of the various sites to a remote control centre.



The right choice for supervision



RemoteVALUE

RemoteVALUE is the innovative CAREL software platform for the management of Remote Operating Centres in the commercial refrigeration and air-conditioning markets. It represents the "bridge" that connects the controllers in the field with the company management and control processes. The modular architecture of the product means the right solution can be offered for every requirement.

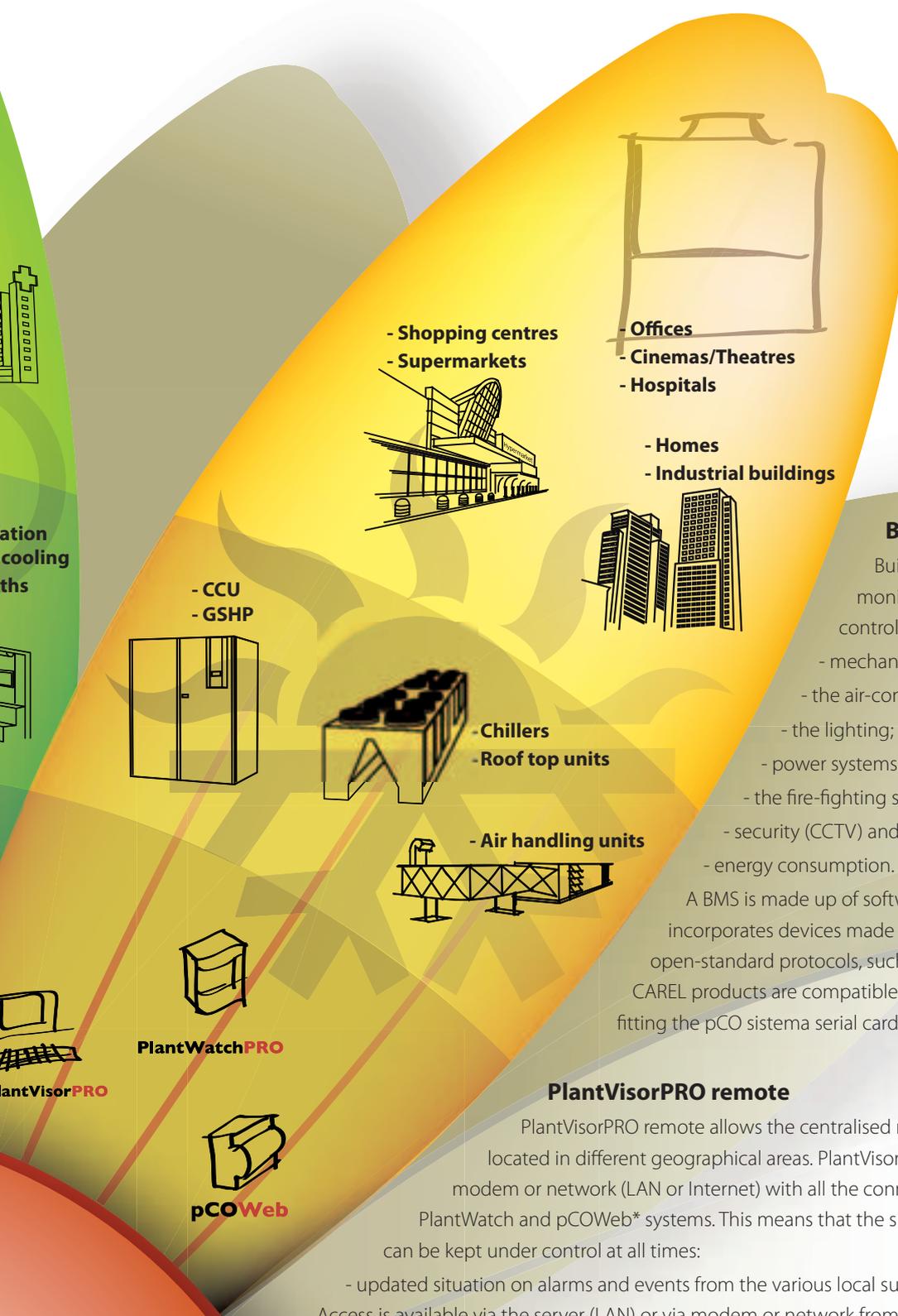
RemoteVALUE is an integrated solution that manages:

- maintenance and service;
- different connection technologies and users;
- geolocation of the sites;
- various types of updated reports;
- integration of third party devices into one system.

RemoteVALUE
Software for remote centre management

PlantVisorPRO
Remoto





- Shopping centres
- Supermarkets

- Offices
- Cinemas/Theatres
- Hospitals

- Homes
- Industrial buildings

- CCU
- GSHP

- Chillers
- Roof top units

- Air handling units

PlantWatchPRO

PlantVisorPRO

pCOWeb

BMS

Building Management System (BMS) is a monitoring system for large buildings that controls and manages:

- mechanical and electrical equipment;
- the air-conditioning;
- the lighting;
- power systems;
- the fire-fighting system;
- security (CCTV) and access systems;
- energy consumption.

A BMS is made up of software and hardware and usually incorporates devices made by different suppliers using Internet and open-standard protocols, such as BACnet™, Lon, Modbus®, KNX,...

CAREL products are compatible with the most commonly-used BMS, by fitting the pCO sistema serial cards.

PlantVisorPRO remote

PlantVisorPRO remote allows the centralised management of several systems located in different geographical areas. PlantVisorPRO remote synchronises via modem or network (LAN or Internet) with all the connected PlantVisorPRO local, PlantWatch and pCOWeb* systems. This means that the situation relating to all the systems can be kept under control at all times:

- updated situation on alarms and events from the various local supervisors, simply and immediately. Access is available via the server (LAN) or via modem or network from any PC running Internet Explorer®;
- view events, alarms and notes without having to be connected to the site. This leaves the telephone line free for other calls;
- quick updating of the recipients of the alarm messages. Simply add, remove or edit the recipients in the remote scheduler, without having to access each individual local supervisor.

* Function currently being developed, check availability in the PlantVisorPRO Remote technical specifications

Headquarters ITALY

CAREL S.p.A.

Via dell'Industria, 11 - 35020 Brugine - Padova (Italy)
Tel. (+39) 0499 716611 - Fax (+39) 0499 716600
carel@carel.com - www.carel.com

Sales organization

CAREL Asia

www.carel.com

CAREL Australia

www.carel.com.au

CAREL China

www.carel-china.com

CAREL South Africa

CAREL Controls S.A. (Pty)
www.carelcontrols.co.za

CAREL Deutschland

www.carel.de

CAREL France

www.carelfrence.fr

CAREL Ibérica

Automatización y Control ATROL S. L.
www.carel.es

CAREL India

CAREL ACR Systems India (Pvt) Ltd.
www.carel.in

CAREL Sud America

www.carel.com.br

CAREL U.K.

www.careluk.co.uk

CAREL U.S.A.

www.carelusa.com

Affiliates

CAREL Korea

www.carel.co.kr

CAREL Ireland

FarrahVale Controls & Electronics Ltd.
www.carel.com

CAREL Czech & Slovakia

CAREL spol. s r.o.
www.carel-cz.cz

CAREL Thailand

www.carel.co.th

CAREL Turkey

CFM Sogutma ve Otomasyon San. Tic. Ltd.
www.carel.com.tr